

COMMERCIAL VEHICLE SAFETY IN LOUISIANA

An Analysis of Truck Crashes for 2005

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Summary

In an effort to reduce the number and severity of crashes involving Commercial Motor Vehicles (CMV), the Louisiana State Police (LSP) reviews factors such as location, severity, time of day, day of week, violations, primary contributing factors, driver characteristics, carrier and type of truck, road conditions, highway type, and hazardous material involvement. From this, the LSP continues to develop strategies and methods designed to reduce the overall number and severity of CMV crashes. These strategies and methods include enforcement activities, the prompt reporting of road problems, and educating the public on the importance of safe driving. The following crash data and statistical information was calculated by the Department of Information Systems and Decision Sciences at Louisiana State University.

During 2005, the total number of all crashes in Louisiana decreased by 5.4% (-7,205) from 2004, but the total number of reported CMV crashes decreased by 21.3% 602 for the same time period. The total number of reported CMV crashes decreased from 2827 in 2004 to 2225 in 2005. The number of CMV injury crashes decreased from 1308 in 2004 to 983 in 2005, a decrease of 24.8%. The number of CMV fatal crashes decreased from 106 to 97, a decrease of 9 or 8.5%.

During 2005, 42% of all CMV crashes in Louisiana occurred on Interstates, 29% occurred on State highways, and 21% occurred on U.S. highways. In 2004, the respective percentages were 42%, 29%, and 21%. Hence, there was a significant shift in fatal crashes from US and LA routes to interstates.

For 2005, 13 % of all CMV crashes on interstates occurred in a work-zone (5% of fatal crashes, 12% of injury crashes and 13% of PDO crashes). These percentages for

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interstates only are 40% (all), 24% (fatal), 40% (injury), and 41% (pdo) when 5 miles are added before and after the work zone.

In 2005, of all CMV drivers in fatal crashes, 31% were cited for a violation. This accounted for 37% of all citations written in fatal CMV crashes (63% of all citations were given to the non commercial vehicle drivers). In injury and property damage crashes, the driver of the CMV was cited for a violation 52% and 47% of the time, respectively. In 2005, careless operation accounts for the majority of violations committed in association with commercial vehicle crashes at a rate of 46.2%. Other violations with relatively high occurrence rates were following too closely at 13.3% and failure to yield at 12.6%.

The manners of collision most common in CMV crashes were rear-end-type at a rate of 31% and non-collision type (single vehicle crashes) at 22%. In fatal crashes, the most common manners of collision were rear-end collisions at a rate of 30%, right angle type collisions of 18%, and head-on type collisions at 16%.

This data indicates the need for continued special attention to traffic enforcement in specific areas for both the CMV operators and the drivers of passenger vehicles. As well, a continued public education posture is appropriate.

Overview

Table 1 shows the CMV crashes from 2000 to 2005.

Table 1: CMV Crashes 2000-2005

Year	CMV Crashes				All crashes				% CMV			
	Fatal	Injury	PDO	Total CMV	Fatal	Injury	PDO	Total	Fatal	Injury	PDO	Total
2000	107	1344	880	2331	846	48,300	108,700	157,846	13%	2.8%	0.8%	1.5%
2001	126	1377	1136	2639	859	48,700	109,200	158,759	15%	2.8%	1.0%	1.7%
2002	101	990	1002	2093	818	50,900	114,900	166,618	12%	1.9%	0.9%	1.3%
2003	120	1301	1287	2708	826	48,700	111,400	160,926	15%	2.7%	1.2%	1.7%
2004	106	1308	1413	2827	886	50,100	113,400	164,442	12%	2.6%	1.2%	1.7%
2005	97	983	1145	2225	867	49,000	107,300	157,167	11%	2.0%	1.1%	1.4%

Figure 1: CMV Crashes 2000-2005

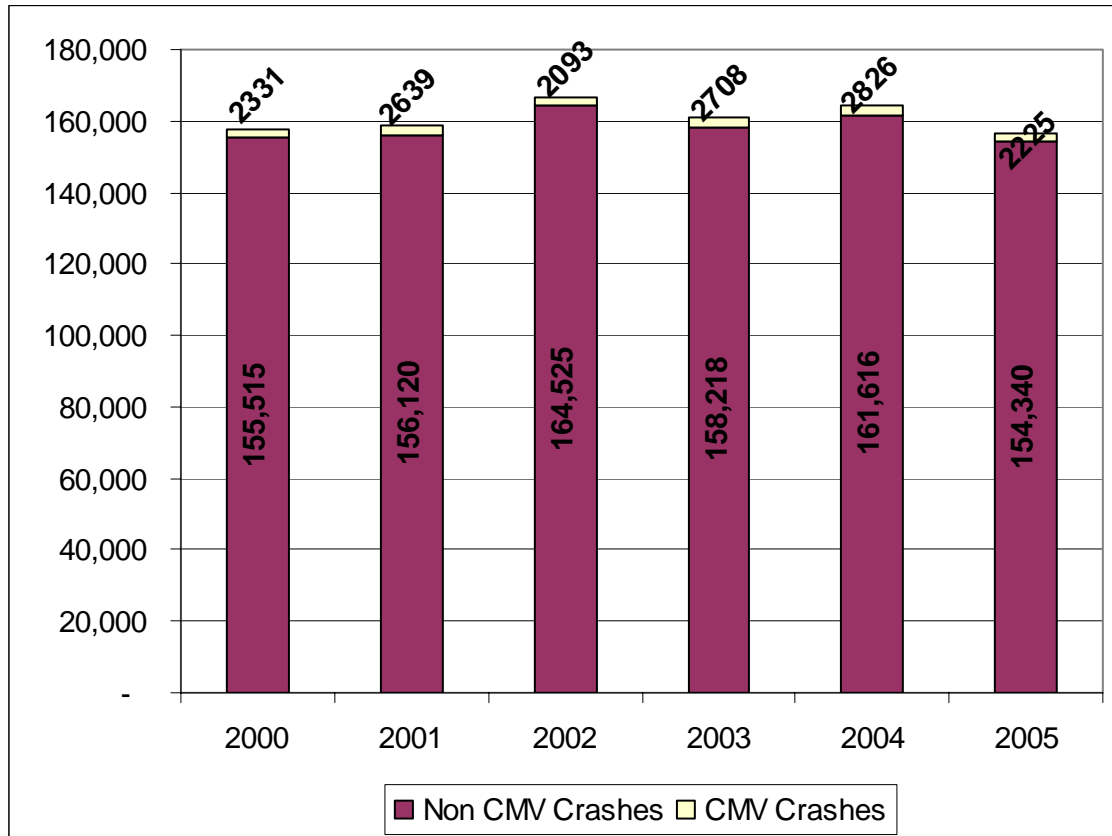


Figure 2: CMV Crashes by Severity: 2000-2005

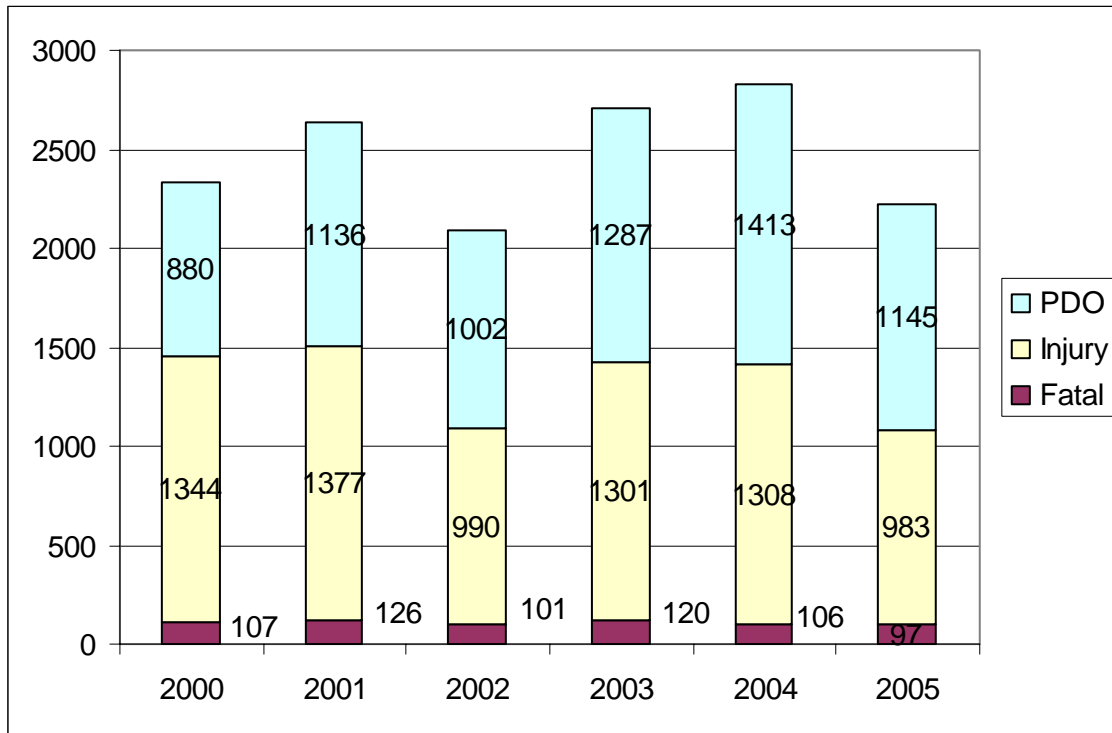


Figure 3: CMV and Non-CMV Crashes: 2000-2005

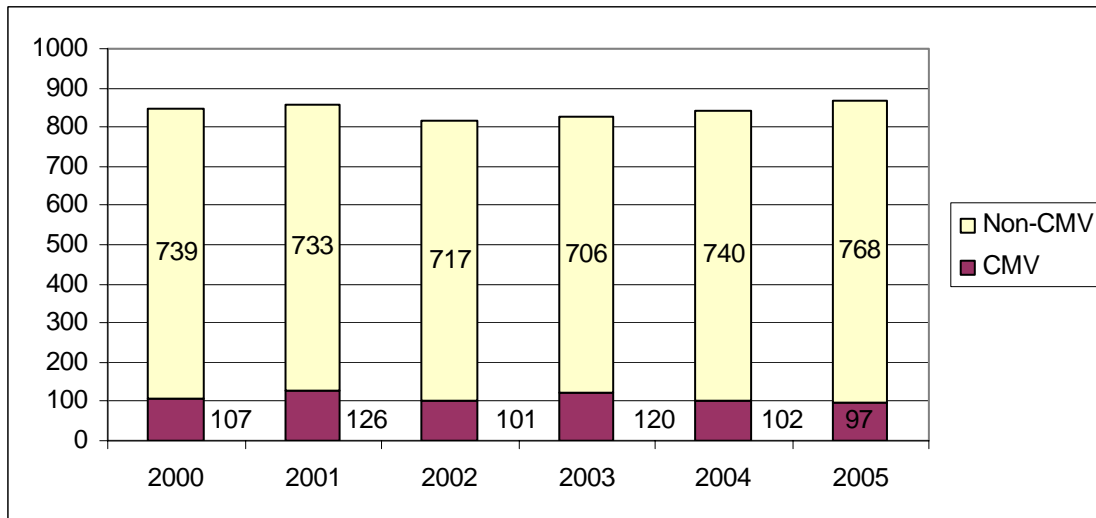


Figure 4: Fatal CMV Crashes by Year: 2000-2005

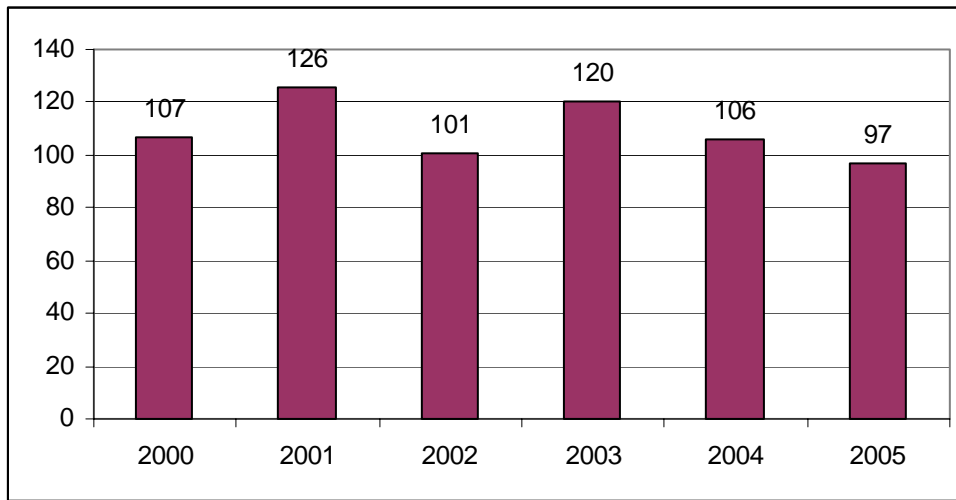
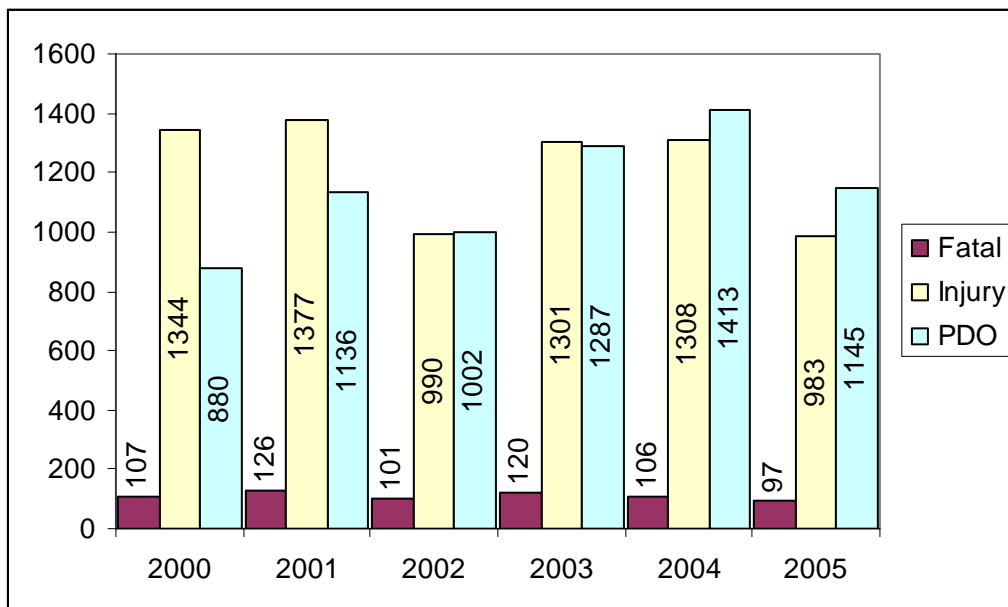


Figure 5: CMV Crashes by Severity: 2000-2005



Due to a steady increase in traffic over the years, the numbers are often adjusted by the vehicle miles traveled (VMT). The vehicle miles traveled for Louisiana were obtained from <http://ai.volpe.dot.gov/CrashProfile/vmtreport5.asp>. However, since 2005

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data were not posted at this time, the VMT for 2005 were estimated using linear regression.

Table 2: CMV and all Crashes 2001-2005 per 100 Million Miles Traveled

Year	CMV Crashes				All crashes			
	Fatal	Injury	PDO	Total CMV	Fatal	Injury	PDO	Total
2001	2.8	31	25	59	2.1	118	265	385
2002	2.1	21	21	44	1.9	118	265	385
2003	2.4	27	26	55	1.9	110	252	364
2004	2.1	26	28	56	2.0	113	255	370
2005	1.9	19	22	43	1.9	110	241	353

(Note: VMT: <http://ai.volpe.dot.gov/CrashProfile/vmtreport5>.)

2005 Analysis of Crashes

Crashes by Months

Table 3 shows the CMV crashes for 2005 by months.

Table 3: CMV Crashes by Month

MONTH	FATAL CRASHES	TOTAL KILLED	INJURY CRASHES	PDO	TOTAL CRASHES	TOTAL TRUCKS AND BUSES	% CRASHES
JANUARY	9	12	85	110	204	214	9.0%
FEBRUARY	7	9	70	77	154	165	7.0%
MARCH	11	13	77	112	200	216	9.0%
APRIL	7	8	82	98	187	199	8.0%
MAY	4	4	90	83	177	189	8.0%
JUNE	5	6	91	103	199	202	9.0%
JULY	7	7	96	84	187	194	8.0%
AUGUST	5	5	75	93	173	187	8.0%
SEPTEMBER	11	17	76	98	185	205	8.0%
OCTOBER	14	15	107	129	250	273	11.0%
NOVEMBER	12	13	85	85	182	203	8.0%
DECEMBER	5	5	49	73	127	137	6.0%
TOTAL	97	114	983	1145	2225	2384	100%

Violations

Table 4 shows the violations as a percentage of drivers. For instance, in 2005, of all CMV drivers in fatal crashes, 31% were cited for a violation. This accounted for 37% of all citations written in fatal CMV crashes (63% of all citations were given to the non commercial vehicle driver). In injury and property damage crashes, the driver of the CMV was cited for a violation 52% and 47% of the time, respectively. In 2005, careless operation accounts for the majority of violations committed in association with commercial vehicle crashes at a rate of 46.2%. Other violations with relatively high occurrence rates were following too closely at 13.3% and failure to yield at 12.6%.

Table 4: Violations as Percentage of Drivers and Percent of all Violations

As Percentage of Truck/Car Drivers	VIOLATIONS	FATAL CRASHES		INJURY CRASHES		PDO		TOTAL CRASHES	
		Truck Driver	Passenger Car Driver	Truck Driver	Passenger Car Driver	Truck Driver	Passenger Car Driver	Truck Driver	Passenger Car Driver
	2001	29%	64%	57%	49%	57%	51%	55%	50%
	2002	32%	68%	54%	46%	54%	46%	53%	47%
	2004	32%	68%	55%	45%	57%	43%	55%	45%
	2004	34%	54%	54%	50%	52%	55%	52%	52%
	2005	31%	47%	52%	44%	47%	50%	49%	47%
As Percentage of Violations	VIOLATIONS	FATAL CRASHES		INJURY CRASHES		PDO		TOTAL CRASHES	
		Truck Driver	Passenger Car Driver	Truck Driver	Passenger Car Driver	Truck Driver	Passenger Car Driver	Truck Driver	Passenger Car Driver
	2001	31%	69%	50%	50%	53%	47%	51%	49%
	2002	32%	68%	54%	46%	54%	46%	53%	47%
	2003	32%	68%	55%	45%	57%	43%	55%	45%
	2004	36%	64%	54%	46%	55%	45%	54%	46%
	2005	37%	63%	39%	61%	40%	60%	39%	61%

Figure 6: CMV and Non-CMV Driver Violations: 2000-2005

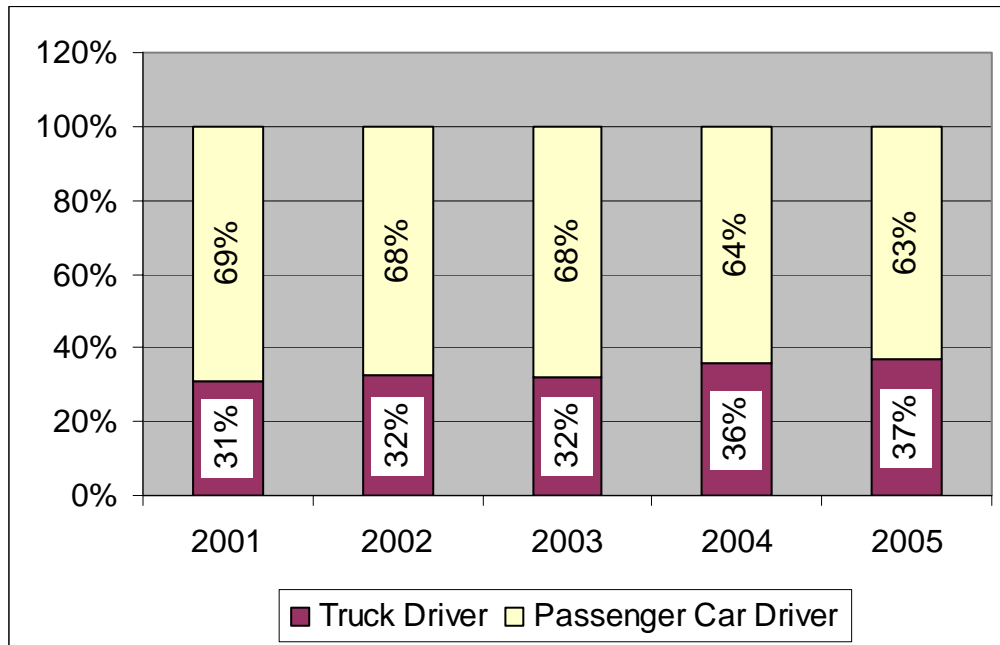


Table 5: Type of Violation of CMV Driver

VIOLATIONS	FATAL CRASHES		INJURY CRASHES		PDO		TOTAL CRASHES	
	CMV Driver	Non-CMV Driver	CMV Driver	Non-CMV Driver	CMV Driver	Non-CMV Driver	CMV Driver	Non-CMV Driver
NOT REPORTED	3	5	2	13	8	18	13	36
OVER STATED SPEED LMT	0	0	1	5	2	2	3	8
OVER SAFE SPEED LIMIT	0	0	13	9	14	6	27	15
FAILURE TO YIELD	8	6	68	164	59	121	135	292
FOLLOWING TOO CLOSELY	2	2	67	74	73	91	142	167
DRIVING LEFT OF CENTER	2	9	8	27	7	22	17	61
CUT IN/IMPROPER PASS	0	0	13	29	17	31	30	61
FAILURE TO SIGNAL	0	0	0	1	0	3	0	4
MADE WIDE RIGHT TURN	0	0	9	5	9	4	18	9
CUT CORNER ON LFT TURN	0	0	1	2	3	4	4	6
TURNUED FROM WRONG LANE	0	0	7	13	9	9	16	22
OTHER IMPROPER TURNING	1	0	15	11	9	18	25	30
DISREGARDED TRAF CNTL	2	5	18	64	19	51	39	123
IMPROPER STARTING	0	0	0	0	0	1	0	1
IMPROPER PARKING	4	0	2	6	6	6	12	12
NO FLAGS/FLARES USED	0	0	2	2	0	0	2	2
FAILED TO DIM HEADLTS	0	0	0	0	0	1	0	1
VEHICLE CONDITION	1	2	9	10	33	29	43	41
DRIVER CONDITION	1	3	14	49	10	34	25	86
CARELESS OPERATION	8	22	237	280	249	355	494	663
UNKNOWN VIOLATION	0	0	8	12	16	12	24	24
NO VIOLATION	70	62	458	976	601	802	1129	1855
OTHER	0	0	0	0	0	0	0	0
TOTAL VIOLATION	32	54	494	776	543	818	1069	1664
COLUMN % OF VIOLATIONS IN CRASH	31%	47%	52%	44%	47%	50%	49%	47%
ROW % OF VIOLATIONS IN CRASH	37%	63%	39%	61%	40%	60%	39%	61%

Manner of Collision

Table 6 shows the manner of collision. “Head-on”, “right angle”, and “rear-end” collisions make up 62% of all fatal CMV crashes.

Table 6: Manner of Collision

MANNER OF COLLISION	FATAL CRASHES		INJURY CRASHES		PDO	
	Count	Percentage	Count	Percentage	Count	Percentage
HEAD-ON	15	16%	19	2%	8	1%
LEFT TURN - ANGLE	0	0%	28	3%	23	2%
LEFT TURN - OPPOSITE DIRECTION	0	0%	20	2%	13	1%
LEFT TURN - SAME DIRECTION	0	0%	7	1%	15	1%
NON-COLLISION WITH MOTOR VEHICLE	9	10%	171	19%	287	27%
OTHER	16	16%	140	14%	158	14%
REAR END	28	30%	291	31%	336	31%
RIGHT ANGLE	17	18%	157	17%	100	9%
RIGHT TURN - OPPOSITE DIRECTION	0	0%	3	0%	5	1%
RIGHT TURN - SAME DIRECTION	1	1%	13	1%	5	1%
SIDESWIPE - OPPOSITE DIRECTION	6	6%	31	3%	21	2%
SIDESWIPE - SAME DIRECTION	5	5%	103	11%	174	16%
TOTAL	97	100%	983	100%	1145	100%

Interstate Corridors

There are two main corridors, (1) the Interstate 10/12 corridor in south Louisiana from the Texas state line to the Mississippi state line and (2) the Interstate 20 corridor in north Louisiana from the Texas border to the Mississippi border. Both corridors have significant interstate traffic.

Interstate 10/12 Corridor

The Interstate 10 corridor includes 16 parishes. These parishes along Interstates 10 and 12 accounted for over half of all truck crashes in the past three years. The corridor includes the Louisiana Interstates 10, 110, 210, 310, 610, 12, 55, 59 and parts of Interstate 49 as shown in Figure 7. The major US Highways along the corridor are US 90, 190 and 61.

Figure 7: Interstate 10 Corridor

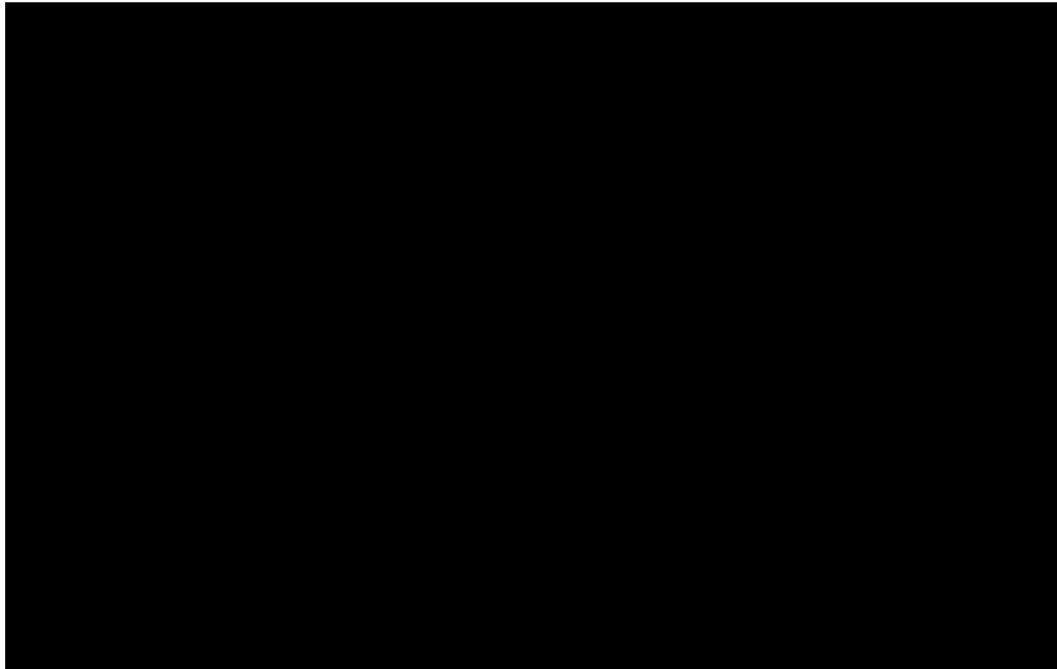


Figure 8 shows the frequency of commercial truck crashes for 2005 by milepost on interstate 10.

Figure 8: Interstate 10

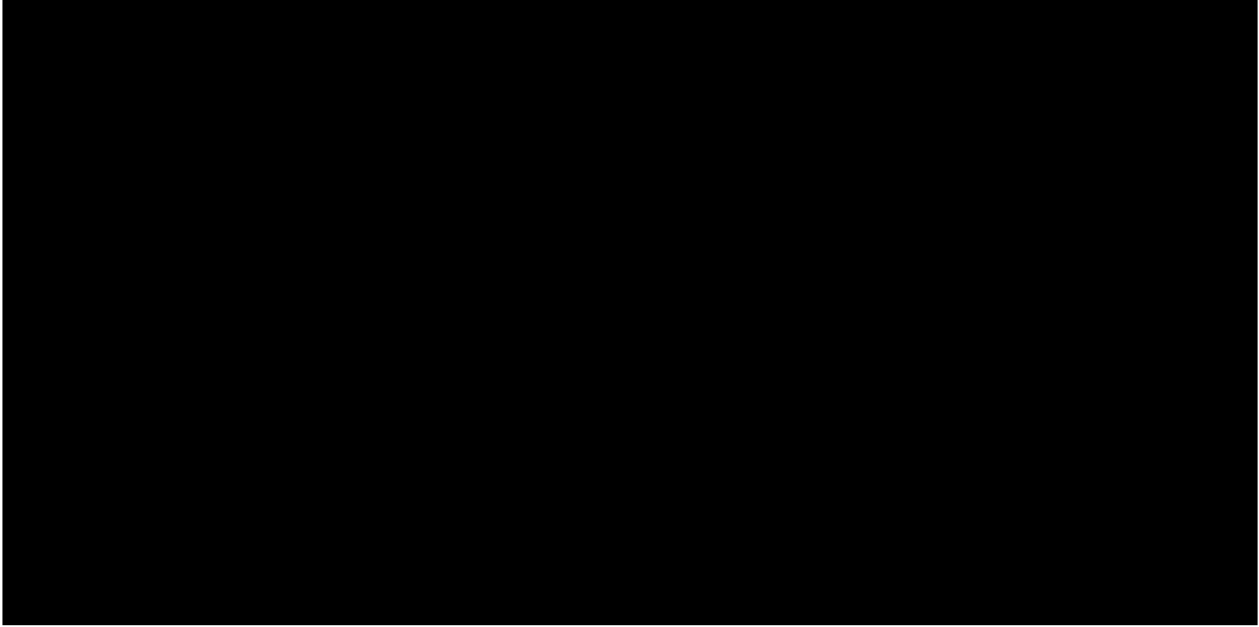


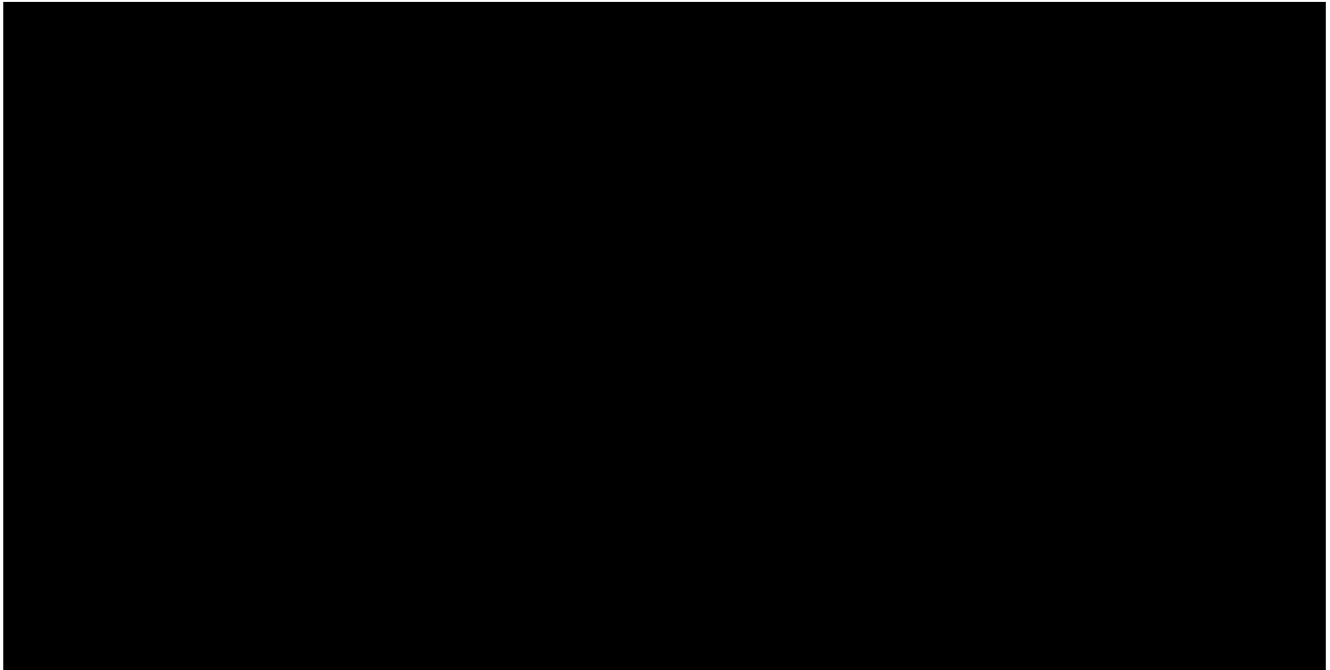
Figure 9: Interstate 10 at Milepost 160



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Figure 10 shows the frequency of CMV crashes for Interstate 12.

Figure 10: Interstate 12




There are several areas where frequencies of truck crashes are higher than expected. These areas on Interstate 10 are between milepost 150 to 160 depicted in Figure 11. On Interstate 12 these areas include mileposts 0 to 10 and 38 to 40 depicted in Figure 12. While the first part is in Baton Rouge. 

Figure 11: Interstate 10 Milepost 150 - 160

Figure 12: Interstate 12 at Milepost 38



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Interstate 20 Corridor

The Interstate 20 corridor includes 10 parishes. These parishes along Interstate 20 accounted for 15% of all truck crashes in the last three years. As shown in Figure 13, the corridor includes the Interstates 20, 220 and parts of Interstate 49. The major US Highways along the corridor are US 61, 65, 71, 80, 165 and 167.

Figure 13: Interstate 20 Corridor

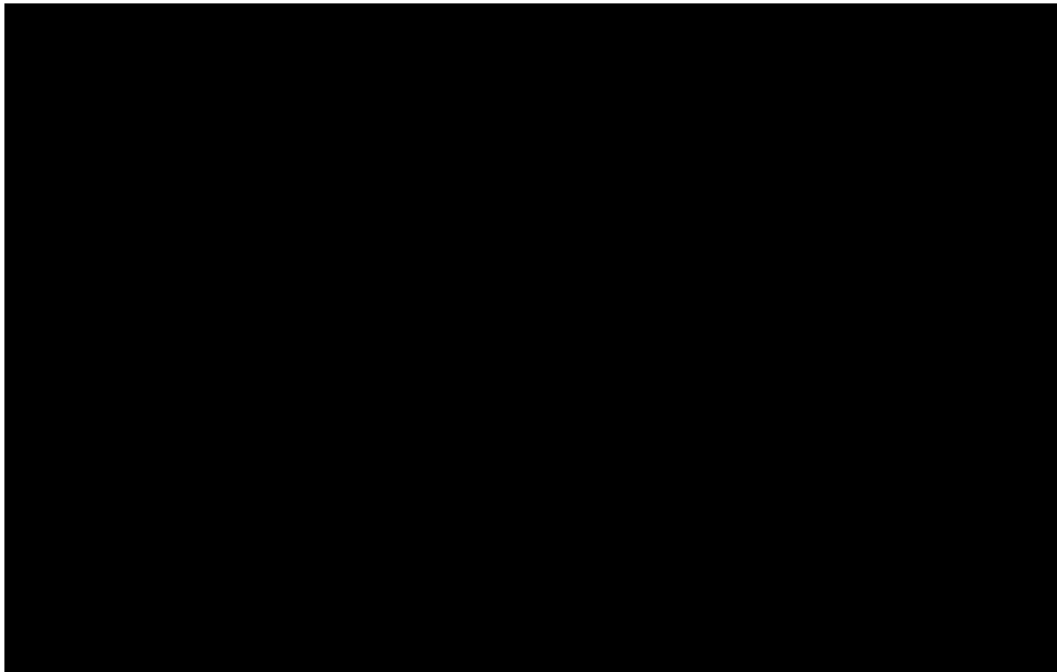


Figure 14 shows the frequency of truck crashes by milepost on Interstate 20.

Figure 14: Interstate 20



Work Zone Crashes

Crashes in and around road work zones seem to be disproportionately high at first sight. Table 7 shows the number of CMV crashes in work zones for 2005. Table 7 shows that while the number of fatal CMV crashes on all interstates increased from 2004 to 2005, from 29 to 41, the fatal crashes in construction zones decreased from 5 in 2004 to 2 in 2005. When the miles and days under construction are taken into account, the fatal crashes increased from 12.1 day-miles in 2004 to 5.9 day-miles in 2005. Table 7 also shows the number of CMV crashes within 5 miles of a construction zone.

Table 7: Work -Zone CMV Crashes on Interstates (2003-2005)

		2005				2004			
	WHERE	FATAL	INJURY	PDO	ALL	FATAL	INJURY	PDO	ALL
ALL CMV CRASHES ON INTERSTATES	Count	41	306	472	819	29	341	506	876
	PER 100,000 Day-MILES	12.6	94	145	252	8.9	105	156	270
CONSTRUCTION ZONES	Count	2	38	63	103	5	41	68	114
	PER 100,000 Day-MILES	5.9	112	186	305	12.1	99	164	276
WITHIN 5 MILES OF CONSTRUCTION ZONES	Count	10	122	194	326	9	103	213	325
	PER 100,000 Day-MILES	8.3	101	161	270	6.8	77	160	244
IN 5 MILES OF CONSTRUCTION ZONE	Count	8	84	131	223	4	62	145	211
	PER 100,000 Day-MILES	9.2	97	151	257	4.4	67	158	230

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There is no evidence that construction zones had more CMV fatal crashes in 2004 than interstate miles not under construction.

Seat Belt Usage

Table 8 shows that in 2005, 67% of CMV drivers killed in a crash did not wear a seat belt while 61% of all drivers killed in crashes did not wear a seat belt.

Table 8: Seat Belt Usage

Year	CMV		All Drivers	
	% of Drivers Killed	% of Drivers Severely Injured	% of Drivers Killed	% of Drivers Severely Injured
	not Wearing a Safety Belt	not Wearing a Safety Belt	not Wearing a Safety Belt	not Wearing a Safety Belt
1999	80	36	69	36
2000	55	36	69	34
2001	67	33	64	31
2002	33	30	64	32
2003	62	19	64	32
2004	67	38	59	30
2005	67	20	61	27
Average	62	26	64	31

Hazardous Material


Table 9 shows the hazardous material crashes from 1999 to 2005. The reporting of these crashes has increased from 1999/2000 to 2001. 

Table 9: Hazardous Material Crashes

Year	Transport	Released	% Released
1999	37	3	8%
2000	61	8	13%
2001	111	17	15%
2002	96	19	20%
2003	82	13	16%
2004	58	15	26%
2005	86	15	17%

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The type of hazardous material reported in CMV crashes is depicted in Table 10.

Table 10: Type of Hazardous Material in CMV Crashes

Material	2001		2002		2003		2004		2005	
	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.
CORROSIVE MATERIALS	1	5	15	1	19	2	9	3	19	2
DANGEROUS WASTES (CANADA)					1	0	0	0	0	0
ENVIRON HAZARDOUS SUBSTANCES(CANADA)			1		0	0	0	0	1	0
EXPLOSIVES-MASS EXPLOXION HAZARD	1		2		1	0	0	0	0	0
EXPLOSIVES WITH A NO SIGNIFICANT BLAST HAZARD	2		1		0	0	1	0	0	0
EXPLOSIVES-PROJECTION HAZARD					0	0	2	0	0	0
FLAMMABLE GASSES	17	1	15	2	15	2	8	2	1	0
FLAMMABLE LIQUIDS	56	10	42	10	36	7	26	7	56	10
FLAMMABLE SOLIDS	0		1	1	1	0	0	0	0	0
GASES TOXIC BY INHALATION					1	0	0	0	0	0
MISC DANGEROUS GOODS(CANADA)	8	3	6	2	4	0	4	1	1	0
NON-FLAM, NON-TOXIC COMPRESSED GASES	4		5	1	1	1	3	1	7	2
OXIDIZERS	3	3	4	1	0	0	1	1	0	0
RADIOACTIVE MATERIALS	13		1		1	0	0	0	0	0
SPONTANEOUSLY COMBUSTIBLE MATERIALS	1				0	0	0	0	1	1
TOXIC MATIERALS	6		3	1	2	1	4	0	0	0
Total	111	17	96	19	82	13	58	15	86	15

Note: Definition of Reportable Truck Crashes: To qualify for reporting to the Safety Net, the crash has to involve a private motor carrier, a truck weight of at least 10,001 pounds or above, a tow, or the transportation of a person to a hospital, or a fatality.