COMMERCIAL VEHICLE SAFETY IN LOUISIANA

An Analysis of Truck Crashes for 2011

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Summary

In 2011, the total number of reported CMV crashes decreased by 2% compared to 2010. The number of fatal CMV crashes decreased from 93 in 2010 to 85 in 2011, a decrease of 9%. The number of injury CMV crashes increased slightly from 1,578 to 1,593 during the same period, an increase of 1%.

The percentage of CMV drivers in fatal crashes cited for violations decreased in 2011 compared to 2010. The percentage of violations in fatal crashes that CMV drivers received decreased from 33% in 2010 to 29% in 2011. Careless operation was the most frequent citation. In injury and property damage crashes, the driver of the CMV was cited for violations 52% and 50% of the time, respectively. Within this same year, careless operation accounted for the majority of violations committed in association with commercial vehicle crashes. Careless operation made up 20% of all violations given to the driver of the CMV in fatal crashes and 36% in all crashes. Other violations with relatively high occurrence rates were failure to yield, with 13.3% in fatal and all crashes. Since careless operation is often a proxy for speed violation, we can look at the combined percentage of speed and careless operation violations. For fatal CMV crashes, the combined violations (speeding & careless operation) make up 30% of all violations the CMV driver receives. In all CMV crashes, this percentage is 38%. When failure to yield is included these percentages increase to 43% for fatal crashes and 51% for all crashes.

The manner of collision most common in all CMV crashes are rear-end types at 30% and non-collision types (single vehicle crashes) at 19%. For fatal crashes, the types were head-on collisions at 13%; rear-end collisions at 21%, right angle collisions at 25%, and non-collision with motor vehicle at 17%.

During 2011, 27% of all CMV crashes in Louisiana occurred on interstates, 35% occurred on state highways, and 20% occurred on U.S. highways. In 2010, the respective percentages were 25%, 37%, and 20%. From 2010 to 2011, the number of fatal interstate crashes remained at 23. US highways experienced a decrease in fatal crashes of 24% and state highways saw a decrease of 27%. Thus, the overall decrease in CMV related fatalities of 2% was largely due to the decrease of fatalities on US and State highways with no change on interstates.

The number of fatal CMV crashes in work zones decreased from 16 to 6 from 2010 to 2011. In addition, the number of fatal crashes within 5 miles of the construction zone (construction zone plus 5 miles on either end) decreased by 19%, namely from 22 to 13. However, the number of fatal crashes in the 5 miles approaching the construction zone from either end (excluding the construction zone) increased from 6 in 2010 to 7 in 2011. Also notable is an increase in all crashes in the 5 miles approaching the construction zones from either end (excluding the construction zones) from 90 in 2010 to 160 in 2011. These counts are based on the construction schedule provided by the LA DOTD and may thus differ from the actual number of crashes occurring in construction zones because the schedule may not accurately reflect the actual times work was being done.

Overview

This section provides an overview of the most important issues relating to CMV crashes in 2011 and trend data for the past five years. Table 1 depicts CMV crashes from 2007 to 2011 and shows that the fatal CMV crashes have decreased by 9% from 2010 to 2011 while the 5-year change in fatal CMV crashes was -28%. The injury crashes increased by 1% while the PDO crashes declined by 5% from 2010 to 2011. The total CMV crashes decreased by 2% from 2010 to 2011, the same decline observed for all vehicle crashes.

Table 1: CMV Crashes 2007-2011

	CMV Crashes				CMV Crash Percentages				All crashes				% CMV			
Year	Fatal	Injury	PDO	Total CMV	Fatal	Injury	PDO	Total CMV	Fatal	Injury	PDO	Total	Fatal	Injury	PDO	Total
2007	118	2120	2110	4348	2.7%	49%	49%	2.72%	900	48,200	110,700	159,800	11.8%	3.9%	1.9%	2.5%
2008	102	1950	2115	4167	2.4%	47%	51%	2.64%	820	46,500	110,700	158,020	13.1%	4.4%	1.9%	2.7%
2009	74	1596	1816	3486	2.1%	46%	52%	2.24%	729	45,300	109,800	155,829	12.4%	4.2%	1.9%	2.6%
2010	93	1578	2031	3702	2.5%	43%	55%	2.50%	631	42,300	104,900	147,831	14.7%	3.7%	1.9%	2.5%
2011	85	1593	1937	3615	2.4%	44%	54%	2.41%	621	43,300	105,900	149,821	13.7%	3.7%	1.8%	2.4%
% change	-9%	1%	-5%	-2%	-0.2%	1.4%	-1.3%	-0.09%	-1.6%	2.4%	1.0%	1.3%	-1.0%	-0.0%	-0.1%	-0.1%
% 5-Year	-28%	-25%	-8%	-17%	-0.4%	-4.7%	5.1%	-0.3%	-31%	-10%	-4%	-6%	1.9%	-0.3%	0.0%	-0.1%

The number of CMV crashes is expected to follow the trend of all crashes. Thus the CMV crashes as a percentage of all crashes may provide some insight in how programs specifically designed for the reduction of CMV crashes have worked. Fatal CMV crashes as a percentage of all fatal crashes decreased in 2011 by one percentage point from 2010 and the CMV injury crashes as percent of all injury crashes remained unchanged from 2010 at about 3.7%. The fatal CMV crashes as a percent of all crashes was about 13.7%, which dropped 1.1 percentage points from 2010 when the CMV crashes recorded the highest percentage over the past five years. Overall, the data indicate that after a one-year increase, the CMV crashes are again on a downward trend with fatalities experiencing the highest decrease. The one percentage decline in CMV fatal crashes is an indication that the overall decline in fatal CMV crashes (-9%) is likely not due to the overall decline in all fatal crashes and thus may be attributed to other factors such as increased enforcement. Although we do not know the exact VMT for commercial vehicles in 2010 and 2011, the fact that the total number of CMV crashes has dropped by 2% indicates that reduced commercial activities may have played a small role in the decline of fatal crashes.

Figure 1: CMV Crashes 2007-2011

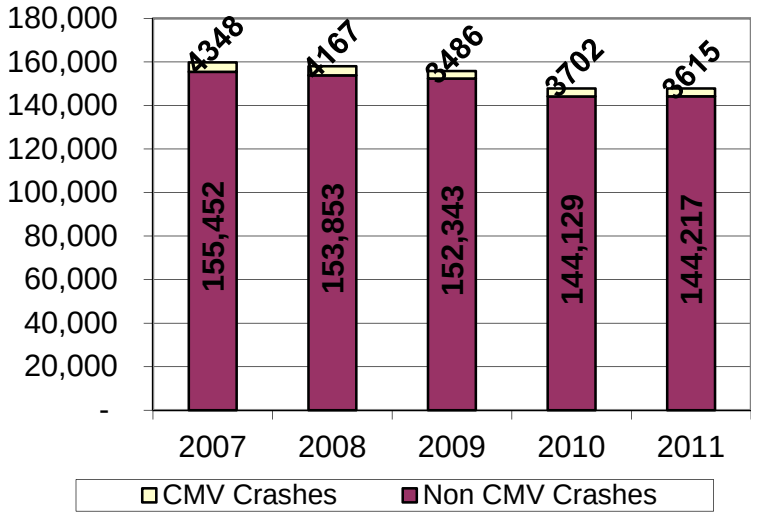


Figure 1 highlights the number of all crashes and shows the CMV crashes from 2007 to 2011. There were 733 fewer CMV crashes and 11,235 fewer non-CMV crashes since 2007. In addition, CMV crashes accounted for 2.4% of all crashes in 2011.

Figure 2: CMV Crashes by Severity: 2007-2011

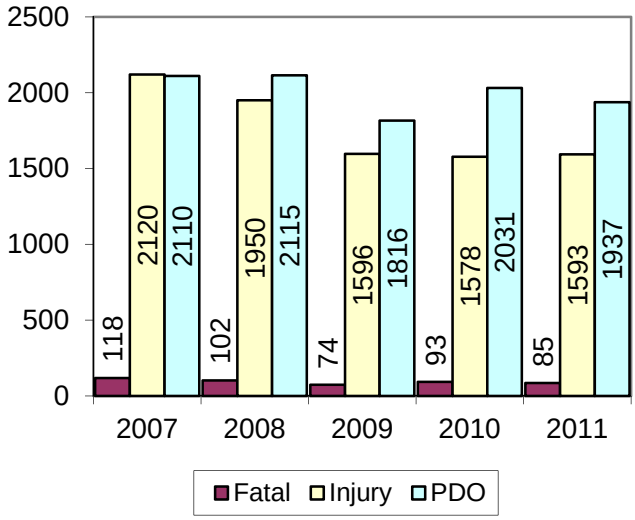


Figure 2 shows CMV crashes by severity. While injury crashes for all motor vehicles increased by 2.1 percent from 2010 to 2011, CMV injury crashes increased by only 1% in the same period. CMV

property-damage-only crashes decreased by 5% from 2010 to 2011, while all CMV crashes combined decreased by 2%.

Figure 3: CMV and Non-CMV Fatal Crashes: 2007-2011

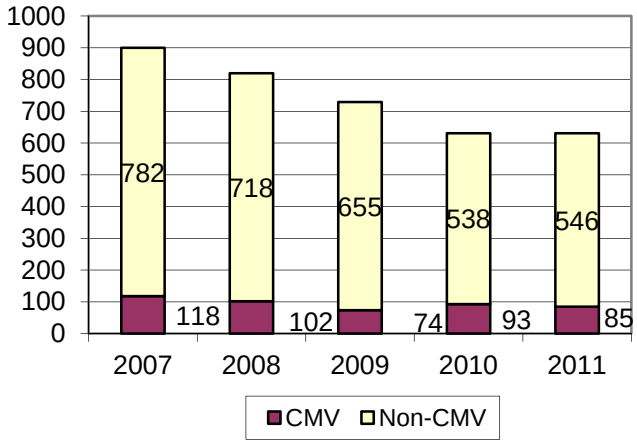
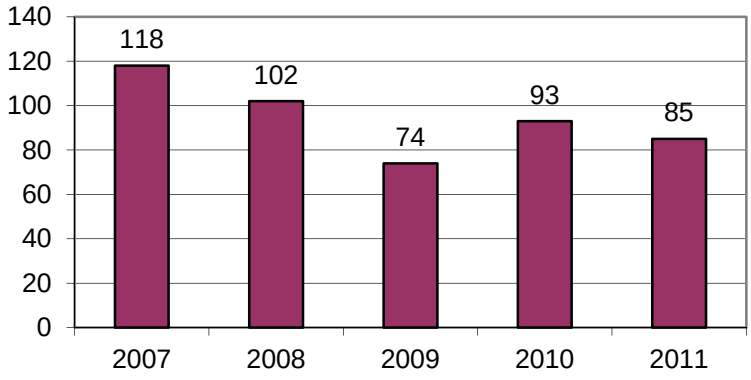


Figure 4: Fatal CMV Crashes by Year: 2007-2011



Figures 3 and 4 illustrate fatal non-CMV and CMV crashes from 2007 to 2011. While the decline in the number of non-CMV fatal crashes was moderate (-2.7%) from 2010 to 2011, the CMV fatal crashes experienced a large drop of 9% which amounts to 8 fewer fatal CMV crashes and 13 fewer fatalities. Figure 4 shows the trend of fatal CMV crashes which indicates that 2009 had the lowest number of fatal CMV crashes in the past five years. In fact 2009 had the lowest number of CMV fatal crashes since at least 1999 when this yearly report was first compiled.

Due to a steady increase in Louisiana traffic over the years, the number of crashes should be adjusted by the vehicle miles traveled (VMT) by commercial vehicles. In past reports vehicle miles traveled for CMVs were obtained from the FMCSA website (http://ai.fmcsa.dot.gov/CrashProfile/TruckBusFatalityRateAdj.asp) which was, however, discontinued after 2007. The new FMCSA website (http://ai.fmcsa.dot.gov/CrashProfile/TruckBusFatalityRateNew2.asp) now proposes to use total VMT rather than commercial vehicle VMT. Table 2 depicts the fatalities, injury crashes, PDO crashes and all crashes per 100 million miles traveled for CMVs and all vehicle crashes. While the fatality rate for CMV crashes decreased from 0.25 in 2010 to 0.22 in 2011, the 5-year trend shows a decline in the fatality rate from 0.30 in 2007 to 0.22 in 2011. It is important to note that with the new measure used by FMCSA the CMV rates cannot be compared with the rates for all vehicles because of the use of total VMT to normalize CMV crashes.

Table 2: CMV and all Crashes 2007-2011 per 100 Million Miles Traveled

	CMV Fatality Rate and Crash Rates				Fatality Rate and Crash Rates for All Vehicles			
Year	Fatality Rate	Injury Crash Rate	PDO Crash Rate	Total CMV Crash Rate	Fatality Rate	Injury Crash Rate	PDO Crash Rate	Total Crash Rate
2007	0.30	4.7	4.7	9.7	2.2	107.1	246.0	355.1
2008	0.26	4.3	4.7	9.2	2.0	102.4	243.8	348.1
2009	0.20	3.6	4.0	7.8	1.8	99.8	241.9	343.2
2010	0.25	3.5	4.5	8.1	1.6	93.0	230.5	324.9
2011	0.22	3.5	4.3	7.9	1.5	95.2	232.7	329.3

Analysis of Crashes by Month

Since monthly crash data fluctuate considerably from year to year, it is difficult to attribute a monthly effect on crash counts. Specifically, the fatal crash count exhibits large variations since small crash number vary more than large crash numbers. Nevertheless, as the data in Table 3 indicates, November had the highest number of fatal crashes (13), accounting for over 15% of the total fatal CMV crashes for 2011. March and June were the second and third deadliest months with 14 and 15 fatalities, respectively.

The analysis of the CMV crash data for the past seven years indicates that while yearly fatal crash counts in any given month may vary from 4 to 14, March and October tend to be the months with the highest number of fatal CMV crashes and total CMV crashes on average. Also, over the seven years, the six months March-May and October-December have, on the average, two (2) more fatal CMV crashes and 13 more total CMV crashes than the other six months of the year. Therefore

these six months March-May and October-December be times of the year when heightened alert or enforcement is appropriate.

Table 3: CMV Crashes by Month in 2011

MONTH	FATAL CRASHES	TOTAL KILLED	INJURY CRASHES	PDO	TOTAL CRASHES	TOTAL TRUCKS AND BUSSES	% CRASHES
JANUARY	6	6	129	151	286	308	8%
FEBRUARY	6	6	115	154	275	303	8%
MARCH	9	14	143	182	334	358	9%
APRIL	10	10	127	162	299	318	8%
MAY	7	8	137	148	292	313	8%
JUNE	8	15	126	185	319	341	9%
JULY	4	5	111	139	254	276	7%
AUGUST	9	9	161	188	358	379	10%
SEPTEMBER	2	3	119	149	270	286	7%
OCTOBER	8	8	147	169	324	350	9%
NOVEMBER	13	13	127	165	305	329	8%
DECEMBER	3	4	151	145	299	329	8%
TOTAL	85	101	1593	1937	3615	3890	100%

Violations

There are two ways one can evaluate the citations in CMV crashes, depending on whether we use the number of drivers or the number of citations as the denominator. In a crash, either the CMV driver or the non-CMV driver or both may receive a citation. Thus, when the number of drivers is used as the denominator, the two percentages do not add up to 100%. They may be lower or higher than 100%. The percentage based on drivers will be lower than 100% if there are many crashes where no driver received a citation, and this percentage will be higher than 100% if in there are many crashes where both drivers received a citation. For instance, in 2007, 2008 and 2010 the two percentages add up to more than 100% for fatal crashes. The average of both percentages approximates the percentage of all drivers involved in CMV crashes that received citations.

The percentage of CMV drivers in fatal crashes who received a citation has decreased by 4 percentage points from 2010 to 2011. In 2011, of all CMV drivers in fatal crashes, 29% were cited for a violation compared to 33% in 2010. For injury and property damage crashes, 52% and 50% of the CMV drivers were cited for violations, respectively. These figures show that in fatal crashes

non-CMV drivers continued to have a higher percentage of citations than CMV drivers, while about 50% of CMV drivers and non-CMV drivers received citations in PDO crashes and the percentage of CMV drivers receiving citations in injury crashes is slightly higher than for non-CMV drivers.

Secondly, we can look at the percentage of citations going to CMV versus the non-CMV driver. These two percentages add up to 100% all the time. Even if the percentage of all citations in crashes would decline to say 10%, still half, for example, could go to the CMV driver and half could go to the non-CMV driver. The percentage of citations in fatal crashes going to the CMV driver has remained the same from 2010 to 2011, namely 34% of the citations went to the CMV. For injury and property-damage-only crashes (PDO) the CMV driver received 53% and 55%, of violations, respectively.

The different views become apparent when the total number of citations given to the drivers decline over time. In 2011 citations in fatal crashes were given less frequently (29%&49%) of the time for (CMV, Non-CMV), a considerable drop from (33%&68%) in 2010. This means, approximately 50.5% of the drivers in fatal CMV crashes received a citation in 2010, while only 39% received a citation in 2011, a drop of about 11.5%. Thus while the percentage of citations in fatal crashes has declined considerably, the relative distribution of these citations remained about the same as in the past years with about one third (34%) going to the CMV driver in fatal crashes and about two-thirds (66%) going to the non-CMV driver.

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

As Percentage of Drivers								
VIOLATIONS	FATAL CRASHES		INJURY CRASHES		PDO		TOTAL CRASHES	
	CMV Driver	Passenger Car Driver	CMV Driver	Passenger Car Driver	CMV Driver	Passenger Car Driver	CMV Driver	Passenger Car Driver
2007	35%	68%	47%	53%	48%	53%	47%	54%
2008	32%	78%	49%	49%	48%	55%	48%	53%
2009	27%	66%	51%	48%	49%	53%	49%	51%
2010	33%	68%	51%	49%	51%	55%	51%	52%
2011	29%	49%	52%	47%	50%	51%	50%	49%
These are the percentage of drivers receiving citations.								

As Percentage of Violations								
VIOLATIONS	FATAL CRASHES		INJURY CRASHES		PDO		TOTAL CRASHES	
	CMV Driver	Passenger Car Driver	CMV Driver	Passenger Car Driver	CMV Driver	Passenger Car Driver	CMV Driver	Passenger Car Driver
2007	37%	63%	39%	61%	40%	60%	39%	61%
2008	30%	70%	50%	50%	53%	47%	51%	49%
2009	29%	71%	51%	49%	52%	48%	51%	49%
2010	34%	66%	52%	48%	54%	46%	52%	48%
2011	34%	66%	53%	47%	55%	45%	54%	46%

These are all the citations in a crash and the percentages going to either CMV driver or other car driver.

Figure 5 shows reiterates the findings expressed above, namely that the relative percentage of citations going to CMV drivers versus the non-CMV drivers in fatal CMV crashes have been relatively stable over the past years with roughly one third of citations going to the CMV driver and the rest going to the non-CMV driver.

Figure 5: CMV and Non-CMV Driver Violations in Fatal Crashes: 2007-2011

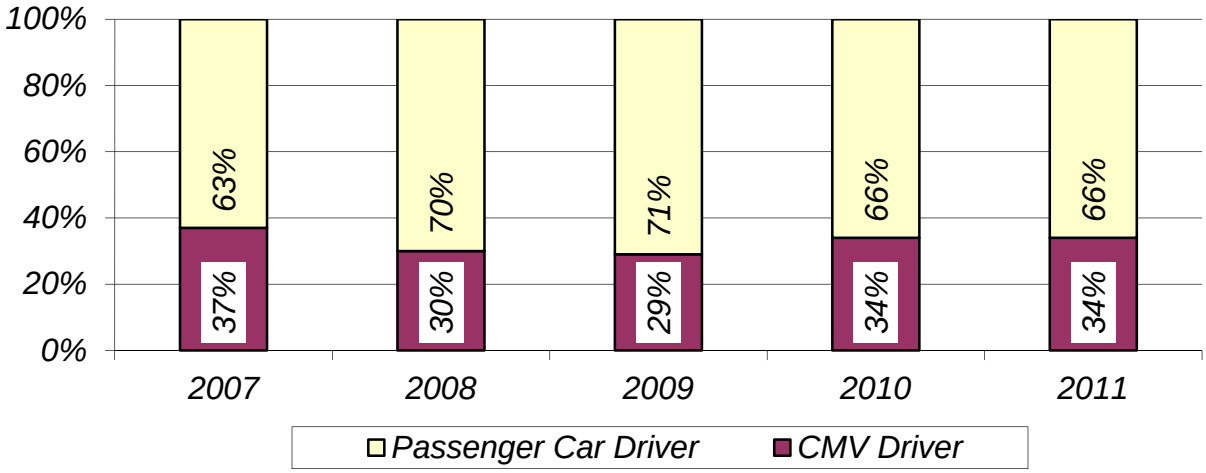


Table 5: Type of Violation of CMV Driver

VIOLATIONS	FATAL CRASHES	INJURY CRASHES	PDO	TOTAL CRASHES
OVER STATED SPEED LIMIT	1	4	2	7
OVER SAFE SPEED LIMIT	2	12	13	27
FAILURE TO YIELD	4	129	128	261
FOLLOWING TOO CLOSELY	0	98	87	185
DRIVING LEFT OF CENTER	1	22	23	46
CUT IN/IMPROPER PASS	0	23	30	53
OTHER IMPROPER TURNING	2	25	34	61
DISREGARDED TRAF CNTL	0	42	29	71
FAILED TO DIM HEADLTS	0	0	0	0
VEHICLE CONDITION	0	17	46	63
DRIVER CONDITION	2	11	11	24
CARELESS OPERATION	6	315	377	698
IMPROPER BACKING	0	22	30	52
NO VIOLATION	73	820	1033	1926
OTHER	4	74	109	187
TOTAL VIOLATION	30	880	1039	1949
COLUMN % OF VIOLATIONS IN CRASH	29%	52%	50%	50%

ROW % OF VIOLATIONS IN CRASH	34%	53%	55%	54%

Table 5 shows the types of violations drivers receive. In 2011, careless operation accounted for the majority of violations, 6 occurrences or 20%, in association with fatal commercial vehicle crashes. Other violations with relatively high occurrence rates for all crashes were failure to yield and violations categorized as other with both listing violations at 13.3% in fatal crashes.

Since careless operation is often a proxy for speed violation, we can look at the combined percentage of speed and careless operation violations. For fatal CMV crashes, the combined violations (speeding & careless operation) make up 30% of all violations the CMV driver receives. In all CMV crashes, this percentage is 38%. When failure to yield is included these percentages increase to 43% for fatal crashes and 51% for all crashes. The percentages are similar for the non-CMV driver. For fatal CMV crashes, the combined violations (speeding & careless operation) make up 24% of all violations the non-CMV driver receives. In all CMV crashes, this percentage is 36%. When failure to yield is included these percentages increase to 43% for fatal crashes and 51% for all crashes. However, there is one significant difference between CMV driver violations and non-CMV driver violations. While only 3% of CMV drivers received violations for driving left of center in fatal crashes, this percentage increases to 17% for non-CMV drivers. This explains the high percentage of head-on collisions in fatal crashes discussed in the next section.

Manner of Collision

Table 6 shows the manner of collision. “Head-on”, “right angle”, and “rear-end” collisions make up more than 70.4% [(11+21+18) / (85-14)] of all fatal multi-vehicle CMV crashes. This is a 2.6 percentage point increase from 67.8% in 2010 for these three types of collisions.

Table 6: Manner of Collision

MANNER OF COLLISION	FATAL CRASHES		INJURY CRASHES		PDO		TOTAL CRASHES	
HEAD-ON	11	13%	49	3%	22	1%	82	2%
LEFT TURN - ANGLE	1	1%	46	3%	53	3%	100	3%
LEFT TURN - OPPOSITE DIRECTION	4	5%	45	3%	51	3%	100	3%
LEFT TURN - SAME DIRECTION	0	0%	29	2%	37	2%	66	2%
NON-COLLISION WITH MOTOR VEHICLE	14	17%	221	14%	453	23%	688	19%
OTHER	8	9%	146	9%	171	9%	325	9%
REAR END	18	21%	546	34%	518	27%	1082	30%
RIGHT ANGLE	21	25%	244	15%	221	11%	486	14%
RIGHT TURN - OPPOSITE DIRECTION	0	0%	7	0%	13	1%	20	1%
RIGHT TURN - SAME DIRECTION	0	0%	19	1%	28	1%	47	1%
SIDESWIPE - OPPOSITE DIRECTION	5	6%	55	4%	52	3%	112	3%

SIDESWIPE - SAME DIRECTION	3	4%	182	12%	316	16%	501	14%
TOTAL	85	100%	1589	100%	1935	100%	3609	100%

High Crash Locations in Interstate Corridors

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

Interstate 10/12 Corridor

The Interstate 10/12 corridor includes 16 parishes, and these parishes accounted for 54% of fatal CMV crashes and 61% of all CMV crashes in 2011.

Figure 6: Interstates 10/12 Corridor

The corridor includes Louisiana Interstates 10, 110, 210, 310, 610, 12, 55, 59 and parts of Interstate 49 as shown in Figure 6. The major US Highways along the corridor are US 90, 190 and 61.

The cumulative percentage graphs provide an easy to understand method to identify high crash locations. For any interval of mileposts, the steeper the graph, the more crashes occur within the mileposts. For instance, Figure 7 shows the cumulative frequency of commercial vehicle crashes for 2011 and 2010 by milepost on Interstate 10 along with all crashes. The comparison between 2010 and 2011 shows that the percentage of crashes within the first 50 miles of interstate 10 has decreased slightly from 21% to 20%. The most pronounced area for crashes in 2011 was

between milepost 210 and 240 where about 35% of all crashes and 20% of CMV crashes on Interstate 10 occurred.

Figure 7: Cumulative Percentage of Interstate 10 Crashes 2011 and 2010

Figure 8a shows the concentration of CMV crashes on I10 between I55 and the Causeway.

Figure 8a: Interstate 10 in New Orleans Mileposts 200 to 230

The interstate section of I10 between West Baton Rouge and the I10/12 split has about 20% of all crashes on I10, but only less than 10% of all CMV crashes. These crashes are shown in Figure 8b. Figure 8c shows that several CMV crashes occurred on the I10 Bridge in Baton Rouge which indicates a hot spot for crashes.

Figure 8b: Interstate I10 between West Baton Rouge and the I10/12 split.

Figure 8c: Interstate 10 Bridge in Baton Rouge

The cumulative graphs for interstate 12 show how the construction between Baton Rouge and Denham Springs has impacted the number of CMV crashes. Figure 9 shows a significant increase in the cumulative percent of CMV crashes from 20% in 2010 to 25% in 2011 within the first 10 miles of Interstate 12.

Figure 9: Cumulative Percent of Interstate 12 Crashes 2011 and 2010

Figure 10 shows the Interstate 12 corridor between Baton Rouge and Slidell with the crash location hot spots in the construction zone around the Amite River Bridge.

Figure 10: Interstate 12 Crashes

Figure 11: Interstate 20 Corridor

The Interstate 20 corridor includes 10 parishes. These parishes account for 15% of all commercial vehicle crashes in the last three years. As illustrated in Figure 11, the corridor includes 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 12 shows the cumulative frequency of commercial motor vehicle crashes by milepost on Interstate 20 along with all crashes. The percentage of CMV crashes within the first 50 miles of interstate 20 decreased significantly in 2011 from 52% to 40%. However there was a high frequency crash area that developed in 2011 between mileposts 110 and 125.

Figure 12: Cumulative Frequency of CMV Crashes on Interstate 20

Work-Zone Crashes

Work zones are of specific interest for enforcement activities because they are potential hotspots for crashes. The work zones were derived from a DOTD file containing all scheduled work on interstates. Because this schedule may not accurately reflect the actual construction the numbers in Table 7a are likely to be inflated. There are also work-zone indicators on the crash report form (Work Zone Indicator (Yes/No) and a Road Condition field with 14 options two of which are Construction Repair and Construction No Warning). However, these crash report field has drawbacks as well. It may not be filled out consistently in cases when there is a work zone but no work is performed. Also, since many of the crashes occur before the work zone when traffic slows down or comes to a standstill, these crashes may be missed in the crash report. This analysis therefore will include the 5 miles of the approach to the construction zone. Since we do not have the detailed information about the lane the construction is in or if both lanes are under construction, we include 5 miles on either side of the construction zone indicated in the work schedule by the DOTD. Table 7a shows that the number of fatal CMV crashes on all interstates remained at 23 for 2011 yet the number of fatal crashes in construction zones decreased from 16 in 2010 to 6 in 2011 when only the schedule is used. However, the number of crashes must be adjusted by the construction time and miles under construction. For instance, if the year 2011 had only one quarter of the time or one quarter of the miles under construction than the year 2010, then the reduction from 16 to 6 actually would imply an increase in fatal crashes when adjusted for the miles and time. We will therefore adjust the crash count by the miles multiplied by the days under construction to normalize the count. This adjustment does not take into consideration the VMT of CMV within the construction zones because it is not readily available. When miles and days under construction are taken into account,

fatal crashes decreased from 13.8 fatalities per day-mile in 2010 to 5.7 fatal crashes per day-mile in 2011.

The number of fatal crashes in the 5 miles of the approach to the construction zones increased from 6 in 2010 to 7 in 2011. The number of fatal crashes per day mile increased from 5.4 in 2010 to 5.9 in 2011. Also seen in Table 7a is an decrease in all crashes within the construction zones +5 miles before and after the construction zones, i.e., from 331 in 2010 to 317 in 2011. While the number of crashes within construction zones decreased from 241 in 2010 to 157 in 2011. While the number of fatal crashes in the construction zones decreased by 63% from 2010 to 2011 the number of fatal crashes in the 5 miles of the approaches to the construction zones increased by 17%. Also, the total number of crashes in construction zones decreased by 35% from 2010 to 2011 but increased by 78% in just the 5 miles of the approaches to the construction zones. This clearly indicates that the approaches to construction zones are hotspots which should be of specific interest for speed enforcement but also for warning methods of potential traffic congestions.

Table 7a: Work-Zone CMV Crashes on Interstates (2010-2011) using DOTD Schedule Only

 # Within 5 miles of construction zone refers to 2 times 5 miles plus length of construction,
In 5 miles approach to construction zone refers to only the 5 miles on either side of the construction zone excluding the construction zone

		2011				2010				Percentage Change			
	WHERE	FATAL	INJ.	PDO	ALL	FATAL	INJ.	PDO	ALL	FATAL	INJ.	PDO	ALL
ALL CMV CRASHES ON INTER-STATES	Count	**23**	**362**	**590**	**975**	**23**	**330**	**577**	**930**	**0%**	**10%**	**2%**	**5%**
	PER 100,000 Day-MILES	7.0	110.8	180.5	298.3	7.0	101.0	176.6	284.6	0%	10%	2%	5%
CONSTRUCTION ZONES	Count	**6**	**97**	**54**	**157**	**16**	**144**	**81**	**241**	**-63%**	**-33%**	**-33%**	**-35%**
	PER 100,000 Day-MILES	5.7	91.5	50.9	148.1	13.8	124	70	208	-59%	-26%	-27%	-29%
WITHIN 5 MILES OF CONSTRUCTION ZONES	**Count**	**13**	**201**	**103**	**317**	**22**	**192**	**117**	**331**	**-41%**	**5%**	**-12%**	**-4%**
	PER 100,000 Day-MILES	5.8	89.5	45.9	141.1	9.7	85	52	146	-40%	6%	-11%	-3%
IN 5 MILES APPROACH TO CONSTRUCTION ZONE	**Count**	**7**	**104**	**49**	**160**	**6**	**48**	**36**	**90**	**17%**	**117%**	**36%**	**78%**
	PER 100,000 Day-MILES	5.9	87.7	41.3	134.9	5.4	43.2	32.4	81.1	9%	103%	27%	66%

Using crashes that are marked both on the crash report as work-zone related (see Table 7b) (ROAD_COND_CD in ('G','I') Or CONST_MAINT_ZN = 1) and within the DOTD scheduled construction times, the number of fatal crashes in construction zones declined from 3 in 2010 to zero in 2011and the number of fatal crashes within the construction zones plus 5 miles before and after construction zones decreased from 4 in 2010 to 0 in 2011. Since officers are unlikely to mark the crash as in a work zone in their

report when the crash occurred before or after the work zone, Table 7b is not reliable for the five miles of the approaches to the work zone. A case in point is a fatal crash that occurred on east bound on Interstate 12 on November 10 at milepost 7.06. This crash was a rear end collision involving four vehicles. This crash occurred just before the major road construction between milepost 7.11 and 8.3 and was not marked as a work zone crash in the report.

Table 7b: Work-Zone CMV Crashes on Interstates (2010-2011) based on Schedule and Crash Report

Within 5 miles of construction zone refers to 2 times 5 miles plus length of construction,
In 5 miles of construction zone refers to only the 5 miles before and 5 miles after construction zone excluding the construction zone

		2011				2010				Percentage Change			
	WHERE	FATAL	INJ.	PDO	ALL	FATAL	INJ.	PDO	ALL	FATAL	INJ.	PDO	ALL
ALL CMV CRASHES ON INTER-STATES	Count	**23**	**362**	**590**	**975**	**23**	**330**	**577**	**930**	**0%**	**10%**	**2%**	**5%**
	PER 100,000 Day-MILES	7.0	110.8	180.5	298.3	7.0	101.0	178.0	286.0	1%	10%	1%	4%
CONSTRUCTION ZONES	Count	**0**	**29**	**18**	**47**	**3**	**21**	**10**	**34**	**-100%**	**38%**	**80%**	**38%**
	PER 100,000 Day-MILES	0.0	27.4	17.0	44.3	0.0	21	17	37	0%	30%	0%	20%
WITHIN 5 MILES OF CONSTRUCTION ZONES	Count	**0**	**42**	**28**	**70**	**4**	**25**	**12**	**41**	**-100%**	**68%**	**133%**	**71%**
	PER 100,000 Day-MILES	0.0	18.7	12.5	31.2	8.5	62	88	158	-100%	-70%	-86%	-80%
IN 5 MILES APPROACH TO CONSTRUCTION ZONE	Count	**0**	**13**	**10**	**23**	**1**	**4**	**2**	**7**	**-100%**	**225%**	**400%**	**229%**
	PER 100,000 Day-MILES	0.0	11.0	8.4	19.4	12.6	82.0	122.0	216.0	-100%	-87%	-93%	-91%

Seat Belt Usage

Seat belt usage is one of the most important factors preventing death in a crash. Table 8 shows that in 2011, 29% of CMV drivers killed in a crash did not wear a seat belt while 64% of all drivers killed in all crashes were not wearing a seat belt.

Table 8: Seat Belt Usage

This includes only drivers with known seat belt use.

	CMV Driver						All Drivers					
Year	# of Drivers Killed w/o Seatbelt	Total # of Drivers Killed*	% of Drivers Killed w/o Seatbelt	# of Drivers Seriously Injured w/o Seatbelt	Total # of Drivers Injured*	% of Drivers Seriously Injured	# of Drivers Killed w/o Seatbelt	Total # of Drivers Killed*	% of Drivers Killed w/o Seatbelt	# of Drivers Seriously Injured w/o Seatbelt	Total # of Drivers Injured*	% of Drivers Seriously Injured
2007	14	20	70%	2	8	25%	247	399	62%	183	727	25%
2008	9	16	56%	2	11	18%	222	346	64%	181	659	27%
2009	3	5	60%	5	11	45%	218	345	63%	151	574	26%
2010	7	12	58%	3	12	25%	146	259	56%	130	514	25%
2011	2	7	29%	3	13	23%	179	278	64%	134	504	27%
Average	7	12	55%	3	11	27%	202	325	62%	156	596	26%

This is the lowest percentage since 2007. On average, CMV drivers killed had a higher rate of seat belt usage than drivers killed while driving other vehicles. However, since the number of CMV drivers killed is relatively small, these percentages vary more than the percentages for all drivers.

Hazardous Material

CMV crashes involving CMVs carrying hazardous material are of particular interest due to their potential danger to the environment and community when hazardous materials are released. Over the past eight years, on average, about one out of five crashes involving hazardous material results in a release of the hazardous material. The actual percentage of release may be higher since many of the CMVs identified as transporting hazardous material may actually be returning with an empty load, thus the percentage of releases based on crashes with full loads of hazardous material may be much higher than the 15% shown in Table 9 for 2011.

Table 9: Hazardous Material Crashes

Year	Transport	Released	% Released
2003	82	13	16%
2004	58	15	26%
2005	86	15	17%
2006	102	19	19%
2007	127	20	16%
2008	94	16	17%
2009	102	19	19%
2010	99	15	15%
2011	87	13	15%

The interstates accounted for 37% of all crashes involving hazardous materials in 2011. Specifically, Interstate 10 accounts for 54% of all hazardous material crashes on interstates in 2011. US highways account for 13% of all hazardous material crashes in 2011, with US 90 accounting for 44% of hazardous material crashes on US highways. State highways accounted for 50% of all hazardous crashes in 2011.

The types of hazardous material reported in CMV crashes are displayed in Table 10. On average, 48% of the hazardous material crashes involve flammable liquids and 14% involve flammable gases.

Table 10: Type of Hazardous Material in CMV Crashes

		2007		2008		2009		2010		2011	
PLC	Material	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.
	CORROSIVE GASES (CANADA)	0	0	0	0	0	0	0	0	0	0
80	CORROSIVE MATERIALS	29	3	18	2	17	5	19	4	20	1
	DANGEROUS WASTES (CANADA)	0	0	0	0	0	0	0	0	0	0
	DANGEROUS WHEN WET MATERIALS	0	0	0	0	0	0	0	0	0	0
92	ENVIRON HAZARDOUS SUBSTANCES(CANADA)	4	1	0	0	0	0	0	0	0	0
11	EXPLOSIVES-MASS EXPLOXION HAZARD	1	0	0	0	0	0	0	0	0	0
14	EXPLOSIVES WITH A NO SIGNIFICANT BLAST HAZARD	0	0	1	0	0	0	0	0	0	0
	EXPLOSIVES WITH A PREDOMINANTLY A FIRE HAZARD	1	1	1	0	0	0	0	0	0	0
12	EXPLOSIVES-PROJECTION HAZARD	0	0	0	0	0	0	0	0	0	0
	EXTREMELY INSENSITIVE DETONATING ARTICLES	0	0	0	0	0	0	0	0	0	0
21	FLAMMABLE GASSES	21	3	23	2	17	4	19	3	12	0
30	FLAMMABLE LIQUIDS	53	8	74	13	58	6	52	6	42	10
41	FLAMMABLE SOLIDS	0	0	4	0	3	1	1	0	1	0
23	GASES TOXIC BY INHALATION	2	0	1	0	0	0	0	0	0	0
	INFECTIOUS SUBSTANCES	1	0	0	0	0	0	0	0	0	0
	MISC DANGEROUS GOODS(CANADA)	4	1	0	0	0	0	0	0	0	0
91	NON-FLAM, NON-TOXIC COMPRESSED GASES	8	2	7	0	5	1	7	2	9	2
22	ORGANIC PEROXIDES	0	0	0	0	0	0	0	0	0	0
	OXIDIZERS	0	0	1	0	2	2	0	0	0	0
51	RADIOACTIVE MATERIALS	0	0	1	0	0	0	0	0	1	0
70	SPONTANEOUSLY COMBUSTIBLE MATERIALS	0	0	2	1	0	0	0	0	0	0
42	TOXIC MATERIALS	3	1	5	0	0	0	1	0	2	0
61	VERY INSENSITIVE DETONATING ARTICLES	0	0	0	0	102	19	0	0	0	0
	Total	127	20	138	18	204	38	99	15	87	13

Distractions

Although distractions play an important role in all crashes, including CMV crashes, no fatal CMV crashes were reported in 2011 in which cell phone usage was the cause of distraction. Table 11 shows the breakdown of crashes by type of distraction for CMV crashes.

Table 11: Distractions

	FATAL	INJURY	PDO	TOTAL
CELL PHONE	0	3	5	8
OTHER ELECTRONIC DEVICE (PAGER, PALM PILOT, NAVIGATION DEVICE, ETC.)	0	3	3	6
OTHER INSIDE THE VEHICLE	0	26	22	48
OTHER OUTSIDE THE VEHICLE	1	34	34	69
NOT DISTRACTED	87	1387	1698	3172
UNKNOWN	15	254	318	587

Figure 13: Cell Phone Use as a Distraction

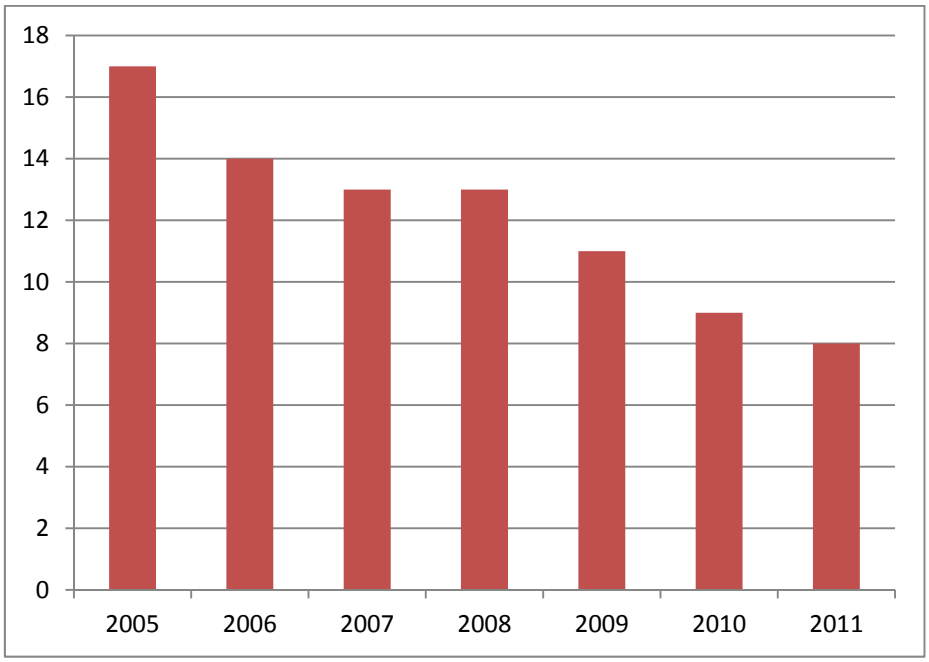


Figure 13 shows that crashes involving cell phone usage of CMV drivers have decreased by 53% from 2005 to 2011, namely from 17 in 2005 to 8 in 2011.

Changes in Number of Crashes by Parish

The 15 parishes with the highest number of CMV crashes are listed in Table 12. In 2011, Louisiana experienced a significant increase in CMV crashes along the I10/I12 corridor. Orleans, Jefferson, Tangipahoa, St. Tammany, Lafayette, East Baton Rouge, and Livingston Parishes have all shown increases in CMV crashes ranging from 4% to 29%. The exception was Calcasieu Parish, which had a 22% decrease in CMV crashes. Ouachita, Bossier, and Caddo Parishes also experienced significant reductions in CMV crashes, with 27%, 16% and 18%, respectively. Thus the I10/12 corridor is a candidate for increased enforcement to counteract the increasing trend in crashes.

Table 12: CMV Crashes by Parishes

	FATAL CRASHES				TOTAL CRASHES	
PARISH	2011	2010	2011	2010	Diff	% Change
EAST BATON ROUGE	7	3	334	296	38	13%
JEFFERSON	0	1	203	188	15	8%
CALCASIEU	1	2	135	174	-39	-22%
LAFAYETTE	3	2	206	183	23	13%
ST. TAMMANY	6	4	159	142	17	12%
TANGIPAHOA	3	3	128	119	9	8%
CADDO	7	5	158	192	-34	-18%
ORLEANS	4	1	246	236	10	4%
LAFOURCHE	3	4	84	89	-5	-6%
LIVINGSTON	3	1	108	84	24	29%
RAPIDES	4	3	108	86	22	26%
TERREBONNE	1	2	86	85	1	1%
BOSSIER	1	5	98	117	-19	-16%
OUACHITA	3	2	91	125	-34	-27%
WEST BATON ROUGE	0	2	73	73	0	0%
State	85	93	3615	3692	-77	-2%

Rural CMV Crashes

Table 13 displays the count of crashes on rural roads by highway type. Although the data shows that rural roads account for most of the fatal and injury crashes, rural roads make up the majority of the roadway sections. From 2010 to 2011, the fatal CMV crashes on US highways decreased by 24%, the fatal CMV crashes on state highways decreased by 27%, and the fatal CMV crashes on interstates remained the same. The injury crashes during the same period exhibit a 10% increase on interstates, a 7% decrease on state highways, while the number of injury crashes on US highways remained steady from 2010 to 2011 at 347 and 346, respectively. Overall, the crashes by highway type percentages experienced very little movement from 2010 to 2011, with US highways experiencing a decline of 5 percentage points, state highways experiencing a decrease of 10 percentage points, and interstates experiencing an increase of 2 percentage points. These latter percentages reflect the large drop of fatal crashes on state and US highways and no change for interstates. Therefore interstates had a larger percentage share (27%) of fatal crashes in 2011 compared to 2010 (25%). Also striking is the increase in fatal crashes on parish and city streets from zero in 2010 to 10 in 2011.

Table 13: CMV Crashes by Highway Type 2011

HIGHWAY TYPE	FATAL CRASHES			INJURY CRASHES			PDO			TOTAL		
	2011 CRASH	2010 CRASH	Difference	2011 CRASH	2010 CRASH	Difference	2011 CRASH	2010 CRASH	Difference	2011 CRASH	2010 CRASH	Difference
INTERSTATE	23	23	0%	362	330	10%	590	577	2%	975	930	5%
US HIGHWAY	19	25	-24%	347	346	0%	351	378	-7%	717	749	-4%
STATE HIGHWAY	33	45	-27%	567	608	-7%	651	724	-10%	1251	1377	-9%
PARISH ROAD	4	0		101	104	-3%	127	131	-3%	232	235	-1%
CITY STREET	6	0		205	187	10%	208	199	5%	419	386	9%
TOTAL	85	93	-9%	1582	1575	0%	1927	2009	-4%	3594	3677	-2%
% Interstates	27%	25%	2%	23%	21%	2%	31%	29%	2%	27%	25%	2%
% US	22%	27%	-5%	22%	22%	0%	18%	19%	-1%	20%	20%	0%
% State	39%	48%	-10%	36%	39%	-3%	34%	36%	-2%	35%	37%	-3%
State&Interstate	88%	100%	-12%	81%	82%	-1%	83%	84%	-1%	82%	83%	-1%

Table 13a: Percentage of Rural CMV Crashes 2011

	Fatal	Injury	PDO	Total
Interstates	61%	56%	62%	59%
US	58%	57%	57%	57%
State	88%	74%	72%	74%
Parish	100%	84%	88%	86%
City	17%	3%	2%	3%
Total	69%	58%	60%	59%

The crash report does not permit us to determine if a crash was urban or rural. The only indicator that may be used is the city code. Table 13a gives a different perspective of rural versus urban crashes. Table 13a shows the percentage of crashes by severity and highway type that were coded with city code 00. This code is most often used by the state police to identify crashes that occurred outside of city limits. However, some crashes worked by state police could have been inside city limits. About 61% of the fatal interstate CMV crashes occurred in rural areas and about 56% of the injury interstate CMV crashes occurred in rural areas. Overall, 69% of fatal CMV crashes and 59% of all CMV crashes occur in rural areas. Thus rural interstates, US highways and state highways should continue to be the focus of enforcement.

Bus Crashes

Small and large busses are of particular interest to law enforcement because of the potential risk of high number of fatalities in a single crash. The number of CMV bus crashes, injuries, and fatalities is depicted in Table 14. In 2011, there were 92 large bus crashes where 216 passengers were injured inside the bus. There were 29 small bus crashes with 5 people killed and 40 passengers injured. There were 193 school bus crashes with 440 passengers injured in the bus. Overall, there were 15 people killed in 314 bus crashes and 1001 people injured. Thus, the number of bus crashes has increased in 2011 by 8% when compared to 2010. The number of injured bus passengers has increased by 5%. Specifically, the number of school bus crashes has increased by 13%. While small bus crashes have decreased by 22%, there were five (5) fatalities in 2011 compared to none in 2010. This is a case in point for how important the safety concerns for busses are because of the many fatalities that can result from a single crash.

Table 14: CMV Bus Crashes in 2011

Year		Count	School Bus	Small Bus	Large Bus	Total
2010		Crashes	171	37	82	290
	Inside Bus	Killed	0	0	1	1
		Injured	352	56	258	666
	In Crash	Killed	3	0	2	5
		Injured	470	80	322	872
2011		Crashes	193	29	92	314
	Inside Bus	Killed	0	5	0	5
		Injured	440	40	216	696
	In Crash	Killed	3	7	5	15
		Injured	598	66	337	1001

Figure 14 shows the trend in bus crashes. Generally, bus crashes have increased across all bus types over the past few years. For 2011, there is a significant increase in both school bus and large bus crashes from 2010 with an increase in 13% and 12%, respectively. The 2006 year was marked by the post Katrina clean-up and thus the number of crashes was relatively low because of less bus traffic.

Figure 14: Bus Crashes by Year

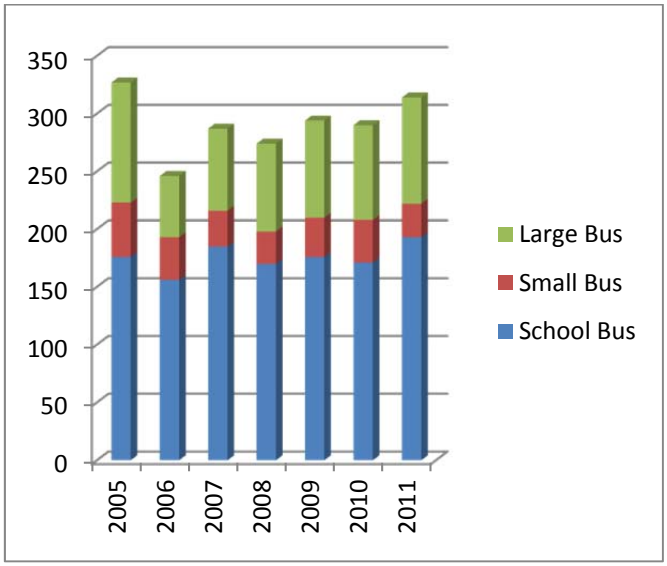
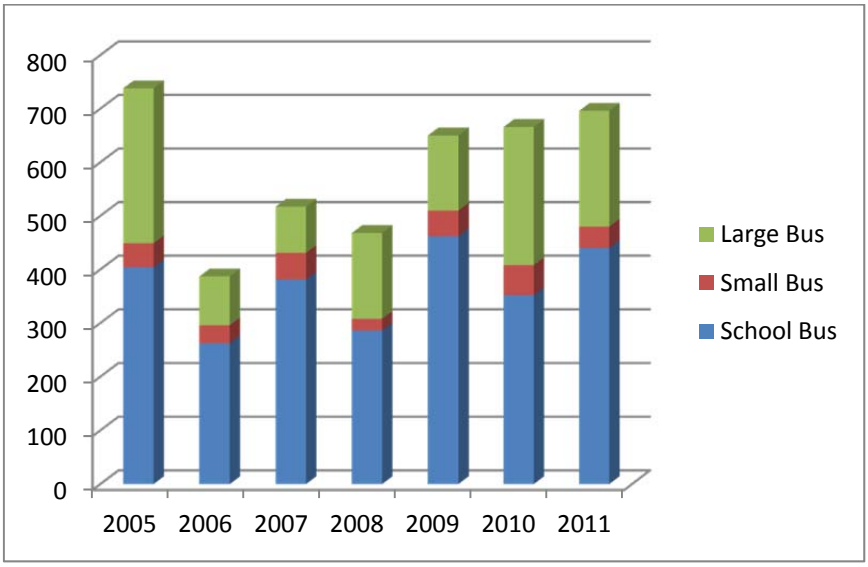


Figure 15: Bus-Crash Injuries by Year



Although the number of bus crashes has increased only by 8% from 2010 to 2011, namely from 290 to 314, the number of injuries has increased by 15%, namely from 872 to 1001. The years 2005 and 2006 were affected by hurricane Katrina and thus may not be suitable for comparisons.

Note: Definition of Reportable CMV Crashes: To qualify for reporting to the SafetyNET, the crash has to involve a private or public motor carrier, a CMV weight of at least 10,001 pounds or above, a tow of one of the vehicles, or the transportation of a person to medical treatment away from the crash scene, or a fatality.