

Commercial Vehicle Safety - 2013

**COMMERCIAL VEHICLE SAFETY
IN LOUISIANA
An Analysis of Truck Crashes for 2013**

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Summary

In 2013, the total number of reported CMV crashes increased by 2.1% compared to 2012. The number of fatal CMV crashes decreased from 93 in 2012 to 82 in 2013, a decrease of 13.4%. The number of injury CMV crashes decreased slightly from 1601 to 1583 during the same period, a decrease of 1.1%.

The percentage of CMV drivers in fatal crashes cited for violations decreased in 2013 compared to 2012. The percentage of violations in fatal crashes that CMV drivers received citations decreased from 36.2% in 2012 to 35.2% in 2013. Careless operation was the most frequent citation. In injury and property damage crashes, the driver of the CMV was cited for violations 37.3% and 35.3% 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 22.6% of all violations given to the driver of the CMV in fatal crashes and 35.9% in all crashes. Other violations with relatively high occurrence rates were failure to yield, with 25.8% in fatal and 13.7% in all crashes. Since careless operation is often a proxy for speed violations, 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 25.8% of all violations the CMV driver receives. In all CMV crashes, this percentage is 36.7%. When failure to yield is included, these percentages increase to 51.6% for fatal crashes and 50.4% for all crashes.

The manner of collision most common in all CMV crashes are rear-end types at 30.4% and non-collision types (single vehicle crashes) at 17.8%. For fatal crashes, the types were head-on collisions at 11.0%, rear-end collisions at 23.2%, right angle collisions at 20.7%, and non-collision with motor vehicle crashes at 15.9%.

During 2013, 25.8% of all CMV crashes in Louisiana occurred on interstates, 35.5% occurred on state highways, and 18.8% occurred on U.S. highways. In 2012, the respective percentages were 26.5%, 35.5%, and 21.2%. From 2012 to 2013, the number of fatal interstate crashes decreased from 27 to 23. U.S. highways experienced a decrease in fatal crashes of 33.3% and state highways saw a decrease of 14.6%. Thus, the overall decrease in CMV related fatalities of 12.9% was largely due to the decrease of fatalities on US highways, the decrease of fatalities on state highways, and the decrease of fatalities on interstates.

The number of fatal CMV crashes in work zones decreased from 8 to 2 from 2012 to 2013. In addition, the number of fatal crashes within 5 miles of the construction zone (construction zone plus 5 miles on either end) increased by 20.0%, namely from 5 to 6. However, the number of fatal crashes in the 5 miles approaching the construction zone from either end (excluding the construction zones) increased from 3 in 2012 to 4 in 2013. 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.

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Overview

This section provides an overview of the most important issues relating to CMV crashes in 2013 and trend data for the past five years. Table 1 depicts CMV crashes from 2008 to 2013 and shows that the fatal CMV crashes have decreased by 11.8% from 2012 to 2013 while the 5-year change in fatal CMV crashes was -20.4%. The CMV involved injury crashes decreased by 1.1% while the CMV involved PDO crashes increased by 5.4% from 2012 to 2013. The total CMV crashes increased by 2.1% from 2012 to 2013, more than the increase observed for all vehicle crashes, which was 0.5%.

Table 1: CMV Crashes 2008-2013

Year	CMV Crashes				CMV Crash Percentages				All Crashes				%CMV			
	Fatal	Injury	PDO	Total CMV	Fatal	Injury	PDO	Total CMV	Fatal	Injury	PDO	Total	Fatal	Injury	PDO	Total
2008	103	1783	2216	4102	3%	43%	54%	3%	820	20478	110106	157484	12.6%	8.7%	2.0%	2.6%
2009	74	1556	1889	3519	2%	44%	54%	2%	729	19944	109839	155929	10.2%	7.8%	1.7%	2.3%
2010	96	1578	2021	3695	3%	43%	55%	3%	643	18164	104552	147678	14.9%	8.7%	1.9%	2.5%
2011	86	1612	1968	3666	2%	44%	54%	2%	630	18200	105759	149735	13.7%	8.9%	1.9%	2.4%
2012	93	1601	1997	3691	3%	43%	54%	2%	653	18514	107963	153195	14.2%	8.6%	1.8%	2.4%
2013	82	1583	2104	3769	2%	42%	56%	2%	641	18238	109816	153979	12.8%	8.7%	1.9%	2.4%
1 Yr % Change	-11.8%	-1.1%	5.4%	2.1%	-13.7%	-3.2%	3.2%	1.6%	-1.8%	-1.5%	1.7%	0.5%	-1.4%	0.0%	0.1%	0.0%
5 Yr % Change	-20.4%	-11.2%	-5.1%	-8.1%	-13.4%	-3.4%	3.3%	-6.0%	-21.8%	-10.9%	-0.3%	-2.2%	0.2%	0.0%	-0.1%	-0.2%

The number of CMV crashes is expected to follow the trend of all crashes. Thus the CMV crashes as a percent 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 percent of all fatal crashes decreased in 2013 by 1.45 percentage points from 2012 while the CMV injury crashes as percent of all injury crashes increased by 0.03 percentage points from 2012.

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Figure 1: CMV and Non-CMV Crashes 2012-2013

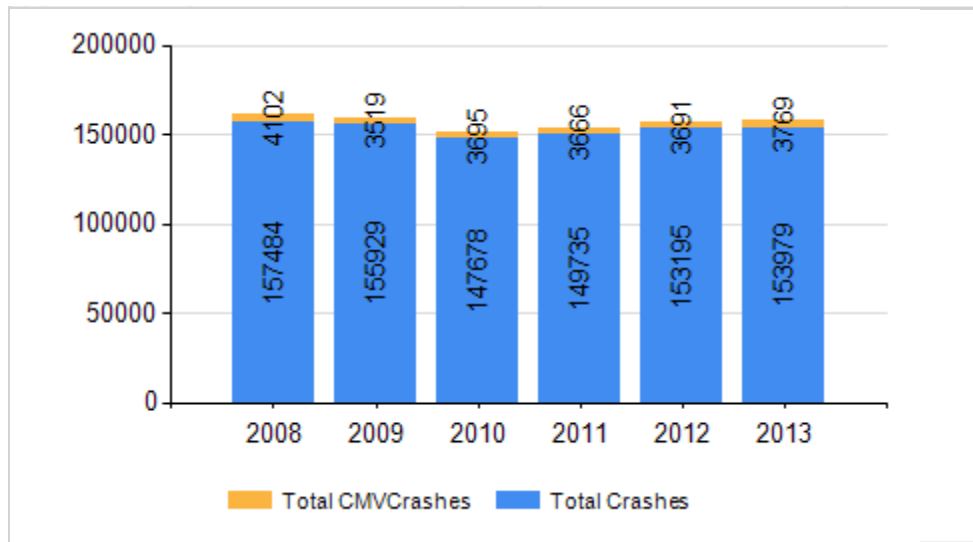


Figure 1 highlights the number of all crashes and shows the CMV crashes from 2008 to 2013. There were 78 less CMV crashes and 784 less non-CMV crashes compared to 2012. In addition, CMV crashes accounted for 2.4% of all crashes in 2013, which is about the same as 2012.

Figure 2: CMV Crashes by Severity: 2008-2013

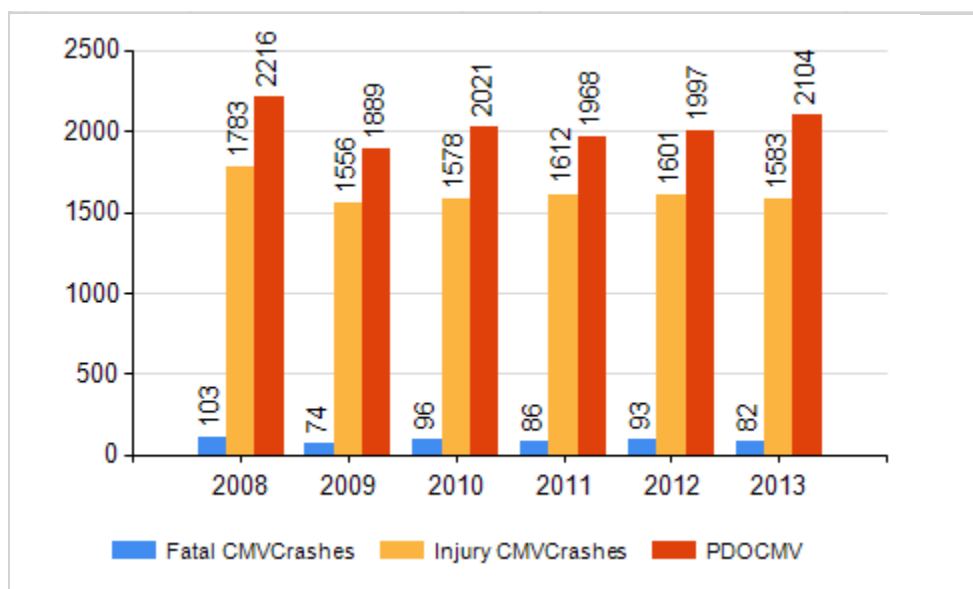


Figure 2 shows CMV crashes by severity. While injury crashes for all motor vehicles decreased by 1.5% from 2012 to 2013, CMV injury crashes decreased by only 1.1% in the same period.

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CMV property damage crashes increased by 5.1% from 2012 to 2013, while all CMV crashes combined increased by 2.1%.

Figure 3: CMV and Non-CMV Fatal Crashes 2008-2013

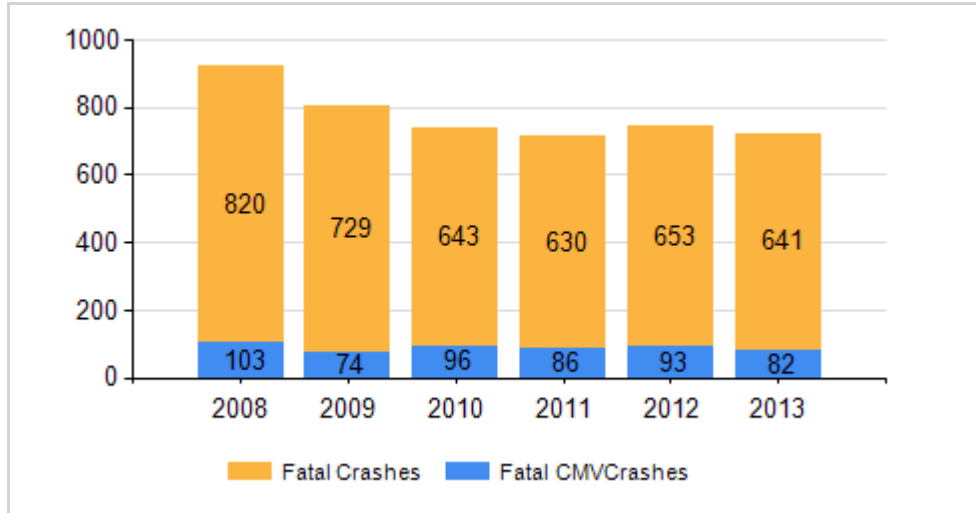
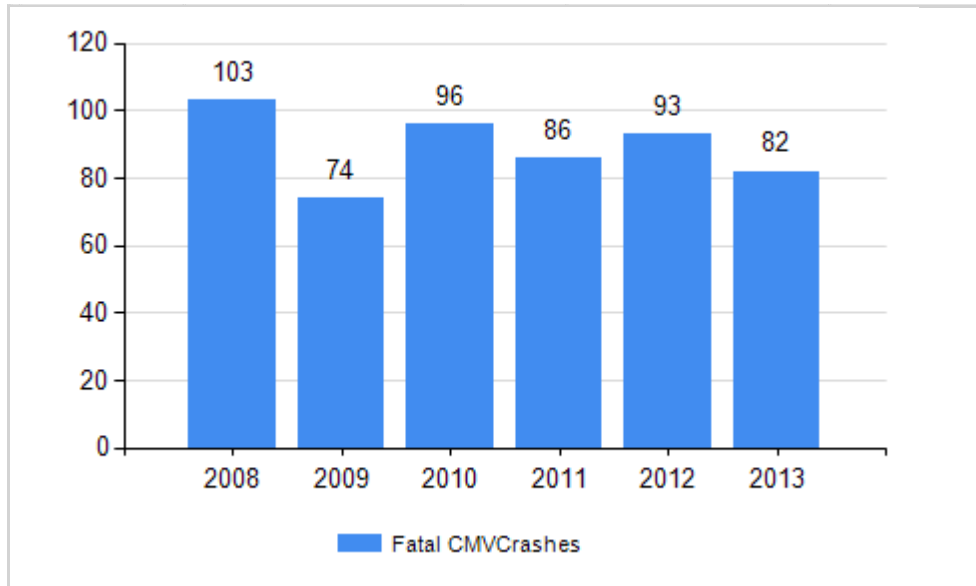


Figure 4: Fatal CMV Crashes by Year: 2008-2013



Figures 3 and 4 illustrate fatal non-CMV and CMV crashes from 2008 to 2013. While the decrease in the number of non-CMV fatal crashes was 2% from 2012 to 2013, the CMV fatal crashes experienced a large decrease of 11.8% which amounts to less fatal CMV crashes and 16% less fatalities. Figure 4 shows the trend of fatal CMV crashes which indicates that 2009 had the lowest number of CMV crashes in the past five years. In fact 2009 had the lowest number of CMV fatal crashes since at least 1999 when the yearly report was first compiled. The 2013 data shows that the downward trend in fatal CMV crashes experienced from year to year has not continued over the past three years. The year 2009 had the lowest overall traffic fatalities but 2012 experienced the first increase in fatalities since 2008.

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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 slightly from 0.20 in 2012 to 0.18 in 2013, the 5-year trend shows a decline in the fatality rate from 0.23 in 2008 to 0.18 in 2013. 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 2008-2013 per 100 Million Miles Traveled

Year	CMV Fatality Rate and Crash Rates				Fatality Rate and Crash Rates for All Vehicles			
	Fatality Rate	Injury Crash Rate	PDO Crash Rate	Total Cmv Crash Rate	Fatality Rate	Injury Crash Rate	PDO Crash Rate	Total Crash Rate
2008	0.23	3.96	4.93	9.12	1.82	45.54	244.85	350.21
2009	0.16	3.47	4.21	7.84	1.62	44.45	244.79	347.51
2010	0.21	3.47	4.45	8.13	1.41	39.96	229.99	324.85
2011	0.18	3.47	4.23	7.88	1.35	39.13	227.39	321.94
2012	0.20	3.42	4.27	7.89	1.40	39.59	230.87	327.59
2013	0.18	3.53	4.69	8.40	1.43	40.65	244.74	343.17

Analysis of Crashes by Month

Since monthly crash data fluctuates 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 numbers vary more than large crash numbers. Nevertheless, as the data in Table 3 indicates, October had the highest number of fatal crashes with 13 fatal crashes and 15 deaths.

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 3 to 13, spring and fall tend to have the highest number of fatal CMV crashes and total CMV crashes on average. Also, over the last seven years, the six months March-May and October-December have, on average, 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 are the times of the year when heightened alert for enforcement may be appropriate.

Table 3: CMV Crashes by Month in 2013

MONTH	FATAL CRASHES	TOTAL KILLED	INJURY CRASHES	PDO	TOTAL CRASHES	TOTAL TRUCKS AND BUSES	% CRASHES
January	9	10	138	189	336	354	9%
February	6	7	116	163	285	300	8%
March	6	7	130	181	317	332	8%
April	8	8	160	172	340	350	9%
May	6	6	111	190	307	326	8%
June	4	6	123	168	295	314	8%
July	5	6	105	143	253	271	7%
August	3	5	156	164	323	343	9%
September	6	7	141	173	320	343	8%
October	13	15	151	212	376	396	10%
November	6	8	132	174	312	325	8%
December	10	11	120	175	305	320	8%
TOTAL	82	96	1583	2104	3769	3974	100%

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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 CMV drivers and the number of car drivers are used as the denominator, respectively, the two percentages do not add up to 100%. They may be lower or higher than 100% if there are many crashes where no driver received a citation, and this percentage will be higher than 100% if there are many crashes where both drivers received a citation. For instance, in 2008 the two percentages added 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 1 percentage point from 2012 to 2013. In 2013, of all the CMV drivers in fatal crashes, 35% were cited for a violation compared to 36% in 2012. For injury and property damage crashes, 49% and 49% of the CMV drivers were cited for violations, respectively. Also 62% of non-CMV drivers received violations in fatal crashes in 2013. These figures show that in fatal crashes non-CMV drivers continued to have a higher percentage of citations than CMV drivers, while 49% of CMV drivers and 53% of non-CMV drivers received citations in PDO crashes the percentages of CMV drivers receiving citations in injury crashes was 49% which is higher than the 48% received by 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 of 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 decreased from 2012 to 2013, i.e. from 43% in 2012 to 35% in 2013 (see Table 4b). For injury and property damage only crashes (PDO) the CMV driver received 49% and 52% of violations, respectively.

Table 4a: Violations as a Percentage of Drivers

As Percentage of Drivers								
VIOLATIONS	FATAL CRASHES		INJURY CRASHES		PDO		TOTAL CRASHES	
ID Date Year Year MEMBER CAPTION	CMV Driver	Passenger Car Driver	CMV Driver	Passenger Car Driver	CMV Driver	Passenger Car Driver	CMV Driver	Passenger Car Driver
2008	32%	78%	51%	46%	48%	55%	49%	51%
2009	27%	66%	52%	47%	49%	53%	50%	50%
2010	35%	65%	52%	49%	50%	55%	51%	53%
2011	30%	49%	52%	47%	50%	52%	50%	49%
2012	36%	56%	51%	46%	48%	54%	49%	50%
2013	35%	62%	49%	48%	49%	53%	48%	51%

These are the percentage of drivers receiving citations.

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Table 4b: Violations as a Percentage of all Violations

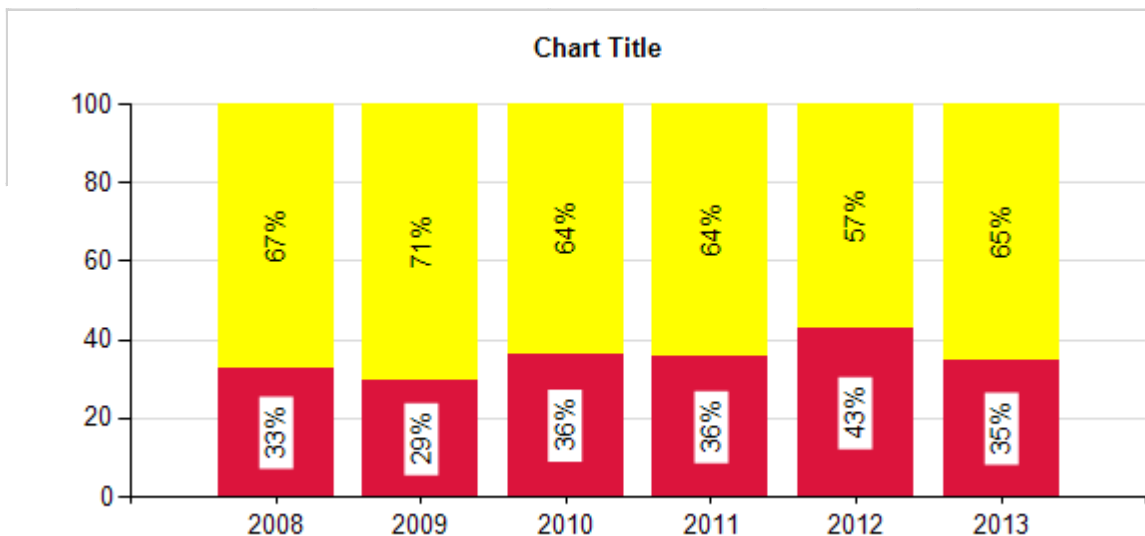
As Percentage of Violations								
VIOLATIONS	FATAL CRASHES		INJURY CRASHES		PDO		TOTAL CRASHES	
YEAR	CMV Driver	Passenger Car Driver	CMV Driver	Passenger Car Driver	CMV Driver	Passenger Car Driver	CMV Driver	Passenger Car Driver
2008	33%	67%	53%	47%	52%	48%	52%	48%
2009	29%	71%	52%	48%	52%	48%	51%	49%
2010	36%	64%	52%	48%	53%	47%	52%	48%
2011	36%	64%	53%	47%	55%	45%	54%	46%
2012	43%	57%	53%	47%	52%	48%	52%	48%
2013	35%	65%	49%	51%	52%	48%	50%	50%

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

The different views become apparent when the total number of citations given to the drivers decline over time. In 2013 citations in fatal crashes were given more frequently (35% & 65%) of the time for (CMV, Non-CMV), a considerable decrease for CMV drivers and an increase for Non-CMV drivers from (43% & 57%) in 2012. This means, approximately 35% of the CMV drivers in fatal CMV crashes received a citation in 2013, while 43% received a citation in 2012, a decrease of about 8% percentage points. Thus while the percentage of citations in fatal crashes has increased considerably, the relative distribution of these citations changed in the past year with 35% going to the CMV driver in fatal crashes and 65% going to the non-CMV driver.

Figure 5 reiterates the findings expressed above, namely that the relative percentage citations going to CMV drivers versus 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 remaining going to the non-CMV driver, but have shifted from CMV drivers towards the non-CMV drivers in 2013.

Figure 5: CMV and Non-CMV Driver Violations in Fatal Crashes: 2009-2013



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Table 5: Type of Violation of CMV Driver

VIOLATIONS	FATAL CRASHES		INJURY CRASHES		PDO		TOTAL CRASHES	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
CARELESS OPERATION	7	22.6%	301	37.3%	381	35.3%	689	35.9%
CUT CORNER ON LEFT TURN	0	0.0%	3	0.4%	8	0.7%	11	0.6%
CUTTING IN, IMPROPER PASSING	0	0.0%	28	3.5%	46	4.3%	74	3.9%
DISREGARDED TRAFFIC CONTROL	1	3.2%	24	3.0%	39	3.6%	64	3.3%
DRIVER CONDITION	1	3.2%	13	1.6%	11	1.0%	25	1.3%
DRIVING LEFT OF CENTER	1	3.2%	17	2.1%	15	1.4%	33	1.7%
EXCEEDING SAFE SPEED LIMIT	1	3.2%	3	0.4%	10	0.9%	14	0.7%
EXCEEDING STATED SPEED LIMIT	0	0.0%	0	0.0%	1	0.1%	1	0.1%
FAILED TO DIM HEADLIGHTS	0	0.0%	0	0.0%	0	0.0%	0	0.0%
FAILED TO SET OUT FLAGS,	1	3.2%	1	0.1%	2	0.2%	4	0.2%
FAILURE TO SIGNAL	0	0.0%	0	0.0%	1	0.1%	1	0.1%
FAILURE TO YIELD	8	25.8%	127	15.7%	127	11.8%	262	13.7%
FOLLOWING TOO CLOSELY	0	0.0%	98	12.1%	83	7.7%	181	9.4%
IMPROPER BACKING	0	0.0%	20	2.5%	35	3.2%	55	2.9%
IMPROPER PARKING	1	3.2%	5	0.6%	9	0.8%	15	0.8%
IMPROPER STARTING	0	0.0%	0	0.0%	3	0.3%	3	0.2%
MADE WIDE RIGHT TURN	0	0.0%	4	0.5%	9	0.8%	13	0.7%
NO VIOLATIONS	57		848		1144		2049	
OTHER	1	3.2%	64	7.9%	120	11.1%	185	9.6%
OTHER IMPROPER TURNING	1	3.2%	17	2.1%	28	2.6%	46	2.4%
TURNED FROM WRONG LANE	1	3.2%	11	1.4%	17	1.6%	29	1.5%
UNKNOWN	7	22.6%	60	7.4%	90	8.3%	157	8.2%
VEHICLE CONDITION	0	0.0%	11	1.4%	45	4.2%	56	2.9%
TOTAL	31	100.0%	807	100.0%	1080	100.0%	1918	100.0%
Column %	35%		49%		49%		48%	
Row %	35%		49%		52%		50%	

Table 5 shows the types of violations drivers receive. In 2013, failure to yield violations accounted for the majority of violations of the CMV driver in fatal crashes, 8 occurrences or 25.81%, associated with fatal commercial vehicle crashes. The percentage of careless operation of CMV drivers was 37.30% for injury CMV crashes and 35.28% for PDO crashes.

Manner of Collision

Table 6 shows the manner of collision. "REAR END", "RIGHT ANGLE", and "HEAD-ON" collisions make up more than 65.2% $[(19 + 17 + 9) / (82 - 13)]$ of all fatal multi-vehicle CMV crashes. This is a 15.3 percentage point decrease from 80.6% in 2012 for these three types of collisions. Also, the non-collision fatal CMV crashes decreased from 21 in 2012 to 13 in 2013.

Table 6: Manner of Collision

MANNER OF COLLISION	FATAL CRASHES		INJURY CRASHES		PDO		TOTAL CRASHES	
	Count	Percentage	Count	Percentage	Count	Percentage	Count	Percentage
HEAD-ON	9	11.0%	35	2.2%	26	1.2%	70	1.9%
LEFT TURN - ANGLE	3	3.7%	43	2.7%	51	2.4%	97	2.6%
LEFT TURN - OPPOSITE DIRECTION	5	6.1%	45	2.8%	54	2.6%	104	2.8%
LEFT TURN - SAME DIRECTION	0	0.0%	25	1.6%	34	1.6%	59	1.6%
NON-COLLISION WITH MOTOR VEHICLE	13	15.9%	218	13.8%	440	20.9%	671	17.8%
OTHER	7	8.5%	148	9.4%	206	9.8%	361	9.6%
REAR END	19	23.2%	539	34.1%	586	27.9%	1144	30.4%
RIGHT ANGLE	17	20.7%	260	16.4%	252	12.0%	529	14.0%
RIGHT TURN - OPPOSITE DIRECTION	0	0.0%	7	0.4%	13	0.6%	20	0.5%
RIGHT TURN - SAME DIRECTION	1	1.2%	21	1.3%	38	1.8%	60	1.6%
SIDESWIPE - OPPOSITE DIRECTION	5	6.1%	51	3.2%	55	2.6%	111	2.9%
SIDESWIPE - SAME DIRECTION	3	3.7%	189	12.0%	349	16.6%	541	14.4%
Total	82	100.0%	1581	100.0%	2104	100.0%	3767	100.0%

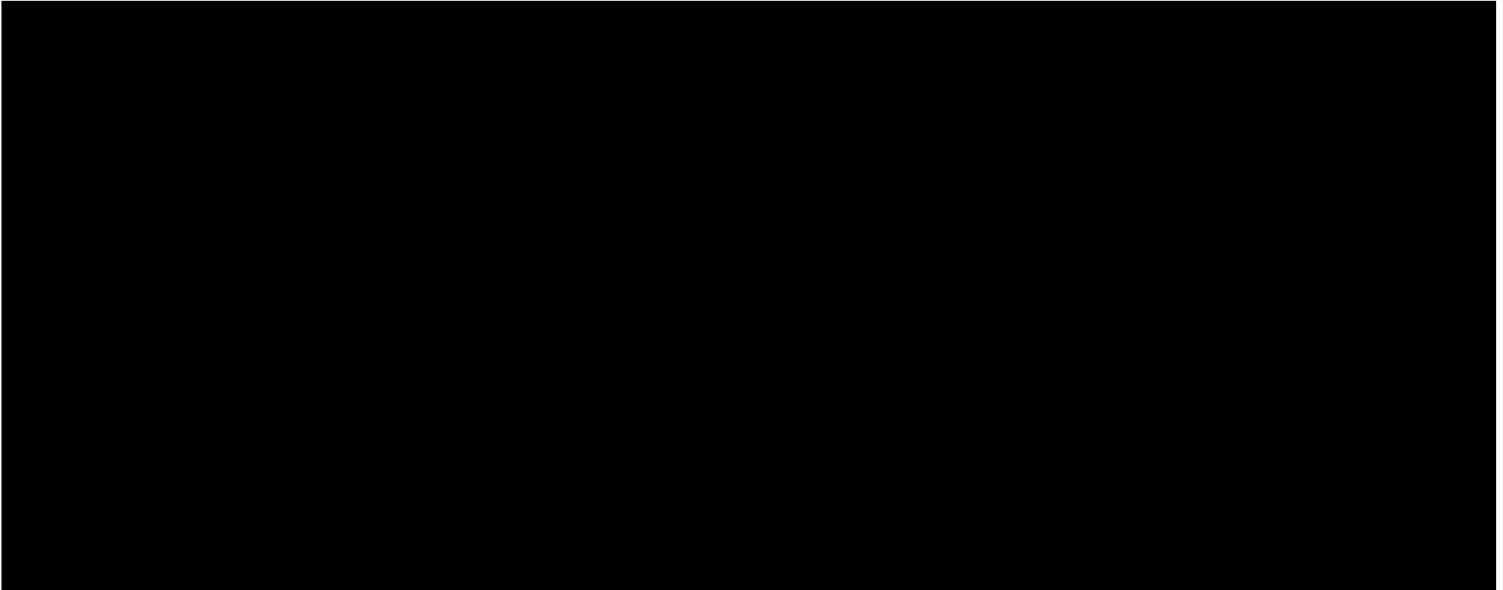
High Crash Locations in Interstate Corridors

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 44% of fatal CMV crashes and 58% of all crashes in 2013.

Figure 6: Interstates 10/12 Corridor



The corridor includes Louisiana Interstates 10, 110, 310, 610, 12, 55, and parts of 59 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 2013 and 2012 by milepost on interstate 10 along with all crashes. The comparison between 2012 and 2013 shows the percentage of crashes within the first 50 miles of Interstate 10 has increased slightly from 17% to 21%. The most obvious area for CMV crashes in 2013 was between milepost 210 and 240.

Figure 7: Cumulative Percentage of Interstate 10 Crashes 2012 and 2013

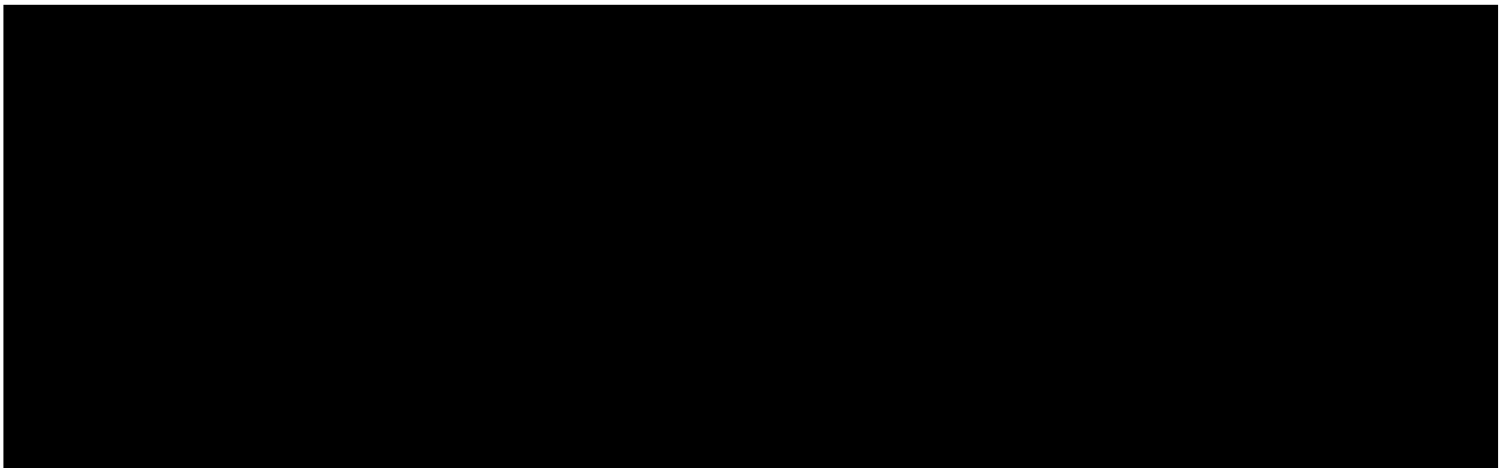
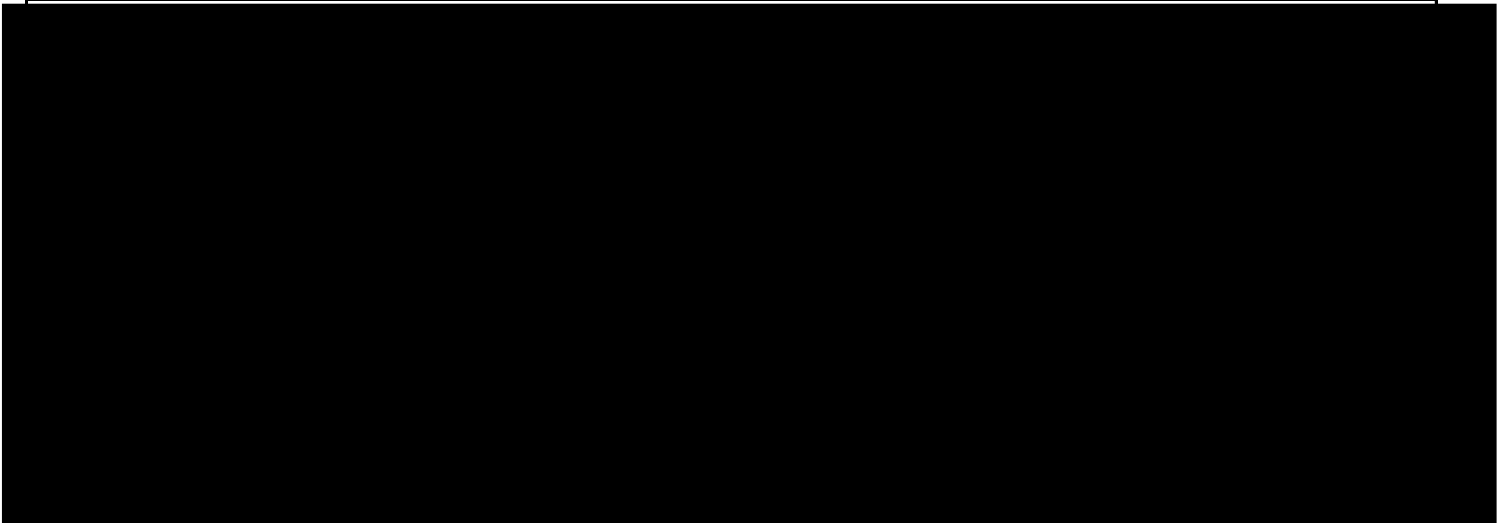


Figure 8a: Interstate 10 in New Orleans Mileposts 200 to 230



The interstate section of I10 between West Baton Rouge and the I10/12 split has about 3% of all crashes on I10, but about 4% of all CMV crashes. These crashes are shown in Figure 8b.

Figure 8b: Interstate 10 Between WBR and I110-12

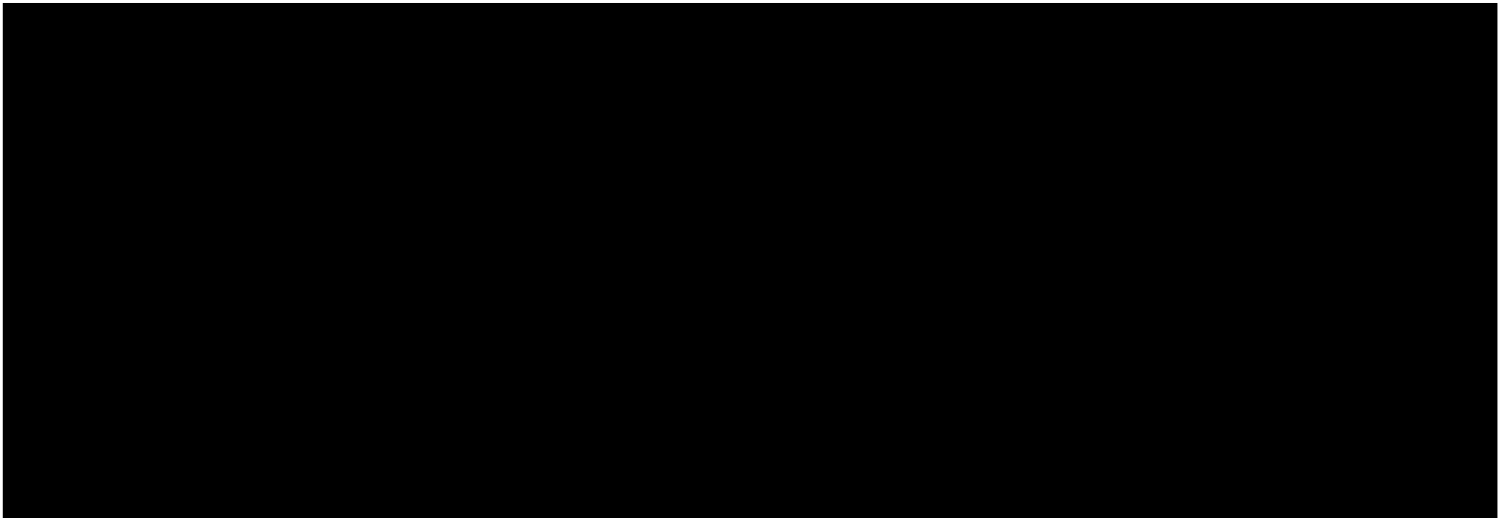


Figure 8c: Interstate 10 Bridge in Baton Rouge

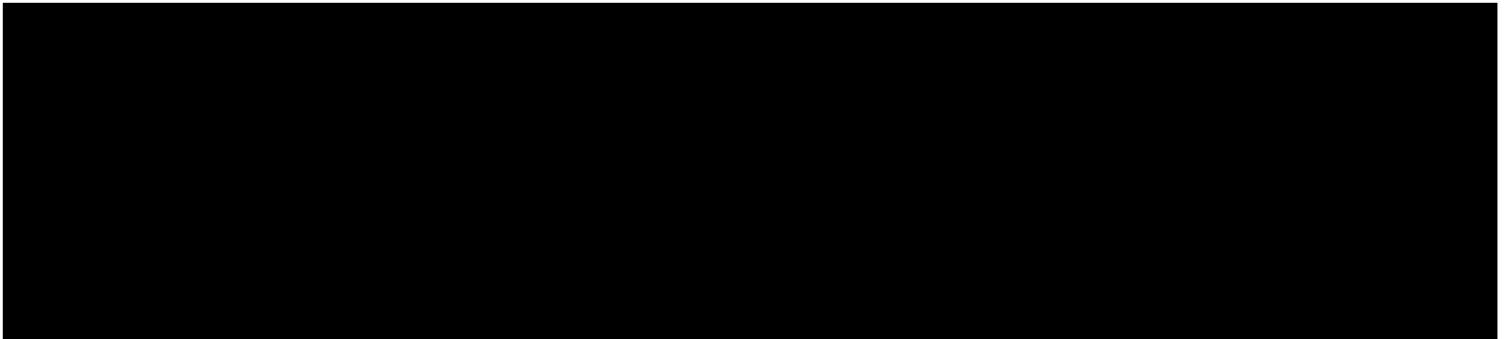


Figure 8c shows the CMV crashes that occurred on the I10 bridge in Baton Rouge.

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Figure 9 shows a decrease in the cumulative percent of CMV crashes within the first 20 miles of Interstate 12 from 38% in 2012 to 21% in 2013.

Figure 9: Cumulative Percent of Interstate 12 Crashes 2012 and 2013

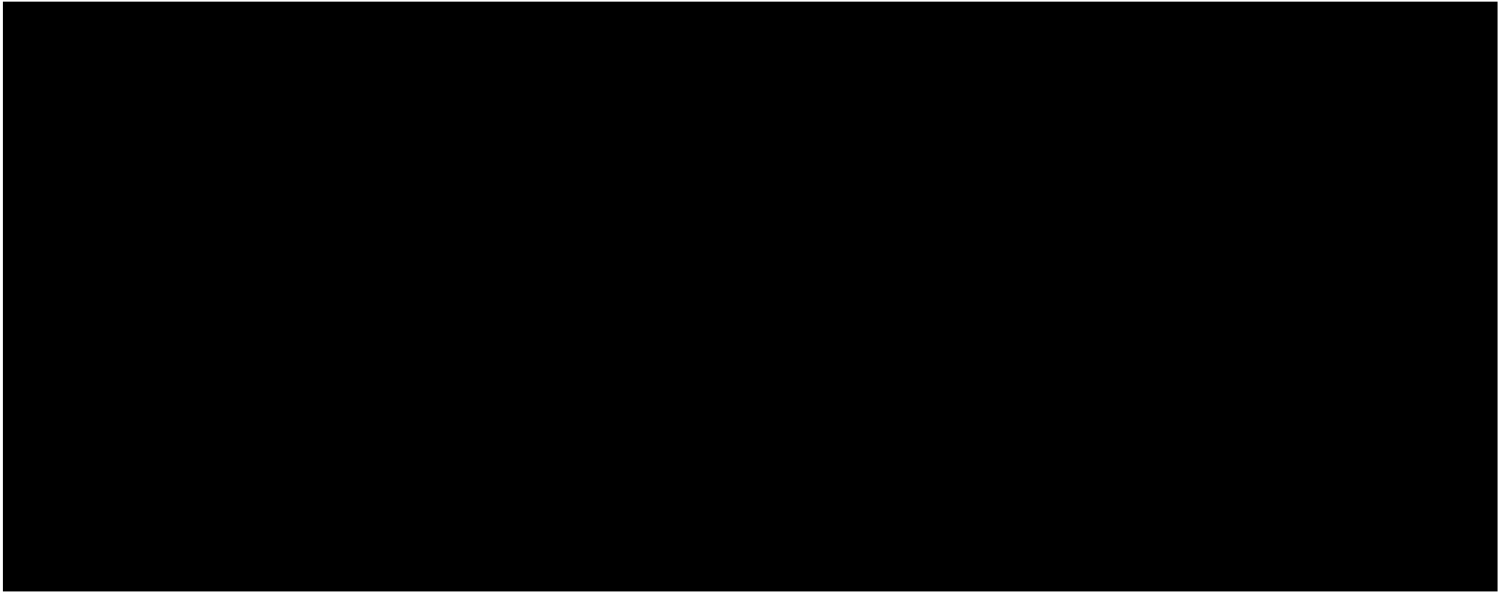
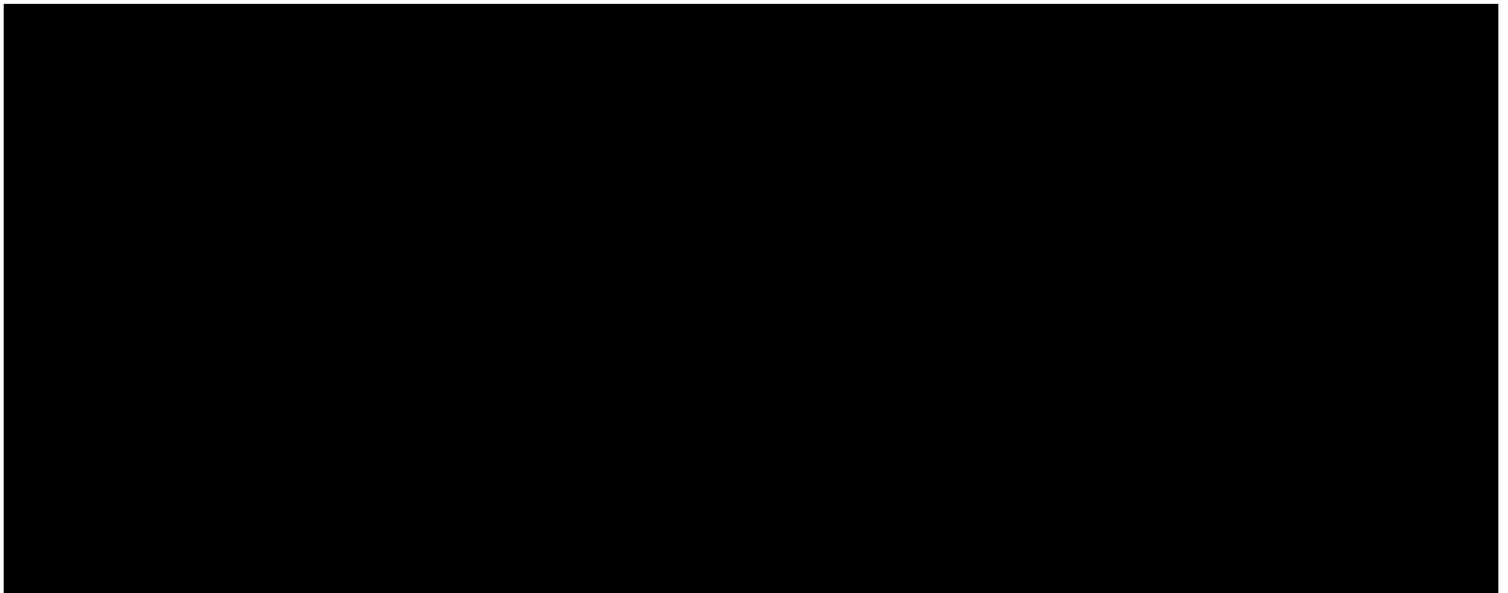


Figure 10 shows the Interstate 12 corridor between Baton Rouge and Slidell with considerably fewer crashes than in 2012.



Interstate 20 Corridor

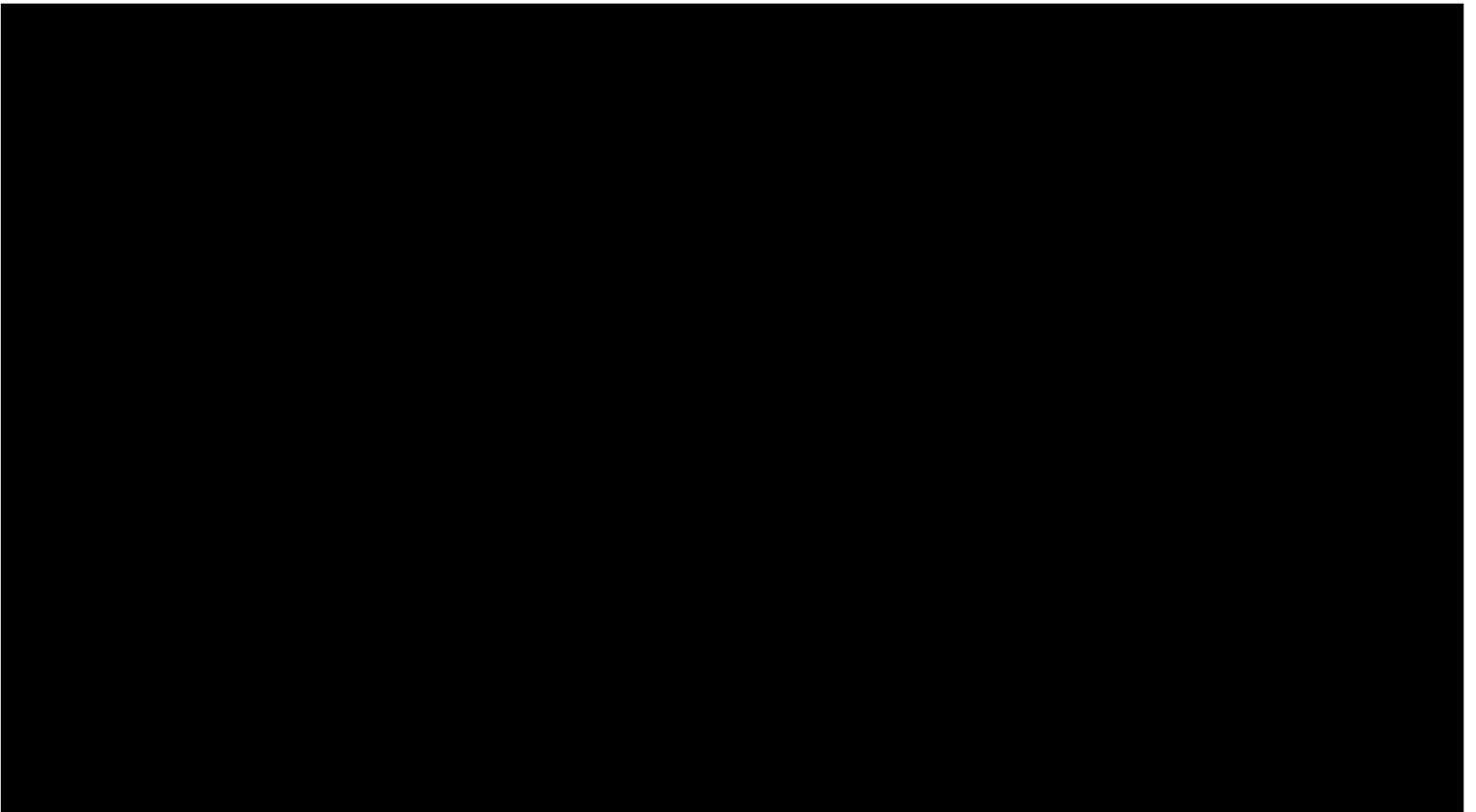
Figure 11: Interstate 20 Corridor



The Interstate 20 corridor includes 10 parishes. The three parishes (Caddo, Ouachita, and Bossier) account for 9% of all commercial vehicle crashes in 2013. As illustrated in Figure 11, the corridor includes Interstate 20, 220 and parts of Interstate 49. The major US highways along the corridor are 61, 65, 71, 80, 165, 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 in 2013 from 43% to 39%.

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 fields have drawbacks as well. It may not be filled out consistently in cases where 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 DOTD. Table 7a shows that the number of fatal CMV crashes on all interstates decreased by 14.8% from 27 in 2012 to 23 in 2013 while the number of fatal crashes in construction zones decreased by 75.0% from 8 to 2 when only the schedule is used. However, the number of crashes must be adjusted by the construction time and miles under construction. For instance, the year 2013 had 24.3% less construction zone day miles, i.e. miles times days under construction. 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 15.1 fatal crashes per day-mile in 2012 to 5.0 fatal crashes per day-mile in 2013.

The number of fatal crashes in the +/-5 miles of the approach to the construction zones increased from 3 in 2012 to 4 in 2013 and the number of fatal crashes per day mile increased from 5.2 in 2012 to 8.7 in 2013. Also seen in Table 7a is an decrease in all CMV crashes within the +/- 5 miles that include the construction zones, i.e., from 367 in 2012 to 215 in 2013, a decrease of 41.4%, while the number of crashes within construction zones decreased from 231 in 2012 to 108 in 2013, a decrease of 53.2% .

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Table 7a: Work-Zone CMV Crashes on Interstates (2012-2013) using DOTD Schedule Only

*# Within 5 miles of construction zone refers to 2 times 5 miles plus the 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*

	WHERE	2013				2012				Percent Change			
		FATAL	INJ.	PDO	ALL	FATAL	INJ.	PDO	ALL	FATAL	INJ.	PDO	ALL
ALL CMV CRASHES ON INTER-STATES	Count	23	337	609	969	27	367	582	976	-14.8%	-8.2%	4.6%	-0.7%
	Per 100K Miles	7.0	103.2	186.4	296.6	8.3	112.3	178.2	298.8	-14.8%	-8.2%	4.6%	-0.7%
CONSTRUCTION ZONES	Count	2	30	76	108	8	83	140	231	-75.0%	-63.9%	-45.7%	-53.2%
	Per 100K Day-Miles	5.0	74.9	189.8	269.7	15.1	156.9	264.7	436.8	-67.0%	-52.3%	-28.3%	-38.2%
WITHIN 5 MILES OF CONSTRUCTION ZONES	Count	6	79	130	215	5	128	234	367	20.0%	-38.3%	-44.4%	-41.4%
	Per 100K Day-Miles	7.0	91.9	151.2	250.1	4.5	115.5	211.1	331.0	54.7%	-20.4%	-28.4%	-24.5%
IN 5 MILE APPROACH TO CONSTRUCTION ZONE	Count	4	49	54	107	3	45	94	136	-233.3%	8.9%	-42.6%	-21.3%
	Per 100K Day-Miles	8.7	106.7	117.6	233.0	5.2	77.6	162.1	234.6	-268.3%	37.4%	-27.5%	-0.7%

Using crashes that are marked on the crash report as work-zone related also (see Table 7b), the number of fatal crashes in construction zones was ZERO in 2012 and 2013. The number of crashes within the +/-5 mile approach to the construction zones is zero, 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 therefore does not report crashes before or after construction zones.

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Table 7b: Work-Zone CMV Crashes on Interstates (2012-2013) based on Crash Report

Within 5 miles of construction zone refers to 2 times 5 miles plus the 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

	WHERE	2013				2012				Percent Change			
		FATAL	INJ.	PDO	ALL	FATAL	INJ.	PDO	ALL	FATAL	INJ.	PDO	ALL
ALL CMV CRASHES	Count	23	337	609	969	27	367	582	976	-14.8%	-8.2%	4.6%	-0.7%
ON INTER-STATES	Per 100K Day-Miles	7.0	103.2	186.4	296.6	8.3	112.3	178.2	298.8	-14.8%	-8.2%	4.6%	-0.7%
CONSTRUCTION ZONES	Count	0	17	11	28	0	24	23	47	0.0%	-29.2%	-52.2%	-40.4%
	Per 100K Day-Miles	0.0	42.5	27.5	69.9	0.0	45.4	43.5	88.9	0.0%	-6.4%	-36.8%	-21.3%
WITHIN 5 MILES OF CONSTRUCTION ZONES	Count	0	17	11	28	0	24	23	47	0.0%	-29.2%	-52.2%	-40.4%
	Per 100K Day-Miles	0.0	19.8	12.8	32.6	0.0	21.6	20.7	42.4	0.0%	-8.7%	-38.3%	-23.2%
IN 5 MILES TO APPROACH TO CONSTRUCTION ZONE	Count	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
	Per 100k Day-Miles	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%

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Seat Belt Usage

Seat belt usage is one of the most important factors preventing death in a crash. Table 8 shows that in 2013, 42% of CMV drivers killed in a crash did not wear a seat belt while 60% 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.

Year	CMV Driver						All Drivers					
	Drivers Killed w/o Seatbelt	Total Number of Drivers Killed	% of Drivers Killed w/o seatbelt	Drivers Seriously Injured w/o Seatbelt	Total Number of Drivers Seriously Injured	% of Drivers Seriously Injured w/o seatbelt	Drivers Killed w/o Seatbelt	Total No. of Drivers Killed	% of Drivers Killed w/o seatbelt	Drivers Seriously Injured w/o Seatbelt	Total No. of Drivers Seriously Injured	% of Drivers Seriously Injured w/o seatbelt
2008	9	16	56%	2	12	17%	323	485	67%	296	887	33%
2009	3	5	60%	4	10	40%	289	443	65%	262	805	33%
2010	7	12	58%	3	12	25%	223	367	61%	226	705	32%
2011	2	7	29%	4	14	29%	247	370	67%	224	705	32%
2012	5	14	36%	3	8	38%	208	357	58%	213	633	34%
2013	5	12	42%	3	9	33%	231	385	60%	198	627	32%
5-Year Total	31	66	47%	19	12	29%	1521	2407	63%	1419	4362	33%

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. The 5-year average of CMV drivers killed not wearing a seat belt was 47%.

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 5 years, from 2009 to 2013, on average, about 14.5% of crashes involving hazardous material resulted in a release of the hazardous material. This percentage was 13.8% in 2013. 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 percentages shown in Table 9.

Table 9: Hazardous Material Crashes
(Includes only known Chemicals Transported)

Year	Transport	Released	% Released
2008	145	21	14%
2009	121	22	18%
2010	108	17	16%
2011	99	15	15%
2012	96	8	8%
2013	94	13	14%

The interstates accounted for 35% of all crashes involving hazardous materials in 2013. Specifically, Interstate 10 accounts for 22% of all hazardous material crashes on interstates in 2013. US highways account for 17% of all hazardous material crashes in 2013, with US 90 and US 190 accounting for 54% of hazardous material crashes on US highways. State highways accounted for 40% of all hazardous crashes in 2013.

The types of hazardous material reported in CMV crashes are displayed in Table 10. On average, 13% involve corrosive material, 10% involve flammable gasses, and 62% involve flammable liquids. The remaining percentages are various chemicals. Note that Table 10 does not include unknown chemicals.

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Table 10: Type of Hazardous Material in CMV Crashes
(Includes only known Chemicals Transported)

PLC	Year	2007		2008		2009		2010		2011		2012		2013	
		Transp.	Rel.	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.
	CORROSIVE GASES (CANADA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	CORROSIVE MATERIALS	28	3	18	2	18	5	19	5	22	1	15	2	15	2
	DANGEROUS WASTES (CANADA)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	DANGEROUS WHEN WET MATERIALS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	ENVIRONMENTALLY HAZARDOUS SUBSTANCES (CANADA)	4	1	0	0	0	0	0	0	0	0	0	0	0	0
	Explosives	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EXPLOSIVES WITH A MASS EXPLOSION HAZARD	1	0	0	0	0	0	0	0	0	0	1	0	0	0
	EXPLOSIVES WITH A NO SIGNIFICANT BLAST HAZARD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EXPLOSIVES WITH A PREDOMINANTLY A FIRE HAZARD	1	1	0	0	0	0	0	0	0	0	0	0	0	0
	EXPLOSIVES WITH A PROJECTION HAZARD	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	EXTREMELY INSENSITIVE DETONATING ARTICLES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	FLAMMABLE GASES	18	3	25	2	17	4	20	3	12	0	16	2	13	1
	FLAMMABLE LIQUIDS	52	8	72	14	62	6	52	6	43	11	44	2	57	10
	FLAMMABLE SOLIDS	0	0	4	0	3	1	1	0	1	0	5	1	1	0
	FLAMMABLE SOLIDS or SPONTANEOUSLY COMBUSTIBLE MATERIALS or DANGEROUS WHEN WET MATERIALS	0	0	0	0	0	0	0	0	0	0	2	0	0	0
	GASES	5	2	0	0	1	1	1	0	3	1	0	0	3	0
	GASES TOXIC BY INHALATION	2	0	1	0	0	0	0	0	0	0	2	0	0	0
	INFECTIOUS SUBSTANCES	1	0	0	0	0	0	0	0	0	0	0	0	0	0
	MISC DANGEROUS GOODS	2	0	11	2	10	2	7	1	5	0	6	0	3	0
	MISC DANGEROUS GOODS (CANADA)	3	1	0	0	0	0	0	0	0	0	0	0	0	0
	NON-FLAMMABLE, NON-TOXIC COMPRESSED GASES	10	2	6	0	7	1	7	2	9	2	4	1	1	0
	ORGANIC PEROXIDES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	OXIDIZERS	0	0	1	0	2	2	0	0	0	0	0	0	0	0
	OXIDIZERS and ORGANIC PEROXIDES	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	RADIOACTIVE MATERIALS	0	0	0	0	0	0	0	0	1	0	0	0	1	0
	SPONTANEOUSLY COMBUSTIBLE MATERIALS	0	0	2	1	0	0	0	0	0	0	0	0	0	0
	TOXIC MATERIALS	3	1	5	0	1	0	1	0	2	0	0	0	0	0
	TOXIC MATERIALS and INFECTIOUS SUBSTANCES	3	1	0	0	0	0	0	0	1	0	1	0	0	0
	VERY INSENSITIVE EXPLOSIVES; BLASTING AGENTS	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	133	23	145	21	121	22	108	17	99	15	96	8	94	13

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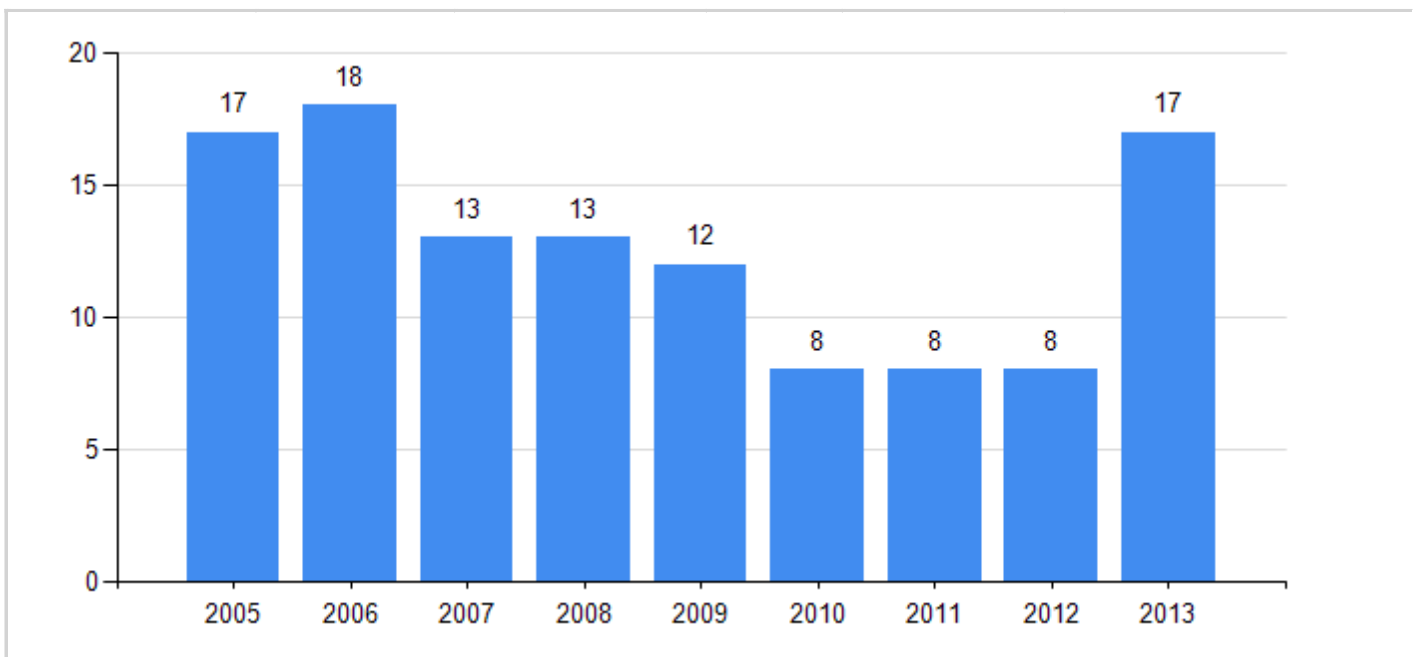
Distractions

Although distractions play an important role in all crashes, including CMV crashes, no fatal CMV crashes were reported in 2013 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

Driver Distraction Description	Fatal	Injury	PDO	Total
CELL PHONE	0	9	8	17
NOT DISTRACTED	67	1766	1343	3176
OTHER ELECTRONIC DEVICE	0	4	6	10
OTHER INSIDE THE VEHICLE	0	29	19	48
OTHER OUTSIDE THE VEHICLE	2	34	34	70
UNKNOWN	16	350	223	589

Figure 13: Cell Phone Use as a Distraction in CMV Crashes



While the number of CMV crashes with cell phone usage has declined from 17 in 2005 to 8 in 2010, 2011, and 2012, they have increased to 17 in 2013.

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Changes in Number of Crashes by Parish

The 15 parishes with the highest number of fatal and non-fatal CMV crashes are listed in Table 12. From 2012 to 2013, Louisiana experienced a significant increase in all CMV crashes along the I10/I12 corridor and I20: Terrebonne (46%), Lafayette (26%), and St. Tammany (19%).

Ascension (17%) and Caddo (15%) also had considerable increases in CMV crashes. Thus the I10/I12 corridor and I20 are candidates for increased enforcement to counteract the increasing trend in crashes.

Table 12: CMV Crashes by Parishes

PARISH	FATAL CRASHES		TOTAL CRASHES		TOTAL CRASHES	
	2013	2012	2013	2012	Diff	% Change
East Baton Rouge	6	4	342	333	9	3%
Orleans	3	1	303	292	11	4%
Lafayette	3	2	254	202	52	26%
Jefferson	5	3	197	212	-15	-7%
Calcasieu	3	4	176	203	-27	-13%
Caddo	1	7	159	138	21	15%
St. Tammany	2	5	156	131	25	19%
Tangipahoa	3	4	130	116	14	12%
Terrebonne	0	1	117	80	37	46%
Ouachita	2	2	113	124	-11	-9%
Ascension	4	2	111	95	16	17%
Livingston	5	1	111	101	10	10%
Rapides	1	1	111	117	-6	-5%
Lafourche	1	3	103	122	-19	-16%
Bossier	2	1	80	113	-33	-29%
TOTAL	41	41	2463	2379	84	4%

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Rural CMV Crashes

Table 13a 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. While the fatal CMV crashes on US highways decreased by 7 or (-33%) from 2012 to 2013, the fatal CMV crashes on state highways decreased by 6 or (-15%), and the fatal CMV crashes on interstates decreased by 4 or (-15%). The injury crashes during the same period exhibit a decrease of 8% on interstates, an increase of 3% on state highways and a decrease of 16% on US highways. Overall, parish roads and city streets experienced the highest increase in CMV crashes, namely 13% and 24% respectively.

Table 13a: CMV Crashes by Highway Type 2013

HIGHWAY TYPE	FATAL CRASHES			INJURY CRASHES			PDO			TOTAL		
	2013 CRASH	2012 CRASH	DIFFERENCE	2013 CRASH	2012 CRASH	DIFFERENCE	2013 CRASH	2012 CRASH	DIFFERENCE	2013 CRASH	2012 CRASH	DIFFERENCE
INTERSTATE	23	27	-15%	337	367	-8%	609	582	5%	969	976	-1%
US HIGHWAY	14	21	-33%	316	377	-16%	376	383	-2%	706	781	-10%
STATE ROAD	35	41	-15%	599	582	3%	697	683	2%	1331	1306	2%
PARISH ROAD	5	1	400%	83	88	-6%	164	135	21%	252	224	13%
CITY/LOCAL ROADS AND STREETS	4	3	33%	240	183	31%	247	210	18%	491	396	24%
Total	81	93	-12.90%	1575	1597	4.03%	2093	1993	43.96%	3749	3683	28.08%
% Interstates	28.4%	29.0%	-2.2%	21.4%	23.0%	-6.9%	29.1%	29.2%	-0.4%	25.8%	26.5%	-2.5%
% US	17.3%	22.6%	-23.5%	20.1%	23.6%	-15.0%	18.0%	19.2%	-6.5%	18.8%	21.2%	-11.2%
% State	43.2%	44.1%	-2.0%	38.0%	36.4%	4.4%	33.3%	34.3%	-2.8%	35.5%	35.5%	0.1%
% State, US, & Interstate	88.9%	95.7%	6.0%	79.5%	83.0%	2.8%	80.4%	82.7%	-4.0%	80.2%	83.2%	-0.9%

Table 13b: Percentage of Rural CMV Crashes 2013

	Fatal	Injury	PDO	Total
INTERSTATE	57%	51%	57%	55%
US HIGHWAY	79%	51%	46%	49%
STATE ROAD	91%	71%	69%	71%
PARISH ROAD	100%	89%	85%	86%
CITY/LOCAL ROADS AND STREETS	0%	2%	2%	2%
Total	76%	53%	55%	54%

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 13b gives a different perspective of rural vs. urban crashes. Table 13b 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 57% of the fatal interstate CMV crashes occurred in rural areas and about 51% of the injury interstate CMV crashes occurred in rural areas. Overall, 76% of fatal CMV crashes and 54% 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 2013, there were 89 large bus crashes where 245 passengers were injured inside the bus. There were 38 small bus crashes with no people killed but 55 passengers were injured. There were 206 school bus crashes with 417 passengers injured. Overall, in 2013, there were 5 people killed in 333 bus crashes and 975 injured. Compared to 2012, the number of bus crashes has increased from 292 to 333 in 2013. However, the number of injuries has decreased from 1174 in 2012 to 975 in 2013. The number of school bus crashes has increased by 21.9%, while small bus crashes have increased by 40.7%, and large bus crashes have decreased by 7.3%.

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Table 14: CMV Bus Crashes in 2013

Year		Count	School Bus	Small Bus	Large Bus	TOTAL
2012	Inside Bus	Number of Crashes	169	27	96	292
		Number of Killed	0	0	0	0
	In Bus Crash	Number Injured	404	33	347	784
		Number Killed	1	1	0	2
		Number Injured	704	48	422	1174
2013	Inside Bus	Number of Crashes	206	38	89	333
		Number of Killed	0	0	0	0
	In Bus Crash	Number Injured	417	55	245	717
		Number Killed	2	1	2	5
		Number Injured	551	82	342	975

Figure 14 shows the trend in bus crashes. While bus crashes have increased from 2012 to 2013, the total number of bus crashes has trended upward from 2008.

Figure 14: CMV Bus Crashes by 2013

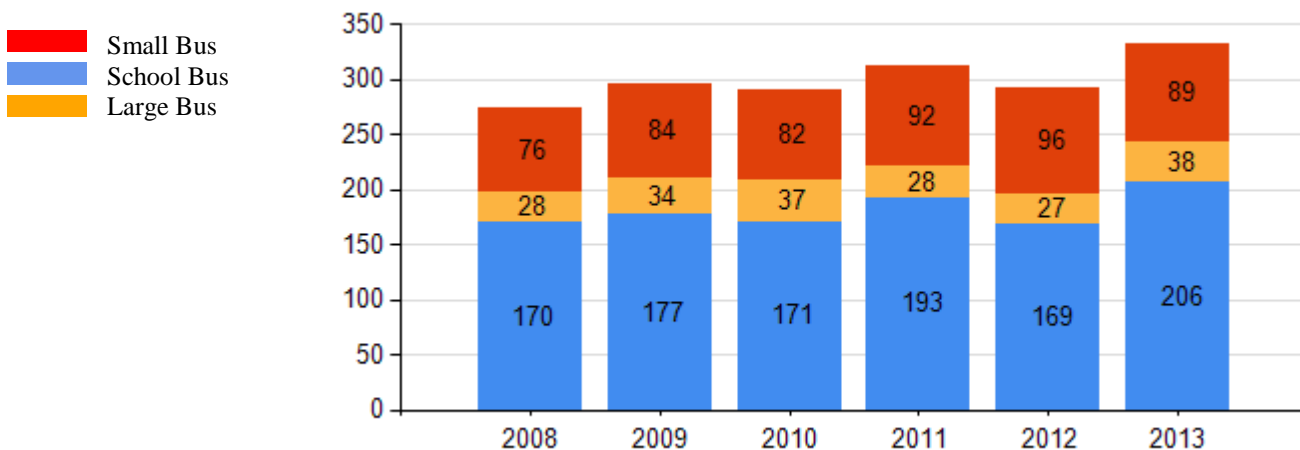
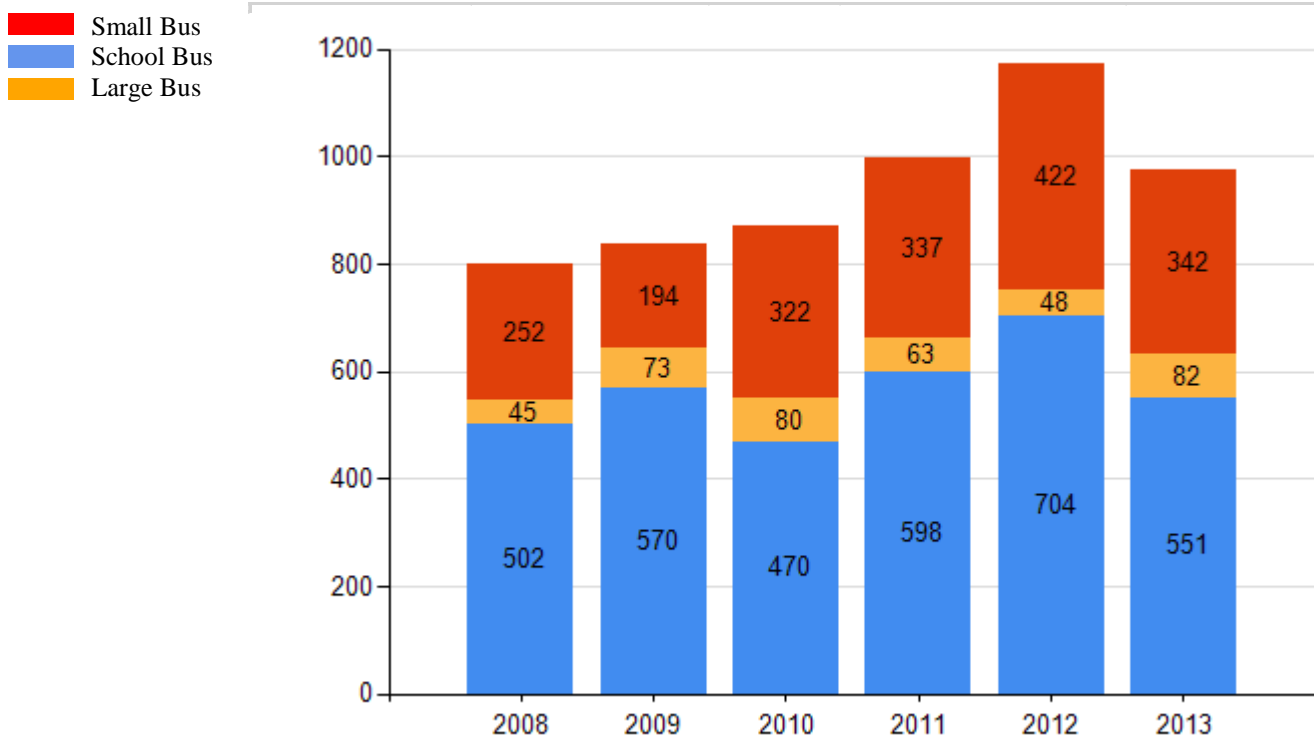


Figure 15 : Bus-Crash Injuries by 2013



Although the number of bus crashes has increased by 14.0% from 2012 to 2013, namely from 292 to 333, the number of injuries have decreased by 17.0%, namely from 1174 to 975.

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.

