

COMMERCIAL VEHICLE SAFETY IN LOUISIANA

An Analysis of Truck Crashes for 2015

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Summary

In 2015, the total number of reported CMV crashes increased by 1.5% compared to 2014. The number of fatal CMV crashes decreased from 92 in 2014 to 84 in 2015, a decrease of 8.7%. The number of injury CMV crashes decreased slightly from 1,621 to 1,604 during the same period, a decrease of 1.0%.

The percentage of CMV drivers in fatal crashes cited for violations decreased from 2014 to 2015. The percentage of violations in fatal crashes that CMV drivers received citations for decreased from 29.9% in 2014 to 28.7% in 2015. Careless operation and failure to yield were the most frequent citations. In injury and property damage crashes, the driver of the CMV was cited for violations 49.8% and 49.1% 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 22.2% of all violations given to the driver of the CMV in fatal crashes and 34.1% in all crashes. Other violations with relatively high occurrence rates were failure to yield, with 11.1% in fatal and 12.4% 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 29.6% of all violations the CMV driver receives. In all CMV crashes, this percentage is 35.2%. When failure to yield is included, these percentages increase to 40.7% for fatal crashes and 47.6% for all crashes.

The manner of collision most common in all CMV crashes are rear-end types at 31.9% and non-collision types (single vehicle crashes) at 17.8%. For fatal crashes, the types were head-on collisions at 20.2%; rear-end collisions at 39.3%, right angle collisions at 20.2%, and non-collision with motor vehicle crashes at 8.3%.

During 2015, 30.0% of all CMV crashes in Louisiana occurred on interstates, 33.0% occurred on state highways, and 18.3% occurred on U.S. highways. In 2014, the respective percentages were 28.9%, 34.2%, and 19.2%. From 2014 to 2015, the number of fatal interstate crashes increased slightly from 24 to 25. U.S. highways experienced no change in fatal crashes and state highways saw a decrease of 17.6%. Thus, the overall decrease in CMV related fatalities of 7.7% was largely due to the decrease of fatalities on state highways.

The number of fatal CMV crashes in work zones decreased from 7 to 5 from

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2014 to 2015. However, the number of fatal crashes within 5 miles of the construction zone (construction zone plus 5 miles on either end) increased by 18.2%, namely from 11 to 13. However, the number of fatal crashes in the 5 miles approaching the construction zone from either end (excluding the construction zones) increased from 4 in 2014 to 8 in 2015.

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 2015 and trend data for the past five years. Table 1 depicts CMV crashes from 2010 to 2015 and shows that the fatal CMV crashes have decreased by 8.7% from 2014 to 2015 while the 5-year change in fatal CMV crashes was -12.5%. The CMV involved injury crashes decreased by 1.0% while the CMV involved PDO crashes increased by 3.7% from 2014 to 2015. The total CMV crashes increased by 1.5% from 2014 to 2015, less than the increase observed for all vehicle crashes, which was 7.2%.

Table 1: CMV Crashes 2010-2015

	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
2010	96	1579	2022	3697	3%	43%	55%	3%	643	42500	104596	147741	14.9%	3.7%	1.9%	2.5%
2011	86	1612	1968	3666	2%	44%	54%	2%	630	43368	105798	149797	13.7%	3.7%	1.9%	2.4%
2012	93	1600	1997	3690	3%	43%	54%	2%	654	44574	107965	153221	14.2%	3.6%	1.8%	2.4%
2013	83	1583	2104	3770	2%	42%	56%	2%	652	43546	109845	154045	12.7%	3.6%	1.9%	2.4%
2014	92	1621	2283	3996	2%	41%	57%	3%	665	44790	111490	156946	13.8%	3.6%	2.0%	2.5%
2015	84	1604	2367	4055	2%	40%	58%	2%	687	48268	119332	168291	12.2%	3.3%	2.0%	2.4%
1 Yr % Change	-8.7%	-1.0%	3.7%	1.5%	-10.0%	-2.5%	2.2%	-5.4%	3.3%	7.8%	7.0%	7.2%	-1.6%	-0.3%	-0.1%	-0.1%
5 Yr % Change	-12.5%	1.6%	17.1%	9.7%	-20.2%	-7.4%	6.7%	-3.7%	6.8%	13.6%	14.1%	13.9%	-2.7%	-0.4%	0.1%	-0.1%

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While injury crashes involving all motor vehicles increased by 7.8% from 2014 to 2015, CMV injury crashes decreased by 1.0% in the same period. CMV property damage crashes increased by 3.7% from 2014 to 2015, while all CMV crashes combined increased by 1.5%.

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 a percent of all fatal crashes decreased in 2015 by 1.6 percentage points from 2014 while the CMV injury crashes as percent of all injury crashes decreased by 0.30 percentage points from 2014.

Figure 1: CMV and Non-CMV Crashes 2010-2015

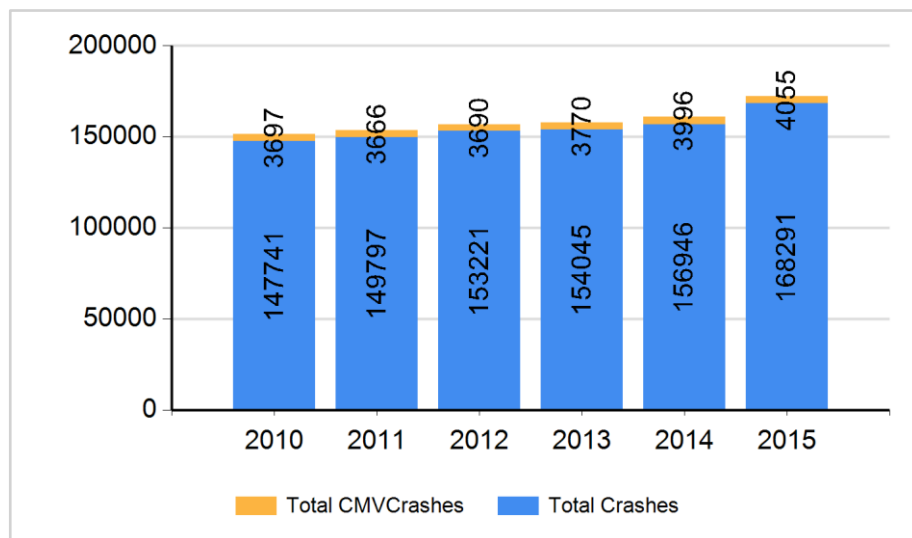


Figure 1 highlights the number of all crashes and shows the CMV crashes from 2010 to 2015. There were 59 more CMV crashes and 11,345 more non-CMV crashes in 2015 compared to 2014. In addition, as Table 1 shows, CMV crashes accounted for 2.4% of all crashes in 2015, which is slightly less than the 2.5% in 2014.

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Figure 2 shows that the number of fatal and injury CMV crashes decreased from 2014 to 2015, while the number of property damage only CMV crashes increased.

Figure 2: CMV Crashes by Severity: 2010-2015

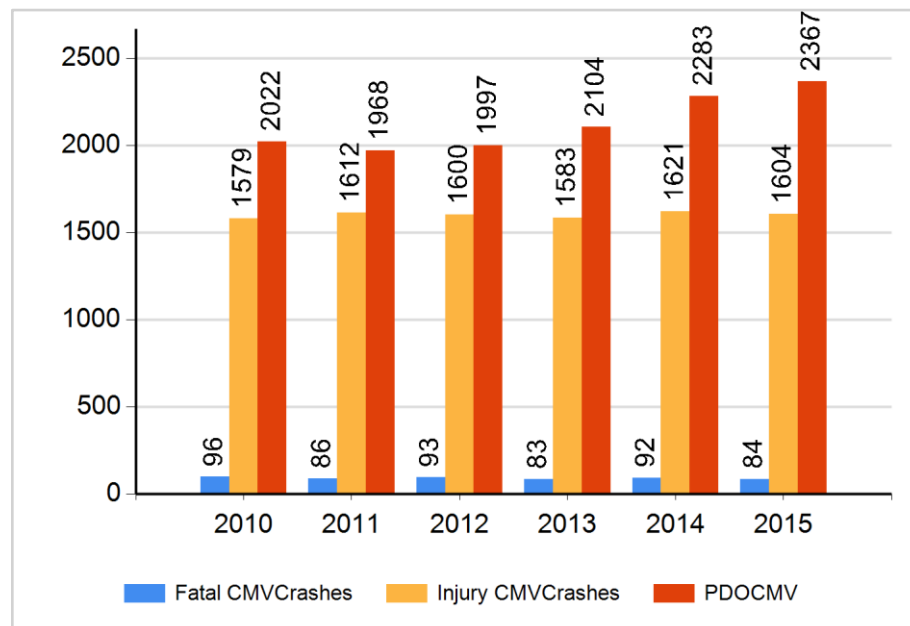


Figure 3 shows that fatal commercial vehicle crashes have fluctuated between 2010 and 2015 from a high of 96 in 2010 to a low of 83 in 2013 where 2015 with 84 fatal crashes was at the lower end.

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Figure 3: CMV and Non-CMV Fatal Crashes 2010-2015

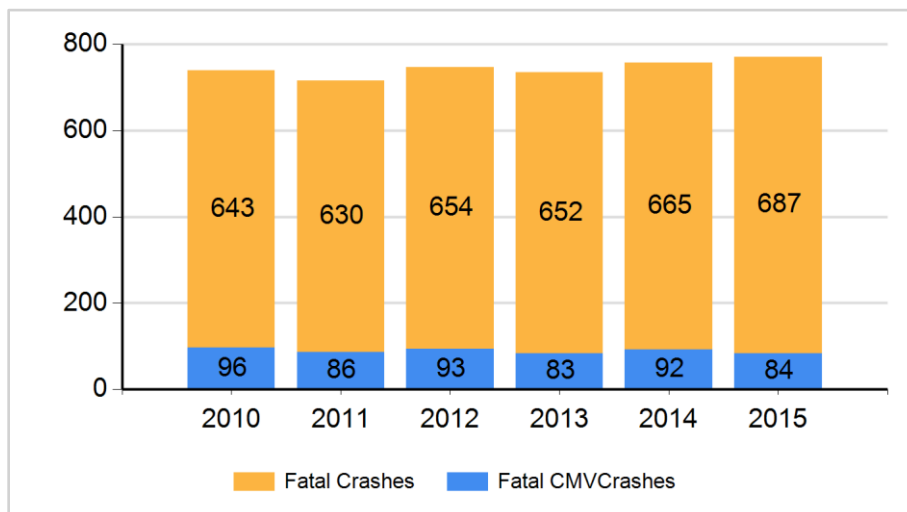


Figure 4: Fatal CMV Crashes by Year: 2010-2015

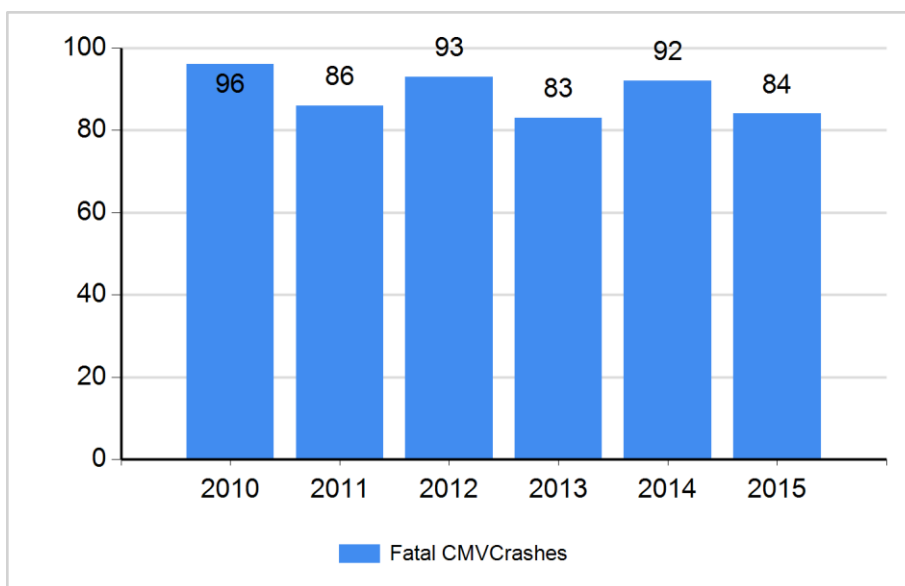


Figure 4 shows the trend of fatal CMV crashes, which indicates that 2013 had the lowest number of fatal CMV crashes in the past five years. In fact, 2013 had the lowest number of CMV fatal crashes since at least 1999 when the yearly report was first compiled. The 2015 data shows that the downward trend in fatal CMV crashes experienced from year to year has not continued over the past three years, but fluctuated from year to year with no clear pattern.

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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 all vehicle. The fatality rate for CMV crashes decreased slightly from 0.19 in 2014 to 0.17 in 2015. 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 2010-2015 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
2010	0.21	3.47	4.45	8.13	1.41	39.99	230.08	324.99
2011	0.18	3.47	4.23	7.88	1.35	39.17	227.47	322.07
2012	0.20	3.42	4.27	7.89	1.40	39.59	230.87	327.64
2013	0.17	3.31	4.41	7.89	1.37	38.21	230.00	322.55
2014	0.19	3.36	4.73	8.28	1.38	38.34	231.06	325.26
2015	0.17	3.32	4.91	8.40	1.42	40.39	247.31	348.78

Analysis of Crashes by Month

Since monthly crash data fluctuates considerably from year to year, it is difficult to conclude that the month of the year has any effect on the number of crashes. Specifically, the fatal crash count exhibits large variations since small crash numbers vary more, percentage wise, than large crash numbers.

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Table 3: CMV Crashes by Month in 2015

MONTH	FATAL CRASHES	TOTAL KILLED	INJURY CRASHES	PDO	TOTAL CRASHES	TOTAL TRUCKS AND BUSES	% CRASHES
January	5	5	101	157	263	280	6%
February	3	3	113	179	295	310	7%
March	6	6	149	205	360	383	9%
April	2	2	107	197	306	325	8%
May	9	11	133	198	340	360	8%
June	7	8	134	190	331	356	8%
July	6	6	132	199	337	356	8%
August	12	12	138	191	341	359	8%
September	10	11	153	231	394	426	10%
October	7	11	164	215	386	410	10%
November	12	15	127	182	321	341	8%
December	5	7	153	223	381	416	9%
TOTAL	84	97	1604	2367	4055	4322	100%

Nevertheless, as the data in Table 3 indicates, August had the highest number of fatal crashes with 12 fatal crashes and 12 deaths. The analysis of the CMV crash data for 2015 indicates yearly fatal crash counts in any given month may vary from 2 to 12 with the three highest months being August, November, and September with 12, 15, and 11 people killed.

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 2014 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.

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The percentage of CMV drivers in fatal crashes who received a citation has decreased by 1 percentage point from 2014 to 2015. In 2015, of all the CMV drivers in fatal crashes, 29% were cited for a violation compared to 30% in 2014. For injury and property damage crashes, 50% and 49% of the CMV drivers were cited for violations, respectively. Also 73% of non-CMV drivers received violations in fatal crashes in 2015. 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 50% 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 2014 to 2015, i.e. from 36% in 2014 to 29% in 2015 (see Table 4b). For injury and property damage only crashes (PDO), the CMV driver received 51% and 53% of violations, respectively.

Table 4a: Violations as a Percentage of Drivers

As Percentage of Drivers								
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
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%	63%	49%	48%	49%	53%	48%	51%
2014	30%	74%	47%	50%	47%	55%	47%	53%
2015	29%	73%	50%	48%	49%	53%	49%	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
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	34%	66%	49%	51%	52%	48%	50%	50%
2014	36%	64%	48%	52%	51%	49%	50%	50%
2015	29%	71%	51%	49%	53%	47%	51%	49%

* 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 change over time. While approximately 29% of the CMV drivers in fatal CMV crashes received a citation in 2015, and 30% received a citation in 2014, a decrease of about 1% percentage points (Table 4a), the relative distribution of these citations changed in the past year with 29% going to the CMV driver in fatal crashes and 71% going to the non-CMV driver. Thus in 2015, although the total percentage of citations in fatal CMV crashes declined, citations were given more frequently (71%) to the Non-CMV drivers in 2015 compared to 2014 where only 64% went to the non-CMV driver (Table 4b).

Figure 5 visualizes the findings expressed above, namely the relative percentage citations going to CMV drivers versus non-CMV drivers in fatal CMV crashes. Overall, the percentages 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. However, the percentage going to the CMV driver was at a six-year low of 29%.

Figure 5: CMV and Non-CMV Driver Violations in Fatal Crashes: 2010-2015

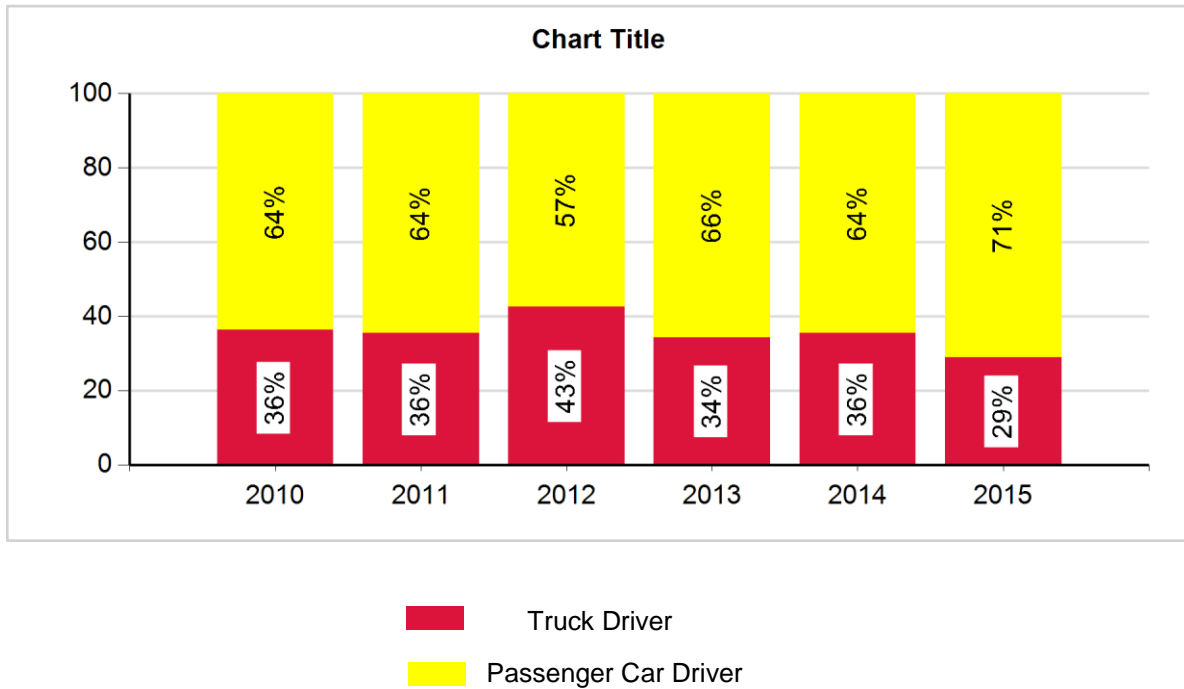


Table 5 shows the types of violations drivers receive. In 2015, failure to yield and careless operation violations accounted for the majority of violations for the CMV driver in fatal crashes, namely 3 and 6, respectively, which combined accounted for one out of three violations (33.3%). The percentage of careless operation and failure to yield violations for the CMV drivers accounted for 47.0% for injury CMV crashes and 46.5% for PDO crashes.

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Table 5: Type of Violation of CMV Driver

VIOLATIONS	FATAL CRASHES		INJURY CRASHES		PDO		TOTAL CRASHES	
CARELESS OPERATION	6	22.2%	285	33.5%	427	34.8%	718	34.1%
CUT CORNER ON LEFT TURN	0	0.0%	7	0.8%	15	1.2%	22	1.0%
CUTTING IN, IMPROPER PASSING	0	0.0%	22	2.6%	38	3.1%	60	2.8%
DISREGARDED TRAFFIC CONTROL	2	7.4%	32	3.8%	32	2.6%	66	3.1%
DRIVER CONDITION	2	7.4%	19	2.2%	12	1.0%	33	1.6%
DRIVING LEFT OF CENTER	1	3.7%	25	2.9%	12	1.0%	38	1.8%
EXCEEDING SAFE SPEED LIMIT	0	0.0%	8	0.9%	11	0.9%	19	0.9%
EXCEEDING STATED SPEED LIMIT	2	7.4%	0	0.0%	3	0.2%	5	0.2%
FAILED TO DIM HEADLIGHTS	0	0.0%	0	0.0%	0	0.0%	0	0.0%
FAILED TO SET OUT FLAGS,	0	0.0%	1	0.1%	0	0.0%	1	0.0%
FAILURE TO SIGNAL	0	0.0%	1	0.1%	0	0.0%	1	0.0%
FAILURE TO YIELD	3	11.1%	115	13.5%	143	11.7%	261	12.4%
FOLLOWING TOO CLOSELY	1	3.7%	105	12.3%	101	8.2%	207	9.8%
IMPROPER BACKING	0	0.0%	21	2.5%	38	3.1%	59	2.8%
IMPROPER PARKING	2	7.4%	9	1.1%	12	1.0%	23	1.1%
IMPROPER STARTING	0	0.0%	2	0.2%	4	0.3%	6	0.3%
MADE WIDE RIGHT TURN	0	0.0%	4	0.5%	7	0.6%	11	0.5%
NO VIOLATIONS	67		859		1273		2199	
OTHER	4	14.8%	87	10.2%	138	11.2%	229	10.9%
OTHER IMPROPER TURNING	0	0.0%	12	1.4%	52	4.2%	64	3.0%
TURNED FROM WRONG LANE	0	0.0%	8	0.9%	20	1.6%	28	1.3%
UNKNOWN	4	14.8%	72	8.5%	104	8.5%	180	8.5%
VEHICLE CONDITION	0	0.0%	17	2.0%	58	4.7%	75	3.6%
TOTAL	27	100.0%	852	100.0%	1227	100.0%	2106	100.0%
Column %	29%		50%		49%		49%	
Row %	29%		51%		53%		51%	

Manner of Collision

Table 6 shows the manner of collision. "REAR END", "HEAD-ON", and "RIGHT ANGLE" collisions make up more than 87.0% $[(33 + 17 + 17) / (84 - 7)]$ of all fatal multi- vehicle CMV crashes. This is a 4.8 percentage point decrease from 82.2% in 2015 for these three types of collisions. Also, the non-collision fatal CMV crashes decreased from 19 in 2014 to 7 in 2015.

Table 6: Manner of Collision

MANNER OF COLLISION	FATAL CRASHES		INJURY CRASHES		PDO		TOTAL CRASHES	
HEAD-ON	17	20.2%	59	3.7%	30	1.3%	106	2.6%
LEFT TURN - ANGLE	2	2.4%	44	2.7%	64	2.7%	110	2.7%
RN - OPPOSITE DIRECTION	0	0.0%	50	3.1%	54	2.3%	104	2.6%
LEFT TURN - SAME DIRECTION	0	0.0%	22	1.4%	39	1.6%	61	1.5%
NON COLLISION WITH MOTOR VEHICLE	7	8.3%	197	12.3%	518	21.9%	722	17.8%
OTHER	0	0.0%	99	6.2%	218	9.2%	317	7.8%
REAR END	33	39.3%	567	35.3%	692	29.2%	1292	31.9%
RIGHT ANGLE	17	20.2%	262	16.3%	255	10.8%	534	13.2%
RN - OPPOSITE DIRECTION	0	0.0%	9	0.6%	11	0.5%	20	0.5%
RIGHT TURN - SAME DIRECTION	0	0.0%	23	1.4%	41	1.7%	64	1.6%
PE - OPPOSITE DIRECTION	3	3.6%	53	3.3%	55	2.3%	111	2.7%
SIDESWIPE - SAME DIRECTION	5	6.0%	219	13.7%	390	16.5%	614	15.1%
TOTAL	84	100.0%	1604	100.0%	2367	100.0%	4055	100.0%

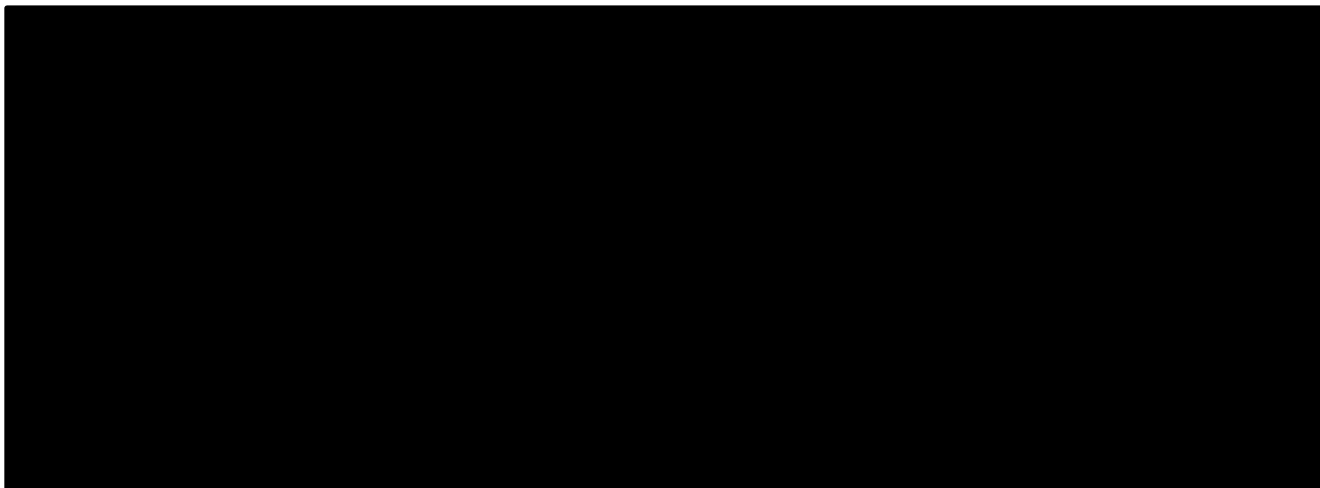
High Crash Locations in Interstate Corridors

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 54% of fatal CMV crashes and 60% of all crashes in 2015.

Figure 6: CMV Crashes in 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, US 190 and US 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 2015 and 2014 by milepost on interstate 10 along with all crashes. The comparison between 2014 and 2015 shows the percentage of crashes within the first 50 miles of Interstate 10 has increased slightly from 21% to 24%. The most obvious area for CMV crashes in 2015 was between milepost 210 and 240.

Figure 7: Cumulative Percentage of Interstate 10 Crashes 2015 and 2014

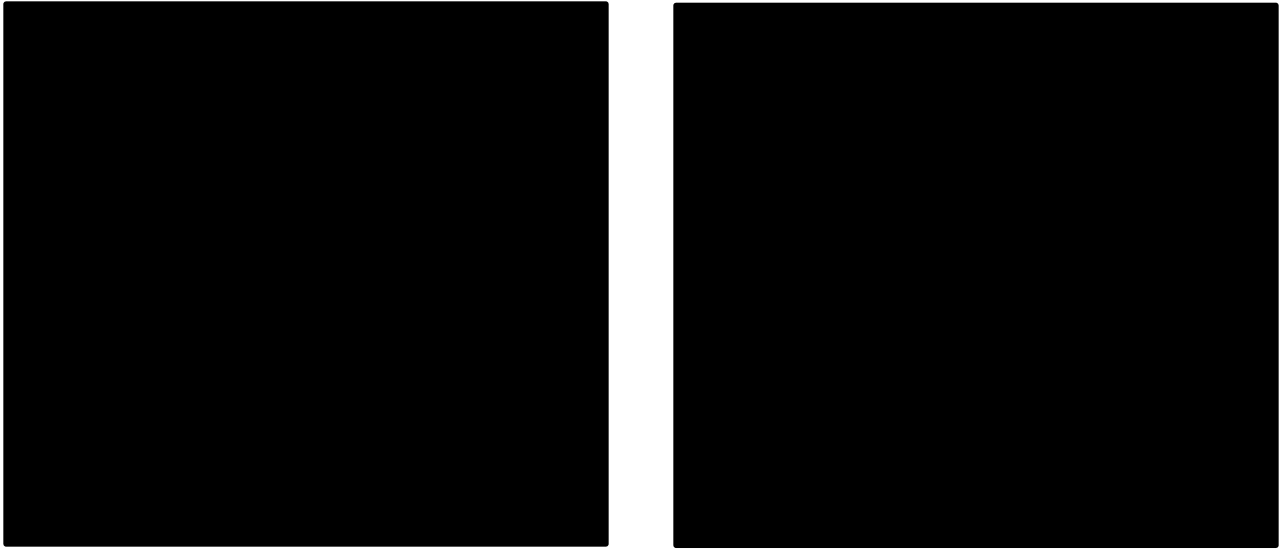


Figure 8a: CMV Interstate 10 in New Orleans between Mileposts 200 to 230



The interstate section of I10 between West Baton Rouge and the I10/12 split has about 4% of all crashes on I10, but about 6% of all CMV crashes. These crashes are shown in Figure 8b.

Figure 8b: CMV Crashes on Interstate 10 Between WBR and I10/12 Split

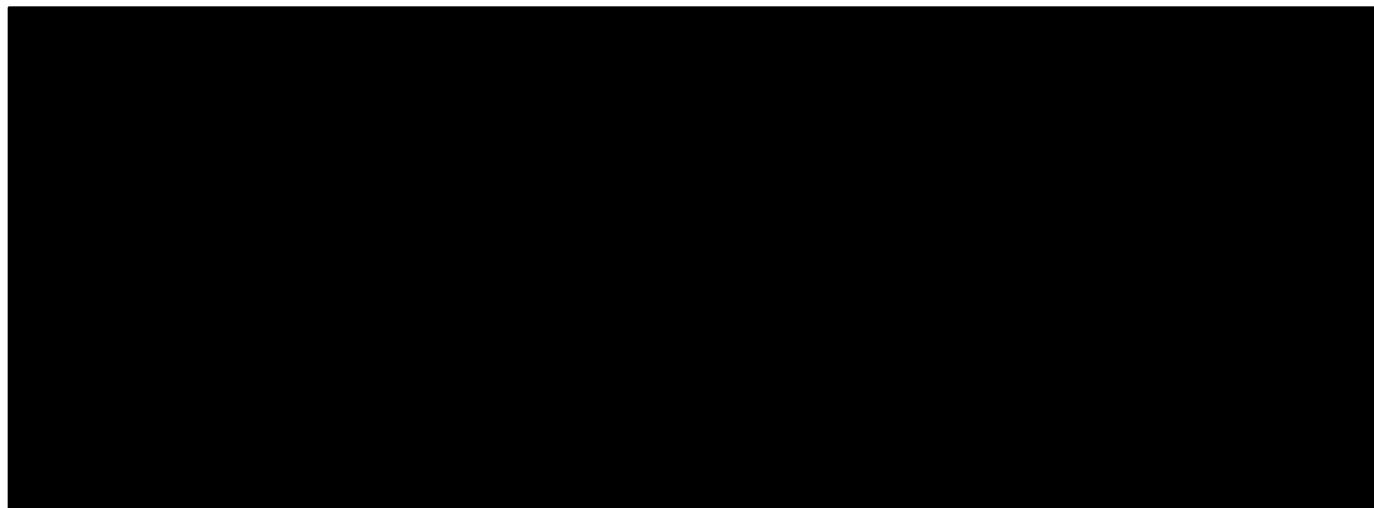


Figure 8c shows that several CMV crashes in 2015 occurred on the I10 bridge in Baton Rouge.

Figure 8c: CMV Crashes on Interstate 10 Bridge in Baton Rouge

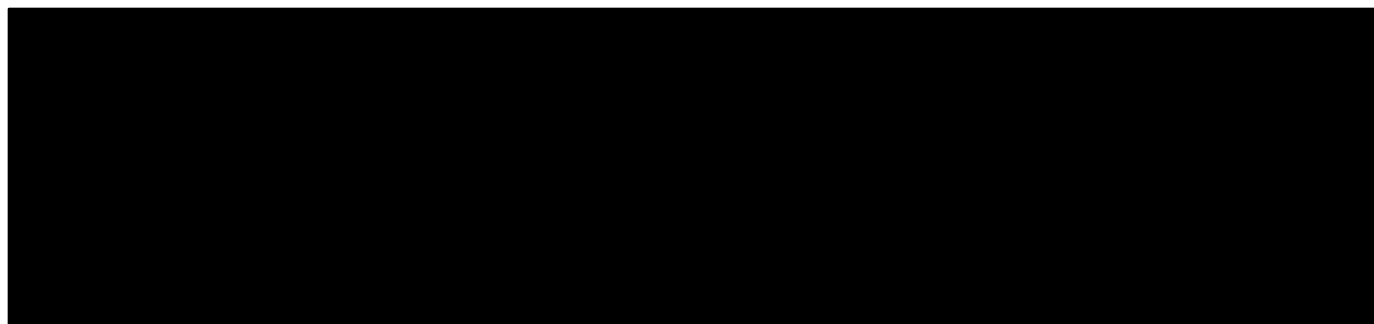


Figure 9 shows an increase in the cumulative percent of CMV crashes within the first 20 miles of Interstate 12 from about 20% in 2014 to about 25% in 2015.

Figure 9: Cumulative Percent of Interstate 12 Crashes 2015 and 2014

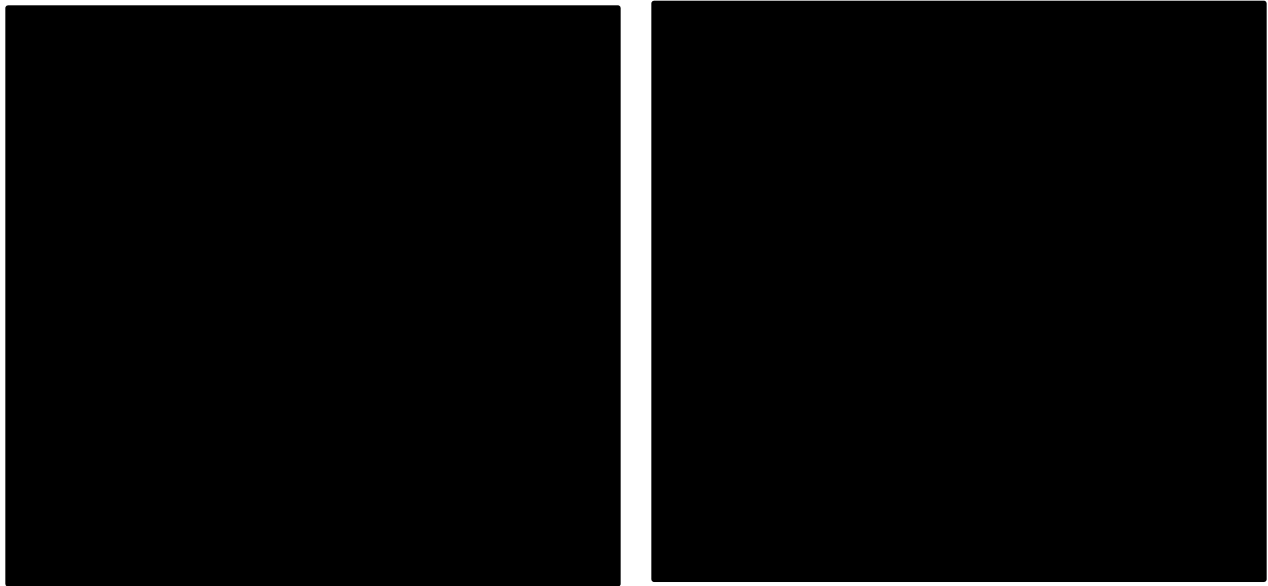
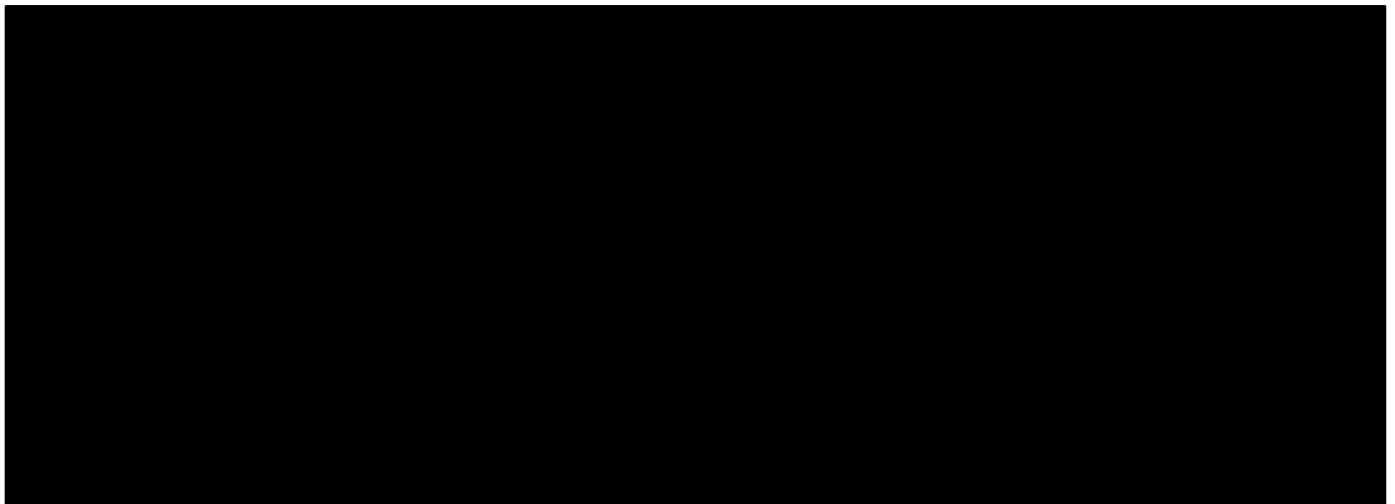


Figure 10 shows the Interstate 12 corridor between Baton Rouge and Slidell, which had a slight increase in CMV crashes from 144 in 2014 to 160 in 2015, but only two fatalities in 2014 and 2015.

Figure 10: CMV Crashes on Interstate 12



Interstate 20 Corridor

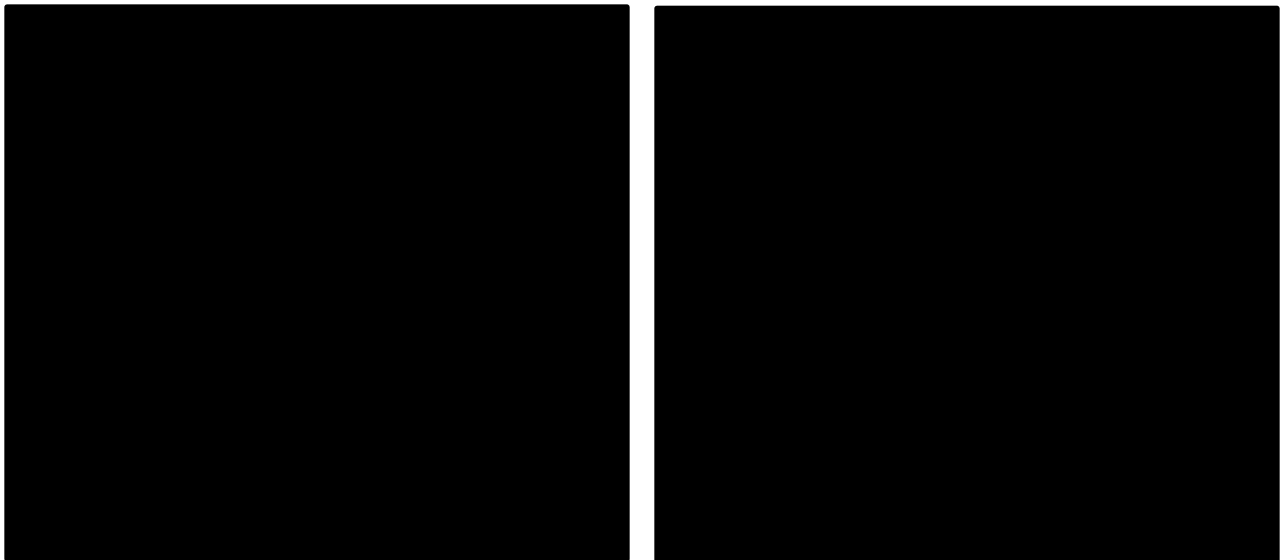
The Interstate 20 corridor includes 10 parishes. The three parishes (Caddo, Ouachita, and Bossier) account for 9% of all commercial vehicle crashes in 2015. As illustrated in Figure 11, the corridor includes Interstate 20, 220 and parts of Interstate 49. The major US highways along the corridor are 61, 65, 71, 80, 165, 167.

Figure 11: Interstate 20 Corridor



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 from about 45% in 2014 to about 35% in 2015.

Figure 12: Cumulative Frequency of CMV and all 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 higher than the true number of work zone crashes. 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 they 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 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 increased by 4.2% from 24 in 2014 to 25 in 2015 while the number of fatal crashes in construction zones decreased by 28.6% from 7 to 5 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 2015 had 57.4% 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 17.5 fatal crashes per day-mile in 2014 to 3.9 fatal crashes per day-mile in 2015.

The number of fatal crashes within the +/-5 miles of the construction zones increased from 11 in 2014 to 13 in 2015 but the number of fatal crashes per day mile decreased from 23.9 in 2014 to 11.3 in 2015 because of increased construction. Also seen in Table 7a is an increase in all CMV crashes within the +/- 5 miles that include the construction zones, i.e., from 442 in 2014 to 599 in 2015, an increase of 35.5%,

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while the number of crashes within construction zones also increased from 233 in 2014 to 364 in 2015, an increase of 56.2%.

Table 7a: Work-Zone CMV Crashes on Interstates (2014-2015)
(Based on DOTD Schedule)

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	2015				2014				Percent Change			
		FATAL	INJ.	PDO	ALL	FATAL	INJ.	PDO	ALL	FATAL	INJ.	PDO	ALL
ALL CMV CRASHES ON INTER-STATES	Count	25	424	761	1210	24	402	725	1151	4.2%	5.5%	5.0%	5.1%
	Per 100K Miles	7.7	129.8	233.0	370.4	7.3	123.1	221.9	352.3	4.2%	5.5%	5.0%	5.1%
CONSTRUCTION ZONES	Count	5	122	237	364	7	84	142	233	-28.6%	45.2%	66.9%	56.2%
	Per 100K Day-Miles	3.9	95.8	186.1	285.9	17.5	209.8	354.7	581.9	-77.5%	-54.3%	-47.5%	-50.9%
WITHIN 5 MILES OF CONSTRUCTION ZONE	Count	13	208	378	599	11	148	283	442	18.2%	40.5%	33.6%	35.5%
	Per 100K Day-Miles	11.3	180.4	327.9	519.6	23.9	322.2	616.2	962.3	-52.9%	-44.0%	-46.8%	-46.0%
IN 5 MILE APPROACH TO CONSTRUCTION ZONES	Count	8	86	141	235	4	64	141	209	100.0%	34.4%	0.0%	12.4%
	Per 100K Day-Miles	3.3	35.4	58.1	96.9	4.7	74.4	164.0	243.1	-29.1%	-52.4%	-64.6%	-60.2%

Using crashes that are marked on the crash report as both (Work Zone Indicator “Yes” and a Road Condition field “Construction Repair” or Construction No Warning”), the number of fatal crashes in the approach to the construction zones was zero (0) in 2014 and 2015, since the crashes in the approaches are not to be counted as work zone crashes according to the crash manual unless the crash falls within the first warning signs. Table 7b therefore does not report crashes before or after construction zones. The number of fatal CMV crashes based on the crash report was only 2 in 2014 and one in 2015.

Table 7b: Work-Zone CMV Crashes on Interstates (2014-2015)
(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

		2015				2014				Percent Change			
	WHERE	FATAL	INJ.	PDO	ALL	FATAL	INJ.	PDO	ALL	FATAL	INJ.	PDO	ALL
ALL CMV CRASHES	Count	25	424	761	1210	24	402	725	1151	4.2%	5.5%	5.0%	5.1%
ON INTER-STATES	Per 100K Day-Miles	7.7	129.8	233.0	370.4	7.3	123.1	221.9	352.3	4.2%	5.5%	5.0%	5.1%
CONSTRUCTION	Count	1	28	23	52	2	27	12	41	-0.5	3.7%	91.7%	26.8%
ZONES	Per 100K Day-Miles	0.8	22.0	18.1	40.8	5.0	67.4	30.0	102.4	-84.3%	-67.4%	-39.7%	-60.1%
WITHIN 5 MILES OF	Count	1	28	23	52	2	27	12	41	-0.5	3.7%	91.7%	26.8%
CONSTRUCTION ZONES*	Per 100K Day-Miles	0.4	11.5	9.5	21.4	2.3	31.4	14.0	47.7	-82.3%	-63.3%	-32.1%	-55.1%
IN 5 MILES TO APPROACH	Count	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%
TO CONSTRUCTION ZONE**	Per 100k Day-Miles	0	0	0	0	0	0	0	0	0.0%	0.0%	0.0%	0.0%

**Same as within construction zones; **Not available based on the crash report.*

Seat Belt Usage

Seat belt usage is one of the most important factors preventing death in a crash. Table 8 shows that in 2015, 29% of CMV drivers killed in a crash did not wear a seat belt while 63% of drivers killed in all motor vehicle crashes were not wearing a seat belt. On average, CMV drivers killed had a higher rate of seat belt usage than drivers of passenger 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 36%.

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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
2011	2	7	29%	4	14	29%	247	370	67%	224	705	32%
2012	5	14	36%	3	8	38%	209	358	58%	214	633	34%
2013	5	12	42%	3	9	33%	235	389	60%	198	627	32%
2014	6	13	46%	3	13	23%	235	372	63%	200	622	32%
2015	2	7	29%	2	10	20%	259	410	63%	209	629	33%
Year Total	20	53	36%	15	54	28%	1185	1899	62%	1045	3216	33%

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 6 years, from 2010 to 2015, on average, about 16.1% of crashes involving hazardous material resulted in a release of the hazardous material. This percentage was 21.0% in 2015. 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.

The interstates accounted for 31% of all crashes involving hazardous materials in 2015. Specifically, Interstate 10 accounts for 52% of all hazardous material crashes on interstates in 2015. US highways account for 19% of all hazardous material crashes in 2015, with US 90 and US 190 accounting for 19% of hazardous material crashes on US highways. State highways accounted for 31% of all hazardous crashes in 2015.

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

Year	Transport	Released	% Released	Fatal Crash	Fatalities
2010	114	19	17%	10	11
2011	108	16	15%	8	13
2012	105	12	11%	10	11
2013	107	15	14%	5	6
2014	129	23	18%	1	1
2015	119	25	21%	3	4
2016	45	5	11%	1	1

The types of hazardous material reported in CMV crashes are displayed in Table 10. On average, 18% involve corrosive material, 12% involve flammable gasses, and 49% involve flammable liquids. The remaining percentages are various chemicals. Note that Table 10 does not include unknown chemicals.

Table 10: Type of Hazardous Material in CMV Crashes

Year	2010		2011		2012		2013		2014		2015	
Material	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.	Transp.	Rel.
CORROSIVE MATERIALS	20	4	22	0	16	2	15	1	20	2	22	1
EXPLOSIVES WITH A MASS EXPLOSION HAZARD	0	0	0	0	1	0	0	0	0	0	0	0
FLAMMABLE GASES	21	3	13	0	16	1	14	0	19	0	14	0
FLAMMABLE LIQUIDS	55	0	51	2	50	1	68	4	66	9	58	15
FLAMMABLE SOLIDS	1	0	1	0	5	0	1	0	4	0	2	0
COMBUSTIBLE MATERIALS or	0	0	0	0	2	0	0	0	0	0	0	0
GASES	1	0	3	0	0	0	3	0	1	0	3	3
GASES TOXIC BY INHALATION	0	0	0	0	2	0	0	0	1	0	0	0
MISC DANGEROUS GOODS	8	1	5	0	7	0	3	0	7	1	8	4
NON-FLAMMABLE, NON-TOXIC COMPRESSED GASES	7	0	9	1	5	0	1	0	6	0	8	0
ORGANIC PEROXIDES	0	0	0	0	0	0	0	0	1	0	2	0
RADIOACTIVE MATERIALS	0	0	1	0	0	0	1	0	1	0	0	0
TOXIC MATERIALS	1	0	2	0	0	0	0	0	2	0	1	0
TOXIC MATERIALS and INFECTIOUS SUBSTANCES	0	0	1	0	1	0	1	0	1	1	1	0
Total	114	8	108	3	105	4	107	5	129	13	119	23

(Includes only known Chemicals Transported)

Distractions

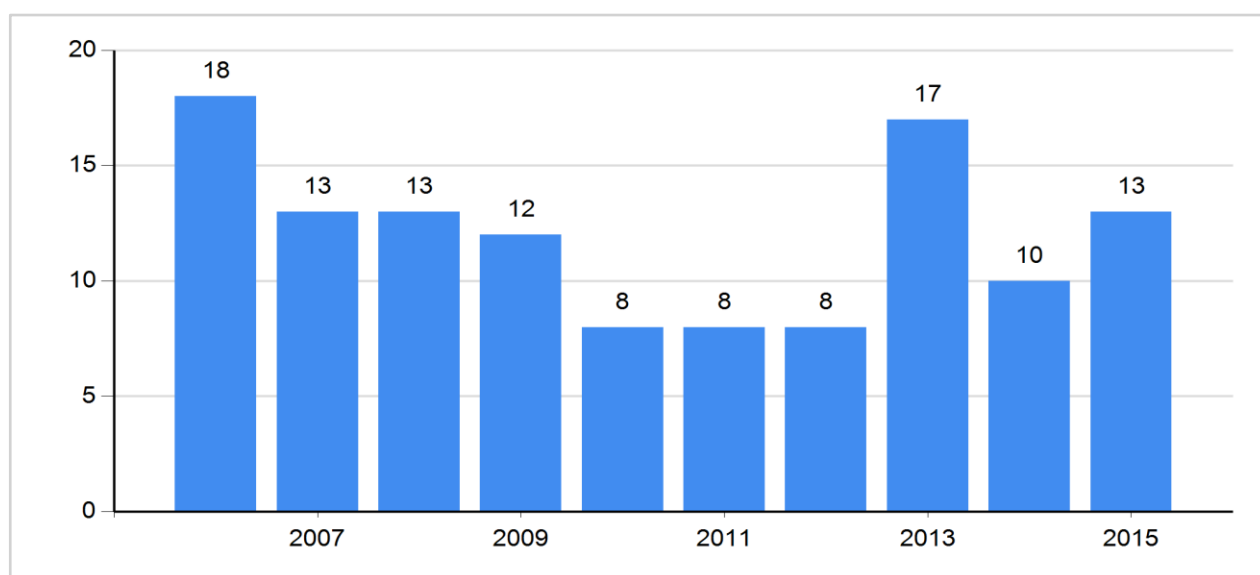
Although distractions play an important role in all crashes, including CMV crashes, no fatal CMV crashes were reported in 2015 in which cell phone usage was the cause of distraction. Table 11 shows the breakdown of crashes by type of distraction for CMV crashes.

Table 11: Distractions

Driver Distraction Description	Fatal	Injury	PDO	Total
CELL PHONE	0	10	3	13
NOT DISTRACTED	72	1814	1461	3347
OTHER ELECTRONIC DEVICE	0	6	2	8
OTHER INSIDE THE VEHICLE	0	29	18	47
OTHER OUTSIDE THE VEHICLE	1	43	37	81
UNKNOWN	18	432	340	790

The number of CMV crashes with cell phone usage has varied between 18 in 2007 to a low of 8 in 2010 to 2012 and was 13 in 2015.

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



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 2014 to 2015, Louisiana experienced a significant increase in all CMV crashes along the I10/I12 corridor and I20: Livingston (27%), Calcasieu (15%), and Orleans (15%). Ascension (11%) and East Baton Rouge (7%) 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	
	2015	2014	2015	2014	Diff	% Change
East Baton Rouge	3	5	366	341	25	7%
Orleans	6	5	344	299	45	15%
Lafayette	5	3	199	252	-53	-21%
Jefferson	4	7	210	211	-1	0%
Calcasieu	4	4	255	221	34	15%
Caddo	2	5	139	160	-21	-13%
St. Tammany	6	3	165	176	-11	-6%
Tangipahoa	2	1	143	138	5	4%
Terrebonne	0	0	83	102	-19	-19%
Ouachita	0	1	131	124	7	6%
Ascension	1	3	97	87	10	11%
Livingston	3	1	128	101	27	27%
Rapides	3	0	133	138	-5	-4%
Lafourche	2	5	117	117	0	0%
Bossier	2	2	78	94	-16	-17%
TOTAL	43	45	2588	2561	27	1%

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 remained the same from 2014 to 2015, the fatal CMV crashes on state highways decreased by 6 (-18%), and the fatal CMV crashes on interstates increased by 1 or 4.2%. The injury crashes during the same period exhibit an increase

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of 5% on interstates, a decrease of 5% on state highways and a decrease of 7% on US highways.

Table 13a: CMV Crashes by Highway Type 2015

HIGHWAY TYPE	FATAL CRASHES			INJURY CRASHES			PDO			TOTAL		
	2015 CRASH	2014 CRASH	DIFFERENCE	2015 CRASH	2014 CRASH	DIFFERENCE	2015 CRASH	2014 CRASH	DIFFERENCE	2015 CRASH	2014 CRASH	DIFFERENCE
INTERSTATE	25	24	4%	424	402	5%	761	725	5%	1210	1151	5%
US HIGHWAY	24	24	0%	317	342	-7%	397	398	0%	738	764	-3%
STATE ROAD	28	34	-18%	548	576	-5%	757	749	1%	1333	1359	-2%
PARISH ROAD	3	8	-63%	90	82	10%	154	166	-7%	247	256	-4%
CITY/LOCAL ROADS AND STREETS	4	1	300%	219	211	4%	285	236	21%	508	448	13%
Total	84	91	-7.69%	1598	1613	6.85%	2354	2274	19.32%	4036	3978	9.69%
% Interstates	29.8%	26.4%	12.8%	26.5%	24.9%	6.5%	32.3%	31.9%	1.4%	30.0%	28.9%	3.6%
% US	28.6%	26.4%	8.3%	19.8%	21.2%	-6.4%	16.9%	17.5%	-3.6%	18.3%	19.2%	-4.8%
% State	33.3%	37.4%	-10.8%	34.3%	35.7%	-4.0%	32.2%	32.9%	-2.4%	33.0%	34.2%	-3.3%
% State, US, & Interstate	91.7%	90.1%	0.5%	80.7%	81.8%	-1.2%	81.4%	82.3%	-3.0%	81.3%	82.3%	-2.2%

Table 13b: Percentage of Rural CMV Crashes 2015

HWY Type	Fatal	Injury	PDO	Total
INTERSTATE	64%	54%	58%	57%
US HIGHWAY	79%	52%	53%	53%
STATE ROAD	82%	67%	69%	68%
PARISH ROAD	100%	83%	86%	85%
CITY/LOCAL ROADS AND STREETS	0%	1%	1%	1%
Total	65%	51%	53%	53%

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 64% of the fatal interstate CMV crashes occurred in rural areas and about 54% of the injury interstate CMV crashes occurred in rural areas. Overall, 65% of fatal CMV crashes and 53% 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 2015, there were 90 large bus crashes where 217 passengers were injured inside the bus. There were 37 small bus crashes with no people killed but 47 passengers were injured. There were 197 school bus crashes with 431 passengers injured. Overall, in 2015, there was one person killed in 331 bus crashes and 695 injured. Compared to 2014, the number of bus crashes has decreased from 331 to 324 in 2015. However, the number of injuries has increased decreased from 756 in 2014 to 695 in 2015. The number of school bus crashes has increased by 0.5%, while small bus crashes have decreased by 7.5%, and large bus crashes have decreased by 5.3%.

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Table 14: CMV Bus Crashes in 2014-8/1/2016

Year		Count	SCHOOL BUS	SMALL BUS	LARGE BUS	TOTAL
2014	Bus Crash	Number of Crashes	196	40	95	331
		Number of Fatal Crashes	3	0	1	4
		Number Total Killed	6	0	1	7
		Number Killed Inside Bus	0	0	0	0
		Number Injured Inside Bus	462	79	215	756
2015	Bus Crash	Number of Crashes	198	37	90	325
		Number of Fatal Crashes	1	0	1	2
		Number Total Killed	1	0	1	2
		Number Killed Inside Bus	0	0	0	0
		Number Injured Inside Bus	431	47	217	695
2016	Bus Crash	Number of Crashes	113	24	57	194
		Number of Fatal Crashes	3	0	0	3
		Number Total Killed	3	0	0	3
		Number Killed Inside Bus	0	0	0	0
		Number Injured Inside Bus	204	20	114	338

Figure 14 shows the trend in bus crashes. While bus crashes have decreased from 2014 to 2015, the total number of bus crashes has trended upward from 2009.

Figure 14: CMV Bus Crashes 2009 to 8/1/2016

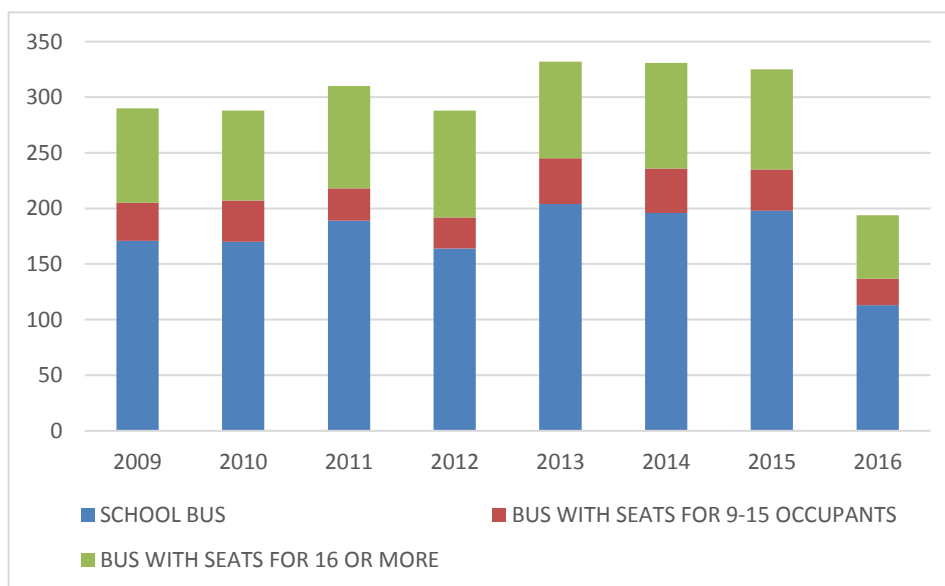
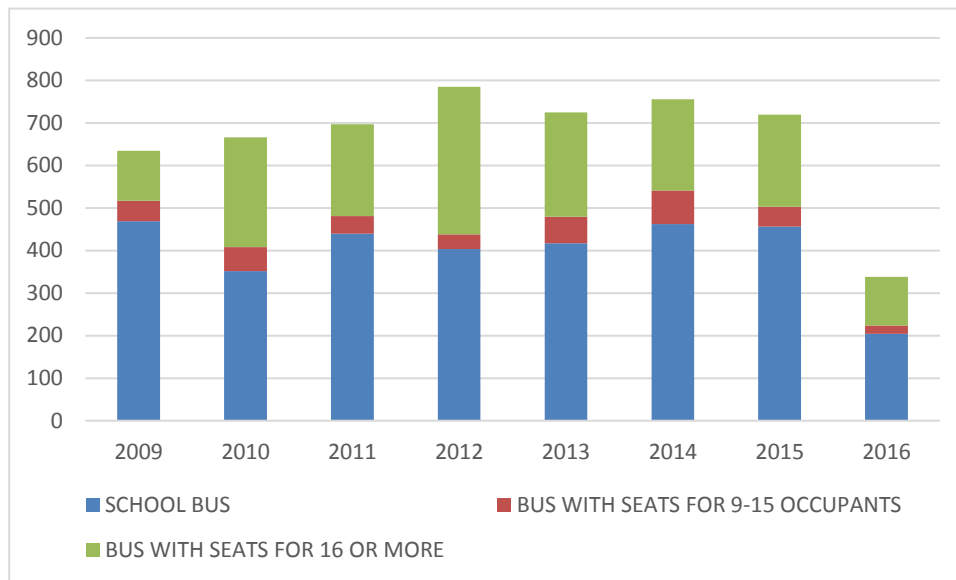


Figure 15: Bus-Crash Injuries 2009 to 8/1/2016



While the number of bus crashes has decreased by 2.16% from 2014 to 2015, namely from 331 to 324, the number of injuries have decreased by 8.07%, namely from 756 to 695.

2016 YTD Crash Results

The 2016 data are still collected at this time, but the following Table 15 provides a snapshot of CMV crashes YTD.

Table 15: CMV Crashes YTD 2016

CMV Crashes and Type	2016 YTD*
Total CMV Fatal Crashes	40
Total Fatalities	44
Total Passenger Carrier Crashes	194
Total Passenger Carrier Fatal Crashes	3
Total Passenger Carrier Fatalities (In crash)	3
Total HM Crashes	87
Total HM Fatal Crashes	1
Total HM Fatalities	1
Total Construction Zone Fatal Crashes (Table 7a)	22
Total In 5 mile approach of Construction Zone (Table 7a)	NA

*As of August 1st, 2016, NA Not available at this time

Note: Definition of Reportable CMV Crashes: To qualify for reporting to the SafetyNET, the crash has to involve a motor carrier, a GCWR weight of at least 10,001 pounds or above, a motor vehicle that can transport 9 or more people including the driver seat or a vehicle displaying a hazmat placard and one of the three conditions apply: (1) a tow of one of the vehicles, (2) the transportation of an injured person to medical treatment away from the crash scene, or (3) a fatality.