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EVALUATION OF 2007 OKLAHOMA CRASH DATA REPORTED TO MCMIS CRASH FILE

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16. Abstract

This report is part of a series evaluating the data reported to the Motor Carrier Management Information System (MCMIS) Crash File undertaken by the Center for National Truck and Bus Statistics at the University of Michigan Transportation Research Institute. The earlier studies showed that reporting to the MCMIS Crash File was incomplete. This report examines the factors that are associated with reporting rates for the state of Oklahoma.

MCMIS Crash File records were matched to the Oklahoma Crash file to determine the nature and extent of underreporting. Overall, it appears that Oklahoma is reporting 54.7 percent of crash involvements that should be reported to the MCMIS Crash file.

Reporting rates were found to be related to crash severity, the configuration and licensing of the vehicle, and the type of enforcement agency that covered the crash. Over 74 percent of fatal crashes were reported, but only 57.4 percent of injury/transported crashes and 52.0 percent of tow/disabled involvements. More than 72 percent of reportable involvements of tractor-semitrailers were reported, but the reporting rate was 57.0 percent for 3-axle single-unit trucks, and 25.6 percent for 2-axle single-unit trucks. Only 13.4 percent of bus involvements were reported.

Missing data rates are low for most variables. Overall, the crash report is well-designed to support full reporting. The information necessary to identify reportable cases is available in the crash file, so a substantial improvement in the reporting rate can be achieved.

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SI* (MODERN METRIC) CONVERSION FACTORS

APPROXIMATE CONVERSIONS TO SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km
		AREA		
in^2	square inches	645.2	square millimeters	mm^2
ft^2	square feet	0.093	square meters	m^2
yd^2	square yard	0.836	square meters	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	square kilometers	km^2
		VOLUME		
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
		NOTE: volumes greater than 1000 L shall be shown in m^3		
		MASS		
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")
		TEMPERATURE (exact degrees)		
^oF	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	^oC
		ILLUMINATION		
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	$candela/m^2$	cd/m^2
		FORCE and PRESSURE or STRESS		
lbf	poundforce	4.45	newtons	N
lbf/in^2	poundforce per square inch	6.89	kilopascals	kPa

APPROXIMATE CONVERSIONS FROM SI UNITS

Symbol	When You Know	Multiply By	To Find	Symbol
		LENGTH		
mm	millimeters	0.039	inches	in
m	meters	3.28	feet	ft
m	meters	1.09	yards	yd
km	kilometers	0.621	miles	mi
		AREA		
mm^2	square millimeters	0.0016	square inches	in^2
m^2	square meters	10.764	square feet	ft^2
m^2	square meters	1.195	square yards	yd^2
ha	hectares	2.47	acres	ac
km^2	square kilometers	0.386	square miles	mi^2
		VOLUME		
mL	milliliters	0.034	fluid ounces	fl oz
L	liters	0.264	gallons	gal
m^3	cubic meters	35.314	cubic feet	ft^3
m^3	cubic meters	1.307	cubic yards	yd^3
		MASS		
g	grams	0.035	ounces	oz
kg	kilograms	2.202	pounds	lb
Mg (or "t")	megagrams (or "metric ton")	1.103	short tons (2000 lb)	T
		TEMPERATURE (exact degrees)		
^oC	Celsius	1.8C+32	Fahrenheit	^oF
		ILLUMINATION		
lx	lux	0.0929	foot-candles	fc
cd/m^2	$candela/m^2$	0.2919	foot-Lamberts	fl
		FORCE and PRESSURE or STRESS		
N	newtons	0.225	poundforce	lbf
kPa	kilopascals	0.145	poundforce per square inch	lbf/in^2

*SI is the symbol for the International System of Units. Appropriate rounding should be made to comply with Section 4 of ASTM E380.
(Revised March 2003)

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1. Introduction

The Motor Carrier Management Information System (MCMIS) Crash file has been developed by the Federal Motor Carrier Safety Administration (FMCSA) to serve as a census file of trucks and buses involved in traffic crashes meeting a specified crash severity threshold. FMCSA maintains the MCMIS file to support its mission to reduce crashes, injuries, and fatalities involving large trucks and buses. It is essential to assess the magnitude and characteristics of motor carrier crashes to design effective safety measures to prevent such crashes. The usefulness of the MCMIS Crash file depends upon individual states transmitting a standard set of data items on all trucks and buses involved in traffic crashes that meet a specific severity threshold.

The present report is part of a series evaluating the completeness and accuracy of the data in the MCMIS Crash file. Previous reports on a number of states showed underreporting due in large part to problems in interpreting and applying the reporting criteria. The problems were more severe in large jurisdictions and police departments. Each state also had problems specific to the nature of its system. Some states also had overreporting of cases, often due to technical problems with duplicate records. [See references 3 to 33.] The states are responsible for identifying and reporting qualifying crash involvements. Accordingly, improved completeness and accuracy must ultimately reside with the individual states.

In this report, we focus on MCMIS Crash file reporting by Oklahoma. In recent years, Oklahoma has reported from 1,600 to 1,820 involvements annually to the MCMIS Crash file. According to the 2002 Vehicle Inventory and Use Survey (the last available), in 2002 Oklahoma had over 294,000 trucks registered, ranking 3rd among the states and accounting for 5.4 percent of all truck registrations [1]. Oklahoma is the 28th largest state by population and in most years ranks 14th in terms of the number of annual truck and bus fatal involvements.

The method employed in this study is similar to previous studies.

1. The complete police accident report file (PAR file hereafter) from Oklahoma was obtained for the most recent year available, which was 2007. This file was processed to identify all cases that qualified for reporting to the MCMIS Crash file.

2. All cases in the Oklahoma PAR file—those that qualified for reporting to the Crash file as well as those that did not—were matched to the cases actually reported to the MCMIS Crash file from Oklahoma.

3. Cases that should have been reported, but were not, were compared with those that were reported to identify the sources of underreporting.

4. Cases that did not qualify but which were reported were examined to identify the extent and nature of overreporting.

Police accident report (PAR) data recorded in Oklahoma's statewide files as of March 18, 2009, supplemented with additional records from a file dated December 2008, were used in this

analysis. The combined 2007 PAR file contains the crash records for 160,423 units (primarily vehicles).

2. Data Preparation

The Oklahoma PAR file and MCMIS Crash file each required some preparation before the Oklahoma records in the MCMIS Crash file could be matched to the Oklahoma PAR file. In the case of the MCMIS Crash file, the only processing necessary was to extract records reported from Oklahoma and to eliminate duplicate records. The Oklahoma PAR file required more extensive work to create a comprehensive vehicle-level file from accident, vehicle, and person data. The following sections describe the methods used to prepare each file and some of the problems uncovered.

2.1 MCMIS Crash Data File

The 2007 MCMIS Crash file as of August 27, 2008 was used to identify records submitted from Oklahoma. For calendar year 2007 there were 1,963 cases. An analysis file was constructed using all variables in the file. The file was then examined for duplicate records (more than one record submitted for the same vehicle in the same crash; i.e., the report number and sequence number were identical). No such duplicates were found.

In addition, records were examined for identical values on accident number, accident date/time, county, city, vehicle license number, and driver license number, even though their vehicle sequence numbers were perhaps different. One would not expect two records for the same vehicle and driver within a given accident. Eight such duplicates were found. All but a few variables were identical for both records of the pair, including vehicle and driver variables, such as driver date of birth. It is possible that a second record was mistakenly generated when the original record was being updated. Assuming the later one contained corrections, the member of the pair with the earliest upload date was excluded. The resulting MCMIS file contains 1,955 unique records.

2.2 Oklahoma Police Accident Report File

The Oklahoma PAR data for 2007 (as of March 18, 2009) was obtained from the state of Oklahoma. The data were stored as one text file, representing Accident, Vehicle, and Person information. The file contained records for 75,060 crashes involving 140,680 units. Data for the PAR file are coded from the Official Oklahoma Traffic Collision Report (DPS: 0192-01 REV 0107) completed by police officers.

A previous data file, dated December 2008, contained 154,787 units in 76,470 crashes. Comparing the two files determined that the older file had 19,743 units not in the March 2009 state file. Since it was not known why these cases were excluded from the state file, a decision was made to add the 19,743 cases to the newer file, with a flag variable appended to each record indicating the source file for the record. The combined PAR file containing 160,423 unit records was used for the analysis.

The PAR file was first examined for duplicate records (those involvements where more than one record was submitted for the same vehicle in the same crash). An inspection of case numbers

verified that they were recorded in a consistent format, so there was no reason to suspect duplicate records based on similar, but not identical, case numbers (such as 100870259 and 10087-259, for example). In addition, the file was examined for duplicate records based on identical case number and vehicle number. No such instances were found.

Cases were also examined to determine if there were any records that contained identical case number, time, place, and vehicle/driver variables, regardless of vehicle number. Two crash records would not be expected to be identical on all variables. To investigate this possibility, records were examined for duplicate occurrences based on the variables that contain case number, accident date/time, crash county, city, vehicle identification number (VIN), vehicle license plate number, and driver license number. Based on the above algorithm, six duplicate records (pairs) were found. Examination of the pairs revealed that vehicle number differed among the pairs, but most other variables were identical. In all pairs vehicle make, model and model year were identical. Since the major vehicle and driver variables were identical, these records were considered duplicates. It appears a second record may have been mistakenly entered during the process of updating certain variables. Since the Last Update Timestamp variable was the same for each member of the pair, it was not possible to tell which member was the correct one, so the member with the highest vehicle number was deleted. After deleting six records the resulting PAR file has 160,417 unique records.

3. Matching Process

The next step involved matching records from the Oklahoma PAR file to corresponding records from the MCMIS file. There were 1,955 Oklahoma records from the MCMIS file available for matching, and 160,417 records from the Oklahoma PAR file. All records from the Oklahoma PAR data file were used in the match, even those that were not identified as reportable to the MCMIS Crash file. This allowed the identification of cases in the MCMIS Crash file that did not meet the MCMIS Crash file reporting criteria.

Matching records in the two files requires finding combinations of variables common to the two files that have a high probability of uniquely identifying accidents and specific vehicles within the accidents. Document ID, used to uniquely identify a crash in the Oklahoma PAR data, and Report Number in the MCMIS Crash file, are obvious first choices. Document ID in the Oklahoma PAR file is a nine-digit numeric field, while in the MCMIS Crash file Report Number is stored as a 12-character alphanumeric value. The report number in the MCMIS Crash file is constructed as follows: The first two columns contain the state abbreviation (OK, in this case), followed by ten digits. It appears the nine rightmost digits correspond to PAR Document ID. These digits were used in the match.

Other variables typically used in matching at the crash level include Crash Date, Crash Time (stored in military time as hour/minute), Crash County, Crash City, Crash Street and Reporting Officer's Identification number. Crash Street was unrecorded in over 72 percent of PAR cases and Reporting Officer's Badge Number was unrecorded 85.0 percent of the time. Thus, these variables could not be used in the matching process, but could be useful in some cases for verification purposes.

Variables in the MCMIS file that distinguish one vehicle from another within the same crash include vehicle license plate number, driver license number, vehicle identification number

(VIN), driver date of birth, and driver last name. All of these variables were present in the PAR file. License Plate Number was unrecorded approximately 6.4 percent of the time in the PAR data and was unknown in 0.5 percent of MCMIS cases. The driver-related variables were unrecorded in about 10 percent of PAR cases. All three had low rates of missing data in the MCMIS file. However, VIN was unrecorded in 47 percent of MCMIS cases, but in only 3.2 percent of PAR records.

The match was performed in five steps, using the available variables. At each step, records in either file with duplicate values on all the match variables were excluded, along with records that were missing values on the match variables. The first match included the variables case number, crash date (month, day), crash time (hour, minute), county, city, driver license number, and vehicle identification number (VIN). The second match step dropped VIN, and matched on case number, crash date, crash time, county, city, vehicle license plate number, and driver license number. After some experimentation, the third match step included case number, crash date, crash time, county, vehicle license plate number, and driver last name. Various combinations were tried for the fourth match until more than a few cases were successfully matched. The variables used in this final computer-based match were crash month and vehicle license plate number. All cases in the fourth match were also manually verified to ensure the match was valid. An attempt was made to hand-match the remaining unmatched cases by reviewing all those crashes in the PAR file, and determining if any vehicle in the crash matched the MCMIS case. In addition, all cases were searched for in the PAR file, based on driver's license number. These hand-matches resulted in matching twelve additional cases in the fifth match.

In total, this process resulted in matching 99.5 percent of the MCMIS records to the PAR file. Ten cases could not be matched. See Table 1 for the variables used in each match step and the number of records matched at each step.

Note: 72 of the matched records were from the December 2008 dataset. Using the March 2009 dataset alone would have resulted in only 1,873 matches, leaving 82 unmatched cases instead of 10.

Table 1 Steps in MCMIS/Oklahoma PAR File Match, 2007

Step	Matching variables	Cases matched
Match 1	Case number, crash date, crash time, county, city, driver license number, and VIN	841
Match 2	Case number, crash date, crash time, county, city, vehicle license plate number, and driver license number	720
Match 3	Case number, crash date, crash time, county, vehicle license plate number, and driver last name	295
Match 4	Crash month and vehicle license plate number	77
Match 5	Hand-matched using all available variables	12
Total cases matched		1,945

Matched records were verified using other variables common to the MCMIS and PAR file as a final check to ensure the match was valid. The above procedure resulted in 1,945 matches, representing 99.5 percent of the 1,955 non-duplicate records reported to MCMIS.

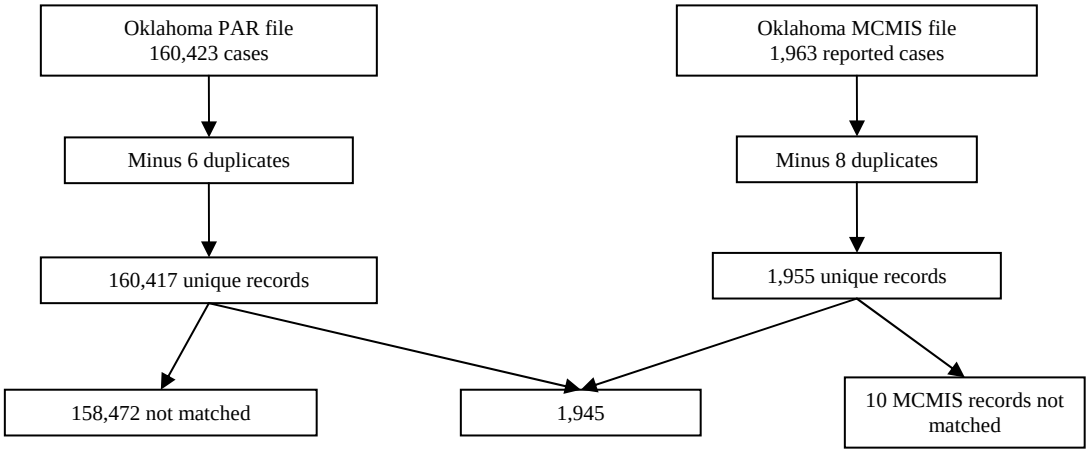

Figure 1 Case Flow in MCMIS/Oklahoma Crash File Match

Of the 1,945 matched cases, 44 are not reportable and 1,901 are reportable. The method of identifying cases reportable to the MCMIS Crash file is discussed in the next section.

4. Identifying Reportable Cases

The next step in data preparation is to identify records in the Oklahoma data that qualified for reporting to the MCMIS Crash file. Records are identified using the information available in the computerized crash files that were sent by Oklahoma. Records that are reportable to the MCMIS Crash file must meet the criteria specified by the FMCSA. The reporting criteria cover the type of vehicle and the severity of the crash. These criteria are discussed in more detail below, but the point here is that records transmitted to the MCMIS Crash file must be selected from among all the records in the state's crash data.

The method developed to identify reportable records is intended to be independent of any prior selection by the state being evaluated. This approach is necessary to develop a truly independent evaluation of the completeness of reporting. Accordingly, we use the information that is completed by the officers for all vehicles in the crashes. Some states place some of the data elements for the MCMIS Crash file in a special section, with instructions to the reporting officer to complete that information only for vehicles or crashes that meet the MCMIS selection criteria. If the present evaluation of state reporting were limited to records identified by those data elements, it would obviously miss cases that had been missed by the state selection process. Accordingly, the method of identifying reportable cases used in this report is developed using the data recorded for all vehicles and crashes. This approach provides the best opportunity to identify all reportable cases.

The MCMIS criteria for a reportable crash involving a qualifying vehicle are shown in Table 2. Reportable records must meet both the vehicle type and crash severity criteria. The method used for the vehicle and crash severity criteria are each discussed in turn.

Table 2 Vehicle and Crash Severity Threshold for MCMIS Crash File

Vehicle	Truck with GVWR over 10,000 or GCWR over 10,000, or Bus with seating for at least nine, including the driver, or Vehicle displaying a hazardous materials placard.
Accident	Fatality, or Injury transported to a medical facility for immediate medical attention, or Vehicle towed due to disabling damage.

The process of identifying reportable vehicles is straightforward in the Oklahoma PAR file. A Vehicle Type field in the crash file classifies vehicles among 27 distinct types. Oklahoma's inclusion of vehicle diagrams on the crash form further aids the reporting officer in determining the correct vehicle type. The vehicle types include several that match very well the vehicle types in the MCMIS Crash file, permitting a very clean identification of vehicles that meet the MCMIS vehicle type criteria. Vehicle Type was not stated, missing, or unknown in about 4 percent of PAR cases in the March 2009 file, 60 percent of 19,743 cases from the older file, and 11 percent of the combined file. Table 3 shows the code levels of the Vehicle Type variable that meet the vehicle criteria.

Table 3 Relevant Vehicle Body Codes in Oklahoma PAR file

Trucks
5 – Single unit truck, 2 axles
6 – Single unit truck, 3+ axles
8 – Truck/trailer
9 – Truck-tractor (bobtail)
10 – Truck-tractor/Semi-trailer
11 – Truck- tractor/double
12 – Truck-tractor/triple
22 – Truck >10,000 lbs. cannot classify
Buses
7 – School bus
13 – Bus/large van 9-15 occupants, incl driver
14 – Bus 16+ occupants, including driver
21 – Passenger van, special function as bus

In addition to these vehicle types, any vehicle, regardless of size, displaying a hazardous materials placard, also meets the MCMIS vehicle type definition. Oklahoma's crash form includes three fields that indicate whether a vehicle was transporting hazmat: whether hazmat was involved, a field to capture the placard (UN) number, and a field for the class of hazmat. If

any of the fields indicated the vehicle was transporting hazmat, the vehicle was considered to qualify under the MCMIS rules.

In total, there were 7,724 vehicles identified as eligible trucks, buses, or vehicles transporting hazmat in the Oklahoma PAR data. Table 4 shows the distribution by vehicle type. More than 90 percent of qualifying vehicles are trucks, while 9.7 percent are buses. Only nine non-trucks transporting hazardous materials were identified in the crash file. The 7,724 eligible vehicles represent 4.8 percent of the 160,423 vehicles in the PAR file. This proportion is right in the middle of the range observed in other states evaluated: The percentage of eligible vehicles has ranged from 2.6 to 6.1 percent.

Table 4 Vehicles Meeting MCMIS Vehicle Criteria, Oklahoma PAR File, 2007

Vehicle type	N	%
Truck	6,963	90.1
Bus	752	9.7
Other, transporting hazmat	9	0.1
Total	7,724	100.0

Having identified qualifying vehicles, the next step is to identify crashes of sufficient severity to qualify for reporting to the MCMIS Crash file. Qualifying crashes include those involving a fatality, an injured person transported for immediate medical attention, or a vehicle towed from the scene due to disabling damage. As in the case of vehicles, the Oklahoma crash file has the necessary information to identify in a straightforward way the crashes that meet the severity criteria.

The Oklahoma Person file contains the necessary information on injured persons. The officer records the severity of the injury (using the usual KABCN scale). There is also a field to indicate how the injured person was transported to the medical facility, and another for the name of the facility. This information was used to identify crashes in which an injured person was transported to a medical facility. A rule with two parts was developed to identify persons transported for medical attention. In the first part, all persons with an injury (A, B, C, or injury of unknown severity) coded as transported by EMS, Law Enforcement, Private Vehicle, or Other were considered as injured/transported.

The second part of the rule used the information in the “transported to” field. The crash data contain 9,681 persons coded as injured, but for whom the “transported by” code was either unknown or left blank. However, there was information entered in the Medical facility field, which is used to indicate the medical facility, if any, to which the person was transported. For 8,820 of the cases, that field was left blank, which was taken to mean that the person was not transported for medical attention, or at least there was no evidence that could be found. However, the remaining 861 records had some information in the field. This information was reviewed and where the information indicated a hospital or other medical facility, the person was regarded as injured and transported to a medical facility.

Using the rule thus developed, all crashes in which a person with an injury was transported to a medical facility were identified.

The Oklahoma PAR data also includes the information needed to identify crashes in which a vehicle was towed from the scene due to vehicle damage. This is indicated directly on the Oklahoma crash report, by means of a field in which the officer can indicate whether a vehicle was towed due to damage or towed for some other reason. In addition, the officer indicates the extent of damage the vehicle incurred, with levels for "none," "minor," "functional," and "disabling."

As in the case of the injury criteria, the rule developed to identify crashes that included a vehicle that was towed due to disabling damage had two parts. In the first part, all crashes in which at least one vehicle was coded as towed due to damage was considered as meeting the MCMIS criteria. In addition, there were 1,068 vehicles coded as towed and coded as sustaining disabling damage in the damage extent variable. These vehicles were also treated as towed due to disabling damage. Analysis of the towed variable in the 2006 General Estimates System (GES) database shows that approximately 27 percent of vehicles are towed due to damage. Other MCMIS evaluations tend to support an estimate of about 27 to 31 percent. Based on the method used here, the percentage of vehicles towed due to disabling damage in the Oklahoma PAR file is 28.2 percent, which matches well the proportion in other states.

Implementing the eligible vehicle and crash severity filters identified a total of 3,474 reportable cases in the Oklahoma crash data in 2007. There were 3,474 vehicles—either a truck, bus, or vehicle transporting hazmat—involved in a crash that included either a fatality, at least one person transported for immediate medical attention, or at least one vehicle towed due to disabling damage, based on the definitions explained above.

Table 5 Reportable Records in Oklahoma Crash File, 2007

	Crash severity			
MCMIS Vehicle type	Fatal	Injured/ transported	Tow/ disabled	Total
Truck	105	1,151	1,947	3,203
Bus	5	116	147	268
Hazmat placard	0	0	3	3
Total	110	1,267	2,097	3,474

As Figure 1 above shows, there were 1,963 records reported to the MCMIS Crash file by Oklahoma in 2007, of which eight were duplicate records, leaving 1,955 unique records reported. Of these, 1,945 were matched to the Oklahoma PAR file. Of the 1,945 matched records, 1,901 were identified as meeting the reporting criteria under the method described above, and 44 did not qualify for reporting.

5. Factors Associated with Reporting

The process described in section 4 identified 3,474 records in the 2007 Oklahoma crash file as meeting the MCMIS Crash file reporting criteria. There were 1,963 records reported to the MCMIS Crash file for 2007, of which 1,955 were unique and 1,901 were determined to meet the MCMIS reporting criteria. Therefore, of the 3,474 reportable records, 1,901 were actually reported, for an overall reporting rate of 54.7 percent. This section provides a discussion of factors that apparently affected the successful identification and reporting of records to the MCMIS Crash file.

5.1 Overreporting

MCMIS evaluations tend to focus on underreporting because underreporting tends to be a larger problem than overreporting. However, almost all states overreport, that is, report cases that do not meet the MCMIS reporting criteria, to some degree. Since 1,945 MCMIS cases could be matched to the Oklahoma PAR data, and 1,901 of these were determined to meet the reporting criteria, the difference, or 44 cases, were not reportable, based on the definitions discussed in Section 4.

Table 6 shows a two-way classification of vehicle type and crash severity, and provides some explanation as to why these vehicles should not have been reported to the MCMIS Crash file. The majority of vehicles are not qualifying trucks or buses. Of the 44 reported, fully 28 were not coded as a truck, a bus, or a vehicle transporting hazmat. The other 16 qualified for reporting by vehicle type, but the crash in which they were involved did not meet the severity threshold.

Table 6 Distribution of Non-reportable Vehicles in Oklahoma Crash File, 2007

	Crash severity				
Vehicle type	Fatal	Transported injury	Towed/disabled	Other crash severity	Total
Truck	0	0	0	13	13
Bus	0	0	0	3	3
Other vehicle (not transporting hazmat)	2	16	10	0	28
Total	2	16	10	16	44

5.2 Case Processing

Delays in transmitting cases may partially account for the incompleteness of the MCMIS Crash file. The time lag in extracting and submitting reports to the MCMIS Crash file might explain some portion of the unreported cases. All reportable crash involvements for a calendar year are required to be transmitted to the MCMIS Crash file within 90 days of the date of the crash. The 2007 MCMIS Crash file as of August, 2008, was used to identify records submitted from Oklahoma, so all 2007 cases should have been reported by that date.

Table 7 shows reporting rates according to month of the crash. Reporting rates range from 61.3 to 41.9, with July having the highest reporting rate and August the lowest. Although August represents the largest proportion of unreported cases, there is no consistent pattern of

underreporting across the year. Delays in reporting that might be explained by other work does not appear to contribute to the rate of reporting.

Table 7 Reporting Rate by Accident Month in Oklahoma Crash File, 2007

Crash month	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
January	343	56.0	151	9.6
February	215	52.6	102	6.5
March	291	55.0	131	8.3
April	270	52.6	128	8.1
May	299	53.8	138	8.8
June	329	56.2	144	9.2
July	269	61.3	104	6.6
August	301	41.9	175	11.1
September	280	56.1	123	7.8
October	302	58.6	125	7.9
November	259	57.1	111	7.1
December	316	55.4	141	9.0
Total	3,474	54.7	1,573	100.0

Figure 2 shows the cumulative percent of cases submitted by latency in days, i.e. the number of days between the crash date and the date the case was uploaded to the MCMIS Crash file. Crash reports are required to be submitted to the MCMIS Crash file within 90 days of the crash. About 3.5 percent of the records were submitted within 90 days of the crash. The median time between crash occurrence and record upload is about 197 days. Two-thirds are submitted within 246 days, and 90 percent were submitted within 351 days.

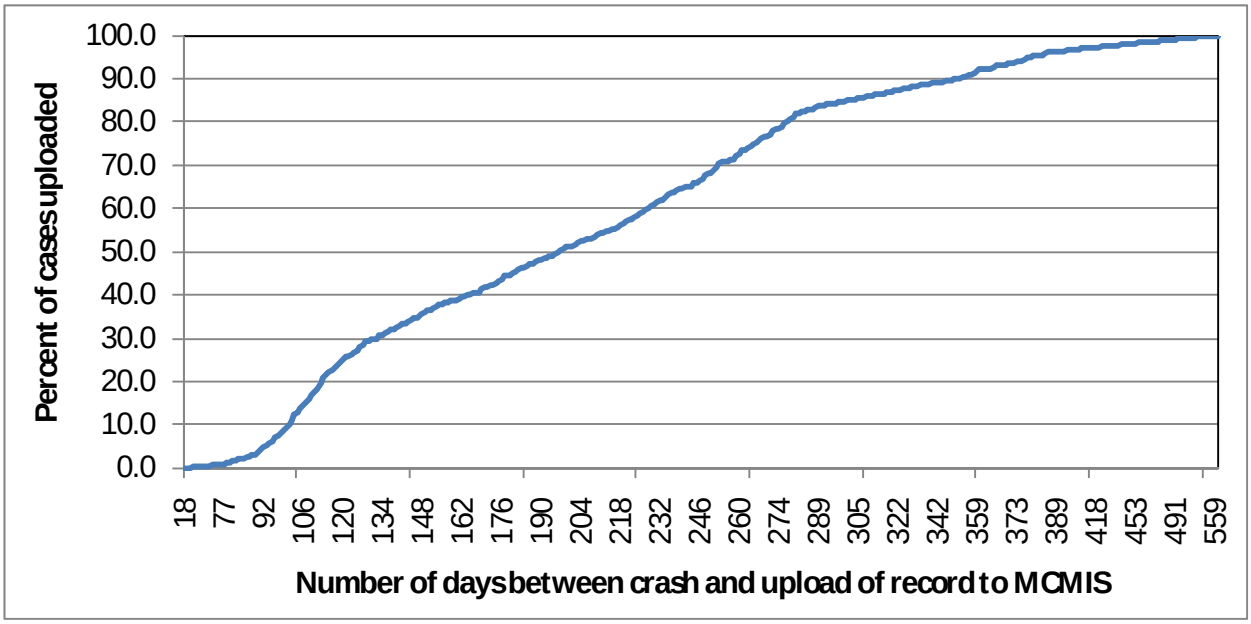

Figure 2 Cumulative Percent of Cases Submitted to MCMIS Crash File by Number of Days After Crash, Oklahoma 2007

The first date on which crash records from 2007 were uploaded was May 2, 2007. On average, uploads occurred every 4.3 days between then and August 22, 2008, when the last upload occurred. An average of 17.5 records were uploaded per upload, but most uploads consisted only of a few records, while a few uploads accounted for a disproportionate number of records. Approximately 25 percent of the records were upload on a single day—October 17, 2007. That day, along with three other days, accounted for over half of all the records uploaded. It is possible that 2007 is an anomalous year. The experience for 2007 may be different from other years.

5.3 Reporting Criteria

This section presents the results of examining reporting rates by the factors that are used to determine if a specific crash involvement is reportable. This analysis is intended to help identify characteristics of the vehicle or crash that are more likely to trigger the process that results in a reported case.

Table 8 shows reporting rates, the number of unreported cases, and the proportion of unreported cases for each level of the MCMIS crash severity criteria. Traffic crashes that resulted in a fatality were reported at the highest rate, with 76.4 percent of such crash involvements reported. However, the two less-severe levels of crash severity were reported at lower rates. Injury/transported involvements were reported at a 57.4 percent rate, while 52.0 percent of the towed involvements were reported. Although the difference between the reporting rates for injured/transported and towed/disabled involvements is statistically significant, it appears that the primary difference in reporting rates is between the relatively high rate for fatal involvements and the significantly lower rate (both statistically and practically) for nonfatal reportable involvements. This may indicate that a separate process is used for fatal crash involvements, which results in a higher proportion of reportable crashes recognized as such and uploaded to the Crash file.

Table 8 Reporting Rate by MCMIS Crash Severity, Oklahoma 2007

Crash severity	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Fatal	110	76.4	26	1.7
Injured/transported	1,267	57.4	540	34.3
Towed/disabled	2,097	52.0	1,007	64.0
Total	3,474	54.7	1,573	100.0

More than 98 percent of the unreported involvements did not include a fatality. More than a third involved an injured person transported for treatment, and almost two-thirds of the unreported cases are accounted for by towaway crashes. A significant improvement in the reporting rates for these crashes would greatly reduce the total number of unreported cases.

In Table 9 crash severity is measured by the most severe injury in the crash, using the KABCO scale. In this scale, fatal injuries are classified as K, incapacitating injuries as A, evident but not incapacitating injuries as B, and possible injuries are coded C. As is the case in many other

states, reportable crashes with more severe injuries are more likely to be reported than those with less severe injuries. The table shows a nearly-linear increase in reporting rates from no-injury crashes to those with A-injuries. There is a step change up in terms of the reporting rate for crashes that include fatalities. There is likely a tendency to report more carefully, the more serious the crash, and it is likely that fatal crashes receive the most scrutiny, resulting in a significantly higher reporting rate.

Table 9 Reporting Rate by PAR Calculated Crash Severity, Oklahoma 2007

Crash severity	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Fatal (K)	110	76.4	26	1.7
Incapacitating (A)	308	62.7	115	7.3
Non-incapacitating (B)	719	56.5	313	19.9
Possible (C)	735	54.3	336	21.4
No injury (O)	1,599	51.2	780	49.6
Not Applicable	3	0.0	3	0.2
Total	3,474	54.7	1,573	100.0

The second component of the MCMIS Crash file criteria is the vehicle type. As described above, trucks, buses, and other vehicles transporting sufficient amounts of hazmat to require a placard all meet the reporting requirements. Table 10 shows the rates for the different general types of vehicles. The reporting rate for trucks was 58.2 percent, close to the overall rate of 54.7 percent, which is expected since trucks account for 3,203 of the 3,474 total reportable vehicles. The most notable result in Table 10 is the low reporting rate for buses. Only 13.4 percent of buses in a reportable crash were actually reported.

Table 10 Reporting Rate by MCMIS Vehicle Class, Oklahoma 2007

MCMIS Vehicle class	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Truck	3,203	58.2	1,338	85.1
Bus	268	13.4	232	14.7
Hazmat placarded vehicle	3	0.0	3	0.2
Total	3,474	54.7	1,573	100.0

Table 11 provides more detail about the effect of vehicle type on reporting rates, showing rates by specific vehicle type, using information in the Oklahoma crash file vehicle type field. The highest reporting rates are for the biggest vehicles. The rate for triples was 80.0 percent, for doubles it was 70.7 percent, and for tractor-semitrailers it was 72.5 percent. In contrast, the rate for three-axle single unit trucks (SUT) was 57.0 percent, and two-axle SUTs were reported at a 25.6 percent rate. Large trucks are more reliably recognized as meeting the reporting requirements, while smaller trucks, which equally qualify, are overlooked much more often. The same influence of size is apparent with buses, though it should also be emphasized that buses are uniformly reported at significantly lower rates than trucks. Larger buses are reported at higher

rates than smaller buses. Buses with seating for 16 or more, including the driver, are reported at a 22.2 percent rate, while 5.8 percent of the reportable crash involvements of buses with nine to 15 seats are reported. None of the 18 passenger vans, which were identified as a bus, were reported.

Table 11 Reporting Rate by Police-Reported Vehicle Configuration, Oklahoma 2007

Vehicle type	Reportable cases	Reporting rate	Unreported	% of total unreported
Pickup (hazmat)	1	0.0	1	0.1
Passenger van (special function as bus)	18	0.0	18	1.1
School bus	92	16.3	77	4.9
Bus/Large van (9-15 seats, including driver)	86	5.8	81	5.1
Bus (16+ seats, incl. driver)	72	22.2	56	3.6
2-axle, SUT	598	25.6	445	28.3
3+ axle SUT	291	57.0	125	7.9
Truck w/trailer	156	48.7	80	5.1
Truck tractor, no trailer	187	31.6	128	8.1
Tractor/semitrailer	1,828	72.5	502	31.9
Double	58	70.7	17	1.1
Triple	5	80.0	1	0.1
Unknown heavy truck	80	50.0	40	2.5
Unknown	2	0.0	2	0.1
Total	3,474	54.7	1,573	100.0

5.4 License state and "CMV" Code

Reporting rates are also associated with the license state of the vehicle. Reportable cases are much more likely to be reported if the license tag on the vehicle is from out of state. More than two-thirds of non-Oklahoma reportable cases were reported, compared with less than 50 percent of Oklahoma-plated vehicles. This could indicate that reporting officers believe the information they collect for the MCMIS Crash file pertains primarily to vehicles in interstate commerce, or that they recognize a truck with out-state plates as a commercial vehicle. Clearly a truck or bus with license plates from another state is involved in interstate activities.

Table 12 Reporting Rate by Vehicle License State, Oklahoma 2007

Vehicle license state	Reportable cases	Reporting rate	Unreported	% of total unreported
Oklahoma	2,112	49.6	1,064	67.6
Other	1,259	67.2	413	26.3
Unrecorded	103	6.8	96	6.1
Total	3,474	54.7	1,573	100.0

The instruction manual (as of January 1, 2007) states that officers must complete the Commercial Vehicle Section of the crash form for commercial motor vehicles. In the area on the main crash report used to capture details about the vehicles involved there is a check box labeled

CMV. The manual states "A Commercial Motor Vehicle is defined as a vehicle used for commerce/business and has a GVWR/GCWR in excess of 10,000 lbs., or has a hazmat placard, or is a bus with seating for nine or more including the driver. The definition of a Commercial Motor Vehicle is not dependent on the license plate displayed on the vehicle." [2] This definition is consistent with the MCMIS vehicle criteria shown in Table 2. The reporting officer is instructed to check the box if the vehicle is a CMV.

It is clear that checking the CMV box on the crash form appears to be a necessary, but not sufficient condition for reporting to the MCMIS Crash file. Table 13 shows that all of the cases that were reported to the MCMIS file had CMV variables recorded.

Table 13 Reporting Rate by PAR Identification as "CMV," Oklahoma 2007

CMV code	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
No	646	0.0	646	41.1
Yes	2,828	67.2	927	58.9
Total	3,474	54.7	1,573	100.0

Apparently, the reporting officer recognizing a vehicle as meeting the MCMIS vehicle type criteria is a necessary but not sufficient condition for a record to be selected for upload to the MCMIS Crash file. Of the 1,573 records that met the MCMIS Crash file definitions but were not reported to the MCMIS Crash file, 927 were identified by the reporting officer as a "CMV," yet they were not selected and uploaded. If they had been, the overall reporting rate would have been raised from 54.7 percent to 81.4 percent, a very significant increase.

The reportable vehicles not marked as "CMVs" tend to be smaller trucks and buses. Among the reportable vehicles not marked as "CMVs," about half were 2-axle single unit trucks (SUTs). These trucks are primarily medium duty, with a gross vehicle weight rating class from 3 to 7. Buses are also over-represented in this group, particularly those with seating for nine to 15, i.e., smaller reportable buses. However, substantial numbers of large trucks and buses were also not identified as "CMVs" on the crash form by the reporting officer, including 46 of 125 three-axle SUTs that were not reported, 42 of 80 unreported trucks with trailer, and 78 of 128 unreported bobtail tractors. Reliance on the CMV code results in missing substantial numbers of reportable vehicles.

5.5 Reporting Agency and Area

In addition to the reporting criteria, reporting rates may reflect differences in where the crash occurs and the type of enforcement agency that investigated the crash. More densely populated areas with a large number of traffic accidents may not report as completely as areas with a lower work load or different enforcement priorities. The level and frequency of training or the intensity of supervision may also vary. Such differences can serve as a guide for directing resources to areas that would produce the greatest improvement. This section examines reporting rates by location and agency.

Reporting rates vary significantly by the type of investigating agency (Table 14). There are three primary levels of investigating agencies identified in the Oklahoma crash file: State police, county sheriff, and city police. Crashes covered by the State police have the highest reporting rate, at 66.4 percent. The State police also cover about two-thirds of reportable crash involvements, so despite their relatively high rate, the underreporting of crash involvements covered by state police accounts for 45.1 percent of all the crash involvements that were not reported to the MCMIS Crash file but should have been. City police agencies cover almost all of the other crash involvements reportable to the MCMIS Crash file. The reporting rate for crash involvements covered by city police was 36.6 percent. Reportable involvements covered by city police accounted for 54.4 percent of the total unreported records.

Table 14 Reporting Rate by Investigating Agency, Oklahoma 2007

Investigating agency	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
State Patrol	2,115	66.4	710	45.1
County Sheriff	6	33.3	4	0.3
City Police	1,349	36.6	855	54.4
Other	1	0.0	1	0.1
Unrecorded	3	0.0	3	0.2
Total	3,474	54.7	1,573	100.0

Table 15 shows the top ten counties displayed in descending order by the number of unreported cases. As a group their overall reporting rate of 46.6 percent is below the statewide average of 54.7 percent, and they account for almost 60 percent of the unreported records. The top counties contain or are near major cities in the state. Thus, they have higher populations and are traversed by the primary routes through Oklahoma.

Table 15 Reporting Rate by Crash County, Oklahoma 2007

County	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Oklahoma	582	47.1	308	19.6
Tulsa	503	40.2	301	19.1
Cleveland	100	35.0	65	4.1
Canadian	119	58.0	50	3.2
Muskogee	78	37.2	49	3.1
Comanche	60	33.3	40	2.5
Pittsburg	106	68.9	33	2.1
Beckham	66	57.6	28	1.8
Lincoln	54	48.1	28	1.8
Creek	69	62.3	26	1.7
Ten County Total	1,737	46.6	928	59.0
All Counties Total	3,474	54.7	1,573	100.0

5.6 Fire Occurrence

The Oklahoma crash file includes a field used to record if a vehicle burned as part of the crash. There were 44 trucks and two buses involved in crashes where a fire occurred (Table 16). Almost 70 percent of these records were reported, substantially higher than the overall reporting rate. It is possible that very serious crashes, as indicated by the occurrence of fire in the crash, receive a more thorough investigation and thus are more likely to be identified as reportable.

Table 16 Reporting Rates for Vehicles In Crashes Involving Fire, Oklahoma 2007

Vehicle type	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Truck	44	70.5	13	92.9
Bus	2	50.0	1	7.1
Hazardous	0	N/A	0	0.0
Total	46	69.6	14	100.0

6. Data Quality of Reported Cases

In this section, we consider the quality of data reported to the MCMIS crash file. Two aspects of data quality are examined. The first is the amount of missing data. Missing data rates are important to the usefulness of a data file because records with missing data cannot contribute to an analysis. The second aspect of data quality considered here is the consistency of coding between records as they appear in the state crash file and in the MCMIS Crash file.

Inconsistencies can signal problems in translating information recorded on the crash report to the values in the MCMIS Crash file.

Table 17 shows missing data rates for selected, important variables in the MCMIS Crash file. Missing data rates are generally quite low, with a handful of exceptions. On most fundamental, structural variables, such as date, time, number of fatalities and number of injuries, missing data rates are either zero or extremely low. It is notable that the event variables have very low rates of unrecorded values, even for events three and four. Many states capture only one or two events, but even event four in the Oklahoma data is unrecorded for only about a quarter of the cases, which is most likely because there were no fourth event in those crashes. DOT number is not recorded for 4.4 percent of interstate cases. Road access is missing in all cases (100 percent), weather is unrecorded in 33.1 percent , and VIN is unrecorded in 46.6 percent of cases. With those exceptions, missing data rates are extremely low.

Table 17 Missing Data Rates for Selected MCMIS Crash File Variables, Oklahoma 2007

Variable	Percent unrecorded	Variable	Percent unrecorded
Report number	0.0	Fatal injuries	0.0
Accident year	0.0	Non-fatal injuries	0.0
Accident month	0.0	Interstate	0.0
Accident day	0.0	Light	0.1
Accident hour	0.0	Event one	0.6
Accident minute	0.0	Event two	6.7
County	0.0	Event three	16.8
Body type	0.9	Event four	25.5
Configuration	1.1	Number of vehicles	0.0
GVWR class	0.1	Road access	100.0
DOT number *	4.4	Road surface	0.2
Carrier state	0.0	Road trafficway	5.0
Citation issued	0.0	Towaway	0.0
Driver date of birth	0.2	Truck or bus	0.0
Driver license number	0.4	Vehicle license number	0.5
Driver license state	0.3	Vehicle license state	0.4
Driver license class	1.1	VIN	46.6

Variable	Percent unrecorded	Variable	Percent unrecorded
Driver license valid	0.0	Weather	33.1

* Based on cases where the carrier is coded interstate.

Hazardous materials variable	Percent unrecorded
Hazardous materials placard	0.6
Percentages of hazmat placarded vehicles only:	
Hazardous cargo release	0.0
Hazardous materials class (1-digit)	27.8
Hazardous materials class (4-digit)	0.0
Hazardous materials name	100.0

The second section of the table shows missing data rates for the hazardous materials (hazmat) variables. Hazmat Placard was unrecorded in only 0.6 percent of cases. The other missing data rates shown are limited to the 54 records where the vehicle displayed a hazmat placard, indicating it was carrying hazmat. There was no missing data for hazardous cargo release or hazmat 4-digit class. However, the hazmat class 1-digit code was missing in 27.8 percent of cases, and the hazmat name was missing in all cases.

We also compared the values of variables in the MCMIS Crash file with the values of comparable variables in the Oklahoma crash file. The comparison was done for all substantive variables, other than those that were used to match records in the two files. The purpose of this comparison is to identify any errors in translating variables from the values in the state crash file to the values required for Safetynet.

Overall, the result of the comparison showed that values in the Oklahoma crash file for most variables were translated without error to the MCMIS Crash file. The values in the variables for light condition, number of fatalities in the crash, cargo body type, and road surface condition were identical in either all or almost all cases. There were three cases where a valid road surface condition code appeared as “unrecorded” in the MCMIS Crash file, and two cases where a valid code was entered for cargo body type in the Oklahoma crash data, but left unrecorded in the MCMIS Crash file. These could be cases where the MCMIS record was not updated to reflect additional information. Please note that all records matched between the two files was used in the comparison, not just cases that met the MCMIS reporting criteria.

Some few of the other variables compared showed differences. Table 18 shows the coding of vehicle configuration in the MCMIS Crash file in the left most column and the coding of the record as it appears in the Oklahoma Crash file. The consistency between coding in the two files is reasonably accurate for most cases, but the table shows that there are differences in 38 cases, about 2 percent of the records compared. In about half of the inconsistent cases, a valid code appeared in the Oklahoma file, but was left unrecorded in the MCMIS Crash file.

Table 18 Comparison of Vehicle Configuration in MCMIS and Oklahoma Crash Files, 2007

Vehicle Configuration/Vehicle Type		Cases	%
MCMIS Crash File	Oklahoma Crash File		
Unrecorded	Pickup Truck	2	0.1
	Truck-Tractor/Semi-Trailer	4	0.2
	Passenger Van	1	0.1
	Other	8	0.4
	Not Stated	1	0.1
	Unknown	4	0.2
Light truck (only if haz plac)	Pickup Truck	1	0.1
Bus(seats 9-15, incl dr)	School Bus	1	0.1
	Bus/Large Van (seats9-15,incDr)	5	0.3
Bus(seats >15, incl dr)	School Bus	9	0.5
	Bus (seats 16+,incl dr)	17	0.9
SUT, 2-axle, 6-tire	Pickup Truck	8	0.4
	SUT (2 axles)	155	8.0
	Motor Home	1	0.1
SUT, 3+ axles	SUT (3+ axles)	168	8.6
	School Bus	3	0.2
Truck trailer	Pickup Truck	2	0.1
	School Bus	1	0.1
	Truck/Trailer	77	4.0
Truck tractor (bobtail)	Truck-Tractor (bobtail)	59	3.0
Tractor/semitrailer	School Bus	3	0.2
	Truck-Tractor/Semi-Trailer	1,325	68.1
Tractor/double	Truck-Tractor/Semi-Trailer	5	0.3
	Truck-Tractor/Double	41	2.1
Tractor/triple	Truck-Tractor/Triple	4	0.2
Unknown heavy truck>10,000	Truck>10,000lbs, Cannot Classify	40	2.1
Total		1,945	100.0

With respect to the weather variable, the only inconsistency was in translating the “cloudy” weather condition in the Oklahoma list of weather codes to the MCMIS system. The weather condition variable in MCMIS has no category labeled “cloudy,” so the 644 Oklahoma records coded “cloudy” were uploaded as “unrecorded” to the MCMIS file. This inconsistency explains the large percentage of the weather variable that were missing data in Table 17. In fact, the original Oklahoma record was not missing in these cases, and the problem is in finding a suitable code to translate to. Three records were translated as the “other” weather type in the MCMIS Crash file, so that would be one solution. Another solution might be to translate the code as “no adverse condition,” which is a translation rule used by some other states.

The other area with notable inconsistencies between the information in the Oklahoma crash file and in the MCMIS Crash file related to the set of variables that record hazmat information. The number of records with inconsistencies is small relative to the total number of records, but it is large relative to the number of hazmat records, and is important because of the significance of accurate hazmat data in terms of safety and security. It should be clearly stated that it is not

possible to determine which record is accurate. The only thing that can be stated with certainty is that the information differs in a number of cases.

A significant area of inconsistency occurs in the variables that indicates whether hazardous materials were involved. Of the 54 records in the MCMIS Crash file coded hazmat placard as "yes," fully 20 are coded "no" in the Oklahoma crash file. An additional seven cases are coded "yes" in the Oklahoma file, but "no" in the MCMIS Crash file. Of the total of 51 cases recorded with hazmat in either the MCMIS Crash file or Oklahoma file, 27 are inconsistent between the two files.

Similarly with respect to whether hazmat was released in the crash, of the 15 cases in the Oklahoma crash file coded with a release, eight are coded no release in the MCMIS file and one is unrecorded in the MCMIS file. As to the hazmat class of the material transported, most cases are consistent between the two files, but there are seven cases with a valid hazmat class code in the Oklahoma crash file, that are left unrecorded in the MCMIS Crash file. If that information had been uploaded as part of the MCMIS record, the missing data rate for hazmat class shown in Table 17 for the field would have been much lower.

7. Summary and Discussion

This study evaluates reporting to the MCMIS Crash file by the state of Oklahoma for crashes occurring during 2007. The goal of the evaluation is to determine if all of the records that *should* be reported to the MCMIS Crash file *are* reported, and, if not, to identify areas of underreporting that might suggest the reasons for the underreporting.

To accomplish the goal involves two activities: First, a method is developed to identify cases that meet the MCMIS Crash file reporting criteria in the state's computerized crash file. This process uses the information in the state crash file itself to determine which records meet the vehicle type criteria and the threshold for the severity of the crash. The second activity is to match the records in the state file with those in the MCMIS Crash file. The matching process allows for the identification of three groups: 1) crashes that met the requirements and were reported; 2) crashes that met the requirements but were not reported; and 3) crashes that did not meet the requirements but were reported.

It is important to develop an independent method of identifying reportable cases, separate from any identification by the reporting officer or other body. An independent method allows the identification of any cases that may have been overlooked by the reporting officer or the process in Oklahoma that extracts cases for upload to the MCMIS Crash file. Or, on the contrary, an independent process can verify if the extraction is accurate and complete.

Two Oklahoma crash files were obtained for the 2007 calendar year, one dated December 2008 and the other March 2009. The files contained different numbers of records so they were compared and it was discovered that the earlier file contained records for 19,743 units not in the later file. These records were added to the March 2009 file and the resulting combined file, with 160,423 unit records, was used in the analysis. Many of the added records had high rates of missing data on critical variables, so these additional records did not influence the outcome in a substantial way. However, using these records resulted in finding an additional 72 cases in the

Oklahoma data that matched records in the MCMIS Crash file, improving the overall match rate and the reporting rate.

The Oklahoma crash file includes fields that readily facilitate selecting vehicles and crashes that meet the MCMIS Crash file criteria. A Vehicle Type field in the crash file classifies vehicles among 27 distinct types, that cleanly distinguish vehicles that conform to the MCMIS vehicle type criteria from those that do not. Identifying crashes that meet the severity criteria is almost as straightforward in the Oklahoma data. Crashes involving an injured person who was transported for medical attention were identified by using the fields that capture the injury level and whether the person was transported to a medical facility. The crash data also includes fields that can be used to identify crashes in which at least one vehicle was towed due to disabling damage. One field identifies whether a vehicle was towed and why. Another field categorizes the level of damage to a vehicle. Using these fields in the Oklahoma crash data, a simple method was developed to identify crashes in which a person was fatally injured, or at least one injured person was transported for medical attention, or at least one vehicle was towed due to disabling damage.

A total of 3,474 crash involvements were identified that meet the MCMIS reporting criteria for vehicle type and crash severity. There were 3,203 trucks, 268 buses, and 3 other vehicles transporting hazardous materials that were involved in a reportable crash. In terms of crash severity, there were 110 fatal involvements, 1,267 injury/transported involvements, and 2,097 tow/disabled involvements.

There were 1,963 records reported to the MCMIS Crash file by Oklahoma for the 2007 calendar year. There were eight duplicate records, leaving 1,955 unique crash records. These records were matched with the Oklahoma crash file, and 1,945 were matched successfully, for a match rate of 99.5 percent. Ten records in the MCMIS Crash file could not be matched to any record in the Oklahoma crash file, even though a manual search was conducted for each. Forty-four of the records did not qualify for reporting, either because they did not meet the vehicle type criteria or because they did not meet the crash severity criteria.

By this means, it was determined that 1,901 of the 3,474 reportable involvements in the Oklahoma crash file were actually reported to the MCMIS Crash file, for an overall reporting rate of 54.7 percent.

Several factors were found to be associated with differences in reporting rates. Considering the severity of the crash, those involving a fatality were reported at a 76.4 percent rate, while injury/transported crashes and tow/disabled crashes were reported at 57.4 percent and 52.0 percent rates. The latter two rates are roughly similar and the difference between them and the reporting rate for fatal involvements suggests that fatal involvements are subject to a different process, or at least much stricter scrutiny. Reporting rates by the most serious injury in the crash show a fairly linear relationship, such that the more severe the injury, the more likely a reportable crash is to be reported.

Reporting rates also vary by vehicle type and the size of the vehicle, with trucks more likely to be reported than buses, and large trucks more likely to be reported than smaller trucks. Only 13.4 percent of reportable bus involvements were actually reported, compared with 58.2 percent of reportable truck records. Among trucks, the biggest trucks, such as tractor-semitrailers, doubles, and triples, were reported at the highest rates, ranging from 70.7 percent for doubles to 80.0

percent for the five triples combinations identified. Smaller trucks were reported at lower rates. Only 57.0 percent of reportable involvements of three-axle straight trucks were reported, and only 25.6 percent of two-axle straight trucks. Bobtail tractors were reported at a 31.6 percent rate. It seems clear that the larger the vehicle, the more readily it is recognized as meeting the vehicle type criteria.

Analysis also found that reporting rates were significantly higher when the truck or bus had license plates from out of state, which may be taken as indicating it is involved in interstate commerce. Only about half of the reportable cases involving trucks or buses with Oklahoma plates were reported, compared with 67.2 percent of cases involving vehicles licensed elsewhere. This difference may also be evidence that the selection process in Oklahoma somehow tends to focus more on reportable vehicles that are clearly in interstate commerce. Since the MCMIS file is a national file maintained by a federal administration charged with regulating trucks and buses in interstate commerce, there may be some residual misunderstanding of the fact that all qualifying vehicles in qualifying crashes must be reported, regardless of whether the vehicles and vehicle operators are regulated by the FMCSA.

The factor that had the most decisive effect on reporting rates, however, was whether the reporting officer identified the vehicle as a "CMV." All of the cases reported to the MCMIS Crash file had been identified as CMVs, and none of the cases that were not identified as CMVs were reported. There were 646 records for qualifying trucks or buses in qualifying crashes that were coded as not a CMV, and none were reported. However, while being identified by the reporting officer as a CMV appears to be a *necessary* condition of reporting under the current system in Oklahoma, it is not a *sufficient* condition, since an addition 927 qualifying trucks or buses that were coded as CMVs were not reported.

The "necessary but not sufficient" effect of the officer's identification of vehicles as CMVs suggests that reportable cases are missed in at least two steps of the selection process in Oklahoma. The first is clearly that the CMV code does not accurately identify all vehicles that meet the MCMIS reporting criteria. In addition, large numbers of cases are overlooked later in the process. In both stages, however, it appears that smaller vehicles, especially buses, in less serious crashes, with in-state plates are much more likely to be missed in the selection process than larger vehicles, especially trucks, in more serious crashes.

In addition to problems in accurately identifying all reportable cases, there were significant problems in the timeliness of reporting. Reportable crashes must be uploaded to the MCMIS Crash file within 90 days of occurrence, but fewer than four percent of reportable cases met that standard. The median time lag between the crash date and upload date was 197 days. While the Crash file shows that uploads are regularly made, most included only a few records. About 25 percent of the records were uploaded on a single day, and a handful of days account for most of the cases uploaded. Only 2007 data were evaluated, and it is possible that uploads for other years are more timely.

With respect to the reported data itself, missing data rates for most fields reported to the MCMIS Crash file are quite low, though there were some problems. Weather, VIN, Road Access, Hazmat Class, and Hazmat materials name all had high rates of missing data. Road access and Hazmat Name are not captured at all on the Oklahoma crash report. The explanation for the high missing data rate for VIN is not known, since it is in the MCMIS file in over half the cases. The missing

data rate for weather appears to be explained by a decision in how to handle a code level in the Oklahoma data that is not part of the MCMIS weather variable. On balance, the data reported appears to be of good quality, reflecting a crash data-capture system—in terms of the fields collected on the crash report—that is well-designed.

In many ways the design of the Oklahoma crash data report itself is exemplary. The vehicle type variable facilitates identifying the vehicles that meet the MCMIS criteria. The crash data also includes fields that make it relatively straightforward to identify crashes that meet the MCMIS severity threshold. Thus, the file itself contains, as coded data, the information necessary to identify and to extract the records that meet the MCMIS reporting criteria. The overall reporting rate could be significantly improved by using the information that is already in the file.

8. References

1 U.S. Bureau of Census, 2002 Economic Census, Vehicle Inventory and Use Survey.

2 Official Oklahoma Traffic Collision Report Instruction Manual, [January 1, 2007], Oklahoma Department of Public Safety

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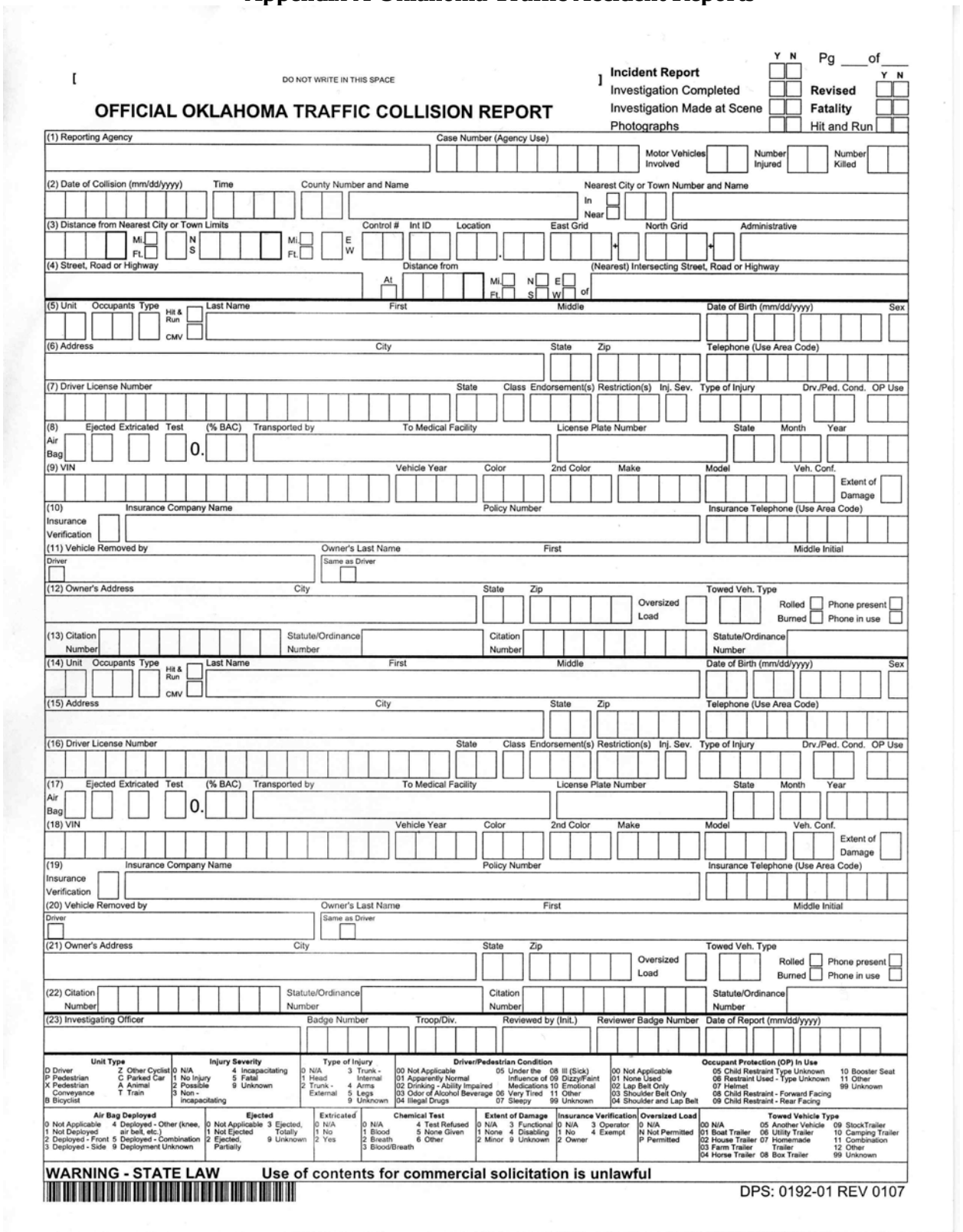
Appendix A Oklahoma Traffic Accident Reports



[DO NOT WRITE IN THIS SPACE]

Incident Report (Y N) Pg ___ of ___
Investigation Completed (Y N) Revised
Investigation Made at Scene Fatality
Photographs Hit and Run

OFFICIAL OKLAHOMA TRAFFIC COLLISION REPORT

(1) Reporting Agency | Case Number (Agency Use) | Motor Vehicles Involved | Number Injured | Number Killed

(2) Date of Collision (mm/dd/yyyy) | Time | County Number and Name | Nearest City or Town Number and Name | In / Near

(3) Distance from Nearest City or Town Limits | Mi. / Ft. | N S | Mi. / Ft. | E W | Control # | Int ID | Location | East Grid | North Grid | Administrative

(4) Street, Road or Highway | Distance from | At | Mi. / Ft. | N S E W of | (Nearest) Intersecting Street, Road or Highway

(5) Unit | Occupants | Type | Hit & Run | CMV | Last Name | First | Middle | Date of Birth (mm/dd/yyyy) | Sex

(6) Address | City | State | Zip | Telephone (Use Area Code)

(7) Driver License Number | State | Class | Endorsement(s) | Restriction(s) | Inj. Sev. | Type of Injury | Drv./Ped. Cond. | OP Use

(8) Ejected | Extricated | Test | (% BAC) | Transported by | To Medical Facility | License Plate Number | State | Month | Year
Air Bag

(9) VIN | Vehicle Year | Color | 2nd Color | Make | Model | Veh. Conf. | Extent of Damage

(10) Insurance Company Name | Policy Number | Insurance Telephone (Use Area Code)
Insurance Verification

(11) Vehicle Removed by | Owner's Last Name | First | Middle Initial
Driver | Same as Driver

(12) Owner's Address | City | State | Zip | Oversized Load | Towed Veh. Type | Rolled | Burned | Phone present | Phone in use

(13) Citation Number | Statute/Ordinance Number | Citation Number | Statute/Ordinance Number

(14) Unit | Occupants | Type | Hit & Run | CMV | Last Name | First | Middle | Date of Birth (mm/dd/yyyy) | Sex

(15) Address | City | State | Zip | Telephone (Use Area Code)

(16) Driver License Number | State | Class | Endorsement(s) | Restriction(s) | Inj. Sev. | Type of Injury | Drv./Ped. Cond. | OP Use

(17) Ejected | Extricated | Test | (% BAC) | Transported by | To Medical Facility | License Plate Number | State | Month | Year
Air Bag

(18) VIN | Vehicle Year | Color | 2nd Color | Make | Model | Veh. Conf. | Extent of Damage

(19) Insurance Company Name | Policy Number | Insurance Telephone (Use Area Code)
Insurance Verification

(20) Vehicle Removed by | Owner's Last Name | First | Middle Initial
Driver | Same as Driver

(21) Owner's Address | City | State | Zip | Oversized Load | Towed Veh. Type | Rolled | Burned | Phone present | Phone in use

(22) Citation Number | Statute/Ordinance Number | Citation Number | Statute/Ordinance Number

(23) Investigating Officer | Badge Number | Troop/Div. | Reviewed by (Init.) | Reviewer Badge Number | Date of Report (mm/dd/yyyy)

Unit Type
D Driver; P Pedestrian; X Pedestrian Conveyance; B Bicyclist; Z Other Cyclist; C Parked Car; A Animal; T Train

Injury Severity
0 N/A; 1 No Injury; 2 Possible; 3 Non-incapacitating; 4 Incapacitating; 5 Fatal; 9 Unknown

Type of Injury
0 N/A; 1 Head; 2 Trunk - External; 3 Trunk - Internal; 4 Arms; 5 Legs; 9 Unknown

Driver/Pedestrian Condition
00 Not Applicable; 01 Apparently Normal; 02 Drinking - Ability Impaired; 03 Odor of Alcohol Beverage; 04 Illegal Drugs; 05 Under the Influence of Medications; 06 Very Tired; 07 Sleepy; 08 Ill (Sick); 09 Dizzy/Faint; 10 Emotional; 11 Other; 99 Unknown

Occupant Protection (OP) In Use
00 Not Applicable; 01 None Used; 02 Lap Belt Only; 03 Shoulder Belt Only; 04 Shoulder and Lap Belt; 05 Child Restraint Type Unknown; 06 Restraint Used - Type Unknown; 07 Helmet; 08 Child Restraint - Forward Facing; 09 Child Restraint - Rear Facing; 10 Booster Seat; 11 Other; 99 Unknown

Air Bag Deployed
0 Not Applicable; 1 Not Deployed; 2 Deployed - Front; 3 Deployed - Side; 4 Deployed - Other (knee, air belt, etc.); 5 Deployed - Combination; 9 Deployment Unknown

Ejected
0 Not Applicable; 1 Not Ejected; 2 Ejected, Partially; 3 Ejected, Totally; 9 Unknown

Extricated
0 N/A; 1 No; 2 Yes

Chemical Test
0 N/A; 1 Blood; 2 Breath; 3 Blood/Breath; 4 Test Refused; 5 None Given; 6 Other

Extent of Damage
0 N/A; 1 None; 2 Minor; 3 Functional; 4 Disabling; 9 Unknown

Insurance Verification
0 N/A; 1 No; 2 Owner; 3 Operator; 4 Exempt

Oversized Load
0 N/A; N Not Permitted; P Permitted

Towed Vehicle Type
00 N/A; 01 Boat Trailer; 02 House Trailer; 03 Farm Trailer; 04 Horse Trailer; 05 Another Vehicle; 06 Utility Trailer; 07 Homemade Trailer; 08 Box Trailer; 09 StockTrailer; 10 Camping Trailer; 11 Combination; 12 Other; 99 Unknown

WARNING - STATE LAW Use of contents for commercial solicitation is unlawful

DPS: 0192-01 REV 0107

Case Number _____ Pg ___ of ___

(24) Unit | Injured | Witness | Passenger | Prop. Owner | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex

(25) Address | Same as Driver | City | State | Zip | Telephone (Use Area Code)

(26) Injury Severity / Type | OP Use | Air Bag Ejected | Extricated | Transported by | To Medical Facility | Property Type

(27) Unit | Injured | Witness | Passenger | Prop. Owner | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex

(28) Address | Same as Driver | City | State | Zip | Telephone (Use Area Code)

(29) Injury Severity / Type | OP Use | Air Bag Ejected | Extricated | Transported by | To Medical Facility | Property Type

(30) Unit | Injured | Witness | Passenger | Prop. Owner | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex

(31) Address | Same as Driver | City | State | Zip | Telephone (Use Area Code)

(32) Injury Severity / Type | OP Use | Air Bag Ejected | Extricated | Transported by | To Medical Facility | Property Type

(33) Unit | Injured | Witness | Passenger | Prop. Owner | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex

(34) Address | Same as Driver | City | State | Zip | Telephone (Use Area Code)

(35) Injury Severity / Type | OP Use | Air Bag Ejected | Extricated | Transported by | To Medical Facility | Property Type

Complete information below if this vehicle is being used for COMMERCE/BUSINESS and has a GVWR/GCWR IN EXCESS OF 10,000 LBS., or has a HAZMAT PLACARD, or is a BUS WITH SEATING FOR NINE OR MORE INCLUDING THE DRIVER

(36) Unit | Carrier Name | Address

(37) City | State | Zip | GVWR | GCWR | 0 - 10K lbs. | 10,001 - 26K lbs. | 26K+ lbs. | Axle Qty. | Cargo Body | Vehicle Use: Interstate Commerce, Intrastate Commerce, Other Non-Commercial, Government

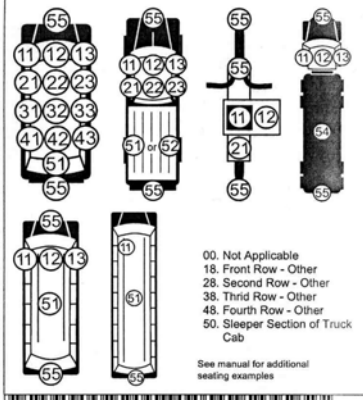
(38) U.S. DOT Number | NASI Report Number OK | Placard Number | Haz. Mat. Class | Haz. Mat. Involved Yes/No | Haz. Mat. Release Yes/No

(39) Unit | Carrier Name | Address

(40) City | State | Zip | GVWR | GCWR | 0 - 10K lbs. | 10,001 - 26K lbs. | 26K+ lbs. | Axle Qty. | Cargo Body | Vehicle Use: Interstate Commerce, Intrastate Commerce, Other Non-Commercial, Government

(41) U.S. DOT Number | NASI Report Number OK | Placard Number | Haz. Mat. Class | Haz. Mat. Involved Yes/No | Haz. Mat. Release Yes/No

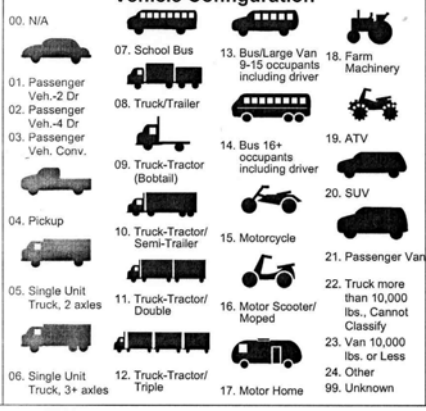
Position in Vehicle



00. Not Applicable
18. Front Row - Other
28. Second Row - Other
38. Thrid Row - Other
48. Fourth Row - Other
50. Sleeper Section of Truck Cab

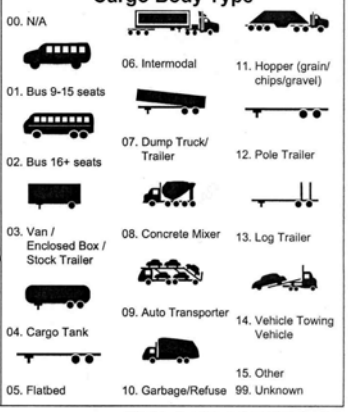
See manual for additional seating examples

Vehicle Configuration



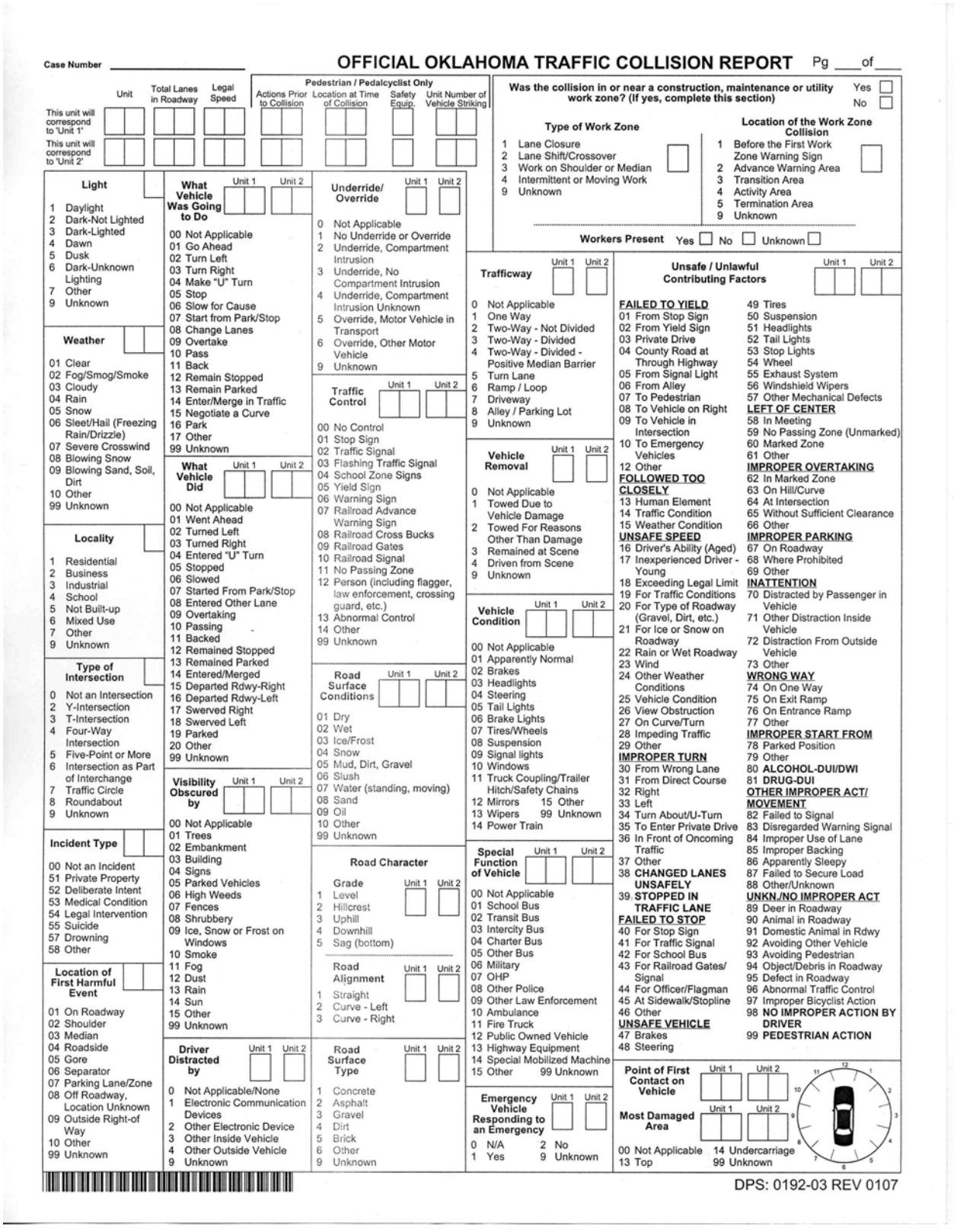
00. N/A
01. Passenger Veh.-2 Dr
02. Passenger Veh.-4 Dr
03. Passenger Veh. Conv.
04. Pickup
05. Single Unit Truck, 2 axles
06. Single Unit Truck, 3+ axles
07. School Bus
08. Truck/Trailer
09. Truck-Tractor (Bobtail)
10. Truck-Tractor/ Semi-Trailer
11. Truck-Tractor/ Double
12. Truck-Tractor/ Triple
13. Bus/Large Van 9-15 occupants including driver
14. Bus 16+ occupants including driver
15. Motorcycle
16. Motor Scooter/ Moped
17. Motor Home
18. Farm Machinery
19. ATV
20. SUV
21. Passenger Van
22. Truck more than 10,000 lbs., Cannot Classify
23. Van 10,000 lbs. or Less
24. Other
99. Unknown

Cargo Body Type



00. N/A
01. Bus 9-15 seats
02. Bus 16+ seats
03. Van / Enclosed Box / Stock Trailer
04. Cargo Tank
05. Flatbed
06. Intermodal
07. Dump Truck/ Trailer
08. Concrete Mixer
09. Auto Transporter
10. Garbage/Refuse
11. Hopper (grain/ chips/gravel)
12. Pole Trailer
13. Log Trailer
14. Vehicle Towing Vehicle
15. Other
99. Unknown

DPS: 0192-02 REV 0107



Case Number _____

OFFICIAL OKLAHOMA TRAFFIC COLLISION REPORT Pg ___of___

	Unit	Total Lanes in Roadway	Legal Speed	Pedestrian / Pedalcyclist Only: Actions Prior to Collision	Location at Time of Collision	Safety Equip.	Unit Number of Vehicle Striking
This unit will correspond to 'Unit 1'							
This unit will correspond to 'Unit 2'							

Was the collision in or near a construction, maintenance or utility work zone? (If yes, complete this section) Yes ☐ No ☐

Type of Work Zone
1 Lane Closure
2 Lane Shift/Crossover
3 Work on Shoulder or Median
4 Intermittent or Moving Work
9 Unknown

Location of the Work Zone Collision
1 Before the First Work Zone Warning Sign
2 Advance Warning Area
3 Transition Area
4 Activity Area
5 Termination Area
9 Unknown

Workers Present Yes ☐ No ☐ Unknown ☐

Light
1 Daylight
2 Dark-Not Lighted
3 Dark-Lighted
4 Dawn
5 Dusk
6 Dark-Unknown Lighting
7 Other
9 Unknown

Weather
01 Clear
02 Fog/Smog/Smoke
03 Cloudy
04 Rain
05 Snow
06 Sleet/Hail (Freezing Rain/Drizzle)
07 Severe Crosswind
08 Blowing Snow
09 Blowing Sand, Soil, Dirt
10 Other
99 Unknown

Locality
1 Residential
2 Business
3 Industrial
4 School
5 Not Built-up
6 Mixed Use
7 Other
9 Unknown

Type of Intersection
0 Not an Intersection
2 Y-Intersection
3 T-Intersection
4 Four-Way Intersection
5 Five-Point or More
6 Intersection as Part of Interchange
7 Traffic Circle
8 Roundabout
9 Unknown

Incident Type
00 Not an Incident
51 Private Property
52 Deliberate Intent
53 Medical Condition
54 Legal Intervention
55 Suicide
57 Drowning
58 Other

Location of First Harmful Event
01 On Roadway
02 Shoulder
03 Median
04 Roadside
05 Gore
06 Separator
07 Parking Lane/Zone
08 Off Roadway, Location Unknown
09 Outside Right-of Way
10 Other
99 Unknown

What Vehicle Was Going to Do Unit 1 ☐ Unit 2 ☐
00 Not Applicable
01 Go Ahead
02 Turn Left
03 Turn Right
04 Make "U" Turn
05 Stop
06 Slow for Cause
07 Start from Park/Stop
08 Change Lanes
09 Overtake
10 Pass
11 Back
12 Remain Stopped
13 Remain Parked
14 Enter/Merge in Traffic
15 Negotiate a Curve
16 Park
17 Other
99 Unknown

What Vehicle Did Unit 1 ☐ Unit 2 ☐
00 Not Applicable
01 Went Ahead
02 Turned Left
03 Turned Right
04 Entered "U" Turn
05 Stopped
06 Slowed
07 Started From Park/Stop
08 Entered Other Lane
09 Overtaking
10 Passing
11 Backed
12 Remained Stopped
13 Remained Parked
14 Entered/Merged
15 Departed Rdwy-Right
16 Departed Rdwy-Left
17 Swerved Right
18 Swerved Left
19 Parked
20 Other
99 Unknown

Visibility Obscured by Unit 1 ☐ Unit 2 ☐
00 Not Applicable
01 Trees
02 Embankment
03 Building
04 Signs
05 Parked Vehicles
06 High Weeds
07 Fences
08 Shrubbery
09 Ice, Snow or Frost on Windows
10 Smoke
11 Fog
12 Dust
13 Rain
14 Sun
15 Other
99 Unknown

Driver Distracted by Unit 1 ☐ Unit 2 ☐
0 Not Applicable/None
1 Electronic Communication Devices
2 Other Electronic Device
3 Other Inside Vehicle
4 Other Outside Vehicle
9 Unknown

Underride/ Override Unit 1 ☐ Unit 2 ☐
0 Not Applicable
1 No Underride or Override
2 Underride, Compartment Intrusion
3 Underride, No Compartment Intrusion
4 Underride, Compartment Intrusion Unknown
5 Override, Motor Vehicle in Transport
6 Override, Other Motor Vehicle
9 Unknown

Traffic Control Unit 1 ☐ Unit 2 ☐
00 No Control
01 Stop Sign
02 Traffic Signal
03 Flashing Traffic Signal
04 School Zone Signs
05 Yield Sign
06 Warning Sign
07 Railroad Advance Warning Sign
08 Railroad Cross Bucks
09 Railroad Gates
10 Railroad Signal
11 No Passing Zone
12 Person (including flagger, law enforcement, crossing guard, etc.)
13 Abnormal Control
14 Other
99 Unknown

Road Surface Conditions Unit 1 ☐ Unit 2 ☐
01 Dry
02 Wet
03 Ice/Frost
04 Snow
05 Mud, Dirt, Gravel
06 Slush
07 Water (standing, moving)
08 Sand
09 Oil
10 Other
99 Unknown

Road Character

Grade Unit 1 ☐ Unit 2 ☐
1 Level
2 Hillcrest
3 Uphill
4 Downhill
5 Sag (bottom)

Road Alignment Unit 1 ☐ Unit 2 ☐
1 Straight
2 Curve - Left
3 Curve - Right

Road Surface Type Unit 1 ☐ Unit 2 ☐
1 Concrete
2 Asphalt
3 Gravel
4 Dirt
5 Brick
6 Other
9 Unknown

Trafficway Unit 1 ☐ Unit 2 ☐
0 Not Applicable
1 One Way
2 Two-Way - Not Divided
3 Two-Way - Divided
4 Two-Way - Divided - Positive Median Barrier
5 Turn Lane
6 Ramp / Loop
7 Driveway
8 Alley / Parking Lot
9 Unknown

Vehicle Removal Unit 1 ☐ Unit 2 ☐
0 Not Applicable
1 Towed Due to Vehicle Damage
2 Towed For Reasons Other Than Damage
3 Remained at Scene
4 Driven from Scene
9 Unknown

Vehicle Condition Unit 1 ☐ Unit 2 ☐
00 Not Applicable
01 Apparently Normal
02 Brakes
03 Headlights
04 Steering
05 Tail Lights
06 Brake Lights
07 Tires/Wheels
08 Suspension
09 Signal lights
10 Windows
11 Truck Coupling/Trailer Hitch/Safety Chains
12 Mirrors 15 Other
13 Wipers 99 Unknown
14 Power Train

Special Function of Vehicle Unit 1 ☐ Unit 2 ☐
00 Not Applicable
01 School Bus
02 Transit Bus
03 Intercity Bus
04 Charter Bus
05 Other Bus
06 Military
07 OHP
08 Other Police
09 Other Law Enforcement
10 Ambulance
11 Fire Truck
12 Public Owned Vehicle
13 Highway Equipment
14 Special Mobilized Machine
15 Other 99 Unknown

Emergency Vehicle Responding to an Emergency Unit 1 ☐ Unit 2 ☐
0 N/A 2 No
1 Yes 9 Unknown

Unsafe / Unlawful Contributing Factors Unit 1 ☐ Unit 2 ☐

FAILED TO YIELD
01 From Stop Sign
02 From Yield Sign
03 Private Drive
04 County Road at Through Highway
05 From Signal Light
06 From Alley
07 To Pedestrian
08 To Vehicle on Right
09 To Vehicle in Intersection
10 To Emergency Vehicles
12 Other

FOLLOWED TOO CLOSELY
13 Human Element
14 Traffic Condition
15 Weather Condition

UNSAFE SPEED
16 Driver's Ability (Aged)
17 Inexperienced Driver - Young
18 Exceeding Legal Limit
19 For Traffic Conditions
20 For Type of Roadway (Gravel, Dirt, etc.)
21 For Ice or Snow on Roadway
22 Rain or Wet Roadway
23 Wind
24 Other Weather Conditions
25 Vehicle Condition
26 View Obstruction
27 On Curve/Turn
28 Impeding Traffic
29 Other

IMPROPER TURN
30 From Wrong Lane
31 From Direct Course
32 Right
33 Left
34 Turn About/U-Turn
35 To Enter Private Drive
36 In Front of Oncoming Traffic
37 Other
38 **CHANGED LANES UNSAFELY**
39 **STOPPED IN TRAFFIC LANE**

FAILED TO STOP
40 For Stop Sign
41 For Traffic Signal
42 For School Bus
43 For Railroad Gates/ Signal
44 For Officer/Flagman
45 At Sidewalk/Stopline
46 Other

UNSAFE VEHICLE
47 Brakes
48 Steering
49 Tires
50 Suspension
51 Headlights
52 Tail Lights
53 Stop Lights
54 Wheel
55 Exhaust System
56 Windshield Wipers
57 Other Mechanical Defects

LEFT OF CENTER
58 In Meeting
59 No Passing Zone (Unmarked)
60 Marked Zone
61 Other

IMPROPER OVERTAKING
62 In Marked Zone
63 On Hill/Curve
64 At Intersection
65 Without Sufficient Clearance
66 Other

IMPROPER PARKING
67 On Roadway
68 Where Prohibited
69 Other

INATTENTION
70 Distracted by Passenger in Vehicle
71 Other Distraction Inside Vehicle
72 Distraction From Outside Vehicle
73 Other

WRONG WAY
74 On One Way
75 On Exit Ramp
76 On Entrance Ramp
77 Other

IMPROPER START FROM
78 Parked Position
79 Other
80 **ALCOHOL-DUI/DWI**
81 **DRUG-DUI**

OTHER IMPROPER ACT/ MOVEMENT
82 Failed to Signal
83 Disregarded Warning Signal
84 Improper Use of Lane
85 Improper Backing
86 Apparently Sleepy
87 Failed to Secure Load
88 Other/Unknown

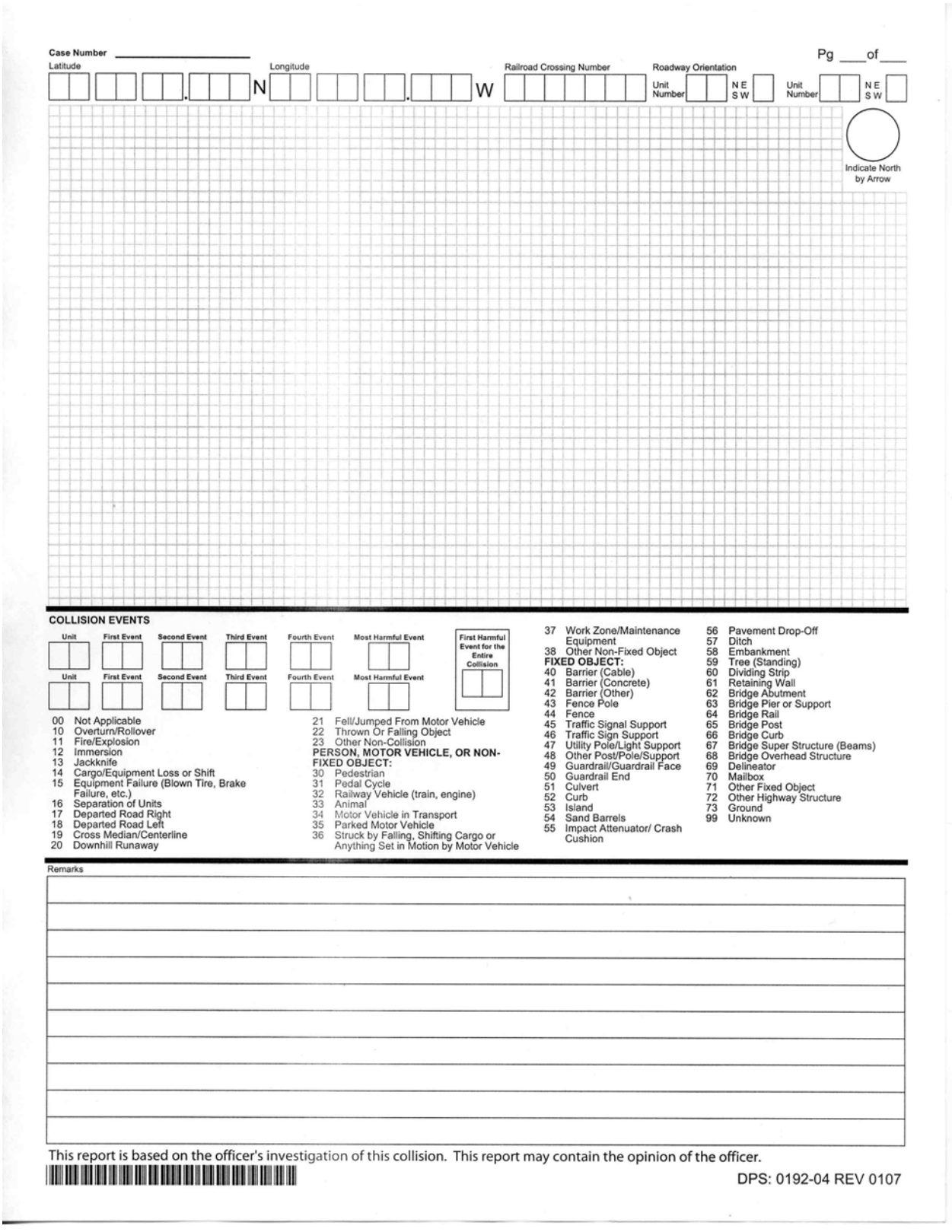
UNKN./NO IMPROPER ACT
89 Deer in Roadway
90 Animal in Roadway
91 Domestic Animal in Rdwy
92 Avoiding Other Vehicle
93 Avoiding Pedestrian
94 Object/Debris in Roadway
95 Defect in Roadway
96 Abnormal Traffic Control
97 Improper Bicyclist Action
98 **NO IMPROPER ACTION BY DRIVER**
99 **PEDESTRIAN ACTION**

Point of First Contact on Vehicle Unit 1 ☐ Unit 2 ☐

Most Damaged Area Unit 1 ☐ Unit 2 ☐

00 Not Applicable 14 Undercarriage
13 Top 99 Unknown

DPS: 0192-03 REV 0107



Case Number _____ Pg ___ of ___

Latitude ☐☐ ☐☐ ☐☐.☐☐☐ N Longitude ☐☐ ☐☐ ☐☐.☐☐☐ W

Railroad Crossing Number ☐☐☐☐☐☐

Roadway Orientation

Unit Number ☐☐ N E S W ☐

Unit Number ☐☐ N E S W ☐

Indicate North by Arrow

COLLISION EVENTS

Unit	First Event	Second Event	Third Event	Fourth Event	Most Harmful Event
☐☐	☐☐	☐☐	☐☐	☐☐	☐☐
☐☐	☐☐	☐☐	☐☐	☐☐	☐☐

First Harmful Event for the Entire Collision ☐☐

00 Not Applicable
10 Overturn/Rollover
11 Fire/Explosion
12 Immersion
13 Jackknife
14 Cargo/Equipment Loss or Shift
15 Equipment Failure (Blown Tire, Brake Failure, etc.)
16 Separation of Units
17 Departed Road Right
18 Departed Road Left
19 Cross Median/Centerline
20 Downhill Runaway
21 Fell/Jumped From Motor Vehicle
22 Thrown Or Falling Object
23 Other Non-Collision

PERSON, MOTOR VEHICLE, OR NON-FIXED OBJECT:

30 Pedestrian
31 Pedal Cycle
32 Railway Vehicle (train, engine)
33 Animal
34 Motor Vehicle in Transport
35 Parked Motor Vehicle
36 Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle
37 Work Zone/Maintenance Equipment
38 Other Non-Fixed Object

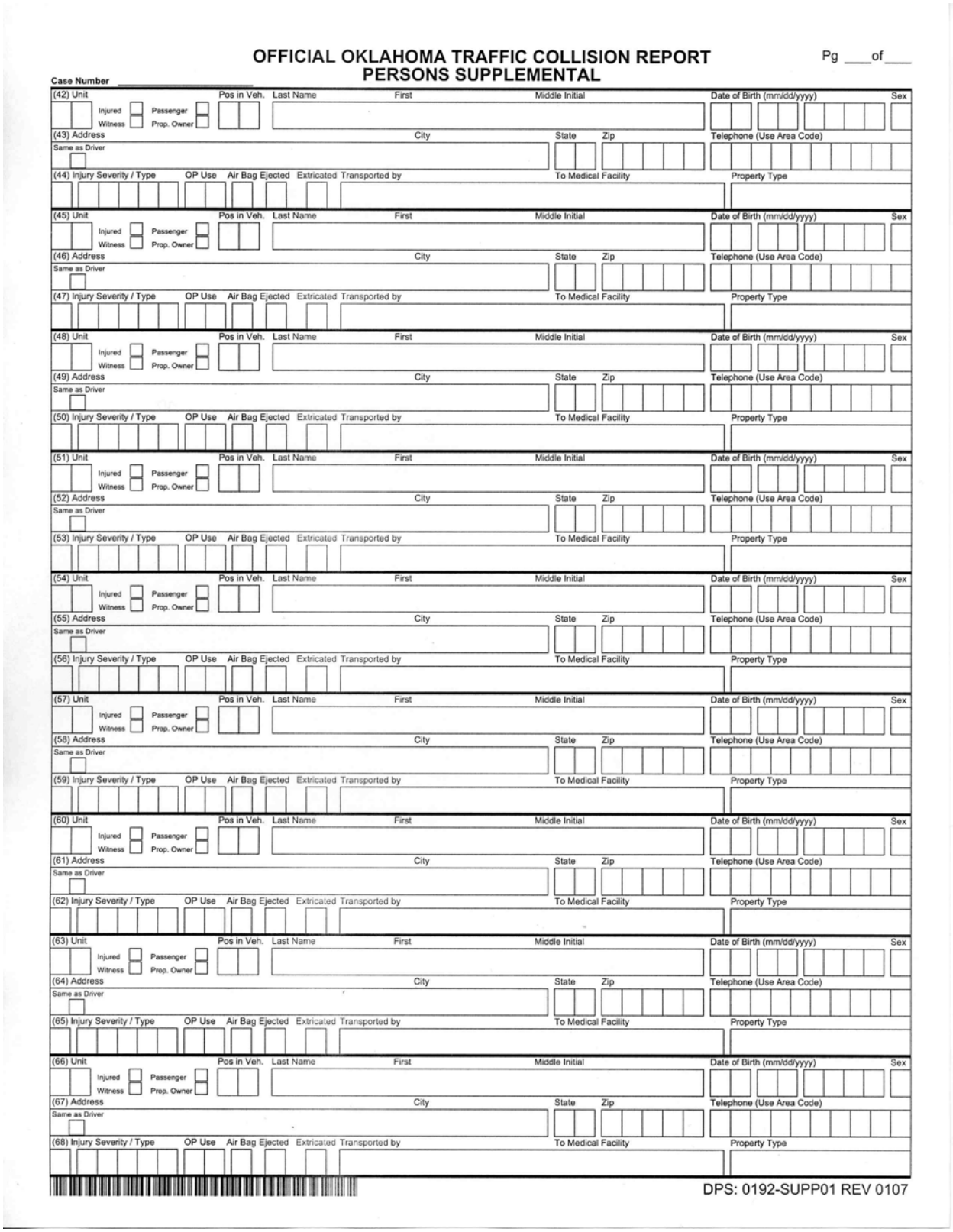
FIXED OBJECT:

40 Barrier (Cable)
41 Barrier (Concrete)
42 Barrier (Other)
43 Fence Pole
44 Fence
45 Traffic Signal Support
46 Traffic Sign Support
47 Utility Pole/Light Support
48 Other Post/Pole/Support
49 Guardrail/Guardrail Face
50 Guardrail End
51 Culvert
52 Curb
53 Island
54 Sand Barrels
55 Impact Attenuator/ Crash Cushion
56 Pavement Drop-Off
57 Ditch
58 Embankment
59 Tree (Standing)
60 Dividing Strip
61 Retaining Wall
62 Bridge Abutment
63 Bridge Pier or Support
64 Bridge Rail
65 Bridge Post
66 Bridge Curb
67 Bridge Super Structure (Beams)
68 Bridge Overhead Structure
69 Delineator
70 Mailbox
71 Other Fixed Object
72 Other Highway Structure
73 Ground
99 Unknown

Remarks

This report is based on the officer's investigation of this collision. This report may contain the opinion of the officer.

DPS: 0192-04 REV 0107



OFFICIAL OKLAHOMA TRAFFIC COLLISION REPORT
PERSONS SUPPLEMENTAL

Pg ___of___

Case Number _____

(42) Unit | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex
Injured / Passenger / Witness / Prop. Owner
(43) Address | City | State | Zip | Telephone (Use Area Code)
Same as Driver
(44) Injury Severity / Type | OP Use | Air Bag | Ejected | Extricated | Transported by | To Medical Facility | Property Type

(45) Unit | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex
Injured / Passenger / Witness / Prop. Owner
(46) Address | City | State | Zip | Telephone (Use Area Code)
Same as Driver
(47) Injury Severity / Type | OP Use | Air Bag | Ejected | Extricated | Transported by | To Medical Facility | Property Type

(48) Unit | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex
Injured / Passenger / Witness / Prop. Owner
(49) Address | City | State | Zip | Telephone (Use Area Code)
Same as Driver
(50) Injury Severity / Type | OP Use | Air Bag | Ejected | Extricated | Transported by | To Medical Facility | Property Type

(51) Unit | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex
Injured / Passenger / Witness / Prop. Owner
(52) Address | City | State | Zip | Telephone (Use Area Code)
Same as Driver
(53) Injury Severity / Type | OP Use | Air Bag | Ejected | Extricated | Transported by | To Medical Facility | Property Type

(54) Unit | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex
Injured / Passenger / Witness / Prop. Owner
(55) Address | City | State | Zip | Telephone (Use Area Code)
Same as Driver
(56) Injury Severity / Type | OP Use | Air Bag | Ejected | Extricated | Transported by | To Medical Facility | Property Type

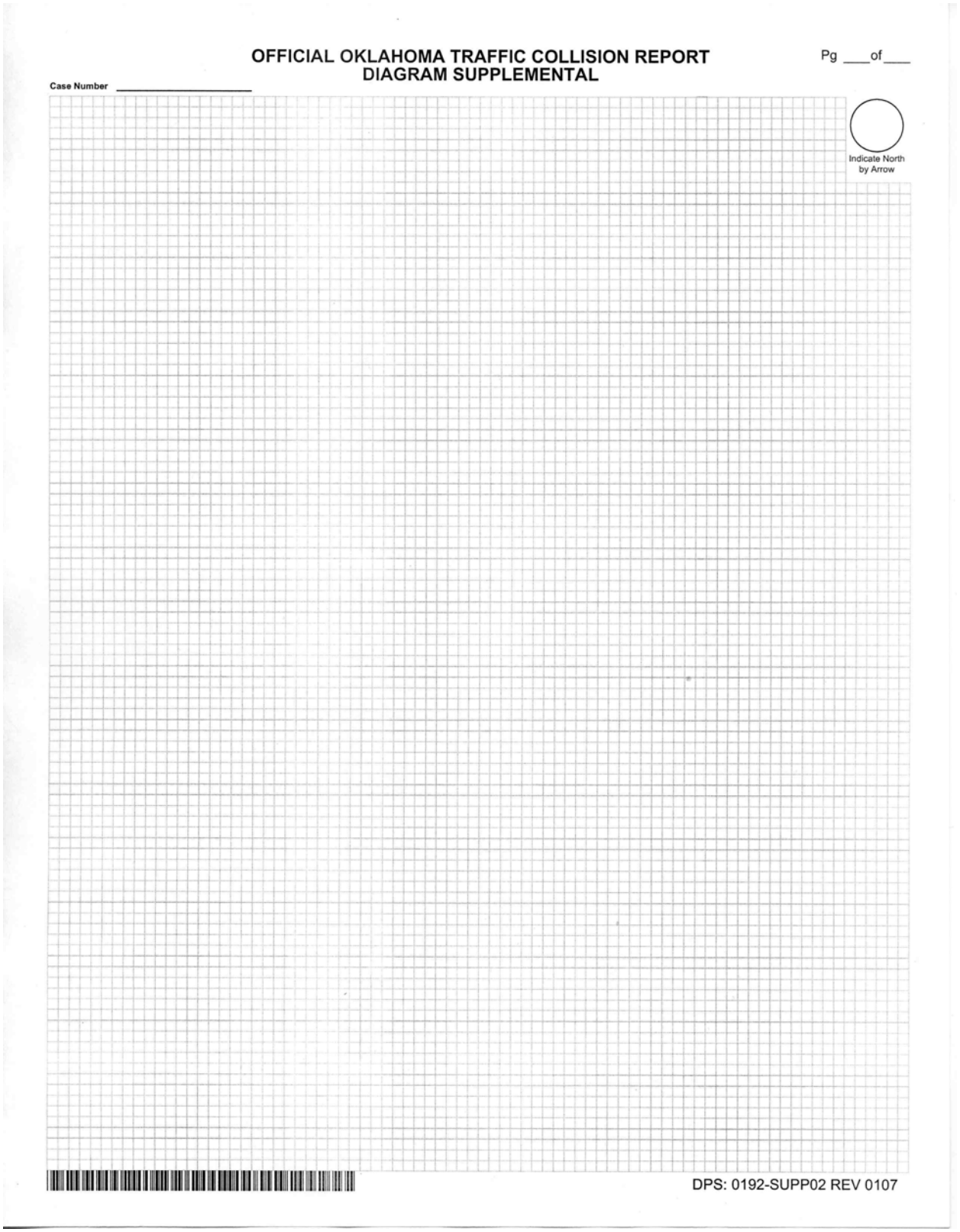
(57) Unit | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex
Injured / Passenger / Witness / Prop. Owner
(58) Address | City | State | Zip | Telephone (Use Area Code)
Same as Driver
(59) Injury Severity / Type | OP Use | Air Bag | Ejected | Extricated | Transported by | To Medical Facility | Property Type

(60) Unit | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex
Injured / Passenger / Witness / Prop. Owner
(61) Address | City | State | Zip | Telephone (Use Area Code)
Same as Driver
(62) Injury Severity / Type | OP Use | Air Bag | Ejected | Extricated | Transported by | To Medical Facility | Property Type

(63) Unit | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex
Injured / Passenger / Witness / Prop. Owner
(64) Address | City | State | Zip | Telephone (Use Area Code)
Same as Driver
(65) Injury Severity / Type | OP Use | Air Bag | Ejected | Extricated | Transported by | To Medical Facility | Property Type

(66) Unit | Pos in Veh. | Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy) | Sex
Injured / Passenger / Witness / Prop. Owner
(67) Address | City | State | Zip | Telephone (Use Area Code)
Same as Driver
(68) Injury Severity / Type | OP Use | Air Bag | Ejected | Extricated | Transported by | To Medical Facility | Property Type

DPS: 0192-SUPP01 REV 0107


OFFICIAL OKLAHOMA TRAFFIC COLLISION REPORT
DIAGRAM SUPPLEMENTAL
Pg ___of___
Case Number
Indicate North by Arrow
DPS: 0192-SUPP02 REV 0107

OFFICIAL OKLAHOMA TRAFFIC COLLISION REPORT
ADDITIONAL NARRATIVE

Pg ___of___

Case Number _____

DPS: 0192-SUPP03 REV 0107

OFFICIAL OKLAHOMA TRAFFIC COLLISION REPORT
STATEMENT OF WITNESS

Pg ___ of ___

Case Number _____

Month | Day | Year | County | Administrative

To Be Completed By Witness: Last Name | First | Middle Initial | Date of Birth (mm/dd/yyyy)

Address | City | State | Zip | Telephone (Use Area Code)

I Legal Signature _____ do hereby make the following statement of my own free will and accord concerning _____

which occurred (Location) _____

on Month | Day | Year | Time

This statement was written on Month | Day | Year | Time

Statement: (Witness must sign at the end of the statement)

Officer's rank and name | Troop or division

DPS: 0192-SUPP04 REV 0107