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Evaluation of Florida Crash Data Reported to MCMIS Crash File

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MCMIS Crash File Evaluation

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16. Abstract

This report is part of a series of reports 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 significantly incomplete. This report examines the sources of underreporting for the state of Florida.

MCMIS Crash File records were matched to the Florida Police Accident Report (PAR) file to determine the nature and extent of underreporting. Overall, only 24.0% of reportable crash involvements are reported to the MCMIS Crash file. In addition, 14.8% of cases that are reported do not qualify for reporting. Reporting rates vary by vehicle type, crash severity, and reporting agency. Almost 56% of fatal involvements are reported, 26.5% of injury, transported involvements, and only 20.0% of towed/disabled involvements. Over 48% of the involvements of truck-tractors are reported, but only 6.0% of medium trucks, and less than 3 percent of buses. The reporting rate was highest for the Florida Highway Patrol at 31.9%. Sheriff's offices reported at a 19.3% rate, and only 14.2% of reportable crashes covered by police departments were reported.

A major contributor to underreporting is likely a reliance on an entry in the commercial vehicle only line of the Florida police accident report (PAR) to identify reportable vehicles. This is an error because the reportability criteria for the MCMIS file consider only vehicle configuration and crash severity, not operations. In addition, the structure of that line in the Florida PAR may favor interstate carriers, while the crashes of both interstate and intrastate carriers must be reported.

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1. Introduction

Reporting to the Motor Carrier Management Information System (MCMIS) Crash file is widely acknowledged as incomplete. Nationally, only about two-thirds of reportable truck involvements are reported. The reporting rate for buses is even lower, at about 40%.[1] (See references at the end of the report.) Reporting is more complete for severe crashes, with about 90% of truck fatal involvements and 65% of bus fatal involvements appearing in the file, but rates are much lower for less severe crashes.

The States are responsible for reporting qualifying crashes, and thus the solution for underreporting must ultimately lie with the individual states. This report is part of a series of evaluations of reporting from each state. Previous reports on Ohio [2], Missouri [3], and Michigan [4] showed substantial underreporting due in large part to problems police officers experience in 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. Both Missouri and Ohio also had substantial overreporting of cases, often due to technical problems with duplicate records.

In this report, we focus on MCMIS Crash file reporting by Florida. Given Florida's size and economic importance, each year Florida is one of the three or four states with the greatest number of truck and bus fatal involvements. Accordingly, improving reporting to the MCMIS Crash file would contribute disproportionately to the goal of making that file complete and accurate.

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

1. The complete police accident report file (PAR file hereafter) from Florida was obtained for the most recent year available, which was 2003. This file was processed to identify all cases that qualified for reporting to the MCMIS Crash file.

2. All cases in the Florida 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 Florida.

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.

PAR data from 2003 was used in this analysis. The 2003 PAR data file contains the computerized records of 477,439 vehicles involved in 243,294 crashes in that occurred in Florida during 2003.

2. Data Preparation

Both files required some preparation before the Florida records in the MCMIS Crash file could be matched to the Florida PAR file. In the case of the MCMIS Crash file, the only processing necessary was to extract records reported from Florida and to eliminate duplicate records. The Florida PAR file required more extensive work, most of which centered around developing means of identifying cases that should have been reported to the MCMIS Crash file. This section discusses the methods used to prepare each file and some of the problems uncovered.

2.1 MCMIS Crash file

The MCMIS Crash file as of April 27, 2004 was used to identify records submitted from Florida. For calendar year 2003 there were 4,079 cases. An analysis file was constructed using all variables in the file. The file was then examined for duplicate records, that is, crash involvements where more than one record was submitted for the same vehicle in the same crash. Only one pair of duplicate records was found. The records were identical except that accident number, which is used to record the PAR report number of the crash, was blank on one. The record with unrecorded accident number was excluded, resulting in 4,078 total cases.

2.2 Florida PAR file

The Florida PAR file for 2003 was obtained from the state of Florida. This file contains records for 243,294 crashes involving 477,439 vehicles. Data for the PAR file are coded from the Florida Traffic Crash Report, included as an attachment, completed by police officers.

The first step in data preparation is to identify duplicate records. Examination of the file found only two instances of duplicate records. These records had identical report numbers and vehicle numbers. The two duplicate records were removed before the matching process, resulting in 477,437 non-duplicate PAR records.

The next step in data preparation is to identify records that qualified for reporting to the MCMIS Crash file. To do this it was necessary to develop a set of criteria using the variables in the Florida PAR file to identify records that should have been reported. The purpose of the criteria is to approximate as closely as possible the reporting threshold of the MCMIS file. The MCMIS criteria for a reportable crash involving a qualifying vehicle is shown in Table 1.

Table 1 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.

Variables available in the Florida PAR data permit the MCMIS Crash file criteria to be applied reasonably well. The PAR file includes a vehicle type variable with sixteen code levels. This variable was used to identify qualifying trucks and buses. According to the PAR instruction manual [6], there are three categories of trucks based on gross vehicle weight rating: light trucks (code 3: single unit under 10,000 pounds, including pickup trucks with 4 rear tires); medium trucks (code 4: single unit 10,000 to 26,000 pounds); and heavy trucks (code 5: single unit over 26,000 pounds). Truck tractors (cab-bobtail) are identified separately as code 6. In the 2003 data year, to qualify for reporting, a truck must have a GVWR or GCWR over 10,000 pounds. These vehicles are identified as those with a vehicle type code of 4, 5, or 6.

The vehicle type variable in the Florida PAR data provides two codes to identify buses, which are based on the number of passengers the bus was designed to legally transport. Code 8 identifies a bus with seats for a driver plus 9 to 15 passengers. Code 9 identifies buses with seats for a driver and more than 15 passengers. Technically, these two codes do not conform to FMCSA's two-tiered bus definition, which classify buses either with a driver plus seats for 8 to 14, not 9 to 15, not operated as personal transportation, or with a driver plus seats for over 14, not over 15. But the Florida definition is most likely sufficiently close to identify MCMIS reportable buses. It is also possible that some vans (vehicle type code 2) could qualify as buses, if they are used for transporting passengers and had seats for nine or more passengers. However, since number of seats is not known for these vans, the decision was made not to include any vans as qualifying buses. Thus vehicle type codes 8 and 9 were used to identify buses for MCMIS reporting purposes.

The final group of qualifying vehicles are those displaying a hazardous materials placard. According to the Florida PAR manual, the reporting officer is supposed to record if the vehicle displays a placard. The placarded variable (1=yes) was used to identify these vehicles. Appendix 1 includes a complete discussion of the variables used to identify qualifying vehicles.

In total, there were 19,806 vehicles identified as trucks, buses, or vehicles with a hazardous materials placard in the Florida PAR file (Table 2).

Table 2 Vehicles Qualifying for Submission to MCMIS, Florida PAR file, 2003

Vehicle type	N	%
Trucks	17,063	86.2%
Buses	2,722	13.7%
Non-trucks with hazmat placard	21	0.1%
Total	19,806	100.0%

Of these vehicles, those in a crash involving a fatality, an injury transported for medical treatment, or a vehicle towed due to disabling damage should have been reported to the MCMIS Crash file. These can be identified readily in the Florida PAR file. At the accident level, the Florida PAR file includes the usual injury severity variable (identifying fatal, incapacitating, non-incapacitating but evident, and possible injury) along with an injured_taken_to variable. It was assumed that a 1 in the injured_taken_to field indicates that at least one person was transported to a medical facility. The proportion of injured persons transported, using this assumption, was within the range found in other states, so this interpretation seems reasonable. (Unfortunately, adequate documentation could not be obtained). Thus, qualifying injuries were identified as accidents involving a fatality or an injury with an individual transported to a medical facility. Note that not all injuries were transported (Table 3). In addition, there were 376 persons transported that had no injury indicated. Since there was no injury, crashes involving these persons did not meet the MCMIS reporting criteria, unless there was another transported injury in the crash.

Table 3 Crashes Qualifying for Submission to MCMIS, Florida PAR file, 2003

Most severe Injury in crash	Transported	No one transported	Qualifying crashes
Fatal	346	98	444
Incapacitating injury	1,811	180	1,811
Non-incapacitating injury	2,489	1,277	2,489
Possible injury	1,809	3,269	1,809
No injury	365	7,619	0
Unrecorded	11	532	0
Total	6,831	12,975	6,553

The last MCMIS criterion specifies “vehicles towed due to disabling damage.” Florida indicates that the investigating officer is to record the extent of damage of each vehicle in the accident. The first code level of this variable is “disabling damage,” defined as “vehicle towed from the scene because it is inoperable, or, vehicle is drivable but must be towed from the scene to prevent additional damage.” Ignoring the latter, which likely does not pertain to very many accidents, this variable can be used to identify tow/disabled vehicles.

The Florida PAR data also includes a crash_damage_severity variable on the accident-level PAR record. It was assumed that this variable records the most severely damaged vehicle in the accident. However, it was discovered that this variable records the *least* damaged vehicle in the

crash, rather than the most damaged vehicle. Using the variable that records damage severity for each vehicle in the crash, we developed an algorithm to identify the most severely damaged vehicle in each crash and then to record that information in a variable. Comparison of the coding of the variable we derived with the crash_damage_severity variable in the Florida PAR data shows that there was likely a programming error in creating crash_damage_severity. A comparison of the two variables is shown in Table 4. Note that, of the 263,219 crashes in which at least one vehicle suffered disabling damage, the Florida crash_damage_severity variable classified 132,754 as having functional damage and 25,481 as no damage. Also note that there were no crashes where the Florida variable recorded more severe damage than the UMTRI-derived variable. This is likely an easily-corrected programming error.

Table 4 Comparison of PAR Crash Damage Severity with UMTRI-derived Crash Damage Severity Florida, 2003

Florida crash_damage_severity	UMTRI-derived from most damaged vehicle in crash			
	Disabling	Functional	No damage	Total
Disabling	104,984	0	0	104,984
Functional	132,754	126,287	0	259,041
No damage	25,481	76,572	11,351	113,404
Total	263,219	202,859	11,351	477,429

To identify crash involvements that met the MCMIS towed/disabling damage criteria, we used the UMTRI-derived variable rather than the Florida crash_damage_severity variable.

Based on the vehicle and crash severity definitions above, there were 13,797 records in the Florida PAR file that should have been reported to the MCMIS Crash file. Table 5 tabulates reportable crash involvements by crash severity.

Table 5 Reportable Records in the Florida PAR file by Crash Severity, 2003

Crash severity	Reportable records in Florida PAR file
Fatal	444
Injury, transported	6,109
Tow, disabled	7,244
Total	13,797

Attachment 1 provides details on the variables and code levels used to identify MCMIS-reportable cases for the interested reader.

3. Matching Process

After preparation, records from the Florida PAR file were matched to records from the MCMIS file. After removing duplicates, there were 4,078 records from Florida available for matching

from the MCMIS file, and 477,437 records from the Florida PAR file. All records from the Florida PAR data file were used in the match, even those that were not reportable to the MCMIS Crash file. This allowed the identification of cases in the MCMIS Crash file that should not have been reported.

Matching records in the two files requires finding common variables that match at the accident level, as well as identifying specific vehicles within an accident. Accident number, which is the crash identifier that is used to uniquely specify a crash in the Florida PAR data, is also available in the MCMIS Crash file and is an obvious first choice. Accident number in the Florida PAR file is a 8-digit numeric value, while in the MCMIS Crash file, it is stored as a 12-character alphanumeric value, a combination of alphabetic characters and numbers. It appears that the report number in the MCMIS Crash file for Florida is constructed as follows: The first two columns contain "FL," followed by eight digits that correspond to the police report number, and then two digits that record the vehicle number within an accident. Examination of PAR and corresponding MCMIS records showed that for most cases the PAR report number was among the digits of the MCMIS report number, allowing a value corresponding to the Florida accident number to be extracted and used in the match. Variables that could distinguish one vehicle from another within the same accident included vehicle license plate number, driver's license number, vehicle identification number (VIN), and driver's last name. These variables were present on both the PAR and the MCMIS files.

Five separate matches were performed. In each match step, records in either file with duplicate values on the match variables were excluded, along with records that were missing values on the match variables. The first match included the variables report number, crash month, day, crash county, vehicle license number, VIN, driver's license number, and driver's last name. Subsequent match steps eliminated one or more of those variables. See Table 6 for the variables used in each match step along with the number of records matched at each step.

Table 6 Variables Used in MCMIS-Florida PAR File Match, 2003

Match step	Matching variables	Cases matched
Match 1	report number, crash month, day, county, vehicle license num, VIN, driver's license num, driver's last name	3,416
Match 2	report number, crash month, day, county, vehicle license num, driver's license num, driver's last name	135
Match 3	report number, crash month, day, vehicle license number, driver's license number	268
Match 4	report number, crash month, day, vehicle license number	57
Match 5	crash month, day, driver's license number	43
Total cases matched		3,919

Matched records was verified on other variables common to the MCMIS and PAR file as a final check to ensure the match was valid. The above procedure resulted in 3,919 matches, representing 96.1% of the 4,078 non-duplicate records reported to MCMIS.

Figure 1 shows the case flow during the match. Only 159 (3.9%) MCMIS records could not be matched to the Florida PAR file. On the other hand, of the 13,797 reportable cases in the Florida PAR data, only 3,317 were actually reported, along with 602 cases that were not reportable, but nevertheless were reported. Thus, the reporting rate for reportable cases was 3,317/13,797=24.0%. Only about 24 percent of crash involvements that qualified for reporting to the MCMIS Crash file were actually reported in 2003.

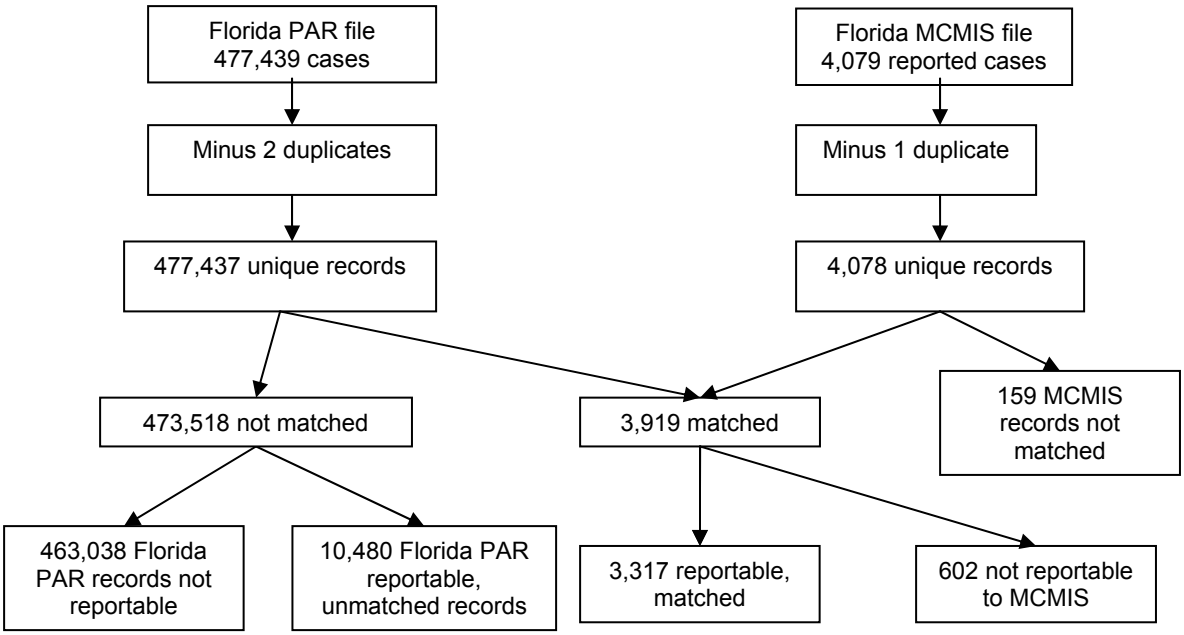

Figure 1 Results of MCMIS-Florida PAR File Match, 2003

In addition, 602, 14.8% of reported cases should not have been reported. They did not qualify as reportable either because they did not involve qualifying vehicles or qualifying severity. Table 7 shows why these cases did not meet the reporting criteria. The majority of cases, 437, were trucks or buses, but were not involved in a crash serious enough to meet the crash severity threshold. There were also 140 involvements in which the crash met the severity test, but they were not trucks, buses, or a vehicle transporting hazmat. Finally, 25 cases were neither serious enough nor did they involved qualifying vehicles.

Table 7 Distribution of Non-reportable Cases in MCMIS by Reporting Criteria, Florida PAR File, 2003

	Crash severity				
Vehicle type	Fatal	Transported injury	Tow/disabled	Other crash severity	Total
Truck	0	0	0	425	425
Bus	0	0	0	12	12
Other vehicle (not transporting hazmat)	3	64	73	25	165
Total	3	64	73	462	602

Omitting the 159 cases that could not be matched and the 602 MCMIS cases not considered reportable in the PAR file, 3,317 reportable MCMIS records were matched to the PAR file, 24.0% of the 13,797 cases that should have been reported..

4. Sources of Underreporting

This section explores the sources of underreporting to the MCMIS Crash file. The approach is to compare reported and unreported cases across several dimensions to search for patterns that might suggest why some cases were reported and others were not. All tables include only matched, reportable cases. Therefore, they exclude the 602 MCMIS cases not considered reportable in the PAR file, and the 159 MCMIS cases that could not be matched to the PAR file The reporting rate shown in the following tables is the number of reported cases per 100 reportable cases.

Determining if a case is submitted to the MCMIS Crash file is dependent upon two factors. First, the reporting officer must accurately record vehicle and injury information required for determining if the accident involves a qualifying vehicle and meets the severity criteria. Missing or erroneous data may cause an eligible case not to be submitted. Secondly, the appropriate cases must be extracted from the PAR file and transmitted to the MCMIS Crash file. At this step, errors include delays in transmitting cases or errors in applying the reporting criteria, either as to vehicles or crash severities.

4.1 Case Processing

During the process of searching for variables in the Florida PAR data that could be used to identify cases reportable to the MCMIS crash file, it was observed that the PAR data included a variable called “crash_damage_severity,” which is coded at the accident level. This variable appears to identify the most severe damage level to any vehicle in a crash. As such, it could be used to identify cases in which at least one vehicle was towed due to disabling damage. However, as discussed above, the variable appears to be miscoded, since it records the damage severity level of the *least* damaged vehicle in the accident, rather than the most damaged. One hypothesis is that the state used this variable to identify cases reportable to MCMIS. If the variable was used, it would identify a smaller group of reportable cases than actually qualify.

Thus, an initial hypothesis is that this error may account for the large number of unreported cases.

Using the Florida crash_damage_severity variable to identify reportable cases resulted in 8,064 "reportable" cases, rather than the 13,797 that were in fact reportable. Moreover, of the 8,064 cases, only 2,309 were actually reported, for a reporting rate of 28.6%. This rate is somewhat better than the real rate of 24.0%, but clearly the error in the crash_damage_severity variable is not sufficient to explain the overall reporting rate.

The Florida PAR includes a set a variables to be coded for "commercial vehicles" only. These items are to be completed by the reporting officer for any self-propelled vehicle, with or without a trailer, used in commerce to transport cargo, or passengers, or any vehicle displaying a hazardous materials placard. These variables are loaded into a separate data table known as the commercial vehicle table. The variables in the table identify the motor carrier, and provide its address and DOT number.

The hypothesis was tested that the state of Florida is submitting to the M CMIS Crash file only vehicles with a commercial vehicle record. Table 8 below clearly shows that the presence of a commercial vehicle was significantly related. Of the 4,682 reportable cases with a CMV record, 65.8% were actually reported, while only 2.6% of reportable cases that did not have a CMV record were reported. Indeed, 92.9% (3,082) of reportable cases sent to MCMIS had a CMV record present. However, the majority of unreported cases, 8,880 (84.7%), did not have CMV data recorded. Apparently, whether a police office completes the CMV only section of the PAR plays a primary role in determining the cases that are submitted to the MCMIS Crash file.

Table 8 Distribution of Reportable and Reported Cases by Commercial Vehicle Record, Florida PAR File, 2003

Commercial vehicle record present	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Yes	4,682	65.8	1,600	15.3
No	9,115	2.6	8,880	84.7
Total	13,797	24.0	10,480	100.0

It is worth noting here that using the CMV table to identify reportable cases is not consistent with the reporting requirements for MCMIS. In effect, it adds another, incorrect criteria to the MCMIS reporting requirements. Those requirements are dependent on vehicle configuration (truck, bus, or hazmat placarded vehicle) and crash severity (transported injury or towed/disabled vehicle). They do not include the commercial status of the vehicle. Moreover, since the CMV only line of the Florida PAR includes U.S. D.O.T. or M.C number, it is most likely to be completed for interstate carriers, not intrastate truck or bus operators.

While the presence of a record in the CMV table is a significant factor in explaining the extent of underreporting, it does not account for all the cases that are not reported. A variety of other explanations were explored, related either to problems in applying the vehicle type and crash severity standards, or simple delays in processing records through the system and getting them reported to MCMIS.

An obvious reason for underreporting could be that all 2003 records had not been submitted to the MCMIS Crash file in time for this study. All reportable crash involvements for a calendar year are required to be transmitted to the MCMIS Crash file within 90 days of the end of the year. The MCMIS file used in this evaluation was dated April, 2004, so in theory all 2003 cases should have been reported. An examination of reporting by accident month (see Table 9) shows that less than one-third of reportable cases are submitted in any given month. There were much lower reporting rates during August, September and December (15.1-16.7%), compared with rates of 20.2 to 30.4 for other months of the year. However, the reporting rate for crashes in November 2003 is among the highest for all months and higher than those in the first quarter of the year, so having more time to submit cases did not necessarily result in more complete reporting.

Table 9 Reporting to MCMIS Crash File by Accident Month, Florida PAR File, 2003

Month	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
January	1,091	28.7	778	7.4
February	1,096	24.4	829	7.9
March	1,313	27.2	956	9.1
April	1,228	28.1	883	8.4
May	1,088	26.0	805	7.7
June	1,061	30.4	738	7.0
July	1,113	26.0	824	7.9
August	1,155	15.1	981	9.4
September	1,186	16.2	994	9.5
October	1,280	20.2	1,022	9.8
November	1,124	30.2	785	7.5
December	1,062	16.7	885	8.4
Total	13,797	24.0	10,480	100.0

4.2 Reporting Criteria

Crash severity may also be associated with underreporting, with less severe crash involvements less likely to be reported to the MCMIS Crash file. As shown in Table 10, more severe crashes are much more likely to be reported. Only about 20.0% of towaway crashes were reported, compared with 26.5% of injury crashes and 55.6% of crashes involving a fatality. It is possible that more serious crashes are more thoroughly reported, and the commercial vehicle section of

the report is more likely to be completed. On the other hand, note that only 55.6% of the most serious crashes, those involving a fatality, are reported.

Table 10 Reporting to MCMIS Crash File by Crash Severity, Florida PAR File, 2003

Crash severity	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Fatal	444	55.6	197	1.9
Injured, transported	6,109	26.5	4,491	42.9
Towaway	7,244	20.0	5,792	55.3
Total	13,797	24.0	10,480	100.0

Florida law requires an officer who investigates a motor vehicle crash to complete a PAR form (also known as 'long form' – see Attachment 2), if the crash involves death or personal injury, leaving the scene involving damage to attended vehicles or property, or driving while under the influence of alcoholic beverages, chemical substances, or controlled substances, or driving with an unlawful blood alcohol level. The long form *may or may not* be used to report motor vehicle crashes that require a wrecker to remove one or more vehicles from the scene of the crash because of disabling damage. Thus crashes not involving death, injury, driving under the influence, or leaving the scene, but only requiring a vehicle(s) to be towed due to disabling damage may not be reported. This implies that even more towaways would be identified as reportable if they had all been recorded, resulting in more reportable crashes and a lower reporting rate.

Reporting rates also vary by vehicle type. Table 11 shows that larger trucks are more likely to be reported than smaller trucks. Trucks with a medium GVWR are only reported 6.0% of the time, while heavier trucks are reported at a 26.7% rate and truck-tractors at 48.3%. These differences suggest that the officer is more likely to complete the "commercial vehicle only" section for large trucks than for smaller vehicles. A truck-tractor is eight times more likely to be reported than a smaller truck. Note also that small vehicles with hazardous materials placards had only a 7.7% chance of being reported.

Table 11 Reporting to MCMIS Crash File by Vehicle Type, Florida PAR File, 2003

Vehicle type	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Automobile (hazmat placard)	7	14.3	6	<0.1
Light truck (hazmat placard)	6	0.0	6	<0.1
Medium truck (VIN 10,000-26,000 lbs)	4,228	6.0	3,973	37.9
Heavy truck (VIN over 26,000 lbs)	3,706	26.7	2,717	25.9
Truck-tractor	4,193	48.3	2,168	20.7
Bus – driver plus 9-15 seats	257	1.9	252	2.4
Bus – driver plus >15 seats	1,399	3.0	1,357	12.9
Other (hazmat placard)	1	0.0	1	<0.1
Total	13,797	24.0	10,480	100.0

Reporting rates were even lower for buses than they were for trucks. Buses with sixteen or more seats had a reporting rate of only 3.0%, while smaller buses had an even lower rate of 1.9%. This is unfortunate, given that the Florida PAR vehicle type variable specifically includes codes for the two categories of buses.

Reporting may also be related to misunderstanding that intrastate vehicles are to be included, not just those involved in interstate commerce. Carriers operating in interstate commerce, as well as those carrying hazardous materials, are required to register with the Federal Motor Carrier Safety Administration. They are issued a Department of Transportation number, and their name and DOT number must be displayed on the side of their trucks. The Florida PAR data include a variable that contains either the carrier's DOT or ICC number, indicating the carrier is authorized for interstate commerce. As shown in Table 18, 65.7% of interstate vehicles are reported to the MCMIS Crash file, compared with only 8.8% of vehicles without ICC or DOT numbers. Vehicles for which a DOT number is recorded are much more likely to be reported than intrastate trucks.

Table 18 Reporting to MCMIS Crash File by Interstate/intrastate Status, Florida PAR File, 2003

Carrier type	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Interstate	3,701	65.7	1,268	12.1
Intrastate	10,096	8.8	9,212	87.9
Total	13,797	24.0	10,480	100.0

4.3 Reporting Agency and Area

Beyond the application of the reporting criteria, there can be differences related to where the crash occurs or the type of agency that covered 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. The level and frequency of training or the intensity of supervision can also vary. If there are such differences, they may serve as a guide to focus resources in areas and at levels that will produce the greatest improvement. The next set of tables will examine areas of the state to see if there are inconsistencies in reporting patterns.

Reporting rates for Florida's 68 counties ranged from 10.2% of reportable cases to 66.7%. Table 12 shows reporting rates for the ten largest Florida counties, in descending order of unreported cases. Together, these ten counties account for 65.8% (6,899) of the total unreported cases in Florida for 2003, and the three counties of Dade (Miami area), Broward (Fort Lauderdale area), and Hillsborough (Tampa area) represent 34.3% (3,591) of unreported cases. Pinellas County (Clearwater, St. Petersburg area) has the lowest reporting rate of all counties in the state, 10.2%,

compared to the statewide average of 24.0%. Dade County reports only 10.9% of eligible cases, and is responsible for the most reportable cases, 1,812.

Table 12 Reporting to MCMIS Crash File by County, Florida PAR File, 2003

County	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Dade	1,812	10.9	1,614	15.4
Broward	1,303	17.7	1,073	10.2
Hillsborough	1,177	23.2	904	8.6
Palm Beach	1,032	25.2	772	7.4
Orange	766	20.6	608	5.8
Duval	731	29.0	519	5.0
Pinellas	520	10.2	467	4.5
Polk	612	34.8	399	3.8
Lee	436	26.2	322	3.1
Volusia	307	28.0	221	2.1
Sum of top ten	8,696	20.7	6,899	65.8
Total (all counties)	13,797	24.0	10,480	100.0

Reporting levels also appear to vary significantly by the level of reporting agency. The Florida PAR file identifies four types of reporting agencies: Florida highway patrol, county sheriff's offices, local police departments, and other agencies not among the first three categories.

The Florida Highway Patrol has the highest reporting rate, 31.9% (Table 13), and is responsible for almost half of all eligible cases, 49.6%. The next largest number of cases are covered by police departments, 4,038, representing 29.3% of reportable cases. Unfortunately, these agencies only report 14.2% of their cases to the MCMIS Crash file. The reporting rate for sheriff's offices is somewhat higher at 19.3%; however, these departments are only responsible for 20.8% of the reportable cases. Even though the Florida Highway Patrol has a higher reporting rate than the other agencies, it is responsible for 44.5% of the unreported cases, due to its high caseload.

Table 13 Reporting to MCMIS Crash File by Reporting Agency, Florida PAR File, 2003

Reporting agency type	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
FHP	6,843	31.9	4,659	44.5
Sheriff's office	2,874	19.3	2,320	22.1
Police dept	4,038	14.2	3,463	33.0
Other	42	9.5	38	0.4
Total	13,797	24.0	10,480	100.0

Given the central role played by the commercial vehicle table in determining whether a reportable accident involvement is reported, it is of some interest to determine if reporting rates for different agency types vary by reporting criteria. The purpose here is to see if there are differences between the reporting agencies in terms of what factors trigger an officer to complete

the "commercial vehicle only" line on the Florida PAR and thus be extracted for reporting to the MCMIS Crash file.

Table 14 shows reporting rates by agency type by crash severity. For injury and towaway crashes, the Florida Highway Patrol is significantly more likely to complete a reportable case than sheriff offices or police departments. FHP and sheriff offices are equally likely to complete a reportable case on fatal crashes, but the reporting rate for police departments is significantly lower, with only 37.1% of reportable involvements with a fatal injury actually being reported.

Table 14 Reporting to MCMIS Crash File by Reporting Agency and Crash Severity, Florida PAR File, 2003

	Reporting rates (%) by crash severity		
Reporting agency type	Fatal	Injured, transported	Towaway
FHP	58.6	34.9	26.9
Sheriff's office	59.1	22.2	15.7
Police dept	37.1	16.3	11.7
Other	0.0	0.0	16.0
Total	55.6	26.5	20.0

Reporting rates by vehicle type were not significantly different across the three primary agency types. Florida Highway Patrol officers were more somewhat likely to report on the four major types of trucks and buses, but the differences are not large. Police departments may need more training in understanding that reporting must be complete for all truck and bus types, but the rates for all the vehicle types are low for all agency types.

Table 15 Reporting to MCMIS Crash File by Reporting Agency and Vehicle Type, Florida PAR File, 2003

	Reporting rates (%) by vehicle type			
Reporting agency type	Medium trucks	Heavy trucks	Truck tractors	Buses
FHP	6.7	31.3	51.5	3.7
Sheriff's office	6.4	26.3	43.0	2.7
Police dept	5.0	18.4	40.4	2.5
Other	10.0	0.0	50.0	0.0
Total	6.0	26.7	48.3	2.8

The Florida Highway Patrol was much more likely to report crashes of intrastate carriers than the other two primary reporting agencies. (Table 16) Almost 13 percent of qualifying crash involvements of intrastate carriers covered by FHP were reported, compared to 6.4% and 5.0% of crashes reported by sheriff's offices and police departments, respectively. Since the major driver of extracting cases from the Florida PAR data and uploading them to the MCMIS Crash file seems to be completing the commercial vehicle only line of the PAR, this means that FHP troopers are more likely to complete that line, even if the vehicle does not display a USDOT number.

Table 16 Reporting to MCMIS Crash File by Reporting Agency and Interstate/intrastate Status, Florida PAR File, 2003

Reporting agency type	Reporting rates (%) by interstate/intrastate status	
	Interstate	Intrastate
FHP	68.9	12.8
Sheriff's office	58.5	6.4
Police dept	62.7	5.0
Other	42.9	2.9
Total	65.7	8.8

Data were not available to identify individual Florida Highway Patrol posts, so they could not be analyzed in more detail. However, specific police departments could be identified by noting the city of the crash when the enforcement agency is identified as a police department. A total of 242 different police departments covered MCMIS-reportable crashes. Reporting rates ranged from zero for 91 departments that policed 406 reportable cases, to 100.0% for ten police departments, each with one reportable case. The 91 departments that did not report any cases covered relatively few cases each, ranging from 1 to 36.

Table 17 shows the top ten police departments with the most unreported cases. These police departments accounted for 38.3% of all unreported cases covered by police departments. Overall, police departments covered 29.3% of cases that should have been reported to the MCMIS Crash file. Generally they are for the largest cities in Florida. As such they likely cover the most traffic accidents. Some, such as Tampa, Orlando, and Tallahassee, have reporting rates that are comparable to or higher than the 14.2% achieved by all police departments. But reporting is negligible from Miami, Fort Lauderdale, Hialeah, and Clearwater.

Table 17 Reporting Rates for Top Ten Police Departments, Florida PAR File, 2003

Police department	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Tampa P.D.	339	14.5	290	8.4
Miami P.D.	265	3.4	256	7.4
Orlando P.D.	210	19.1	170	4.9
Fort Lauderdale P.D.	125	4.0	120	3.5
Hialeah P.D.	106	5.7	100	2.9
Tallahassee P.D.	104	15.4	88	2.5
St. Petersburg P.D.	92	8.7	84	2.4
Fort Myers P.D.	97	13.4	84	2.4
Gainesville P.D.	82	17.1	68	2.0
Clearwater P.D.	69	2.9	67	1.9
Sum of top ten	1,489	10.9	1,327	38.3
Total (all P.D.'s)	4,038	14.2	3,463	100.0

Sheriff's offices covered 20.8% of all MCMIS reportable crash involvements. The Florida PAR data do not specifically identify the sheriff's office that covered each crash, but, since sheriff's offices are responsible for reporting crashes of a particular county, the responsible sheriff's offices could be identified by the county in which the crash occurred. Table 18 shows the ten counties in Florida with the most unreported cases. As was true of police departments, these offices also cover the most reportable MCMIS crashes. Reporting rates range from over one-third to 12.4%. Most of these offices have reporting rates comparable to or higher than the overall rate (19.3%) for sheriff's offices, although the largest office, in Dade County, also has among the lowest rates.

Table 18 Reporting Rates for Top Ten Sheriff's Offices, Florida PAR File, 2003

Sheriff's Office	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Dade Co. Sheriff	595	12.4	521	22.5
Duval Co. Sheriff	466	24.5	352	15.2
Broward Co. Sheriff	363	12.4	318	13.7
Hillsborough Co. Sheriff	349	22.6	270	11.6
Palm Beach Co. Sheriff	249	19.7	200	8.6
Lee Co. Sheriff	109	23.9	83	3.6
Collier Co. Sheriff	85	16.5	71	3.1
Pinellas Co. Sheriff	81	17.3	67	2.9
Polk Co. Sheriff	86	33.7	57	2.5
Clay Co. Sheriff	52	17.3	43	1.9
Sum of top ten	2,435	18.6	1,982	85.4
Total (all Sheriffs)	2,874	19.3	2,320	100.0

5. Data Quality Issues

In addition to examining the number of records reported to the MCMIS Crash file, it is informative to look at the quality of data reported. Missing data rates are important in evaluating the utility of a data file, since records with missing data do not contribute to an analysis. Table 19 shows the unrecorded rates for some of the most useful variables. Overall, missing data rates are very low for most variables reported to the MCMIS Crash file. Note, however, that only the first event is consistently coded. Almost all cases are missing data for event two, event three, and event four. Similarly, for vehicles displaying a hazardous materials placard, the three variables referring to the type of materials carried were unrecorded in 5.9% to 92.4% of the cases.

Table 19 Unrecorded Rates for Selected Variables, Florida MCMIS File, 2003

Variable	Percent unrecorded	Variable	Percent unrecorded
Accident year	0.0%	Event one	0.1
Accident month	0.0	Event two	88.3
Accident day	0.0	Event three	96.6
Accident hour	0.9	Event four	99.3
Accident minute	0.9	Number of vehicles	0.0
Body type	0.0	Officer badge number	100.0
Configuration	<0.1	Report number	0.0
County	0.0	Road access	0.0
DOT number	30.5 *	Road surface	0.0
Driver date of birth	2.3	Road trafficway	0.0
Driver license number	1.5	Towaway	0.0
Driver license state	1.5	Truck or bus	0.0
Fatal injuries	0.0	Vehicle license number	0.9
Non-fatal Injuries	0.0	Vehicle license state	0.9
Interstate	0.0%	VIN	1.1
Light	0.0	Weather	0.0
* Counting cases where the carrier is coded interstate.			

Hazardous materials variable	Percent unrecorded
Hazardous materials placard	0.0%
Percentages of placarded vehicles only:	
Hazardous cargo release	0.0%
Hazardous materials class (1-digit)	24.4%
Hazardous materials class (4-digit)	5.9%
Hazardous materials name	92.4%

The following set of tables compare the actual data values in the Florida PAR file with the values in the MCMIS Crash file to determine if the data are consistent between the two datasets. It is possible that errors of translation and formatting can occur when the data are prepared for submission to the MCMIS crash file.

For most variables, it appears that the data are accurately prepared for the MCMIS Crash file. The variables for light and weather were consistent between the two files. There were two instances in which road surface condition coded in the PAR file was different from road surface condition in the MCMIS Crash file, but all other cases agreed. There was only one case where the data differed on whether the vehicle was placarded and one where there was a difference for whether hazmat materials spilled.

For the 3,317 matched cases, Table 20 displays the consistency between the vehicle type variable as recorded in the original Florida PAR file and the coding of configuration in the MCMIS Crash file. With a few exceptions, the coding of truck and bus type is relatively consistent between the two files, given that the code levels do not map cleanly between the two variables. But note also a couple of odd disagreements. There was one case in which a vehicle coded as an automobile in

the Florida PAR file was coded as a tractor/double in the MCMIS file, and two cases in which a vehicle was coded as a small bus in the PAR data and as a tractor-semitrailer in the MCMIS file.

Table 20 Vehicle Type Coding in Florida PAR Compared with MCMIS Crash file, 2003

Florida PAR vehicle type variable	MCMIS configuration variable	N	%
Automobile (hazmat placard)	Tractor/double	1	0.0
Medium truck (GVWR 10,000-26,000 lbs)	SUT, 2-axle, 6-tire	246	7.4
	Tractor/semitrailer	7	0.2
	Tractor/double	2	0.1
Heavy truck (GVWR over 26,000 lbs)	SUT, 3+ axles	820	24.7
	Truck tractor (bobtail)	2	0.1
	Tractor/semitrailer	129	3.9
	Tractor/double	38	1.2
Truck tractor	Truck tractor (bobtail)	644	19.4
	Tractor/semitrailer	1,199	36.2
	Tractor/double	182	5.5
Bus-driver plus 9-15 seats	Bus(seats 9-15,incl dr)	3	0.1
	Tractor/semitrailer	2	0.1
Bus-driver plus >15 seats	Bus(seats >15,incl dr)	42	1.3
Total		3,317	100.0

There were also a few differences in the counts of fatalities in the two files. Table 21 compares the number of fatalities in the crash for cases in both the PAR file and the MCMIS file. For the most part, the files agreed. Out of the 3,317 matched reportable cases, the fatality count was the same in 99.3% of the cases. But fatality counts differed in 23 records. For example, there were 16 instances where the PAR file documented one fatality in the crash, but the MCMIS file specified there were no fatalities.

Table 21 Total Fatalities Coding in Florida PAR Compared with MCMIS Crash file, 2003

Florida PAR fatalities	MCMIS fatalities	N	%
0	0	3070	92.6
1	0	16	0.5
	1	197	5.9
2	0	1	<0.1
	1	5	0.2
	2	15	0.5
3	2	1	<0.1
	3	11	0.3
4	4	1	<0.1
Total		3317	100.0

A comparison of total injuries in the crash identified a similar level of consistency between the two files. Only 30 of the 3,317 matched reportable cases differed on the number of injuries in the crash. In each case of differences, the counts disagreed only by one. For example, there were 11 cases where MCMIS noted one injury in the crash, whereas PAR specified that the crash involved no injuries.

6. Summary and discussion

The purpose of the present study was to evaluate the completeness and accuracy of data reported from Florida to the MCMIS Crash file. To achieve that goal, the Florida PAR file for 2003 was obtained, and the data therein compared with the data reported to the MCMIS Crash file.

The Florida PAR form includes all the data necessary to identify crashes reportable to MCMIS. The vehicle type variable includes codes that map well to the MCMIS GVWR criteria for trucks and reasonably well to the seating capacity threshold for buses. There a variable to identify vehicles with hazmat placards. The normal injury coding is included along with an indication that the injured party was transported for medical attention. These variables can be used to identify cases that meet the injury reporting requirement for MCMIS. Finally, there is a vehicle damage severity variable in a form that can be used to determine if any vehicle in the crash suffered disabling damage, a reasonable surrogate for the towed/disabled MCMIS reporting criterion. Thus, it appears that Florida has made a useful effort to make their data collection consistent with MCMIS reporting requirements.

However, though the PAR form appears to be carefully designed to be consistent with MCMIS reporting requirements, there are very significant deficits in Florida reporting. We were able to identify 13,797 cases in the Florida PAR file that should have been reported to MCMIS. But, of these 13,797, only 3,317 were actually reported. Thus, only 24.0% of reportable cases in the Florida data are actually reported. Moreover, there was also significant over-reporting of cases. A total of 602 cases out of the 3,919 cases actually reported did not qualify for reporting. Over 15% of the cases reported by Florida did not qualify. About three-quarters of these cases involved qualifying vehicles (trucks or buses) but the crash was not severe enough to be reportable. Almost a quarter of the cases incorrectly reported were for non-qualifying light vehicles, and 25 of them met neither the severity nor the vehicle threshold.

Despite the advantages of the design of the Florida PAR, completeness of reporting is a major problem. Ironically, despite the good features of the Florida PAR, that design likely contributes heavily to underreporting. It is interesting to note that neither the Florida instruction manual nor anything on the PAR explicitly lays out the MCMIS reporting requirements or tells the reporting officer that the information he is reporting will be extracted for the MCMIS crash file. Unlike states which include a section that walks the officer through the MCMIS reporting rules, nothing on the form gives any hint of the purpose of certain data elements. Instead, the variables on vehicle type, hazmat, injury severity and transportation, and disabled vehicles all conform to the MCMIS requirements, though the officer is not told about them. This is all well and good, because it allows the correct crashes to be identified.

It appears, though, that a critical error occurs when the data are actually extracted to be uploaded to the MCMIS Crash file. From the evidence shown here, it appears that a primary factor in

selecting cases for the crash file is whether the reporting officer entered anything on the line in the PAR that is marked "commercial vehicles only." In this line, the carrier's name is entered along with its DOT or MC number. Almost 93 percent of reported crashes included data from this line, which is entered into the commercial vehicle table of the PAR data, while almost 85% of reportable cases that were not reported did not have any information from that line. Thus, it appears that while Florida collects all the correct data to identify reportable crashes, an additional element—the commercial vehicle information—is used as a final filter. It should be noted that this additional element goes beyond the MCMIS reporting requirements. But the failure of officers to complete that line results in the bulk of non-reports.

Though the "commercial vehicle only" information was the primary contributor to the low reporting rate, several other factors were found to be associated as well. Even though the MCMIS file used in the analysis was created well outside the 90 day grace period for reporting, the reporting rate was somewhat lower in the final quarter of the year. Reporting also varied by crash severity. Less severe crashes were also much less likely to be reported. Almost 56% of fatal involvements were reported, compared with only 20.0% of towed/disabled crashes. Similarly, crashes involving large trucks were more likely to be reported than those involving smaller vehicles. Almost half of the reportable crashes of tractor-semitrailers were reported, while only 26.7% of heavy straight truck crashes were reported, and only 6.0% of the involvements of medium trucks were reported. Buses are largely ignored. Fewer than 3 percent of reportable bus involvements are actually reported.

Since completing the "commercial vehicle only" line of the PAR form is largely implicated here, the question becomes, why is that line not filled in properly? The discussion in the instructions for the form only indicates that the line should be completed for a commercial vehicle, which it defines a "any self-propelled vehicle—**with or without a trailer** [emphasis in original]—being used in commerce to transport cargo, or passengers, or any vehicle displaying a hazardous material placard…"[6, page 16] This is not a problem, as far as it goes, (though using this as a filter to select reportable cases is incorrect), but the line on the form also includes a place for the carrier's DOT or MC number. Many officers may believe that an entry is not required for vehicles without such a number, such as those operated by intrastate firms. In the data as uploaded to MCMIS, 65.7% of reportable cases involving interstate vehicles are reported, compared with only 8.8% of intrastate firms.

As in other states, the Highway Patrol has the best reporting rate. Almost 32 percent of reportable involvements covered by the FHP were reported, compared with 19.3% of reportable crashes covered by county sheriffs and 14.2% of those reported by police departments. The reasons for these differences are unknown, but they may be related to the level of training and focus on traffic safety in the respective jurisdictions.

Also consistent with the results from other states, reporting rates are lower in more densely populated areas. The rate from Dade County was less than half the already low state-wide rate. Reporting also lagged from Broward and Pinellas counties.

In sum, a variety of factors apparently contribute to the low reporting rate in Florida. As in other states, the message that the MCMIS Crash file includes all trucks or buses that meet the threshold has not been accurately absorbed. Smaller trucks are reported at a lower rate than big trucks. Buses are almost entirely overlooked. Vehicles operated by intrastate carriers are also overlooked. Police departments and county sheriff's are not reporting at the same rate as the FHP. In Florida, though, the problem goes well beyond training police officers to recognize reportable vehicles and crashes. In fact, Florida has done a good job in mapping the MCMIS reporting requirements to their existing variables. But the additional apparent filter of an entry in the commercial vehicle line essentially undoes the previous advances. The implication, of course, is that undoing the error would improve the completeness of reporting substantially.

References

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5. Federal Motor Carrier Safety Administration (FMCSA) Crash File Documentation, March 2000.

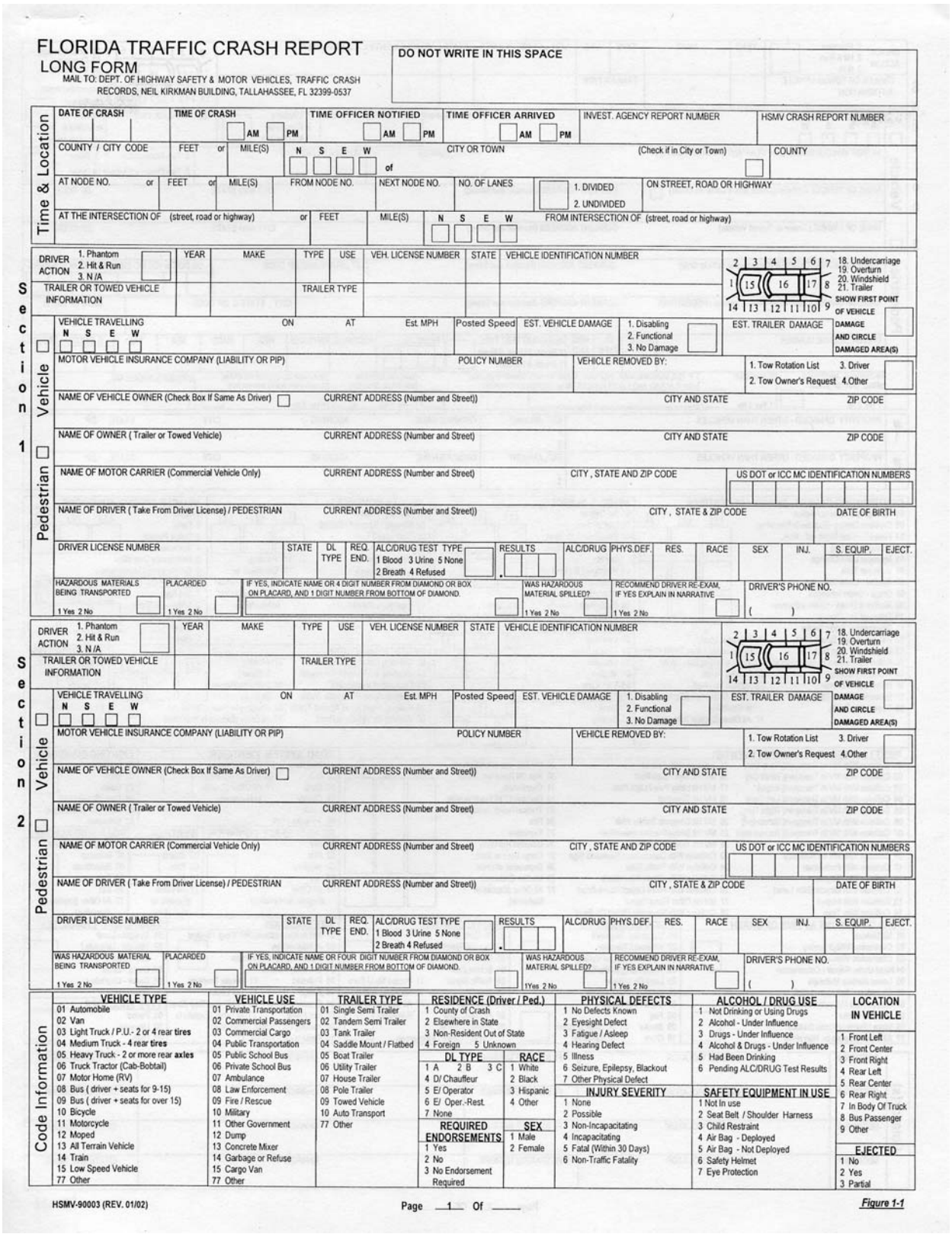
6. *Instructions for Completing the Florida Uniform Traffic Crash Report Forms*, State of Florida, Department of Highway Safety and Motor Vehicles, January 2002.

7. Florida Traffic Crash Report Form, revision January 2002.

Appendix 1: Variables Used for Florida PAR Data to Identify a MCMIS-Reportable Crash

MCMIS Reporting Criteria	Implementation in Florida PAR data
Truck with GVWR over 10,000 or GCWR over 10,000	According to the Florida PAR instruction manual, the vehicle type variable defines trucks by weight categories. To comply with the MCMIS criteria, the following codes were used to define qualifying trucks: vehicle_type = codes 4 (Medium truck – 4 rear tires, 10,000 to 26,000 lbs), and 5 (Heavy truck-2 or more rear axles, >26,000 lbs). Code 6 (Truck-tractor (cab/bobtail) was also included.
***or* Bus with seating for at least nine, including the driver**	Florida has two bus vehicle type codes which were used to define qualifying buses: vehicle_type=code 8 - bus (driver plus seats for 9-15) and code 9 – bus (driver plus seats for over 15).
***or* Vehicle displaying a hazardous materials placard**	Florida has a variable indicating if a vehicle was displaying a hazardous materials placard, so this variable was used to define such vehicles: placarded = code 1 (yes)
AND	
at least one fatality	Florida has an injury severity variable at the accident level reflecting the most serious injury in the crash: crash_injury_severity = code 5 (fatal)
***or* at least one person injured and transported to a medical facility for immediate medical attention**	Florida's crash injury severity variable was used in conjunction with a variable titled "injured taken to," presumably indicating a hospital or other treatment facility. crash_injury_severity = code 2 (possible), code 3 (non-incapacitating), and code 4 (incapacitating) AND injured_taken_to = code 1.
***or* at least one vehicle towed due to disabling damage**	For each vehicle in the Florida PAR file there is a variable indicating damage severity. By examining all the vehicle records for a particular accident it was determined if at least one vehicle met the following criteria: disabling_func_damage = 1 (disabling damage).

Appendix 2: Florida Police Accident Report Form



FLORIDA TRAFFIC CRASH REPORT
LONG FORM
MAIL TO: DEPT. OF HIGHWAY SAFETY & MOTOR VEHICLES, TRAFFIC CRASH RECORDS, NEIL KIRKMAN BUILDING, TALLAHASSEE, FL 32399-0537

DO NOT WRITE IN THIS SPACE

Time & Location

DATE OF CRASH | TIME OF CRASH AM PM | TIME OFFICER NOTIFIED AM PM | TIME OFFICER ARRIVED AM PM | INVEST. AGENCY REPORT NUMBER | HSMV CRASH REPORT NUMBER

COUNTY / CITY CODE | FEET or MILE(S) | N S E W of | CITY OR TOWN (Check if in City or Town) | COUNTY

AT NODE NO. or | FEET or MILE(S) | FROM NODE NO. | NEXT NODE NO. | NO. OF LANES | 1. DIVIDED 2. UNDIVIDED | ON STREET, ROAD OR HIGHWAY

AT THE INTERSECTION OF (street, road or highway) | or FEET MILE(S) | N S E W | FROM INTERSECTION OF (street, road or highway)

Section 1

Vehicle

DRIVER ACTION 1. Phantom 2. Hit & Run 3. N/A | YEAR | MAKE | TYPE | USE | VEH. LICENSE NUMBER | STATE | VEHICLE IDENTIFICATION NUMBER

TRAILER OR TOWED VEHICLE INFORMATION | TRAILER TYPE

2 3 4 5 6 7 1 15 16 17 8 14 13 12 11 10 9 — 18. Undercarriage 19. Overturn 20. Windshield 21. Trailer — SHOW FIRST POINT OF VEHICLE DAMAGE AND CIRCLE DAMAGED AREA(S)

VEHICLE TRAVELLING N S E W | ON | AT | Est. MPH | Posted Speed | EST. VEHICLE DAMAGE | 1. Disabling 2. Functional 3. No Damage | EST. TRAILER DAMAGE

MOTOR VEHICLE INSURANCE COMPANY (LIABILITY OR PIP) | POLICY NUMBER | VEHICLE REMOVED BY: | 1. Tow Rotation List 2. Tow Owner's Request 3. Driver 4. Other

NAME OF VEHICLE OWNER (Check Box If Same As Driver) | CURRENT ADDRESS (Number and Street)) | CITY AND STATE | ZIP CODE

Pedestrian

NAME OF OWNER (Trailer or Towed Vehicle) | CURRENT ADDRESS (Number and Street) | CITY AND STATE | ZIP CODE

NAME OF MOTOR CARRIER (Commercial Vehicle Only) | CURRENT ADDRESS (Number and Street) | CITY , STATE AND ZIP CODE | US DOT or ICC MC IDENTIFICATION NUMBERS

NAME OF DRIVER (Take From Driver License) / PEDESTRIAN | CURRENT ADDRESS (Number and Street)) | CITY , STATE & ZIP CODE | DATE OF BIRTH

DRIVER LICENSE NUMBER | STATE | DL TYPE | REQ. END. | ALC/DRUG TEST TYPE 1 Blood 2 Breath 3 Urine 4 Refused 5 None | RESULTS | ALC/DRUG | PHYS.DEF. | RES. | RACE | SEX | INJ. | S. EQUIP. | EJECT.

HAZARDOUS MATERIALS BEING TRANSPORTED 1 Yes 2 No | PLACARDED 1 Yes 2 No | IF YES, INDICATE NAME OR 4 DIGIT NUMBER FROM DIAMOND OR BOX ON PLACARD, AND 1 DIGIT NUMBER FROM BOTTOM OF DIAMOND. | WAS HAZARDOUS MATERIAL SPILLED? 1 Yes 2 No | RECOMMEND DRIVER RE-EXAM, IF YES EXPLAIN IN NARRATIVE 1 Yes 2 No | DRIVER'S PHONE NO. ( )

Section 2

Vehicle

DRIVER ACTION 1. Phantom 2. Hit & Run 3. N/A | YEAR | MAKE | TYPE | USE | VEH. LICENSE NUMBER | STATE | VEHICLE IDENTIFICATION NUMBER

TRAILER OR TOWED VEHICLE INFORMATION | TRAILER TYPE

2 3 4 5 6 7 1 15 16 17 8 14 13 12 11 10 9 — 18. Undercarriage 19. Overturn 20. Windshield 21. Trailer — SHOW FIRST POINT OF VEHICLE DAMAGE AND CIRCLE DAMAGED AREA(S)

VEHICLE TRAVELLING N S E W | ON | AT | Est. MPH | Posted Speed | EST. VEHICLE DAMAGE | 1. Disabling 2. Functional 3. No Damage | EST. TRAILER DAMAGE

MOTOR VEHICLE INSURANCE COMPANY (LIABILITY OR PIP) | POLICY NUMBER | VEHICLE REMOVED BY: | 1. Tow Rotation List 2. Tow Owner's Request 3. Driver 4. Other

NAME OF VEHICLE OWNER (Check Box If Same As Driver) | CURRENT ADDRESS (Number and Street)) | CITY AND STATE | ZIP CODE

Pedestrian

NAME OF OWNER (Trailer or Towed Vehicle) | CURRENT ADDRESS (Number and Street) | CITY AND STATE | ZIP CODE

NAME OF MOTOR CARRIER (Commercial Vehicle Only) | CURRENT ADDRESS (Number and Street) | CITY , STATE AND ZIP CODE | US DOT or ICC MC IDENTIFICATION NUMBERS

NAME OF DRIVER (Take From Driver License) / PEDESTRIAN | CURRENT ADDRESS (Number and Street)) | CITY , STATE & ZIP CODE | DATE OF BIRTH

DRIVER LICENSE NUMBER | STATE | DL TYPE | REQ. END. | ALC/DRUG TEST TYPE 1 Blood 2 Breath 3 Urine 4 Refused 5 None | RESULTS | ALC/DRUG | PHYS.DEF. | RES. | RACE | SEX | INJ. | S. EQUIP. | EJECT.

WAS HAZARDOUS MATERIAL BEING TRANSPORTED 1 Yes 2 No | PLACARDED 1 Yes 2 No | IF YES, INDICATE NAME OR FOUR DIGIT NUMBER FROM DIAMOND OR BOX ON PLACARD, AND 1 DIGIT NUMBER FROM BOTTOM OF DIAMOND. | WAS HAZARDOUS MATERIAL SPILLED? 1Yes 2 No | RECOMMEND DRIVER RE-EXAM, IF YES EXPLAIN IN NARRATIVE 1 Yes 2 No | DRIVER'S PHONE NO. ( )

Code Information

VEHICLE TYPE
01 Automobile
02 Van
03 Light Truck / P.U.- 2 or 4 rear tires
04 Medium Truck - 4 rear tires
05 Heavy Truck - 2 or more rear axles
06 Truck Tractor (Cab-Bobtail)
07 Motor Home (RV)
08 Bus (driver + seats for 9-15)
09 Bus (driver + seats for over 15)
10 Bicycle
11 Motorcycle
12 Moped
13 All Terrain Vehicle
14 Train
15 Low Speed Vehicle
77 Other

VEHICLE USE
01 Private Transportation
02 Commercial Passengers
03 Commercial Cargo
04 Public Transportation
05 Public School Bus
06 Private School Bus
07 Ambulance
08 Law Enforcement
09 Fire / Rescue
10 Military
11 Other Government
12 Dump
13 Concrete Mixer
14 Garbage or Refuse
15 Cargo Van
77 Other

TRAILER TYPE
01 Single Semi Trailer
02 Tandem Semi Trailer
03 Tank Trailer
04 Saddle Mount / Flatbed
05 Boat Trailer
06 Utility Trailer
07 House Trailer
08 Pole Trailer
09 Towed Vehicle
10 Auto Transport
77 Other

RESIDENCE (Driver / Ped.)
1 County of Crash
2 Elsewhere in State
3 Non-Resident Out of State
4 Foreign 5 Unknown

DL TYPE
1 A 2 B 3 C
4 D/ Chauffeur
5 E/ Operator
6 E/ Oper.-Rest.
7 None

RACE
1 White
2 Black
3 Hispanic
4 Other

REQUIRED ENDORSEMENTS
1 Yes
2 No
3 No Endorsement Required

SEX
1 Male
2 Female

PHYSICAL DEFECTS
1 No Defects Known
2 Eyesight Defect
3 Fatigue / Asleep
4 Hearing Defect
5 Illness
6 Seizure, Epilepsy, Blackout
7 Other Physical Defect

INJURY SEVERITY
1 None
2 Possible
3 Non-Incapacitating
4 Incapacitating
5 Fatal (Within 30 Days)
6 Non-Traffic Fatality

ALCOHOL / DRUG USE
1 Not Drinking or Using Drugs
2 Alcohol - Under Influence
3 Drugs - Under Influence
4 Alcohol & Drugs - Under Influence
5 Had Been Drinking
6 Pending ALC/DRUG Test Results

SAFETY EQUIPMENT IN USE
1 Not In use
2 Seat Belt / Shoulder Harness
3 Child Restraint
4 Air Bag - Deployed
5 Air Bag - Not Deployed
6 Safety Helmet
7 Eye Protection

LOCATION IN VEHICLE
1 Front Left
2 Front Center
3 Front Right
4 Rear Left
5 Rear Center
6 Rear Right
7 In Body Of Truck
8 Bus Passenger
9 Other

EJECTED
1 No
2 Yes
3 Partial

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Figure 1-1

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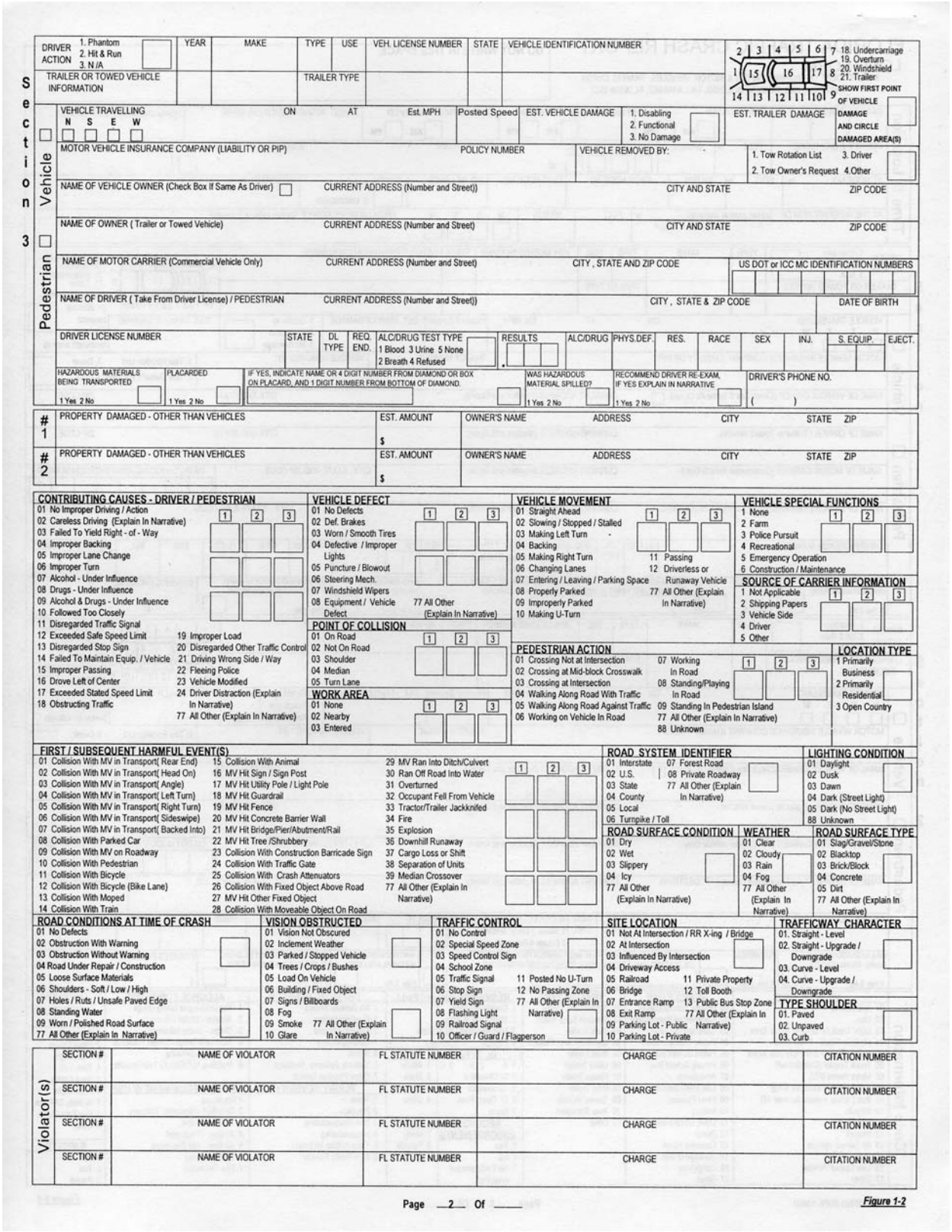

Section 3 Vehicle / Pedestrian

DRIVER ACTION: 1. Phantom 2. Hit & Run 3. N/A | YEAR | MAKE | TYPE | USE | VEH. LICENSE NUMBER | STATE | VEHICLE IDENTIFICATION NUMBER

TRAILER OR TOWED VEHICLE INFORMATION | TRAILER TYPE

18. Undercarriage 19. Overturn 20. Windshield 21. Trailer — SHOW FIRST POINT OF VEHICLE DAMAGE AND CIRCLE DAMAGED AREA(S)

VEHICLE TRAVELLING N S E W | ON | AT | Est. MPH | Posted Speed | EST. VEHICLE DAMAGE | 1. Disabling 2. Functional 3. No Damage | EST. TRAILER DAMAGE

MOTOR VEHICLE INSURANCE COMPANY (LIABILITY OR PIP) | POLICY NUMBER | VEHICLE REMOVED BY: | 1. Tow Rotation List 2. Tow Owner's Request 3. Driver 4. Other

NAME OF VEHICLE OWNER (Check Box If Same As Driver) | CURRENT ADDRESS (Number and Street)) | CITY AND STATE | ZIP CODE

NAME OF OWNER (Trailer or Towed Vehicle) | CURRENT ADDRESS (Number and Street) | CITY AND STATE | ZIP CODE

NAME OF MOTOR CARRIER (Commercial Vehicle Only) | CURRENT ADDRESS (Number and Street) | CITY , STATE AND ZIP CODE | US DOT or ICC MC IDENTIFICATION NUMBERS

NAME OF DRIVER (Take From Driver License) / PEDESTRIAN | CURRENT ADDRESS (Number and Street)) | CITY , STATE & ZIP CODE | DATE OF BIRTH

DRIVER LICENSE NUMBER | STATE | DL TYPE | REQ. END. | ALC/DRUG TEST TYPE 1 Blood 3 Urine 5 None 2 Breath 4 Refused | RESULTS | ALC/DRUG | PHYS.DEF. | RES. | RACE | SEX | INJ. | S. EQUIP. | EJECT.

HAZARDOUS MATERIALS BEING TRANSPORTED 1 Yes 2 No | PLACARDED 1 Yes 2 No | IF YES, INDICATE NAME OR 4 DIGIT NUMBER FROM DIAMOND OR BOX ON PLACARD, AND 1 DIGIT NUMBER FROM BOTTOM OF DIAMOND. | WAS HAZARDOUS MATERIAL SPILLED? 1 Yes 2 No | RECOMMEND DRIVER RE-EXAM, IF YES EXPLAIN IN NARRATIVE 1 Yes 2 No | DRIVER'S PHONE NO. ( )

#	PROPERTY DAMAGED - OTHER THAN VEHICLES	EST. AMOUNT	OWNER'S NAME	ADDRESS	CITY	STATE	ZIP
1		$					
2		$					

CONTRIBUTING CAUSES - DRIVER / PEDESTRIAN

01 No Improper Driving / Action
02 Careless Driving (Explain In Narrative)
03 Failed To Yield Right - of - Way
04 Improper Backing
05 Improper Lane Change
06 Improper Turn
07 Alcohol - Under Influence
08 Drugs - Under Influence
09 Alcohol & Drugs - Under Influence
10 Followed Too Closely
11 Disregarded Traffic Signal
12 Exceeded Safe Speed Limit
13 Disregarded Stop Sign
14 Failed To Maintain Equip. / Vehicle
15 Improper Passing
16 Drove Left of Center
17 Exceeded Stated Speed Limit
18 Obstructing Traffic
19 Improper Load
20 Disregarded Other Traffic Control
21 Driving Wrong Side / Way
22 Fleeing Police
23 Vehicle Modified
24 Driver Distraction (Explain In Narrative)
77 All Other (Explain In Narrative)

VEHICLE DEFECT

01 No Defects
02 Def. Brakes
03 Worn / Smooth Tires
04 Defective / Improper Lights
05 Puncture / Blowout
06 Steering Mech.
07 Windshield Wipers
08 Equipment / Vehicle Defect
77 All Other (Explain In Narrative)

POINT OF COLLISION

01 On Road
02 Not On Road
03 Shoulder
04 Median
05 Turn Lane

WORK AREA

01 None
02 Nearby
03 Entered

VEHICLE MOVEMENT

01 Straight Ahead
02 Slowing / Stopped / Stalled
03 Making Left Turn
04 Backing
05 Making Right Turn
06 Changing Lanes
07 Entering / Leaving / Parking Space
08 Properly Parked
09 Improperly Parked
10 Making U-Turn
11 Passing
12 Driverless or Runaway Vehicle
77 All Other (Explain In Narrative)

PEDESTRIAN ACTION

01 Crossing Not at Intersection
02 Crossing at Mid-block Crosswalk
03 Crossing at Intersection
04 Walking Along Road With Traffic
05 Walking Along Road Against Traffic
06 Working on Vehicle In Road
07 Working In Road
08 Standing/Playing In Road
09 Standing In Pedestrian Island
77 All Other (Explain In Narrative)
88 Unknown

VEHICLE SPECIAL FUNCTIONS

1 None
2 Farm
3 Police Pursuit
4 Recreational
5 Emergency Operation
6 Construction / Maintenance

SOURCE OF CARRIER INFORMATION

1 Not Applicable
2 Shipping Papers
3 Vehicle Side
4 Driver
5 Other

LOCATION TYPE

1 Primarily Business
2 Primarily Residential
3 Open Country

FIRST / SUBSEQUENT HARMFUL EVENT(S)

01 Collision With MV in Transport(Rear End)
02 Collision With MV in Transport(Head On)
03 Collision With MV in Transport(Angle)
04 Collision With MV in Transport(Left Turn)
05 Collision With MV in Transport(Right Turn)
06 Collision With MV in Transport(Sideswipe)
07 Collision With MV in Transport(Backed Into)
08 Collision With Parked Car
09 Collision With MV on Roadway
10 Collision With Pedestrian
11 Collision With Bicycle
12 Collision With Bicycle (Bike Lane)
13 Collision With Moped
14 Collision With Train
15 Collision With Animal
16 MV Hit Sign / Sign Post
17 MV Hit Utility Pole / Light Pole
18 MV Hit Guardrail
19 MV Hit Fence
20 MV Hit Concrete Barrier Wall
21 MV Hit Bridge/Pier/Abutment/Rail
22 MV Hit Tree /Shrubbery
23 Collision With Construction Barricade Sign
24 Collision With Traffic Gate
25 Collision With Crash Attenuators
26 Collision With Fixed Object Above Road
27 MV Hit Other Fixed Object
28 Collision With Moveable Object On Road
29 MV Ran Into Ditch/Culvert
30 Ran Off Road Into Water
31 Overturned
32 Occupant Fell From Vehicle
33 Tractor/Trailer Jackknifed
34 Fire
35 Explosion
36 Downhill Runaway
37 Cargo Loss or Shift
38 Separation of Units
39 Median Crossover
77 All Other (Explain In Narrative)

ROAD SYSTEM IDENTIFIER

01 Interstate
02 U.S.
03 State
04 County
05 Local
06 Turnpike / Toll
07 Forest Road
08 Private Roadway
77 All Other (Explain In Narrative)

LIGHTING CONDITION

01 Daylight
02 Dusk
03 Dawn
04 Dark (Street Light)
05 Dark (No Street Light)
88 Unknown

ROAD SURFACE CONDITION

01 Dry
02 Wet
03 Slippery
04 Icy
77 All Other (Explain In Narrative)

WEATHER

01 Clear
02 Cloudy
03 Rain
04 Fog
77 All Other (Explain In Narrative)

ROAD SURFACE TYPE

01 Slag/Gravel/Stone
02 Blacktop
03 Brick/Block
04 Concrete
05 Dirt
77 All Other (Explain In Narrative)

ROAD CONDITIONS AT TIME OF CRASH

01 No Defects
02 Obstruction With Warning
03 Obstruction Without Warning
04 Road Under Repair / Construction
05 Loose Surface Materials
06 Shoulders - Soft / Low / High
07 Holes / Ruts / Unsafe Paved Edge
08 Standing Water
09 Worn / Polished Road Surface
77 All Other (Explain In Narrative)

VISION OBSTRUCTED

01 Vision Not Obscured
02 Inclement Weather
03 Parked / Stopped Vehicle
04 Trees / Crops / Bushes
05 Load On Vehicle
06 Building / Fixed Object
07 Signs / Billboards
08 Fog
09 Smoke
10 Glare
77 All Other (Explain In Narrative)

TRAFFIC CONTROL

01 No Control
02 Special Speed Zone
03 Speed Control Sign
04 School Zone
05 Traffic Signal
06 Stop Sign
07 Yield Sign
08 Flashing Light
09 Railroad Signal
10 Officer / Guard / Flagperson
11 Posted No U-Turn
12 No Passing Zone
77 All Other (Explain In Narrative)

SITE LOCATION

01 Not At Intersection / RR X-ing / Bridge
02 At Intersection
03 Influenced By Intersection
04 Driveway Access
05 Railroad
06 Bridge
07 Entrance Ramp
08 Exit Ramp
09 Parking Lot - Public
10 Parking Lot - Private
11 Private Property
12 Toll Booth
13 Public Bus Stop Zone
77 All Other (Explain In Narrative)

TRAFFICWAY CHARACTER

01. Straight - Level
02. Straight - Upgrade / Downgrade
03. Curve - Level
04. Curve - Upgrade / Downgrade

TYPE SHOULDER

01. Paved
02. Unpaved
03. Curb

Violator(s)

SECTION #	NAME OF VIOLATOR	FL STATUTE NUMBER	CHARGE	CITATION NUMBER
SECTION #	NAME OF VIOLATOR	FL STATUTE NUMBER	CHARGE	CITATION NUMBER
SECTION #	NAME OF VIOLATOR	FL STATUTE NUMBER	CHARGE	CITATION NUMBER
SECTION #	NAME OF VIOLATOR	FL STATUTE NUMBER	CHARGE	CITATION NUMBER

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Figure 1-2