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EVALUATION OF 2005 CONNECTICUT CRASH DATA REPORTED TO THE 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 Connecticut.

MCMIS Crash File records were matched to the Connecticut Crash file to determine the nature and extent of underreporting. However, because the Connecticut crash file does not include much of the information necessary to identify the complete set of MCMIS-reportable records, a subset of records highly likely to be reportable were identified instead. The reporting rate for this subset was 31.7 percent.

For the subset, it appears that fatal involvements are more likely to be reported than nonfatal involvements, and large trucks were more likely to be reported than small trucks or buses.

Of the cases that were reported to the MCMIS Crash file, missing data rates are low for almost all variables, although were 100 percent for driver license class. Some inconsistencies between data reported to the MCMIS file and recorded in the Connecticut data were also noted. Vehicle type was inconsistent in about 21 percent of the cases. Other variables that could be compared were inconsistent only in a very small number of cases.

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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 selection criteria and crash severity threshold. FMCSA maintains the MCMIS file to support its mission to reduce crashes, injuries, and fatalities involving large trucks and buses. The file is essential to assess the magnitude and characteristics of motor carrier crashes, in order to design effective safety measures to prevent such crashes. The usefulness of the MCMIS Crash file depends upon individual states accurately and comprehensively 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 that was apparently due in large part to problems in interpreting and applying the reporting criteria. The problems were sometimes more severe in large jurisdictions and police departments. Each state also had problems specific to the nature of its own system. Some states also overreported cases, often because of technical problems with duplicate records. [See references 3 to 24.] The states are responsible for identifying and reporting qualifying crash involvements. Accordingly, responsibility for improved completeness and accuracy must ultimately reside with the individual states.

In this report, we focus on MCMIS Crash file reporting by the state of Connecticut. In recent years, Connecticut has reported from 1,000 to 1,430 involvements annually to the MCMIS Crash file. According to the 2002 Vehicle Inventory and Use Survey (the last available), in 2002, over 46,000 trucks were registered in the state of Connecticut, ranking 36th among the states and accounting for 0.9 percent of all truck registrations.[1] Connecticut is the 22nd largest state by population but generally ranks 39th 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 Connecticut was obtained for the most recent year available, 2005. This file was processed to identify all cases that qualified for reporting to the MCMIS Crash file.

2. All cases in the Connecticut 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 Connecticut.

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.

Evaluating Connecticut crash data presented unique problems that significantly limited the evaluation at each step. Many of the important variables required for the evaluation were not available in the Connecticut crash data. Needed variables not available include driver license number, vehicle license number, vehicle identification number (VIN), whether the vehicle was towed, whether it displayed a hazardous materials (hazmat) placard, and the agency that reported the crash. Contacts at the state Department of Transportation (DOT) indicated that the state system allows for these fields, but they are not captured from the police report. In Connecticut, each police agency (state police, local police, and sheriffs) has its own data system. The DOT is sent paper copies of the police reports and enters only a subset of the information on the police report. Moreover, the state does not enter crashes occurring on local roads, unless the crash resulted in a fatality or an injury. Reports with data on commercial motor vehicles (CMVs) are sent to the Department of Motor Vehicles Commercial Vehicle Safety Division.[1]

The limitations described in the previous paragraph significantly inhibit our ability to match Connecticut police reported crashes to the cases in the MCMIS Crash file, and to identify the cases that met the MCMIS reporting criteria. The specific effects of the limitations will be discussed in the appropriate places. However, here it is important to note that it was not possible to complete a full evaluation of Connecticut reporting to the crash file. We identify a set of cases that almost certainly should have been reported, and compare those cases with those that are actually reported.

2. Data Preparation

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

2.1 MCMIS Crash Data File

The 2005 MCMIS Crash file as of August 21, 2006 was used to identify records submitted from Connecticut. For calendar year 2005 there were 1,286 cases. An analysis file was constructed using all variables in the file. The file was then examined for duplicate records (those involvements where more than one record was submitted for the same vehicle in the same crash; i.e., the report number and sequence number were identical). Three such instances were found. Further examination showed that these pairs represented different accidents, vehicles and drivers. Likely, the same accident number was mistakenly assigned to both cases. Thus, all of these records were left in the file.

[1] Personal communication, Gene Interlandi, Connecticut Department of Transportation, July 17, 2007.

In addition, records were examined for identical values for accident date, time, crash county, crash city, officer badge number, vehicle license plate number, and driver license number, even though the case numbers were different. It is very unlikely that all of these variables would be identical between two different cases. A more likely explanation is that the records are both for the same crash. Two such duplicates were found, representing one unique occurrence of the examined variables. After closer examination, it appears that a second record was mistakenly added for vehicle 1, when a correction was being applied to the VIN. Other variables appear to have identical values. The record with the latest "Upload date" was kept, and the earlier one deleted, resulting in 1,285 unique records.

2.2 Connecticut Police Accident Report File

The Connecticut PAR data for 2005 (as of June 2007) was obtained from the state of Connecticut. The data were stored in one raw text file, representing Accident, Traffic Unit, and Person records. The large file was then processed into separate accident, unit, and person-level data files. The files contain records for 79,562 crashes involving 148,164 units (vehicles and pedestrians). Data for the PAR file are coded from the Connecticut Uniform Police Accident Report (form PR-1) completed by police officers.

The PAR file was examined first for duplicate records. A search for records with identical case numbers and vehicle numbers found no such instances. In addition, 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 105763 and 1-5763). Cases were examined also to identify duplicate records. Two cases would not be expected to be identical on most variables. To address this possibility, records were examined for duplicate occurrences based on the variables case number, accident date/time, crash city, road, driver date of birth, and vehicle type. Since many of the variables routinely used for identifying duplicate cases were not available in the Connecticut data, we were limited to using those mentioned above. It is possible, but unlikely, that two drivers in the same accident would have the same birth date. In addition, 79.5 percent of PAR cases have vehicle type of "Automobile," so in many cases this variable would not distinguish one vehicle from another.

Using the above method, a total of 218 duplicate instances were found, representing 109 unique occurrences of the examined variables. Further examination of the pairs showed that a few vehicle-specific variables contained different values among pair members, so these may not be duplicate records in fact. Perhaps both drivers within the same accident were mistakenly assigned the same birth date. Because we did not have enough evidence that these were duplicate records, we did not exclude them from the PAR file.

3. Matching Process

The next step involved matching records from the Connecticut PAR file to corresponding records from the MCMIS file. After removing the duplicate MCMIS case, there were 1,285 Connecticut records from the MCMIS file available for matching, and 148,164 records from the Connecticut PAR file. All records from the Connecticut 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 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. The goal is to match the record for a case in one file with the record for the case in the other file. Case Number, which is the identifier used to uniquely identify a crash in the Connecticut PAR data, and Report Number in the MCMIS Crash file, are obvious first choices. However, there appeared to be no correspondence between the two numbers. For example, Connecticut case number 973118 was found to match MCMIS Crash report number CTG05-030239. Report number in the MCMIS Crash file is supposed to be "the number that identifies the police crash report," so it should be correspond to the Connecticut crash report number. But since it does not, it could not be used in the match.

Since crash report number could not be used, combinations of other variables were sought that would identify specific vehicles involved in a crash at specific times and locations. Other variables typically available for 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. Since Crash County and Officer ID were not present in the Connecticut PAR data, they could not be used. In addition, Crash Street in the MCMIS file did not readily match Road Number in the PAR data.

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. Of these, only Driver Date of Birth was present in the PAR file. It was unrecorded 5.0 percent of the time in the PAR data and was unknown in 0.9 percent of MCMIS cases. In addition to Driver Date of Birth, the PAR Vehicle Type variable was used in the match, since it was the only other plausible PAR variable that could possibly distinguish one vehicle from another within the same crash. To make the variables consistent prior to the match, the MCMIS Vehicle Configuration variable was recoded into values corresponding to the PAR Vehicle Type.

Since many of the common match variables were not available in the Connecticut PAR data, we were limited to using those mentioned above. Although it is unlikely, two drivers in the same accident could have the same birth date, as well as identical vehicle types. Thus, these MCMIS cases could possibly be matched to the incorrect PAR record.

Four separate matches were performed 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 crash date (month, day), crash time (hour, minute), crash city, driver date of birth, and vehicle type. The second match step dropped vehicle type, but retained the other variables. The third match step matched on crash date, time, driver date of birth and vehicle type, dropping city. After some experimentation, the fourth match included variables crash month, day, city, and driver date of birth. This process resulted in matching 81.6 percent of the MCMIS records to the PAR file. This rate is significantly below the more typical rate of 94 to 98 percent. There were 237 records in the MCMIS Crash file that could not be matched to the corresponding crash in the Connecticut police reported data.

Table 1 presents the variables used in each match step along with the number of records matched at each step.

Table 1 Steps in MCMIS/Connecticut PAR File Match, 2005

Step	Matching variables	Cases matched
Match 1	Crash date, crash time, crash city, driver date of birth, and vehicle type	737
Match 2	Crash date, crash time, crash city, and driver date of birth	248
Match 3	Crash date, crash time, driver date of birth, and vehicle type	44
Match 4	Crash date, crash city, and driver date of birth	19
Total cases matched		1,048

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 1,048 matches, representing 81.6 percent of the 1,285 non-duplicate records reported to MCMIS.

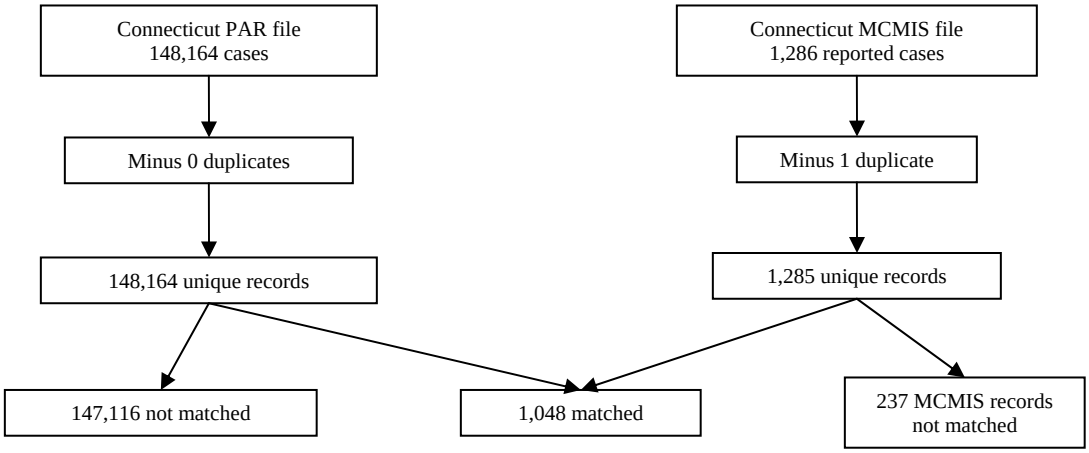


Figure 1 Case Flow in MCMIS/Connecticut Crash File Match

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 Connecticut 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 Connecticut. Limitations of the Connecticut data also significantly hindered the effort to identify reportable records. Table 2 shows the MCMIS reporting criteria as they apply to vehicle type and crash severity. Because certain variables, mainly whether a vehicle was towed due to damage and whether an injured person was transported for medical attention, are not available, it is not possible to identify reportable cases cleanly. We developed a means to identify some cases that are almost certainly reportable (such as fatal crashes of tractor-semitrailers) but crashes where it is necessary to know if a vehicle was towed or an injured person transported could not be identified with any certainty.

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.

Connecticut relies in the first instance on the reporting police officer to recognize that a qualifying vehicle was involved in a qualifying crash and then to collect the appropriate information. The Connecticut Uniform Police Accident Report includes shaded areas and boxes for carrier name, address, DOT number, hazmat information, and other data that is reported to the MCMIS Crash file. The form itself does not include any guidance as to when to complete the shaded area, but there are instructions in the *Investigator's Guide* and a coding guide card used to fill out the accident report. The instruction manual provides the following instructions for determining when to complete the shaded areas:

> "Report only that data relative to a QUALIFYING VEHICLE involved in a QUALIFYING ACCIDENT
> DEFINITIONS:
>
> QUALIFYING VEHICLE
> - Any motor vehicle displaying a hazardous material placard, or
> - Any motor vehicle equipped for carrying property and having at least two axles and six tires, or
> - Any motor vehicle designed to transport more than fifteen persons including the driver.
>
> QUALIFYING ACCIDENT
> - Any accident that involves a QUALIFYING VEHICLE and which results in one of the following:
>   - Fatality to any person or
>   - injury to any person that requires immediate medical treatment away from the accident site, or
>   - Disablement of any vehicle as a result of damage sustained in the accident.
>
> Once that it has been determined that a qualifying vehicle(s) has been involved in a qualifying accident, the data pertinent to the qualifying vehicle(s) only will be entered into the spaces provided in the shaded areas."[2]

[2] *Investigator's Guide for Completing the Uniform Police Accident Report Form*. Connecticut Department of Transportation, 1994.

These instructions were accurate according to the original reporting criteria, but in 1999 the qualifications for reportable vehicle types were changed to those shown in Table 2. The two-axle six tire qualification in the Connecticut instructions is reasonably close to the MCMIS Crash file criteria of a GVWR or GCWR over 10,000 pounds, but the bus size requirement of seating for at least nine, including the driver, is a significant change from the 15 passenger threshold.

Police officers are also supplied with a coding card for use in filling out the Connecticut accident report. On the back of the coding card guide, the rules for identifying qualifying vehicles and qualifying accidents are accurately reproduced. So, while the instruction manual has not been updated, the coding card supplies the officer with the current criteria for filling in the CMV section. Presumably officers are instructed to use the coding card and disregard the manual on this point.

But the most important point here is that the officer must recognize a reportable case, both as to vehicles and as to crash severity, to fill out the shaded areas on the crash report and thus initiate the sequence that results in a case being reported to the MCMIS Crash file.

Because of the limited variables captured in the state-wide computerized record of all police reported crashes, it is not possible to reproduce the MCMIS reporting criteria in the data and thus identify reportable crashes. There are limitations with respect to both vehicle type and crash severity. We will discuss then the reasons why it is not possible to identify reportable cases with reasonable certainty.

The vehicle type variable on the Connecticut crash report includes several types that, on their face, clearly meet the vehicle reporting criteria. These include school bus, commercial bus, single-unit truck [SUT] (2 axle, 6 tire), SUT (3 or more axles), truck tractor only, tractor semi-trailer [sic], tractor double trailers, and tractor triple trailers. Some of the other vehicle types may include vehicles that meet the reporting threshold, but there is no other information to establish this. For example, there is a code level for passenger van, which might include nine-passenger buses, but might just as readily include smaller vans such as minivans or other vans that do not meet the minimum seating requirement. The *Investigator's Guide* offers no guidance on this point. There is also a code for truck-trailer combination, which probably includes reportable straight trucks pulling trailers—and there is no other plausible code for that combination—but it also includes lighter vehicles pulling trailers. The *Investigator's Guide* does include a definition for this code level:

> Common truck trailer combinations include a pick up (Single Unit) truck pulling a small trailer such as: a boat trailer; a camp trailer; a landscape trailer; a utility trailer; etc. Another common truck trailer combination includes a dump truck hauling a trailer with heavy construction equipment. (page 6)

Pickup trucks primarily will not qualify for reporting, and there is no way to identify pickups otherwise. Since the code level probably includes many non-reportable vehicles and since there are no other variables to identify the light duty vehicles, we did not include truck trailer combinations in the set of vehicles that are reasonably certain to meet the MCMIS reporting criteria.

Table 3 Vehicle Body Style Codes Used to Identify Qualifying Vehicles on Connecticut Accident Report

School bus
Commercial Bus
Single Unit Truck (2 axle, 6 tire)
Single Unit Truck (3 or more Axles)
Truck Tractor Only
Tractor Semi-trailer
Tractor Double Trailers
Tractor Triple Trailers

The vehicle types identified in Table 3 almost certainly meet the vehicle type criteria for the MCMIS file. There are likely some other code levels that include reportable cases, but it is not possible to separate them from the others that do not qualify.

Reproducing the crash severity threshold in the Connecticut data was significantly more difficult. Identifying cases that include a fatality is not a problem, since the Person file includes an injury severity code and fatalities are readily found. However, there is no information that identifies injured persons transported for treatment. Again, the injury severity variable identifies injured persons, but there is no way to tell if the person was transported for treatment. With respect to crashes in which a vehicle was towed due to disabling damage, there is no tow information whatsoever in the coded data. The reporting officer can check a box on the accident report to indicate towed due to damage, but that is not captured in the coded data so there is no way to determine which crashes included a towed vehicle and which did not.

Lacking both a way to identify crashes in which an injured person was transported for immediate medical attention and as well as a way to identify crashes in which a vehicle was towed due to damage produces a quandary. Without such information, it is not possible to identify definitively reportable crashes. Thus, it is not possible to measure directly the reporting rate for qualifying crashes, and provide a full evaluation of the factors affecting reporting.

However, there is an intermediate point that may shed some light on the state of reporting to the MCMIS Crash file from Connecticut, and that is to limit the consideration just to those cases that have a very high probability of reporting. In the case of qualifying vehicles, Table 3 above and the associated discussion arguably identifies a subset of the vehicles that should all qualify, if they are accurately identified.

A similar subset can be identified with respect to crash severity, that is, a set of cases that almost certainly meet the crash severity criteria. Obviously, all crashes involving qualifying vehicles with a fatality are reportable. Transportation for medical attention is not relevant to these cases, nor does it matter whether a vehicle was towed or not. But analysis of data from other files also indicates that crashes with A-injuries or B-injuries are *almost* always reportable, either because someone was transported for treatment or because a vehicle was sufficiently damaged to require towing. And the Connecticut data can be used to determine the most severe injury in the crash, in terms of A, B, C, or no injury.

We examined six years of crash data reported in the National Automotive Sample Survey General Estimates System (NASS GES or just GES) files to determine the proportion of crashes in which either a person is transported for treatment or a vehicle towed due to disabling damage for each level of maximum injury severity in a crash. Table 4 shows the percentage of crash involvements of trucks and buses with respect to the MCMIS crash severity thresholds by the most severe injury in the crash. All fatal involvements are reportable, and the table shows that 100 percent of the cases where the most severe injury was a fatality meet the MCMIS fatal reporting threshold. More interesting are the proportions for the non-fatal injuries. Note that 95.5 percent of the cases in which the maximum injury severity was an incapacitating injury (A-injury) were in the injury/transported group and an additional 3.3 percent met the tow/disabled criteria. So, overall, 98.8 percent of truck and bus involvements in which the most severe injury was an A injury met at least one of the MCMIS crash severity reporting criteria. For non-incapacitating (B) injuries, 89.9 percent (67.3 + 22.6) are reportable. A majority of involvements are reportable even where the most severe injury is a possible (C) injury, with 69.6 percent meeting either the injury/transported or tow/disabled criteria. Where no injury occurred, only 18.5 percent were reportable, almost all because of the tow/disabled requirement.

Table 4 Distribution of MCMIS Reporting Threshold by Most Severe Injury in Crash, GES 2000-2005

Maximum injury severity in crash	MCMIS Reporting Threshold				Total
	Fatal	Injury/ transported	Tow/ disabled	Non-reportable	
Fatal (K)	100.0	0.0	0.0	0.0	100.0
Incapacitating (A)	0.0	95.5	3.3	1.2	100.0
Nonincapacitating (B)	0.0	67.3	22.6	10.1	100.0
Possible (C)	0.0	45.5	24.1	30.4	100.0
None	0.0	0.1	18.4	81.5	100.0

Based on Table 4, it was determined that crashes in which the most severe injury was either a fatality, an incapacitating injury, or a non-incapacitating but evident injury—K, A, or B injuries—identify a subset of crashes that have a high probability of meeting the MCMIS Crash severity criteria. Just as in the case of the restricted set of vehicle types discussed above, K, A, or B crashes do not identify all the MCMIS-qualifying crashes, but almost all crashes that fall into one of those categories meet the severity threshold. Using the GES data, it can be estimated that about 94 percent of crashes involving either a fatal, A-injury, or B-injury meet the MCMIS Crash severity threshold. However, the K, A, or B crashes only account for about one-third of all involvements that meet the MCMIS severity threshold. Thus, the K, A, or B involvements can be reasonably identified as reportable, even though we do not have information on whether an injured person was transported for treatment or a vehicle was towed because it was disabled. On the other hand, the K, A, or B involvements identify only a small percentage of the full population of reportable involvements.

Taking just cases that almost certainly qualify as reportable—because the vehicle very likely qualifies and the crash severity also very likely meets the MCMIS Crash threshold—identifies 477 involvements as reportable with a reasonable degree of confidence. Table 5 tabulates the

vehicles in the 2005 Connecticut police-reported crash data by vehicle type and most severe injury in the crash. The cells in which the frequencies have been underlined indicate the subset of cases which we can be reasonably sure are reportable. There are no doubt qualifying vehicles in the "other" column, but it is not possible to determine which with any confidence. Similarly, some of the involvements where the most severe injury was a possible or no injury also qualify. In fact, based on the GES estimate, it is likely that about 70 percent of the C-injury involvements qualify. But there is no way to determine which 70 percent.

Table 5 Vehicle Type by Maximum Injury Severity in Crash
Connecticut 2005 Police Reported Data

Maximum injury severity in crash	Vehicle type			Total
	Truck	Bus	Other	
Fatal (K)	21	5	437	463
Incapacitating (A)	61	20	3,528	3,609
Nonincapacitating (B)	315	55	13,996	14,366
Possible (C)	893	214	37,316	38,423
None	4,045	479	86,747	91,271
Unknown	4	0	265	269
Total	5,339	773	142,289	148,401

Thus, we identify 477 cases that almost certainly should have been reported. As noted above, a total of 1,285 records were reported in 2005 from Connecticut to the MCMIS Crash file. Of these, 1,048 were matched back to the Connecticut PAR file, and 237 could not be matched because of the limited information available in the Connecticut file. Table 6 lays out this somewhat complex situation. The rows distinguish cases by whether they fall into the set of cases highly likely to be reportable or not. The 477 cases identified in Table 5 appear here as cases highly likely to be reportable. The columns identify whether the case was reported to the MCMIS Crash file, based on the results of the effort to match MCMIS cases to the Connecticut PAR data. Unfortunately, there were 237 cases that could not be matched, because of insufficient information. These 237 cases very likely appear in one of the cells, but it is not possible to know which one, so it is necessary to leave them aside.

Table 6 Reporting for Most Likely Qualifying and Other Involvements
Connecticut 2005

Highly likely to be reportable?	Reported to MCMIS	Not Reported	Total
No	897	146,790	147,687
Yes	151	326	477
Total	1,048*	147,116	148,164

* Note: An additional 237 cases in MCMIS file could not be matched to the Connecticut data.

Table 6 also shows that there were 897 cases reported to the MCMIS Crash file that did not fall into the group of cases identified as highly likely to be reported. Most of these cases were identified as a qualifying vehicle, but the most severe injury in the crash was either a C injury or no injury. In fact, 738 of the 897 were qualifying vehicles, but there was no way of knowing whether the crash met the MCMIS severity threshold. The other 157 cases in this group were mainly automobiles (23 cases) or truck/trailer combinations (115).

It is possible that some fraction of the 897 truly met the MCMIS Crash file criteria, but there is no way of telling with any certainty. It is equally possible that some portion of the 146,790 cases not reported to the MCMIS Crash file actually were qualifying cases, but this equally cannot be determined with any confidence.

However, we would argue that the best representation available of MCMIS Crash file reporting from Connecticut are the 477 cases that fall into categories that almost certainly meet the reporting thresholds. These are qualifying vehicles in qualifying crashes. Of the 477 qualifying involvements, 151 or 31.7 percent, were reported. On the other hand, if it was possible to match all the 237 cases in the MCMIS file that could not be matched, and they were all determined to be reportable, that would increase the number of reportable cases to 714 and the number of properly reported cases to 388, giving an upper bound to the reporting rate of 54.3 percent. In point of fact, however, it could be argued that the reporting rate is actually lower than 31.7 percent, since we are only considering the cases most likely to be clearly reportable.

5. Factors Associated with Reporting

In light of the range of problems discussed above, only a limited number of factors related to reporting rates can be considered: primarily crash severity and vehicle type. The tables in this section are limited just to the 477 cases determined to be highly likely to be reportable. These cases constitute only a fraction of the number of cases that would likely be identified if appropriate data were available. However, we would argue that these 477 cases are a telling subset, since they are cases that most obviously qualify for reporting. The factors that are associated with correctly reporting these cases likely operate even more strongly for cases less obviously qualifying.

Table 7 shows the reporting rate by crash severity, as indicated by the most severe injury in the crash. Reporting rates vary by severity, with fatal involvements reported almost 54 percent of the time, but less severe involvements reported at a lower rate. Only 18.5 percent of A-injury involvements were reported, and only 33.0 percent of B-injury involvements. Since the "reportability" of the cases are not determined by the direct application of the reporting criteria, but only because the vehicles were involved in a fatal, A-, or B-injury crash, there may be some few of those identified as reportable here that in actual fact did not qualify for reporting. But this is likely only a few. All the fatal involvements clearly qualify and it is likely that about 98.8 percent of the A-injury crash involvements and 89.9 percent of the B-injury crash involvements are reportable. The most reasonable interpretation is that the cases are under-reported.

Table 7 Reporting Rate by Crash Severity
Connecticut 2005

Crash severity	Reportable	Reporting Rate	Unreported	% of total unreported
Fatal	26	53.8	12	3.7
A injury	81	18.5	66	20.2
B injury	370	33.0	248	76.1
Total	477	31.7	326	100.0

The data available also allow reporting rates to be estimated by vehicle type. Again, the estimate is just for those cases that are most likely to meet the reporting thresholds for the MCMIS Crash file. The results, displayed in Table 8, show that the vehicle types that most clearly fit the description of a large truck are the most likely to be reported, while smaller vehicles are reported at lower rates. Both tractor-semitrailers and tractor-double trailer combinations clearly fit the definition of a large truck. Tractor-semitrailers are reported at a 60.9 percent rate, while all three of the doubles combinations were reported. Note also that 48.1 percent of three-axle single-unit trucks (SUT) were reported, compared with only 9.5 percent of two-axle, six tire SUTs. Buses are reported at rates among the lowest. Only 12.8 percent of the reportable involvements of "commercial buses" were reported, and only 2.4 percent of school buses.

Table 8 Reporting Rate by Vehicle Type, Connecticut 2005

Vehicle type	Reportable	Reporting Rate	Unreported	% of total unreported
School bus	41	2.4	40	12.3
Commercial bus	39	12.8	34	10.4
SUT (2 axle, 6 tires)	179	9.5	162	49.7
SUT (3+ axles)	52	48.1	27	8.3
Truck/tractor only	2	100.0	0	0.0
Tractor semi-trailer	161	60.9	63	19.3
Tractor-double trailer	3	100.0	0	0.0
Total	477	31.7	326	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 rate 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 Connecticut crash data and in the MCMIS Crash file. Inconsistencies may indicate errors in translating information recorded on the crash report to the values in the MCMIS Crash file.

Table 9 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. US DOT number is missing for only 7.0 percent of cases for which the carrier was marked as engaged in interstate commerce. Driver license class is missing for all cases, and three of the four event variables are missing for 81.4 to 97.8 percent of cases, though this is not necessarily an indication of a problem, since most crashes consist of a single harmful event. Overall, rates of missing data are quite low for the cases reported.

Table 9 Missing Data Rates for Selected MCMIS Crash File Variables, Connecticut, 2005

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	0.0
Accident hour	0.0	Event one	0.2
Accident minute	0.0	Event two	81.4
County	0.3	Event three	92.6
Body type	0.1	Event four	97.8
Configuration	0.1	Number of vehicles	0.0
GVWR class	0.1	Road access	0.0
DOT number *	7.0	Road surface	0.0
Carrier state	0.0	Road trafficway	0.2
Citation issued	0.0	Towaway	0.0
Driver date of birth	0.9	Truck or bus	0.0
Driver license number	0.8	Vehicle license number	0.2
Driver license state	0.9	Vehicle license state	0.2
Driver license class	100.0	VIN	0.2
Driver license valid	0.0	Weather	0.0

* Based on cases where the carrier is coded interstate.

Hazardous materials variable	Percent unrecorded
Hazardous materials placard	97.4
Percentages of hazmat placarded vehicles only:	
Hazardous cargo release	87.9
Hazardous materials class (1-digit)	45.5
Hazardous materials class (4-digit)	0.0
Hazardous materials name	97.0

There were 33 vehicles recorded as displaying a hazmat placard. The table above shows information about the recording of hazmat variables only for those vehicles coded with a hazmat placard. The variable for hazmat placard was only coded for those with placards, i.e., there were no cases coded no. Hazmat cargo release was coded for only four cases (equally split between yes and no). The 1-digit hazmat class variable was unrecorded for all cases with a hazmat placard. The 4-digit hazardous materials class variables are unrecorded for all of the placarded vehicles, and the hazardous materials name was missing for 97.0 percent.

We also compared the values of variables in the MCMIS Crash file with the values of comparable variables in the Connecticut crash file where possible. The purpose of this comparison is to identify any differences that might indicate errors in translating variables from the values in the state crash file to the values required for Safetynet. The comparison could be made only for vehicle type, light condition, road surface condition, weather, and number of vehicles because only a limited number of variables are captured in the state data. All reported and matched records were used in the comparison, totaling 1,048 records, regardless of whether the case qualified for reporting as defined in this analysis.

Taken together, comparing how records were coded in the Connecticut crash file with the values for the same variables in the MCMIS Crash file did not indicate any systematic problems in preparing and transmitting the data through Safetynet. There were some inconsistent records in each of the variables compared, but the pattern did not suggest any systematic problem, that is, a problem that suggests a programming error.

The vehicle type variables showed the most inconsistency between the two files, with 21.9 percent of the matched records coded with incompatible vehicle types. Only cases in which the vehicle type was truly incompatible were counted as inconsistent; records in which vehicle type was left unknown in one file were not counted as inconsistent if a specific vehicle type was recorded in the other. However, a case recorded as a doubles combination in one file and a tractor-semitrailer in the other was counted as inconsistent.

The most common inconsistency between the two files was cases recorded as a truck trailer in the MCMIS Crash file, but as a tractor-semitrailer in the Connecticut PAR data. This error accounted for over three-quarters of the 230 cases found to be inconsistent. However, there were also sixteen cases coded as an automobile in the Connecticut data, and a tractor-semitrailer in the MCMIS Crash file. And although they were not counted as inconsistent, another twenty-six records were coded as a specific vehicle type in the Connecticut data, but as an unknown heavy vehicle in the MCMIS Crash file. The amount of inconsistency on this variable is high, particularly in comparison with other data in the Connecticut file, but the pattern does not appear to indicate a programming problem, since there is not a wholesale mistranslation. A more likely explanation is a data entry error or coder error, but this conclusion must be regarded as tentative. Moreover, it can be difficult to accurately discriminate truck trailer combinations and tractor-semitrailers without both experience and full information.

There were minor inconsistencies among some of the other variables examined. Only six cases differed on light condition. Only four cases differed on roadway surface condition, and only two on weather condition. The available code levels for these variables as collected on the Connecticut police crash report are entirely compatible with the variables in the MCMIS Crash file, so the most likely explanation for these few differences is a change to a record in one file

that was not repeated in the other file. The number of inconsistent cases was found to be greater for the variables counting the number of vehicles involved in the crash. Twenty-three cases, which is 2.2 percent of the cases compared, recorded a different number of vehicles. In most cases, the difference was only one vehicle. For example, there were ten cases in which the number of vehicles was coded as two in the Connecticut crash data, but only one in the MCMIS file.

7. Summary and Discussion

The usual evaluation of reporting to the MCMIS Crash file could not be accomplished for the Connecticut data, so the conclusions here have to be regarded as tentative, rather than definitive. The decentralized nature of the Connecticut data system does not support the usual analysis of reporting rates from a state. Only a portion of the information available on the police accident report is collected centrally. Each police agency has its own data system, operated for its own use. The Connecticut DOT is sent paper copies of the accident report and enters only the data it needs for its own immediate use. Reports that include information on CMVs are sent to the Department of Motor Vehicles Commercial Vehicle Safety Division, where the information is extracted and uploaded to the MCMIS Crash file. Because of this decentralized system, information that is crucial to identifying cases that meet the MCMIS Crash file criteria are not captured in the central system and so cannot be used to identify reportable cases.

A method was developed to accommodate the data limitations, and still provide a reasonable evaluation of crash reporting from Connecticut. While the full range of reportable cases could not be determined, it was possible to identify a subset of cases that would very likely be reportable, if all the needed data was available. This subset consists of large trucks and buses, as identified on the accident report, involved in a crash that included a fatality or a serious injury. Serious injuries were defined as either incapacitating or nonincapacitating but evident (A-injuries or B-injuries). All the fatalities are reportable by definition. Analysis of six years of GES data showed that almost 99 percent of A-injury crashes and almost 90 percent of B-injury crashes would qualify for the MCMIS reporting threshold since they include either an injury transported for immediate medical attention or a vehicle towed due to disabling damage.

The subset of cases that meet the criteria described in the previous paragraph clearly do not encompass all reportable cases, but virtually all of the cases in the subset should be reportable. Considering then the subset, only 31.7 percent of these cases were reported to the MCMIS Crash file. Only about 54 percent of the fatal involvements were reported, and reporting rates were lower for crash involvements with nonfatal injuries. With respect to vehicle type, the largest trucks, such as tractor-semitrailers and tractor-doubles combinations, were reported at relatively high rates, but smaller trucks (such as two-axle, six tire SUTs) were reported much less frequently, and buses at lower rates still.

It is likely that the nature of the Connecticut data system makes it difficult to approach comprehensive reporting. The Connecticut accident report form includes most of the information necessary to identify reportable cases (except for transportation for immediate medical attention). If the information on the police report were all extracted to an electronic data file, it would be possible to reliably identify most of the cases required for the MCMIS Crash file. Instead, it appears that reportable cases are determined manually and the required data also extracted manually. This approach puts a heavy burden on the groups tasked to review crash reports and

consistently and accurately identify reportable cases, just as there is also a heavy burden on the police officers to recognize the vehicles and crashes that meet the criteria and so fill in the shaded area on the crash report. Reliance on individuals at two points (when the officer reports the crash and when crash reports are sent to Commercial Vehicle Safety Division) to recognize the appropriate crashes and collect the appropriate data likely contributes to the apparently low reporting rates. A system in which the relevant data is collected on all crashes and then a computer algorithm is used to extract the correct cases would result in more accurate and complete reporting. However, in light of the decentralized Connecticut data system, it is not clear how this could be achieved.

8. References

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

2 Investigator's Guide for Completing the Uniform Police Accident Report Form, Connecticut Department of Transportation, 1994.

3 Blower, D., and Matteson, A., Evaluation of Missouri Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. January 2004. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

4 Blower, D., and Matteson, A., Evaluation of the Motor Carrier Management Information System Crash File, Phase One. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. March 2003. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

5 Blower, D., and Matteson, A., Patterns of MCMIS Crash File Underreporting in Ohio. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. August 2003. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

6 Blower, D., and Matteson, A., Evaluation of Michigan Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. September 2004. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

7 Blower, D., and Matteson, A., Evaluation of Florida Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. December 2004. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

8 Matteson, A., and Blower, D., Evaluation of California Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. February 2005. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

9 Green, P.E., and Blower, D., Evaluation of New Jersey Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. February 2005. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

10 Green, P.E., and Blower, D., Evaluation of New Mexico Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. July 2005. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

11 Matteson, A., and Blower, D., Evaluation of North Carolina Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. May 2005. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

12 Matteson, A., and Blower, D., Evaluation of Illinois Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. July 2005. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

13 Blower, D., and Matteson, A., Evaluation of Washington Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. June 2006. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

14 Blower, D., and Matteson, A., Evaluation of Iowa Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. August 2006. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

15 Blower, D., and Matteson, A., Evaluation of 2005 Missouri Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. September 2006. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

16 Green, P.E., and Matteson, A., Evaluation of Maryland Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. July 2006. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

17 Green, P.E., and Matteson, A., Evaluation of 2005 Ohio Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. December 2006. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

18 Blower, D., and Matteson, A., Evaluation of 2005 Louisiana Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. December 2006. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

19 Blower, D., and Matteson, A., Evaluation of 2005 Nebraska Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann

Arbor, Michigan. February 2007. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

20 Blower, D., and Matteson, A., Evaluation of 2005 South Dakota Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. March 2007. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

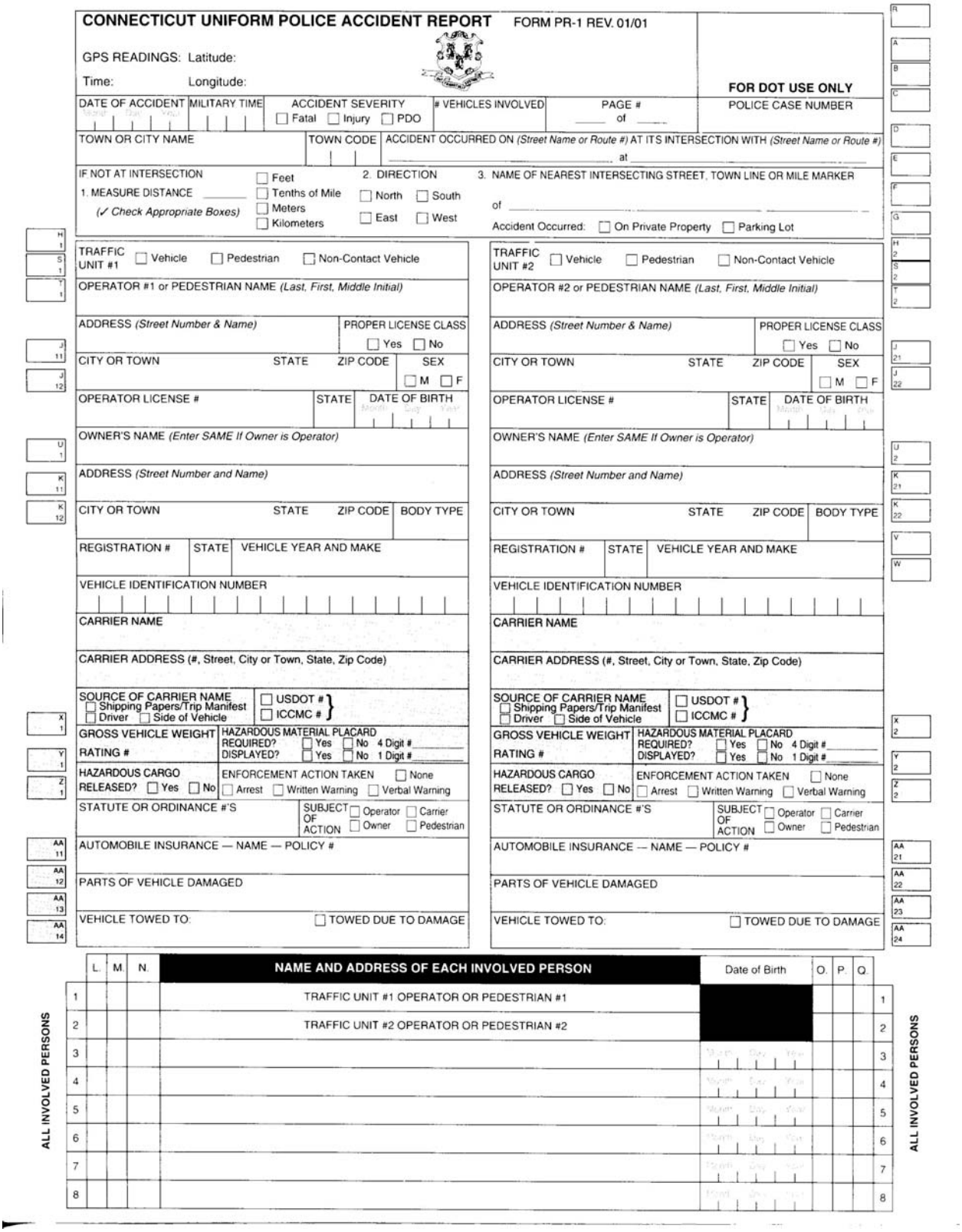
21 Blower, D., and Matteson, A., Evaluation of 2004 Tennessee Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. May 2007. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

22 Green, P.E., and Matteson, A., Evaluation of 2005 Arizona Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. June 2007. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

23 Blower, D., and Matteson, A., Evaluation of 2005 Pennsylvania Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. September 2007. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

24 Green, P.E., and Matteson, A., Evaluation of 2005 Indiana Crash Data Reported to MCMIS Crash File. University of Michigan Transportation Research Institute, Ann Arbor, Michigan. September 2007. Sponsor: Federal Motor Carrier Safety Administration, U.S. D.O.T.

Appendix A Connecticut Traffic Accident Reports



CONNECTICUT UNIFORM POLICE ACCIDENT REPORT FORM PR-1 REV. 01/01

GPS READINGS: Latitude: Time: Longitude:

FOR DOT USE ONLY

DATE OF ACCIDENT (Month Day Year) | MILITARY TIME | ACCIDENT SEVERITY ☐ Fatal ☐ Injury ☐ PDO | # VEHICLES INVOLVED | PAGE # ____ of ____ | POLICE CASE NUMBER

TOWN OR CITY NAME | TOWN CODE | ACCIDENT OCCURRED ON (Street Name or Route #) AT ITS INTERSECTION WITH (Street Name or Route #) ____ at ____

IF NOT AT INTERSECTION
1. MEASURE DISTANCE ____ (✓ Check Appropriate Boxes) ☐ Feet ☐ Tenths of Mile ☐ Meters ☐ Kilometers
2. DIRECTION ☐ North ☐ South ☐ East ☐ West
3. NAME OF NEAREST INTERSECTING STREET, TOWN LINE OR MILE MARKER of ____
Accident Occurred: ☐ On Private Property ☐ Parking Lot

TRAFFIC UNIT #1	TRAFFIC UNIT #2
☐ Vehicle ☐ Pedestrian ☐ Non-Contact Vehicle	☐ Vehicle ☐ Pedestrian ☐ Non-Contact Vehicle
OPERATOR #1 or PEDESTRIAN NAME (Last, First, Middle Initial)	OPERATOR #2 or PEDESTRIAN NAME (Last, First, Middle Initial)
ADDRESS (Street Number & Name) / PROPER LICENSE CLASS ☐ Yes ☐ No	ADDRESS (Street Number & Name) / PROPER LICENSE CLASS ☐ Yes ☐ No
CITY OR TOWN / STATE / ZIP CODE / SEX ☐ M ☐ F	CITY OR TOWN / STATE / ZIP CODE / SEX ☐ M ☐ F
OPERATOR LICENSE # / STATE / DATE OF BIRTH (Month Day Year)	OPERATOR LICENSE # / STATE / DATE OF BIRTH (Month Day Year)
OWNER'S NAME (Enter SAME If Owner is Operator)	OWNER'S NAME (Enter SAME If Owner is Operator)
ADDRESS (Street Number and Name)	ADDRESS (Street Number and Name)
CITY OR TOWN / STATE / ZIP CODE / BODY TYPE	CITY OR TOWN / STATE / ZIP CODE / BODY TYPE
REGISTRATION # / STATE / VEHICLE YEAR AND MAKE	REGISTRATION # / STATE / VEHICLE YEAR AND MAKE
VEHICLE IDENTIFICATION NUMBER	VEHICLE IDENTIFICATION NUMBER
CARRIER NAME	CARRIER NAME
CARRIER ADDRESS (#, Street, City or Town, State, Zip Code)	CARRIER ADDRESS (#, Street, City or Town, State, Zip Code)
SOURCE OF CARRIER NAME ☐ Shipping Papers/Trip Manifest ☐ Driver ☐ Side of Vehicle ☐ USDOT # ☐ ICCMC #	SOURCE OF CARRIER NAME ☐ Shipping Papers/Trip Manifest ☐ Driver ☐ Side of Vehicle ☐ USDOT # ☐ ICCMC #
GROSS VEHICLE WEIGHT RATING # / HAZARDOUS MATERIAL PLACARD REQUIRED? ☐ Yes ☐ No 4 Digit # DISPLAYED? ☐ Yes ☐ No 1 Digit #	GROSS VEHICLE WEIGHT RATING # / HAZARDOUS MATERIAL PLACARD REQUIRED? ☐ Yes ☐ No 4 Digit # DISPLAYED? ☐ Yes ☐ No 1 Digit #
HAZARDOUS CARGO RELEASED? ☐ Yes ☐ No / ENFORCEMENT ACTION TAKEN ☐ None ☐ Arrest ☐ Written Warning ☐ Verbal Warning	HAZARDOUS CARGO RELEASED? ☐ Yes ☐ No / ENFORCEMENT ACTION TAKEN ☐ None ☐ Arrest ☐ Written Warning ☐ Verbal Warning
STATUTE OR ORDINANCE #'S / SUBJECT OF ACTION ☐ Operator ☐ Carrier ☐ Owner ☐ Pedestrian	STATUTE OR ORDINANCE #'S / SUBJECT OF ACTION ☐ Operator ☐ Carrier ☐ Owner ☐ Pedestrian
AUTOMOBILE INSURANCE — NAME — POLICY #	AUTOMOBILE INSURANCE — NAME — POLICY #
PARTS OF VEHICLE DAMAGED	PARTS OF VEHICLE DAMAGED
VEHICLE TOWED TO: ☐ TOWED DUE TO DAMAGE	VEHICLE TOWED TO: ☐ TOWED DUE TO DAMAGE

ALL INVOLVED PERSONS

	L.	M.	N.	NAME AND ADDRESS OF EACH INVOLVED PERSON	Date of Birth	O.	P.	Q.	
1				TRAFFIC UNIT #1 OPERATOR OR PEDESTRIAN #1					1
2				TRAFFIC UNIT #2 OPERATOR OR PEDESTRIAN #2					2
3					(Month Day Year)				3
4					(Month Day Year)				4
5					(Month Day Year)				5
6					(Month Day Year)				6
7					(Month Day Year)				7
8					(Month Day Year)				8

ALL INVOLVED PERSONS

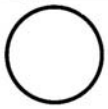
FORM PR-1

Page #_____ of _____

Police Case Number

ACCIDENT DIAGRAM

INDICATE NORTH



TRAFFIC UNIT # TRAVELING	TRAFFIC UNIT # TRAVELING
☐N ☐S ☐E ☐W ON _____	☐N ☐S ☐E ☐W ON _____

DAMAGE TO PROPERTY OTHER THAN INVOLVED VEHICLES

1. DESCRIBE THE NATURE AND EXTENT OF PROPERTY DAMAGE

NAME AND ADDRESS OF PROPERTY OWNER

2. DESCRIBE THE NATURE AND EXTENT OF PROPERTY DAMAGE

NAME AND ADDRESS OF PROPERTY OWNER

RANK AND SIGNATURE OF INVESTIGATING OFFICER	OFFICER ID#	POLICE AGENCY IDENTIFICATION	REPORT DATE	CASE STATUS OPEN ☐ CLOSED ☐	SUPERVISOR