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EVALUATION OF 2005 NEBRASKA CRASH DATA REPORTED TO MCMIS CRASH FILE

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16. Abstract

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

MCMIS Crash File records were matched to the Nebraska Crash file to determine the nature and extent of underreporting. Overall, it appears that Nebraska is reporting 86.8 percent of crash involvements that should be reported to the MCMIS Crash file. However, since Nebraska overwrites the vehicle type information on the main crash report with the configuration information from the truck/bus supplement, it is not possible to verify that all trucks and buses have been identified.

Reporting rates were linearly related to crash severity, with fatal involvements most likely to be reported, and tow/disabled crashes least likely. Reporting rates also varied by the type of investigation agency (state police, county, or city police).

Missing data rates are low for most variables, although were 100 percent for driver license class and GVWR class. It appears that the GVWR information is available but just not uploaded. Some inconsistencies between data reported to the MCMIS file and recorded in the Nebraska data were also noted.

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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.
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Evaluation of 2005 Nebraska Crash Data Reported to the MCMIS Crash File

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. It is essential to assess the magnitude and characteristics of motor carrier crashes to design effective safety measures to prevent such crashes. The usefulness of the MCMIS Crash file depends upon individual states transmitting a standard set of data items on all trucks and buses involved in traffic crashes that meet a specific severity threshold.

The present report is part of a series evaluating the completeness and accuracy of the data in the MCMIS Crash file. Previous reports on a number of states showed underreporting due in large part to problems police officers experience in interpreting and applying the reporting criteria. The problems were more severe in large jurisdictions and police departments. Each state also had problems specific to the nature of its system. Some states also had overreporting of cases, often due to technical problems with duplicate records. [See references 3 to 15.] The states are responsible for identifying and reporting qualifying crash involvements. Accordingly, improved completeness and accuracy must ultimately reside with the individual states.

In this report, we focus on MCMIS Crash file reporting by Nebraska. In recent years, Nebraska has reported from 1,100 to 1,650 involvements annually to the MCMIS Crash file. According to the 2002 Vehicle Inventory and Use Survey, Nebraska had almost 96,000 trucks registered, ranking 24th among the states and accounting for 1.8 percent of all truck registrations.[1] Nebraska is the 38th largest state by population and ranks 28th to 32nd 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) from Nebraska 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 Nebraska 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 Nebraska.

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

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

Police accident report (PAR) data recorded in Nebraska's statewide files as of September 8, 2006 were used in this analysis. The 2005 PAR file contains the computerized records of 91,840 vehicles involved in 56,424 crashes that occurred in Nebraska.

2. Data Preparation

The Nebraska PAR file and MCMIS Crash file each required some preparation before the Nebraska records in the MCMIS Crash file could be matched to the Nebraska PAR file. In the case of the MCMIS Crash file, the only processing necessary was to extract records reported from Nebraska and to eliminate duplicate records. The Nebraska PAR file required more extensive work to create a comprehensive vehicle-level file from accident, vehicle, 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 Nebraska. For calendar year 2005 Nebraska reported 1,075 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). No such duplicate pairs were found.

In addition, records were examined for identical values for accident date, time, crash county, officer badge number, vehicle license plate number, vehicle identification number (VIN), and driver date of birth, even though their case numbers were perhaps different. One would not expect all of these variables to be identical between two cases. Again, no such duplicate instances were found.

2.2 Nebraska Police Accident Report File

The Nebraska PAR data for 2005 (dated September 8, 2006) was obtained from the state of Nebraska. Data for the PAR file are coded from the Investigator's Motor Vehicle Accident Report (Nebraska Department of Roads) [2] completed by police officers. The data were contained in a set of seven text files, representing accident, vehicle, driver, injured occupant, non-motorist, truck and bus, and damaged object records. The combined files contain records for 56,424 crashes involving 91,840 vehicles.

The data files with the Nebraska police reported data contained the data in an unusual format. Typically, computerized crash data files, for variables other than names and the like, use numeric or less often alphabetic codes to identify the specific levels of a variable. Labels for those values are supplied separately. For example, in a variable such as weather, the data file would contain an integer value from one to some number, and the documentation would indicate that 1 corresponded to "no adverse conditions," 2 to "rain," 3 to "snow," and so on. However, the data from Nebraska actually stored the labels for the different levels of the variables, rather than a coded value. While this might be convenient for examination of individual records, it made aggregate data analysis very cumbersome. In order for the files to be analyzed efficiently, these long text fields were converted to numeric values, based on the values specified in the

accompanying file documentation. This step required extra time, but greatly added to the utility of the data files.

The PAR file was then examined 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 205012145 and 205-12145, for example). Cases were also examined to determine if there were any records that contained identical time, place and vehicle/driver variables, even though their case numbers were different. Two different crashes would not be expected to be identical on all variables. To investigate this possibility, records were examined for duplicate occurrences based on the variables for accident date, time, crash county, driver's date of birth, vehicle identification number (VIN), vehicle make, and vehicle model year. A total of 97 duplicate instances were found, representing 48 unique occurrences of the examined variables.

Duplicate pairs (or sometimes triplicates) were examined more closely to determine any patterns that might explain why they were occurring. In all cases, crash date, time, location, vehicle and driver variables were the same, but Accident Number differed. One explanation could be that a vehicle was involved in two accidents at the same place and virtually at the same time. Once crash events are stabilized, subsequent crashes are reported as new crashes. If a vehicle is reported as being in a second crash after the first one has stabilized, one would expect accident date, location, driver and vehicle information to be identical, but accident time to vary by a short interval. However, in the case of these records, accident hour and minute are identical, suggesting they are in fact duplicate records. Further examination of the records suggested that one record may have been an update to the other in the pair, since a few of the variables differed between the two cases.

The pairs identified above were considered to be duplicates and one (or more) member(s) of each pair was excluded. Since there was no variable indicating a date the record was updated or processed, the member of each pair with the lowest report number was excluded, resulting in deletion of 49 records. The resulting PAR file has records for 91,791 unique crashes.

3. Matching Process

The next step involved matching records from the Nebraska PAR file to corresponding records from the MCMIS file. After removing duplicates, there were 1,075 Nebraska records from the MCMIS file available for matching, and 91,791 records from the Nebraska PAR file. All records from the Nebraska 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. Accident Key, which is the identifier used to uniquely identify a crash in the Nebraska PAR data, and Report Number in the MCMIS Crash file, are obvious first choices. Indeed, there is a correspondence between the two numbers, and case number was never unrecorded in either file. Accident Key in the Nebraska PAR file is an eleven-digit numeric

value, while in the MCMIS Crash file, Report Number 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 is constructed as follows: The first two columns contain the state abbreviation (NE, in this case), followed by ten digits. Since nine of these digits were consistent with the PAR Accident Key, the last nine digits of the MCMIS Report Number were used to match the PAR Accident Key variable.

Other variables available for matching at the crash level include crash date, crash time (stored in military time as hour/minute), crash county and city.

Variables in the MCMIS file that distinguish one vehicle from another within the same crash include vehicle sequence number, vehicle license plate number, driver license number, vehicle identification number (VIN), driver date of birth, and driver last name. Vehicle license plate number, driver license number, and driver last name were not available in the PAR file, and vehicle sequence numbers did not match. However, VIN and driver date of birth were both included in the PAR file. VIN was unrecorded 8.8% of the time in PAR data and 1.2% of the time in MCMIS. Driver date of birth was unrecorded in 9.3% of PAR cases and in 0.7% of MCMIS cases.

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 case number, crash date (year, month, day), crash time (hour, minute), crash county, crash city, VIN, and driver's date of birth. The second match step dropped city, and retained the other variables. The third match step matched on case number, crash date, crash county, VIN, and driver's date of birth. The remaining cases were hand-matched, using all available variables in both files. This process resulted in matching 99.8% of the MCMIS records to the PAR file.

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

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

Step	Matching variables	Cases matched
Match 1	Case number, crash date, crash time, crash county, crash city, VIN, and driver's date of birth	373
Match 2	Case number, crash date, crash time, crash county, VIN, and driver's date of birth	651
Match 3	Case number, crash date, crash county, VIN, and driver's date of birth	27
Match 4	Hand-matched using all variables	22
Total cases matched		1,073

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 1,073 matches, representing 99.8% of the 1,075 non-duplicate records reported to MCMIS.

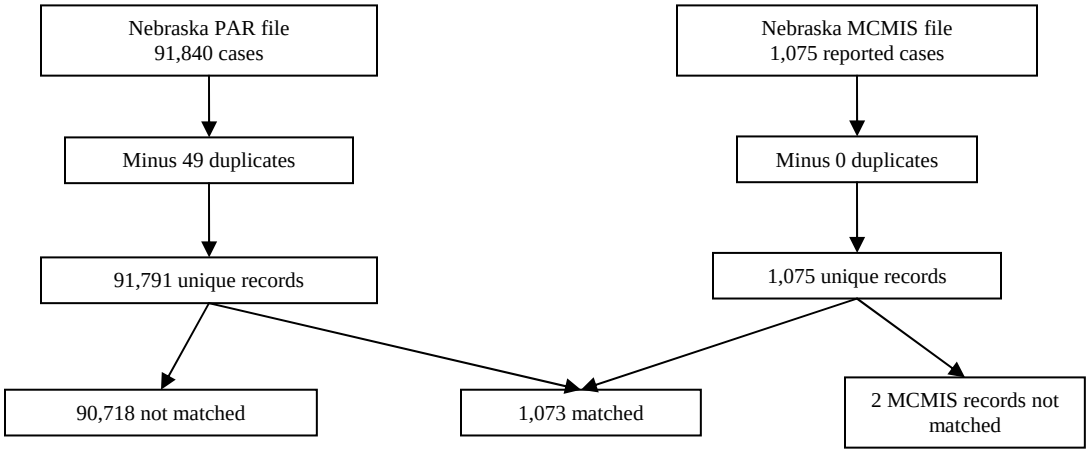

Figure 1 Case Flow in MCMIS/Nebraska Crash File Match

Of the 1,073 matched cases, 13 are not reportable and 1,060 are reportable. The 13 cases were valid trucks, but were not in qualifying accidents. 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 Nebraska 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 Nebraska. To identify reportable records, we use the information that is completed by the officers for all vehicles. That is, some police reports place certain data elements that are to be collected for the MCMIS file in a special section or supplemental form, with the instruction to the officer to complete that section if the vehicle and crash meets the MCMIS reporting criteria. But since our goal is to evaluate the completeness of reporting, we attempt to identify all reportable cases, even those an officer may have overlooked. For this purpose, we use the data that is completed for all cases. The goal of the selection process 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 are shown in Table 2.

Table 2 Vehicle and Crash Severity Threshold for MCMIS Crash File

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

The process of identifying reportable records, as set out in Table 2 above, is fairly straightforward in the Nebraska PAR file, because Nebraska crash data includes most of the variables and levels needed to identify reportable cases. Nebraska, like many other states, uses a Supplemental Truck and Bus Accident Report, DR Form 174, (Appendix C) that officers must complete if any of the involved vehicles meet a specified set of criteria. The crash report form itself, DR Form 40, has box labeled "continuation forms attached," and the officer can indicate that a truck/bus form was filled out. There is no instruction on the crash report form to guide the officer to the supplement. The instruction manual for the form states:

> This supplemental report must be completed in addition to the DR Form 40 (Investigator's Motor Vehicle Accident Report) for any:
>
> 1. Truck with a Gross Vehicle Weight Rating (GVWR) or Gross Combination Vehicle Weight Rating (GCVWR) of 10,001 pounds or more;
>
> 2. Vehicle displaying a hazardous materials placard; or
>
> 3. Bus designed to transport nine or more passengers, including the driver.

These criteria accurately reflect the MCMIS definition of a qualifying vehicle. Note, incidentally, that the criteria are from vehicles only, regardless of crash severity. The truck/bus supplement is to be filled out for all trucks, buses, and other vehicles transporting hazmat.

For purposes of this study, variables from the main DR Form 40, covering *all* vehicles are used to identify eligible vehicles. This, in theory, allows the identification of cases that should have been reported but were not. Data from the main form appear to have all the information needed to identify reportable cases, including vehicle type, injury severity, whether an injured person was transported for medical attention, and whether a vehicle was towed with disabling damage. Thus, at the outset it appeared that it would be possible to cleanly and reliably identify MCMIS-reportable cases in the Nebraska crash file. However, in the course of evaluating the data it was discovered that there is a feedback of data from the truck/bus supplemental form to the data from the main police report, the DR 40 form, that effectively prevents trucks and buses from being independently identified. In effect, the vehicle classification from the truck/bus supplement overwrites the vehicle body style data on the main form, so that only trucks and buses recorded on the supplemental form are recorded as such in the variable from the main form.

The Nebraska computerized DR 40 form crash file contains a variable that can be used to identify trucks and buses. Vehicle Body Style is a 33-level variable containing standard vehicle configuration codes. It is apparently recoded from the Body Style box on the PAR form, where the officer is instructed to write in a text description of the body style of the vehicle, such as "4-door sedan," "pickup truck," etc. It is likely that the texts from this field are classified centrally and categorized into the 33-level vehicle type classification. It is important to emphasize that the officer is not given a set of vehicle types to choose among, or even any guidance in what to record in the field, beyond the instruction to enter the body style, with five examples given. As a result, it is very likely that a great variety of "body styles" are entered on the forms, far beyond the 33 levels that appear in the coded data. Therefore, we conclude that at some point in the processing of the DR 40 forms, what the officer enters is re-classified into the 33-level variable that appears in the computerized data.

The vehicle classification system used by Nebraska includes codes that correspond almost exactly with the vehicle configuration variable in the MCMIS Crash file. (See Table 3). Accordingly, reportable vehicles were identified as all those assigned one of the body style codes displayed in Table 3. This procedure identified 3,194 eligible vehicles, representing 3.5% of all 91,791 vehicles in the Nebraska PAR file.

Table 3 Relevant Vehicle Body Style Codes on Nebraska Accident Report

Bus (seats 9-15 people)
Bus (seats 15+ people)
Haz mat light truck
Single-unit (10,001-26,000 GVWR)
Single-unit (26,000+ GVWR)
Truck with trailer
Truck tractor
Tractor/semi-trailer
Tractor/doubles
Tractor/triples
Unknown heavy truck

It is likely that during the process of categorizing the many different ways officers might describe a body style on the main form, the body styles from the DR Form 174 replace what the officer has written, if a supplemental report is filled out. Compelling evidence for this is that, of the 3,194 vehicles identified as trucks or buses, all but ten have a record in truck/bus supplemental data. In other states that use a supplemental form, we have never found that officers complete the forms on 99.7 percent of reportable vehicles.

UMTRI also obtains police reports on fatal truck or bus crashes reported through NHTSA's Fatality Analysis Reporting System, and when we reviewed a sample of 17 police reports from Nebraska, two did not have the supplemental form. It is possible that the form was filled out and that we simply were not copied on it. And it is also possible that after many years of experience

with the supplemental forms the officers routinely fill it out for the appropriate vehicles. But a 99.7 percent rate is very high when it comes to crash data collection.

About 7.3 percent of the 91,794 vehicles in the Nebraska crash file are coded as "unknown body style." Most of these (over 80 percent) are also coded "unknown" on make, but about 40 have makes that are typical of trucks or buses, such as Freightliner, Mack, Peterbilt, and Kenworth.

To summarize, the Nebraska data has a variable that appears to cleanly identify all trucks and buses that meet the MCMIS Crash file criteria. However, it appears that the truck and bus codes in the variable are taken from a supplemental report. It is possible that the report is filled out with very high accuracy, though the experience of other states is that supplemental truck/bus forms can be overlooked in the press of other duties. Because the vehicle type variable is overwritten with information from the supplement, it is not possible to independently verify that all trucks and buses are identified. The vehicle type variable is coded unknown in about 7.3 percent of vehicles and it is possible some qualifying vehicles are included. But absent some independent information, there is no way to know.

Having identified qualifying vehicles, the next step is to identify crashes of sufficient severity to qualify for reporting to the MCMIS Crash file. Qualifying crashes include either a fatality, an injury transported for immediate medical attention, or a vehicle towed from the scene due to disabling damage. Fatal crashes are readily identified. Whether a crash included an injured person transported for medical attention can also be determined.

The Nebraska PAR collects the information needed to identify crashes involving an injury transported for immediate medical attention. For each person involved in a motor vehicle crash, the officer records the severity of the injury (using the usual KABC0 scale) and a code for the source of transport if the person was transported to a medical facility. There is also a box to write in the name of the facility. Accordingly, to identify crashes in which an injured person was transported for medical attention, we took all crashes in which a person was injured and the Source of Transport field indicated "EMS," "Police," or the text "Transported". In addition we took cases if the Source of Transport field was coded as "Other," "Unknown," "Not Stated," or was missing, but the name of a valid medical facility was entered in the Medical Facility Name field.

The Nebraska crash data includes similar information on vehicles to identify crashes in which a vehicle was towed due to disabling damage. On the police report, the officer records a code for the disposition of the vehicle. The values for this variable distinguish vehicles towed due to damage and towed for some other reason, as well as vehicles driven away, or left at the scene. So this variable directly identifies vehicles towed due to damage. Independently, the officer records the severity of damage to the vehicle, and two levels indicate severity that results in towing. In one, the definition is explicit: "disabling damage (requires towing from scene)" and the other is "severe/vehicle totaled." There are also text boxes on the form in which the officer can write who towed the vehicle and where it was towed, but those data were not supplied for this evaluation. Instead, we used Vehicle Disposition and Damage Extent.

There were some apparent inconsistencies identified when comparing these fields. For example, there were 2,675 cases in which a vehicle was <u>not</u> coded towed due to disabling damage, but the

damage extent was either “disabling damage (requires towing from scene” or “vehicle totaled.” It was decided that these vehicles with extensive damage would likely have been towed due to that damage. Thus, a vehicle was considered towed due to disabling damage if Vehicle Disposition was “Towed – due to damages” or Damage Extent was “Disabling damage (requires towing)” or “Severe/vehicle totaled.”

Implementing the eligible vehicle and crash severity filters identified a total of 1,221 reportable cases in the Nebraska crash data in 2005. There were 1,221 vehicles—either a truck, bus, or vehicle transporting hazmat—involved in a crash that included either a fatality, at least one person transported for immediate medical attention, or at least one vehicle towed due to disabling damage.

Table 4 Reportable Records in Nebraska Crash File, 2005

Crash type	Total	%
Fatal	48	3.9
Injury transported for treatment	450	36.9
Vehicle towed due to damage	723	59.2
Total	1,221	100.0

As Figure 1 above shows, there were 1,075 records reported to the MCMIS Crash file by Nebraska in 2005. Of these, 1,073 were matched to the Nebraska file, but 13 did not qualify for reporting, under the method developed to identify reportable cases discussed above. All of these cases did not qualify because they did not meet the crash severity criteria.

5. Factors Associated with Reporting

The process discussed in section 4 identified 1,221 crash involvements in the Nebraska crash report data from 2005 that qualified for reporting to the MCMIS Crash file. There were 1,075 records that actually were reported to the MCMIS Crash file, of which 1,073 were matched to the original record in the Nebraska crash file, and two could not be. Of the 1,073 matched, 1,060 actually qualified for reporting for an overall reporting rate of 86.8 percent. In other words, 86.8 percent of cases that could be identified as qualifying for reporting to the MCMIS Crash file, actually were reported.

In this section we discuss factors that are associated with the observed reporting rate. Recall that Nebraska, like many other states, uses a Supplemental Truck and Bus Accident Report that officers must complete if any of the involved vehicles meet a specified set of criteria. The criteria stated in the officer’s instruction manual accurately reflect the MCMIS definition of a qualifying vehicle. The supplemental form includes variables that are required to be reported to the MCMIS Crash file, such as carrier identification, gross vehicle weight rating (GVWR), vehicle configuration, cargo body type, and hazardous materials information. Thus, the officer is responsible for recognizing and filling out the supplemental form for all vehicles meeting the MCMIS vehicle type criteria.

Reporting rates varied by reporting criteria and the type of agency that investigated the crash, but in general, rates ranged within a narrow range. More severe crashes were more likely to be reported than less severe, crashes of large trucks more likely than small trucks, and crashes investigated by the State Police were more likely to be reported than those covered by local officers.

To begin with, it is clear that completing the supplemental form appears to be a necessary condition for reporting to the MCMIS Crash file. In the data sets provided by Nebraska for this analysis, information from the supplemental form was contained in a truck and bus file. There were 3,191 records in that file. All of the cases that were reported to the MCMIS file had a record in the supplemental file, except for the two cases that could not be matched to the Nebraska PAR file. Table 5 shows that of the 3,191 records in the supplemental file, 1,073 were reported to the MCMIS Crash file, and 2,118 were not. There was only one record that was determined to be reportable but which did not have a record in the supplement. There were two records that were reported for which we could not find a match in the supplemental data, but they may in fact have been in the supplemental data and just eluded our matching efforts, including the manual match.

Table 5 MCMIS Crash file reporting and completing the Nebraska Supplemental PAR form

Supp. form completed?	Reported		
	Yes	No, but reportable	No, not reportable
Yes	1,073	160	1,958
No	2*	1	88,600

* These cases could not be matched in the Nebraska PAR file, so they may in fact have a supplemental form.

For practical purposes, then, it appears that cases uploaded through SafetyNet to the MCMIS Crash file are selected exclusively from among those for which the reporting officer completed a supplemental form. Moreover, since the truck/bus form is supposed to be completed for all qualifying vehicles, without regard to whether the case passes the crash severity criteria, it appears there is a secondary selection to choose the cases to upload.

Table 6 shows reporting rates, the number of unreported cases, and the proportion of unreported cases for each level of the MCMIS crash severity criteria. Traffic crashes that resulted in a fatality were reported at the highest rate, with 100% of such crash involvements reported. However, the two less-severe levels of crash severity were reported at lower rates. Injury/transported involvements were reported at a 92.0 percent rate, while 82.7 percent of the towed due to damage involvements were reported. Clearly, more severe crash involvements are more likely to be reported than less severe, and the differences are statistically significant. Over three-quarters of the unreported cases are accounted for by towaway crashes. More severe crashes are more likely to be reported to the Crash file than less severe involvements.

Table 6 Reporting Rate by MCMIS Crash Severity, Nebraska 2005

MCMIS Crash Type	Reportable	Reporting rate	Unreported	% of total unreported
Fatal	48	100.0	0	0.0
Injury/transported	450	92.0	36	22.4
Towed due to damage	723	82.7	125	77.7
Total	1,221	86.8	161	100.0

One caution should be included at this point relating to the apparently complete reporting of fatal involvements. In 2005, there are 48 reportable fatal involvements, that is, where a truck or bus was involved in the crash, as identified in the Nebraska data. However, NHTSA's FARS file indicates a total of 55 trucks or buses involved in a fatal crash in Nebraska in 2005. Earlier, the question of how completely trucks and buses can be identified in the Nebraska data was discussed; the higher number of truck and bus fatal involvements in FARS is consistent with the possibility that there are additional trucks in the Nebraska file that cannot be identified, likely buried in the "unknown body type" category of the vehicle type variable.

Table 7 shows that reporting rates are associated with crash severity even with more finely-grained measures of severity. In this table, crash severity is measured by the most severe injury in the crash, using the KABC0 scale. The reporting rates show a fairly-consistent linear relationship with crash severity. The rates decrease with each gradation of crash severity, from the most severe (fatal) to the least severe. Note that there were 15 cases with a text entry in the crash severity field of "non-reportable." "Non-reportable" in this context means that the crash was recorded as not meeting the Nebraska police-reporting threshold of an injury, fatality, or $500 in property damage. Nonetheless, there was evidence that the crash met the MCMIS reporting threshold.

Table 7 Reporting Rate by Police-Reported Crash Severity, Nebraska 2005

Police-reported Crash Severity	Reportable	Reporting rate	Unreported	% of total unreported
Fatal injury	48	100.0	0	0.0
Severe injury	150	93.3	10	6.2
Moderate injury	213	91.6	18	11.2
Complaint of pain	257	88.7	29	18.0
No injury	499	82.2	89	55.3
Non-reportable	54	72.2	15	9.3
Total	1,221	86.8	161	100.0

Reporting also varied by the type of vehicle, though again, within fairly narrow bounds because the overall reporting rate was so high. Table 8 provides detail about vehicle type from the variable that classifies vehicles by the MCMIS configuration variable. Among all types of heavy

trucks the reporting rates do not vary greatly, ranging from 85.0% for doubles to 96.3% for truck tractors. There might be some tendency for larger trucks to be reported at a higher rate, but it is not marked. Tractor-semitrailers, the stereotypical "big truck," are reported at a 91.2 percent rate, which is higher than the overall rate, but the smaller single unit trucks (SUT (10-26K)) are reported at an almost identical rate. Only "unknown heavy truck" is reported at a practically significant lower rate, and that is likely because of missing data on other information.

Table 8 Reporting Rate by Police-Reported Vehicle Body Style, Nebraska 2005

Vehicle body style code	Reportable	Reporting rate	Unreported	% of total unreported
Light truck (hazmat)	1	100.0	0	0.0
Bus seats 9-15	21	90.5	2	1.2
Bus seats 15+	63	0.0	63	39.1
SUT (10-26K)	192	91.7	16	9.9
SUT (26K+)	307	94.5	17	10.6
Truck tractor	27	96.3	1	0.6
Truck, with trailer	81	87.7	10	6.2
Tractor, semitrailer	442	91.2	39	24.2
Tractor, doubles	20	85.0	3	1.9
Tractor, triples	3	100.0	0	0.0
Unk. heavy truck	64	84.4	10	6.2
Total	1,221	86.8	161	100.0

However, there is an anomaly in the reporting of buses. Smaller buses, with 9-15 seats, have a 90.5% reporting rate, but larger buses are not reported at all. This is quite the reverse of the usual observation, which is that larger buses tend to be reported at a higher rate than smaller ones. In this case, apparently small buses are reported at a very high rate and large buses not reported. There were 63 large buses, based on vehicle body style code, that were identified as reportable but which were not uploaded to the MCMIS Crash file.

Upon investigation, it appears that this anomaly is likely the product of a programming error. We compared the cargo body description from the supplemental data with the vehicle type information and found that the description was precisely reversed for buses. Table 9 below shows that all vehicles coded as small buses in vehicle type are coded as a large bus in the truck/bus supplement's cargo body variable, and vice versa. Although both bus categories qualify for MCMIS reporting, this confusion may be in part responsible for the 63 missed cases, which represent 39.1 percent of total cases not reported. Programming errors of this sort should be easily fixable.

Table 9 Comparison of Cargo Body vs. Vehicle Body Style for Bus Cases, Nebraska 2005

	Cargo body	
Vehicle body style	Bus (seats 9-15)	Bus (seats 15+)
Bus (seats 9-15)	0	21
Bus (seats 15+)	63	0
Total	63	21

There was also some difference in reporting rates by the license state of the vehicle. Here the theory is that reportable vehicles with out-of-state license may be more likely to be identified as falling within the domain of a national data file than one that is licensed only in-state. In-state vehicles were reported at a 84.6 percent rate, only slightly below the overall rate, but vehicles licensed outside of the state were reported at a 90.8 percent rate, a statistically significant difference, and one that might also have some practical significance. Reportable vehicles with an unknown license state have a much lower rate, possibly due to missing data on other variables. Overall the reporting rate is high, but there appears to be some tendency for in-state vehicles to be underreported.

Table 10 Reporting Rate by Vehicle License State, Nebraska 2005

License state	Reportable	Reporting rate	Unreported	% of total unreported
Nebraska	727	84.6	112	69.6
Other State	457	90.8	42	26.1
Unknown	37	81.1	7	4.3
Total	1,221	86.8	161	100.0

Reporting rates vary to some extent by the type of investigating agency. There are three primary levels of investigating agencies identified in the Nebraska crash file: State police, city police, and county sheriffs. If reporting rates depended critically on the training and responsibilities of the reporting officer, one would expect that reporting rates would vary by the type of investigating agency. The different levels of law enforcement have different sets of responsibilities. This is true to some extent in Nebraska, as city police have a reporting rate of 78.8 percent, compared with rates of approximately 92 percent for the other two agencies. Thus, it appears that the type of agency investigating has some bearing on reporting rates.

Table 11 Reporting Rate by Investigating Agency, Nebraska 2005

Investigating agency	Reportable	Reporting rate	Unreported	% of total unreported
NE State Patrol	317	92.7	23	14.3
County Sheriff	453	91.0	41	25.5
City Police	444	78.8	94	58.4
Other Agency	1	0.0	1	0.6
Not Investigated	6	66.7	2	1.2
Total	1,221	86.8	161	100.0

6. Data Quality of Reported Cases

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

Table 12 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. Missing data rates for some other variables are higher. Driver license class and GVWR class are missing for all cases, even though it is collected on the DR Form 174 and available in the Nebraska crash data. DOT number is not recorded for 8.6 percent of interstate cases. Three of the four event variables are missing for 77.5 to 96.0 percent of cases, though this is not necessarily an indication of a problem, since most crashes consist of a single impact.

Table 12 Missing Data Rates for Selected MCMIS Crash File Variables, Nebraska 2005

Variable	Percent unrecorded	Variable	Percent unrecorded
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	1.0	Event one	2.0
Accident minute	1.0	Event two	77.5
County	0.0	Event three	90.8
Body type	4.9	Event four	96.0
Configuration	0.0	Number of vehicles	0.0

Variable	Percent unrecorded	Variable	Percent unrecorded
GVWR class	100.0	Officer badge number	3.0
DOT number*	8.6	Road access	0.0
Carrier state	0.0	Road surface	0.0
Citation issued	0.6	Road trafficway	0.0
Driver date of birth	0.7	Towaway	0.0
Driver license number	1.9	Truck or bus	0.0
Driver license state	1.9	Vehicle license number	4.0
Driver license class	100.0	Vehicle license state	0.6
Driver license valid	0.6	VIN	1.2
Fatal injuries	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 hazmat placarded vehicles only:	
Hazardous cargo release	0.0
Hazardous materials class (1-digit)	20.0
Hazardous materials class (4-digit)	100.0
Hazardous materials name	20.0

There were 25 vehicles for which it was recorded that they displayed a hazmat placard. The table above shows information about the recording of hazmat variables only for those vehicles coded with a hazmat placard. Both the 1-digit hazardous materials class variable and the hazardous materials name are unrecorded for 20% of the placarded vehicles. The 4-digit hazardous materials name is missing for all 25 cases. But there was also one case (not shown) for which hazmat placard was coded “no” but with a valid hazmat name and 1-digit code,

We also compared the values of variables in the MCMIS Crash file with the values of comparable variables in the Nebraska crash file. The purpose of this comparison is to identify any errors in translating variables from the values in the state crash file to the values required for Safetynet. Nebraska has adopted in many instances the same code levels for certain variables as are used in the MCMIS Crash file.

Table 13 shows the coding of vehicles in the MCMIS Crash file and the record as it appears in the Nebraska Crash file. The consistency between coding in the two files is excellent, though as noted above this is likely because the truck/bus supplemental data overwrites vehicle body style in the Nebraska crash data. In any case, there is no systematic mismatch that indicates a problem in translating codes from one system to the other. Little translation is necessary because the

truck/bus supplement captures the precise configuration variable used by MCMIS. The shaded cells mark cases where the configuration is coded inconsistently between the two files. Only one case was inconsistent, given that the MCMIS Crash file has a specific code level for "light truck-only if displays HM placard"). Note, however, that there are no cases in either file where the code level is "Bus (seats>15, incl. dr)." These cases were not reported, as noted above.

Table 13 Vehicle Configuration in Nebraska and MCMIS Crash Files, 2005

Vehicle configuration		Cases	%
MCMIS Crash file	Nebraska Crash file		
Bus (seats 9-15, incl. dr.)	Bus seats 9-15 people	19	1.8
SUT, 2-axle, 6-tire	Haz mat light truck	1	0.1
	SUT (10K-26K)	176	16.6
SUT, 3+ axles	SUT (26+K)	290	27.4
Truck trailer	Truck with trailer	71	6.7
Truck tractor (bobtail)	Truck/tractor	26	2.5
Tractor/semitrailer	Tractor/semitrailer	403	38.0
Tractor/double	Tractor/doubles	17	1.6
Tractor/triple	Tractor/triples	3	0.3
Unknown heavy truck >10K	Unknown heavy truck	54	5.1
Total		1,060	100.0

There were minor inconsistencies among some of the other variables examined. Light condition was coded almost identically in the two files, with the exception of two levels. Table 14 compares the two files. All 23 cases coded as "dawn" in the Nebraska crash file were coded as "dark, not lighted" in the MCMIS file. Since the MCMIS light variable has a code level of "dawn," it appears that this is a simple translation problem that is easily corrected. In addition, there is one case coded "dawn/dusk" in the Nebraska file, but the DR Form 40 overlay does not include such a category, and it is mapped to "dawn" in the uploaded data.

Table 14 Light Condition in MCMIS Crash file and Nebraska Crash File

MCMIS Crash file	Nebraska Crash file	Frequency	Percent
Daylight	Daylight	783	73.9
Dark-not lighted	Dawn	23	2.2
Dark-not lighted	Dark-roadway not lit	148	14.0
Dark-lighted	Dark-lit roadway	69	6.5
Dark, unk. road lighting	Dark-unk. roadway lighting	1	0.1
Dawn	Dawn/Dusk	1	0.1
Dusk	Dusk	25	2.4
Unknown	Not stated	10	0.9
Total		1,060	100.0

The Nebraska DR Form 40 allows up to two weather conditions to be coded. Table 15 shows the detail for just those cases where there was some inconsistency. Note that there was no problem for 83.6 percent of the cases. It appears that the first weather condition is uploaded to the MCMIS Crash file, even if there is information in the second weather variable that might be more descriptive. For example, all cases coded “cloudy” in the Nebraska file are mapped to “rain” in the MCMIS file, even if the second weather variable indicates something other than rain, and an appropriate code existed in the MCMIS file. There were 144 cases coded cloudy with no second condition, all of which were uploaded as “rain.” “No adverse condition” might have been more appropriate for these cases. Additionally, “blowing sand, dirt” in the PAR file were assigned to the “other” MCMIS code, even though the appropriate code level exists in MCMIS.

Table 15 Weather Condition in MCMIS Crash file and Nebraska Crash file

MCMIS Crash file	Nebraska Crash file		N	%
	Weather 1	Weather 2		
No adverse conditions	Clear	Sleet, hail	1	0.1
Rain	Cloudy	Cloudy	9	0.8
Rain	Cloudy	Sleet, hail	3	0.3
Rain	Cloudy	Snow	3	0.3
Rain	Cloudy	Severe crosswinds	3	0.3
Rain	Cloudy	Blowing sand, dirt	3	0.3
Rain	Cloudy	Not stated	144	13.6
Other	Blowing sand, dirt	Sleet, hail	1	0.1
Other	Blowing sand, dirt	Snow	1	0.1
Other	Blowing sand, dirt	Severe crosswinds	5	0.5
Other	Blowing sand, dirt	Blowing sand, dirt	1	0.1
Other	Blowing sand, dirt	Not stated	4	0.4
Consistent between the two files			882	83.2
Total			1,060	100.0

Cargo Body was coded identically between the two files, except for the problem with buses noted above. There were 154 and 86 cases that were coded unknown on hazmat placard and hazmat released in the Nebraska crash file that were mapped to “no” in the MCMIS Crash file, though in both cases that decision is arguably appropriate. All other variables checked—including number of vehicles, number of fatalities, vehicle license state, and the four event variables—were entirely consistent.

7. Summary and Discussion

The evaluation of reporting to the MCMIS Crash file from Nebraska police-reported data presented some unusual difficulties. The apparent post-processing of the data to add the information from the truck/bus supplemental form to data derived from the primary crash report form it difficult to establish with reasonable certainty the completeness of crash reporting. Because it is not possible to identify reportable vehicles (trucks, buses, and light vehicles with a hazmat placard) independent of the information on the truck/bus supplemental form, it was not possible to know if reporting officers correctly identified all trucks and buses among the 91,840 vehicles involved in a traffic crash in Nebraska in 2005. This seems unlikely, so there may be some additional trucks and buses among the 7.3 percent of the vehicles that were coded unknown body type. Moreover, it was observed that NHTSA’s FARS file identified 55 trucks and buses in fatal crashes in the state in 2005, while only 48 were identified in the Nebraska crash data.

Thus, it is likely that the 86.8 percent reporting rate that was determined from the Nebraska data is somewhat high. FARS found 15 percent more fatal cases than were reported from Nebraska to

the MCMIS file. If there are also 15 percent more trucks in the other crash severities than can be identified in the crash data, the overall reporting rate would decrease to roughly 77 percent.

In Nebraska, the truck/bus supplemental form, DR Form 174, is supposed to be completed for all trucks, buses, and light vehicles transporting hazardous materials. The definition of the vehicles for which it is filled out matches the MCMIS Crash file vehicle type criteria precisely, but note that the form is to be completed for all qualifying vehicles, not just those that are involved in a MCMIS-reportable crash. This approach is different from other states that also use a supplemental form. Typically, the supplement is completed just for cases that meet both the vehicle and the crash severity thresholds, which puts the burden of identifying the right cases squarely on the reporting officer's shoulders. But in Nebraska, there must be a secondary filter at the state level. It has already been mentioned that the vehicle description from the supplement overwrites the vehicle body style information from the main form. At the same time, there must be a process that identifies cases that meet the crash severity threshold.

Reporting rates were found to vary by the severity of the crash, in a linear way. Fatal involvements were more likely to be reported than injury involvements, and injury more likely than towaway cases. This linear relationship also existed when a more fine-grained crash severity was examined. This pattern is consistent with the hypothesis that the process used to identify crashes for reporting more readily selects serious crashes than less serious, but still qualifying, crashes. If the selection was done through the application of a computer algorithm, one would not expect to see reporting rates vary in this way. Instead, categories of cases either would, or would not, be reported. There might be a different rate for fatal involvements, which are often given special attention (which is why they are generally reported at a high rate), but not the sort of gradual changes in probability with small changes in severity.

Reporting rates did not vary much by the type of vehicle, which may be a result of the way truck/bus information flows to the main crash form, but they did, somewhat, by whether a vehicle was licensed in-state and by the type of agency that originated the crash report. Out-of-state vehicles were reported at a higher rate than in-state vehicles, and vehicles whose state of registration (as indicated by licensing) was unknown were reported at the lowest rates of all. But both in-state and out-of-state trucks were reported at a reasonably high rate, so while the effect is real, it does not explain the overall reporting rate.

The Nebraska police report is well-structured, with one exception, to capture all the information needed to reliably identify cases that should be reported to the MCMIS Crash file. That vehicle type is recorded on the main form as a text string, rather than supplying the officer with a limited but comprehensive list of vehicle types to choose from, complicates the task of identifying trucks and buses. Feeding back the configuration code from the supplement to overwrite the vehicle type string makes it more difficult to find any vehicles that might have been overlooked. On the other hand, Nebraska captures all the data needed to identify crashes by severity, including both information on whether injured persons were transported for treatment, and vehicles towed due to disabling damage.

In terms of data quality issues, rates of missing data were very low for most variables. GVWR class is missing for all cases, though it is collected and available in the Nebraska crash file. There are some inconsistencies in certain variables—weather and light condition—between the value

reported in the Nebraska data and the value reported to MCMIS. In addition, there is a problem with the reporting of buses. Bus type (large vs. small) is reversed between the vehicle type variable and the cargo body variable in the Nebraska crash file data and no large buses are being reported to the MCMIS file. These are likely programming errors and thus readily remedied.

The larger issue is the problem of identifying reportable vehicles in a verifiable way. Nebraska is probably reporting cases to the MCMIS Crash file at an above-average rate. It appears that all the information is available to select cases for reporting using a computer algorithm. Changes in the way vehicle type is captured on the main crash report could facilitate further improvement.

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Appendix A Selection Algorithm to Identify Reportable Records

Selection algorithm used in selecting vehicles that meet MCMIS vehicle type criteria:

Variable name	Definition
veh_body	Vehicle body style

```
Vehicle type (veh_type) definition

 1='truck'
 2='bus'
 3='hazmat'
 8='other';

 if veh_body in (23,24,27,28,29,30,31,33) then veh_type=1;
 else if veh_body in (1,2) then veh_type=2;
 else if veh_body in (12) then veh_type=3;
 else veh_type=8;
```

Selection algorithm used in selecting injured/transported cases:

Variable name	Definition
Per_inj_sev	Person injury severity
Pertrans	Person transported
Goodhosp	Valid hospital name

```
Injured/transported (injtrans) definition

      1 = injured and transported for immediate medical attention
      0 = not injured/transported

if per_inj_sev in (2,3,4) and ((pertrans in (2,3,6)) or (goodhosp=1)) then
injtrans=1;
else injtrans=0;
```

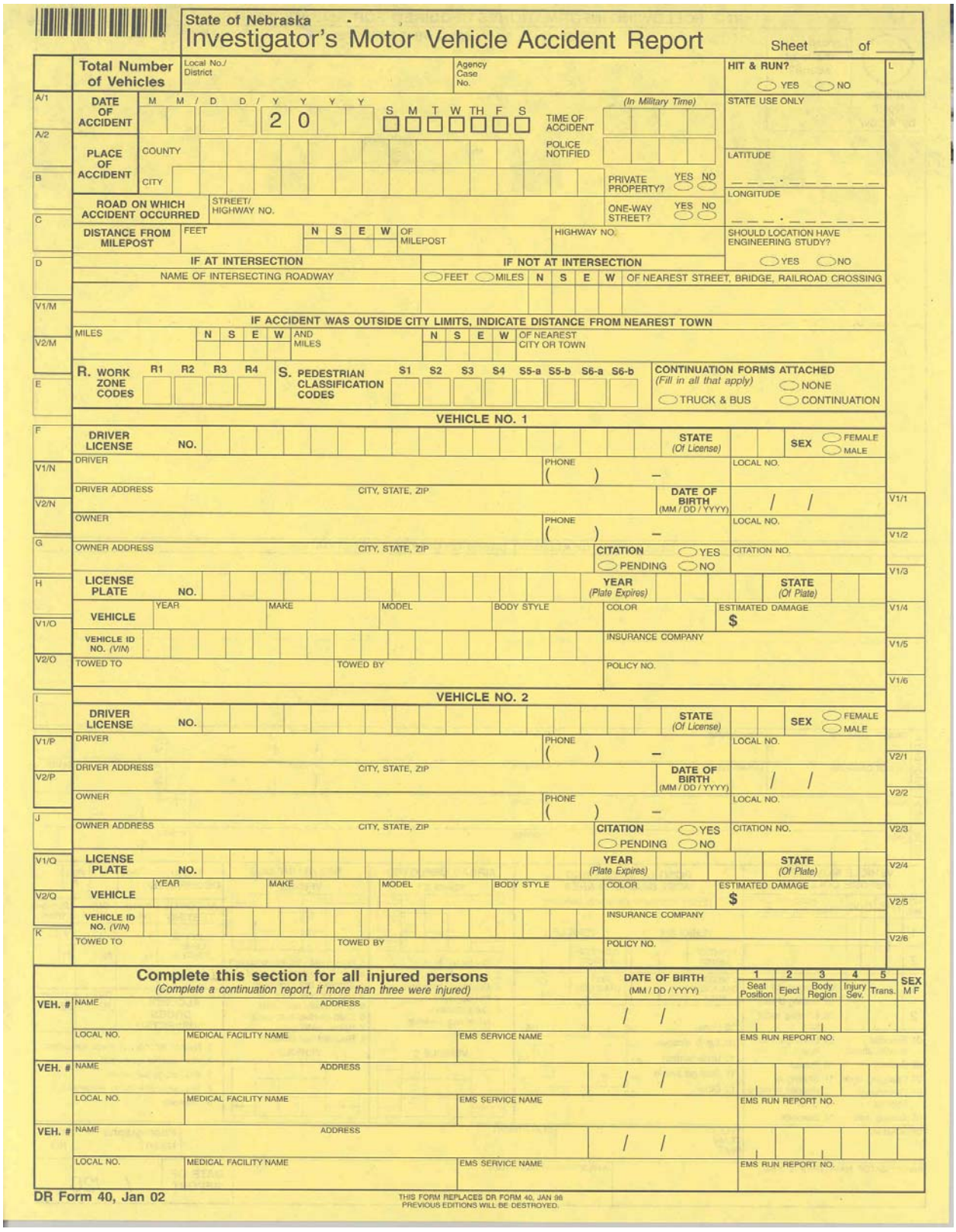
Selection algorithm used in selecting tow/disabled vehicles:

Variable name	Definition
Disposition	Vehicle disposition
Damage_ext	Extent of damage

```
Towed with disabling damage (vehtowdis) definition
      1 = towed with disabling damage
      0 = not towed/disabled

if (disposition in (1)) or (damage_ext in (3,4)) then vehtowdis=1;
else vehtowdis=0;
```

Appendix B Nebraska Investigator's Motor Vehicle Accident Report



State of Nebraska
Investigator's Motor Vehicle Accident Report
Sheet ____ of ____

Total Number of Vehicles | Local No./ District | Agency Case No. | HIT & RUN? ◯ YES ◯ NO | L

A/1 DATE OF ACCIDENT M M / D D / Y Y Y Y 2 0 S M T W TH F S | TIME OF ACCIDENT (In Military Time) | STATE USE ONLY

A/2 PLACE OF ACCIDENT COUNTY | CITY | POLICE NOTIFIED | LATITUDE _ _ _ . _ _ _ _ _ _

B PRIVATE PROPERTY? YES NO | LONGITUDE _ _ _ . _ _ _ _ _ _

ROAD ON WHICH ACCIDENT OCCURRED STREET/ HIGHWAY NO. | ONE-WAY STREET? YES NO

C DISTANCE FROM MILEPOST FEET N S E W OF MILEPOST | HIGHWAY NO. | SHOULD LOCATION HAVE ENGINEERING STUDY? ◯ YES ◯ NO

D IF AT INTERSECTION — NAME OF INTERSECTING ROADWAY | IF NOT AT INTERSECTION — ◯ FEET ◯ MILES N S E W OF NEAREST STREET, BRIDGE, RAILROAD CROSSING

V1/M V2/M IF ACCIDENT WAS OUTSIDE CITY LIMITS, INDICATE DISTANCE FROM NEAREST TOWN
MILES N S E W AND MILES | N S E W OF NEAREST CITY OR TOWN

E R. WORK ZONE CODES R1 R2 R3 R4 | S. PEDESTRIAN CLASSIFICATION CODES S1 S2 S3 S4 S5-a S5-b S6-a S6-b | CONTINUATION FORMS ATTACHED (Fill in all that apply) ◯ NONE ◯ TRUCK & BUS ◯ CONTINUATION

VEHICLE NO. 1

F DRIVER LICENSE NO. | STATE (Of License) | SEX ◯ FEMALE ◯ MALE
V1/N DRIVER | PHONE ( ) – | LOCAL NO.
V2/N DRIVER ADDRESS CITY, STATE, ZIP | DATE OF BIRTH (MM / DD / YYYY) / /
G OWNER | PHONE ( ) – | LOCAL NO.
OWNER ADDRESS CITY, STATE, ZIP | CITATION ◯ YES ◯ PENDING ◯ NO | CITATION NO.
H LICENSE PLATE NO. | YEAR (Plate Expires) | STATE (Of Plate)
V1/O VEHICLE YEAR | MAKE | MODEL | BODY STYLE | COLOR | ESTIMATED DAMAGE $
V2/O VEHICLE ID NO. (VIN) | INSURANCE COMPANY
TOWED TO | TOWED BY | POLICY NO.

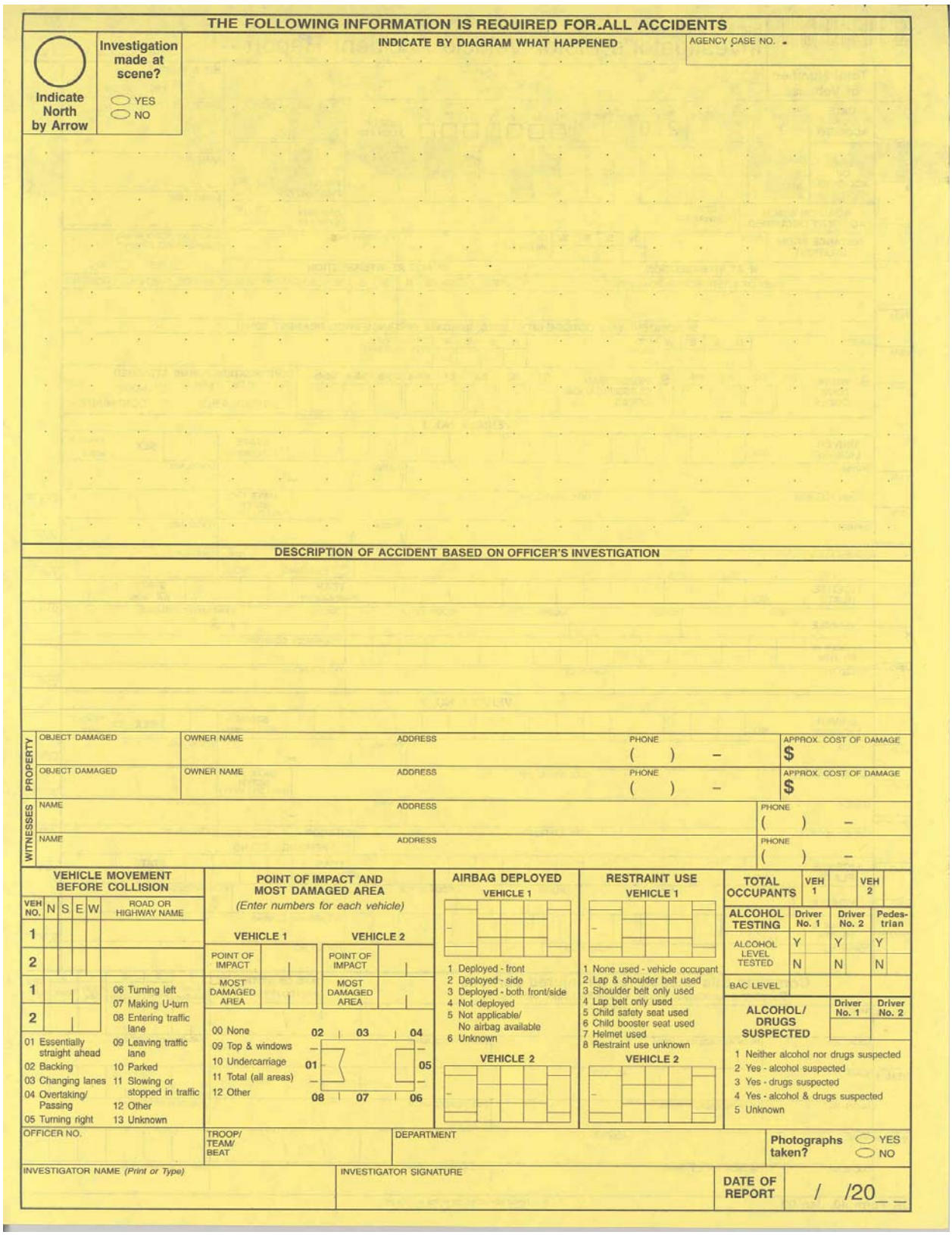
VEHICLE NO. 2

I DRIVER LICENSE NO. | STATE (Of License) | SEX ◯ FEMALE ◯ MALE
V1/P DRIVER | PHONE ( ) – | LOCAL NO.
V2/P DRIVER ADDRESS CITY, STATE, ZIP | DATE OF BIRTH (MM / DD / YYYY) / /
J OWNER | PHONE ( ) – | LOCAL NO.
OWNER ADDRESS CITY, STATE, ZIP | CITATION ◯ YES ◯ PENDING ◯ NO | CITATION NO.
V1/Q LICENSE PLATE NO. | YEAR (Plate Expires) | STATE (Of Plate)
V2/Q VEHICLE YEAR | MAKE | MODEL | BODY STYLE | COLOR | ESTIMATED DAMAGE $
VEHICLE ID NO. (VIN) | INSURANCE COMPANY
K TOWED TO | TOWED BY | POLICY NO.

Complete this section for all injured persons
(Complete a continuation report, if more than three were injured)

		DATE OF BIRTH (MM / DD / YYYY)	1 Seat Position	2 Eject	3 Body Region	4 Injury Sev.	5 Trans.	SEX M F
VEH. #	NAME ADDRESS	/ /						
	LOCAL NO. / MEDICAL FACILITY NAME / EMS SERVICE NAME	EMS RUN REPORT NO.						
VEH. #	NAME ADDRESS	/ /						
	LOCAL NO. / MEDICAL FACILITY NAME / EMS SERVICE NAME	EMS RUN REPORT NO.						
VEH. #	NAME ADDRESS	/ /						
	LOCAL NO. / MEDICAL FACILITY NAME / EMS SERVICE NAME	EMS RUN REPORT NO.						

DR Form 40, Jan 02
THIS FORM REPLACES DR FORM 40, JAN 98
PREVIOUS EDITIONS WILL BE DESTROYED.



THE FOLLOWING INFORMATION IS REQUIRED FOR ALL ACCIDENTS

Indicate North by Arrow

Investigation made at scene? ○ YES ○ NO

INDICATE BY DIAGRAM WHAT HAPPENED

AGENCY CASE NO.

DESCRIPTION OF ACCIDENT BASED ON OFFICER'S INVESTIGATION

PROPERTY

OBJECT DAMAGED	OWNER NAME	ADDRESS	PHONE	APPROX. COST OF DAMAGE
			( ) –	$
			( ) –	$

WITNESSES

NAME	ADDRESS	PHONE
		( ) –
		( ) –

VEHICLE MOVEMENT BEFORE COLLISION

VEH NO.	N	S	E	W	ROAD OR HIGHWAY NAME
1					
2					

1 ____ 2 ____

01 Essentially straight ahead
02 Backing
03 Changing lanes
04 Overtaking/ Passing
05 Turning right
06 Turning left
07 Making U-turn
08 Entering traffic lane
09 Leaving traffic lane
10 Parked
11 Slowing or stopped in traffic
12 Other
13 Unknown

POINT OF IMPACT AND MOST DAMAGED AREA
(Enter numbers for each vehicle)

	VEHICLE 1	VEHICLE 2
POINT OF IMPACT		
MOST DAMAGED AREA		

00 None
09 Top & windows
10 Undercarriage
11 Total (all areas)
12 Other

AIRBAG DEPLOYED

VEHICLE 1

1 Deployed - front
2 Deployed - side
3 Deployed - both front/side
4 Not deployed
5 Not applicable/ No airbag available
6 Unknown

VEHICLE 2

RESTRAINT USE

VEHICLE 1

1 None used - vehicle occupant
2 Lap & shoulder belt used
3 Shoulder belt only used
4 Lap belt only used
5 Child safety seat used
6 Child booster seat used
7 Helmet used
8 Restraint use unknown

VEHICLE 2

TOTAL OCCUPANTS	VEH 1	VEH 2

ALCOHOL TESTING	Driver No. 1	Driver No. 2	Pedestrian
ALCOHOL LEVEL TESTED	Y N	Y N	Y N
BAC LEVEL			

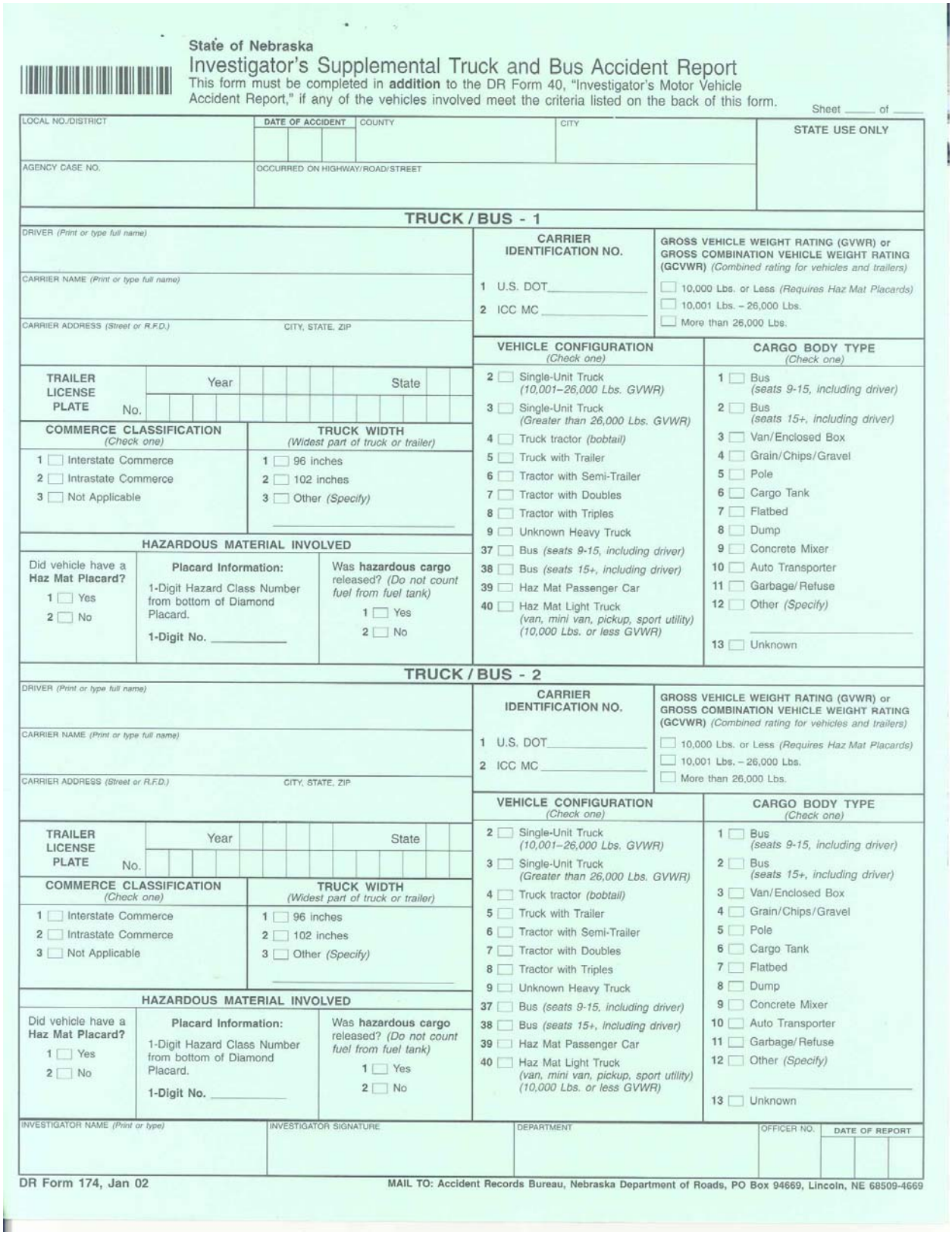
ALCOHOL/ DRUGS SUSPECTED	Driver No. 1	Driver No. 2

1 Neither alcohol nor drugs suspected
2 Yes - alcohol suspected
3 Yes - drugs suspected
4 Yes - alcohol & drugs suspected
5 Unknown

OFFICER NO.	TROOP/ TEAM/ BEAT	DEPARTMENT	Photographs taken? ○ YES ○ NO

INVESTIGATOR NAME (Print or Type)	INVESTIGATOR SIGNATURE	DATE OF REPORT
		/ /20__

Appendix C Supplemental Truck and Bus Accident Report



State of Nebraska

Investigator's Supplemental Truck and Bus Accident Report

This form must be completed in **addition** to the DR Form 40, "Investigator's Motor Vehicle Accident Report," if any of the vehicles involved meet the criteria listed on the back of this form.

Sheet ____ of ____

LOCAL NO./DISTRICT	DATE OF ACCIDENT	COUNTY	CITY	STATE USE ONLY

AGENCY CASE NO. | OCCURRED ON HIGHWAY/ROAD/STREET

TRUCK / BUS - 1

DRIVER *(Print or type full name)*

CARRIER NAME *(Print or type full name)*

CARRIER ADDRESS *(Street or R.F.D.)* CITY, STATE, ZIP

TRAILER LICENSE PLATE No. Year State

CARRIER IDENTIFICATION NO.
1 U.S. DOT_____
2 ICC MC _____

GROSS VEHICLE WEIGHT RATING (GVWR) or GROSS COMBINATION VEHICLE WEIGHT RATING (GCVWR) *(Combined rating for vehicles and trailers)*
☐ 10,000 Lbs. or Less *(Requires Haz Mat Placards)*
☐ 10,001 Lbs. – 26,000 Lbs.
☐ More than 26,000 Lbs.

COMMERCE CLASSIFICATION *(Check one)*
1 ☐ Interstate Commerce
2 ☐ Intrastate Commerce
3 ☐ Not Applicable

TRUCK WIDTH *(Widest part of truck or trailer)*
1 ☐ 96 inches
2 ☐ 102 inches
3 ☐ Other *(Specify)*

HAZARDOUS MATERIAL INVOLVED

Did vehicle have a **Haz Mat Placard?**
1 ☐ Yes
2 ☐ No

Placard Information:
1-Digit Hazard Class Number from bottom of Diamond Placard.
1-Digit No. _____

Was **hazardous cargo** released? *(Do not count fuel from fuel tank)*
1 ☐ Yes
2 ☐ No

VEHICLE CONFIGURATION *(Check one)*
2 ☐ Single-Unit Truck *(10,001–26,000 Lbs. GVWR)*
3 ☐ Single-Unit Truck *(Greater than 26,000 Lbs. GVWR)*
4 ☐ Truck tractor *(bobtail)*
5 ☐ Truck with Trailer
6 ☐ Tractor with Semi-Trailer
7 ☐ Tractor with Doubles
8 ☐ Tractor with Triples
9 ☐ Unknown Heavy Truck
37 ☐ Bus *(seats 9-15, including driver)*
38 ☐ Bus *(seats 15+, including driver)*
39 ☐ Haz Mat Passenger Car
40 ☐ Haz Mat Light Truck *(van, mini van, pickup, sport utility) (10,000 Lbs. or less GVWR)*

CARGO BODY TYPE *(Check one)*
1 ☐ Bus *(seats 9-15, including driver)*
2 ☐ Bus *(seats 15+, including driver)*
3 ☐ Van/Enclosed Box
4 ☐ Grain/Chips/Gravel
5 ☐ Pole
6 ☐ Cargo Tank
7 ☐ Flatbed
8 ☐ Dump
9 ☐ Concrete Mixer
10 ☐ Auto Transporter
11 ☐ Garbage/Refuse
12 ☐ Other *(Specify)*
13 ☐ Unknown

TRUCK / BUS - 2

DRIVER *(Print or type full name)*

CARRIER NAME *(Print or type full name)*

CARRIER ADDRESS *(Street or R.F.D.)* CITY, STATE, ZIP

TRAILER LICENSE PLATE No. Year State

CARRIER IDENTIFICATION NO.
1 U.S. DOT_____
2 ICC MC _____

GROSS VEHICLE WEIGHT RATING (GVWR) or GROSS COMBINATION VEHICLE WEIGHT RATING (GCVWR) *(Combined rating for vehicles and trailers)*
☐ 10,000 Lbs. or Less *(Requires Haz Mat Placards)*
☐ 10,001 Lbs. – 26,000 Lbs.
☐ More than 26,000 Lbs.

COMMERCE CLASSIFICATION *(Check one)*
1 ☐ Interstate Commerce
2 ☐ Intrastate Commerce
3 ☐ Not Applicable

TRUCK WIDTH *(Widest part of truck or trailer)*
1 ☐ 96 inches
2 ☐ 102 inches
3 ☐ Other *(Specify)*

HAZARDOUS MATERIAL INVOLVED

Did vehicle have a **Haz Mat Placard?**
1 ☐ Yes
2 ☐ No

Placard Information:
1-Digit Hazard Class Number from bottom of Diamond Placard.
1-Digit No. _____

Was **hazardous cargo** released? *(Do not count fuel from fuel tank)*
1 ☐ Yes
2 ☐ No

VEHICLE CONFIGURATION *(Check one)*
2 ☐ Single-Unit Truck *(10,001–26,000 Lbs. GVWR)*
3 ☐ Single-Unit Truck *(Greater than 26,000 Lbs. GVWR)*
4 ☐ Truck tractor *(bobtail)*
5 ☐ Truck with Trailer
6 ☐ Tractor with Semi-Trailer
7 ☐ Tractor with Doubles
8 ☐ Tractor with Triples
9 ☐ Unknown Heavy Truck
37 ☐ Bus *(seats 9-15, including driver)*
38 ☐ Bus *(seats 15+, including driver)*
39 ☐ Haz Mat Passenger Car
40 ☐ Haz Mat Light Truck *(van, mini van, pickup, sport utility) (10,000 Lbs. or less GVWR)*

CARGO BODY TYPE *(Check one)*
1 ☐ Bus *(seats 9-15, including driver)*
2 ☐ Bus *(seats 15+, including driver)*
3 ☐ Van/Enclosed Box
4 ☐ Grain/Chips/Gravel
5 ☐ Pole
6 ☐ Cargo Tank
7 ☐ Flatbed
8 ☐ Dump
9 ☐ Concrete Mixer
10 ☐ Auto Transporter
11 ☐ Garbage/Refuse
12 ☐ Other *(Specify)*
13 ☐ Unknown

INVESTIGATOR NAME *(Print or type)*	INVESTIGATOR SIGNATURE	DEPARTMENT	OFFICER NO.	DATE OF REPORT

DR Form 174, Jan 02

MAIL TO: Accident Records Bureau, Nebraska Department of Roads, PO Box 94669, Lincoln, NE 68509-4669

General Instructions

This supplemental report must be completed in ***addition*** to the DR Form 40, "Investigator's Motor Vehicle Accident Report" for any:

1. Truck with a Gross Vehicle Weight Rating (GVWR) or Gross Combination Vehicle Weight Rating (GCVWR) of 10,001 pounds or more;
2. Vehicle displaying a hazardous materials placard; or
3. Bus designed to transport nine or more passengers, ***including*** the driver.

You will need to complete additional supplementary forms if more than two trucks/buses were involved in the accident.

Data Elements

1. **Agency Case Number:** If your agency has assigned an internal case number to the accident, enter the number just as you did on the Investigator's Motor Vehicle Accident Report.
2. **Date of Accident and Location Information:** Enter this information just as you did on the Investigator's Motor Vehicle Accident Report.
3. **Driver Name:** Copy the name of the truck or bus driver from the Investigator's Motor Vehicle Accident Report.
4. **Gross Vehicle Weight Rating (GVWR) and/or Gross Combination Vehicle Weight Rating (GCVWR):** The Gross Vehicle Weight Rating (GVWR) is the weight specified by the manufacturer. The Gross Combination Vehicle Weight Rating (GCVWR) for a vehicle towing a trailer or trailers is the sum of the ratings for each unit. Check the appropriate box.
5. **Carrier Name and Address:** A motor carrier is defined as the person, company, or organization responsible for directing the transportation of the cargo or persons. The owner of the vehicle is often not the carrier. For further explanation, consult the "Instructions for Completing the Investigator's Motor Vehicle Accident Report" *(revised edition 2001).*
6. **Carrier Identification Number:** Vehicles engaged in intrastate/interstate transport have either a six- or seven-digit US DOT or ICC MC number. Some trucks may not have an identifying number.
7. **Trailer License Plate:** If a truck has an attached trailer with a separate license plate, enter the following information in the boxes provided: the license plate number of the trailer, the state of issuance, and the year of registration as displayed.
8. **Commerce Classification:** Check the "interstate commerce" box if the commercial vehicle can legally trade, traffic, or transport property across state lines. Mark the "intrastate commerce" box when the commercial vehicle is restricted to commerce within one state.
9. **Truck Width:** Measure the widest part of the truck or trailer and then check the appropriate box. If "other" is checked, specify the width in inches on the line provided.
10. **Hazardous Material Involvement:** Determine if the vehicle has a Hazardous Material Placard and then indicate the 1-digit Hazard Class Number located on the bottom of the Diamond Placard.
11. **Vehicle Configuration:** Check the appropriate box.
12. **Cargo Body Type:** Check the appropriate box.
13. **Investigating Officer Information:** Complete this section and be sure to ***sign*** the report.