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EVALUATION OF 2008 ALASKA 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 Alaska.

MCMIS Crash File records were matched to the Alaska crash file to determine the nature and extent of underreporting. It is estimated that Alaska reported 62.4 percent of this subset of reportable crash involvements in 2008.

Reporting rates were found primarily to be related to crash severity and the configuration of the vehicle. Eighty percent of fatal crash involvements were reported, 73.9% of injured/transported, and 58.7 percent of towed/disabled involvements. Trucks were reported at about the same rate as buses as a whole, 61.4% to 66.0%. Large trucks such as tractor-semitrailers were reported at a higher rate than smaller single unit trucks.

Missing data rates are low for most variables. Corresponding data elements in the MCMIS and Alaska crash files were reasonably consistent, though specific problems were noted with hazmat variables and certain truck configurations.

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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 was developed by the Federal Motor Carrier Safety Administration (FMCSA) to serve as a census file of trucks and buses involved in traffic crashes meeting a specified crash severity threshold. FMCSA maintains the MCMIS file to support its mission to reduce crashes, injuries, and fatalities involving large trucks and buses. Accurate and complete crash data are essential to assess the magnitude and characteristics of motor carrier crashes and to design effective safety measures to prevent such crashes. The data in the file are extracted by the States from their own crash records, and uploaded through the SafetyNet system. The usefulness of the MCMIS Crash file thus depends upon individual states identifying and transmitting the correct records on the trucks and buses involved in traffic crashes that meet the crash file severity threshold.

The present report is part of a series of reports that evaluate the completeness and accuracy of the data reported by States to the MCMIS Crash file. Previous reports showed some underreporting which seemed to be related in large part to problems in interpreting and applying the reporting criteria within the states' respective crash reporting systems. The problems often were more severe in large jurisdictions and police departments. States also had issues specific to the nature of its own system. [See references 2 to 40.] The States are responsible for identifying and reporting qualifying crash involvements. Accordingly, improved completeness and accuracy ultimately depends upon the efficiency and effectiveness of individual state systems.

This report focuses on MCMIS Crash file reporting by Alaska in 2008. Alaska typically is among the states with the fewest cases reported annually to the MCMIS Crash file. Between 2003 and 2007, Alaska reported from 19 to 80 involvements annually to the MCMIS Crash file. Alaska is the 47th largest state by population (although the first in land area) and in most years ranks about 48th among the states in the number of truck and bus fatal involvements annually. In recent years the number of fatal truck and bus involvements in Alaska has ranged from 5 in 2003, 16 in 2004, 4 in 2005, 7 in 2006, to 10 in 2007.

Police accident report (PAR) data recorded in Alaska's statewide files as of September 30, 2010, were used in this analysis. The 2008 PAR file contains the crash records for 20,961 vehicles.

The process of evaluating state reporting consists of the following steps:

1. The complete police accident report file (PAR file hereafter) from Alaska was obtained for the most recent year available, which was 2008.

2. An algorithm was developed, using the data coded in the Alaska file, to identify all cases that qualified for reporting to the MCMIS Crash file.

3. All cases in the Alaska 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 Alaska.

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

5. Cases that did not qualify but which were reported were examined to identify the extent and nature of over-reporting.

2. Data Preparation

The Alaska PAR file and MCMIS Crash file each required processing before the Alaska records in the MCMIS Crash file could be matched to the Alaska PAR file. In the case of the MCMIS Crash file, the major tasks were to extract records reported from Alaska and to eliminate duplicate records. The Alaska PAR file was reformatted to create a comprehensive vehicle-level file from accident, vehicle, and person data.

The following sections describe the methods used to prepare each file and some of the problems uncovered.

2.1 MCMIS Crash Data File

The 2008 MCMIS Crash file as of June 9, 2009, was used to identify records submitted from Alaska. For calendar year 2008 there were 182 cases reported to the file from Alaska. An analysis file was constructed using all variables in the MCMIS file. This analysis file was examined for duplicate records (more than one record submitted for the same vehicle in the same crash; i.e., the report number and sequence number were identical). One such duplicate was found. Examination of these potential duplicate records showed that crash time differed by a few minutes, but vehicle and driver information were the same. It could be a situation where the vehicle was involved in two crashes on the same road a few minutes apart, and were assigned the same crash number. Both cases were left in the file.

In addition, records were reviewed to find cases with identical values on accident number, accident date/time, county, street, VIN, and driver date of birth, even though their vehicle sequence numbers were different. The purpose is to find and eliminate cases where more than one record was submitted for the same vehicle and driver within a given accident. Duplicates can occur in some circumstances as records are corrected. No such duplicates were found. The resulting MCMIS file contains 182 unique records.

2.2 Alaska Police Accident Report File

The Alaska PAR data for 2008 obtained from the state was dated September 30, 2010. The data were stored as EXCEL files on a website that permitted downloading the data. The Point

(accident), Location, Vehicle, and Person files were downloaded. The combined files contained records for 11,630 traffic crashes involving 20,961 units. Data for the PAR file are reported on the Alaska Motor Vehicle Collision Report (12-200) completed by police officers.

As with the MCMIS file, the PAR file was first examined for duplicate records (involvements where more than one record was submitted for the same vehicle in the same crash). A search for records with identical case numbers and vehicle numbers found no instances of duplicates. In addition, manual 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, number formats (such as 200800026 and 2008-0026).

Just as in the preparation of the MCMIS Crash file, cases also were examined to determine if there were any records that contained identical case number, time, place, and vehicle/driver variables, regardless of vehicle number. Two different crash records should not have identical information on all variables. Records were examined for duplicate occurrences based on the fields for case number, accident date and time, crash census area, road, vehicle license plate number, and driver date of birth. Using this search method, no duplicate pairs were found. The resulting PAR file has 20,961 unique cases.

3. Matching Process

The next step involved matching records from the Alaska PAR file to corresponding records from the MCMIS file. There were 182 Alaska records from the MCMIS file available for matching, and 20,961 records from the Alaska PAR file. All records from the Alaska PAR data file were used in the match, even those that did not meet the requirements for reporting to the MCMIS Crash file. Using all crash records in the match allows identification of cases reported to the MCMIS Crash file that do not meet the reporting criteria.

Matching records in the two files is accomplished by using combinations of variables common to the two files that have a high probability of uniquely identifying specific accidents and specific vehicles within those accidents.

In the Alaska data, PAR Accident Number uniquely identifies a crash, but the same format is not used for the case identifier, Report Number, in the MCMIS Crash file. Accident Number in the PAR file is an 8-digit numeric field, and in the MCMIS Crash file Report Number is stored as a 12-character alphanumeric value. The report number in the MCMIS Crash file is constructed as follows: The first two columns contain the state abbreviation (AK, in this case), followed by nine digits, and a tenth numeric or alpha value. Since the PAR Accident Number did not use the same format as the MCMIS Report Number, these variables could not be used to match records between the two files.

Other fields that are useful in matching at the crash level include Crash Date, Crash Time (stored in military time as hour/minute), Crash County, Crash City, Crash Street, and Reporting Officer's Identification number. Crash Date, Time, City, and County all appear to match MCMIS variables. The Street variable in the PAR file has a different format than the comparable MCMIS variable, so it was only used for verification purposes. There is no Officer Badge ID in the PAR file. City was unrecorded in 18.4% of PAR cases, but in only 1.1% of MCMIS cases. PAR Borough/Census Area was converted into the MCMIS "County" variable to use in the match.

Variables in the MCMIS file that distinguish one vehicle from another within a crash include vehicle license plate number, vehicle identification number (VIN), driver license number, driver date of birth, and driver name. The PAR data file contains vehicle license number, driver date of birth, driver age, and driver name. Vehicle license plate number was unrecorded in 9.6% of PAR cases, but always recorded in MCMIS cases. Driver date of birth and Driver Age were unrecorded in 12.6% of PAR cases and in fewer than 1percent of MCMIS cases. Driver name was missing in 7.4% of PAR cases but in only 0.5% of MCMIS cases.

The match was performed in five steps, using different combinations of the available variables, but always including variables that could identify specific crashes and specific vehicles in those crashes. At each step, records in either file with duplicate values on all the match variables for the particular step were excluded, along with records with missing values for the match variables. Table 1 shows the variables used in each match step and the number of records matched at each step.

Table 1 Steps in MCMIS/Alaska PAR File Match, 2008

Step	Matching variables	Cases matched
Match 1	Crash date (month, day), crash time (hour, minute), city, vehicle license plate number, driver last name, and driver age	20
Match 2	Crash date (month, day), crash time (hour, minute), county, vehicle license plate number, driver last name, and driver age	113
Match 3	Crash date (month, day), crash time (hour, minute), vehicle license plate number, and driver last name	22
Match 4	Crash date (month, day), crash time (hour, minute), driver last name, and driver first name	5
Match 5	Hand-matched using all available variables	6
Total cases matched		166

The first match included the variables crash date (month, day), crash time (hour, minute), city, vehicle license plate number, driver last name, and driver age. The second match step replaced city with county. After some experimentation, the third match step included crash date, crash time, vehicle license plate number, and driver last name. The variables used in the fourth step in the computer-based match were crash date, crash time, driver last name and driver first name. Matches in the third and fourth steps were also verified by a manual review of other variables common to the two files. At this point there were still 22 unmatched cases.

The fifth match was accomplished through hand matches to review a large number of different variables that might indicate that the right cases were found. For *each* of the remaining 22 unmatched MCMIS cases, all PAR cases were listed that occurred on the same month and day, and a match for the MCMIS case was searched for among the listed cases. The PAR cases were searched for crashes at that time, on that road, for that driver's name, for that vehicle license plate number, and for that type of vehicle. This resulted in matching six of the 22 MCMIS cases to PAR records.

In addition, the remaining unmatched MCMIS cases were searched for in the PAR data by vehicle license plate number only. In these instances the variables crash street and driver last name were used as a check to confirm the correct accident record was found. This process

produced three potential matches. However, in two cases the PAR record had already been matched to another MCMIS case, and the third case did not match with respect to crash date and time and driver information. So no additional matches could be established and the fifth match step only found six matches.

In total, this process resulted in matching 91.2% of the 182 MCMIS records to the Alaska PAR file. Sixteen cases of the MCMIS records could not be matched. Some of these unmatched cases may be duplicate records in the MCMIS file, as a MCMIS record with many matching fields had already been matched to a PAR record with a different crash number. Other records could not be matched due to unrecorded values on important fields or different values in the critical match variables (county, city, vehicle license plate number, driver name, and driver date of birth). Perhaps some of these records are in fact duplicates that were generated in the MCMIS file as a result of applying corrections to the original records.

The matches made were verified using other variables common to the MCMIS and PAR file as a final check to ensure each match was valid and correct. The above procedure resulted in 166 matches, representing 91.2% of the 182 records reported to MCMIS.

Figure 1 shows the flow of cases from the two files (Alaska and MCMIS) through the matching process and then into the file used to evaluate crash reporting. Of the 166 matched cases, 136 apparently met the MCMIS reporting criteria (and thus are identified as "reportable"), as well as could be determined using the data supplied. The method of identifying cases reportable to the MCMIS Crash file is discussed in the next section.

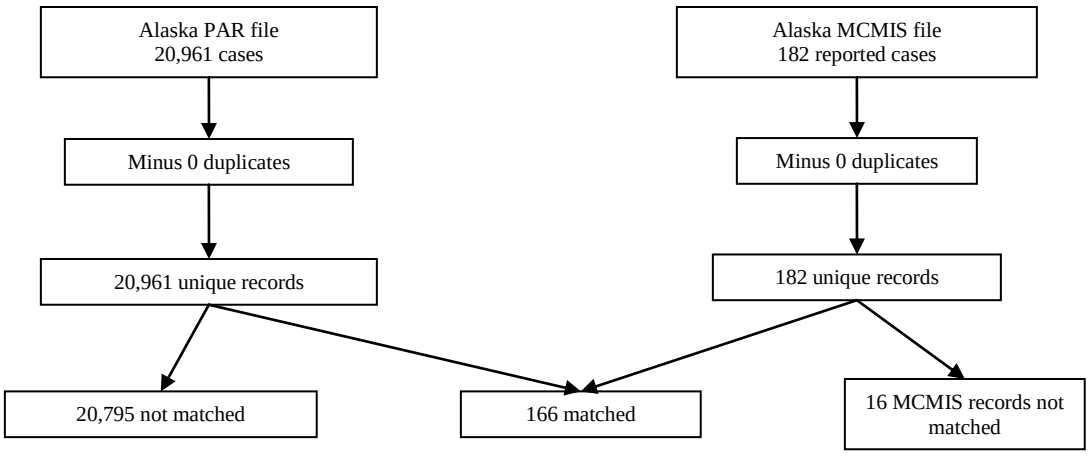

Figure 1 Case Flow in MCMIS/Alaska Crash File Match

4. Identifying Reportable Cases

To evaluate how complete reporting is to the MCMIS crash file, it is necessary as a first step to identify records that qualify for reporting: vehicles that meet the vehicle type reporting criteria involved in crashes that meet the severity criteria. Records are selected as reportable using the information available in the computerized crash files supplied by the State of Alaska. The reporting criteria are discussed in more detail below, but the point here is that records transmitted to the MCMIS Crash file must be selected from among all the records in the state's crash data,

using the data that are available in the state's crash data. Moreover, the method developed to identify reportable records is intended to be independent of any prior selection by the state being evaluated. This approach is necessary to provide an independent check on the completeness of reporting. Accordingly, this process relies on the information recorded by the officers on the crash report for all crashes.

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

Table 2 Vehicle and Crash Severity Threshold for MCMIS Crash File

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

4.1 Vehicle type

Vehicle type is captured on the Alaska Motor Vehicle Collision Report in two fields, one for "non-commercial" vehicles and one for "commercial" vehicles. (Please refer to the image of the crash reporting form reproduced in Appendix A.) The *Alaska Motor Vehicle Collision Report (12-200) Instruction Manual* (ref. 1, page 32) instructs the officer to complete the two fields as follows:

> Officers are instructed to fill-out the **non-commercial** vehicle configuration field if the vehicle **does not meet** the following criteria, as it is a commercial vehicle:
> (1) Vehicle has a gross vehicle weight rating (GVW) or gross combination weight rating (GVWR) of 10,001 lbs. or more, or
> (2) Vehicle displays a Hazardous Material Placard.
>
> If a choice is made in this field, no choice should be made in the commercial vehicle configuration or body type fields.
> Officers are instructed to fill-out the **commercial** vehicle configuration field if the vehicle meets the following criteria:
> (1) Used in commerce to transport passengers or property; and
> (2) Used upon a land highway or vehicular way; and
> (3) That
> a. has a gross vehicle weight rating or gross combination weight rating greater than 10,000 pounds;
> b. is designed to transport more than 15 passengers, including the driver; or
> c. is used in the transportation of hazardous materials;
>
> Included are government-owned trucks and buses, as well as farm vehicles, hauling produce to and from market if they meet the above criteria.

These instructions do a good job of reproducing the MCMIS vehicle type criteria, identified in Table 2 above, with the exception of the bus definition, which should be eight rather than 15 passengers in the definition. Otherwise, the instructions in the Manual capture the vehicle criteria for the MCMIS file very well.

The two fields have some interesting features. As might be expected, the non-commercial vehicle configuration field includes no levels for either a (non-light) truck or a bus. The field also includes non-motor vehicles, such as dog sleds, pedalcyclists, and pedestrians. The commercial vehicle field includes nine truck configurations, but no bus types. Bus type is captured in the body type field (immediately to the right on the crash report), and 7-15 seat and 15 or more seat bus types are distinguished. In addition, the body type field does not include a van type, but a van/enclosed box is one of the truck types included in the commercial vehicle configuration field.

Thus, all of the codes needed to identify trucks and buses meeting the MCMIS criteria are included in the Commercial Vehicle Configuration field in conjunction with the Body Type field. Vehicles with Commercial Vehicle Configuration values of Null, Unknown, or Other were only selected if their Body Type was a valid truck style. All other Commercial Configuration codes were selected as meeting the MCMIS criteria.

The Body Type field must be used to identify buses, since buses are not specifically included among the vehicle configuration codes. The vehicle identification number is often useful in identifying vehicles that meet the MCMIS criteria, or to exclude vehicles that do not; however, VIN is not entered into the crash file.

Table 3 shows the distribution of vehicle types identified.

Table 3 Relevant Vehicle Codes on Alaska Accident Report

Commercial vehicle configuration	N
Single unit truck (2-axles)	97
Single unit truck (3+ axles)	52
Truck/trailer	48
Tractor (bobtail)	3
Tractor/semi-trailer	73
Tractor/doubles	15
Tractor/triples	1
Van/enclosed box	34
Unknown heavy truck	7
Other, Unknown, or Null, only if body type was a valid truck style	10
Body type	N
Bus (15 or more seats)	52
Bus (7-15 seats)	28
School bus	46
Total	466

In addition to these vehicle types, any vehicle, regardless of size, displaying a hazardous materials placard also meets the MCMIS vehicle type definition. Alaska's Commercial Vehicle section of the crash report includes fields to record the presence of a hazmat placard and hazardous material release in the crash. These variables were used to identify vehicles transporting hazmat. In the case of Alaska, all of the vehicles transporting hazardous material were already identified as trucks.

In total, 466 vehicles were identified in the Alaska PAR data as eligible trucks, buses, and other vehicles transporting hazardous materials. Table 4 shows the distribution by vehicle type of these vehicles. Medium or heavy trucks accounted for 73.0% of the vehicles, while 27.0% are buses.

Table 4 Vehicles Meeting MCMIS Vehicle Criteria
Alaska PAR File, 2008

Vehicle type	N	%
Truck	340	73.0
Bus	126	27.0
Other, transporting hazmat	0	0.0
Total	466	100.0

4.2 Crash Severity

The next step is to identify crashes that meet the MCMIS crash severity criteria. With respect to crash severity, qualifying crashes include those involving a fatality, an injured person transported for immediate medical attention, or a vehicle towed from the scene due to disabling damage. The Alaska Occupant file includes information about the injury severity for each injured person involved in the crash. Alaska classifies injury using the common KABCN scale, where injuries are classified as Fatal (K), Incapacitating (A), Non-incapacitating but evident (B), Complaint of injury (C), and No injury. Crashes with fatal injuries can be identified easily using this information. There is also a Total Fatalities variable in the Accident level file, recording total fatalities in the crash.

In addition, Alaska collects three variables related to transport of an injured person to a medical facility: Transported (with code levels of Yes, No, Unknown, and Not reported); Transported To (Clinic, Hospital, Mortuary, Residence, Unknown, N/A); and Transported By (Air Ambulance, Airplane, EMS, Helicopter, Police, Private vehicle, Unknown, or N/A).

The Injury Severity, Transported and Transported To variables were used to identify crashes involving an injured person transported for medical attention. According to the instruction manual Transported is marked "Yes" to indicate "transport to the medical facility receiving the patient." A person was considered injured and transported if they met the following conditions: they had an Incapacitating, Non-incapacitating, Possible, Not reported, or Unknown injury and Transported = Yes, and Transported To was *not* a Residence or Mortuary.

The other reporting criteria related to crash severity is whether any vehicle in the crash was towed due to disabling damage. Once again, the Alaska PAR file includes the information needed to identify such crashes. The crash form contains check boxes for Vehicle Towed (Yes, No, Unknown). Officers are instructed to check "Yes" if the vehicle was towed due to disabling

damage in the crash. "No" is used for vehicles that are driven from the scene or towed for other reasons (i.e., the driver was arrested or without required license, vehicle was placed out of service because it is unsafe to drive or impounded, etc.). The instructions indicate that towing assistance without removal of the vehicle from the scene, such as pulling a vehicle out of a ditch, is not considered to be "towed" for the purposes of this element.

There is also a space on the crash form to enter the name of the tow company (Towed By), but this data item was not included in the dataset UMTRI was supplied.

In addition to the tow-related variables, the PAR collects information on the extent of damage the vehicle incurred. The two categories of Disabling and Totaled are useful for identifying vehicles towed due to disabling damage. According to the manual, "Disabling" damage is defined as damage that precludes departure of the motor vehicle from the scene of the crash in its usual daylight-operating manner after simple repairs. As a result, the motor vehicle had to be towed or otherwise hauled from the crash scene, or assisted by an emergency motor vehicle. "Totaled" is defined as damage so badly that the cost of repairs exceeds the market value of the vehicle.

The Vehicle Towed variable in conjunction with the Vehicle Damage variable are used to identify crashes in Alaska involving a vehicle towed due to disabling damage. A vehicle was considered to be towed due to disabling damage if Towed was marked Yes. In addition, cases were included if Damage was Disabling or Totaled, even though Towed was No or Unknown (though there were relatively few such cases).

Implementing the eligible vehicle and crash severity filters identified a total of 218 cases in the Alaska crash data in 2008. There were 218 qualifying vehicles—either a truck or bus or hazardous placarded vehicle—involved in a crash that included either a fatality, an injury transported for treatment, or a vehicle towed due to disabling damage.

As Figure 1 above (page 5) shows, there were 182 records reported to the MCMIS Crash file by Alaska in 2008. Of these, 166 were matched to the Alaska PAR file, and 16 could not be matched, as discussed above. Within the Alaska crash file, 218 were identified as reportable to the MCMIS crash file. Of the 218 reportable records, only 136 were actually reported, for an effective reporting rate of 62.4%. If the 16 records that could not be matched actually were reportable, the reporting rate would be (16 + 136) / 218 = 69.7%. However, as mentioned above in the discussion of matching files, there is some evidence that at least some of the 16 may have been duplicates. Accordingly, it appears that the best estimate of the true reporting rate of reportable crashes from Alaska for the 2008 crash year is 62.4%. The next section will identify those factors in the data that are associated with rates of reporting.

5. Factors Associated with Reporting

The process described in section 4 identified 218 records in the 2008 Alaska crash file as meeting the MCMIS Crash file reporting criteria. This section provides a discussion of factors that apparently affected the identification and reporting of records to the MCMIS Crash file.

5.1 Over-reporting

MCMIS evaluations tend to focus on *under*reporting because sources of underreporting tend to be more prevalent than over-reporting. However, almost all states over-report cases to some degree. Over-reporting results when cases are submitted to the MCMIS Crash file that do not meet the criteria for a reportable crash. Since 166 MCMIS cases could be matched to the Alaska PAR data, and 136 were determined to meet the reporting criteria, the difference, or 30 cases, were not reportable, and should not have been reported.

Table 5 below shows a two-way classification of vehicle type and crash severity for the cases that were over-reported. The table provides some explanation as to why these vehicles should not have been reported to the MCMIS Crash file. In 28 of the records, the crashes met the crash severity test, but the vehicle was not a qualifying vehicle, i.e., the vehicle was not a truck, bus, or light vehicle displaying a hazardous materials placard. Note that 14 of these were coded in the non-commercial vehicle field as a light truck (4 tires), so these may have been pickups, possibly used commercially, but not large enough to meet the GVWR threshold. The others were passenger cars and other light vehicles, which might have qualified if the hazmat placard field was coded yes. There were also one truck and one bus among the 30, but they were in crashes in which no one was fatally injured or injured and transported for treatment, and no vehicle was towed due to disabling damage.

Table 5 Vehicle Type and Crash Severity for Reported Cases That Did Not Meet MCMIS Reporting Criteria

Vehicle type	Injured/ transported	Towed/ disabled	Other	Total
Truck	0	0	1	1
Bus	0	0	1	1
Other	9	19	0	28
Total	9	19	2	30

5.2 Reporting Criteria

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

Table 6 shows reporting rates, the number of unreported cases, and the proportion of unreported cases for each level of the MCMIS crash severity criteria. Reporting rates are almost linear with the severity of the crash. Fatal crashes are reported at the highest rate, with four of the five fatal crashes correctly reported. The rate for injured/transported is 73.9%, while 58.7% of towed/disabled crashes were reported. The differences between the injured/transported and towed/disabled rates and between the fatal and towed/disabled rates are statistically significant. This suggests that more serious crashes are scrutinized more closely and are therefore more likely to be recognized as meeting the reporting criteria. The reporting officer may be more likely to complete the Commercial Vehicle Information (CVI) area. Or there may be some other trigger. But clearly, lower severity crashes are more likely not to be reported. And the low rate

for towed/disabled accounts for 84.1% of the unreported cases and significantly lowers the overall reporting rate.

Table 6 Reporting Rate by MCMIS Crash Severity, Alaska 2008

Crash severity	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Fatal	5	80.0	1	1.2
Injured/transported	46	73.9	12	14.6
Towed/disabled	167	58.7	69	84.1
Total	218	62.4	82	100.0

This finding is reinforced when reportable crashes are classified by the most severe injury in the crash. (Table 7) Again, reporting rates are almost linear, with more severe crashes reported at a higher rate than less severe, although no injury crashes (but at least one vehicle disabled and towed) are reported at a higher rate than crashes with only C-injuries. However that difference is not statistically significant, so it may be an artifact of the small number of cases.

Table 7 Reporting Rate by Most Severe Injury in Crash, Alaska 2008

Most severe injury in crash	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Fatal (K)	5	80.0	1	1.2
Incapacitating (A injury)	15	73.3	4	4.9
Non-incapacitating (B)	35	68.6	11	13.4
Possible (C)	29	51.7	14	17.1
No injury	101	63.4	37	45.1
Unknown/not recorded	33	54.5	15	18.3
Total	218	62.4	82	100.0

The second component of the MCMIS Crash file criteria is the vehicle type. As described above, trucks, buses, and other vehicles transporting sufficient amounts of hazmat to require a placard all meet the reporting requirements. Table 8 shows the rates for the different general types of vehicles. The reporting rate for trucks was 61.4% and for buses, 66.0%. These rates are reasonably similar, so it appears that trucks are reported at about the same rate as buses. Often, buses tend to be overlooked in reporting, but that does not appear to be the case in the Alaska system.

Table 8 Reporting Rate by MCMIS Vehicle Class, Alaska 2008

MCMIS vehicle class	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Truck	171	61.4	66	80.5
Bus	47	66.0	16	19.5
Total	218	62.4	82	100.0

Table 9 provides more detail about the effect of vehicle type on reporting rates, showing rates by the type of vehicle coded on the PAR. Reporting rates range from 33.3% for the van/enclosed box type (four of 12 reportable cases) to 100% for bobtail tractors (3 of 3). Overall, there is a tendency for larger, more stereotypically "big truck" vehicles to have higher reporting rates compared with smaller trucks. Almost 75 percent of tractor-semitrailers are reported, compared with only about 55.1% of single unit (SUT), 2-axle trucks. Almost 65 percent of three-axle SUTs are reported, as are 80 percent of tractor-double trailer combinations. The low rate for 2-axle SUTs accounts for almost 43 percent of the unreported cases, so clearly improving reporting rates for medium duty trucks would contribute substantially to improving the overall reporting rates.

Table 9 Reporting Rate by PAR Vehicle Type, Alaska 2008

PAR vehicle type	Reportable cases	Reporting rate	Unreported	% of total unreported
SUT (2-axles)	78	55.1	35	42.7
SUT (3-axles)	37	64.9	13	15.9
Truck/trailer	26	61.5	10	12.2
Tractor (bobtail)	3	100.0	0	0.0
Tractor/semi-trailer	43	74.4	11	13.4
Tractor/doubles	10	80.0	2	2.4
Van/enclosed box	12	33.3	8	9.8
Unknown heavy truck	3	66.7	1	1.2
Other	4	75.0	1	1.2
Null (missing data or unknown)	2	50.0	1	1.2
Total	218	62.4	82	100.0

The trend of reporting larger vehicles at a higher rate than smaller ones also is shown in considering buses. Almost 94 percent of school bus involvements were reported, and 63.2% of buses with seating for 15 or more passengers, but only one-third of smaller buses, 7 to15 seats, were reported. Now, it is clear that smaller buses may be more ambiguous. Some large automobiles have enough seat locations to qualify, though they may be family vehicles; or the bus may have been used in an operation where it was not clear that it met the criteria. Small buses are included if they are used as part of a commercial operation, such as customer or employee transport, even though the passenger does not pay specifically for the trip. Some of the small buses may be overlooked on this basis. On the other hand, the high reporting rate for school buses is impressive.

Table 10 Reporting Rate by Bus Type, Alaska 2008

Bus type	Reportable cases	Reporting rate	Unreported cases	% of unreported cases
Bus (15+ seats)	19	63.2	7	43.8
Bus (7-15 seats)	12	33.3	8	50.0
School bus	16	93.8	1	6.3
All buses	47	66.0	16	100.0

5.3 Commercial flag field

The Alaska crash data also include a commercial flag field, which identifies the vehicle as in commercial operations. There is no such field on the 12-200 reporting form, so it must be derived from other fields in the crash data. Setting this flag, or rather *failing* to set this flag, to commercial is highly associated with whether a cases is reported or not, but it does not completely control reporting. Only about 27 percent of reportable cases where the flag was *not* set were reported, compared with 64.3% of those where the flag was set to commercial. However, this explains only a small share of the underreporting, less than 10 percent, since the flag was set to commercial for most of the reportable cases. Only 11 out of the 218 reportable cases were flagged as "non-commercial."

Table 11 Reporting Rates by Commercial Vehicle Flag, Alaska 2008

Commercial vehicle flag	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Commercial	207	64.3	74	90.2
Non-commercial	11	27.3	8	9.8
Total	218	62.4	82	100.0

5.4 Registration state and area of operations

The registration state of the vehicle may be considered a surrogate (imperfect of course) for involvement in interstate commerce, to test if vehicles clearly involved in interstate commerce are more or less likely to be reported to the national crash file, maintained by regulator of trucks and buses involved in interstate commerce. Table 12 shows reporting rates by whether the vehicle was registered in the State of Alaska or somewhere else. Out-of-state registered vehicles are somewhat more likely to be identified as reportable and to be reported. However, it should be noted that given the geographic location of Alaska, there is probably much less interstate truck traffic than in the 48 contiguous states. Only four of the vehicles in reportable involvements were registered out of state. So this comparison cannot shed much light on the sources of underreporting.

Table 12 Reporting Rates by Vehicle Registration State, Alaska 2008

Vehicle registration state	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
In-state	199	64.8	70	85.4
Out-state	4	75.0	1	1.2
Unrecorded	15	26.7	1	13.4
Total	218	62.4	82	100.0

5.5 Reporting Agency and Borough

In addition to the reporting criteria, reporting rates may reflect differences in the type of enforcement agency that investigated the crash. The level and frequency of training or the intensity of supervision may vary, along with the focus of enforcement emphasis. Such

differences can serve as a guide for directing resources to areas that would produce the greatest improvement. This section examines reporting rates by the type of reporting agency.

Reporting rates do vary by the type of investigating agency, as reflected in Table 13. State Troopers have the highest rate, at 83.1% of reportable involvements covered. Crashes covered by local police departments are reported at a much lower rate, 52.2%. And this drives the overall reporting rate, since local police departments covered 134 of the 218 reportable cases, and account for 78.0% of all cases not reported to the MCMIS crash file. A small number of cases were reported by other enforcement agency types, and the enforcement agency was unknown in three of the records.

Table 13 Reporting Rate by Investigating Agency, Alaska 2008

Investigating agency	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
State Troopers	77	83.1	13	15.9
Police Department	134	52.2	64	78.0
Other	4	50.0	2	2.4
Unrecorded	3	0.0	3	3.7
Total	218	62.4	82	100.0

There are also interesting differences by borough (Alaska has boroughs, rather than counties as in most other states, though not all of the state is part of a borough). Reporting rates differ significantly by borough, with Anchorage—by far the largest with 41 percent of the state's population, having among the lowest rates at 50.5%, and the smaller (by population) boroughs of Kenai, Matanuska-Susitna, and Fairbanks with rates ranging from 72.7% to 82.1%. The factors that account for these variations are not known, although an interaction with the type of agency handling the cases is possible. Anchorage, which is much more urbanized, probably has a larger share of the cases covered by police departments, whose enforcement focus may be elsewhere.

Table 14 Reporting Rate by Borough, Alaska 2008

Borough	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
Non-borough	13	76.9	3	3.7
Juneau	3	0.0	3	3.7
Ketchikan	3	33.3	2	2.4
Anchorage	109	50.5	54	65.9
Sitka	2	100.0	0	0.0
Kenai Peninsula	11	72.7	3	3.7
Matanuska Susitna	39	82.1	7	8.5
Fairbanks North Star	32	78.1	7	8.5
North Slope	2	50.0	1	1.2
Denali	4	50.0	2	2.4
All Boroughs	218	62.4	82	100.0

5.6 Fire Occurrence

FMCSA has a special interest in ensuring that reportable crash involvements in which a vehicle fire occurred are accurately reported. However, there were no reportable truck or bus crash involvements in which one of the vehicles experienced a fire.

5.7 Case Processing

The schedule of case processing and interaction with other State priorities may also be related to reporting rates. Without knowing details of the system used in Alaska to identify and extract reportable cases for upload to the MCMIS crash file it is impossible to know, but there are clearly wide variations in the reporting rate by the month of the crash. Table 15 shows reportable cases broken out by month of the crash, along with the reporting rate for that crash month, the number of cases that were not reported, and the percent of all unreported cases accounted for. The monthly rates are also shown in Figure 2, so the variation can be more easily seen. Reporting rates are high January through March, but those months also have among the fewest reportable crashes. Reporting rates are lowest in the next quarter, April through June, then higher than average July through October, lower in November and then nearly at the average in December. These differences may be related to some annual work schedule variations in the state, e.g., conflicts that might interfere with a thorough job of selection. There is also some tendency for months with fewer cases to have higher reporting rates, though the association is weak. However, the significant variation across the calendar year is clear.

Table 15 Reporting Rate by Crash Month, Alaska 2008

Crash month	Reportable cases	Reporting rate	Unreported cases	% of total unreported cases
January	18	77.8	4	4.9
February	6	100.0	0	0.0
March	11	81.8	2	2.4
April	16	50.0	8	9.8
May	20	45.0	11	13.4
June	20	40.0	12	14.6
July	7	71.4	2	2.4
August	27	70.4	8	9.8
September	16	62.5	6	7.3
October	18	83.3	3	3.7
November	28	50.0	14	17.1
December	31	61.3	12	14.6
Total	218	62.4	82	100.0

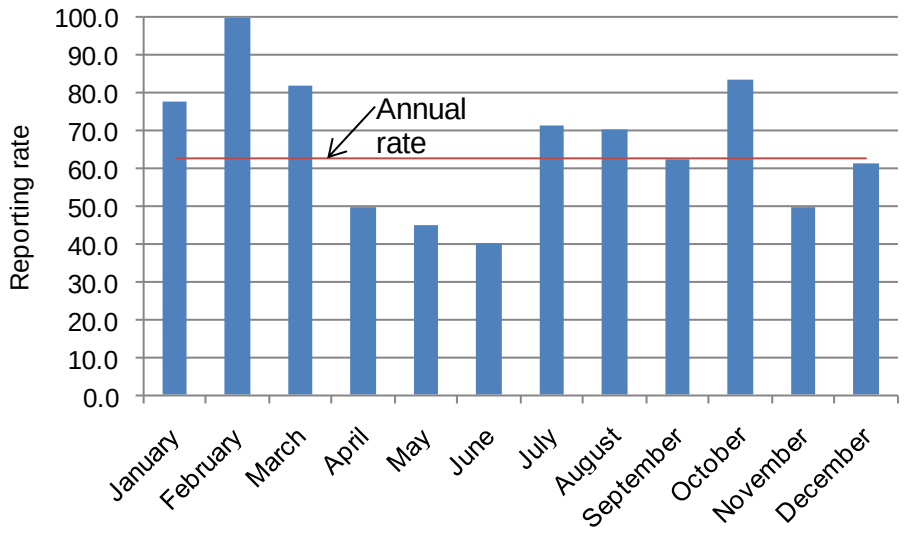

Figure 2 Monthly Reporting Rate, Alaska 2008

The MCMIS file used in this analysis was closed as of June 9, 2009, 160 days after the close of the crash year, which is well beyond the 90-day grace period within which reportable involvements are required to be reported. It is not known whether a significant number of records were submitted after June 9, 2009. The last date on which records for 2008 were submitted to the MCMIS file was May 28, 2009, so it is possible that some few more cases were submitted after June 9. However, the last significant upload of cases was April 13, almost two months prior to the MCMIS file date. It is doubtful that the particular snapshot of the MCMIS file used in the analysis significantly affects the findings here.

6. Data Quality and Reporting Latency of Reported Cases

This section reports results of an evaluation of the quality of data reported to the MCMIS crash file, as well as reporting latency (time elapsed between crash occurrence and when the crash was reported). Two dimensions of data quality are examined. The first is the amount of missing data in the cases reported. Missing data rates affect 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 Alaska crash file and in the MCMIS Crash file. Inconsistencies may indicate problems in translating information recorded on the crash report to the values in the MCMIS Crash file.

In this section of the evaluation, all cases reported to the MCMIS crash file from Alaska for 2008 are used, since the purpose of the analysis is to examine the quality of the data *as reported*.

6.1 Missing data

Table 16 shows missing data rates for selected, important variables in the MCMIS Crash file. Missing data rates are generally 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.

Five variables have missing data rates that are apparently high, but only two are significant. Missing data rates for variables that have information for the sequence of events for events two, three, and four are apparently high, but in fact most crashes consist of only one harmful event, so the reason there is no information for these subsequent events is most likely that there were no subsequent events. The missing data rate for body type is somewhat elevated, at 12.6%. This warrants examination to determine if this is a systematic problem. In addition, 11.3% of interstate carriers do not have DOT number recorded, which presents a significant problem in linking the crash records to the appropriate carrier. Overall, rates of missing data are low, reflecting very complete data collection for most variables. The elevated rates for body type and DOT number are a concern, however, because they are critical to the usefulness of the data.

Table 16 Missing Data Rates for Selected MCMIS Crash File Variables, Alaska 2008

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	0.0
Accident minute	0.0	Event two	83.0
County	0.6	Event three	95.6
Body type	12.6	Event four	99.5
Configuration	1.1	Number of vehicles	0.0
GVWR class	2.2	Road access	0.0
DOT number *	11.3	Road surface	0.6
Carrier state	0.0	Road trafficway	0.0
Citation issued	0.0	Towaway	0.0
Driver date of birth	1.1	Truck or bus	0.0
Driver license number	1.6	Vehicle license number	0.0
Driver license state	1.1	Vehicle license state	0.0
Driver license class	8.8	VIN	0.0
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	91.8
Percentages of hazmat placarded vehicles only:	
Hazardous cargo release	0.0
Hazardous materials class (1-digit)	100.0
Hazardous materials class (4-digit)	100.0
Hazardous materials name	0.0

The second section of the table shows missing data rates for the hazardous materials (hazmat) variables. Whether the vehicle displayed a Hazmat Placard was left unrecorded in 91.8% of the records. Hazmat placard was marked "N" (no) in 13 records, and "Y" in only two. The other missing data rates shown are limited to the two Alaska records showing the vehicle displayed a hazmat placard, indicating it was carrying hazmat. Hazmat cargo release and cargo name were recorded for both, but both the one-digit and four digit identifiers were left unknown for both

records. Given the security and safety hazard associated with hazardous materials, this is of concern.

6.2 Inconsistent data

The second check on data quality is to compare values for the records in the Alaska data with values for comparable variables in the MCMIS Crash file. Inconsistencies between the files may indicate a problem in preparing the data for upload. This comparison was made for all substantive variables, other than those that were used to match records in the two files.

Code values for most of the variables checked matched well between the two files. Code values for weather, light, road surface condition, vehicle registration state, number of fatalities, and first event matched with only a few differences. However, there were a number of inconsistencies for vehicle configuration and a significant problem with hazardous materials placard.

With respect to vehicle configuration, there were inconsistent codes in 47 of the 166 records matched between the Alaska data and the MCMIS data. A record was counted as inconsistent if a specific code level was coded in one file and a different specific code in the other. So cases coded missing, other, or unknown in one and with a specific configuration in the other are *not* included in the number of inconsistencies. Many of the inconsistencies are produced by the fact that the commercial vehicle configuration field in the Alaska data does not include a level for buses. Buses are either left blank in the Alaska data, or coded as a single-unit truck (SUT) with two or three axles. One was coded as a truck/trailer. Coding buses as SUTs in the configuration field is likely a convention to address the omission of a specific code or codes for buses, but it is nevertheless an inconsistency. This could easily be addressed by adding a code level for bus to the commercial vehicle configuration field.

There were also a number of inconsistencies among actual trucks, either between a two-axle and three-axle SUT, or between a truck/trailer and tractor-semitrailer. These inconsistencies appeared in 16 records, or about 10 percent of the matched records. The largest category was seven records identified as a truck/trailer in the Alaska data, but a tractor-semitrailer in the MCMIS file. It of course cannot be determined which record is correct, just that the records differ.

There were also significant differences in the coding of hazmat between the state crash data and the records in the MCMIS file. Only two MCMIS records had hazmat placard coded yes, but for 20 of the matched records, hazmat placard was coded yes in the Alaska data. In other words, there were 20 reportable records in the Alaska data that indicated the vehicle displayed a hazmat placard, but the records for only two had hazmat placard coded yes when they were uploaded to the MCMIS crash file. In the other 18, hazmat placard was missing data for 17 and coded no for the other record. Again, it is not known which record is correct, but the magnitude of disagreement is not expected.

There were also six records in which hazmat release was coded Yes in the Alaska crash file and missing in the MCMIS crash file. This is somewhat more explicable, since fuel spilled from the vehicles fuel tanks might be coded as a hazmat release, even though the field is intended to capture only the release of hazmat cargoes. Still, since there were only three records with hazmat release in the Alaska MCMIS data, there are twice as many records with inconsistent data as there are with consistent data. This may be a training issue.

6.3 Reporting latency

Reporting latency also reflects data quality. All reportable crash involvements are required to be transmitted to the MCMIS Crash file within 90 days of the date of the crash. The MCMIS Crash file as of June, 2009, was used to identify records submitted from Alaska. The date of the file is about 160 days after the end of 2008, so all calendar year 2008 cases should have been reported by that date.

Figure 3 shows the cumulative percent of cases submitted by latency in days, i.e. the number of days between the crash date and the date the case was uploaded to the MCMIS Crash file for the 2008 data. Only about 28 percent of the records were submitted within 90 days of the crash. The median time between crash occurrence and record upload was 105 days, and the average latency was 130.5 days. About two-thirds were submitted within 120 days, and 90 percent were submitted within 253 days. Clearly, at least for the 2008 data, timely reporting of crashes to the MCMIS file was a problem.

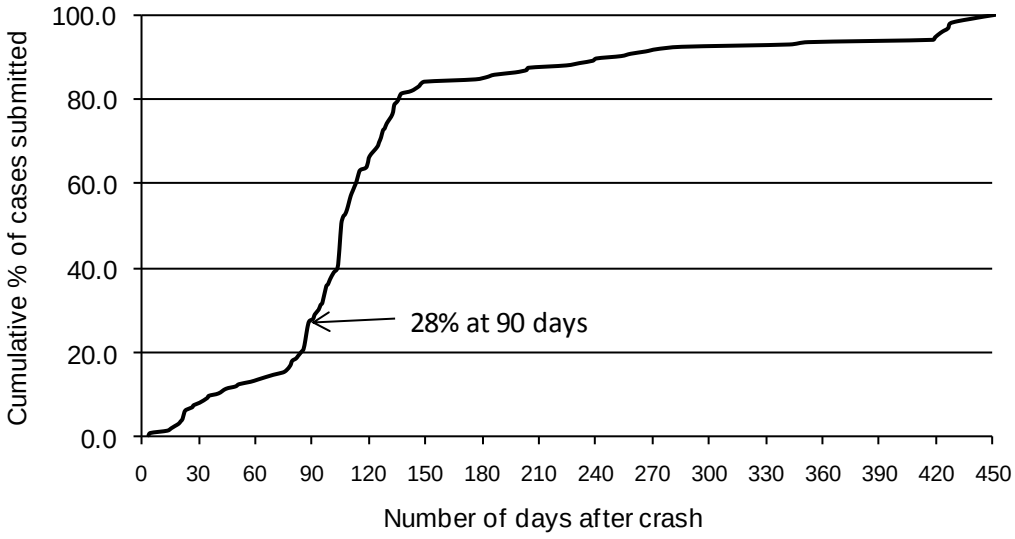

Figure 3 Cumulative Percentage of Cases Submitted to MCMIS Crash file by Number of Days After the Crash

The first date on which crash records from 2008 were uploaded was January 29, 2008, when two records were uploaded. On average, uploads occurred every 10.8 days between then and May 28, 2009, when the last upload occurred. An average of 4.0 records were submitted per upload. Over half the uploads were for one or two records. The largest single upload was of 26 records, on March 30, 2009, but the next largest was only 13 records.

7. Summary and Discussion

Overall, it appears that about 62.4% of reportable crash involvements in Alaska for 2008 were reported to the MCMIS crash file, though there is some uncertainty in that estimate. The algorithm to identify reportable records that was developed for this report identified 218 crash involvements that met the MCMIS reporting criteria. Of these, 136 were actually reported. However, because of data limitations, it was not possible to confirm that 16 of the records

reported by Alaska were among the 218. If they were, then the reporting rate would rise to 69.7%, though there was evidence that at least some of these were duplicate records. Thus the best estimate for the reporting rate in 2008 is 62.4%.

Alaska collects all the information needed to determine if a crash involvement is reportable on their crash reporting form, the 12-200. Whether the crash meets the severity criteria can be determined readily, as the crash data includes fields to determine if any person was injured and if so whether they were transported for medical attention, as well as whether any vehicle was towed due to disabling damage. In addition, the fields to capture vehicle type on the crash report can easily be used to identify vehicles that meet the reporting criteria. Most of the fields required for the MCMIS data are on the main part of the crash report, and coded for all crashes, not just those involving MCMIS trucks and buses. The additional information needed for the MCMIS file, such as carrier name, DOT number, GVWR, and so on, are captured in a special section right on the crash report. Thus, all the information needed is captured on the primary motor vehicle crash report form used in Alaska, and coded into the computerized version of the crash data. As the present report demonstrates, a computerized selection algorithm could be used to extract the reportable records.

A number of factors appear to influence whether a record is reported, including crash severity, truck size, reporting agency, and whether the vehicle was flagged as commercial. More severe crashes are more likely to be recognized as reportable than less-severe, albeit still reportable, crashes. This is the case whether severity is measured on the MCMIS scale (fatal, injured/transported, towed/disabled) or the personal injury scale (KABCO). The relationship is virtually linear. Eighty percent of fatal involvements were reported (though there were only five), 73.9% of injured/transported, and 58.7% of towed/disabled involvements. In terms of the KABCO scale, 73.3% of A-injury, 68.6% of B-injury, and 51.7% of reportable C-injury crashes were reported. It seems reasonable to conclude that greater severity results in more careful scrutiny and a greater chance of being recognized as reportable.

There is also a tendency for the involvements of bigger trucks to be reported at a higher rate than smaller, but still qualifying vehicles. About 74 percent of tractor-semitrailers and 80 percent of doubles are reported. Almost 65 percent of three-axle SUTs are reported but only 55.1% of 2-axle SUTs and 33.3% of vans. The vehicles that most clearly meet the GVWR threshold are reported at a higher rate than those that are more ambiguous.

Though, on the other hand, buses are reported at a slightly higher, though statistically indistinguishable, rate as trucks. About 61 percent of reportable truck involvements are reported, and two-thirds of bus involvements. In most state evaluations, bus involvements are reported at a substantially lower rate than trucks, though in Alaska, the rates are about the same.

It was also found that the law enforcement agency that covered the crash had a substantial effect on the reporting rate. Over 83 percent of crashes covered by state troopers were reported, compared with a 52.2% rate for local police departments.

The process used to select and prepare data to submit to the MCMIS crash file is unknown. The CVI area includes the notation that “If crash involves a commercial vehicle, complete this section and forward a copy of report to CVE Unit…” in Anchorage. It is possible that if local

enforcement agencies fail to forward cases to the CVE Unit, such records are more likely not to be uploaded to the MCMIS crash file.

There may also be a secondary selection process, in which cases are reviewed to determine if they meet the criteria for reporting and to prepare the data for upload. The structure of the vehicle type fields on the Alaska 12-200 crash report, and some of the apparent inconsistencies found when comparing records in the Alaska crash file with those in the MCMIS file, suggests that there is a manual process of review and preparation.

On the Alaska crash report, vehicle descriptive information is captured in two fields, the commercial vehicle configuration field and the body type field. The configuration field does not include levels for buses of any type, but one of the levels captures a cargo body type, van or enclosed box. Meanwhile, the body type variable does include two levels for buses (distinguishing the two types of interest to MCMIS), but it does *not* include a level for van cargo bodies. So, information from both fields is needed to supply each of the configuration and cargo fields in the MCMIS crash file. This suggests that some recoding is done prior to prepare the data for MCMIS. In addition, the pattern of apparent inconsistencies found when comparing records as they appear in the Alaska crash file with the same records in MCMIS suggests that there is some review and correction prior to uploading the cases. If there is a manual review, it may also explain the underreporting of less severe cases, medium duty trucks, and so on.

With respect to the reported data itself, missing data rates for most fields reported to the MCMIS Crash file are quite low for most variables. The rate was higher for body type and DOT number (restricted to interstate carriers only). There were also some problems identified with the reporting of hazmat data. Hazmat placard was left unrecorded in 91.8% of the MCMIS records. Moreover, there was a relatively large number of instances where the record in the Alaska file differed from the record in the MCMIS file. Twenty reportable records in the Alaska data had hazmat placard coded Yes, but the records in MCMIS for only two of those had hazmat placard coded yes. In the other 18, hazmat placard in the MCMIS data was missing for 17 and coded no for the other record.

The timeliness of uploading the records from Alaska is also problematic, at least for the 2008 data. Only about 28 percent of the cases that were uploaded to the MCMIS file were uploaded within 90 days of the crash. The median time between crash occurrence and when the record was uploaded was 105 days and the average time was 130.5 days. Delays in submitting reportable cases may explain some portion of the overall reporting rate.

The design of the crash report in Alaska includes all the information needed to identify the records that meet the MCMIS crash file reporting criteria. This implies that a computerized selection algorithm should be able to produce a substantially higher rate of reporting. All the data fields required for the MCMIS file can be captured from the form itself, without requiring the officer to complete any additional forms. The carrier information and a few other fields specific to the MCMIS data, are all collected on the main form for all trucks and buses. This approach relieves the reporting officer of being responsible to apply the MCMIS criteria him- or herself. The commercial vehicle configuration and body type fields might be tweaked to make them more internally consistent and to match more directly the corresponding MCMIS fields. But other than that, all the elements are in place to select the cases using a computer selection algorithm, rather than through a manual review. This would result in substantially improving the

reporting rate, while also reducing the amount of manual review, which is prone to error and inconsistency.

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Appendix A Alaska Traffic Accident Reports (rev. 9/12/01)

ALASKA MOTOR VEHICLE COLLISION REPORT | DMV #: | Incident/Case #

Crash Information – (One choice per field unless otherwise noted – Other * should be explained in narrative)

Total # Units	Crash Date:	Crash Time (24 hr):	Crash Occurred in (City/Borough):	Temp:	Pstd Spd:	EMS Run #:

Crash Day: ☐ 01 Mon ☐ 02 Tue ☐ 03 Wed ☐ 04 Thu ☐ 05 Fri ☐ 06 Sat ☐ 07 Sun

N: W:

Photos Taken: ☐ 01 Y ☐ 02 N

Non-vehicular Property Damage: ☐ 01 Y ☐ 02 N ☐ 03 Unk

Roadway Junction/ Type: ☐ 01 Crossover ☐ 02 Driveway ☐ 03 Not a junction ☐ 04 On ramp ☐ 05 Off ramp ☐ 06 Railway crossing ☐ 07 Roundabout ☐ 08 T – intersection ☐ 09 Y – intersection ☐ 10 4 – way intersection ☐ 11 5 – point or more ☐ 12 Other * ☐ 13 Unk

Weather: ☐ 01 Blowing sand, soil, dirt, snow ☐ 02 Clear ☐ 03 Cloudy ☐ 04 Fog/smoke ☐ 05 Ice Fog ☐ 06 Rain ☐ 07 Sleet, hail (freezing rain) ☐ 08 Severe crosswinds ☐ 09 Snow ☐ 10 Other * ☐ 11 Not Reported ☐ 12 Unk

Roadway Character: ☐ 01 Straight/Lvl ☐ 02 Straight/Grd ☐ 03 Straight/Hlcrst ☐ 04 Curve/Lvl ☐ 05 Curve/Grd ☐ 06 Curve/Hlcrst ☐ 07 Unk

Road Surface: ☐ 01 Dry ☐ 02 Ice ☐ 03 Water ☐ 04 Sand, mud, dirt, oil, gravel ☐ 05 Slush ☐ 06 Snow ☐ 07 Wet ☐ 08 Other *

Lighting: ☐ 01 Dark – lighted roadway ☐ 02 Dark – roadway not lighted ☐ 03 Dark – unknown lighting ☐ 04 Daylight ☐ 05 Twilight ☐ 06 Other * ☐ 07 Not Reported ☐ 08 Unk

Location Control | Ref Pt | (Law Enforcement use only)

Name of Street or Highway ____ ☐ miles ____ ☐ feet ____ ☐ at int. w/ ☐ N ☐ E ☐ S ☐ W Cross Street, Bridge, ect.

Crash Description / Violation

Violation Section(s):

Ticket Description:

Location of First Sequence of Events:
☐ 01 Bike Lane ☐ 02 Gore ☐ 03 Median ☐ 04 Outside trafficway ☐ 05 Parking lot ☐ 06 Roadside ☐ 07 Roadway ☐ 08 Shared use paths ☐ 09 Shoulder ☐ 10 Unk

First Sequence of Events, Collision:
☐ 01 Aircraft ☐ 02 Animal ☐ 03 Bicyclist ☐ 04 Bridge/Overpass ☐ 05 Bridge rail ☐ 06 Crash cushion ☐ 07 Culvert ☐ 08 Curb/Wall ☐ 09 Ditch ☐ 10 Embankment ☐ 11 Fence ☐ 12 Guard rail face ☐ 13 Guard rail end ☐ 14 Light support ☐ 15 Machinery ☐ 16 Mail box ☐ 17 Median barrier ☐ 18 Moose ☐ 19 Parked vehicle ☐ 20 Pedestrian ☐ 21 Sideswipe ☐ 22 Sign ☐ 23 Snowberm ☐ 24 Traffic signal pole ☐ 25 Train ☐ 26 Tree/shrub ☐ 27 Utility pole ☐ 28 Veh in transit ☐ 29 Veh – rear end ☐ 30 Veh – head on ☐ 31 Veh – angle ☐ 32 Other fixed object

First Sequence of Events, Non-collision:
☐ 33 Cargo loss/shift ☐ 34 Crossed median/centerline ☐ 35 Downhill runaway ☐ 36 Equipment failure ☐ 37 Explosion/fire ☐ 38 Immersion ☐ 39 Jackknife ☐ 40 Overturn ☐ 41 Ran off road ☐ 42 Separation of units ☐ 43 Other * ☐ 44 Unk

Crash Diagram

Indicate North

☐ Check if supplemental diagram

Officer / Agency Information

Officer Name:	Officer PermID:	Agency:	Reviewing Officer PermID:	Review Date:

Page _____ of _____

Part A

12-200 Revised 9/12/01

ALASKA MOTOR VEHICLE COLLISION REPORT

DMV #: | Incident/Case #

Driver Information (One choice per field unless otherwise noted – Other * should be explained in narrative)

Unit #: | Driver Name (Last, First, MI): | Sex: ☐ 01 M ☐ 02 F | DOB: | Contact Phone:

OL / ID #: | State: | License Class: ☐ 01 CDL-A ☐ 03 CDL-C ☐ 05 D ☐ 07 M2 ☐ 09 IP ☐ 02 CDL-B ☐ 04 CDL-IC ☐ 06 MI ☐ 08 IM | Ejected: ☐ 01 Y ☐ 02 N ☐ 03 P ☐ 04 Unk | Extricated: ☐ 01 Y ☐ 02 N ☐ 03 Unk

Mailing Address: | City: | State: | Zip: | NFR: ☐ 01 Y ☐ 02 N | Ins Coverage: ☐ 01 Y ☐ 02 N

Physical Address: | City: | State: | Zip: | Ins Company:

Environment Circumstances:
☐ 01 Glare ☐ 04 None
☐ 02 Obstruction ☐ 05 Other *
☐ 03 Weather ☐ 06 Unk

Injury Status
☐ 01 Fatal ☐ 05 None
☐ 02 Incapacitating * ☐ 06 Not Reported
☐ 03 Non-incapacitating * ☐ 07 Unk
☐ 04 Possible

Driver Restraint / Airbag (4 choice max):
☐ 01 Not used ☐ 05 Lap only ☐ 09 A/bag Dplyd ☐ 13 Not Reported
☐ 02 None instld ☐ 06 Shldr only ☐ 10 A/bag not Dplyd ☐ 14 Unk
☐ 03 Helmet ☐ 07 Prp Chld Rst ☐ 11 A/bag switch off
☐ 04 Lap/Shldr ☐ 08 Imp Chld Rst ☐ 12 Side bag Dplyd

Alcohol/Drugs Suspected: ☐ 01 None ☐ 02 Alcohol ☐ 03 Drugs ☐ 04 Both
Test Given: ☐ 01 Blood ☐ 02 Breath ☐ 03 Not given ☐ 04 Refused
BAC Level:
Transported: ☐ 01 Y ☐ 02 N ☐ 03 Unk

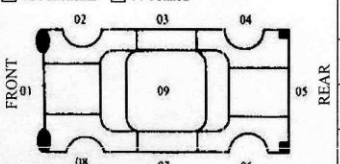
Human Circumstances (2 choice max):
☐ 01 No improper driving
☐ 02 Backing unsafely
☐ 03 Cell phone use
☐ 04 Disregard traffic control device other than signal
☐ 05 Driver inattention
☐ 06 Driver inexperience
☐ 07 Drove off road
☐ 08 Emotional
☐ 09 Failure to yield
☐ 10 Fell asleep
☐ 11 Following too closely
☐ 12 Illness
☐ 13 Improper lane usage/change
☐ 14 Improper passing
☐ 15 Improper turn
☐ 16 Loss of consciousness
☐ 17 Passenger distraction
☐ 18 Pedestrian error/confusion
☐ 19 Physical disability
☐ 20 Red light violation
☐ 21 Stop sign violation
☐ 22 Taking prescription meds
☐ 23 Unsafe speed
☐ 24 Wrong side/way
☐ 25 Other *
☐ 26 Unk

Transported By:
☐ 01 Air Ambulance
☐ 02 Airplane
☐ 03 EMS
☐ 04 Helicopter
☐ 05 Police
☐ 06 Private vehicle
☐ 07 Unk
☐ 08 N?A

Transported To:
☐ 01 Clinic
☐ 02 Hospital
☐ 03 Mortuary
☐ 04 Residence
☐ 05 Unk
☐ 06 N/A

Vehicle Information

Vehicle Damage: No. of Occupants: ___
☐ 01 None/Minor ☐ 03 Disabling ☐ 05 Unk
☐ 02 Functional ☐ 04 Totaled



(Circle codes to show first impact – select one)

Vehicle Owner Name (Last, First, MI): | Contact Phone:

Mailing Address: | City: | State: | Zip:

Damage Estimate: ☐ Over $501 | VIN: | License Plate #: | State:

Undercarriage Damage ☐ 01 Y ☐ 02 N | Veh Year: | Make: | Model: | Color:

Direction of Travel: ☐ 01 North ☐ 03 East ☐ 05 Unk ☐ 02 South ☐ 04 West

Veh Towed: ☐ 01 Y ☐ 02 N ☐ 03 Unk
Towed By:

Vehicle Configuration (non-commercial only):
☐ 01 Dog sled ☐ 07 Pedalcycle
☐ 02 Light truck (only 4 ties) ☐ 08 Pedestrian
☐ 03 Motorhome ☐ 09 Other *
☐ 04 Motorcycle ☐ 10 Unk
☐ 05 Off highway vehicle
☐ 06 Passenger car

Vehicle Configuration (commercial only):
☐ 01 Single-unit (2-axles) ☐ 07 Tractor/triples
☐ 02 Single unit (3+ axles) ☐ 08 Van/enclosed box
☐ 03 Truck/trailer ☐ 09 Unk heavy truck
☐ 04 Tractor (bobtail) ☐ 10 Other *
☐ 05 Tractor/semi-trailer ☐ 11 Unk
☐ 06 tractor/doubles

Body Type (2 choice max, commercial only):
☐ 01 Auto transporter ☐ 07 Dump ☐ 13 Unk
☐ 02 Bus (15 or more seats) ☐ 08 Flatbed
☐ 03 Bus (7-15 seats) ☐ 09 Garbage/refuse
☐ 04 School bus ☐ 10 Grain/chips/gravel
☐ 05 Cargo tank ☐ 11 Pole
☐ 06 Concrete mixer ☐ 12 Other *

Vehicle Circumstances:
☐ 01 Accelerator defective ☐ 06 Steering failure ☐ 11 Other *
☐ 02 Brakes defective ☐ 07 Tire failure/inadequate ☐ 12 Unk
☐ 03 Headlights defective ☐ 08 Tow hitch defective
☐ 04 Other lighting defective ☐ 09 Windshield damage
☐ 05 Oversized vehicle ☐ 10 None

Vehicle Action:
☐ 01 Avoiding objects in road ☐ 06 Making U-turn ☐ 11 Skidding ☐ 16 Turning right
☐ 02 Backing ☐ 07 Merging ☐ 12 Slowing ☐ 17 Turning left
☐ 03 Changing lanes ☐ 08 Out of control ☐ 13 Starting in traffic ☐ 18 Other *
☐ 04 Entering traffic lane ☐ 09 Passing ☐ 14 Stopped ☐ 19 Unk
☐ 05 Leaving traffic lane ☐ 10 Parked ☐ 15 Straight ahead

Roadway Circumstances:
☐ 01 Debris ☐ 05 Obstruction in roadway ☐ 09 School zone ☐ 13 Other *
☐ 02 Inoperative traffic device ☐ 06 Shoulder ☐ 10 Work zone ☐ 14 Unk
☐ 03 Missing traffic device ☐ 07 Road surface condition ☐ 11 Worn, polished
☐ 04 Obscured traffic device ☐ 08 Ruts, holes, bumps ☐ 12 None

Traffic Control
☐ 01 Flashing signal ☐ 05 School zone signs ☐ 09 Yield sign
☐ 02 No controls ☐ 06 Stop sign ☐ 10 Officer/flagman/guard
☐ 03 Road const signs ☐ 07 Traffic control signal ☐ 11 Other *
☐ 04 RR crossing device ☐ 08 Warning signs ☐ 12 Unk

Commercial Vehicle Information

(If crash involves a commercial vehicle, complete this section and forward a copy of report to CVE Unit, 12050 Industry Way – Bldg O – Suite #6, Anch, AK 99515)

Carrier Name: | Gross Weight (lbs):

Address: | Carrier ID#:

City: | State: | Zip: | Contact Phone:

Carrier ID Source:
☐ 01 Driver/Vehicle
☐ 02 Log Book
☐ 03 Shipping Papers
☐ 04 Trip Manifest

Issuing Authority:
☐ 01 US DOT
☐ 02 ICC
☐ 03 AKS

Placard:
☐ 01 Y
☐ 02 N
☐ 03 Unk

Haz Mat Released:
☐ 01 Y
☐ 02 N
☐ 03 Unk

Second Sequence of Events, Collision
☐ 01 Aircraft ☐ 12 Guard rail face ☐ 23 Snowberm
☐ 02 Animal ☐ 13 Guard rail end ☐ 24 Traffic signal pole
☐ 03 Bicyclist ☐ 14 Light support ☐ 25 Train
☐ 04 Bridge/Overpass ☐ 15 Machinery ☐ 26 Tree/shrub
☐ 05 Bridge rail ☐ 16 Mail box ☐ 27 Utility pole
☐ 06 Crash cushion ☐ 17 Median barrier ☐ 28 Veh in transit
☐ 07 Culvert ☐ 18 Moose ☐ 29 Veh - rear end
☐ 08 Curb/Wall ☐ 19 Parked vehicle ☐ 30 Veh – head on
☐ 09 Ditch ☐ 20 Pedestrian ☐ 31 Veh – angle
☐ 10 Embankment ☐ 21 Sideswipe ☐ 32 Other fixed object
☐ 11 Fence ☐ 22 Sign

Second Sequence of Events, Non-collision:
☐ 33 Cargo loss/shift ☐ 37 Explosion/fire ☐ 41 Ran off road
☐ 34 Crossed median/centerline ☐ 38 Immersion ☐ 42 Separation of units
☐ 35 Downhill runaway ☐ 39 Jackknife ☐ 43 Other *
☐ 36 Equipment failure ☐ 40 Overturn ☐ 44 Unk

ALASKA MOTOR VEHICLE COLLISION REPORT

DMV #: | Incident/Case #

Passenger / Witness Information (One choice per field unless otherwise noted – Other * should be explained in narrative)

Unit #: | Name (Last, First, MI): | Sex: ☐ 01 M ☐ 02 F | OL/ID #: | State:

DOB:

Person Type: ☐ 01 Passenger ☐ 02 Witness

Physical Address: | City: | State: | Zip: | Contact Phone:

Seat Location:
☐ 01 Center front
☐ 02 Right front
☐ 03 Left rear
☐ 04 Center rear
☐ 05 Right rear
☐ 06 Other *
☐ 07 N/A
☐ 08 Unk

Restraint / Airbag Information (4 choice max):
☐ 01 Not used ☐ 08 Imp Chld Rst
☐ 02 None instld ☐ 09 A/bag Dplyd
☐ 03 Helmet ☐ 10 A/bag not Dplyd
☐ 04 Lap/Shldr ☐ 11 A/bag switch off
☐ 05 Lap only ☐ 12 Side bag Dplyd
☐ 06 Shldr only ☐ 13 Not Reported
☐ 07 Prp Chld Rst ☐ 14 Unk

Ejected: ☐ 01 Y ☐ 02 N ☐ 03 P ☐ 04 Unk

Extricated: ☐ 01 Y ☐ 02 N ☐ 03 Unk

Injury Status:
☐ 01 Fatal
☐ 02 Incapacitating *
☐ 03 Non-incapacitating *
☐ 04 Possible
☐ 05 None
☐ 06 Not Reported
☐ 07 Unk

Transported ☐ 01 Y ☐ 02 N ☐ 03 Unk

Transported By:
☐ 01 Air Ambulance
☐ 02 Airplane
☐ 03 EMS
☐ 04 Helicopter
☐ 05 Police
☐ 06 Private vehicle
☐ 07 Unk
☐ 08 N/A

Transported To:
☐ 01 Clinic
☐ 02 Hospital
☐ 03 Mortuary
☐ 04 Residence
☐ 05 Unk
☐ 06 N/A

Unit #: | Name (Last, First, MI): | Sex: ☐ 01 M ☐ 02 F | OL/ID #: | State:

DOB:

Person Type: ☐ 01 Passenger ☐ 02 Witness

Physical Address: | City: | State: | Zip: | Contact Phone:

Seat Location:
☐ 01 Center front
☐ 02 Right front
☐ 03 Left rear
☐ 04 Center rear
☐ 05 Right rear
☐ 06 Other *
☐ 07 N/A
☐ 08 Unk

Restraint / Airbag Information (4 choice max):
☐ 01 Not used ☐ 08 Imp Chld Rst
☐ 02 None instld ☐ 09 A/bag Dplyd
☐ 03 Helmet ☐ 10 A/bag not Dplyd
☐ 04 Lap/Shldr ☐ 11 A/bag switch off
☐ 05 Lap only ☐ 12 Side bag Dplyd
☐ 06 Shldr only ☐ 13 Not Reported
☐ 07 Prp Chld Rst ☐ 14 Unk

Ejected: ☐ 01 Y ☐ 02 N ☐ 03 P ☐ 04 Unk

Extricated: ☐ 01 Y ☐ 02 N ☐ 03 Unk

Injury Status:
☐ 01 Fatal
☐ 02 Incapacitating *
☐ 03 Non-incapacitating *
☐ 04 Possible
☐ 05 None
☐ 06 Not Reported
☐ 07 Unk

Transported ☐ 01 Y ☐ 02 N ☐ 03 Unk

Transported By:
☐ 01 Air Ambulance
☐ 02 Airplane
☐ 03 EMS
☐ 04 Helicopter
☐ 05 Police
☐ 06 Private vehicle
☐ 07 Unk
☐ 08 N/A

Transported To:
☐ 01 Clinic
☐ 02 Hospital
☐ 03 Mortuary
☐ 04 Residence
☐ 05 Unk
☐ 06 N/A

Unit #: | Name (Last, First, MI): | Sex: ☐ 01 M ☐ 02 F | OL/ID #: | State:

DOB:

Person Type: ☐ 01 Passenger ☐ 02 Witness

Physical Address: | City: | State: | Zip: | Contact Phone:

Seat Location:
☐ 01 Center front
☐ 02 Right front
☐ 03 Left rear
☐ 04 Center rear
☐ 05 Right rear
☐ 06 Other *
☐ 07 N/A
☐ 08 Unk

Restraint / Airbag Information (4 choice max):
☐ 01 Not used ☐ 08 Imp Chld Rst
☐ 02 None instld ☐ 09 A/bag Dplyd
☐ 03 Helmet ☐ 10 A/bag not Dplyd
☐ 04 Lap/Shldr ☐ 11 A/bag switch off
☐ 05 Lap only ☐ 12 Side bag Dplyd
☐ 06 Shldr only ☐ 13 Not Reported
☐ 07 Prp Chld Rst ☐ 14 Unk

Ejected: ☐ 01 Y ☐ 02 N ☐ 03 P ☐ 04 Unk

Extricated: ☐ 01 Y ☐ 02 N ☐ 03 Unk

Injury Status:
☐ 01 Fatal
☐ 02 Incapacitating *
☐ 03 Non-incapacitating *
☐ 04 Possible
☐ 05 None
☐ 06 Not Reported
☐ 07 Unk

Transported ☐ 01 Y ☐ 02 N ☐ 03 Unk

Transported By:
☐ 01 Air Ambulance
☐ 02 Airplane
☐ 03 EMS
☐ 04 Helicopter
☐ 05 Police
☐ 06 Private vehicle
☐ 07 Unk
☐ 08 N/A

Transported To:
☐ 01 Clinic
☐ 02 Hospital
☐ 03 Mortuary
☐ 04 Residence
☐ 05 Unk
☐ 06 N/A

Unit #: | Name (Last, First, MI): | Sex: ☐ 01 M ☐ 02 F | OL/ID #: | State:

DOB:

Person Type: ☐ 01 Passenger ☐ 02 Witness

Physical Address: | City: | State: | Zip: | Contact Phone:

Seat Location:
☐ 01 Center front
☐ 02 Right front
☐ 03 Left rear
☐ 04 Center rear
☐ 05 Right rear
☐ 06 Other *
☐ 07 N/A
☐ 08 Unk

Restraint / Airbag Information (4 choice max):
☐ 01 Not used ☐ 08 Imp Chld Rst
☐ 02 None instld ☐ 09 A/bag Dplyd
☐ 03 Helmet ☐ 10 A/bag not Dplyd
☐ 04 Lap/Shldr ☐ 11 A/bag switch off
☐ 05 Lap only ☐ 12 Side bag Dplyd
☐ 06 Shldr only ☐ 13 Not Reported
☐ 07 Prp Chld Rst ☐ 14 Unk

Ejected: ☐ 01 Y ☐ 02 N ☐ 03 P ☐ 04 Unk

Extricated: ☐ 01 Y ☐ 02 N ☐ 03 Unk

Injury Status:
☐ 01 Fatal
☐ 02 Incapacitating *
☐ 03 Non-incapacitating *
☐ 04 Possible
☐ 05 None
☐ 06 Not Reported
☐ 07 Unk

Transported ☐ 01 Y ☐ 02 N ☐ 03 Unk

Transported By:
☐ 01 Air Ambulance
☐ 02 Airplane
☐ 03 EMS
☐ 04 Helicopter
☐ 05 Police
☐ 06 Private vehicle
☐ 07 Unk
☐ 08 N/A

Transported To:
☐ 01 Clinic
☐ 02 Hospital
☐ 03 Mortuary
☐ 04 Residence
☐ 05 Unk
☐ 06 N/A

Page _______ of _______

Part C

12-200 Revised 9/12/01

ALASKA MOTOR VEHICLE COLLISION REPORT	DMV #:	Incident/Case #

Check all that apply.

Pedestrian Information

- ☐ Crossing with Signal
- ☐ Crossing against signal
- ☐ Crossing, no signal, marked crosswalk
- ☐ Crossing, no signal or marked crosswalk
- ☐ Walking with traffic
- ☐ Walking against traffic
- ☐ Emerging in front of/behind parked vehicle
- ☐ Child getting on/off school bus
- ☐ Getting on/off vehicle other than school bus
- ☐ Pushing/working on vehicle
- ☐ Parking in roadway
- ☐ Playing in Roadway
- ☐ Playing in roadway
- ☐ Other actions in roadway
- ☐ Not in roadway
- ☐ Alcohol involved
- ☐ Bike visibility flag
- ☐ Bike helmet worn

Land Usage at Accident Location

- ☐ School / playground
- ☐ One / two family residential
- ☐ Apartment residential
- ☐ Business / shopping
- ☐ Industrial / manufacturing
- ☐ Agricultural / undeveloped
- ☐ Recreational / park / camping

Other property damage $ _____

☐ Non – highway ☐ Not investigated at scene ☐ Left scene

Number of photographs taken by: Police _____ Other _____

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