Improving Crash Data for Safer Roadways

MMUCC

Model Minimum Uniform Crash Criteria Guideline

Second Edition
(2003)



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EXECUTIVE SUMMARY

The purpose of the Model Minimum Uniform Crash Criteria (MMUCC) is to provide a data set for describing crashes of motor vehicles that will generate the information necessary to improve highway safety within each state and nationally.

Statewide motor vehicle traffic crash data systems provide the basic information necessary for effective highway and traffic safety efforts at any level of government — local, state or federal. State crash data are used to perform problem identification, establish goals and performance measures, allocate resources, determine the progress of specific programs, and support the development and evaluation of highway and vehicle safety countermeasures. Unfortunately, the use of state crash data is often hindered by the lack of uniformity between and within states.

MMUCC represents a voluntary and collaborative effort to generate uniform crash data that are accurate, reliable and credible for data-driven highway safety decisions within a state, between states and at the national level.

MMUCC was originally developed in response to requests by states interested in improving and standardizing their state crash data. Lack of uniform reporting made the sharing and comparison of state crash data difficult. Different elements and definitions resulted in incomplete data and misleading results.

MMUCC recommends voluntary implementation of a "minimum set" of standardized data elements to promote comparability of data within the highway safety community. It serves as a foundation for state crash data systems.

Efforts to standardize crash data have increased since MMUCC was originally recommended as a voluntary guideline in 1998. More and more states included MMUCC in their data review process as they sought to revise their crash report forms. Updates of the American National Standards Institute (ANSI) Standard D16.1-1996, *Manual on Classification of Motor Vehicle Traffic Accidents,* Sixth Edition, and the ANSI Standard D20.1, *Data Element Dictionary for Traffic Records Systems,* used to develop and update MMUCC, will be coordinated during their normal review processes to be consistent with the MMUCC Guideline, 2nd Edition (2003) wherever appropriate.

Congress has supported the improvement of crash data. The Transportation Equity Act for the 21st Century (TEA21) has recommended the development of model data elements.

Implementation of MMUCC is a collaborative effort involving the National Highway Traffic Safety Administration (NHTSA), the Federal Highway Administration (FHWA), the Federal Motor Carrier Safety Administration (FMCSA), and the Governors Highway Safety Association (GHSA — formerly NAGHSR). The review and update of the MMUCC Guideline, 1st Edition (1998) has been structured to obtain maximum input from all sectors of the highway safety community. Over a 12-month period during 2001-2002, feedback was obtained from meetings, via the Web, email, phone, mail, etc., before producing the MMUCC Guideline, 2nd Edition (2003).

The MMUCC data elements represent a core set of data elements, most of which were being collected by the states before the first edition of the MMUCC Guideline was published. The 113 data elements contained in the MMUCC Guideline, 1st Edition (1998) were revised in response to emerging issues and other highway safety needs. The second edition of the MMUCC Guideline contains 111 data elements.

Five new data elements were added to document distracted drivers, special use vehicles, roadway information at the vehicle level, hit and run crashes, and vehicle contributing circumstances. Only half of the data elements needed to be revised to meet the needs of NHTSA, FHWA, FMCSA, GHSA and the highway safety community at the local, state, and national levels. The remaining data elements required only minor editorial changes or were left as is.

The MMUCC Guideline, 2nd Edition (2003) recommends that states implement all 111 data elements included in this document. To reduce the data collection burden, MMUCC recommends that law enforcement at the scene should collect 77 of the 111 data elements. From crash scene information, 10 data elements can be derived while the remaining 24 data elements, related to the person and roadway involved, should be obtained after linkage to driver history, injury and roadway inventory data. *States that are unable to link data should collect, as a minimum, those "linked data elements" that are feasible to collect on the crash report. At the same time, states should work to develop data linkage capabilities so that, over time, they are able to obtain, via linkage, all of the information to be generated by the MMUCC "linked data elements."*

State data sets and systems are difficult to implement and/or change so no changes will be made to the MMUCC Guideline, 2nd Edition (2003) for five years. During this period, each of the data elements and their attributes will be monitored to determine their usefulness and reliability. The next planned update of the MMUCC Guideline is scheduled for 2008. At this time, the feedback will be considered to ensure that MMUCC is revised to meet the current needs of highway safety at the local, state, and federal levels.

ACKNOWLEDGMENTS

The National Highway Traffic Safety Administration, the Federal Motor Carrier Safety Administration, the Federal Highway Administration, and the Governors Highway Safety Association sponsored the development of the MMUCC Guideline, 2nd edition (2003). Numerous state and local agencies and organizations participated in the review process. The expert panel members for the revised MMUCC Guideline are recognized below (See Appendix A for contact information). Other participants who attended the Update MMUCC Workshop at the 28th International Traffic Records Forum, August 2002 are listed in Appendix B.

David Bozak*	InfoGroup, Inc.
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*Participated in the 1997 MMUCC Expert Panel.

ACKNOWLEDGMENTS

Other persons who made significant contributions to the initial development of the MMUCC, 1st Edition (1998) are listed below. Included in this group is Janet Johnson who created the acronym "MMUCC".

Noel Bufe	Northwestern University Traffic Institute
Frank Carlile	Florida Department of Transportation
Charles Compton	University of Michigan Transportation Research Institute
Doug Donscheski	Nebraska State Patrol
Don Hillis	Missouri Department of Transportation
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Charles Peltier	International Association of Chiefs of Police
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James Templeton	Texas Department of Public Safety
Robert Thompson	Iowa Governor's Traffic Safety Bureau
Patricia Waller	University of Michigan Transportation Research Institute
John Watson	New York State Department of Transportation
Janet Johnson (deceased)	National Highway Traffic Safety Administration
Janet Kumer	Federal Highway Administration
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Jack Oates	National Highway Traffic Safety Administration
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INTRODUCTION

PURPOSE

The purpose of MMUCC is to provide a minimum, standardized data set for describing crashes of motor vehicles that will generate the information necessary to improve highway safety within each state and nationally.

FORMAT OF THE MMUCC GUIDELINE, 2ND EDITION (2003)

The MMUCC Guideline, 2nd Edition (2003) consists of five major sections. The first section is an introduction to the importance of crash data and the factors that are related to the development, implementation and update of MMUCC during the past five years. The second section summarizes the changes to the MMUCC Guideline, 1st Edition (1998). The third section presents the MMUCC data elements. The fourth section provides a glossary that defines the acronyms and MMUCC terminology used in the MMUCC Guideline, 2nd Edition (2003). The fifth, and final section, presents appendices that include reference information useful for MMUCC training and implementation efforts.

IMPORTANCE OF CRASH DATA

A motor vehicle crash report includes information that describes characteristics of the events, vehicles, and persons (drivers, injured and uninjured occupants, injured pedestrians and bicyclists, etc.) involved in the crash. Law enforcement investigates the crash at the scene and documents the information on the crash report. By using evidence found at the scene, and by interviewing participants and witnesses, the investigating officer may answer such questions as:

- "In what directions were the involved vehicles and pedestrians moving prior to impact?"
- "What occurred at the time of impact?"
- "What factors may have contributed to the crash?"

Data recorded on crash reports are computerized and merged into a central, electronic crash data file at the state level. These statewide motor vehicle crash databases provide the basic information necessary for developing effective highway and traffic safety programs. Data from state crash data systems are used by local, state and federal agencies to:

- Identify and prioritize highway and traffic safety problem areas;
- Initiate and evaluate the effectiveness of laws and policies intended to reduce deaths, injuries, injury severity and costs; and,
- Assess the relationship between vehicle and highway characteristics, crash propensity, and injury severity to support either the development of countermeasures or their evaluation.

At the federal level, individual crash reports also provide the basis for national crash information systems, either as the sampling frame or as a source of data. Data from these national systems are utilized in highway safety decision making by agencies at all levels of government.

By promoting MMUCC, the highway safety community is making an explicit statement that comparable data from all states are crucial to our ability to identify problems and make improvements. The MMUCC data elements, along with the state-specific data elements and the officer's narratives and diagrams, provide critical highway safety information. Information technology is capable of capturing these data electronically, regardless of whether the data are in narrative, graphic or coded formats.

Justification for MMUCC

MMUCC was originally developed in response to requests by states interested in improving and standardizing their state crash data. Although the majority of states collect a uniform core of highway safety data elements and definitions, the lack of uniform attributes and complete reporting limit interstate comparisons and skew analytical results.

Changes During the Past Five Years

Efforts to standardize crash data have increased since MMUCC was originally recommended as a voluntary guideline in 1998. More states have included MMUCC in their crash data review process. This has generated feedback with which to evaluate and update MMUCC according to the needs of the states and the federal government. States are continually being encouraged to give priority to MMUCC, but also to add other data elements when needed for state-specific purposes.

Several federal agencies as well as other highway safety organizations have been using MMUCC as a model as they compare their databases for compatibility and work towards standardization.

The MMUCC review and update effort has provided an opportunity to obtain better data on emerging highway safety issues such as distracted driving, child restraint usage, etc. As a result, the highway safety community has improved its data collection, quality, comparability, and standardization.

Updates of the American National Standards Institute (ANSI) Standard D16.1-1996, *Manual on Classification of Motor Vehicle Traffic Accidents,* Sixth Edition, and the ANSI Standard D20.1, *Data Element Dictionary for Traffic Records Systems,* used to develop and update MMUCC, will be coordinated during their normal review processes to be consistent with the MMUCC Guideline, 2nd Edition (2003) wherever appropriate.

Congress has supported the improvement of crash data with the enactment of the Transportation Equity Act for the 21st Century. TEA21 includes a recommendation for the development of model data elements.

MMUCC Update Process

The review and update of the MMUCC Guideline, 2nd Edition (2003) has been a public/private collaborative effort of the highway and traffic safety communities. The process has been sponsored by NHTSA, FHWA, FMCSA, and GHSA and was designed to provide for the greatest possible input so that MMUCC is perceived not as a product of any one organization but as something for which all stakeholders can claim ownership. The following steps have been accomplished:

- MMUCC Guideline, 1st Edition (1998) was distributed and implemented. As agreed upon during the development phase, no changes were made for five years.
- In 1999, NHTSA interviewed the seven states that had participated in a crash report revision process and adopted most of the recommended MMUCC data elements. For most of these states, revising the forms and data systems was long overdue because of obsolescence. New technologies made the revisions feasible and Y2K compliance provided a sense of urgency.
- During 2001–2002, NHTSA funded the development of an electronic version of MMUCC. That software was made available, at no cost, to facilitate implementation of the MMUCC recommendations. (A sample of the electronic version is included in Appendix C.)

The 2003 MMUCC data elements and attributes will be incorporated into an updated version of the electronic MMUCC and will be available by the summer of 2003, at no cost, through the Iowa National Model as a module of the TraCS software.

- During 2001–2002, the MMUCC data elements were reviewed by NHTSA's Data Compatibility Work Group consisting of representatives of the Fatality Analysis Reporting System (FARS), National Automotive Sampling System Crashworthiness Data System (NASS-CDS) and General Estimates System (NASS-GES). This group used MMUCC as a model to evaluate the compatibility of their respective data systems. During the discussions, recommendations were noted for consideration at the next update of MMUCC.
- During April 2002, sixteen states, identified as having revised their crash report forms within the past five years, were surveyed in detail. One state was excluded, having completed the review process prior to the availability of MMUCC. Ninety-three percent (14 of 15) of the remaining states used MMUCC during their review processes. On average, 84 percent of the MMUCC data elements were incorporated. Contributing Circumstances — Environment, Underride/Override, Direction of Force, Vehicle Role and Commercial Vehicle Trailer Information were the data elements most frequently not adopted. Some states noted difficulty implementing those data elements that required linkage to other data files. Some states recommended that MMUCC include data elements for booster seats, cell phones, vehicle removal, and time of EMS notification.
- NHTSA prepared a draft revision of MMUCC that included the recommendations by the NHTSA Data Compatibility Work Group and the results of the original sixteen state surveys. This version was presented to the MMUCC expert panel at its meeting held in Arlington, Virginia in May 2002. The MMUCC expert panel reviewed all of the recommendations. MMUCC was revised and expanded per the panel's discussions.
- During June 2002, the draft MMUCC Guideline, 2nd Edition (2003) was made available for public comment on the MMUCC Web site.
- Comments entered at the MMUCC Web site during the late spring and summer of 2002 were added to the draft MMUCC Guideline, 2nd Edition (2003) and presented for public comment at a MMUCC one-day workshop held in conjunction with the 28th International Traffic Records Forum during August 2002 in Orlando, Florida.
- During August 2002, NHTSA's survey was expanded to include 16 more states (for a total of 32 states) and a new set of questions about the characteristics of MMUCC. Of the 32 states, more than two-thirds responded that they have or are planning to implement electronic crash reporting. Only nine states responded that they had no plans to update their crash form anytime soon. Two-thirds of the states also indicated that they have limited or no resources to link driver, vehicle and roadway data files. On average, the states computerized 82 percent of the data elements they collected. The percentage of data elements collected for PDO crashes varied from zero to 65 percent. Many states responded that data are more accurate for fatal crashes, less accurate for non-fatal injury crashes, and even less accurate for PDO crashes.
- Comments from the workshop and NHTSA's survey were incorporated into a new version of the draft MMUCC Guideline, 2nd Edition (2003), which was reviewed by the MMUCC Expert Panel at its second meeting in Arlington, Virginia in October 2002. The workshop recommendations were discussed and a final version of the MMUCC Guideline, 2nd Edition (2003) was recommended for implementation during the next five years.
- The MMUCC Guideline, 2nd Edition (2003) is being distributed jointly by NHTSA, FHWA, FMCSA, and GHSA.

Selection Criteria for MMUCC Data Elements

The following criteria were used to select the MMUCC data elements and to evaluate all recommendations for changes or additions:

AN ELEMENT MUST BE APPROPRIATE. It must be needed for highway or traffic safety purposes. Elements that are administrative in nature or have little or no application for highway or traffic safety analysis are excluded.

AN ELEMENT MUST BE COMPREHENSIVE. It must include all aspects of the definition.

EACH ELEMENT MUST INCLUDE:

- A definition;
- A set of attribute values; and,
- A rationale (importance to highway safety).

EXISTING STANDARDS DOCUMENTATION WILL BE FOLLOWED. The primary reference used to develop MMUCC consisted of the ANSI D16.1Manual on Classification of Motor Vehicle Traffic Accidents, 6th Edition. Other references used included ANSI D20.1, the Fatality Analysis Reporting System (FARS), the National Automotive Sampling System General Estimates System (NASS-GES) and the Crashworthiness Data system (NASS-CDS), and the data elements mandated by the Federal Motor Carrier Safety Administration for commercial motor vehicles.

MMUCC WILL PRESENT ONLY THE DATA ELEMENTS. MMUCC does not attempt to organize the proposed data elements and their attribute values into a reporting format. It also does not present coding values for the element values. States have the option of designing the format and content of their crash report, and the most appropriate data collection system and data coding conventions to meet their needs.

THE DATA SET COLLECTED AT THE SCENE WILL BE MINIMAL. Additional data needed for analytical purposes are derived from existing computerized data elements or obtained after linkage to other data files whenever possible. States have the option to expand the data set to meet state-specific needs.

DATA ELEMENTS WILL BE INCLUDED TO FACILITATE LINKAGE TO OTHER DATA SOURCES. Identifiers describing the location, date, time, persons involved, etc. are essential. When standardized, these data elements are useful for linking to other state data.

MMUCC and the Importance of Reporting Thresholds

Background

The MMUCC Guideline, 1st Edition (1998) recommended that, as a minimum, states should report all crashes in which anyone was injured or at least one car was towed from the scene. As the result of the MMUCC recommendation and pressures to reduce state budgets, some states have considered eliminating some of the non-tow-away property damage only (PDO) cases they currently collect.

Studies Reporting the Impact of a Tow-Away Reporting Threshold

Using their Highway Safety Information System (HSIS), FHWA conducted two studies to evaluate the potential impact of changing to a "tow-away or injury" reporting threshold. The first study examined changes in crash frequency, types of crashes and locations. The results indicate that such a change would eliminate approximately 48 percent of the crashes now in current PDO-based files; would exclude more crashes on urban streets than on rural roads; would result in underestimation of rear-end, sideswipe, parking, and animal crashes; and would seriously affect the reporting of run-off-road, angle, and turning crashes. The second study evaluated the specific effects on a state roadway agency's ability to identify high-crash locations and to conduct the crash-pattern analysis necessary to identify countermeasures. The results indicate that the listing of high-crash locations would be significantly changed. Whether this was a benefit or a disbenefit would require further study. However, it was found that under a tow-away threshold, safety engineers identified fewer "total" patterns and "serious" patterns in their crash-pattern analyses, especially for turning, rear-end, and sideswipe crashes.

The National Center for Statistics and Analysis (NCSA) at NHTSA reviewed the reporting thresholds for the seventeen states participating in NHTSA's State Data System. NCSA evaluated what proportion of crashes would be lost and what changes in the basic composition of the crash data would occur with a "tow-away or injury" threshold. The results indicated that this threshold would significantly decrease the total number of reportable crashes. Approximately 42 percent of all crashes and approximately 70 percent of the property damage only crashes would be lost. NCSA also evaluated the impact of a "tow-away or injury" threshold for urban/rural crashes, single/multiple vehicle crashes, first harmful event, manner of collision and vehicle types. The results indicate that low severity PDO crashes would be lost, changing the composition of the remaining PDO crashes as follows:

- The proportion of urban crashes decreases.
- The proportion of single vehicle crashes increases, with an increase in fixed object, rollover, and other non-collision crashes.
- The proportion of multiple vehicle crashes decreases, both for motor vehicles in transport and parked motor vehicle crashes.
- The proportions of angle and head-on collisions increase, while rear-end and sideswipe collisions decrease.
- The proportions of passenger cars and light trucks in crashes increase slightly, large trucks and motorcycles decrease slightly, and buses and other vehicles exhibit a moderate decrease.

Impact of MMUCC on Collectors and Users of Crash Data

The responsibility for the collection of crash data falls on law enforcement that is responsible for investigating and recording the crash events at the scene. Budget considerations that affect staffing affect willingness to expand the scope of crash data collection. However, because of the increasing importance of crash data for highway safety, some jurisdictions have resolved this problem by adding civilian personnel as investigators to relieve police of the burden of investigating and documenting all of the motor vehicle crashes.

The responsibility for analyzing the crash data falls on the major users of crash data who may or may not be the data collectors. The analyst wants information about most of the crashes and all persons involved (injured or uninjured) to accurately monitor the status of highway safety.

Importance of Complete and Accurate Crash Data

Highway safety cannot improve without complete and accurate crash data.

Comprehensive information is necessary to understand what makes a difference and what has a direct impact on reducing deaths, injuries, injury severity and costs.

- Complete crash data make it possible to justify highway safety decisions that reduce the community's or state's fiscal liability caused by adverse court decisions from roadway defects, vehicle designs, etc.
- Targeting highway safety countermeasures to reduce health care costs caused by motor vehicle crashes will save the state money in terms of reduced expenses for Workers' Compensation and Medicaid and increased revenue from fewer days lost to injury.
- A state may receive less federal funding than is targeted when incomplete and unreliable data force federal funding decisions to be based on estimates rather than the state's actual data.
- Different state reporting thresholds make it difficult to accurately determine whether differences between states are caused by the data or the countermeasures.
- The elimination of non-tow-away PDO cases affects the state's ability to justify data-driven decisions for highway safety. When only injury crashes are included, the lack of information about the uninjured makes it impossible to measure if a safety countermeasure (safety belts, helmets, etc.) causes a downward shift in injury severity. When less serious or no injury cases are excluded, many of the highway safety success stories are eliminated.

Types of Reporting Thresholds

All states report crashes that result in injury. But not all states collect the same information about the uninjured passengers or the reported minor PDO crashes. States have adopted various types of reporting thresholds that balance data collection demands with their available staff time and funds. Thresholds may focus on the type of roadway (public/private), the level of property damage or vehicle damage, the occurrence of an injury, and/or the absence of an injury. The implementation of these types of reporting thresholds is not uniform among the states. Each type is described below:

1. Type of Road: Most states limit reporting to crashes that occur on public roads. Thus, crashes and/or injuries occurring in private driveways or parking lots are not included in the crash files, though their injuries may be severe enough to require admission as a hospital inpatient.
2. Property or Vehicle Damage: Most states limit reporting to crashes that involve $500–$1,500 or more of property damage and exclude fender benders, perceived as insignificant. Larger states are more likely to choose the higher property damage threshold or even to go beyond property damage to include only those crashes in which at least one vehicle had to be towed.
3. Occurrence of Injury: Almost all states report crashes that involve an injured person. Injuries are categorized using a functional measure of severity (KABCO, etc.) that is based on the level of injury severity visible at the scene. Most states collect information that identifies the injured person by age, sex, injury severity, seating position in vehicle, vehicle number, and whether the person was using safety equipment (belts, helmets, etc.).

4. Absence of an Injury: In an effort to save time and money, some states do not collect data about the uninjured passengers involved in motor vehicle crashes. Other states may collect safety equipment use for this group but exclude the identifiers (age, sex, injury severity, seating position in vehicle, vehicle number, etc.).

Reporting Threshold Recommended to Implement MMUCC

The MMUCC Guideline, 2nd Edition (2003) recommends the following threshold as necessary to generate the cases needed to improve highway safety.

- All crashes statewide involving death, personal injury, or property damage of $1,000 or more should be reported and computerized statewide.
- Crash data should be reported for all persons involved (including the injured and non-injured) to support highway safety's mission of reducing death, injury, injury severity and health care costs resulting from motor vehicle crashes statewide.
- Each state should adopt a reporting threshold that is uniform and consistently implemented statewide.

MMUCC and the Importance of Data Linkage

This MMUCC Guideline, 2nd Edition (2003) recommends linkage to other sources of information when available to reduce the data collection burden at the scene. Electronic transfer of data to automatically complete the crash report at the scene improves data quality and saves time.

This MMUCC Guideline, 2nd Edition (2003) also recommends linkage as a strategy to gain access to information not available at the scene of the crash. Crash data alone do not indicate the magnitude of the problem of motor vehicle crashes or the effectiveness of highway safety countermeasures. Nor do crash data provide sufficient details about the roadway, the vehicle, the experience of the driver, or the medical and financial consequences for those who are injured.

Other state data files do collect crash-related information. Their linkage to state crash data provides the opportunity to collect more comprehensive information about the crash. Roadway inventory, driver licensing, vehicle registration, citation/conviction, EMS, emergency department, hospital, death certificate, census and other state data provide more information about the roadway, the drivers and vehicles involved, and the type and severity of the injuries that occur. Crash, injury and some judicial records are collected at the time of the crash at the scene, en route, at the emergency department, in the hospital, and after hospital discharge. Driver licensing, vehicle registration, and roadway inventory files are collected routinely as part of an administrative process rather than at the time of the crash. When these files are linked (see Appendix D for an example of a highway safety linked data system), it is possible to consider the type of roadway and vehicles involved as the persons injured in the crash are tracked from the scene through the health care system to determine who is at risk, at what cost, and what factors make a difference to injury outcome.

Benefits of Linkage

Data linkage expands the usefulness of each data file being linked without the delay and expense of new data collection. Linkage makes it possible to evaluate the relationship between specific roadway, crash, vehicle, and human factors at the time of a motor vehicle crash. It also permits

these factors to be linked to health outcome data to determine their association with specific medical and financial consequences. Understanding what increases injury severity and health care costs facilitates choosing safety priorities that have the most impact on reducing death and disability. This information is particularly useful for decision making by safety program managers, engineers and legislators at the state and federal levels. At the same time, the linkage process itself improves the quality of state data and promotes collaboration between the traffic safety, highway safety and injury control communities.

MMUCC "Linked Data Elements"

States that are unable to link data should collect, as a minimum, those "linked data elements" that are feasible to collect on the crash report. At the same time, states should work to develop data linkage capabilities so that, over time, they are able to obtain, via linkage, all of the information to be generated by the MMUCC "linked data elements."

Benefits of MMUCC to the Highway Safety Community

Improves the Quality of Highway Safety-Related Data

- Facilitates the use of standardized data elements for crash data entry software that will increase the efficiency of data collection and improve data quality.
- Facilitates linkage to geographic information systems, other highway traffic safety-related data, and medical outcome data, including the costs and payers that can be associated with specific crash, vehicle, road, and person characteristics.
- Provides a process for making changes in transportation data that will facilitate more efficient business process systems, including reducing unnecessary expense caused by duplicate data collection at the local and state levels.
- Supports routine monitoring of emerging technologies, such as electronic communication devices, and vehicle or highway modifications.

Facilitates Data-Driven Highway Safety Decisions

- Provides consistent and accurate data to support state and local highway safety programs.
- Improves collaboration across health and transportation sectors resulting in more complete, comprehensive crash outcome data for public health and injury control purposes.
- Supports a collaborative approach so that states and federal agencies learn from each other by sharing their successes, identifying their common problems, and working together on joint program priorities.
- Justifies targeting funding resources to match successful performance measures and effective programs.
- Supports interstate comparisons and analyses.

Strategies That Facilitate the Voluntary Implementation of MMUCC

- *Use MMUCC to justify data collection alternatives to reduce the data collection at the scene.*

  Many MMUCC data elements and attribute values match data already being collected by most states. Using the computer to derive or link new data elements allows the needs of all users to be met while reducing the burden of collecting these data elements at the scene.

- *Use MMUCC to take advantage of new technology that will reduce MMUCC implementation costs.*

  New state-of-the-art technology resolves the limitations of existing legacy systems that make the conversion process expensive and complicated. This technology also improves the efficiency and timeliness of data collection and processing, so reporting thresholds that include the uninjured and minor crashes can be maintained to provide the data needed to improve highway safety. Vendors are expected to play a large role in the standardization effort by incorporating MMUCC into the software the states plan to utilize. Successful implementations of MMUCC can be identified, publicized and made available in a NHTSA/FHWA/FMCSA/GHSA technology clearinghouse as models for states to evaluate and consider implementing. (One technology clearinghouse has been established at www.iacptechnology.org.)

- *Use MMUCC to attract funding sources to help defray implementation costs.*

  States and local agencies can benefit from funding incentives to implement MMUCC. At the state level, a collaborative focus on MMUCC by highway safety stakeholders is a successful strategy for obtaining the necessary funds and staff resources to achieve standardized crash data. Convening state user groups (as recommended in Goal II of the National Agenda of the National Safety Council's Traffic Records Committee) is an inexpensive mechanism for sharing expertise and receiving technical assistance for traffic records and data linkage. Incorporating MMUCC into NHTSA's traffic record assessments provides a potential mechanism to justify including standardization efforts in the state's highway safety plan.

- *Use MMUCC as the basis for new data collection training programs.*

  Routine, user friendly, training and feedback to the data collectors facilitate the implementation of MMUCC. Regular in-service training about how to interpret feedback information will help the data collectors understand the value of MMUCC. Incorporating MMUCC into existing routine training provided to police and highway safety analysts helps to shorten the learning curve.

- *Use MMUCC to support a state highway safety information system.*

  A state highway safety information system that is comprehensive, relies on standardized data, stores and distributes timely, complete and accurate data, and provides access to users at all levels needs MMUCC to be successful. See Appendix E for a checklist of the functions of a state highway safety information system.

- *Use MMUCC to strengthen collaboration between the highway safety, public health and injury control communities.*

  Access to crash data files based on MMUCC is important to support public health efforts to reduce deaths, injuries, injury severity and health care costs. Protocols and model

legislation provide guidelines on how to protect privacy while making the data available for epidemiological purposes. Access to sensitive information should be improved for those who need to know. However, MMUCC data can be aggregated to provide routine feedback via management reports and for public use via the Internet.

- *Use MMUCC to encourage national associations to collaborate to reduce duplicate data collection and standardize traffic records.*

  Collaboration by the American Association of Motor Vehicle Administrators (AAMVA), American Association of State Highway and Transportation Officials (AASHTO), International Association of Chiefs of Police (IACP), Institute of Transportation Engineers (ITE), Society of Automotive Engineers (SAE), Association of State and Community Engineers (ASCE) and other organizations is important to broaden MMUCC beyond the safety focus so that data demands that result in duplicate data collection are decreased at the same time that users' needs are met. Support also should be provided for the processes that update ANSI Standards D16.1 and D20.1 on a regular basis so that standardized minimum uniform crash criteria are maintained.

- *Use MMUCC as a dynamic data set that will be reviewed for relevance every five years.*

  New technology and emerging highway safety issues provide an incentive for continual review of MMUCC and its effectiveness to generate the information that is necessary to improve highway safety. The MMUCC Web site at http://www.mmucc.us provides a mechanism to document feedback during the next five years. Users can comment on their experiences implementing a specific data element or attribute for that data element. The user can also enter general comments on the usefulness of MMUCC, issues related to reporting thresholds, data collection, linkage and other concerns. Data users also should be encouraged to make presentations and sponsor information booths at conferences to provide feedback about the usefulness of the information generated by MMUCC. All feedback will be incorporated into the next evaluation and revision of MMUCC scheduled for the year 2008.

Priority Tasks for the Voluntary Implementation of MMUCC

MMUCC assists states in the process of revising their crash reporting forms and crash data processing systems. Except for the data elements required by the Federal Motor Carrier Safety Administration, implementation of the MMUCC data elements is voluntary. NHTSA, FHWA, FMCSA, and GHSA encourage the following to facilitate the implementation of MMUCC:

- *Coordination and Collaboration*
  - MMUCC workshop sponsored by state Traffic Record Coordinating Committees (TRCC)
  - Highway Safety Information System Leadership Course developed by Governors Highway Safety Association (GHSA) and sponsored by NHTSA
  - TRCC that is effective to ensure sufficient resources to implement a state highway safety information system
- *Promotion*
  - MMUCC as a guideline for efficient change
  - Proposed TEA21 data incentive grants to incorporate MMUCC within highway safety data plans

- Role of other federal agencies to prevent duplication of funding for similar efforts related to MMUCC

- *Training and Technology-Driven Applications*
  - Proposed Web-based MMUCC training materials
  - Proposed Q&A capability at the MMUCC Web site
  - Proposed Video segments for the Law Enforcement Training Network (LETN)
  - Proprietary software that incorporates the MMUCC Guideline, 2nd Edition (2003) to facilitate the implementation of MMUCC
  - Software for mobile data computers that will generate a printed copy of a crash report
  - Model analyses and reports
  - Implementation kit including MMUCC marketing brochures, newsletters, and overheads for presentations at national and regional meetings
  - Updated MMUCC worksheets for comparing MMUCC data elements, definitions, and attributes to existing state crash data elements, definitions and attributes

- *Monitoring*
  - Regular surveys to measure the status of the implementation of the MMUCC Guideline, 2nd Edition (2003)
  - Model states and best practices
  - Regular traffic records assessments to identify what resources are needed

SUMMARY OF CHANGES TO THE MMUCC GUIDELINE, 1ST EDITION (1998)

Only half of the original 113 MMUCC data elements needed to be revised or deleted. The remaining data elements required only minor editorial changes or were left as is. The MMUCC Guideline, 2nd Edition (2003) includes 111 data elements. Only five data elements (5%) are completely new. These data elements were created to document emerging issues such as distracted drivers, special function of vehicle, roadway information at the vehicle level, hit and run crashes, and vehicle contributing circumstances. Data elements were split to create new data elements that facilitated data collection. Some new data elements were merely transfers from the derived or linked category to the collected category. Some data elements were edited to provide clarification either in the definition or the data element name. The chart below indicates that more changes were made to the vehicle data elements. Half of the eight vehicle data elements indicated as deleted were actually combined into the data element for Motor Carrier Identification. Of the ten new vehicle data elements to be collected at the scene, six were included in the first edition of MMUCC: three were previously included in the vehicle-derived data elements, one was previously included in the vehicle-linked data elements and two were previously included in the roadway-linked data elements.

MMUCC GUIDELINE, 1ST EDITION (1998) COMPARED TO MMUCC GUIDELINE, 2ND EDITION (2003)

SUMMARY OF TOTAL DATA ELEMENTS

			Action Taken			
		Original	Delete	Add	Change	Final Total
Crash:	Collect	18	0	+1	+1	19
	Derived	8	0	+1	+1	9
	Linked	0	0	0	0	0
Vehicle:	Collect	28	–8	+10	+2	30
	Derived	3	–3	0	–3	0
	Linked	1	–1	0	–1	0
Person:	Collect	29	–3	+2	–1	28
	Derived	0	0	+1	+1	1
	Linked	5	–1	+2	+1	6
Roadway:	Linked	21	–3	0	–3	18
Total		113	–19	+17	–2	111

A summary of the actions taken for each data element is presented below in separate charts for the crash, vehicle, person, and roadway data elements. Data elements presented in bold in the Comments represent new attributes.

Crash Data Elements
Changes Made to the MMUCC Guideline, 1st Edition (1998)

Crash Collected Data Elements

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
C1	C1	Crash Case Identifier			No change.
C2	C2	Crash Date and Time	X		Time is recorded between 00:00–23:59. Midnight is coded as 00:00 to represent beginning of a new day.
C3	C3	Crash County			New reference to FIPS codes.
C4	C4	Crash City/Place			New reference to FIPS codes.
C5	C5	Crash Location	X	X	Name changed from Crash Roadway Location. Definition changed to indicate crash location as the location of the first harmful event of the crash. Lists attributes as Latitude/Longitude Coordinates, Linear Referencing System and Link Node System.
C6	C6	First Harmful Event		X	Added: Fire/Explosion, Immersion, Cargo/Equipment Loss or Shift, Fell/Jumped From Motor Vehicle, Thrown or Falling Object to list of non-collisions. Revised attributes for Collisions with Fixed Object as follows: Added Impact Attenuator/Crash Cushion, Bridge Overhead Structure, Bridge Pier or Support, Bridge Rail; Culvert is listed separately; separated Embankment, Ditch, Curb, split guardrail into Guardrail Face and Guardrail End, replaced median barrier with Concrete Traffic Barrier and Other Traffic Barrier, added (standing) to tree, added Traffic Sign Support, Traffic Signal Support, Other Post, Pole or Support, Fence, Mailbox, and Other Fixed Object (wall, building, tunnel, etc.), deleted work zone maintenance equipment. Coordinated attribute list for this data element with Most Harmful Event (V21).
C7	C7	Location of First Harmful Event		X	Added Separator, In Parking Lane or Zone, and Off Roadway Location Unknown to list of attributes describing location. Revised Outside Right-of-Way (trafficway).
C8	C8	Manner of Crash/Collision Impact	X	X	Clarified definition to limit this data element to crashes where the first harmful event involves a collision between two motor vehicles in transport. Angle front-to-side redefined to include Same Direction, Opposite Direction, Right Angle (includes broadside), and Angle-Direction Not Specified.

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
					Added Rear-to-Side and Other. Substituted in the Rationale: Motor Vehicle Maneuver/Action (V18) for Direction of Force that had been deleted.
C9	C9	Source of Information	X	X	Focus changed to document the affiliation of the person completing the crash report. Law Enforcement substituted for Police. Originating Agency Identifier (ORI Codes) added to name for Subfield 2. Deleted Subfield #3 for Type of Police Agency.
C10	C10	Date and Time Crash Reported to Law Enforcement Agency	X		Focus changed to when agency was notified as opposed to when call was placed. Law enforcement substituted for police.
C11	C11	Weather Conditions			No change.
C12	C12	Light Condition	X		Data element name changed from Ambient Light. Definition changed from type to type/level of light at the time of the crash.
C13	C13	Roadway Surface Condition		X	Data element name changed from Road Surface Condition. Added ice/frost, sand, and oil as attributes.
C14	C14	Contributing Circumstances — Environment			Expanded number of allowable entries from one to three.
C15	C15	Contributing Circumstances — Road			Added "may have" to the definition. Expanded number of allowable entries from one to three.
C16	C16	Relation to Junction	X	X	New data element created from split of C16. Data element name changed from Type of Roadway Junction. Reorganized the original attributes related to a junction under Junction Non-Interchange Area and Junction Interchange Area. Deleted shared-use paths or trails. Added Intersection, Intersection-Related, Entrance/Exit Ramp, Other Non-Interchange to Junction Non-Interchange Area. Added Thru Roadway, Intersection, Intersection-Related, Entrance/Exit Ramp, and Other Part of Interchange to the Junction Interchange Area.
	C17	Type of Intersection	X	X	New data element created from split of C16 Type of Roadway Junction. Data element name changed from Type of Roadway Junction. Included the original C16 attributes related to intersections. Added Intersection As Part Of Interchange. Replaced "junction" with Intersection.

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
C17	C18	School Bus Related	X		Expanded definition to include motor vehicles functioning as a school bus for a school-related purpose.
C18	C19	Work Zone Related			No change.

Crash Derived Data Elements

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
CD1	CD1	Crash Severity		X	Replaced non-fatal injury with injury levels including Incapacitating (A), Non-Incapacitating (B), and Possible Injuries (C).
CD2	CD2	Number of Motor Vehicles Involved	X		Changed data element name from Number of Vehicles. Revised definition to exclude phrase "vehicles being in motion or on roadway."
CD3	CD3	Number of Motorists			Replaced motorists with occupants in the definition.
CD4	CD4	Number of Non-Motorists			Replaced non-motorists with non-occupants and added motor vehicles not in transport to the definition.
CD5	CD5	Number of Non-Fatally Injured Persons			Changed data element name from Total Non-fatal Injuries. Revised the data source to include the Incapacitating, Non-incapacitating and Possible injuries listed in Injury Status (P4).
CD6	CD6	Number of Fatalities			Changed data element name from Total Fatalities. Added reference to Fatal Injury (K) listed in Injury Status (P4).
CD7	CD7	Alcohol Involvement			CD7 split to separate documentation for alcohol and drug involvement. Definition revised to indicate that law enforcement suspects use of alcohol by at least one driver or non-motorist involved in this crash.
	CD8	Drug Involvement	X	X	New data element created from the split of CD7. Definition written to indicate that law enforcement suspects use of drugs by at least one driver or non-motorist involved in this crash.
CD8	CD9	Day of Week			No Change.

Vehicle Data Elements
Changes Made to the MMUCC Guideline, 1st Edition (1998)

Vehicle Collected Data Elements

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
VL1	V1	Motor Vehicle Identification Number	X	X	New data element replacing Vehicle Identification Number (VL1).
V1	V2	Motor Vehicle Unit Type and Number	X	X	Clarified code to include alphanumeric and numeric characters. Excludes pedestrians and bicyclists. Added subfields to collect attributes for type and number. Added attributes for Type: Motor Vehicle in Transport, Parked Motor Vehicle, Working Vehicle/Equipment.
V2	V3	Motor Vehicle Registration State and Year			Changed data element name from Vehicle Registration State and Year.
V3	V4	Motor Vehicle License Plate Number			Changed data element name from Vehicle License Plate Number. Eliminated "to access the VIN" from the definition since VIN to be collected directly on the crash report.
V4	V5	Motor Vehicle Make			Changed data element name from Vehicle Make. Added reference to Appendix M for list of codes.
V5		Commercial Trailer Registration State and Year			Deleted data element.
V6		Commercial Trailer License Plate Number			Deleted data element.
VD1	V6	Motor Vehicle Model Year			New data element replacing VD1 Vehicle Model Year. Added YYYY to indicate 4-digit year. Eliminated "or VIN" from the attribute description.
VD2	V7	Motor Vehicle Model			New data element replacing VD2 Vehicle Model. Eliminated "or VIN" from the attribute description.
VD3	V8	Motor Vehicle Body Type Category	X	X	New data element replacing and revising VD3 Vehicle Body Type. Attributes include categories of vehicles. Eliminated "hard top or convertible" from the definition.
V8		Carrier Street Address			Deleted and combined information with other data elements into Motor Carrier Identification (V26).
V9		Carrier Identification Number			Deleted and combined information with other data elements into Motor Carrier Identification (V26).

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
V13	V9	Total Occupants in Motor Vehicle			Definition revised to include reference to injured and uninjured occupants.
V14		Vehicle Role			Deleted data element.
	V10	Special Function of Motor Vehicle in Transport	X	X	New data element to document the type of special function being served by this vehicle. Attributes include: No Special Function, Taxi, Vehicle Used as School Bus, Vehicle Used as Other Bus, Military, Police, Ambulance, Fire Truck.
V15	V11	Emergency Motor Vehicle Use			Revised definition to indicate "official" motor vehicle traveling with physical emergency signals in use.
V18	V12	Motor Vehicle Authorized Speed Limit		X	Changed data element name from Vehicle Authorized Speed Limit. Eliminated subfields and revised attributes to collect only Authorized Value in terms of miles per hour, Not Applicable and Unknown.
V19	V13	Direction of Travel Before Crash			No change.
RL8	V14	Trafficway Description	X	X	New data element replaces Trafficway Description (RL8). Added Two-Way, Not Divided With a Continuous Left Turn Lane, inserted (painted >4 feet) for unprotected median. Replaced One-way, not divided with One-Way Trafficway.
RL6	V15	Total Lanes in Roadway	X	X	New data element replaces RL6 and name changed from Lanes. Definition changed from trafficway to roadway on which vehicle involved in crash was traveling. Undivided highways, code Total "Thru" Lanes In Both Directions. Divided highways, code Total "Thru" Lanes for Roadway (on which motor vehicle was traveling).
	V16	Roadway Alignment and Grade	X	X	New data element to document the alignment and grade of the roadway at the location of the crash.
V20	V17	Traffic Control Device Type		X	Added new attribute to document a Person TCD. Also added a new subfield to document if the device was Working Properly.
V21	V18	Motor Vehicle Maneuver/ Action	X	X	Changed data element name from Vehicle Maneuver/ Action. Revised data element definition to include a controlled maneuver prior to the beginning of the sequence of events. Added Negotiating a Curve. Separated Slowing, Stopped in Traffic.

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
V27		Most Damaged Area			Deleted and combined information with Area(s) of Impact (V19).
V22	V19	Area(s) of Impact	X	X	Data element name changed from Point of Impact. Two subfields created to collect Area of Initial Impact and Most Damaged Area using the following attributes for each: Non-Collision, 12-point clock to indicate impact area, Top (roof), Undercarriage, Unknown.
V23	V20	Sequence of Events		X	Added: Fell/Jumped From Motor Vehicle, Thrown or Falling Object to list of non-collisions. Added to list of collisions with non-fixed objects Struck By Falling, Shifting Cargo, or Anything Set in Motion By Motor Vehicle. Revised the attributes for Collisions with Fixed Object as follows: changed Bridge Pier or Support, replaced median barrier with Concrete Traffic Barrier and Other Traffic Barrier, added (standing) to tree, replaced highway traffic sign post with Traffic Sign Support, replaced overhead sign support with Traffic Signal Support, and deleted work zone maintenance equipment.
V24	V21	Most Harmful Event for this Motor Vehicle		X	Attributes edited to match First Harmful Event (C6).
V25		Direction of Force to Motor Vehicle			Deleted data element.
V26	V22	Underride/ Override			No change.
	V23	Hit and Run	X	X	New data element to document hit and run crashes. New attributes include No Did Not Leave Scene, Yes Driver or Car and Driver Left Scene, Unknown.
V28	V24	Extent of Damage		X	Attributes edited: No Damage and Minor Damage separated. Deleted: Severe/Vehicle Totaled to be consistent with ANSI D16.1.
	V25	Contributing Circumstances, Motor Vehicle	X	X	New data element to document motor vehicle defects and maintenance conditions that may have contributed to the crash. New attributes: Brakes, Steering, Power Train, Suspension, Tires, Wheels, Lights (head, signal, tail), Windows/Windshield, Mirrors, Wipers, Truck Coupling/Trailer Hitch/Safety Chains, Other, Unknown. Two entries are allowed.
V7	V26	Motor Carrier Identification	X	X	Revised per FMCSA requirements.

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
V12	V27	Gross Vehicle Weight Rating	X	X	Revised per FMCSA requirements.
V10	V28	Commercial Motor Vehicle Configuration	X	X	Revised per FMCSA requirements.
V11	V29	Commercial Cargo Body Type	X	X	Revised per FMCSA requirements.
V16	V30	Hazardous Materials Placard (Cargo Only)	X	X	Revised per FMCSA requirements.
V17		Hazardous Materials Released (Cargo Only)			Deleted and information combined with Hazardous Materials Placard (Cargo Only) (v30).

Vehicle Derived Data Elements

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
VD1		Vehicle Model Year			Deleted and replaced by V6.
VD2		Vehicle Model			Deleted and replaced by V7.
VD3		Vehicle Body Type			Deleted and replaced by V8.

Vehicle Linked Data Elements

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
VL1		Vehicle Identification Number			Deleted and replaced by V1.

Person Data Elements
Changes Made to the MMUCC Guideline, 1st Edition (1998)

Person Collected Data Elements

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
P1	P1	Date of Birth		X	Added subfield for Age when DOB not recorded.
P2	P2	Sex			No change.
P3	P3	Person Type		X	Non-Motorist described as Pedestrian, Other Pedestrian, Bicyclist, Other Cyclist, Occupant of Motor Vehicle Not in Transport, Occupant of a Non-Motor Vehicle Transportation Device.
P4	P4	Injury Status			No change.
P5	P5	Occupant's Motor Vehicle Unit Number			Revised data element definition to include a unique number assigned for this crash.
P6	P6	Seating Position		X	List of attributes reorganized into 3 subfields: Row Front, Second, Third, Fourth, Other, Unknown; Seat Left, Middle, Right, Other, Unknown; Other Location Not Applicable, Sleeper Section of Cab, Other Enclosed Cargo Area, Unenclosed Cargo Area, Trailing Unit, Riding on Motor Vehicle Exterior.
P7	P7	Occupant Protection System Use		X	Attributes added: Not Applicable (non-motorist), Restraint Used-Type Unknown, Child Safety Seat Used revised and expanded as Child Restraint System — Forward Facing, Child Restraint System — Rear Facing; added Booster Seat, Child Restraint Type Unknown, Other.
P8	P8	Air Bag Deployed		X	Attributes for switch status deleted. New attributes include Deployed — Other (knee, air belt, etc.), replaced Deployed — Both Front / Side with Deployed-Combination.
P9	P9	Ejection			Clarified definition. Added Not Applicable.
P10		Trapped			Deleted data element.
P11	P10	Driver License Jurisdiction			Data element name changed from Driver License State / Province.
P12 and PL1	P11	Driver License Number and Class		X	Data element name changed from Driver License Number. Deleted subfield related to whether license was a commercial driver's license. Combined information from Driver License Class (PL1). Revised to meet FMCSA mandates.
P13	P12	Driver Name			No change.

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
P14	P13	Driver Actions at Time of Crash	X	X	Data element name changed from Contributing Circumstances, Driver. New attributes document Ran Off Road, Ran Red Light, Improper Backing, Improper Passing. Separated Disregarded Traffic Signs and Disregarded Other Road Markings (including signals). Replaced authorized speed limit with Exceeded Posted Speed Limit. Deleted Inattention, Distracted, Fatigued/Asleep, Operating Defective Equipment. Increased allowable entries from 2 to 4.
P15	P14	Driver Condition at Time of Crash	X		Data element name changed from Driver Condition. Revised definition to indicate "related" instead of "contributed" to crash. Deleted physical impairment from the list of attributes.
P16		Cited			Deleted data element.
P17	P15	Violation Codes			No change.
	P16	Driver Distracted By	X	X	New data element including attributes: Not Distracted, Electronic Communication Devices (cell phone, pager), Other Electronic Devices (navigation device, palm pilot, etc.), Other Inside the Vehicle, Other Outside the Vehicle, and Unknown. Data element important to document emerging issues.
P18	P17	Law Enforcement Suspects Alcohol Use			New data element created from P18. Data element name changed from Alcohol/Drug Suspected. Same list of attributes as P18 but with reference to drugs deleted.
P19	P18	Alcohol Test	X	X	Data element name changed from Alcohol. Definition expanded to include test, type and result. Deleted attributes indicating contamination. Added: BAC Test Result: Value, Pending, Unknown.
P18	P19	Law Enforcement Suspects Drug Use	X	X	New data element created from P18 to document suspected drug use. Same list of attributes as P18 but with reference to alcohol deleted.
P20	P20	Drug Test	X	X	Attributes added to indicate test status and type of result. Added reference to Drug Test (PL4) Result. Deleted attributes indicating contamination. Replaced Test Result: Names of Drugs with Drug Test Result: Positive, Negative, Unknown.
P21	P21	Non-Motorist Number			No change.

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
P22		Non-Motorist Type			Deleted.
P23	P22	Non-Motorist Action Prior to the Crash		X	Data element name changed from Non-Motorist Action. New attributes: Walking To/From School. Added (walking, running, jogging, playing, etc.) as part of Recreational Pursuit.
P24	P23	Non-Motorist Actions at Time of the Crash	X		Changed data element name from Contributing Circumstances, Non-Motorist. Revised definition to indicate what the non-motorist was undertaking at the time of the crash rather than what the non-motorist may have contributed to the crash.
P25	P24	Non-Motorist Condition at Time of the Crash	X		Data element name revised to include "at time of the crash." Definition changed to indicate "directly related" instead of "contributed" to crash. Deleted reference to "immediately prior to a crash." Eliminated "physical impairment" from the list of attributes.
P26	P25	Non-Motorist Location at Time of Crash	X	X	Data element name changed from Non-Motorist Location Prior to Impact. Changed definition to include time of the crash rather than prior to impact. New attributes added: Roadside, Outside Trafficway, Dedicated Bike Lane, and Inside Building. Deleted attributes related to within or beyond 10 feet of roadway.
P27	P26	Non-Motorist Safety Equipment			Added in parentheses (jacket, backpack, etc.) as examples of reflective clothing.
P28	P27	Unit Number of Motor Vehicle Striking Non-Motorist			Changed data element name from Number of Vehicle Striking Non-Motorist.
P29	P28	Transported to Medical Facility By			No change.

Person Derived Data Elements

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
PD1	Age		X	X	New data element that derives age from Date of Birth (P1).

Person Linked Data Elements

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
PL1		Driver License Class			Replaced by P11.
PL2	PL1	Driver License Restrictions		X	Added reference to data source for linkage. New attributes: Must Be Accompanied By an Adult, Military Vehicles Only. Entries expanded from one to three.
	PL2	Commercial Motor Vehicle Endorsements	X	X	New data element to indicate qualification level of skill to operate a specific type of commercial motor vehicle.
PL3	PL3	Driver License Status		X	Added reference to data source for linkage. Created two subfields with new attributes: Subfield 1: Type: Non CDL Driver's License, Non CDL Restricted Driver's License, Commercial Driver License (CDL); Subfield 2: Status: Not Licensed, Valid License, Suspended, Revoked, Expired, Canceled or Denied, Disqualified (CDL) Unknown.
	PL4	Drug Test Result	X	X	New data element to document drug name and actual test results for up to 4 different drug tests.
PL4	PL5	Injury Area			Added reference to data source for linkage.
PL5	PL6	Injury Description			Added reference to data source for linkage.

Roadway Data Elements
Changes Made to the MMUCC Guideline, 1st Edition (1998)

Roadway Linked Data Elements

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
RL1	RL1	Bridge/Structure Identification Number	X		Edited data element definition. Added data source for linkage.
RL2	RL2	Roadway Curvature		X	Data element name changed from Horizontal Alignment. Eliminated Subfield 1 for Alignment to eliminate duplication with V16. Added data source for linkage.
RL3	RL3	Grade			Added data source for linkage.
RL4	RL4	Part of National Highway System			Added data source for linkage.
RL5	RL5	Roadway Functional Class			Data element name changed from Functional Class of Highway. Added data source for linkage.
RL6		Lanes			Deleted and replaced by V15.
RL7	RL6	Annual Average Daily Traffic			Added data source for linkage.
RL8		Trafficway Description			Deleted and replaced by V14.
RL9	RL7	Widths of Lane(s) and Shoulder(s)			Name changed from Average Widths of the Lane(s) and Shoulder(s). Added data source for linkage. Deleted "Average" from attribute name.
RL10	RL8	Width of Median	X		Name changed from Average Width at Median. Revised data element definition. Added data source for linkage.
RL11	RL9	Access Control			Added data source for linkage.
RL12	RL10	Railway Crossing ID			Name changed from RR Crossing ID. Clarified definition. Added data source for linkage.
RL13	RL11	Roadway Lighting			Added data source for linkage.
RL14	RL12	Pavement Markings, Longitudinal			Added data source for linkage.
RL15	RL13	Bikeway			Added data source for linkage.
RL16	RL14	Delineator Presence			Clarified the data element definition. Added data source for linkage.

Element (1998)	Element (2003)	Element Name	New Def.	New Attrib.	Comments
RL17		Intersection Type			Deleted and replaced by C16.
RL18	RL15	Traffic Control Type at Intersection			Added data source for linkage.
RL19	RL16	Mainline Number of Lanes at Intersection			Added data source for linkage.
RL20	RL17	Side-Road Number of Lanes at Intersection			Changed name from Side Road Number of Lanes. Added data source for linkage.
RL21	RL18	Total Volume of Entering Vehicles			Changed name from Mainline Approach Volumes. Added data source for linkage.

INDEX OF MMUCC DATA ELEMENTS

CRASH DATA ELEMENTS COLLECTED AT THE SCENE

CRASH DATA ELEMENTS DERIVED FROM COLLECTED DATA

MOTOR VEHICLE DATA ELEMENTS COLLECTED AT THE SCENE

Person Data Elements Collected at the Scene

Person Data Element Derived from Collected Data

Person Data Elements Obtained after Linkage to Other Data

Roadway Data Elements Obtained after Linkage to Other Data

Categories and Format for the MMUCC Data Elements

- The data elements are classified into four major groups:
  1. Crash
  2. Vehicle
  3. Person
  4. Roadway
- Each group may include three different types of data elements:
  1. Collected
     - Collected by the police at the scene and recorded directly onto the crash report.
  2. Derived
     - Generated from computerized crash data.
  3. Linked
     - Linked data elements are not collected at the scene by law enforcement. Instead they are generated when the crash data file is linked to injury, driver history, vehicle registration, roadway inventory or other data files. The format for each linked data element includes the source of the data to be linked.
- Each group of data elements has a unique identifier:
  1. Crash data element numbers are preceded with a "C";
  2. Vehicle data element numbers are preceded with a "V";
  3. Person data element numbers are preceded with a "P"; and,
  4. Roadway data elements related to a crash are preceded with an "R."
- Each type of data element has a unique identifier:
  1. Crash, Vehicle, or Person data elements that are derived have the letter "D" added after the group identifier (e.g., CD, VD, PD).
  2. Vehicle, Person or Roadway data elements that are linked have the letter "L" added after the group identifier (e.g., VL, PL, RL).
- Some data elements are marked with a double asterisk **:

  These data elements are mandated by the Federal Motor Carrier Safety Administration for crashes involving the commercial vehicles they regulate.

DATA ELEMENT FORMAT

(Group + Type) No.	Data Element Name (IN BOLD)
Definition:	Definition of the data element.
Source:	Data source entered only for "linked" data elements.
Attributes:	A round bullet (•) highlights each attribute value. When there is more than one value for the attribute, a square bullet (▪) is used to highlight the name of the subfield or category. (Definitions for all attributes and values, except for commonly used terms, have been included in the Glossary).
Rationale:	Justification for including the data element.

Note: "Not Reported" HAS NOT been listed as an attribute. However, *this attribute should be generated by the computer system on an analytic file*. Not Reported signifies that no value was reported for that data element, even though one may have been expected. It differs from the value "Unknown" which is recorded by the police officer when he /she is unable to ascertain the correct value for that data element.

CRASH DATA ELEMENTS

The crash level data elements describe the overall characteristics of the crash. See Glossary for the D16.1 definition of a motor vehicle crash.

CRASH DATA ELEMENTS COLLECTED AT THE SCENE

C1. Crash Case Identifier

Definition: The unique identifier within a given year that identifies a given crash within a state.

Attribute:
- State Specific Identifier

Rationale: Used to document a specific crash. If this identifier is available at the scene, it can also be recorded on the EMS record for linkage purposes. Enables subfiles to be created for analyses and linked back to the crash data file.

C2. Crash Date and Time

Definition: The date (year, month, and day) and time (00:00–23:59) at which the crash occurred.

Attribute:
- Date and Time (YYYYMMDDHHMM)

  See Appendix F for data collection instructions. Midnight is defined as 00:00 to represent the beginning of a new day. YYYY must be entered. Absence of year should result in an edit check. In rare situations MMDDHHMM can be unknown.

Rationale: Important for management/administration, evaluation, and linkage.

C3. Crash County

Definition: The county or equivalent entity in which the crash occurred.

Attribute:

- Name of the County

  Record the county or equivalent entity in which a crash occurred. If codes are used instead of name, use the GSA Geographic Locator Codes (GLC) that can be found on the Internet at: http://www.gsa.gov. See Appendix G. If state-assigned codes are used, they should be convertible to the GSA/FIPS format.

Rationale: Important for analyses of county area programs such as "Safe Communities." Critical for linkage of the crash file to other state data files (EMS, hospital, roadway, etc.). Important for intrastate comparisons.

C4. Crash City/Place (Political Jurisdiction)

Definition: The city/place (political jurisdiction) in which the crash occurred.

Attribute:

- Name of the Political Jurisdiction

  Record the name identifying the city/place in which the crash occurred. If codes are used instead of names, use the GSA Geographic Locator Codes (GLC) that can be found on the Internet at www.gsa.gov. See Appendix G. If state-assigned codes are used, they should be convertible to the GSA/FIPS format.

Rationale: Important for analyses of local area programs such as "Safe Communities." Critical for linkage of the crash file to other state data files (EMS, hospital, roadway, etc.).

C5. Crash Location

Definition: Exact location on the roadway to document where the first harmful event of the crash occurred.

Attributes:

- Latitude / Longitude Coordinates

  The optimum definition of Crash Location is a route name and GPS (global positioning system)/GIS (geographic information system) locator, if a highway agency has a linear referencing system that can relate geographic coordinates to specific locations in road inventory, traffic, driver, and other files. The location information in a crash file must have the capability to be linked to location information in these other important files required to study site-specific safety issues. GPS/GIS provides the latitude/longitude coordinates indicating where the crash occurred.

- Linear Referencing System (LRS)

  An LRS can create complex overlays of multiple events or occurrences along a route to support corridor planning, pavement rehabilitation, or other complex analysis. An LRS permits users to share information maintained by different data providers across different data layers. An LRS is not created by the geographic information system (GIS), but is actually replicated to model what is in the field. All linear data

(traffic volumes, pavement types, speed limit zones, etc.) and point data (crashes, signs, etc.) collection efforts need only specify the location or endpoint locations in terms of the LRS components.

- Link Node System (not recommended)

  Note: States with no system or a link node system should plan to develop or upgrade to a linear referencing system or one that documents latitude/longitude coordinates.

Rationale: Critical for problem identification, prevention programs, engineering evaluations, mapping, and linkage purposes.

C6. First Harmful Event

Definition: The first injury or damage-producing event that characterizes the crash type.

Attributes:

- Non-Collision:
  - Overturn/Rollover
  - Fire/Explosion
  - Immersion
  - Jackknife
  - Cargo/Equipment Loss or Shift
  - Fell/Jumped from Motor Vehicle
  - Thrown or Falling Object
  - Other Non-Collision
- Collision with Person, Motor Vehicle, or Non-Fixed Object:
  - Pedestrian
  - Pedalcycle
  - Railway Vehicle (train, engine)
  - Animal
  - Motor Vehicle in Transport
  - Parked Motor Vehicle
  - Work Zone/Maintenance Equipment
  - Other Non-Fixed Object
- Collision with Fixed Object:
  - Impact Attenuator/Crash Cushion
  - Bridge Overhead Structure
  - Bridge Pier or Support
  - Bridge Rail
  - Culvert
  - Curb
  - Ditch
  - Embankment
  - Guardrail Face

- Guardrail End
- Concrete Traffic Barrier
- Other Traffic Barrier
- Tree (standing)
- Utility Pole/Light Support
- Traffic Sign Support
- Traffic Signal Support
- Other Post, Pole or Support
- Fence
- Mailbox
- Other Fixed Object (wall, building, tunnel, etc.)
- Unknown

Rationale: Needed for uniformity in reported motor vehicle crash statistics, understanding crash causation, and identifying possible crash avoidance countermeasures. For analytic purposes it may be desirable to collect and use information about subsequent events, some of which may be harmful. See Sequence of Events (V20).

C7. Location of First Harmful Event

Definition: The location of the first harmful event as it relates to its position within or outside the trafficway. See Appendix H showing a diagram of the trafficway.

Attributes:
- On Roadway
- Shoulder
- Median
- Roadside
- Gore
- Separator
- In Parking Lane or Zone
- Off Roadway, Location Unknown
- Outside Right-of-Way (trafficway)
- Unknown

Rationale: Important to identify highway geometric deficiencies.

C8. Manner of Crash/Collision Impact

Definition: The identification of the manner in which two motor vehicles in transport initially came together without regard to the direction of force. This data element refers only to crashes where the first harmful event involves a collision between two motor vehicles in transport. See Appendix I for a diagram of the manner of collision.

Attributes:
- Not Collision Between Two Motor Vehicles in Transport
- Rear End (front-to-rear)

- Head-On (front-to-front)
- Angle (front-to-side) Same Direction
- Angle (front-to-side) Opposite Direction
- Angle (front-to-side) Right Angle (includes broadside)
- Angle-Direction Not Specified
- Sideswipe, Same Direction
- Sideswipe, Opposite Direction
- Rear-to-Side
- Rear-to-Rear
- Other
- Unknown

Rationale: Important for evaluation of occupant injuries and structural defects. This data element can be used in conjunction with Motor Vehicle Maneuver/Action (V18) to describe the crash.

C9. Source of Information

Definition: Affiliation of the person completing the crash report.

Attributes: Subfield 1:

- Source of Information:
  - Law Enforcement Agency
  - Motorist

Subfield 2:

- Law Enforcement Reporting Agency Identifier (Originating Agency Identifier (ORI Codes))

Rationale: Important for quality control and identification purposes. The law enforcement reporting agency identifier is critical to report SAFETYNET crashes.

C10. Date and Time Crash Reported to Law Enforcement Agency

Definition: The date (year, month, and day) and time (00:00–23:59) at which the law enforcement agency was notified about the crash.

Attributes:

- YYYYMMDDHHMM

  See Appendix F for coding instructions. Midnight is defined as 00:00 to represent the beginning of a new day.

- Unknown

Rationale: Useful as a surrogate for time of the crash.

C11. Weather Conditions

Definition: The prevailing atmospheric conditions that existed at the time of the crash.

Attributes: Subfield 1:

- Weather Condition 1:
  - Clear
  - Cloudy
  - Fog, Smog, Smoke
  - Rain
  - Sleet, Hail (freezing rain or drizzle)
  - Snow
  - Blowing Snow
  - Severe Crosswinds
  - Blowing Sand, Soil, Dirt
  - Other
  - Unknown

Subfield 2:

- Weather Condition 2
  See attributes in Subfield 1

Rationale: Important for management/administration and evaluation. Critical for prevention programs and engineering evaluations.

C12. Light Condition

Definition: The type/level of light that existed at the time of the motor vehicle crash.

Attributes:

- Daylight
- Dawn
- Dusk
- Dark — Lighted
- Dark — Not Lighted
- Dark — Unknown Lighting
- Other
- Unknown

Rationale: Important for management/administration and evaluation. Critical for prevention programs and engineering evaluations.

C13. Roadway Surface Condition

Definition: The roadway surface condition at the time and place of a crash.

Attributes:

- Dry
- Wet
- Snow
- Slush

- Ice / Frost
- Water (standing, moving)
- Sand
- Mud, Dirt, Gravel
- Oil
- Other
- Unknown

Rationale: Important to identify and correct high wet-surface crash locations and provide information for setting coefficient of pavement friction standards. Critical for prevention programs and engineering evaluations.

C14. Contributing Circumstances, Environment

Definition: Apparent environmental conditions which may have contributed to the crash.

Attributes: Subfield 1:

- Environmental Circumstances 1:
  - None
  - Weather Conditions
  - Physical Obstruction(s)
  - Glare
  - Animal(s) in Roadway
  - Other
  - Unknown

Subfield 2:

- Environmental Circumstances 2
  See attributes in Subfield 1

Subfield 3:

- Environmental Circumstances 3
  See attributes in Subfield 1

Rationale: Important to determine existence of unusual conditions that could be useful in determining the need for additional traffic control devices or geometric improvements. (Pedestrians and pedalcyclists are covered in traffic units.)

C15. Contributing Circumstances, Road

Definition: Apparent condition of the road which may have contributed to the crash.

Attributes: Subfield 1:

- Road Circumstances 1:
  - None
  - Road Surface Condition (wet, icy, snow, slush, etc.)
  - Debris
  - Rut, Holes, Bumps

- Work Zone (construction/maintenance/utility)
- Worn, Travel-Polished Surface
- Obstruction in Roadway
- Traffic Control Device Inoperative, Missing or Obscured
- Shoulders (none, low, soft, high)
- Non-Highway Work
- Other
- Unknown

Subfield 2:

- Road Circumstances 2
  See attributes in Subfield 1

Subfield 3:

- Road Circumstances 3
  See attributes in Subfield 1

Rationale: Important to determine highway maintenance and possible engineering needs.

C16. Relation to Junction

Definition: The location of the first harmful event in relation to a junction. See Appendices J and K.

Attributes:

- Non-Junction
- Junction Non-Interchange Area:
  - Intersection
  - Intersection-Related
  - Entrance/Exit Ramp
  - Railway Grade Crossing
  - Crossover-Related
  - Driveway, Alley-Access-Related
  - Other Non-Interchange (crossings for bikes, snowmobile, school, etc.)
  - Unknown Non-Interchange
- Junction Interchange Area:
  - Thru Roadway
  - Intersection
  - Intersection-Related
  - Entrance/Exit Ramp
  - Other Part of Interchange
  - Unknown Interchange
  - Unknown Junction

Rationale: Important for site-specific safety studies to identify locations with actual or potential problems.

C17. Type of Intersection

Definition: An intersection consists of two or more roadways that intersect at the same level. See Appendix K for a diagram of the intersection.

Attributes:
- Not at Intersection
- Four-Way Intersection
- T-Intersection
- Y-Intersection
- Intersection as Part of Interchange
- Traffic Circle
- Roundabout
- Five-Point, or More
- Unknown

Rationale: Important for site-specific safety studies to identify actual or potential safety problem locations.

C18. School Bus-Related

Definition: Indicates if a school bus or motor vehicle functioning as a school bus for a school-related purpose is involved in the crash. The "school bus," with or without a passenger on board, must be directly involved as a contact motor vehicle or indirectly involved as a non-contact motor vehicle (children struck when boarding or alighting from the school bus, two vehicles colliding as the result of the stopped school bus, etc.).

Attributes:
- No
- Yes, School Bus Directly Involved
- Yes, School Bus Indirectly Involved
- Unknown

Rationale: Important in determining where and how school children are at the greatest risk of injury when being transported by school bus and the extent to which school bus operations affect overall traffic safety.

C19. Work Zone-Related (Construction/Maintenance/Utility)

Definition: A crash that occurs in or related to a construction, maintenance, or utility work zone, whether or not workers were actually present at the time of the crash. 'Work zone-related' crashes may also include those involving motor vehicles slowed or stopped because of the work zone, even if the first harmful event occurred before the first warning sign. See Appendix L for a diagram of the work zone area.

Attributes: Subfield 1:
- Was the crash in or near a construction, maintenance or utility work zone?
  - Yes (complete Subfields 2–4)
  - No
  - Unknown

Subfield 2:

- Location of the Crash:
  - Before the First Work Zone Warning Sign
  - Advance Warning Area
  - Transition Area
  - Activity Area
  - Termination Area

Subfield 3:

- Type of Work Zone:
  - Lane Closure
  - Lane Shift/Crossover
  - Work on Shoulder or Median
  - Intermittent or Moving Work
  - Other

Subfield 4:

- Workers Present:
  - Yes
  - No
  - Unknown

Rationale: Important to assess the impact on traffic safety of various types of on-highway work activity, to evaluate Traffic Control Plans used at work zones, and to make adjustments to the Traffic Control Plans for the safety of workers and the traveling public. This data element needs to be collected at the scene because work zones are relatively short term or moving operations that are not recorded in permanent road inventory files.

Crash Data Elements Derived from Collected Data

Crash-derived data elements are derived from the computerized crash scene information. Depending on the system used, they could be derived automatically by electronic data collection systems or they could be generated when the data are computerized and merged at the local, regional or state level. These derived data elements are generally not collected by law enforcement at the scene.

CD1. Crash Severity

Definition: The severity of a crash based on the most severe injury to any person involved in the crash.

Source: Derived from Injury Status (P4) for each person involved in the crash.

Attributes:

- Fatal Injury (K)
- Incapacitating Injury (A)
- Non-Incapacitating Injury (B)
- Possible Injury (C)

- Property-Damage-Only (O)
- Unknown

Rationale: Provides a classification of the severity of the crash for the user without having to search through the person level records. This simplifies the use of the crash data file for producing reports by crash severity.

CD2. Number of Motor Vehicles Involved

Definition: The total number of motor vehicles (automobiles, single-unit trucks, truck combinations, motorcycles, etc.) that are involved in the crash.

Source: Derived by counting the number of motor vehicles involved in a crash as indicated in Motor Vehicle Unit Type and Number (V2).

Attribute:
- Number of motor vehicles involved

Rationale: Provides for the user a count of the number of motor vehicles involved in the crash without having to count the number of motor vehicle records. This simplifies the use of the crash data file for producing reports in which the number of involved motor vehicles is needed.

CD3. Number of Motorists

Definition: The total number of motorists refers to the count of occupants of motor vehicles in transport involved in the crash.

Source: Derived by counting the number of motorists involved in the crash as indicated in Occupant's Motor Vehicle Unit Number (P5), Seating Position (P6) and excluding the occupants of motor vehicles not in transport listed in Person Type (P3).

Attribute:
- Number of Motorists

Rationale: Provides for the user a count of the number of occupants of motor vehicles involved in the crash without having to count the number of person level records. This simplifies the use of the crash data file for producing reports or carrying out analyses in which the number of motorists is needed or in identifying crashes involving motorists.

CD4. Number of Non-Motorists

Definition: The total number of non-motorists refers to the count of non-occupants (pedestrians, pedalcyclists, etc.) or occupants of motor vehicles not in transport involved in a crash.

Source: Derived by counting the number of non-motorists involved in the crash as indicated in Non-Motorist Number (P21).

Attribute:
- Number of Non-Motorists

Rationale: Provides for the user a count of the number of non-motorists involved in the crash without having to count the number of non-motorist records. This simplifies the use of the crash data file for producing reports in which the number of non-motorists is needed or in identifying crashes involving non-motorists.

CD5. Number Non-Fatally Injured Persons

Definition: The total number of persons injured, excluding fatalities within 30 days, in the crash.

Source: Derived by counting the number of persons with incapacitating, non-incapacitating or possible injuries resulting from the crash as indicated in Injury Status (P4).

Attribute:
- Number of Non-Fatally Injured Persons

Rationale: Provides for the user a count of the number of persons injured in the crash without having to search through the person level records. This simplifies the use of the crash data file for producing reports in which the number of injured persons is needed.

CD6. Number of Fatalities

Definition: The total number of fatalities (motorists and non-motorists) that resulted from injuries sustained as the result of a specific motor vehicle crash. In reporting fatality statistics, a 30-day counting rule is generally used for highway safety statistics. This rule provides that only deaths that occur within 30 days of a crash will be counted for statistical purposes.

Source: Derived by counting number of persons fatally injured in the crash from Fatal Injury (K) listed in Injury Status (P4).

Attribute:
- Number of Fatalities (persons killed within 30 days of crash)

Rationale: Provides for the user a count of the number of persons fatally injured in the crash without having to search through the person level records. This simplifies the use of the crash data file for producing reports in which the number of fatalities is needed or in identifying crashes involving a fatality.

CD7. Alcohol Involvement

Definition: Law enforcement suspected, and documented, that at least one driver or non-motorist involved in the crash had used alcohol. Includes both alcohol use under the legal limit and at or over the legal limit.

Source: Derived from the driver and non-motorist Law Enforcement Suspects Alcohol Use (P17), Alcohol Test (P18).

Attributes:
- No
- Yes
- Unknown

Rationale: Provides a way for the user to easily identify alcohol-related crashes without having to search through the person level records.

CD8. Drug Involvement

Definition: Law enforcement suspected, and documented, that at least one driver or non-motorist involved in the crash had used drugs.

Source: Derived from the driver and non-motorist Law Enforcement Suspects Drug Use (P19), Drug Test (P20).

Attributes:
- No
- Yes
- Unknown

Rationale: Provides a way for the user to easily identify drug-related crashes without having to search through the person level records.

CD9. Day of Week

Definition: The day of the week on which the crash occurred.

Source: Derived from the Crash Date (C2).

Attributes:
- Sunday
- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday

Rationale: Permits the user to quickly obtain this information for crash analyses without having to translate the date.

Vehicle Data Elements

The motor vehicle data elements describe the characteristics, events, and consequences of the motor vehicle(s) involved in the crash.

Motor Vehicle Data Elements Collected at the Scene

V1. Motor Vehicle Identification Number (VIN)

Definition: A unique combination of alphanumeric or numeric characters assigned to a specific motor vehicle that is designated by the manufacturer.

Attribute:
- Manufacturer assigned number (permanently affixed to the motor vehicle)

Rationale: Important to identify specific motor vehicle design characteristics and occupant protection systems for effectiveness evaluations.

V2. Motor Vehicle Unit Type and Number

Definition: Motor vehicle unit type and number assigned to uniquely identify each motor vehicle involved in the crash. This number is not assigned to pedestrians or bicyclists. (See Non-Motorist Number (P21).)

Attributes:

Subfield 1:

- Type
  - Motor Vehicle in Transport
  - Parked Motor Vehicle
  - Working Vehicle / Equipment

Subfield 2:

- Number
  - Sequential number (alphanumeric and numeric characters)

Rationale: Uniquely identifies each motor vehicle unit involved in the crash. Permits occupants to be assigned to the appropriate motor vehicle.

V3. Motor Vehicle Registration State and Year

Definition: The state, commonwealth, territory, Indian Nation, U.S. Government, foreign country, etc., issuing the registration plate and the year of registration as indicated on the registration plate displayed on the motor vehicle. For foreign countries, MMUCC requires only the name of the country. Border states may want to collect the name of individual Canadian provinces or Mexican states.

Attributes:

- State Identifier
  State, foreign country, U.S. government, Indian Nation, etc.
  See Appendix G.
- Year of Motor Vehicle Registration (YYYY)

Rationale: This element is critical in providing linkage between the crash and motor vehicle registration files to access the motor vehicle identification number.

V4. Motor Vehicle License Plate Number

Definition: The alphanumeric identifier or other characters, exactly as displayed, on the registration plate or tag affixed to the motor vehicle.
For combination trucks, motor vehicle plate number is obtained from the power unit or tractor.

Attributes:

- Alphanumeric Identifier
  Assigned by the state, foreign country, U.S. Government, or Indian Nation

Rationale: Critical for linkage between the crash and motor vehicle registration files.

V5. Motor Vehicle Make

Definition: The distinctive (coded) name applied to a group of motor vehicles by a manufacturer.

Attribute:
- Name
  Assigned by motor vehicle manufacturer. See Appendix M for current National Crime Information Center (NCIC) standard.

Rationale: Important for use in identifying motor vehicle make, for evaluation, research and crash comparison purposes.

V6. Motor Vehicle Model Year

Definition: The year which is assigned to a motor vehicle by the manufacturer.

Attribute:
- Model Year
  YYYY as assigned by motor vehicle manufacturer
  (obtain from the vehicle registration)

Rationale: Important for use in identifying motor vehicle model year for evaluation, research, and crash comparison purposes.

V7. Motor Vehicle Model

Definition: The manufacturer-assigned code denoting a family of motor vehicles (within a make) that have a degree of similarity in construction, such as body, chassis, etc.

Attribute:
- Code for model
  Assigned by motor vehicle manufacturer
  (obtain from the vehicle registration)

Rationale: Important for use in identifying the motor vehicle model for evaluation, research, and crash comparison purposes.

V8. Motor Vehicle Body Type Category

Definition: The category indicating the general configuration or shape of a motor vehicle distinguished by characteristics such as number of doors, rows of seats, windows, or roof line.

Attributes:
- Passenger Car
- (Sport) Utility Vehicle
- Passenger Van
- Cargo Van (10,000 lbs (4,536 kg) or less)
- Pickup
- Motor Home
- School Bus
- Transit Bus
- Motor Coach
- Other Bus
- Motorcycle
- Moped
- Low Speed Vehicle
- Other Light Trucks (10,000 lbs (4,536 kg) or less)

- Medium/Heavy Trucks (more than 10,000 lbs (4,536 kg))
- Other

Rationale: Important to identify the specific type of motor vehicle involved in the crash for evaluation and comparison purposes.

V9. Total Occupants in Motor Vehicle

Definition: The total number of injured and uninjured occupants in this motor vehicle involved in the crash, including persons in or on the motor vehicle at the time of the crash.

Attribute:
- Total number of injured and uninjured occupants including the driver

Rationale: Important for the officer at the scene to indicate how many people (injured and uninjured) are involved for reporting purposes. Useful for evaluating the effectiveness of countermeasures that prevent or reduce injury and injury severity.

V10. Special Function of Motor Vehicle in Transport

Definition: The type of special function being served by this vehicle regardless of whether the function is marked on the vehicle.

Attributes:
- No Special Function
- Taxi
- Vehicle Used as School Bus
- Vehicle Used as Other Bus
- Military
- Police
- Ambulance
- Fire Truck
- Unknown

Rationale: Important to evaluate the outcome of vehicles used for special uses that are involved in crashes.

V11. Emergency Motor Vehicle Use

Definition: Indicates official motor vehicles that are involved in a crash while on an emergency response. Emergency refers to an official motor vehicle that is usually traveling with physical emergency signals in use, typically red light blinking, siren sounding, etc. Select "yes" only if the motor vehicle was on an emergency response, regardless of whether the emergency equipment was actuated.

Attributes:
- No
- Yes
- Unknown

Rationale: Important for determining the total emergency motor vehicles involved in an emergency response at the time of a motor vehicle crash.

V12. Motor Vehicle Authorized Speed Limit

Definition: Authorized speed limit for the motor vehicle at the time of the crash. The authorization may be indicated by the posted speed limit, blinking sign at construction zones, etc.

Attributes:
- Authorized Value (miles per hour)
- Not Applicable
- Unknown

Rationale: Important for evaluation purposes (even though the speed of the motor vehicle at the time of the crash may differ significantly from the authorized speed limit).

V13. Direction of Travel Before Crash

Definition: The direction of a motor vehicle's travel on the roadway before the crash. Notice that this is not a compass direction, but a direction consistent with the designated direction of the road. For example, the direction of a state designated north-south highway must be either northbound or southbound even though a motor vehicle may have been traveling due east as a result of a short segment of the highway having an east-west orientation.

Attributes:
- Northbound
- Southbound
- Eastbound
- Westbound
- Not on Roadway
- Unknown

Rationale: Important to indicate direction the motor vehicle was traveling before the crash for evaluation purposes.

V14. Trafficway Description

Definition: Indication of whether or not the trafficway for this vehicle is divided and whether it serves one-way or two-way traffic. (A divided trafficway is one on which roadways for travel in opposite directions are physically separated by a median. See Appendix H for diagram of the trafficway.)

Attributes:
- Two-Way, Not Divided
- Two-Way, Not Divided with a Continuous Left Turn Lane
- Two-Way, Divided, Unprotected (painted >4 feet) Median
- Two-Way, Divided, Positive Median Barrier
- One-Way Trafficway
- Unknown

Rationale: Used in classifying crashes as well as identifying the environment of a particular crash. Note that the data must be in a road inventory file or collected by the reporting officer at the scene. It is not readily derived from other road data such as classification or route. Important to guide future trafficway design and traffic control.

V15. Total Lanes in Roadway

Definition: Total number of lanes in the roadway on which this motor vehicle was traveling.

Attributes:

- For undivided highways:
  - Total "Thru" Lanes in Both Directions (excluding designated turn lanes).
- For divided highways:
  - Total "Thru" Lanes for the Roadway (on which the motor vehicle under consideration was traveling). See Appendix H for diagram of the trafficway.

Rationale: Used in studying roadway safety issues as well as identifying the environment of a particular crash.

V16. Roadway Alignment and Grade

Definition: The geometric or layout and inclination characteristics of the roadway in the direction of travel for this vehicle.

Attributes: Subfield 1:

- Horizontal Alignment:
  - Straight
  - Curve Left
  - Curve Right

Subfield 2:

- Grade:
  - Level
  - Hillcrest
  - Uphill
  - Downhill
  - Sag (bottom)

Rationale: Important to document the horizontal alignment and grade of the roadway as it relates to this specific vehicle involved in the crash for the purpose of evaluating vehicles that run-off-road, rollover, or are runaways.

V17. Traffic Control Device Type

Definition: The type of traffic control device (TCD) applicable to this motor vehicle at the crash location. Pavement markings are included under Pavement Markings, Longitudinal (RL12).

Attributes: Subfield 1:

- Type TCD:
  - No Controls
  - Person (including flagger, law enforcement, crossing guard, etc.)
  - Traffic Control Signal
  - Flashing Traffic Control Signal

- School Zone Signs
- Stop Signs
- Yield Signs
- Warning Signs
- Railway Crossing Device
- Other
- Unknown

Subfield 2:

- Working Properly?
  - Yes
  - No

Rationale: This element needs to be collected at the scene because the presence of specific devices is better verified at the time of the crash. It is also important for ascertaining the relationship between the use of various traffic control devices (TCD) and crashes, and identifying the need for upgraded TCDs at specific crash locations.

V18. Motor Vehicle Maneuver / Action

Definition: The controlled maneuver for this motor vehicle prior to the beginning of the sequence of events.

Attributes:

- Movements Essentially Straight Ahead
- Backing
- Changing Lanes
- Overtaking / Passing
- Turning Right
- Turning Left
- Making U-Turn
- Leaving Traffic Lane
- Entering Traffic Lane
- Slowing
- Negotiating a Curve
- Parked
- Stopped in Traffic
- Other
- Unknown

Rationale: Important for evaluation purposes, particularly when combined with sequence of events.

V19. Area(s) of Impact

Definition: The area of the motor vehicle that received the initial impact and the area that was most damaged in a crash.

Attributes: Subfield 1:

- Area of Initial Impact:
  - Non-Collision
  - 12-point Clock Diagram (see Appendix N)
  - Top (roof)
  - Undercarriage
  - Unknown

Subfield 2:

- Most Damaged Area
  See attributes in Subfield 1

Rationale: Important for use in evaluating injury severity in relation to motor vehicle impact and crash severity.

V20. Sequence of Events

Definition: The events in sequence related to this motor vehicle, including both non-collision as well as collision events.

Attributes: Subfield 1:

- First Event
- Non-Collision:
  - Overturn/Rollover
  - Fire/Explosion
  - Immersion
  - Jackknife
  - Cargo/Equipment Loss or Shift
  - Equipment Failure (blown tire, brake failure, etc.)
  - Separation of Units
  - Ran Off Road Right
  - Ran Off Road Left
  - Cross Median/Centerline
  - Downhill Runaway
  - Fell/Jumped from Motor Vehicle
  - Thrown or Falling Object
  - Other Non-Collision
- Collision with Person, Motor Vehicle, or Non-Fixed Object:
  - Pedestrian
  - Pedalcycle
  - Railway Vehicle (train, engine)

- Animal
- Motor Vehicle in Transport
- Parked Motor Vehicle
- Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle
- Work Zone / Maintenance Equipment
- Other Non-Fixed Object

■ Collision with Fixed Object:
- Impact Attenuator / Crash Cushion
- Bridge Overhead Structure
- Bridge Pier or Support
- Bridge Rail
- Culvert
- Curb
- Ditch
- Embankment
- Guardrail Face
- Guardrail End
- Concrete Traffic Barrier
- Other Traffic Barrier
- Tree (standing)
- Utility Pole / Light Support
- Traffic Sign Support
- Traffic Signal Support
- Other Post, Pole, or Support
- Fence
- Mailbox
- Other Fixed Object (wall, building, tunnel, etc.)

■ Unknown

Subfield 2:

■ Second Event
See attributes in Subfield 1

Subfield 3:

■ Third Event
See attributes in Subfield 1

Subfield 4:

■ Fourth Event
See attributes in Subfield 1

Rationale: Important for use in conjunction with most harmful event and motor vehicle maneuver to generate complete information about the crash.

V21. Most Harmful Event for This Motor Vehicle

Definition: Event that resulted in the most severe injury or, if no injury, the greatest property damage involving this motor vehicle.

Attributes:

- Non-Collision:
  - Overturn / Rollover
  - Fire / Explosion
  - Immersion
  - Jackknife
  - Cargo / Equipment Loss or Shift
  - Fell / Jumped from Motor Vehicle
  - Thrown or Falling Object
  - Other Non-Collision
- Collision with Person, Motor Vehicle, or Non-Fixed Object:
  - Pedestrian
  - Pedalcycle
  - Railway Vehicle (train, engine)
  - Animal
  - Motor Vehicle in Transport
  - Parked Motor Vehicle
  - Work Zone / Maintenance Equipment
  - Other Non-Fixed Object
- Collision with Fixed Object:
  - Impact Attenuator / Crash Cushion
  - Bridge Overhead Structure
  - Bridge Pier or Support
  - Bridge Rail
  - Culvert
  - Curb
  - Ditch
  - Embankment
  - Guardrail Face
  - Guardrail End
  - Concrete Traffic Barrier
  - Other Traffic Barrier
  - Tree (standing)
  - Utility Pole / Light Support
  - Traffic Sign Support
  - Traffic Signal Support
  - Other Post, Pole, or Support
  - Fence
  - Mailbox
  - Other Fixed Object (wall, building, tunnel, etc.)
- Unknown

Rationale: Important for use in conjunction with the Sequence of Events (V20) to generate complete information about the crash.

V22. Underride/Override

Definition: An underride refers to this motor vehicle sliding under another motor vehicle during a crash. An override refers to this motor vehicle riding up over another motor vehicle. Either can occur with a parked motor vehicle.

Attributes:
- No Underride or Override
- Underride, Compartment Intrusion
- Underride, No Compartment Intrusion
- Underride, Compartment Intrusion Unknown
- Override, Motor Vehicle in Transport
- Override, Other Motor Vehicle
- Unknown if Underride or Override

Rationale: Needed to identify the magnitude of crashes in which an underride or override occurs to support NHTSA rulemaking activities and motor vehicle bumper compatibility research.

V23. Hit and Run

Definition: Refers to cases where the vehicle, or the driver of the vehicle, in transport is a contact vehicle in the crash and departs the scene without stopping to render aid or report the crash. See Appendix O for examples of violation codes.

Attributes:
- No, Did Not Leave Scene
- Yes, Driver or Car and Driver Left Scene
- Unknown

Rationale: Important for uniformity, quality control and identification purposes in reported motor vehicle crash statistics.

V24. Extent of Damage

Definition: Estimation of total damage to motor vehicle from crash. Disabling damage implies damage to the motor vehicle that is sufficient to require the motor vehicle to be towed or carried from the scene.

Attributes:
- No Damage
- Minor Damage
- Functional Damage
- Disabling Damage
- Unknown

Rationale: Standardizing the extent of damage a motor vehicle sustains in a crash is key to consistent collection of crash data.

V25. Contributing Circumstances, Motor Vehicle

Definition: Pre-existing motor vehicle defects or maintenance conditions that may have contributed to the crash.

Attributes:

- None

Subfield 1:

- Motor Vehicle Circumstance 1:
  - Brakes
  - Steering
  - Power Train
  - Suspension
  - Tires
  - Wheels
  - Lights (head, signal, tail)
  - Windows / Windshield
  - Mirrors
  - Wipers
  - Truck Coupling / Trailer Hitch / Safety Chains
  - Other
  - Unknown

Subfield 2:

- Motor Vehicle Circumstance 2
  See attributes in Subfield 1

Rationale: Important for determining the significance of pre-existing problems, including equipment and operation, in motor vehicles involved in crashes that could be useful in determining the need for improvements in manufacturing and consumer alerts.

V26. Motor Carrier Identification**

Definition: The identification number, name and address of an individual, partnership or corporation responsible for the transportation of persons or property as indicated on the shipping manifest.

Attributes:

Subfield 1:

- US DOT Number
  (7 digits, right justified)

Subfield 2:

- If no US DOT Number, State Issued Identification Number and State Name

Subfield 3:

- Name (see Appendix P)

Subfield 4:

- Street Address (see Appendix Q):
  - Street or P.O. Box
  - City
  - State (two-letter code)
  - Zip Code
  - Country

Rationale: (**required by the Federal Motor Carrier Safety Administration CFR 350.201.) The Federal Motor Carrier Safety Administration (FMCSA) has the authority to fine and sanction unsafe interstate (and some intrastate) truck and bus companies. A key way to identify potentially unsafe motor carriers is to collect crash data by the identification number, name and address of the company. The street address allows FMCSA to visit carriers to conduct review of compliance with Federal Motor Carrier Safety Regulations and provides a crosscheck for the correct identity of the carrier. The identification number (found on the power unit, and assigned by the U.S. DOT or by a state) is a key element for carrier identification in the FMCSA databases for crashes and other carrier information. This data element is collected at the scene to meet FMCSA 30–60 day reporting requirements.

V27. Gross Vehicle Weight Rating**

Definition: The Gross Vehicle Weight Rating (GVWR) is the amount recommended by the manufacturer as the upper limit to the operational weight for a motor vehicle and any cargo (human or other) to be carried. The Gross Combination Weight Rating (GCWR) is the sum of all GVWRs for each unit in a combination-unit motor vehicle. Thus for single-unit trucks there is no difference between the GVWR and the GCWR. For combination trucks (truck tractors pulling a single semi-trailer, truck tractors pulling double or triple trailers, trucks pulling trailers, and trucks pulling other motor vehicles) the GCWR is the total of the GVWRs of all units in the combination.

Attributes: Subfield 1:

- Gross Vehicle Weight Rating (GVWR) of the power unit of a combination-unit truck or a single-unit straight truck: *(Check one.)*
  - 10,000 lbs (4,536 kg) or less
  - 10,001–26,000 lbs (4,536–11,793 kg)
  - More than 26,000 lbs (11,793 kg)

Subfield 2:

- Gross Combination Weight Rating (GCWR) of the power unit and towed units of a combination-unit truck: *(Check one.)*
  - 10,000 lbs (4,536 kg) or less
  - 10,001–26,000 lbs (4,536–11,793 kg)
  - More than 26,000 lbs (11,793 kg)

Rationale: (**required by the Federal Motor Carrier Safety Administration CFR 350.201.) The Federal Motor Carrier Safety Administration (FMCSA) imposes certain regulations on all single or combination-unit trucks that have a Gross Combination Weight Rating (GCWR) of more than 10,000 lbs (4,536 kg). Additional regulations are imposed on all motor vehicles with GCWRs of more than 26,000 lbs (11,793 kg). This data element is collected at the scene because FMCSA requires reporting within 30–60 days.

V28. Commercial Motor Vehicle Configuration**

Definition: Indicates the general configuration of this motor vehicle. (See Appendix R for chart displaying types of truck configurations.)

Attributes:

- Passenger Vehicles Carrying Hazardous Materials (Passenger car, light truck (cargo van, mini-van, utility truck, panel truck, pickup truck 10,000 lbs (4,536 kg) or less GVWR), sport utility vehicle, motorcycle, motor home)
- Single-Unit Truck (2-axle and GVWR more than10,000 lbs (4,536 kg))
- Single-Unit Truck (3 or more axles)
- Truck Pulling Trailer(s)
- Truck Tractor (bobtail)
- Truck Tractor/Semi-Trailer
- Truck Tractor/Double
- Truck Tractor/Triple
- Truck More Than 10,000 lbs (4,536 kg), Cannot Classify
- Bus/Large Van (seats for 9-15 occupants, including driver)
- Bus (seats for more than 15 occupants, including driver)
- Unknown

Rationale: (**required by the Federal Motor Carrier Safety Administration CFR 350.201.) This data element provides information about the general configuration of the motor vehicle that is important to evaluate the types of motor vehicles that have the most crashes and the effectiveness of various safety countermeasures. This data element is collected at the scene because FMCSA requires reporting within 30–60 days.

V29. Commercial Cargo Body Type**

Definition: The type of body for buses and trucks more than 10,000 lbs (4,536 kg) GVWR.

Attributes:

- No Cargo Body — (bobtail, light motor vehicle with hazardous materials (HM) placard, etc.)
- Bus
- Van/Enclosed Box
- Hopper (grain/chips/gravel)

- Pole
- Cargo Tank
- Flatbed
- Dump
- Concrete Mixer
- Auto Transporter
- Garbage/Refuse
- Other
- Not Applicable — (motor vehicle 10,000 lbs (4,536 kg) or less not displaying HM placard)
- Unknown

Rationale: (**required by the Federal Motor Carrier Safety Administration CFR 350.201.) This data element provides additional information about the motor vehicle, including all major cargo body types. The information it provides can be important in helping FMCSA make decisions on regulatory strategies for different types of motor vehicles. This data element is collected at the scene because FMCSA requires reporting within 30–60 days.

V30. Hazardous Materials Placard (Cargo Only)**

Definition: Indication that a motor vehicle had a hazardous materials placard as required by federal/state regulations. Hazardous materials that were released from the cargo compartment should be documented whether or not the motor vehicle displayed a placard.

Attributes: Subfield 1:

- Did this motor vehicle display a hazardous materials (HM) placard?
  - Yes (go to Subfield 2)
  - No
  - Unknown

Subfield 2:

- If Subfield 1 answer is "yes," record from the hazardous materials placard:
  - (1) • 4-digit placard number or name taken from the middle of the diamond or from the rectangular box; and
  - (2) • 1-digit placard number from bottom of diamond

Subfield 3:

- Release of hazardous materials from the cargo compartment:
  - Yes
  - No
  - Unknown

Rationale: (**currently required by the Federal Motor Carrier Safety Administration CFR 350.201.) FMCSA devotes special attention to motor carriers that transport hazardous materials (HM), including imposing tighter regulations and conducting compliance reviews on a

higher percentage of HM carriers. Getting good data on crashes involving trucks carrying HM and whether HM are spilled during the crashes helps FMCSA focus law enforcement efforts. This data element is collected at the scene because FMCSA requires reporting within 30–60 days.

Person Data Elements

The person data elements describe the characteristics, actions, and consequences to the persons involved in the crash.

Person Data Elements Collected at the Scene

Level 1: All Persons Involved

P1. Date of Birth

Definition: The year, month, and day of birth, (or age to be used only when date of birth cannot be obtained), of the person involved in a crash.

Attributes: Subfield 1:

- Date of Birth:
  - YYYYMMDD
  - Unknown

Subfield 2:

- Age:
  - AAA

Rationale: Accurate reporting of date of birth is used to assess the effectiveness of occupant protection systems for specific age groups, and to identify the need for safety programs directed toward them. This element is also critical in providing linkage between the crash, EMS, and hospital records.

P2. Sex

Definition: The sex of the person involved in the crash.

Attributes:

- Male
- Female
- Unknown

Rationale: Necessary, for example, to evaluate the effect of sex of the person involved on occupant protection systems and motor vehicle design characteristics.

P3. Person Type

Definition: Type of person involved in a crash.

Attributes:
- Driver
- Passenger
- Non-Motorist (non-occupant of vehicle in transport):
  - Pedestrian
  - Other Pedestrian (wheelchair, person in a building, skater, pedestrian conveyance, etc.)
  - Bicyclist
  - Other Cyclist
  - Occupant of Motor Vehicle Not in Transport (parked, etc.)
  - Occupant of a Non-Motor Vehicle Transportation Device
  - Unknown Type of Non-Motorist
- Unknown

Rationale: Need to know person type for classification purposes to evaluate specific countermeasures designed for specific people.

P4. Injury Status

Definition: The injury severity level for a person involved in crash.

Attributes:
- Fatal Injury (K)
- Nonfatal Injury
  - Incapacitating (A)
  - Non-Incapacitating (B)
  - Possible (C)
- No Injury (O)
- Unknown

Rationale: Necessary for injury outcome analysis and evaluation. This element is also critical in providing linkage between the crash, EMS, and hospital records.

Level 2: All Occupants

P5. Occupant's Motor Vehicle Unit Number

Definition: The unique number assigned for this crash to the motor vehicle in which this person was an occupant.

Attribute:
- Number to indicate in which motor vehicle the occupant was located

Rationale: Important to link occupants back to motor vehicles in which they were riding. Necessary, for example, to evaluate the effect motor vehicle type and specific make/model have on occupant protection effectiveness and injury status.

P6. Seating Position

Definition: The location for this occupant in, on, or outside of the motor vehicle prior to the first event in the sequence of events. See Appendix S.

Attributes:

Subfield 1:

- Row:
  - Front
  - Second
  - Third
  - Fourth
  - Other Row (bus, 15 passenger van, etc.)
  - Unknown

Subfield 2:

- Seat:
  - Left (usually the motor vehicle or motorcycle driver except for postal vehicles and some foreign vehicles)
  - Middle
  - Right
  - Other
  - Unknown

Subfield 3:

- Other Location:
  - Not Applicable
  - Sleeper Section of Cab (truck)
  - Other Enclosed Cargo Area
  - Unenclosed Cargo Area
  - Trailing Unit
  - Riding on Motor Vehicle Exterior (non-trailing unit)
  - Unknown

Rationale: Without known seating position for each person in the motor vehicle, it is not possible to fully evaluate, for example, the effect of occupant protection programs.

P7. Occupant Protection System Use

Definition: The restraint equipment in use by the occupant, or the helmet use by a motorcyclist, at the time of the crash.

Attributes:

- Not Applicable (non-motorist)
- None Used-Motor Vehicle Occupant
- Shoulder and Lap Belt Used
- Shoulder Belt Only Used
- Lap Belt Only Used

- Restraint Used — Type Unknown
- Child Restraint System — Forward Facing
- Child Restraint System — Rear Facing
- Booster Seat
- Child Restraint Type Unknown
- Helmet Used
- Other
- Unknown

Rationale: Proper classification of the use of available occupant protection systems is used to evaluate the effectiveness of such equipment.

P8. Air Bag Deployed

Definition: Deployment status of an air bag relative to the position in the vehicle for this occupant.

Attributes:
- Not Applicable
- Not Deployed
- Deployed — Front
- Deployed — Side
- Deployed — Other (knee, air belt, etc.)
- Deployed — Combination
- Deployment Unknown

Rationale: Necessary to evaluate the effectiveness of air bags and other occupant protection equipment, especially at a time when air bags are becoming standard equipment.

P9. Ejection

Definition: Occupant completely or partially thrown from the interior of the motor vehicle, excluding motorcycles, as a result of a crash.

Attributes:
- Not Ejected
- Ejected, Partially
- Ejected, Totally
- Not Applicable
- Unknown

Rationale: Occupant protection systems prevent or mitigate ejections to various degrees. Analyses of the effectiveness of safety belts depend on information from this data element.

Level 3: All Drivers

P10. Driver License Jurisdiction

Definition: The geographic or political entity issuing a driver license. Includes the States of the United States (including the District of Columbia and outlying areas), Indian Nations, U.S. Government, Canadian Provinces, and Mexican States (including the Distrito Federal), as well as other jurisdictions. See Appendix G.

Attributes:

- Not Applicable
- Not Licensed
- State (see Appendix G)
- Indian Nation
- U.S. Government
- Canadian Province
- Mexican State
- International License (other than Mexico, Canada)
- Unknown

Rationale: Necessary to evaluate the effectiveness of various licensing laws. This element is also critical in providing linkage between the crash and driver license files at the state level.

P11. Driver License Number and Class**

Definition: A unique number assigned by the authorizing agent issuing a driver license to the individual.

Attributes:

Subfield 1:

- Alphanumeric identifier assigned by the jurisdiction (state, foreign country, U.S. Government, Indian Nation, etc.)

Subfield 2:

- Class:
  - None
  - Not Applicable
  - Class A

    Any combination of vehicles with a GVWR of more than 26,000 lbs (11,793 kg) provided the GVWR of the vehicle(s) being towed is in excess of 10,000 lbs (4,536 kg). Qualifies for Classes A, B, C but not Class M.
  - Class B

    Any single vehicle with a GVWR of more than 26,000 lbs (11,793 kg), or any such vehicle towing a vehicle not in excess of 10,000 lbs (4,536 kg) GVWR. Qualifies for Class C but not Class M.

- Class C

  Any single vehicle 26,000 lbs (11,793 kg) or less GVWR, or any such vehicle towing a vehicle not in excess of 10,000 lbs (4,536 kg) GVWR. This class applies to vehicles which are placarded for hazardous materials or designed to transport 16 or more persons, including the driver, but does not apply to vehicles in Class M.

- Class M

  Motorcycles, Mopeds, Motor-Driven Cycles

Rationale: This element is critical in providing linkage between the crash and driver license files at the state level. This information is mandated by FMCSA for commercial drivers.

P12. Driver Name

Definition: The full name of the individual driver.

Attributes:
- Name (see Appendix P)

Rationale: This data element should be collected to corroborate the driver license number and to facilitate linkage when names are available in the health and insurance files. When possible, obtain this information from the driver license (via a bar code or "smart" license or via on-line linkage).

P13. Driver Actions at Time of Crash

Definition: The actions by the driver that may have contributed to the crash. This data element is based on the judgment of the law enforcement officer investigating the crash and need not match Violation Codes (P15).

Attributes: Subfield 1:

- Driver Action 1:
  - No Improper Driving
  - Ran Off Road
  - Failed to Yield Right-of-Way
  - Disregarded Traffic Signs
  - Ran Red Light (not included in violation codes)
  - Disregarded Other Road Markings
  - Exceeded Posted Speed Limit
  - Drove Too Fast For Conditions
  - Improper Turn
  - Improper Backing
  - Improper Passing
  - Wrong Side or Wrong Way
  - Followed Too Closely
  - Failed to Keep in Proper Lane
  - Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner

- Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway, etc.
- Over-Correcting / Over-Steering
- Other Improper Action
- Unknown

Subfield 2:

- Driver Action 2
  See attributes in Subfield 1

Subfield 3:

- Driver Action 3
  See attributes in Subfield 1

Subfield 4:

- Driver Action 4
  See attributes in Subfield 1

Rationale: Important for evaluating the effect that dangerous driver behavior has on crashes.

P14. Driver Condition at Time of Crash

Definition: Any relevant condition of the driver that is directly related to the crash.

Attributes:

- Apparently Normal
- Emotional (depressed, angry, disturbed, etc.)
- Ill (sick)
- Fell Asleep, Fainted, Fatigued, etc.
- Under the Influence of Medications / Drugs / Alcohol
- Other
- Unknown

Rationale: Important for evaluating the effect that driver fatigue, medications / alcohol / drugs / other conditions have on crashes.

P15. Violation Codes

Definition: All motor vehicle-related violation codes, if any, which apply to this driver. See Appendix O.

Attributes: Subfield 1:

- Violation Code 1:
  - No Violation
  - (Violation Code)
  - Unknown

Subfield 2:

- Violation Code 2
  See attributes in Subfield 1

Subfield 3:

- Violation Code 3
  See attributes in Subfield 1

Subfield 4:

- Violation Code 4
  See attributes in Subfield 1

Rationale: Important for evaluation of safety laws and enforcement practices. This information is not available from the driver license file.

P16. Driver Distracted By

Definition: Distractions which may have influenced the driver performance. The distractions can be inside the motor vehicle (internal) or outside the motor vehicle (external).

Attributes:

- Not Distracted
- Electronic Communication Devices (cell phone, pager, etc.)
- Other Electronic Device (navigation device, palm pilot, etc.)
- Other Inside the Vehicle
- Other Outside the Vehicle
- Unknown

Rationale: Important for evaluating the effect that driver behavior has on crashes.

Level 4: All Drivers and Non-Motorists

P17. Law Enforcement Suspects Alcohol Use

Definition: Driver or non-motorist involved in the crash suspected by law enforcement to have used alcohol.

Attributes:

- No
- Yes
- Unknown

Rationale: Alcohol-related crashes remain a serious traffic safety problem. Identifying crashes in which alcohol may have been involved will help evaluate the effectiveness of programs to decrease the incidence of drunk driving or to identify problem areas.

P18. Alcohol Test

Definition: Indication of the presence of alcohol by test, type, and result.

Attributes: Subfield 1:

- Test Status:
  - None Given
  - Test Refused
  - Test Given

Subfield 2:

- Type of Test:
  - Blood
  - Serum
  - Breath
  - Urine
  - Other

Subfield 3:

- BAC Test Result:
  - Value
  - Pending
  - Unknown

Rationale: Alcohol remains the most prevalent drug involved in motor vehicle crashes. Capturing alcohol concentration whenever a driver or non-motorist is tested will provide an accurate assessment of the role of alcohol involvement. The type of test used to obtain the alcohol concentration also is important information to collect.

P19. Law Enforcement Suspects Drug Use

Definition: Driver or non-motorist involved in the crash suspected by law enforcement to have used drugs.

Attributes:

- No
- Yes
- Unknown

Rationale: Drug-related crashes remain a serious traffic safety problem. Identifying crashes in which drugs may have been involved will help evaluate the effectiveness of programs to decrease the incidence of driving while under the influence of drugs.

P20. Drug Test

Definition: Indication of the presence of drug test, type, and result. Excludes drugs administered post-crash. See Drug Test Result (PL4) to document drug name and value.

Attributes: Subfield 1:

- Test Status:
  - Test Not Given
  - Test Refused
  - Test Given
  - Unknown if Tested

Subfield 2:

- Type of Test:
  - Blood
  - Urine
  - Serum
  - Other

Subfield 3:

- Drug Test Result:
  - Positive
  - Negative
  - Unknown

Rationale: Identifying drug-related crashes help develop and evaluate programs directed at reducing their involvement. Whenever evidence of other drug use is available, it should be captured.

Level 5: Non-Motorists (Includes occupants of motor vehicles not in transport and occupants of non-motor vehicle transportation devices)

P21. Non-Motorist Number

Definition: The unique number assigned to the non-motorist involved in the crash.

Attribute:
- Sequential Number (uniquely identifying the non-motorist involved in the crash)

Rationale: Important for management/administration and evaluation. Needed to determine number and type of non-motorists involved in crash. Needed to track non-motorist action before the crash as well as injuries sustained.

P22. Non-Motorist Action Prior to Crash

Definition: The action of the non-motorist prior to the crash.

Attributes:
- Entering or Crossing
- Recreational Pursuit (walking, running, jogging, playing, etc.)
- Walking To/From School
- Cycling
- Working
- Pushing Motor Vehicle
- Approaching or Leaving Motor Vehicle
- Playing or Working on Motor Vehicle
- Standing
- Other
- Unknown

Rationale: Needed to develop engineering, educational, and enforcement countermeasures to reduce non-motorist involvement in crashes.

P23. Non-Motorist Actions at Time of Crash

Definition: Actions that the non-motorist was undertaking at the time of the crash.

Attributes: Subfield 1:

- Non-motorist Action 1:
  - Improper Crossing
  - Darting
  - In Roadway (standing, on knees, lying, etc.)
  - Failure to Yield Right-of-Way
  - Not Visible (dark clothing)
  - Inattentive (talking, eating, etc.)
  - Failure to Obey Traffic Signs, Signals, or Officer
  - Wrong Side of Road
  - Other
  - Unknown

Subfield 2:

- Non-motorist Action 2
  See attributes in Subfield 1

Rationale: Important for evaluating the effect that dangerous or risky non-motorist behavior has on motor vehicle crashes.

P24. Non-Motorist Condition at Time of Crash

Definition: Any relevant condition of the non-motorist that is directly related to the crash.

Attributes:

- Apparently Normal
- Physically Impaired
- Emotional (depression, angry, disturbed, etc.)
- Ill (sick)
- Asleep, Fainted, Fatigued, etc.
- Under the Influence of Medications/Drugs/Alcohol
- Other
- Unknown

Rationale: Important for evaluating the effect that non-motorist fatigue, medications/alcohol/drugs, or other conditions have on the crash.

P25. Non-Motorist Location at Time of Crash

Definition: The non-motorist's location with respect to the roadway at the time of the crash.

Attributes:

- Marked Crosswalk at Intersection
- At Intersection But No Crosswalk
- Non-Intersection Crosswalk

- Driveway Access Crosswalk
- In Roadway (not in crosswalk or intersection)
- Median (but not on shoulder)
- Island
- Shoulder
- Sidewalk
- Roadside
- Outside Trafficway
- Dedicated Bike Lane
- Shared-Use Path or Trails
- Inside Building
- Other
- Unknown

Rationale: Used to develop engineering, educational, and enforcement countermeasures for both motorists and non-motorists to reduce non-motorist crashes. Needed to examine location at time of crash. Needed to evaluate the effect of existing, if any, countermeasures that have been applied.

P26. Non-Motorist Safety Equipment

Definition: The safety equipment(s) used by the non-motorist.

Attributes: Subfield 1:

- Safety Equipment Used by Non-Motorist:
  - None
  - Helmet
  - Protective Pads Used (elbows, knees, shins, etc.)
  - Reflective Clothing (jacket, backpack, etc.)
  - Lighting
  - Other
  - Not Applicable
  - Unknown

Subfield 2:

- Safety Equipment Used by Non-Motorist
  See attributes in Subfield 1

Rationale: Used to evaluate effectiveness of non-motorist safety equipment. Important to calculate usage statistics for the development and evaluation of the effectiveness of educational countermeasures. The use of two sub-fields allows for the recording of two types of safety equipment, such as a helmet and reflective clothing.

P27. Unit Number of Motor Vehicle Striking Non-Motorist

Definition: Number assigned to identify the motor vehicle that struck the non-motorist in the crash.

Attribute:
- Unit number of motor vehicle that was the first motor vehicle to strike the non-motorist

Rationale: Used for tracking. Important when multiple motor vehicles are involved in the crash.

Level 6: All Injured Persons

P28. Transported to Medical Facility By

Definition: Type and identity of unit providing transport to the medical facility receiving the patient.

Attributes:

Subfield 1:
- Source of Transport:
  - Not Transported
  - EMS
  - Law Enforcement
  - Other
  - Unknown

Subfield 2:
- EMS Response Agency Identifier ID for EMS Agency That Responds

Subfield 3:
- EMS Response Run Number

Subfield 4:
- Name of medical facility receiving patient

Rationale: Important to trace victim from the scene of crash through the health care system. Facilitates linkage of injured crash victims with Emergency Medical Services data files.

Person Data Elements Derived from Collected Data

This data element is easily generated after the crash data are collected at the scene and computerized. Depending on the system used, it could be derived automatically by electronic data collection systems, or it could be generated when data are merged at the local, regional and/or state level.

PD1. Age

Definition: The age in years of the person involved in the crash.

Source: This data element is derived from Date of Birth (P1) and Date of Crash (C2).

Attribute:
- Age in years

Rationale: Age is necessary to determine the effectiveness of safety countermeasures appropriate for various age groups.

Person Data Elements Obtained after Linkage to Other Data

Person "linked" data elements are obtained after linkage to crash, driver history, injury and/or other state data. Examples of the data elements used for linkage include Driver License Number and Class (P11), Driver Name (P12), Drug Test (P20), Date of Birth (P1), Sex (P2), Injury Area Transported to Medical Facility By (P28), Crash Date and Time (C2), Crash County (C3), Crash City/Place (C4), Crash Location (C5), Date and Time Crash Reported to Law Enforcement Agency (C10). When a state does not have the capability to link to other state data, as many of the person "linked" data elements as possible should be collected at the scene.

Level 3: All Drivers

PL1. Driver License Restrictions

Definition: Restrictions assigned to an individual's driver license by the license examiner.

Source: Obtained by linking Driver License Number and Class (P11) for in-state drivers to the driver license number in the driver history data system.

Attributes:

Subfield 1:

- Driver Restrictions 1:
  - None
  - Corrective Lenses
  - Mechanical Devices (special brakes, hand controls, or other adaptive devices)
  - Prosthetic Aid
  - Automatic Transmission
  - Outside Mirror
  - Limit to Daylight Only
  - Limit to Employment
  - Must Be Accompanied By an Adult
  - Limited — Other
  - CDL Intrastate Only
  - Motor Vehicles without Air Brakes
  - Military Vehicles Only
  - Except Class A Bus
  - Except Class A and Class B Bus
  - Except Tractor-Trailer
  - Farm Waiver
  - Other

Subfield 2:

- Driver Restriction 2
  See attributes in Subfield 1

Subfield 3:

- Driver Restriction 3
  See attributes in Subfield 1

Rationale: Used to identify drivers with limitations on their operators license that were involved in crashes.

PL2. Commercial Motor Vehicle Endorsements

Definition: Issued to drivers after successfully completing a specialized test that qualifies them to operate a specific type of commercial motor vehicle.

Source: Obtained by linking Driver License Number and Class (P11) for in-state drivers to the driver license number in the driver history data system.

Attributes:

- T-Double/Triple Trailer
  (Applies to Class A)
- P-Passenger Vehicle
  (Applies to transportation of 16 or more passengers including the driver)
- N-Tank Vehicle
  (Required on any A, B, C classified license for vehicles transporting, as its primary cargo, any liquid or gaseous material within a tank attached to the vehicle)
- H-Required To Be Placarded For Hazardous Materials
  (Required on all Class A, B, C licenses for any vehicle transporting hazardous materials requiring placarding as defined by USDOT regulations)
- X-Combined Tank/HAZ-MAT
  (Qualifies a driver for both the Tank endorsement and the Hazardous Material endorsement)
- Other
  (Used to represent state-specific endorsements that are not generally covered by the endorsements above)

Rationale: Important to evaluate issues related to licensing policies for drivers of commercial motor vehicles.

PL3. Driver License Status

Definition: The current status of an individual's driver license at the time of the crash.

Source: Obtained by linking Driver License Number and Class (P11) with the Driver History data file.

Attributes: Subfield 1:

- Type Applicable For This Person:
  - Non-CDL Driver's License
  - Non-CDL Restricted Driver's License (Learner's permit, Temporary/Limited, Graduated Driver's License, etc.)
  - Commercial Driver License (CDL)

Subfield 2:

- Status:
  - Not Licensed
  - Valid License
  - Suspended
  - Revoked
  - Expired
  - Canceled or Denied
  - Disqualified (CDL)
  - Unknown

Rationale: Used to identify drivers involved in crashes who are not in compliance with the limitations of their operator's license.

PL4. Drug Test Result

Definition: Results of tests performed to determine presence of drugs.

Source: Obtained by linking Driver License Number and Class (P11), Driver Name (P12), and Drug Test (P20) to the information in the data system containing test results.

Attributes:

Subfield 1:

- Drug 1:
  - Marijuana
  - Cocaine
  - Opiate
  - Amphetamine
  - PCP
  - Other Controlled Substance
  - Other Drug (excludes post crash drugs and nicotine, Aspirin, etc.)

Subfield 2:

- Drug 2
  See attributes in Subfield 1

Subfield 3:

- Drug 3
  See attributes in Subfield 1

Subfield 4:

- Drug 4
  See attributes in Subfield 1

Rationale: Drug test results are needed to verify drug use to help develop and evaluate programs directed at reducing their involvement. Whenever evidence of "other drug" use is available, it should be captured.

Level 6: All Injured Persons

PL5. Injury Area

Definition: The primary or most obvious area of the person's body injured during the crash.

Source: Obtained by linking current identifiers for the person, such as Date of Birth (P1), Sex (P2), Transported to Medical Facility By (P28), and crash location information including Crash Date and Time (C2), Crash County (C3), Crash City/Place (C4), Crash Location (C5), Date and Time Crash Reported to Law Enforcement Agency (C10), etc., to pre-hospital EMS, emergency department, and/or hospital discharge data files.

Attributes:

- Area of injury as indicated in a matrix or narrative in the EMS records or as a hospital discharge code (ICD-9-CM, or ICD-10, if implemented) in the emergency department, hospital or insurance records. The following list represents the major areas of the body subject to injury:
  - Head
  - Face
  - Neck
  - Thorax (chest)
  - Abdomen and Pelvis
  - Spine
  - Upper Extremity
  - Lower Extremity
  - Unspecified

Rationale: This type of information will help to distinguish between multiple injuries in the same crash and help evaluate motor vehicle design, restraint and safety equipment.

PL6. Injury Description

Definition: Type of injury inflicted to primary Injury Area (PL5).

Source: Obtained from linked crash and injury data systems (EMS, emergency department, and/or hospital discharge).

Attribute:

- Description of the injury according to data elements included in the files being linked such as the body areas and types of injuries listed on the crash and EMS records and/or the ICD-9 (or ICD-10, if implemented) codes listed on the hospital discharge records.

Rationale: Important to distinguish between multiple injuries in the same crash and help evaluate motor vehicle design, restraint and safety equipment.

Roadway Data Elements

Roadway Data Elements Obtained after Linkage to Other Data

Roadway data elements are generated by linking crash to the roadway inventory. The data elements used for linkage include Crash Location (C5) and others as necessary depending upon the type of roadway inventory system implemented by the state. When a state does not have a roadway inventory, as many of the data elements as possible should be collected at the scene.

RL1. Bridge/Structure Identification Number

Definition: A unique federal inspection/inventory identifier assigned to a bridge, underpass, overpass, or tunnel bridge/structure that is also linkable to the national bridge inventory.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attribute:
- Number as described in *Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges,* December 1988, Federal Highway Administration, item 8 and HPMS/90, item 77.

Rationale: Important to link specific geometric data describing the bridge for problem identification analysis and for determining the relationship between bridge structure characteristics and crashes.

RL2. Roadway Curvature

Definition: The measurement of the curvature in the roadway expressed in terms of its radius, length, and superelevation.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data. See Roadway Alignment and Grade (V16).

Attributes:
- Not Applicable

Subfield 1:
- Curve:
  - Radius

Subfield 2:
- Length

Subfield 3:
- Superelevation

Subfield 4:
- Unit of Measure (use feet or meters)

Rationale: Curve data is used in searching for and diagnosing high crash locations. Important for determining relationship between horizontal alignment-related crashes to guide future highway design, speed limits, and driver skill training (motorcycle curve entering speed, etc.).

RL3. Grade

Definition: The inclination of the roadway, expressed in the rate of rise or fall in feet (meters) per 100 feet (meters) of horizontal distance.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data. See Roadway Alignment and Grade (V16).

Attributes: Subfield 1:

- Direction of Slope:
  - Up (+) or Down (–)

Subfield 2:

- Percent of Slope:
  - Nearest Percent of Slope

Rationale: Used to identify possible causes and countermeasures for a high crash site.

RL4. Part of National Highway System

Definition: Designation as part of the National Highway System.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attributes:

- Yes
- No
- Unknown

Rationale: Important to monitor highway safety on the National Highway System.

RL5. Roadway Functional Class

Definition: The character of service or function of streets or highways. The classification of rural and urban is determined by state and local officials in cooperation with each other and approved by the Federal Highway Administration, U.S. Department of Transportation.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attributes:

- Rural:
  - Principal Arterial — Interstate
  - Principal Arterial — Other
  - Minor Arterial
  - Major Collector
  - Minor Collector
  - Local
  - Unknown Rural

- Urban:
  - Principal Arterial — Interstate
  - Principal Arterial — Other Freeway or Expressway
  - Principal Arterial — Other
  - Minor Arterial
  - Collector
  - Local
  - Unknown Urban
- Unknown

Rationale: Important for comparing crash rates/safety experience of highways of similar design characteristics so as to identify those highways or highway sections that have abnormal rates/experience for future improvements as well as generalized study of the highways in a region or state. Knowledge of the land use is needed in analyzing crashes as part of a network analysis.

RL6. Annual Average Daily Traffic

Definition: The average number of motor vehicles passing a point on a trafficway in a day, for all days of the year, during a specified calendar year.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attributes: Subfield 1:

- Calendar Year

Subfield 2:

- Motor Vehicles Per Day (ADT)

Rationale: Important to normalize crash data to account for exposure.

RL7. Widths of Lane(s) and Shoulder(s)

Definition: Widths of the lane(s) and of the shoulder(s) where crash occurred.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attributes: Subfield 1:

- Lane Width (in feet or meters)

Subfield 2:

- Shoulder Width (in feet or meters)

Rationale: Important to monitor the association of lane/shoulder widths and the frequency of crashes.

RL8. Width of Median

Definition: Width of portion of divided highway separating the road for traffic in opposing directions where the crash occurred. If a crash occurs at a mid-block section, the median width is based on the mid-block section. If the crash occurs at an intersection, the median width is based on the median widths at the intersection.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attribute:
- Width of Median (in feet or meters)

Rationale: Important to monitor the need for medians to protect motorists from oncoming traffic.

RL9. Access Control

Definition: The degree that access to abutting land is fully, partially or not controlled by a public authority. Full access control provides access only at interchanges (interstate, etc.). Partial access control provides no private access. No access control permits private access (driveway, etc.).

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attributes:
- Full Access Control
- Partial Access Control
- No Access Control

Rationale: Highly correlated with crash rates and, therefore, useful in identifying high hazard locations. Important to guide future highway design and traffic control.

RL10. Railway Crossing ID

Definition: A unique US DOT/AAR number assigned for identification purposes to a railroad crossing by a state highway agency in cooperation with the Federal Railroad Administration.

Source: Obtained by linking Crash Location (C5) to state or Federal Railway Administration data.

Attributes:
- State specific number assigned by a state in cooperation with the American Association of Railroads.

Rationale: The data are used in high crash locations as well as high-risk corridors. Important for determining the need for additional controls and evaluating the efficacy of various types of controls.

RL11. Roadway Lighting

Definition: Type of roadway illumination.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attributes:
- No Lighting
- Spot Illumination
- Continuous Lighting

Rationale: Recognized as having a benefit to safe highway operations. Information about the presence of lighting is an important element in analysis of a spot location, a section of highway, or a network analysis. Important for determining the affects of highway illumination on nighttime crashes to guide future installations.

RL12. Pavement Markings, Longitudinal

Definition: The longitudinal markings (paint, plastic, or other) used on the roadway surface to guide or control the path followed by drivers.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attributes: Subfield 1:

- Function and Color:
  - Centerline, Skip-Dash, Yellow
  - Centerline, Solid, Yellow
  - Centerline, Solid Double, Yellow
  - No Passing Barrier, Right or Left, Yellow
  - Lane Line, Skip-Dash, White
  - Lane Line, Solid, White
  - Edge Line, Left, Yellow
  - Edge Line, Right, White
  - Left Turn Lane Lines, Combination of Solid and Skip-Dash, Yellow
  - Turn Arrow Symbols, Right, Thru, Left, or Combination of Two
  - Unknown

Subfield 2:

- Material:
  - Paint
  - Thermoplastic
  - Raised Markers
  - Permanent Inlay
  - Tape
  - Other
  - Unknown

Rationale: Important to know about the existence of pavement markings for the analysis of crash data. Useful for determining the effects of various types of longitudinal markings on various types of crashes to guide future applications.

RL13. Bikeway

Definition: Any road, path, or way which is specifically designated as being open to bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attributes:
- No Bikeway
- Bicycle Route (signed)
- Bicycle Lane (striped) — Right Only
- Bicycle Lane (striped) — Both Sides
- Bicycle Lane (striped) — Left Only
- Separate Bicycle Path/Trail
- Unknown

Rationale: Needed to determine usage and safety of bicycle facilities. Needed to determine the location of bicycle crashes in relation to a bicycle facility. Important for ascertaining the relative safety performance of various types/classes of bike paths to guide future design/operation decisions.

RL14. Delineator Presence

Definition: The presence or absence of a series of reflecting devices mounted at regular intervals on the side of the road to indicate the horizontal alignment of the roadway not at an intersection. (Intersections generally have lighting and /or well-marked lane indications, but not delineators.) Delineators are oriented to face the driver for each approach.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attributes:
- None
- Delineators, Right
- Delineators, Left
- Delineators, Both Sides
- Unknown

Rationale: Important to determine the effectiveness of delineation on nighttime and run-off-the-road crashes and to guide future installations.

RL15. Traffic Control Type at Intersection

Definition: Type of traffic control device at intersection where crash occurred.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attributes:
- No Control
- Stop Signs on Cross Street Only
- Stop Signs on Mainline Only
- Four-Way Stop Signs

- Four-Way Flasher (red on cross street)
- Four-Way Flasher (red on mainline)
- Four-Way Flasher (red on all legs)
- Yield Signs on Cross Street Only
- Yield Signs on Mainline Only
- Signals Pre-Timed (two-phase)
- Signals Pre-Timed (multi-phase)
- Signals Semi-Actuated (two-phase)
- Signals Semi-Actuated (multi-phase)
- Signals Fully Actuated (two-phase)
- Signals Fully Actuated (multi-phase)
- Other
- Unknown

Rationale: Important to understand the relationship between crashes at intersections and the type of traffic control device present.

RL16. Mainline Number of Lanes at Intersection

Definition: Number of "thru" lanes on the mainline approaches of an intersection, including all lanes with "thru" movement ("thru" and left-turn, or "thru" and right-turn) but not exclusive turn lanes.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attributes:
- One Lane
- Two Lanes
- Three Lanes
- Four to Six Lanes
- Seven or More Lanes
- Unknown

Rationale: Important to describe the intersection.

RL17. Side-Road Number of Lanes at Intersection

Definition: Number of "thru" lanes on the side-road approaches at intersection including all lanes with "thru" movement ("thru" and left-turn, or "thru" and right-turn) but not exclusive turn lanes.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attributes:
- One Lane
- Two Lanes
- Three Lanes
- Four to Six Lanes
- Seven or More Lanes
- Unknown

Rationale: Important to describe the intersection.

RL18. Total Volume of Entering Vehicles

Definition: Total entering vehicles for all approaches of an intersection.

Source: Obtained by linking Crash Location (C5) to the Roadway Inventory data.

Attribute:
- Actual or estimated traffic volume expressed as an average annual daily count

Rationale: Important to understand volume of crashes as a measure of exposure for the mainline approaches.

ACRONYMS AND MMUCC TERMINOLOGY MMUCC GUIDELINE, 2ND EDITION (2003)

ACRONYMS

AAMVA	American Association of Motor Vehicle Administrators
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ANSI	American National Standards Institute
ASCE	Association of State and Community Engineers
ATSIP	Association of Traffic Safety Information Professionals
FARS	Fatality Analysis Reporting System
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
GHSA	Governors Highway Safety Association
HSIS	Highway Safety Information System
IACP	International Association of Chiefs of Police
IPTM	Institute of Police Technology and Management
ITE	Institute of Transportation Engineers
LETN	Law Enforcement Training Network
MMUCC	Model Minimum Uniform Crash Criteria
NASS-CDS	National Automotive Sampling System Crashworthiness Data System
NASS-GES	National Automotive Sampling System General Estimates System
NCIC	National Crime Information Center
NCSA	National Center for Statistics and Analysis
NHTSA	National Highway Traffic Safety Administration
PDO	Property Damage Only
SAE	Society of Automotive Engineers
TEA21	Transportation Equity Act for the 21st Century
TraCS	Traffic and Criminal Software
TRCC	Traffic Records Coordinating Committee
US DOT	United States Department of Transportation

MMUCC TERMINOLOGY

Data Element	Number	Definition
Access Control	RL9	The degree that access to abutting land in connection with a highway is fully, partially, or not controlled by public authority.
Activity Area	C19	Located adjacent to actual work area, whether workers and equipment were present or not.
Advance Warning Area	C19	Located after the first warning sign but before the work area.
Age	PD1	Years of age for the person involved in a crash.
Air Bag Deployed	P8	Deployment status of an air bag relative to the position in the vehicle for this occupant.
Alcohol/ Involvement	CD7	Law enforcement suspected, and documented, that at least one driver or non-motorist involved in the crash had used alcohol. Includes both alcohol use under the legal limit and at or over the legal limit.
Alcohol Test	P18	Indication of the presence of alcohol by test, type, and result.
Alignment	V16 RL2	The geometric characteristics or layout of a roadway. Alignment is usually subdivided into horizontal alignment. Includes straight, curve left, curve right.
Alphanumeric Identifier	V1, V4 P11	Consisting of alphabetic and numeric symbols.
Angle — Manner of Impact	C8	A crash where two motor vehicles impact at an angle. For example, the front of one motor vehicle impacts the side of another motor vehicle. Includes front-to-side, same direction, opposite direction, right angle and direction not specified.
Annual Average Daily Traffic	RL6	The average number of motor vehicles passing a point on a roadway in a day, for all days of the year, during a specified calendar year.
Area(s) of Impact	V19	The areas of damage to the motor vehicle caused by the crash. These areas should include the area of the motor vehicle that received the initial impact and the area that was most damaged.
At Intersection but No Crosswalk	P25	Person at an area that contains a crossing or connection of two or more roadways not classified as a driveway access but without the street crossing distinctly indicated for pedestrian crossing by lines or other markings on the surface of the roadway.
Authorized Speed Limit	V12	Authorized speed limit for the motor vehicle at the time of the crash. The authorization may be indicated by the posted speed limit, blinking sign at construction zones, etc.
Auto Transporter	V29	A single-unit truck, truck/trailer, or tractor/semi-trailer having a cargo body specifically designed to transport other motor vehicles.
BAC Test Result	P18	Blood Alcohol Concentration.

Data Element	Number	Definition
Backing	V18	A start from a parked or stopped position in the direction of the rear of the motor vehicle.
Bicycle Violation	P15	The disregard intentionally or unintentionally of the rules or laws governing the operation of a bicycle as a transport device in the location where the violation occurred.
Bikeway	RL13	Any road, path, or way which is specifically designated as being open to bicycle travel regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.
Booster Seat	P7	A "belt-positioning seat" that positions a child on a vehicle seat to improve the fit of the lap and shoulder seat belt system. This seat is recommended for children who weigh 40 pounds or more.
Bridge	C6 V20, V21	A structure, including supports, carrying a roadway, railroad etc., over an obstruction such as water, a railway, or another roadway, having an opening of 20 feet (6 m) or more measured along the center of the structure.
Bridge — Overhead Structure	C6 V20, V21	Any part of a bridge that is over the reference or subject roadway. In crash reporting, this typically refers to the beams or other structural elements supporting a bridge deck.
Bridge — Pier or Support	C6 V20, V21	Support for a bridge structure other than at the ends.
Bridge/Structure Identification Number	RL1	A unique federal inspection/inventory identifier assigned to a bridge, underpass, overpass, or tunnel that is also linkable to the national bridge inventory.
Bridge Rail	C6 V20, V21	A barrier attached to a bridge deck or a bridge parapet to restrain motor vehicles, pedestrians or other users.
Bus	C18 V8, V28 V29, PL1	A motor vehicle consisting primarily of a transport device designed for carrying more than eight persons per the regulations of the Federal Motor Carrier Safety Administration.
Cargo Van	V8	Motor vehicle less than 10,000 lbs (4,536 kg) that is configured to carry cargo.
Centerline	RL12	A pavement marking used to separate traffic traveling in opposite directions. A centerline need not be at the geometrical center of the pavement.
Centerline, Broken	RL12	A broken centerline indicates that passing is permitted.
Centerline, Double	RL12	A double centerline indicates that passing is prohibited.
Centerline, Solid and Broken Line	RL12	A centerline that is both solid and broken indicates that passing is permitted in one direction.
Changing Lanes	V18	Shift from one traffic lane to another traffic lane moving in the same direction.
Child Restraint System — Forward Facing	P7	Child passenger faces forward in the child restraint system. This does not imply correct use or placement. This system is recommended for children who weigh between 20 and 40 pounds.

Data Element	Number	Definition
Child Restraint System — Rear Facing	P7	Child passenger faces the rear in the child restraint system. This does not imply correct use or placement. This system is recommended for infants from birth to 30 pounds.
Collision	C8	A motor vehicle crash, other than an overturning crash, in which the first harmful event is a collision of a motor vehicle in transport with another motor vehicle, other property, animal or pedestrian.
Collision With Fixed Object	C6 V20, V21	A motor vehicle in transport strikes an impact attenuator/crash cushion, bridge overhead structure, bridge pier or support, bridge rail, culvert, curb, ditch, embankment, guardrail face or end, concrete traffic barrier, standing tree, utility pole/light support, traffic sign or signal support, fence, mailbox, or other fixed object.
Collision With Object Not Fixed	C6 V20, V21	A motor vehicle in transport strikes a pedestrian, pedalcycle, railway vehicle, animal, motor vehicle in transport, parked motor vehicle, falling, work zone / maintenance equipment, other moveable object or is struck by falling, shifting cargo or anything set in motion by a motor vehicle.
Commercial Cargo Body Type	V29	The type of body for buses and trucks >10,000 lbs (4,536 kg) GVWR.
Commercial Driver License Class (CDLC)	PL2	The type of commercial motor vehicle that a licensed driver has been examined on and/or approved to operate. This information is obtained by linkage to the driver license file.
Commercial Motor Vehicle	V28	Any self-propelled or towed motor vehicle used on a highway in interstate commerce to transport passengers or property when the vehicle (1) has a gross vehicle weight rating or gross combination weight rating or gross vehicle weight or gross combination weight, of more than 10,000 lbs or 4,536 kg; or (2) used for commercial transport of more than 8 passengers (including the driver); or (3) is used for non-commercial transport of more than 15 passengers, including the driver; or (4) is used in transporting material found by the Secretary of Transportation to be hazardous under 49 U.S.C. 5103 and transporting in a quantity requiring placarding under regulations prescribed by the Secretary under 49 CFR, subtitle B, chapter I, subchapter C.
Commercial Motor Vehicle Configuration	V28	Indicates the general configuration of this motor vehicle, (truck, bus, passenger vehicle, etc.), carrying hazardous materials.
Commercial Motor Vehicle Endorsements	PL2	Issued to drivers after successfully completing a specialized test that qualifies them to operate that specific type of commercial motor vehicle.
Compartment Intrusion	V22	Intrusion into the occupant compartment as the result of a crash.
Concrete Traffic Barrier	C6 V20, V21	A type of permanent median made of concrete that is usually fixed but sometimes can be moved by special equipment to shift lane direction.
Construction Zone	C19	See Work Zone.

Data Element	Number	Definition
Contributing Circumstances, Environment	C14	Apparent environmental conditions which may have contributed to the crash.
Contributing Circumstances, Motor Vehicle	V25	Preexisting motor vehicle defects or maintenance conditions that may have contributed to the crash.
Contributing Circumstances, Road	C15	Apparent condition of the road which may have contributed to the crash.
Crash Case Identifier	C1	Unique identifier within a given year that identifies a given crash within a state.
Crash City/Place	C4	The city/place (police jurisdiction) in which the crash occurred. Name codes should be standardized or compatible with the GSA Geographic Locator Codes (GLC), which can be found on the Internet at www.gsa.gov.
Crash County	C3	The county, or equivalent entity, in which the crash occurred. Name codes should be standardized or compatible with the GSA Geographic Locator Codes (GLC), which can be found on the Internet at www.gsa.gov.
Crash Cushion	C6 V20, V21	See Impact Attenuator.
Crash Date and Time	C2	The date (year, month, and day) and time (00:00-23:59) at which a crash occurred.
Crash Location	C5	Exact location on the roadway, using GPS/GIS or linear referencing technology, to document where the first harmful event occurred.
Crash Severity	CD1	The severity of a crash based on the most severe injury to any person involved in the crash.
Crossover	C16	Area in the median of a divided trafficway where motor vehicles are permitted to travel across the opposing lanes of traffic or do a U-turn.
Crossover — Related	C16	Crash located in the area of the median of a divided trafficway where motor vehicles are permitted to cross the opposing lanes of traffic or do a U-turn.
Culvert	C6 V20, V21	An enclosed structure providing free passage of water under a roadway with a clear opening of less than twenty feet (6m) measured along the center of the roadway.
Curb	C6 V20, V21	A raised edge or border to a roadway. Curbs may be constructed of concrete, asphalt, or wood and typically have a face height of less than 9 inches (225 mm).
Date and Time Crash Reported to Law Enforcement	C10	The date and time at which the law enforcement agency was notified about the crash.

Data Element	Number	Definition
Delineator Presence	RL14	The presence of a series of reflecting devices mounted at regular intervals along the side of the road to indicate the horizontal alignment of the roadway. Delineators are oriented to face the driver for each approach. They are not used at intersections that generally have lighting and /or well-marked lane indications.
Deployed — Combination	P8	More than one air bag deploys, including front and side, front and other, side and other, or front, side and other, etc.
Deployed — Front	P8	Air bag for the driver or front seat passenger is deployed out of its cover and protruding into driver compartment. Bag is fully or partially deflated or inflated.
Deployed — Side	P8	Air bag on side of motor vehicle is deployed out of its cover and protruding into occupant compartment. Bag is fully or partially deflated or inflated.
Deployed — Other	P8	A knee air bag, air belt, or other new air bag technology is deployed.
Deployed — Unknown	P8	Not known if air bag is deployed out of its cover and protruding into occupant compartment.
Derived Data Elements	CD1–CD9 PD1	Derived data elements are obtained by counting or recoding information contained in existing data elements that have already been collected and computerized.
Direction of Travel Before Crash	V13	Usually the general direction of the motor vehicle on the roadway prior to the crash. However, on state and federal roads that have a designated direction, it is this designated direction. For example, the direction of a state designated north–south highway must be either northbound or southbound even though a motor vehicle may have been traveling due east as a result of a short segment of the highway having an east–west orientation.
Disabling Damage	V24	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 carried from crash scene, or assisted by an emergency motor vehicle.
Divided Trafficway	V14	Roadway travel in opposite directions that is physically separated by a median that is painted, raised, suppressed, etc. Excludes two-way continuous left turn lanes.
Driver	P3	An occupant who is in actual physical control of a motor vehicle or, for an out-of-control motor vehicle, an occupant who was in control until control was lost.
Driver Actions at Time of Crash	P13	The actions by the driver at the time of the crash.
Driver Condition at Time of Crash	P14	Any relevant condition of the driver that is directly related to the crash.
Driver Distracted By	P16	Distractions that may have influenced driver performance. The distractions can occur inside the motor vehicle (internal) or outside the motor vehicle (external).
Driver License Class	P11	The type of commercial or noncommercial motor vehicle that a licensed driver has been examined on and/or approved to operate. Includes 4 classes: A, B, C, and M. See P11 for description of each class.

Data Element	Number	Definition
Driver License Jurisdiction	P10	The geographic or political entity issuing a driver license.
Driver License Number	P11	A unique number assigned by the authorizing agent issuing a driver license to the individual.
Driver License Restrictions	PL1	Restrictions assigned to an individual's driver license by the license examiner, e.g. daytime driving only.
Driver License Status	PL3	The current status of an individual's driver license.
Driver Name	P12	The full name of the driver.
Driveway/Alley	C16	A roadway providing access to property adjacent to a trafficway.
Driveway Access Crosswalk	P25	Crosswalk on roadway providing access to property adjacent to a trafficway.
Driveway Access Related	C16	The first harmful event occurs on the trafficway, not on the driveway access portion of the trafficway.
Driving Too Fast for Conditions	P13	Traveling at a speed that was unsafe for the road, weather, traffic or other environmental conditions at the time.
Drug Involvement	CD8	Law enforcement suspected, and documented, that at least one driver or non-motorist involved in the crash had used drugs.
Drug Test	P20	Indication of the presence of drug test, type and result. Excludes drugs administered post-crash.
Drug Test Result	PL4	Results of tests performed to determine presence of drugs.
Dump Truck	V29	Can be tilted or otherwise manipulated to discharge its load by gravity.
Edge Line	RL12	A pavement marking used to mark the edge of pavement for driver guidance.
Ejection	P9	Occupant completely or partially thrown from the interior of the motor vehicle, except motorcycles, as a result of a crash.
Electronic Communication Device	P16	Includes cell phone, pager, two-way radio and other devices enabling the driver and/or occupants of the vehicle to communicate with others not located in the vehicle.
Emergency Ambulance	V10, V11	Any public or private ambulance service under contract to a jurisdiction to provide emergency response for medical emergencies.
Emergency Motor Vehicle Use	V11	Indicates official motor vehicles, such as military, law enforcement, ambulance, fire, etc., that are involved in a crash while on an emergency response. Emergency refers to an official motor vehicle that is usually traveling with physical emergency signals in use, typically red light blinking, siren sounding, etc.
EMS Response Agency Identifier	P28	Identifier for EMS agency that responds.

Data Element	Number	Definition
EMS Response Run Number	P28	Usually documented on EMS run report.
Entering or Crossing Specified Location	P22	Person entered or crossed over a specific identified area that either was or was not part of the trafficway or roadway.
Entering Traffic Lane	V18 P22, P25	Physical presence in trafficway.
Entrance/Exit Ramp	C16	Crash is located on either the entrance or exit ramp.
Extent of Motor Vehicle Damage	V24	Estimation of total damage to the motor vehicle caused by the crash. Disabling damage implies damage to the motor vehicle that is sufficient to require the motor vehicle to be towed or carried from the scene.
Failure to Keep In Proper Lane	P13	Driver did not maintain position in appropriate travel lane.
Failed to Yield Right-of-Way	P13	Driver failed to yield right-of-way to another motor vehicle or non-occupant as required.
Farm Waiver	PL1	Waiver granted for the operation of farm motor vehicles.
Fatal Injury	CD1, P4	Any injury that results in death within a 30-day period after the crash occurred.
Fell Asleep, Fainted, Fatigued, etc.	P14, P24	Driver experienced a temporary loss of consciousness or was operating in a reduced physical and mental capacity due to weariness, medication, or other drugs.
FIPS Code	C3, C4	Federal Information Processing Standards for coding states, counties, and cities, which can be accessed on the Internet at www.gsa.gov.
Fire/Explosion	C6 V20, V21	Fire/explosion that was the cause or result of the crash.
First Harmful Event	C6, C7	The first injury or damage-producing event that characterizes the crash.
Five-Point, or More — Intersection	C17	An intersection where more than two roadways cross or connect.
Flagger	V17	Traffic control person controlling traffic with a flag applicable to the motor vehicle at the crash location.
Flashing Traffic Control Signal	V17	Traffic control signal that is flashing or a single light flashing red or yellow.
Flatbed	V29	A single-unit truck, truck/trailer, or tractor/semi-trailer whose body is without sides or roof, with or without readily removable stakes which may be tied together with chains, slats, or panels. This includes trucks transporting containerized loads.

Data Element	Number	Definition
Followed Too Closely	P13	Driver was positioned at a distance behind another motor vehicle or non-occupant that was too close to permit safe response to any change in movement or behavior by the other motor vehicle or non-occupant.
Four-Way Intersection	C17	Where two roadways cross or connect.
Front Seat — Left Side	P6	Usually the driver's seat for a motorcycle or a motor vehicle, except for postal trucks and some foreign vehicles.
Front Seat — Right Side	P6	Passenger seat to right of driver and next to the door, except for postal trucks and some foreign vehicles.
Front Seat — Middle	P6	Passenger seat between driver and right seat passenger, except for postal trucks and some foreign vehicles.
Full Access Control	RL9	Authority to control access is exercised to give preference to thru traffic by providing access connections with selected public roads only, and by prohibiting crossings at grade or direct private driveway connections.
Functional Damage	V24	Damage that is not disabling, but affects operation of the motor vehicle or its parts.
Geographic Information System (GIS)	C5	Computerized system that associates information with specific geographic locations, such as roadway characteristics by latitude/longitude.
Global Positioning System (GPS)	C5	System of satellites that transmit geographic locations in terms of latitude and longitude.
Gore	C7	An area of land where two roadways diverge or converge. The area is bounded on two sides by the edges of the roadways, which join at the point of divergence or convergence. The direction of traffic must be the same on both sides of these roadways. The area includes shoulders or marked pavement, if any, between the roadways.
Grade	V16	The inclination of a roadway, expressed in the rate of rise or fall in feet (meters) per 100 feet (meters) of horizontal distance. Includes level, hillcrest, up hill, down hill, sag (bottom).
Grain/Chips/ Gravel Truck	V29	Closed sides and bottom to carry grain, chips, gravel, etc.
Gross Combination Weight Rating (GCWR)	V27	The sum of all GVWRs for each unit in a combination-unit motor vehicle. Thus, for single-unit trucks there is no difference between the GVWR and the GCWR. For combination trucks (truck tractors pulling a single semi-trailer, truck tractors pulling double or triple trailers, trucks pulling trailers, and trucks pulling other motor vehicles), the GCWR is the sum of the GVWRs of all units in the combination.
Gross Vehicle Weight Rating (GVWR)	V27	The amount recommended by the manufacturer as the upper limit to the operational weight for a motor vehicle and any cargo (human or other) to be carried.

Data Element	Number	Definition
Guardrail (Guiderail)	C6 V20, V21	A longitudinal barrier consisting of posts and rails or cables.
Guardrail End	C6 V20, V21	The end of the guardrail.
Guardrail Face	C6 V20, V21	Other than the end of the guardrail.
Harmful Event	C6–C7 V21	Occurrence of injury or damage.
Hazardous Materials	V30	Any substance or material which has been determined by the U.S. Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce and which has been so designed under regulations of the US DOT.
Hazardous Materials Placard (Cargo Only)	V30	A diamond-shaped sign that must be affixed to any motor vehicle that carries hazardous materials. It usually contains a four digit number in the middle of the placard and a one digit number at the bottom that indicates hazard class and specific material being carried.
Hazardous Materials Released Involvement (Cargo Only)	V30	Indication whether hazardous materials were released from the cargo compartment.
Head-on — Manner of Impact	C8	A crash where the front ends of two motor vehicles impact together. This also is referred to as front-to-front.
Helmet Used	P7, P26	Safety helmet worn by non-motorist (bicyclist) or driver (motorcyclist).
Highway Traffic Sign	C6 V20, V21	A sign intended to guide, regulate, or inform highway users.
Highway Traffic Sign Post	C6 V20, V21	A pole, post, or structure constructed to support a highway sign intended to guide, regulate, or inform highway users.
Hillcrest	V16	Top of the hill.
Hit and Run	V23	Crashes where the vehicle, or the driver of the vehicle, in transport is a contact vehicle in the crash, and departs the scene without stopping to render aid.
Hopper	V29	A truck body designed to carry grain, chips, gravel, etc.
Horizontal Alignment	V16	The change in horizontal direction of a roadway determined at the point of curvature (pc) and expressed in terms of direction, degree of curve and length.
ICD-9, ICD-10	PL5, PL6	International Classification of Diseases, 9th edition, and 10th edition in process, developed by the World Health Organization and maintained in the U.S. by the Centers for Disease Control, DHHS. This system codes the type of disease/injury and body area affected for all hospital inpatients who are discharged and to document the cause of death.

Data Element	Number	Definition
Identification Number	V1, V3, V4, V26, RL1	Unique number that identifies a person, crash, motor vehicle, bridge /structure, etc.
Immersion	C6 V20, V21	Object or person covered completely by liquid.
Impact Attenuator / Crash Cushion	C6 V20, V21	A barrier at a spot location, less than 25 ft. (7.6 m) away, designed to prevent an errant motor vehicle from impacting a fixed object hazard by gradually decelerating the motor vehicle to a safe stop or by redirecting the motor vehicle away from the hazard.
In Parking Lane or Zone	C7	Crash location outside the roadway.
Incapacitating Injury	CD1 P4	Any injury, other than a fatal injury, which prevents the injured person from walking, driving or normally continuing the activities the person was capable of performing before the injury occurred. Often defined as "needing help from the scene."
Indian Nation	P10	A federally recognized Indian tribe with sovereign authority to interact on a government-to-government basis directly with federal agencies.
Injury Area	PL5	The primary or most obvious area of the person's body injured during the crash.
Injury Description	PL6	Type of injury inflicted to injury area.
Injury Status	P4	The level of injury severity for a person involved in the crash.
Interchange	C16	A system of interconnecting roadways in conjunction with one or more grade separations, providing for the movement of traffic between two or more roadways on different levels.
Intermittent or Moving Work	C19	Type of work zone.
International License (other than Mexico, Canada)	V4 P10	Driver license issued by country other than Canada, Mexico or U.S.
Intersection	C16, C17	An area which 1) contains a crossing or connection of two or more roadways not classified as driveway access and 2) is embraced within the prolongation of the lateral curb lines, or, if none, the lateral boundary lines of the roadways. Where the distance along a roadway between two areas meeting these criteria is less than 10 m (33 ft), the two areas and the roadway connecting them are considered to be parts of a single intersection.
Intersection as Part of Interchange	C17	Refer to Appendices J and K.
Intersection Related	C16	Location of the crash next to an intersection and results from an action related to the movement of traffic units through the intersection.
Intersection Type	C17	The type of intersection at which two or more roadways intersect at the same level.

Data Element	Number	Definition
Island	P25	Cement or grassy area in the middle of a trafficway.
Jackknife	C6 V20, V21	An uncontrolled articulation between a tractor and trailer(s) that occurs at any time during the crash sequence.
Junction Interchange	C16	The area formed by the connection of two roadways. Includes: (1) all at-grade intersections, (2) connections between a driveway access or alley connections between a driveway access or alley access and a roadway which is not a driveway access or alley access, (3) connections between two alley accesses or driveway access or (4) connection between a driveway access and an alley access.
Junction Non-Interchange Area	C16	Refer to Appendix J.
KABCO	P4	A functional measure of the injury severity for any person involved as determined by law enforcement at the scene of the crash. (Fatal Injury (K), Incapacitating Injury (A), Non-Incapacitating Injury (B), Possible Injury (C), No Injury (O).)
Lane	V14	A strip of roadway used for a single line of motor vehicles.
Lane Closure	C19	Type of work zone.
Lane Line	V14	A pavement marking used to separate traffic traveling in the same direction. Lane lines are normally 4 to 6 in (100 to 150 mm) wide.
Lane Shift / Crossover	C19	Type of work zone.
Lap Belt Only Used	P7	Use of a lap safety belt either because the motor vehicle is equipped only with lap belt or because the shoulder belt is not in use.
Latitude and Longitude	C5	Geographical coordinates that indicate the location of the crash.
Law Enforcement Reporting Agency Identifier	C9	A unique identifier for the law enforcement agency that provided information on the crash report.
Law Enforcement Suspects Alcohol Use	P17	Driver or non-motorist involved in the crash suspected by law enforcement to have used alcohol.
Law Enforcement Suspects Drug Use	P19	Driver or non-motorist involved in the crash suspected by law enforcement to have used drugs.
Leaving Travel Lane	V18	A motor vehicle or person moving outside the travel lane.
Light Condition	C12	The type / level of light that exists at the time of a motor vehicle crash.
Light Truck	V8, V28	Trucks (van, mini-van, panel, pickup, sport utility) of 10,000 lbs GVWR or less.

Data Element	Number	Definition
Lighting	P26	Non-motorist use of lights on his/her person or on a motor vehicle not in transport or transport vehicles other than motor vehicle as safety equipment.
Linear Referencing System (LRS)	C5	A standardized data format that provides the ability to create complex overlays of multiple events or occurrences along a route to support corridor planning, pavement rehabilitation, or other complex analysis.
Link Node System	C5	A system that assigns an identifier to each segment of roadway and to specific points or nodes that are useful to reference the location of a crash.
Location of the First Harmful Event	C7	The location of the first harmful event as it relates to its position within or outside the trafficway.
Low Speed Vehicle	V8	Includes motorized scooter or human transporter (Segway, etc.), golf cart, tractor or other low speed motor vehicle used for transport.
Light Support	C6 V20, V21	A pole or post constructed to support lighting of the highway.
Lying in Roadway	P23	Person physically located in that part of trafficway designed, improved, and ordinarily used for motor vehicle travel.
Mainline Number of Lanes at Intersection	RL16	Number of "thru" lanes on the mainline approaches at intersection including all lanes with "thru" movement ("thru" and left-turn, or "thru" and right-turn) but not exclusive turn lanes.
Maintenance Zone	C19	See Work Zone.
Manner of Crash / Collision Impact	C8	The identification in a crash of the manner in which two motor vehicles in transport initially came together without regard to direction of force.
Marked Crosswalk	P25	That portion of the roadway that is distinctly indicated for pedestrian crossing by lines or other markings on the surface of the roadway.
Median	C7	An area of trafficway between parallel roads separating travel in opposite directions. A median should be four or more feet wide.
Medical Facility	P28	Hospital, clinic, trauma center that received patient for treatment.
Medium/Heavy Trucks	V8	Greater than 10,000 lbs (4,536 kg).
Minor Damage	V24	Damage which does not affect the operation of or disable the motor vehicle in transport.
Most Harmful Event for this Vehicle	V21	Event that resulted in the most severe injury or greatest property damage for this motor vehicle.
Motor Carrier	V26	A for-hire motor carrier or a private motor carrier. The term includes a motor carrier's agents, officers and representatives as well as employees responsible for hiring, supervising, training, assigning or dispatching of drivers and employees concerned with the installation, inspection, and maintenance of motor vehicle equipment and/or accessories.

Data Element	Number	Definition
Motor Carrier Cargo Loss, Shift, or Release	C6 V20, V21 V30	The loss or release of the goods being transported from the cargo compartment of the truck, or the change in the position of the goods within the cargo compartment.
Motor Carrier Cargo Tank	V29	A single-unit truck, truck/trailer, or tractor semi-trailer having a cargo body designed to transport dry bulk (fly, ash, etc.), liquid bulk (gasoline, milk, etc.) or gas bulk (propane, etc.).
Motor Carrier Identification	V26	The identification number, name and address of an individual partnership or corporation responsible for the transportation of persons or property as indicated on the shipping manifest.
Motor Coach	V8	Bus designed to travel long distances between cities.
Motor Home	V8	A van where a frame-mounted recreational unit is added behind the driver or cab area or mounted on a bus/truck chassis that is suitable to live in and drive across the country.
Motor Vehicle Authorized Speed Limit	V12	Authorized speed limit for the motor vehicle at the time of the crash. The authorization may be indicated by the posted speed limit, blinking sign at construction zones, etc.
Motor Vehicle Body Type Category	V8	The general configuration or shape or a motor vehicle distinguished by characteristics such as number of doors, seats, windows, roof line, hard top or convertible.
Motor Vehicle Crash	C6 V20, V21	A motor vehicle crash (1) that involves a transport vehicle in transport (2) in which the first harmful event is not produced by the discharge of a firearm or explosive device, and (3) that does not directly result from a cataclysm. Inclusions: motor vehicle driven into water after bridge was washed out during a hurricane or flood (cataclysm), motor vehicle driven into fallen materials covering a roadway after a landslide or avalanche (cataclysm), and others.
Motor Vehicle In Transport	C6, C8 V2, V10, V20–23	Any motorized (mechanically or electrically powered) motor vehicle not operated on rails. The term "in transport" denotes the state or condition of a transport vehicle that is in motion or within the portion of a transport way ordinarily used by similar transport vehicles. When applied to motor vehicles, "in transport" means in motion or on a roadway. Inclusions: motor vehicle in traffic on a highway, driverless motor vehicle in motion, motionless motor vehicle abandoned on a roadway, disabled motor vehicle on a roadway, etc. In roadway lanes used for travel during rush hours and parking during off-peak periods, a parked motor vehicle is in transport during periods when parking is forbidden. (See definitions for Roadway, Road, and Trafficway.)
Motor Vehicle License Plate Number	V4	Alphanumeric identifier or other characters, exactly as displayed, on the registration plate or tag affixed to the motor vehicle. For combination trucks, motor vehicle plate number is obtained from the power unit or tractor.
Motor Vehicle Make	V5	The distinctive (coded) name applied to a group of motor vehicles by a manufacturer. This information also can be obtained separately from the Vehicle Registration data file. Refer to Appendix M.

Data Element	Number	Definition
Motor Vehicle Maneuver/Action	V18	The controlled maneuver for this motor vehicle prior to the beginning of the sequence of events.
Motor Vehicle Model	V7	The manufacturer-assigned code denoting a family of motor vehicles (within a make) that has a degree of similarity in construction, such as body, chassis, etc. This information also can be obtained separately from the Vehicle Registration data file.
Motor Vehicle Model Year	V6	The year that is assigned to a motor vehicle by the manufacturer. Usually it is the year in which the model change occurs. This information also can be obtained separately from the Vehicle Registration data file.
Motor Vehicle Registration State and Year	V3	The state, commonwealth, territory, foreign country, Indian Nation, U.S. Government, etc., issuing the registration plate and the year of registration as indicated on the registration plate displayed on the vehicle.
Motor Vehicle Unit Number	V2	A number assigned to uniquely identify each motor vehicle involved in the crash. This number is not assigned to pedestrians or bicyclists.
Motorcycle	V8	A two- or three-wheeled motor vehicle designed to transport one or two people. Included are motor scooters, mini-bikes, and mopeds.
Motorist	C9	Any occupant of a motor vehicle in transport.
National Highway System	RL4	Includes 160,000 miles of major highways that link most of the U.S. These highways include interstates, principal arterials, strategic highway networks, major strategic highway network connectors, and intermodal connectors.
No Access Control	RL9	Includes all sections that do not meet the criteria for full or partial access control.
No Improper Driving	P13	Driver operated motor vehicle in an apparently correct manner.
Non-Collision	C6, C8 V20, V21	Any motor vehicle crash not involving a collision. Includes overturn /rollover, fire /explosion, immersion, jackknife, cargo /equipment loss or shift, equipment failure, separation of units, ran off road right or left, cross median /centerline, downhill runaway, fell /jumped from motor vehicle, thrown or falling object.
Non-Fatal Injury	P4	Bodily harm to a person that does not result in death.
Non-Highway Work	C15	Maintenance or other types of work occurring near or in the trafficway but not related to the trafficway.
Non-Incapacitating Injury	CD1 P4	Any injury, other than a fatal injury or an incapacitating injury, which is evident to observers at the scene of the crash in which the injury occurred. Examples: contusions (bruises), laceration, bloody nose.
Non-Intersection Crosswalk	P25	A portion of the roadway, not at an intersection, that is distinctly indicated for pedestrian crossing by lines or other markings on the surface of the roadway.
Non-Junction	C16	Roadway that is not an intersection or a connection between a driveway access and a roadway other than a driveway access.

Data Element	Number	Definition
Non-Motorist	P3	Any person other than an occupant of a motor vehicle in transport. This includes pedestrians, bicyclists, other cyclists, occupants of other motor vehicles not in transport, and occupants of transport vehicles other than motor vehicles.
Non-Motorist Action Prior to Crash	P22	The action of the non-motorist prior to the crash.
Non-Motorist Actions at Time of Crash	P23	What the non-motorist was doing at the time of the crash such as improper crossing, darting, lying and/or in the roadway, failure to yield right-of-way, being inattentive, wearing dark clothing, failure to obey traffic signs, signals or officer, on wrong side of road, other.
Non-Motorist Condition at Time of Crash	P24	Any relevant condition of the non-motorist that is directly related to the crash.
Non-Motorist Location at Time of Crash	P25	The non-motorist's location with respect to the trafficway at the time of the crash.
Non-Motorist Number	P21	The unique, sequential number assigned to the non-motorist involved in a crash.
Non-Motorist Safety Equipment	P26	Safety equipment(s) used by the non-motorist, including retro-reflective clothing, lighting, protective pads, helmet, etc.
Non-Motorist Type	P3	Type of non-motorist involved in a crash (pedestrian, pedalcyclist, skater, etc.)
Number of Fatalities	CD6	The count of fatalities (motorists and non-motorists) that resulted from injuries within 30 days sustained as the result of a specific motor vehicle crash.
Number of Motor Vehicles Involved	CD2	The count of motor vehicles (automobiles, single-unit trucks, truck combinations, etc.) that are in motion or parked on a roadway and involved in the crash.
Number of Motorists	CD3	The count of occupants in the motor vehicles in transport involved in the crash.
Number of Non-Fatally Injured Persons	CD5	The total number of persons injured in a specific traffic crash, excluding fatalities.
Number of Non-Motorists	CD4	The count of non-occupants (pedestrians, pedalcyclists, etc.) or occupants of motor vehicles not in transport involved in a crash.
Obstruction in Roadway	C15	A blockage in the roadway.
Occupant's Motor Vehicle Unit Number	P5	The unique number assigned for this crash to the motor vehicle in which this person was an occupant.

Data Element	Number	Definition
Occupant Protection System Use	P7	The restraint equipment in use by the occupant, or the helmet use by a cyclist, at the time of the crash.
Off-Roadway, Location Unknown	C7	First harmful event is off the roadway but location of the actual property line is unknown.
Operating Defective Equipment (Driver)	V25	Vehicle in transport or any part or component of motor vehicle in transport with defects or maintenance conditions which affect the operation of the vehicle.
Originating Agency Identifier (ORI Codes)	C9	A unique identifier for each law enforcement agency that is assigned by the Department of Justice.
Other Distractions Inside the Vehicle	P16	Other distractions inside the vehicle include eating, drinking, smoking and reading.
Other Distractions Outside the Vehicle	P16	Other distractions which occur outside of the vehicle, such as a crash in the next lane or on the other side of the median, automated highway signs, interesting objects in the sky, fire off the roadway, etc.
Other Electronic Device	P16	Includes devices which are part of the vehicle such as a navigation device, radio, VCR/DVD/tape player, etc., and devices which are not part of the vehicle such as a palm pilot, computer, etc.
Other Fixed Object	C6 V20, V21	Other fixed object includes a wall, building, tunnel, etc.
Other Light Trucks	V8	Less than 10,000 lbs or 4,536 kg.
Other Non-Collision	C6 V20, V21	Includes dislodged cargo, spewed gravel, etc.
Other Non-Fixed Object	C6 V20, V21	Includes fallen trees.
Other Non-Fixed Object — Collision With	C6 V20, V21	A collision with an object other than a motor vehicle in transit, a pedestrian, another road vehicle in transit, a parked motor vehicle, a railway vehicle, a pedal cycle, an animal, or a fixed object.
Other Non-Interchange	C16	Includes crossings for bikes, snowmobiles, school, etc.
Other Part of Interchange	C16	Refer to Appendix J.
Other Post, Pole, or Support	C6 V20, V21	Post, pole or support that does not include a highway safety sign.
Other Traffic Barrier	C6 V20, V21	Moveable barriers including cones, chains, law enforcement vehicle, etc.

Data Element	Number	Definition
Outside Trafficway	C7	Not physically located on any land way open to the public as a matter of right or custom for moving persons or property from one place to another.
Overtaking / Passing	V18	A motor vehicle that moves from behind a motor vehicle to in front of the same motor vehicle.
Overturn /Rollover	C6 V20, V21	A motor vehicle that has overturned at least 90 degrees to its side.
Parked Motor Vehicle	C6 V18, V20, V21 P3	A transport motor vehicle that is not in motion or on a roadway. A motor vehicle, or any portion of the motor vehicle outline (excludes open doors, mirrors, etc.), parked on the roadway during periods when parking is prohibited is considered in transport.
Parking Lane	C7	An auxiliary lane primarily for the parking of motor vehicles.
Partial Access Control	RL9	Authority to control access is exercised to give preference to thru traffic to a degree that, in addition to access connections with selected public roads, there may be some crossings at grade and some private driveway connections. However, these direct private driveway connections have been minimized through the use of frontage roads or other local access restrictions.
Partially Ejected	P9	The location of an occupant's body not completely thrown from the motor vehicle as a result of the impact.
Passenger	P3	Occupant of motor vehicle other than the driver of the motor vehicle.
Passenger Car / Vehicle	V8	Motor vehicles used primarily for carrying passengers.
Pavement Markings	RL12	Markings set into the surface of, applied upon, or attached to the pavement for the purpose of regulating, warning, or guiding traffic. Markings are typically paint, or plastic but may be devices of various materials.
Pavement Markings, Longitudinal	RL12	The longitudinal markings (paint, plastic, or other) used on the roadway surface to guide or control the path followed by drivers.
Pedalcycle	C6 V20, V21	Includes bicycle, tricycle, unicycle, pedal car, etc.
Pedalcyclist	P3	Any occupant of a pedalcycle.
Pedestrian	C6 V20, V21 P3	A person who is not an occupant of a motor vehicle in transport. Includes a person who is adjacent to the motor vehicle regardless of their actions.
Pedestrian Conveyance	P3	Includes motorized scooter, wheelchair, etc.
Person Traffic Control Device	V17	Includes flagger, law enforcement personnel, crossing guard, etc.

Data Element	Number	Definition
Person Type	P3	Type of person involved in a crash.
Physical Obstruction	C14	An object that blocked sight and contributed to the crash (bush, tree, etc.).
Placard Number	V30	A number included on the hazardous material placard displayed on trucks that are carrying hazardous materials. Many placards have two numbers, a four-digit number in the middle, and a one-digit number at the bottom. See Appendix R.
Playing or Working on Vehicle	P22	Non-motorist, such as a child playing or mechanic working/touching a motor vehicle.
Pole Trailer	V29	A trailer designed to be attached to the towing vehicle by means of a reach or pole, or by being boomed or otherwise secured to the towing motor vehicle, and ordinarily used for carrying property of a long or irregular shape.
Possible Injury	P4	Complaint of pain without visible injury.
Property Damage Only	CD1	Crash which results in damage to the motor vehicle or other property but without injury to any occupants or non-motorists.
Protective Pads Used	P26	Padded, shaped attachments to protect specific areas of the body (elbows, knees, shins, etc.) from injury, usually when skating.
Railway Crossing Device	V17	Any sign, signal, or gate that warns of on-coming trains or train tracks crossing the roadway.
Railway Crossing ID	RL10	A unique number assigned to a railroad crossing by a state highway agency in cooperation with the American Association of Railroads for identification purposes (US DOT/AAR number).
Railway Grade Crossing	C16	An intersection between a roadway and train tracks which cross each other at the same level (Grade).
Railway Vehicle	C6 V20, V21	Any land vehicle (train, engine) that is (1) designed primarily for moving persons or property from one place to another on rails and (2) not in use on a land way other than a railway.
Railway Vehicle — Collision With	C6 V20, V21	A collision in which a vehicle in transport collides with a railway vehicle (train, engine, etc.).
Raised Pavement Marker	RL12	An individual unit marker, reflectorized or non-reflectorized, generally less than one-inch (25 mm) in height, attached to and extending above the normal pavement surface for the purpose of regulating, warning, or guiding traffic.
Ran Off Road	V20 P13	Failure of the driver to keep the motor vehicle on the roadway.
Ran Red Light	P13	Driver continues through yellow caution light shortly before or after it turns red. This driver action is not included in the list of violation codes.

Data Element	Number	Definition
Rear-End — Manner of Impact	C8	A crash where the front of one motor vehicle impacts the rear of another motor vehicle. Also referred to as front-to-rear.
Rear-to-Rear — Manner of Impact	C8	A crash where the backs of two motor vehicles impact together.
Rear-to-Side — Manner of Impact	C8	A crash where the back of one motor vehicle impacts the side of another motor vehicle.
Reflective Clothing	P26	Clothing which reflects light and also returns most of that reflection back along the path of the incoming light.
Relation to Junction	C16	The location of the crash in relation to an interchange area junction, non-interchange junction or a driveway junction.
Relation to Roadway	C7	The location of the first harmful event as it relates to its position within or outside the trafficway.
Riding on Vehicle Exterior	P6	Person outside of motor vehicle (on hood, running board, trunk, non-trailing unit, etc.) while riding.
Right-of-Way	C7 P13, P23	Area within the trafficway.
Road	C5, C15, V14, V16 P23, P25 RL7, RL8	That part of a trafficway that includes both the roadway and any shoulder alongside the roadway. Includes designated parking areas on a roadway or between the roadway and curb.
Roadside	C7	From the property line of the outermost part of the trafficway to the edge of the first road. Refer to Appendix H.
Roadway	V14	That part of a trafficway designed, improved, and ordinarily used for motor vehicle travel or, where various classes of motor vehicles are segregated, that part of a trafficway used by a particular class. Separate roadways may be provided for northbound and southbound traffic (as well as eastbound and westbound) or for trucks and automobiles. Bridle paths, bicycle paths, and shoulders are not included in this definition. Refer to Appendix H.
Roadway Alignment and Grade	V16	The geometric or layout and inclination characteristics of the roadway in the direction of travel for this vehicle.
Roadway Functional Classification	RL5	The character of service or function of streets or highways. The classification of rural and urban is determined by state and local officials in cooperation with each other and approved by the Federal Highway Administration, U.S. Department of Transportation.
Roadway Lighting	RL11	The type of roadway illumination on the roadway.

Data Element	Number	Definition
Roundabout	C17	Circular traffic patterns in which yield control is used on all entries, circulating vehicles have the right-of-way, pedestrian access is allowed only across the legs of the roundabout behind the yield line and circulation is counter-clockwise and passes to the right of the central island.
Sag	V16	Bottom of the hill.
School Bus	C18	A motor vehicle used for the transportation of any school pupil at or below the 12th-grade level to or from a public or private school or school-related activity. It is externally identifiable by the color yellow, the words "school bus," flashing red lights located on the front and rear, and lettering on both sides identifying the school or school district served, or the company operating the bus.
School Bus-Related Crash	C18	Indicates if a school bus or motor vehicle functioning as a school bus for a school-related purpose is related to the crash. The "school bus," with or without a passenger on board, must be directly involved as a contact motor vehicle or indirectly involved as a non-contact motor vehicle (children struck when boarding or alighting from the school bus, two vehicles colliding as the result of the stopped school bus, etc.).
School Zone Signs	V17	Signs which change the speed limit on roads adjacent to a school on school days; signs which give advance warning of a school; and signs which warn of children crossing the road.
Seating Position	P6	Location for this occupant in, on, or outside of the motor vehicle prior to the crash.
Second Row — Left Side	P6	Passenger behind driver of motor vehicle or motorcycle. Refer to Appendix S.
Second Row — Middle	P6	Passenger in middle of back seat. Refer to Appendix S.
Second Row — Right Side	P6	Passenger behind right front seat passenger. Refer to Appendix S.
Segway	V8	Low speed vehicle that serves as a personal motorized conveyance.
Separation of Units	V20	When the truck or truck tractor becomes separated from the semi-trailer and/or trailer(s) it is pulling.
Separator	C7	A separator is the area of a trafficway between parallel roads separating travel in the same direction or separating a frontage road from other roads.
Sequence of Events	V20	The events in sequence related to this motor vehicle, including both non-collision as well as collision events regardless of injury and/or property damage.
Shared-Use Path or Trail	P25	A bikeway physically separated from motorized vehicular traffic by an open space or barrier and either within the highway right-of-way or an independent right-of-way. Shared use paths will also be used by pedestrians, skaters, wheelchairs, joggers and other non-motorized users.

Data Element	Number	Definition
Shoulder	C7	That part of a trafficway contiguous with the roadway for emergency use, for accommodation of stopped motor vehicles, and for lateral support of the roadway structure.
Shoulder and Lap Belt Used	P7	Use of occupant restraint system where both the shoulder belt and lap belt portions are connected to a buckle.
Shoulder Belt Only Used	P7	In a two-part occupant restraint system, only the shoulder belt portion connected to a buckle is used.
Side-Road Number of Lanes	RL17	Number of "thru" lanes on the side-road approaches at intersection including all lanes with "thru" movement ("thru" and left-turn, or "thru" and right-turn) but not exclusive turn lanes. Refer to Appendix H.
Sideswipe, Opposite Direction — Manner of Impact	C8	Crashes where two motor vehicles are traveling in the opposite direction and impact on the side.
Sideswipe, Same Direction — Manner of Impact	C8	Crashes where two motor vehicles are traveling the same direction and impact on the side.
Single-Unit Truck (3-or-more axles)	V28	A power unit that includes a permanently mounted cargo body (also called a straight truck) that has three or more axles.
Single-Unit Truck (2-axle, and GVWR over 10,000 lbs)	V28	A power unit that includes a permanently mounted cargo body (also called a straight truck) that has only two axles and a GVWR of over 10,000 lbs.
Skater	P3	A person wearing in-line roller, roller or bladed skates or using a skateboard.
Sleeper Section of Cab (Truck)	P6	Section in back of truck cab where occupants can sleep.
Slope	RL3	The change in the elevation of an element of the roadway per unit of horizontal length may be expressed as a percent or a ratio.
Source of Information	C9	Affiliation of the person documenting the crash information on the crash report.
Special Function of Motor Vehicle in Transport	V10	Indicates the type of special function being served by this vehicle regardless of whether the function is marked on the vehicle.

Data Element	Number	Definition
Sport Utility Vehicle	V8	A motor vehicle other than a motorcycle or bus consisting primarily of a transport device designed for carrying ten or fewer persons, and generally considered a multi-purpose vehicle that is designed to have off-road capabilities. These vehicles are generally four-wheel-drive (4x4) and have increased ground clearance. A utility vehicle has a gross vehicle weight rating (GVWR) of 10,000 lbs or less. Utility vehicles with wheelbases greater than 88 inches are classified by overall width. The wheelbase and overall width should be rounded to the nearest inch. Sizes range from mini, small, midsize, full-size and large. Four-wheel automobiles are not considered utility vehicles.
State-Specific Identifier	V3	An identifier that uniquely identifies a given crash in a state for a specific year.
Stop Signs	V17	A six-sided red sign with "STOP" on it, requiring motor vehicles to come to a full stop and look for on-coming traffic before proceeding with caution.
Stopped in Traffic	V18	Motor vehicle stopped in traffic at the time of the crash.
Striking	P27	Motor vehicle hitting an object, person or other vehicle at time of the crash.
Struck	V20, P27	Motor vehicle being hit by an object, person or other motor vehicle at time of the crash.
Superelevation	RL2	The degree to which the outside edge of a roadway is higher than the inside edge at a specified point on a curve; the change in elevation per unit distance across the roadway from inside to outside edge.
Swerving or Avoiding (due to wind, slippery surface, vehicle, object, non-motorist in roadway, etc.)	P13	Defensive driver action to defend against an apparent danger in, on, or due to the condition of the roadway or the presence of a motor vehicle or object or non-motorist in the roadway in order to avoid a crash.
T-Intersection	C17	An intersection where two roadways connect and one roadway does not continue across the other roadway. The roadways form a "T".
Termination Area	C19	Located after the activity area but before traffic resumes normal conditions.
Third Row — Left Side	P6	Passenger seat on left side of third row of motor vehicle or second passenger (excluding driver) on motorcycle. Refer to Appendix S.
Third Row — Middle	P6	Passenger seat in middle of third row of motor vehicle. Refer to Appendix S.
Third Row — Right Side	P6	Passenger seat on right side of third row of motor vehicle. Refer to Appendix S.
Thru Roadway	C16	A crash would have this code when it is in an interchange area and it does NOT occur: 1) On an Entrance/Exit ramp; or 2) In an intersection or related to an intersection or other junction. Refer to Appendix J.

Data Element	Number	Definition
Thrown or Falling Object	C6 V20, V21	Object that is thrown or falls on or near a motor vehicle in transport at the time of the crash.
Thru Lane	V15	Lane that routes traffic straight ahead away from the local or exit lanes. Includes dual-purpose lanes where you can go "thru" or turn.
Total Lanes in Roadway	V15	Total number of lanes in the roadway on which this motor vehicle was traveling.
Total Occupants In Motor Vehicle in Transport	V9	Includes injured and uninjured occupants in this motor vehicle involved in the crash, including persons in or on the motor vehicle at the time of the crash.
Total Volume of Entering Vehicles	RL18	Vehicles entering all approaches of an intersection.
Totally Ejected	P9	Occupant's body completely thrown from the motor vehicle as a result of the crash.
Traffic Barrier	C6 V20, V21	A device that provides a physical limitation through which a motor vehicle would not normally pass and is designed to contain or redirect an errant motor vehicle.
Traffic Circle	C17	An intersection of roads where motor vehicles must travel around a circle to continue on the same road or leave on any intersecting road.
Traffic Control Device (TCD) Type	V17	Flashing, school zone, stop, yield, warning, railway crossing signs/signals, etc. which apply to this vehicle.
Traffic Control Signal	V17	Controls traffic movements by illuminating systematically, a green, yellow, or red light or by flashing a single color light.
Traffic Sign Support	C6 V20, V21	A pole, post or other type of support for a traffic sign.
Traffic Signal Support	C6 V20, V21	A pole, post or other type of support for a traffic signal.
Trafficway	C7 V14–V15 P25	Any land way open to the public as a matter of right or custom for moving persons or property from one place to another. (See Appendix H for a diagram of the trafficway.)
Trafficway Description	V14	An indication of whether or not a trafficway is divided and whether it serves one-way or two-way traffic. (A divided trafficway is one on which roadways for travel in opposite directions is physically separated by a median. See Appendix H for a diagram of the trafficway.)
Trailing Unit	V28	Motorcycle caboose or attached trailer of motor vehicle.
Transition Area	C19	Where lanes are shifted or tapered for lane closure.
Transported to Medical Facility By	P28	Type and identity of unit providing transport to medical facility receiving patient.

Data Element	Number	Definition
Tree, Standing	C6 V20, V21	Tree is upright and in the ground. A standing tree is a fixed object as opposed to a fallen tree that is a moveable object.
Truck Tractor (Bobtail)	V28	A motor vehicle consisting of a single motorized transport device designed primarily for pulling semi-trailers.
Truck Tractor/Doubles	V28	A truck tractor that is pulling a single semi-trailer and one full-sized trailer.
Truck Tractor/ Semi-Trailer	V28	A truck tractor that is pulling a semi-trailer.
Truck Tractor/ Triples	V28	A truck tractor that is pulling a single semi-trailer and two full-sized trailers.
Truck/Trailer	V28	A motor vehicle combination consisting of a single-unit truck and a trailer.
Turn Lane	V14–V15 RL12 RL16–RL17	Lane designated for vehicles turning from one trafficway to another. This can include regular left turn or continuous left turn lanes.
Two-Way Continuous Left Turn Lane	V14	Undivided center lane that facilitates left turns by traffic from both directions.
Type of Intersection	C17	An intersection consists of two or more roadways that intersect at the same level. Configurations include four-way, "T", "Y", five or more points, traffic circle, roundabout, etc.
Type of Work Zone	C19	Refers to lane closure or shift, work on shoulder or median, intermittent or moving work, or other.
Underride/ Override	V22	An underride refers to a motor vehicle sliding under another motor vehicle during a crash. An override refers to a motor vehicle riding up over another motor vehicle. Either can occur with a parked motor vehicle.
Unit Number of Motor Vehicle Striking Non-Motorist	P27	Identifies the motor vehicle that struck the non-motorist in the crash.
Utility Pole/Light Support	C6 V20, V21	Constructed for the primary function of supporting an electric line, telephone line or other electrical-electronic transmission line or cable.
Utility Zone	C19	See Work Zone.
Van/Enclosed Box	V29	A single-unit truck, truck/trailer, or tractor/semi-trailer having an enclosed body integral to the frame of the motor vehicle.
Vehicle Identification Number (VIN)	V1	A unique combination of alphanumeric characters assigned to a specific motor vehicle and formulated by the manufacturer. When the technology is available, this number can be obtained by using a bar code reader while the motor vehicle is at the scene.

Data Element	Number	Definition
Violation Codes	P15	All motor vehicle-related violation codes, if any, that apply to this driver. See Appendix O.
Warning Signs	C19 V17	Warn traffic of existing or potentially hazardous conditions on or adjacent to a road.
Width of Median	RL8	Portion of divided highway separating the traveled way for traffic in opposing directions where the crash occurred. If a crash occurs at a mid-block section, the median width is based on the mid-block section. If the crash occurs at an intersection, the median width is based on the median widths at the intersection.
Widths of the Lane(s) and Shoulder(s)	RL7	The width of the lane(s) and of the shoulder(s) at the location of the crash.
Work on Shoulder or Median	C19	Type of work zone.
Work Zone	C15, C19	An area of a highway with highway construction, maintenance, or utility work activities. A work zone is typically marked by signs, channelizing devices, barriers, pavement markings, and/or work vehicles. It extends from the first warning sign or flashing lights on a vehicle to the END ROAD WORK sign or the last traffic control device. A work zone may exist for short or long durations and may include stationary or moving activities.
Work Zone Crash	C19	A Work Zone Crash is a traffic crash in which the first harmful event occurs within the boundaries of a work zone or on an approach to or exit from a work zone, resulting from an activity, behavior or control related to the movement of the traffic units through the work zone. Includes collision and non-collision crashes occurring within the signs or markings indicating a work zone or occurring on approach to, exiting from or adjacent to work zones that are related to the work zone. For example: 1) An automobile on the roadway loses control within a work zone due to a shift or reduction in the travel lanes and crashes into another vehicle in the work zone; 2) A van in an open travel lane strikes a highway worker in the work zone; 3) A highway construction vehicle working on the edge of the roadway is struck by a motor vehicle in transport in a construction zone; 4) A rear-end collision crash occurs before the signs or markings indicating a work zone due to vehicles slowing or stopped on the roadway because of the work zone activity; 5) A pickup in transport loses control in an open travel lane within a work zone due to a shift or reduction in the travel lanes and crashes into another vehicle which exited the work zone; 6) A tractor-trailer approaching an intersection where the other roadway has a work zone strikes a pedestrian outside the work zone because of lack of visibility caused by the work zone equipment. Excludes single-vehicle crashes involving working vehicles not located in trafficway. For example: 1) A highway maintenance truck strikes a highway worker inside the work site; 2) A utility worker repairing the electrical lines over the trafficway falls from the bucket of a cherry picker.
Work Zone / Maintenance Equipment	C6, C19 V20, V21	Equipment related to the work zone or roadway maintenance.

Data Element	Number	Definition
Work Zone-Related	C19	A crash that occurs in or related to a construction, maintenance, or utility work zone, whether workers were actually present at the time of the crash or not. Work zone-related crashes may also include those involving motor vehicles slowed or stopped because of the work zone, even if the first harmful event was before the first warning sign.
Worn, Travel-Polished Surface	C15	A road surface which is well used and shiny.
Y-Intersection	C17	An intersection where three roadways connect and none of the roadways continue across the other roadways. The roadways form a "Y".
Yield Signs	V17	Three-sided signs that require motor vehicles to give way to other vehicles.

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APPENDIX C

ELECTRONIC MMUCC FORM (IOWA NATIONAL MODEL/TRACS)

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July, 2001

Model Minimum Uniform Crash Criteria (MMUCC)
MOTOR VEHICLE CRASH REPORT

Crash Case Identifier:

Legal Intervention? ☐ Private Property? ☐

LOCATION

Date of Crash	Time of Crash Hrs.	County	Crash occurred within corporate limits of (city)

If Crash occurred outside of city limits show general vicinity: "N/A" of nearest city "N/A"

On Road, Street, or Highway: "N/A"

At Intersection with: "N/A"

Note: Unless Crash occurred at an intersection which is completely described above, use the space below to give the exact location from a milepost or definable intersection, bridge, or railroad crossing, using two distances and directions if necessary.

Distance	Direction		Distance	Direction	
"N/A"	"N/A"	and	"N/A"	"N/A"	of

Milepost Number "N/A" Or Definable Intersection, bridge, or railroad crossing "N/A"

Location Literal Description "N/A"

X-Coordinate: "N/A"

Y-Coordinate: "N/A"

If Divided Highway, Provide Route (Cardinal) Travel Direction "N/A"

UNIT 001

Driver's Name - Last	First	Middle	Suffix	Date of Birth	Gender

Address	City	State	Zip Code

Driver's License Number	State	Class	Endorsements	Restrictions	Injury Status
			NONE	NONE	

Driver Condition	Source of Transport

Alcohol/Drugs Suspected	Medical Facility ID Number

Alcohol Test Status	Type of Test	Test Results	EMS Response Agency Identifier

Drug Test Status	Type of Test	Test Results	EMS Response Run Number

Occupant Protection System Use	Airbag Deployment	Airbag Switch Status

Trapped	Ejection	Ejection Path

Cited	Violation Code	Violation Charge
	Violation Code 1	Violation Charge 1
	Violation Code 2	Violation Charge 2
	Violation Code 3	Violation Charge 3
	Violation Code 4	Violation Charge 4

Owner's Name - Last	First	Middle	Suffix

Owner Company Name	Address	City	State	Zip Code

Insurance Company Name	Insurance Policy #	Approximate Cost to Repair or Replace	License Plate #	State	Year

VIN	Year	Make	Model	Style

Vehicle Role	Emergency Use?	Emergency Vehicle Type

Direction of Travel Before Crash	Vehicle Maneuver/Action	Speed Limit	Speed Limit Unit of Measure

Direction of Force to Vehicle	Point of Impact	Most Damaged Area	Extent of Damage

Vehicle Configuration	Underride/Override

Total Occupants	Traffic Control Device Type	Cargo Body Type

Contributing Circumstances, Driver (up to two)

SEQUENCE OF EVENTS FOR THIS VEHICLE	
	First Event
	Second Event
	Third Event
	Fourth Event
	Most Harmful Event

COMMERCIAL TRAILER LICENSE PLATE #	Attached to Trailer #1	State	Year	Attached to Trailer #2	State	Year

Carrier Name Source

Carrier Name	Address	City	State	Zip Code

Carrier Identification Number Source	Carrier ID #	Issuing Authority

HAZARDOUS MATERIALS	Did Vehicle Have Placard	Placard #	Hazardous Materials Released?	Number of Axles	GVWR of Power Unit

ACCIDENT ENVIRONMENT

Location of First Harmful Event	Manner of Crash/Collision Impact	Ambient Light
Road Surface Condition	Weather Conditions (up to 2)	

CONTRIBUTING CIRCUMSTANCES

Environment	Roadway	Type of Roadway Junction

WORK ZONE RELATED CRASHES

Work Zone Related?	Type of Work Zone	Workers Present?
Location of Crash		

SEQUENCE OF EVENTS

First Harmful Event

SCHOOL BUS RELATED

School Bus Related Crash?

PERSON 001

Person's Name - Last	First	Middle	Suffix	Date of Birth	Gender
Address	City	State	Zip Code		

Person Type	Seating Position	Injury Status
01 - Passenger		
Unit #		Source of Transport
Alcohol/Drugs Suspected		Medical Facility ID Number
Alcohol Test Status	Type of Test / Test Results	EMS Response Agency Identifier
Drug Test Status	Type of Test / Test Results	EMS Response Run Number
Occupant Protection System Use	Airbag Deployment	Airbag Switch Status
Trapped	Ejection	Ejection Path

NON-MOTORIST

Type	Unit # of Vehicle Striking Non Motorist
Location Prior to Impact	
Condition	Action
Safety Equipment (up to 2)	
Contributing Circumstances (up to 2)	

DIAGRAM

NARRATIVE

Describe what happened (refer to vehicles by number)

NARRATIVE

WITNESS				
Witness Name - Last	First	Middle	Suffix	
Address	City	State	Zip Code	
Home Phone #	Work Phone #			

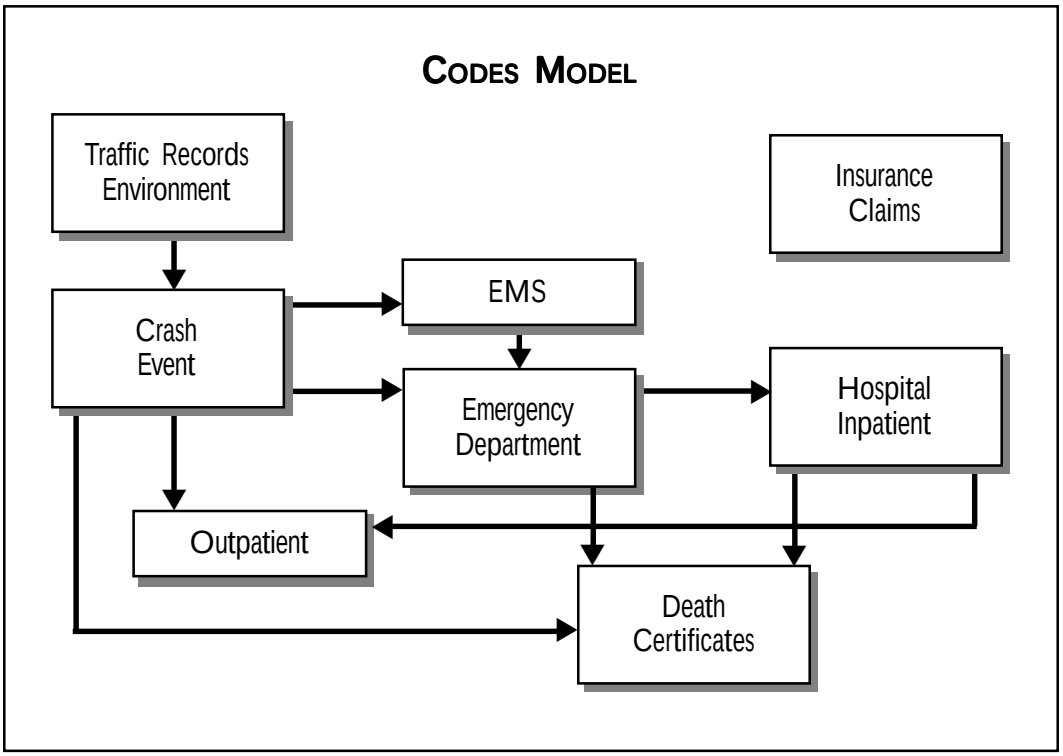
SUMMARY

Date Crash Reported to Police Agency	Time Crash Reported to Police Agency Hrs.	Time Officer Notified of Crash Hrs.	Time Officer Arrived At Scer Hrs.	
Investigation made at scene?	Source of Information	Report Given to All Drivers?	Other Technical Investigation Agency	T.I. #
Reporting Police Agency Identifier			Type of Police Agency	
Date of Report	Officer **Admin, System**			Badge No. **00001**

APPENDIX D

EXAMPLE OF A HIGHWAY SAFETY LINKED DATA SYSTEM

An example of data linkage (see figure below) is the Crash Outcome Data Evaluation System (CODES) project that evolved from the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991. ISTEA mandated that NHTSA prepare a report to Congress about the benefits of safety belt and motorcycle helmet use. To obtain the crash outcome information necessary for this report, NHTSA sponsored the CODES project and awarded grants to Hawaii, Maine, Missouri, New York, Pennsylvania, Utah, and Wisconsin. Currently, a total of 27 states have received CODES funding. Each grantee links available state crash, EMS, emergency department, hospital discharge, insurance, and other traffic records and carries out analyses using the linked data to support their state's highway safety problem identification, planning/policies, and program management.



Successful linkage, using probabilistic techniques, of person-specific crash and injury records relies on indirect identifiers that are sufficient to discriminate among the crashes and the persons involved in each vehicle involved in a crash.

DATA ELEMENTS THAT DISCRIMINATE AMONG THE DIFFERENT CRASHES

Date, time, geographic location and type of vehicle are commonly used to discriminate among the crashes. Time should be recorded in hours and minutes, particularly for urban areas where multiple crashes occur within a given hour. Latitude and longitude are useful for assigning the location of a crash. When coordinates are not available on the police crash report, coordinates are used that indicate the center of a jurisdiction (city, town, county). Health care facilities and EMS agencies are assigned coordinates according to their address. Type of vehicle is defined in general terms as motor vehicle, motorcycle, pedestrian, pedalcycle, etc.

Data Elements That Discriminate between the Persons Involved in a Crash

Date of birth (or age), sex, person type (driver, passenger, rider), vehicle number in crash, injury type, severity (KABCO) are used to discriminate among the persons involved in a crash. Direct identifiers such as name, initials, or social security number (sometimes truncated) are not usually available because of privacy and confidentiality policies.

Unique Identifiers For Other Types of Highway Safety-Related Linkages

Linkages between the crash and administrative files such as driver licensing, vehicle registration and roadway inventory files are more likely to have access to a unique number such as a driver license number, vehicle plate number or roadway marker. Indirect identifiers are also useful to compensate for potential data collection errors.

Source: NHTSA CODES Project.

APPENDIX E

Checklist for a State Highway Safety Information System

MMUCC supports implementing MMUCC within a *state highway safety information system* that is comprehensive, relies on standardized data, stores and distributes timely, complete and accurate data, and provides access to users at all levels. The following checklist lists the characteristics of a model state highway safety information system and provides a model for evaluating your state's highway safety information system.

Types of Data

Does your state computerize statewide the following types of data?	Yes	No	Partial
Traffic Records:			
Driver Licensing			
Vehicle Registration			
Enforcement (Citation/conviction)			
DUI/DWI Offenders			
Roadway Inventory (volume, ADT, type)			
Injury Records:			
EMS Responses/transports			
Emergency Department Visits			
Hospital Discharges			
Deaths			
Other Data (observational studies, surveys, etc.)			

Scope of Data Resources

Does your state highway safety information system:	Yes	No	Partial
Include comprehensive information about all components of the event: crash, persons involved, vehicle, roadway?			
Include GPS for location and a GIS based decision support system?			
Include data for all types of roads (local, county, state)?			
Support a data driven management approach for reporting, problem ID, monitoring, evaluation?			

Standardized Data Elements

Are the data elements in your state highway safety information system based on nationally accepted and published guidelines as well as standards for reporting thresholds and definitions?	Yes	No	Partial
Crash Data:			
MMUCC			
Other applications using ANSI D16.1/ANSI D20			
Injury Data:			
EMS (NHTSA sponsored)			
Emergency Department (DEEDS or UB92)			
Hospital (UB92)			

Functional Capabilities

Does your state highway safety information system perform these functions?	Yes	No	Partial
Link pre-crash, crash and post crash data to medical and financial outcome (CODES Project).			
Link environmental information (roadway, licensing, vehicle registration, citation) to crash data.			
Collect all records statewide per reporting thresholds and complete routine quality control checks.			
Describe individual crashes or crashes in the aggregate.			
Generate information in a timely manner for meaningful decision-making.			
Facilitate direct access to the data on-line, via the Web and/or on CD-ROM.			
Can distribute data in routine reports, by special request or via query systems.			
Archive historical data in a "warehouse" or "network," so they can be easily accessed to evaluate trends over time.			
Store data in a central repository or on a decentralized network.			

Administrative Characteristics

Is your state highway safety information system:	Yes	No	Partial
Supported by a Traffic Records Coordinating Committee (TRCC) that meets regularly?			
Carrying out routine traffic records assessments (within past three years)?			
Involved in ongoing strategic planning efforts involving the TRCC to improve the state highway safety information system?			
Sufficiently funded by the stakeholders to ensure long term survival?			

APPENDIX F

DATE AND TIME FORMATS

DATE

Numbers are always right justified. Use leading zeroes when necessary.

Subfield 1: Year

n n n n	Year
7777	Permanent
8888	Indefinite
9999	Unknown

Subfield 2: Month

01	January
02	February
03	March
04	April
05	May
06	June
07	July
08	August
09	September
10	October
11	November
12	December
77	Permanent
88	Indefinite
99	Unknown

Subfield 3: Day

n n	Day of Month
77	Permanent
88	Indefinite
99	Unknown

EXAMPLE: The fifth of March, nineteen ninety-two is coded 19920305

TIME

Subfield 1: Hour

n n	0–23, representing the time on a 24-hour clock
99	Unknown

Subfield 2: Minute

n n	Minute
99	Unknown

EXAMPLE: 11:55 p.m. would be coded 2355; Midnight is coded 0000 and is the beginning of a new day, not the end of the preceding day.

Source: ANSI D20.1 Data Element dictionary for Traffic Records Systems

APPENDIX G

STATE AND PROVINCE CODES,* FIPS CODES

Source: Numeric state and province codes based on FIPS PUB 10-3. Alphabetic national codes from FIPS PUB 10-3. Alphabetic and numeric codes for the states and outlying areas of the United States from FIPS PUB 5-2 (ANSI X3, 38-R1994), except for Provinces of Quebec (abbreviated QC) and Saskatchewan (abbreviated SK) source for province information came from provinces.

UNITED STATES (US)

AL	01	Alabama
AK	02	Alaska
AZ	04	Arizona
AR	05	Arkansas
CA	06	California
CO	08	Colorado
CT	09	Connecticut
DE	10	Delaware
DC	11	District of Columbia
FL	12	Florida
GA	13	Georgia
HI	15	Hawaii
ID	16	Idaho
IL	17	Illinois
IN	18	Indiana
IA	19	Iowa
KS	20	Kansas
KY	21	Kentucky
LA	22	Louisiana
ME	23	Maine
MD	24	Maryland
MA	25	Massachusetts
MI	26	Michigan
MN	27	Minnesota
MS	28	Mississippi
MO	29	Missouri
MT	30	Montana
NE	31	Nebraska
NV	32	Nevada
NH	33	New Hampshire
NJ	34	New Jersey
NM	35	New Mexico
NY	36	New York
NC	37	North Carolina
ND	38	North Dakota
OH	39	Ohio
OK	40	Oklahoma
OR	41	Oregon
PA	42	Pennsylvania
RI	44	Rhode Island
SC	45	South Carolina
SD	46	South Dakota
TN	47	Tennessee
TX	48	Texas
UT	49	Utah
VT	50	Vermont
VA	51	Virginia
WA	53	Washington
WV	54	West Virginia
WI	55	Wisconsin
WY	56	Wyoming
DS	57	The U.S. Department of State

AS	60	American Samoa
PZ	61	Panama Canal Zone
FM	64	Federated States of Micronesia
GU	66	Guam
MP	69	Northern Mariana Islands
PW	70	Palau
PR	72	Puerto Rico
UM	74	U.S. Minor Outlying Islands
MH	75	Marshall Islands
VI	78	Virgin Islands of the U.S.
WK	79	Wake Island

CANADA (CN)

AB	01	Alberta
BC	02	British Columbia
MB	03	Manitoba
NB	04	New Brunswick
NF	05	Newfoundland
NT	06	Northwest Territory
NS	07	Nova Scotia
ON	08	Ontario
PE	09	Prince Edward Island
QC	10	Quebec
SK	11	Saskatchewan
YT	12	Yukon Territory
NU	13	Nunavut

MEXICO (MX)

AG	01	Aguascalientes
BA	02	Baja California Norte
BJ	03	Baja California Sur
CM	04	Campeche
CI	05	Chiapas
CH	06	Chihuahua
CU	07	Coahuila de Zaragoza
CL	08	Colima
DF	09	Distrito Federal
DO	10	Durango
GT	11	Guanajuato
GR	12	Guerrero
HL	13	Hidalgo
JL	14	Jalisco
MX	15	Mexico
MC	16	Michoacan de Ocampo
MR	17	Moreios
NA	18	Nayarit
NL	19	Nuevo Leon
OA	20	Oaxaca
PB	21	Puebla
QU	22	Queretero de Arteaga
QR	23	Quintana Roo
SL	24	San Luis Potosi
SI	25	Sinaloa
SO	26	Sonora
TB	27	Tabasco
TA	28	Tamaulipas
TL	29	Tlaxcala
VC	30	Veracruz-Llava
YU	31	Yucatan
ZA	32	Zacatecas

OTHER JURISDICTIONS (OT)

OT	99	Jurisdictions other than states or provinces of the United States, Canada, and Mexico (includes Indian Reservations)

Note: Code with country and state or province. Where there is no chance of ambiguity, state or province codes may be used without the country code. (Note that state and province codes are unique within each country but may be duplicated in other countries.)

EXAMPLE: Alabama may be coded as USAL or US01. Chihuahua may be coded as MSCH or MX06.

*Source: GSA Geographic Locator Codes (GLC) located at *www.gsa.gov*.

FIPS Codes For Locations

Federal Information Processing Standards (FIPS) Codes for Locations

Standardized codes for states, counties, cities/towns are published by the National Bureau of Standards in the Federal Information Processing Standards (FIPS) Register.

FIPS Publication 5-2 (May 1987)

Codes for States, District of Columbia, and outlying areas

FIPS Publication 6-4 (August 31, 1990)

Codes for Counties, County Equivalents of the States of United States, District of Columbia

FIPS Publication 8-6 (March 1995)

Codes for:

Metropolitan Statistical Areas (MSAs)

Consolidated Metropolitan Statistical Areas (CMSAs)

Primary Metropolitan Statistical Areas (PMASs)

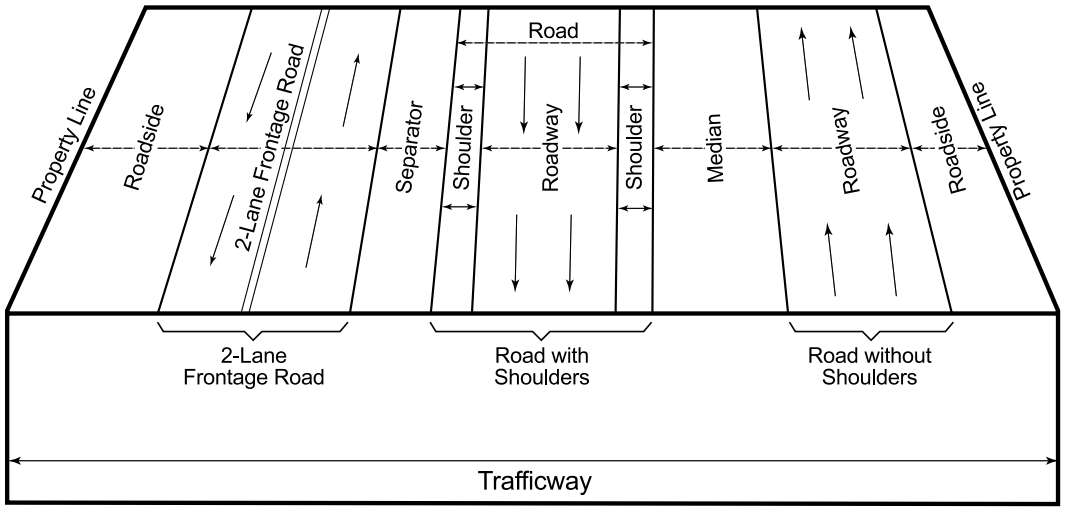
New England County Metropolitan Areas (NeCMAs)

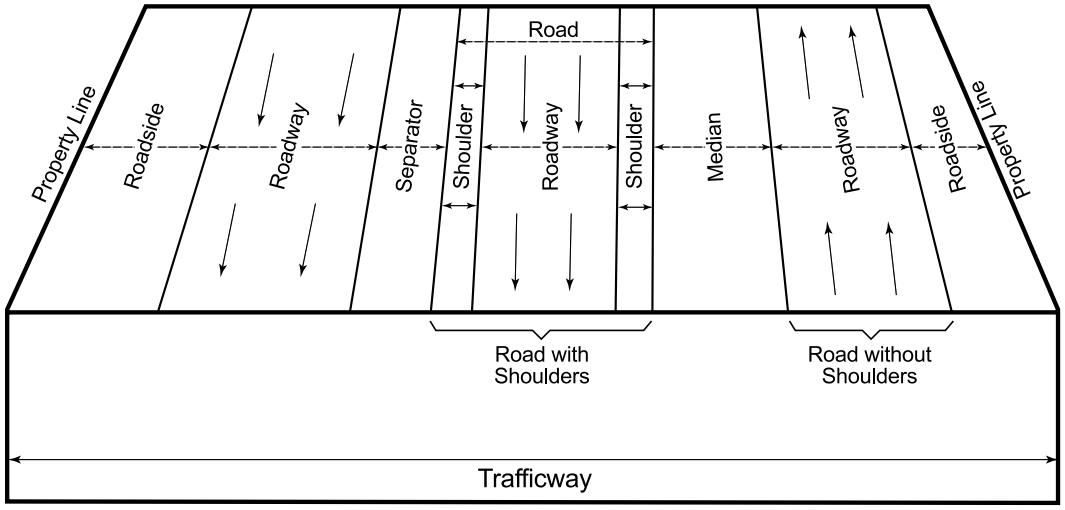
FIPS Publication 10-4 (April 1995)

Codes for Countries, Dependencies, Areas of Special Sovereignty, and Their Principal Administrative Divisions

APPENDIX H

DIAGRAM OF THE TRAFFICWAY*

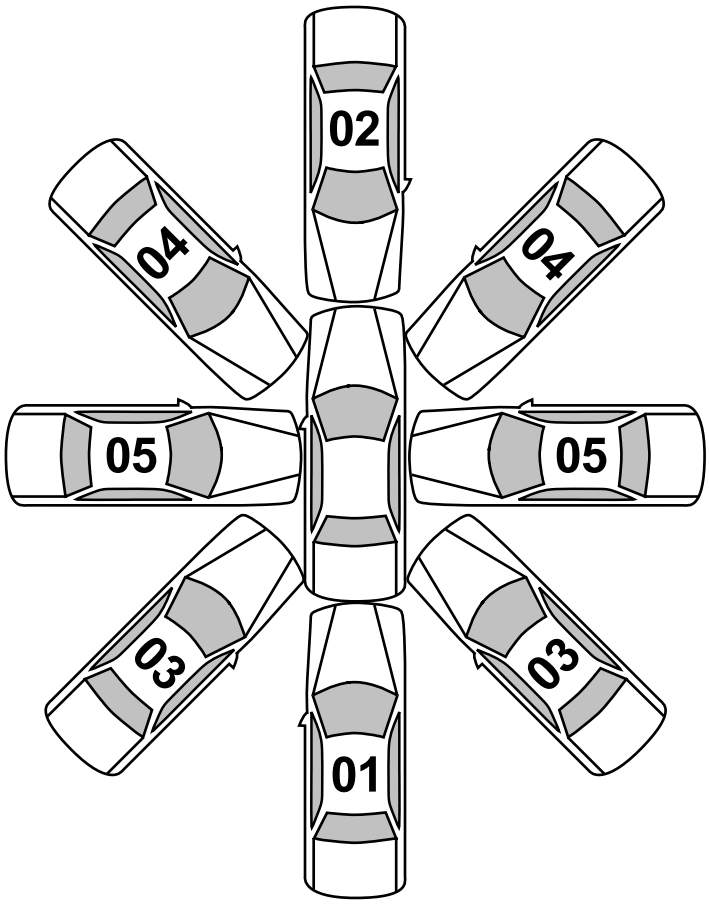




*Source: ANSI D16.1-1996 Manual on Classification of Motor Vehicle Traffic Accidents, Sixth Edition.

APPENDIX I

DIAGRAM SHOWING THE MANNER OF COLLISION*



FARS CODES

01 Front-to-Rear (includes Rear-End)

02 Front-to-Front (includes Head-On)

Angles:

03 Front-to-Side, Same Direction

04 Front-to-Side, Opposite Direction

05 Front-to-Side, Right Angle (includes Broadside)

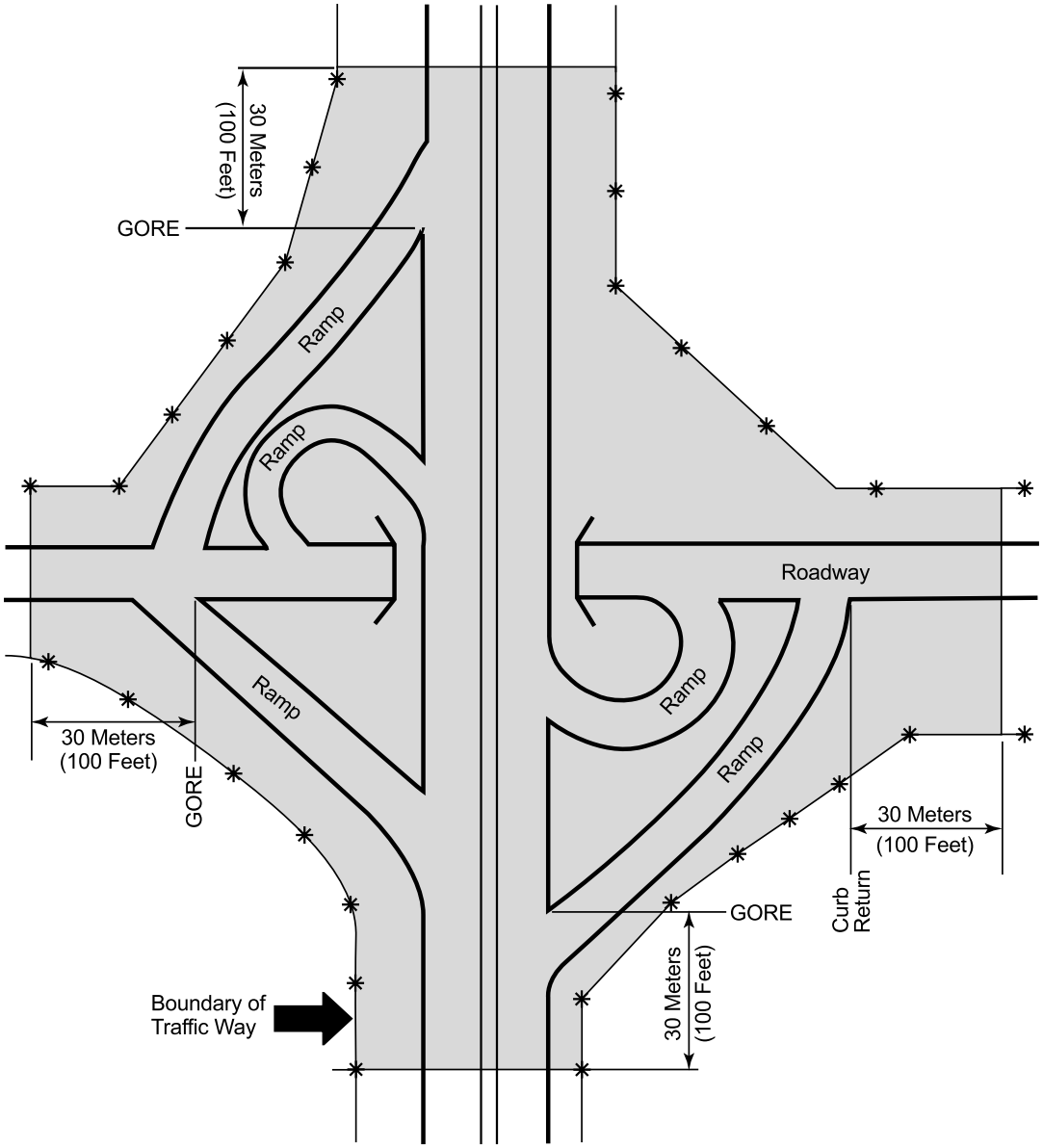
06 Front-to-Side/Angle — Direction Not Specified

*Source: FARS Coding Manual

APPENDIX J

DIAGRAM OF AN INTERCHANGE*

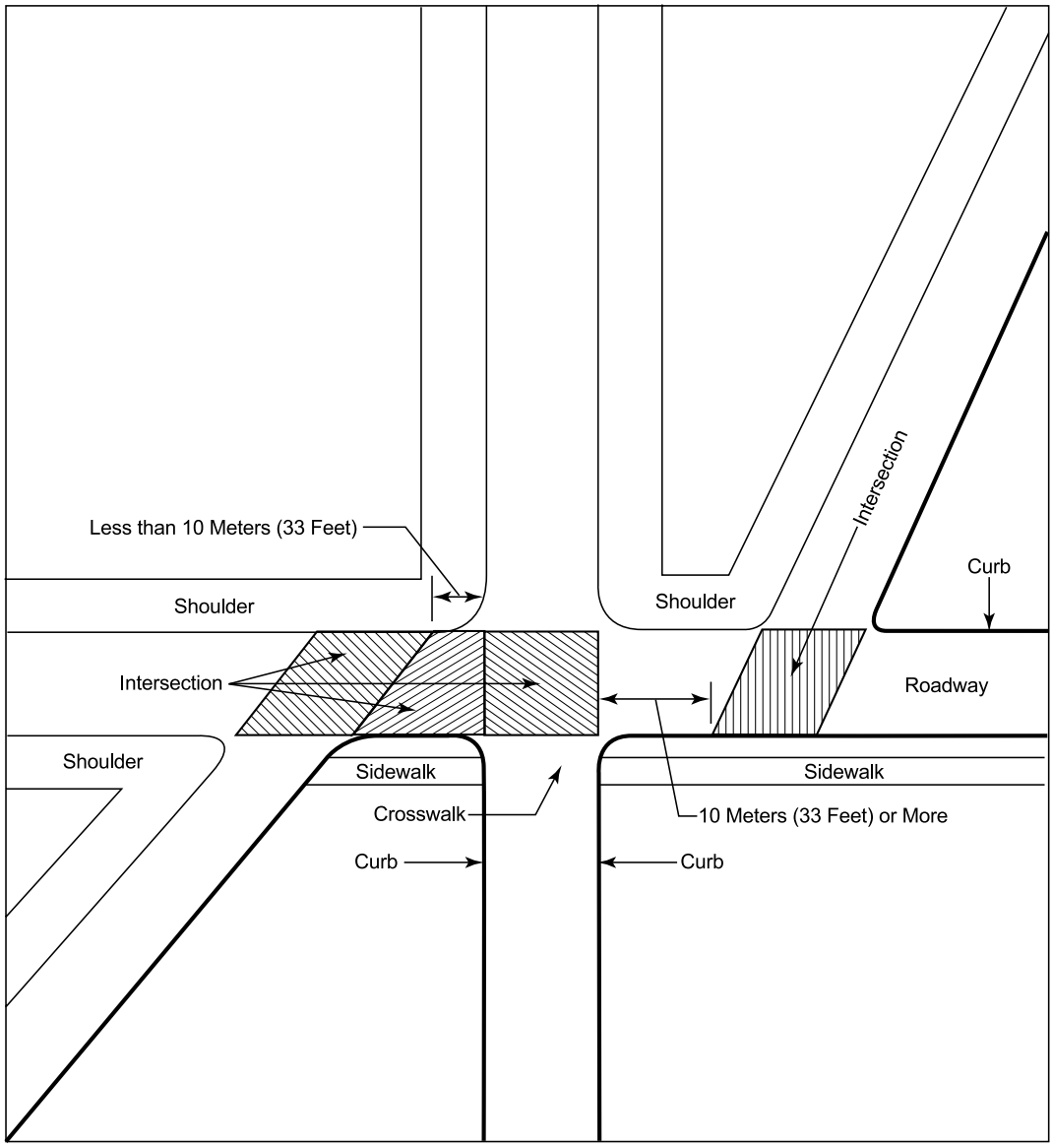
Crashes which occur within the shaded areas are Interchange Crashes.



*Source: ANSI D16.1-1996 Manual on Classification of Motor Vehicle Traffic Accidents, Sixth Edition.

APPENDIX K

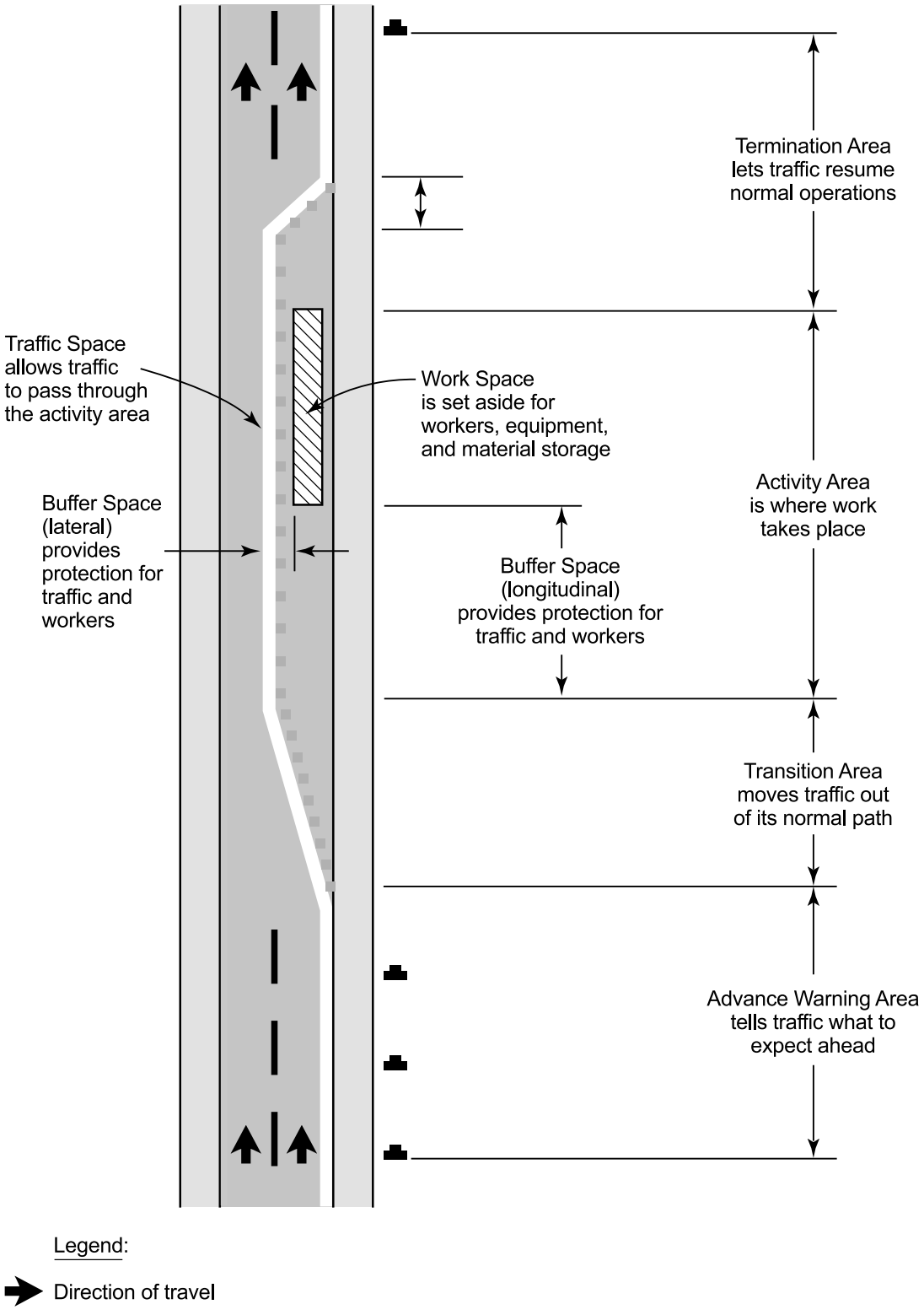
DIAGRAM OF AN INTERSECTION*



*Source: ANSI D16.1-1996 Manual on Classification of Motor Vehicle Traffic Accidents, Sixth Edition.

APPENDIX L

DIAGRAM OF A WORK ZONE AREA*



*Source: FHWA.

APPENDIX M

NCIC CODES FOR MOTOR VEHICLE MAKES*

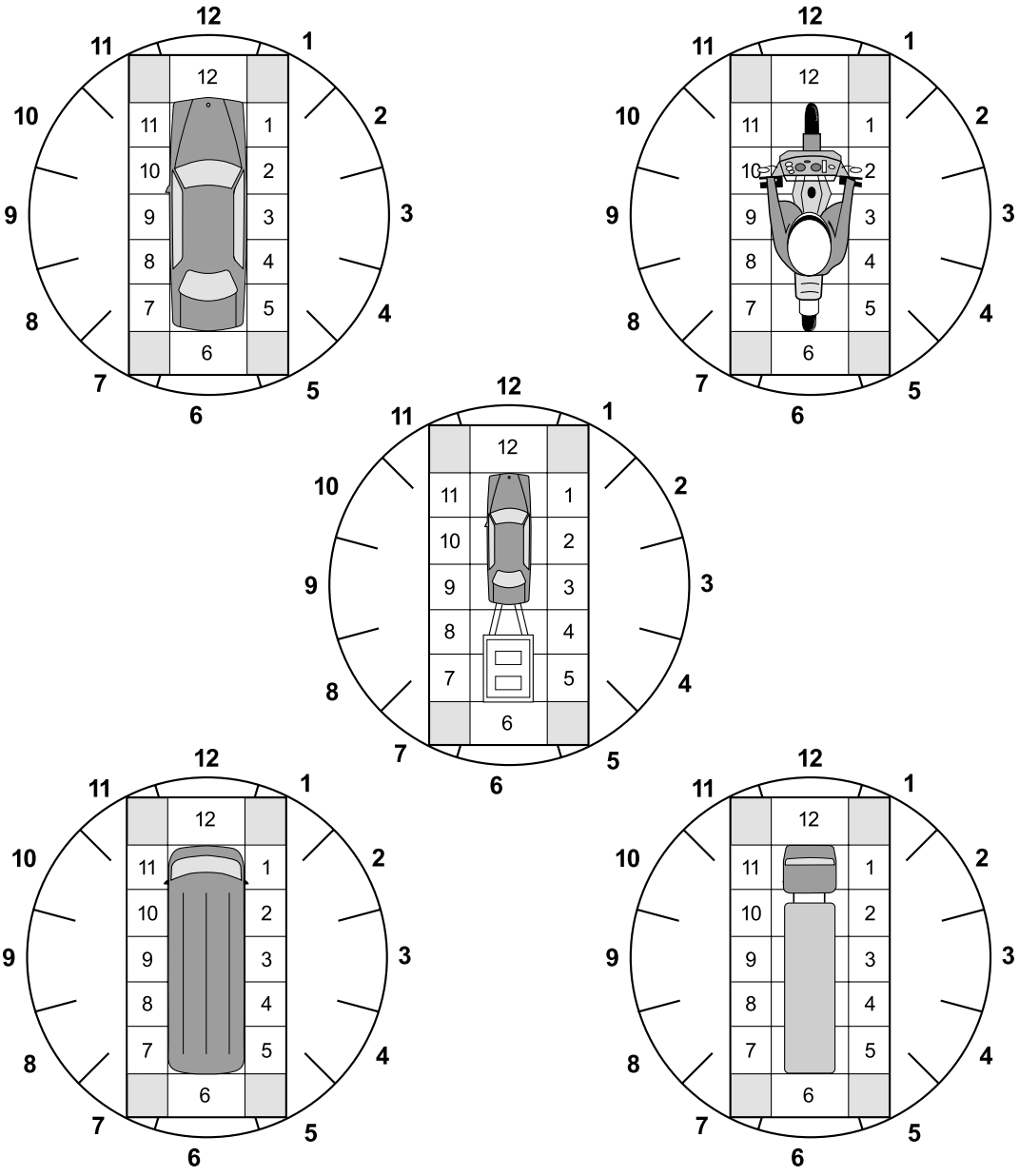
ACURA	ACUR	LANCIA	LNCI
ALFA ROMEO	ALFA	LAND ROVER	LNDR
AMERICAN MOTORS	AMER	LEXUS	LEXS
ASUNA	ASUN	LINCOLN	LINC
AUDI	AUDI	MACK	MACK
AUSTIN	AUST	MAZDA	MAZD
BMW	BMW	MERCEDES BENZ	MERZ
BUICK	BUIC	MERCURY	MERC
CADILLAC	CADI	MERKUR	MERK
CAPRI	CAP	MG	MG
CHEVROLET	CHEV	MITSUBISHI	MITS
CHRYSLER	CHRY	NISSAN	NISS
DAEWOO	DAEW	OLDSMOBILE	OLDS
DAIHATSU	DAIH	OPEL	OPEL
DODGE	DODG	OSHKOSH	OSHK
EAGLE	EGIL	PASSPORT	PASS
FIAT	FIAT	PETERBILT	PTRB
FORD	FORD	PEUGEOT	PEUG
FREIGHTLINER	FRHT	PLYMOUTH	PLYM
FWD	FWD	PONTIAC	PONT
GEO	GEO	PORSCHE	PORS
GM	GM	RENAULT	RENA
GMC	GMC	SAAB	SAA
HARLEY DAVIDSON	HD	SATURN	STRN
HINO	HINO	SSI	SSI
HONDA	HOND	STERLING	STRG
HYUNDAI	HYUN	SUBARU	SUBA
INFINITI	INFI	SUZUKI	SUZI
INTERNATIONAL	INTL	TOYOTA	TOYT
ISUZU	ISU	TRIUMPH	TRIU
IVECO	IVEC	VOLKSWAGEN	VOLK

JAGUAR	JAGU	VOLVO	VOLV
JEEP	JEEP	WHITE	WHIT
JENSEN	JENS	WHITEGMC	WHGM
KAWASAKI	KAWK	WINNEBAGO	WINN
KENWORTH	KW	YAMAHA	YAMA
KIA	KIA	YUGO	YUGO
LADA	LADA		

*Source: National Crime Information Center

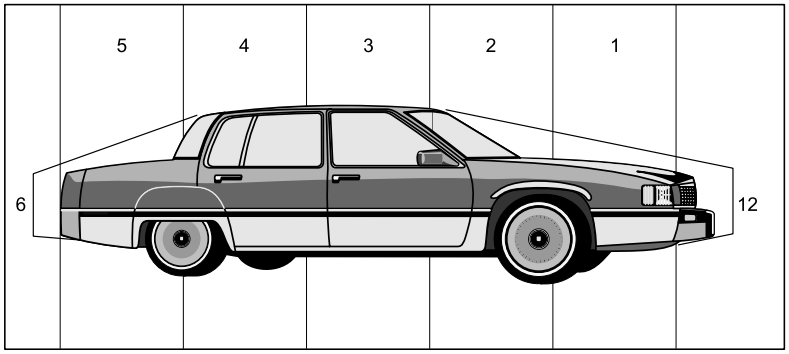
APPENDIX N

CLOCKPOINT DIAGRAMS FOR DIFFERENT TYPES OF MOTOR VEHICLES*

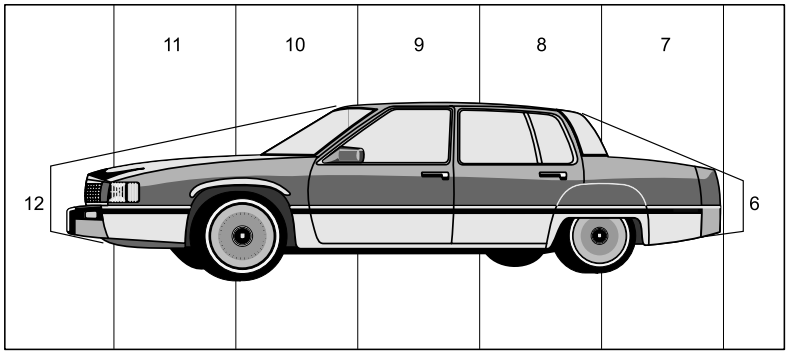


*Source: FARS Coding Manual

IMPACT POINTS



Right Side



Left Side

*Source: FARS Coding Manual

APPENDIX O

VIOLATION CODES*

RECKLESS/CARELESS/HIT-AND-RUN TYPE OFFENSES

- Manslaughter or homicide
- Willful reckless driving; driving to endanger, negligent driving
- Unsafe reckless (not willful, wanton, reckless) driving
- Inattentive, careless, improper driving
- Fleeing or eluding law enforcement
- Fail to obey law enforcement, fireman, authorized person directing traffic
- Hit-and-run, fail to stop after accident
- Fail to give aid, info, wait for law enforcement after crash
- Serious violation resulting in death

IMPAIRMENT OFFENSES

- Driving while intoxicated (alcohol or drugs) or BAC above limit (any detectable BAC for CDLs)
- Driving while impaired
- Driving under influence of substance not intended to intoxicate
- Drinking while operating
- Illegal possession of alcohol or drugs
- Driving with detectable alcohol
- Refusal to submit to chemical test
- Alcohol, drug or impairment violations generally

SPEED-RELATED OFFENSES

- Racing
- Speeding (above the speed limit)
- Speed greater than reasonable & prudent (not necessarily over the limit)
- Exceeding special limit (e.g.: for trucks, buses, cycles, or on bridge, in school zone, etc.)
- Energy speed (exceeding 55 mph, non-0pointable)
- Driving too slowly
- Speed related violations, generally

RULES OF THE ROAD — TRAFFIC SIGN & SIGNALS

- Fail to stop for red signal
- Fail to stop for flashing red
- Violation of turn on red (fail to stop & yield, yield to pedestrians before turning)
- Fail to obey flashing signal (yellow or red)
- Fail to obey signal, generally
- Violate RR grade crossing device/regulations
- Fail to obey stop sign
- Fail to obey yield sign
- Fail to obey traffic control device

Rules of the Road — Turning, Yielding, Signaling

- Turn in violation of traffic control (disobey signs, turn arrow or pavement markings; this is not a right-on-red violation)
- Improper method & position of turn (too wide, wrong lane)
- Fail to signal for turn or stop
- Fail to yield to emergency vehicle
- Fail to yield, generally
- Enter intersection when space insufficient
- Turn, yield, signaling violations, generally

Rules of the Road — Wrong Side, Passing & Following

- Driving wrong way on one-way road
- Driving on left, wrong side of road, generally
- Improper, unsafe passing
- Pass on right (drive off pavement to pass)
- Pass stopped school bus
- Fail to give way when overtaken
- Following too closely
- Wrong side, passing, following violations, generally

Rules of the Road — Lane Usage

- Unsafe or prohibited lane change
- Improper use of lane (enter of 3-lane road, HOV designated lane)
- Certain traffic to use right lane (trucks, slow-moving, etc.)
- Motorcycle lane violations (more than two per lane, riding between lanes, etc.)
- Motorcyclist attached to another vehicle
- Lane violations, generally

Non-Moving — License and Registration Violations

- Driving while license withdrawn (including violation of provisions of work permit)
- Other driver license violations
- Commercial driver violations (log book, hours, permits carried)
- Vehicle registration violations
- Fail to carry insurance card
- Driving uninsured vehicle
- Non-moving violations, generally

Equipment

- Lamp violations
- Brake violations
- Failure to require restraint use (by self or passengers)
- Motorcycle equipment violations (helmet, special equipment)
- Violation of hazardous cargo regulations
- Size, weight, load violations
- Equipment violations, generally

License, Registration & Other Violations

- Parking
- Theft, unauthorized use of motor vehicle
- Driving where prohibited (sidewalk, limited access, off truck route)
- Other moving violation (coasting, backing, opening door)
- Unknown VIOLATION

Note: AAMVAnet Code Dictionary (ACD) of violation codes can be accessed at www.aamva.org

*Source: FARS Coding Manual

NAMES*

The length and type of a name field is 35 alphanumeric symbols (ANS).

NAMES OF PERSONS

There are four subfields within the name field and each ends in a spacer ("@") except for the final field. SUFFIX. Spacers must be used to differentiate the name subfields. From left to right, the code is composed of LAST NAME, @, FIRST NAME, @ MIDDLE NAMES SEPARATED BY SPACES, @, SUFFIX. A spacer must follow every subfield except for SUFFIX, even when the subfields contain no data.

IRREGULAR NAMES

If a person has only one name, that name must be coded in the Last Name subfield. An asterisk (****) in the First Name subfield indicates the person has no first name. If the person's first name is unknown, put no data into the First Name subfield except for the spacer.

This Middle Name subfield will accommodate multiple middle names. Multiple middle names should be separated by blank spaces.

The only special character allowed in the Last Name subfield is a hyphen ("-"), which may occur only once and must be embedded between two alphabetic characters (as in the last name "Stuart-Washington').

Prefixes and titles are not allowed in any subfield of the name, and only the defined suffix codes may be used.

LONG NAMES

If a coded name exceeds 35 characters, it may be truncated by the following rules:

1. If the coded name exceeds 35 characters, the middle name is truncated. Truncation begins at the end of the last occurring middle name. If necessary, the middle name subfield may be reduced to the first initial of the first-occurring middle name. *The first initial of the first occurring middle name shall always be coded.*
2. If, after (1), the name code still exceeds 35 characters, the middle name is truncated. Truncation begins at the end of the last occurring middle name. If necessary, the middle name subfield may be reduced to the first initial of the first-occurring middle name. *The first initial of the first occurring middle name shall always be coded.*
3. If, after (1) and (2), the name code still exceeds 35 characters, the first name is truncated. Truncation begins at the last character of the first name. If necessary, the first name subfield may be reduced to the first initial of the first name. *The first initial of the first name shall always be coded.*
4. If, after (1), (2), and (3), the name code still exceeds 35 characters, the last name is truncated. Truncation proceeds with the last character of the last name and continues until the name code is 35 characters in length, including spacers and first and middle initials.

Code	Description
XXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	LAST NAME, @, FIRST NAME, @MIDDLE NAMES SEPARATED BY SPACES, @, SUFFIX

Suffixes (if present)

JR	Junior
SR	Senior
1st (or I)	First
2nd (or II)	Second
3rd (or III)	Third
4th (or IV)	Fourth
5th (or V)	Fifth

EXAMPLE: DOE@JOHN@X is the proper code for "John X. Doe," "John Winston Smith Doe, Jr. is coded DOE@JOHN@WINSTON SMITH@JR. "Kimberly Allen Beauregard Churchill-Rockwell, IV" is coded CHURCHILL-ROCKWELL@KIMBERLY@ALLEN@ (the suffix is eliminated, and the second middle name is truncated).

Other Names

Names not belonging to persons, such as those of businesses, organizations, or state governments, are coded without the use of sub-fields, but use the following two rules:

1. When possible, use standard abbreviations, such as CO for "company", INC for "Incorporated," or US for "United States."
2. If, after abbreviating, the name still exceeds 35 characters, truncate the end of the name as necessary.

EXAMPLES: The code for "John Smith Trade and Transportation Company" is JOHN SMITH TRADE & TRANSPORATION C. DOE ELECTRONICS, INC is the code for "Doe Electronics, Incorporated. "Wilson & Co." remains WILSON & CO.

*Source: Based on Driver History Record Data Dictionary, May 22, 1990, pages B5–B6.

APPENDIX Q

ADDRESSES*

Address fields are variable length composite fields with a maximum length of 71 or 108. Following are descriptions of how to set up the fields for both. Each subfield contains one type of data followed by either a delimiter, "@", to indicate the end of the subfield or an ending delimited, ",", to show the end of the address code. The spacers must be used to differentiate the name positions. The name and maximum length and type of each subfield is shown in the table below. The maximum length for each subfield includes one space for the delimiter.

		Maximum Length/Type	
Subfield		71	108
Subfield 1	Street Address A (and delimiter)	21/ANS	36/ANS
Subfield 2	Street Address B (and delimiter)	21/ANS	36/ANS
Subfield 3	City or Town (and delimiter)	16/ANS	21/ANS
Subfield 4	Alphabetic State Code (and delimiter)	3/ANS	3/ANS
Subfield 6	Zip Code (and delimiter)	10/ANS	12/ANS

The code is composed in the basic format:

Street Address A@Street Address B@City or Town @State @Zip Code;

If data for any of the five subfields is omitted, that subfield's delimiter must still be coded.

Use standard abbreviations for street and place names if necessary. Abbreviations for use in addresses are listed in *National Five-Digit Zip Code & Post Office Directory* U.S. Postal Service, 1991, pages 2-3 through 2-11.

Use the two-character alphabetic codes for the state subfield. Alphabetic abbreviations of state names are available in Appendix A.

EXAMPLE: For 29293 Abbot Farms Court, Suite 340, Trenton, New Jersey, 08610 the code is:

29293 ABBOT FARMS CT@SUITE 340@TRENTON @NJ@08610;

For 1234 South Elm Avenue, Springfield, Illinois 62703, the code is:

1234 S ELM AVENUE@@SPRINGFIELD@IL@62703;

Note the two delimiters following Street Address A in the second example, which indicate that there is no Street Address B.

*Source: Based on *Driver History Record Data Dictionary*, October 1994.

DEFINITIONS FOR TRUCK CONFIGURATIONS AND PLACARDS*

DEFINITIONS

Truck — A motor vehicle designed, used or maintained primarily for the transportation of property. For the purpose of this form the vehicle must also meet one of the following criteria:

- Have a gross vehicle weight rating or gross combination weight rating of 10,001 lbs. or more; OR
- Display a Hazardous Material Placard.

Bus — A motor vehicle providing seats for 16 or more persons including the driver and used primarily for the transportation of persons.

Bus /Large Van — A motor vehicle providing seats for 9–15 passengers including the driver and used primarily for the transportation of persons.

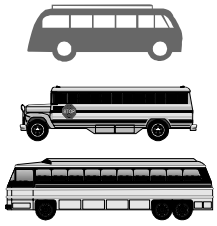
Trailer — A non-power vehicle towed by a motor vehicle.

Reportable Truck Accident — A highway related incident normally investigated by a police office and reported on a standard accident report form involving one or more trucks or buses (as defined above) which results in:

- One or more fatalities; OR
- One or more non-fatal injuries requiring transportation for the purpose of obtaining immediate medical treatment; OR
- One or more of the vehicles being removed from the scene as a result or disabling damage; OR
- One of more vehicles requiring intervening assistance before proceeding under it's own power.

TYPICAL VEHICLE SILHOUETTES

1. Bus



2. Single Unit Truck — 2 Axles

3. Single Unit Truck — 3 Axles or More

4. Truck with Trailer

5. Truck Tractor (Bobtail)

6. Tractor with Semi-Trailer

7. Tractor with Double Trailers

8. Tractor with Triple Trailers

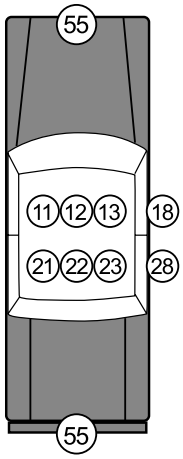
TYPICAL HAZARDOUS MATERIALS PLACARDS

*Source: FMCSA

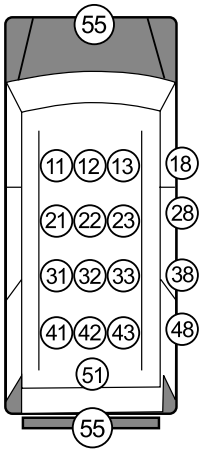
APPENDIX S

SEATING POSITION*

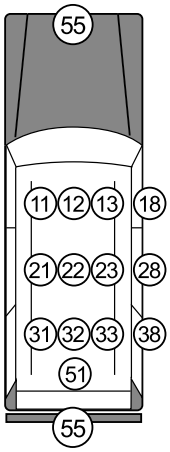
Car



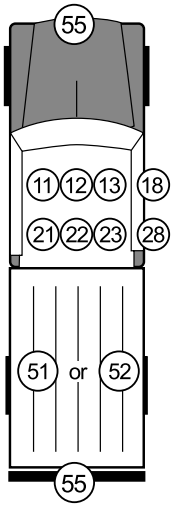
Van



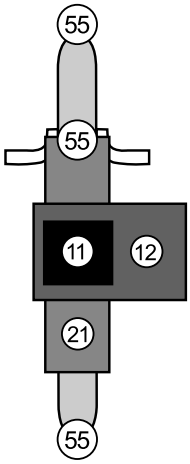
SUV



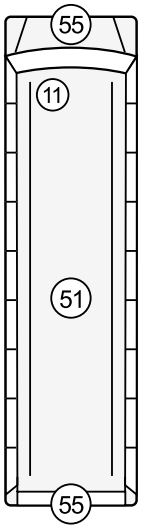
Pickup / Single Truck (Enclosed or Unenclosed Bed)



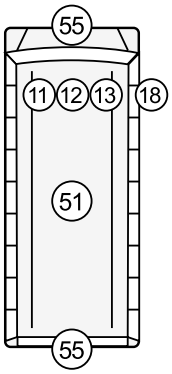
Motorcycle



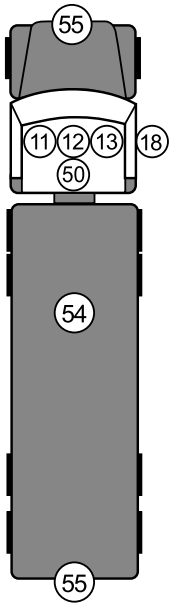
Bus



Van Based Bus



Tractor Trailer



Codes for Seating Position

00 Non-Motorist

11 Front Seat — Left Side (*Usually* Driver's Side)

12 Front Seat — Middle

13 Front Seat — Right Side

18 Front Seat — Other

19 Front Seat — Unknown

21 Second Seat — Left Side

22 Second Seat — Middle

23 Second Seat — Right Side

28 Second Seat — Other

29 Second Seat — Unknown

31 Third Seat — Left Side

32 Third Seat — Middle

33 Third Seat — Right Side

38 Third Seat — Other

39 Third Seat — Unknown

41 Fourth Seat — Left Side

42 Fourth Seat — Middle

43 Fourth Seat — Right Side

48 Fourth Seat — Other

49 Fourth Seat — Unknown

50 Sleeper Section of Cab (Truck)

51 Other Passenger in enclosed passenger or cargo area (includes passengers in 5th row of 15-seat, 5-row vans)

52 Other Passenger in unenclosed passenger or cargo area

53 Other Passenger in passenger or cargo area, unknown whether or not enclosed

54 Trailing Unit

55 Riding on Vehicle Exterior

99 Unknown

*Source: FARS Coding Manual

Department of Transportation
Federal Highway Administration
Federal Motor Carrier Safety Administration
National Highway Traffic Safety Administration

Governors Highway Safety Association
GHSA
The States' Voice on Highway Safety

NCSA
National Center for Statistics & Analysis

DOT HS 809 577
April 2003