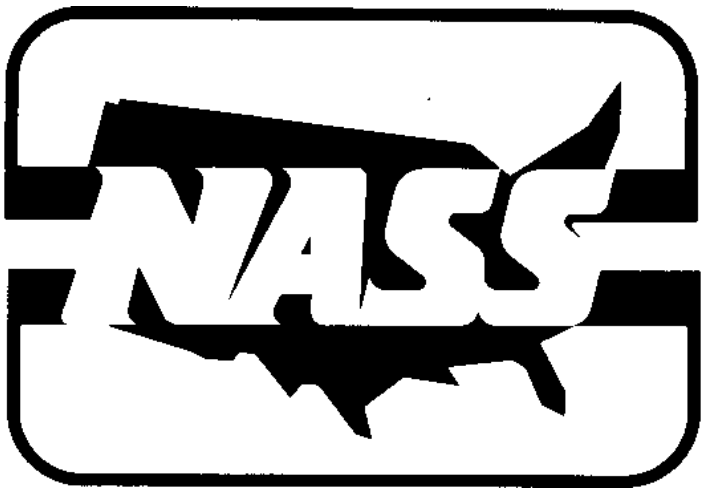

NATIONAL AUTOMOTIVE SAMPLING SYSTEM

PEDESTRIAN CRASH DATA STUDY

1996 DATA COLLECTION, CODING, AND EDITING MANUAL

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
NATIONAL CENTER FOR STATISTICS AND ANALYSIS
WASHINGTON, D.C. 20590

ACKNOWLEDGEMENT

PCDS DATA COLLECTION, CODING, AND EDITING MANUAL

The first edition of the Pedestrian Crash Data Study (PCDS) manual was developed using the Pedestrian Injury Causation Study (PICS) manual, the 1987 NASS Continuous Sampling System (CSS) manual, and the 1993 NASS Crashworthiness Data System (CDS) manual. The work was performed under the direction of the staff at the National Center for Statistics and Analysis (NCSA).

This is the second edition (1996 calendar year version) of this manual. This manual was a collaborated effort of the NASS Zone Centers: Calspan Corporation and KLD Associates, Incorporated, the Transportation Safety Institute (TSI), and the NASS staff at NCSA. Final editing, illustrations, and production of camera ready copies were performed at TSI

The production of this manual could not have been possible without the contributions from numerous sources within the U.S. Department of Transportation, NASS Zone Center 1 - Calspan Corporation, NASS Zone Center 2 - KLD Associates, Incorporated, and the Transportation Safety Institute.

NOTICE

This PDF was created from an older word processing package. During conversion, some formatting has been changed. Due to this, some page numbers are not accurate, and some pages may be misaligned. The Make/Model table was inserted after page 144 (between 144 and 199) and replaces the original Make/Model table that did not reformat well during conversion. The table includes all models listed in the 1996 version, plus models from 1997 on. We regret any inconvenience caused by formatting problems that appear in this manual. However, we do not have the resources or justification to manually correct all formatting problems in a 6-year-old manual.

National Automotive Sampling System
June, 2002

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1.0 INTRODUCTION

1.1 Background

A need was expressed for the National Automotive Sampling System (NASS) Crashworthiness Data System (CDS) to collect data on pedestrian crashes involving late model year passenger vehicles. The purpose of this special study is to:

1. Establish the relationship between vehicle and pedestrian contact parameters along with injury type and severity for late model year vehicles.

2. Obtain detailed crash scene and vehicle information in an effort to reconstruct the crash to determine impact speeds.

In 1977, the Pedestrian Injury Causation Study (PICS) was initiated to collect data on pedestrian crashes through the use of on-scene investigations of certain crashes. The study investigated 1,997 crashes in five metropolitan areas of the United States over a thirty-month period. The PICS data identified the injury causal agents during the collisions; determined injury severity to help evaluate costs and countermeasures associated with pedestrian crashes; and resulted in ways to change vehicle body surfaces to eliminate or reduce certain types of injuries.

From 1979-1987, NASS routinely collected detailed injury and crash data on pedestrians through its Continuous Sampling System (CSS). The pedestrian data included a representative sample of pedestrian involvement in all types of crashes -- including light trucks, heavy trucks, busses, etc., and for fatal, injury and non-injury crashes. These data were collected on over 4,000 pedestrians.

Beginning in 1988, the Crashworthiness Data System (CDS) was implemented, and pedestrian crashes were excluded from the data system. General pedestrian information continued to be collected through the General Estimates System (GES); however, the GES does not provide detailed on-scene crash investigation data. In the GES, the only official record that is used to collect the data is the police accident report.

Since the NASS CSS pedestrian crash investigation data are now seven years old, and the PICS data are fifteen years old, there is a need for an up-to-date pedestrian data file. Knowledge is needed on whether late model year vehicles, with their shorter and more sloping hoods, are producing the same type of injuries that occurred several years ago. Additionally, analysts would also like to obtain cases which have detailed and reliable documentation, suitable for laboratory and computer reconstructions, to establish injury criteria for use with instrumented impact devices for simulating pedestrian impacts.

1.2 Purpose of the Manual

The purpose of this manual is to provide PSU team members, Zone Centers, the Transportation Safety Institute's (TSI) NASS Training Program Coordinator, and the National Center for Statistics and Analysis (NCSA) with a consistent, standardized set of instructions for collecting, coding, and editing the data.

In order to produce a database for examining pedestrian crashes, six CDS sites were selected by NCSA. The sites were selected based on the availability of applicable pedestrian crashes and the ability of the team to maintain a statistically valid NASS CDS caseload.

In 1995 the two NASS Zone Centers were added to the data collection sites to replace originally selected PSU 06 - Philadelphia, PA and PSU 79 - Los Angeles, CA.

The six sites selected to collect data for 1996 are:

ID #	Location	Current Team Size
40	Zone Center 1, Buffalo, NY	1
41	Fort Lauderdale & Hollywood, FL	4
49	Dallas (City), TX	4
72	Chicago, IL	4
82	Seattle, WA	4
90	Zone Center 2, San Antonio, TX	1

Zone Centers will manage the teams within their zone and quality control their cases. Speed reconstructions and injury coding (using AIS-90) will be performed at the Zone Centers. The Zone Centers will also provide the technical expertise to the PSU, necessary to accurately investigate a pedestrian crash.

1.3 Overview

This manual contains five sections; each is summarized below.

Section 2.0 Methodology describes the overall plan by which data will be collected for the PCDS.

Section 3.0 Overview of Information Collected On PCDS Crashes describes the forms to be filled out on each crash, (e.g., injury records), what photographs to take, and other information (e.g., speed reconstruction) which make up a completed case report.

Section 4.0 PCDS Case Submission Instructions describes when, where, and how to submit PCDS case reports. It also describes the quality control procedures to be used at the PSU site. The procedures for deleting a case are also discussed in this section.

Section 5.0 Coding Instructions provides general instructions for collecting and coding the data called for in the Pedestrian Case Summary Form and the field forms. Documentation for each data element includes variable name, element values (attributes), definitions (where needed), data sources, collection method, reference materials (if needed), and remarks.

The Appendices contain some of the necessary references, including: (1) the Uniform Symbols for Scene Marking; (2) the Uniform Symbols for Accident Diagramming; and (3) the listing of Variable Computer Formats.

Other references to be used in NASS PCDS not contained in this manual include: (1) the Fifth Edition of ANSI D16.1-1989; (2) the CRASH3 Technical Manual (July 1986); (3) SAE J224 MAR80; (4) the 1993 NASS Injury Coding Manual (based on AIS-90); (5) NATB books (see variable VEH08); (6) Passenger Car and Truck Investigators Manual (see variable VEH08); (7) the Branham Automobile Reference Book; (8) Diesel and Gasoline Truck Indices; (9) the MVMA - Passenger Car Specifications (see variable VEH21); (10) Microcomputer Data Entry User's Manual for the NASS; and (11) the NASS Accident Investigation Procedures Manual.

1.4 How to Use This Manual

This manual is designed to be updated periodically without the need for replacing the entire document. This will be accomplished by adding, deleting, and changing pages. Additions will be inserted in their proper location and will be identified by a different month and year. Pages which are changed will have the same month and year identifier.

When potential data encoding problems are detected in the NASS PCDS Data Collection, Coding and Editing Manual or interpretations of specific circumstances are required, the following procedures, outlined by NCSA, will be followed:

(a) Potential problems that are identified at the team level will be sent to the cognizant Zone Center via the NASS message system.

(b) The Zone Center will review the potential problem.

(1) If it is a misinterpretation of the manual, a clarification will be provided by the cognizant Zone Center via the NASS message system (with a telephone follow-up, if necessary).

(2) If the potential problem is determined to be valid, the cognizant Zone Center will broadcast the potential problem with a recommended solution to the other Zone Center for review and concurrence. The final recommended solution will be sent to NCSA by the cognizant Zone Center for review and approval. This includes all additions, deletions, modifications or substantive interpretations that redefine, broaden, or narrow the established definition of PCDS variables or attributes.

(c) Changes or interpretations which affect field data encoding and are approved by the NCSA will be given an effective implementation date and included in the NASS PCDS Coding Manual.

The above procedures were not established to restrict team or Zone Center operations but to ensure that program objectives and goals are not inadvertently changed (i.e., a variable is redefined beyond its intended purpose). When defining variables, NCSA must consider their operational use within the restrictions of the data collection time frame and their intended purpose. Any diversions from these established procedures may destroy the data validity and/or result in serious analysis problems.

2.0 METHODOLOGY

2.1 General

The Pedestrian Crash Data Study (PCDS) is implemented through the Crashworthiness Data System (CDS) in the National Automotive Sampling System (NASS). The PCDS will focus on crashes involving late model year vehicles contacting pedestrians. The cases will be initiated and investigated on-scene, and within 24 hours of the crash, with follow-up work as needed.

A Pedestrian Crash Data Study case is initiated (and a 600 level case number assigned) for all accident events where a vehicle strikes a person and the person meets the "Pedestrian Definition" and the impact meets the "Case Selection Criteria" shown below. For example: If a vehicle impacts two pedestrians and the "Pedestrian Definition" and "Case Selection Criteria" shown below are met for both, then two cases are initiated, one for the vehicle/pedestrian # 1 impact and one for the vehicle/pedestrian # 2 impact.

Pedestrian Definition:

- Any person who is on a trafficway or on a sidewalk or path contiguous with a trafficway, or on private property (e.g., parking lot). Note: Pedestrians include persons who are in contact with the ground, roadway, etc. and are pushing carts, wagons, etc. or holding on to a vehicle.

- Persons in or on a nonmotorist conveyance are not pedestrians and are excluded from this study. A nonmotorist conveyance is defined as any human powered device by which a nonmotorist may move, or by which a pedestrian or nonmotorist may move another nonmotorist. A nonmotorist conveyance for purposes of this study includes the following: bicycles, baby carriages, roller skates/blades, push carts, scooters, wheelchairs, animals, etc. For example, persons on a bicycle/scooter, roller skating/blading, in a baby carriage/push cart/wheelchair or on a horse are excluded.

Case Selection Criteria:

- A forward moving, late model year (VEH04 equals 90 to 96) CDS applicable vehicle (VEH07 equals 01 to 49) must strike a pedestrian.

- The pedestrian may not be lying or sitting.

- The striking portion of the vehicle structure must be original equipment manufacturer (OEM) without previous damage and or parts removed in the impact area. For example, vehicles equipped with deer guards, winches, snow plows, etc. or previously damaged in the impact area are excluded.

- The pedestrian impact(s) are the vehicle's only impact(s).

- The first point of contact between the late model year, CDS applicable vehicle and the pedestrian must be forward of the top of the A-pillar.

All crash investigations are initiated on-scene. If a vehicle or pedestrian (or surrogate in the case of a fatality) cannot be located/interviewed, and vehicle damage measurements obtained within 24 hours of the crash, the case is dropped.

To provide the most accurate data, certain case data elements are documented on- scene, near the time of the crash. Immediate notification of the crash is necessary for PSU team response. Notification can be facilitated through a variety of mediums. The most reliable is the PSU monitoring of police radio channels. Certain restrictions may apply to a particular PSU or jurisdiction; therefore, alternative methods should be in place to obtain crash notifications (e.g., rescue squad or dispatcher notification).

In general, the PSU will monitor the police radio frequencies for reports of a pedestrian crash. Various terminology or "call signatures" will be used by dispatchers to notify emergency personnel; researchers must familiarize themselves with information transmitted, to respond to reports of pedestrian crashes. Immediately after a call is identified as a pedestrian crash, the researcher records the call on the Police Radio Log (PRL) showing the day, date, and time the call was received. The researcher will then respond to the scene, via the most direct route, and upon arrival, record the time on the PRL (or on a tape recorder).

The researchers will notify the police of their presence at the scene and determine the general applicability of the crash. For the PCDS, a forward moving, late model year (VEH04 equals 90 to 96) CDS applicable vehicle (VEH07 equals 01 to 49) must strike a pedestrian. The pedestrian may not be lying or sitting. The striking portion of the vehicle structure must be original equipment manufacturer (OEM) without previous damage or parts removed in the impact area. For example, vehicles equipped with deer guards, winches, snow plows, etc. or previously damaged in the impact area are excluded. The pedestrian impact(s) are the vehicle's only impact(s). The first point of contact between the late model year, CDS applicable vehicle and the pedestrian must be forward of the top of the A-pillar. Once the general applicability of the crash is established, the researcher continues with the on-scene investigation. If the crash applicability is not met, the reason(s) is (are) indicated on the PRL, and the researcher continues monitoring radio frequencies for another pedestrian crash.

The on-scene investigation is multi-faceted. Researchers must document information concerning the pedestrian, the scene, and the vehicle before removal or disintegration. Each scene will vary depending on the circumstances involved, but information must be recorded about all three almost immediately.

The PCDS Crash Research Response Protocol outlines the steps necessary and information needed to document the crash. Information is needed on:

- point of impact (POI)--("X" and "Y" coordinates)
- pedestrian final rest position ("X" and "Y" coordinates)
- vehicle final rest position ("X" and "Y" coordinates)
- physical evidence deposited by the pedestrian and the vehicle
- physical evidence on the vehicle from the pedestrian
- photographic documentation to support the above.

The order collected varies depending on crash scene circumstances.

On-scene interviews of driver, witnesses, and the pedestrian (if practicable) are also necessary to obtain pre-crash directions and movements, along with the point of impact, movements from POI to final rest, and vehicle components contacted.

Follow-up investigation will be necessary if any case information was not documented at the initial on-scene investigation of the crash.

Once a case meets the above criteria, the following is performed at the PSU to assign a case number:

- Go to the NASS main menu and select "Special Studies Menu"
- Select option to "Create a Special Study Case"
- Enter date and time of crash
- A case number will then be sequentially assigned with a "P" stratum

2.2 SITE SPECIFIC METHODS

Each PSU will have a site specific method of receiving, responding, and documenting pedestrian crashes, depending on jurisdictional restraints or requirements. The PSU and Zone Center (with approval of Headquarters) will determine the methods to employ at the PSU to accurately, efficiently, and effectively collect the data and reconstruct the crash.

3.0 OVERVIEW OF INFORMATION COLLECTED ON PCDS CRASHES

Once the PCDS case meets the aforementioned criteria, the information will be entered into a Microcomputer Data Entry (MDE) format. This case information will be transferred electronically to the mainframe, where a case number will be automatically assigned for use on all case materials.

For each PCDS case, the following materials should be included in the case report: a copy of the police report (accident or incident report), a Pedestrian Case Summary Form, newspaper articles, photographs (including police or witness), correspondence, Pedestrian Crash Collision Diagram, Pedestrian Crash Collision Measurement Table, video index, applicable PCDS data collection forms with field logs completed, medical injury records, the Case Review Form, reconstruction results, and MDE output.

3.1 Required Forms for PCDS Cases

- A Pedestrian Accident Form is required for each PCDS case.
- Once a crash is selected for the Pedestrian Crash Data Study, Pedestrian General and Exterior Vehicle Forms are completed for the case vehicle.
- A Pedestrian Assessment Form is required for the pedestrian contacted by the vehicle.
- A Pedestrian Injury Form is required for the pedestrian if an injury was sustained in the crash, regardless of severity.
- A Pedestrian Interview Form is required for the pedestrian involved.
- A Driver Interview Form is required for the driver of the vehicle.

3.2 Sequencing of Case Materials

Case report forms and miscellaneous materials are to be sequenced in conformity with the guidelines depicted in Figure 3-1. There are eight distinct groupings which may exist with each case, and while the number of groupings may vary with each accident, it is important for the case reviewer (team or Zone Center) that the composition of the eight groups be maintained.

The first document is the police accident report (PAR). Do not attach any other material to the PAR.

The second group contains the PCDS Case Summary Form, newspaper photographs, articles, and other miscellaneous, non-PCDS generated materials. This group will give the Zone Center reviewer a general appreciation of the accident from non-PCDS sources and facilitates review of the crash. The documents in this group should be bound with a paper clip. The group will appear in every case, although it will often be composed only of the PCDS Case Summary Form.

FIGURE 3-1

SEQUENCE OF CASE MATERIALS

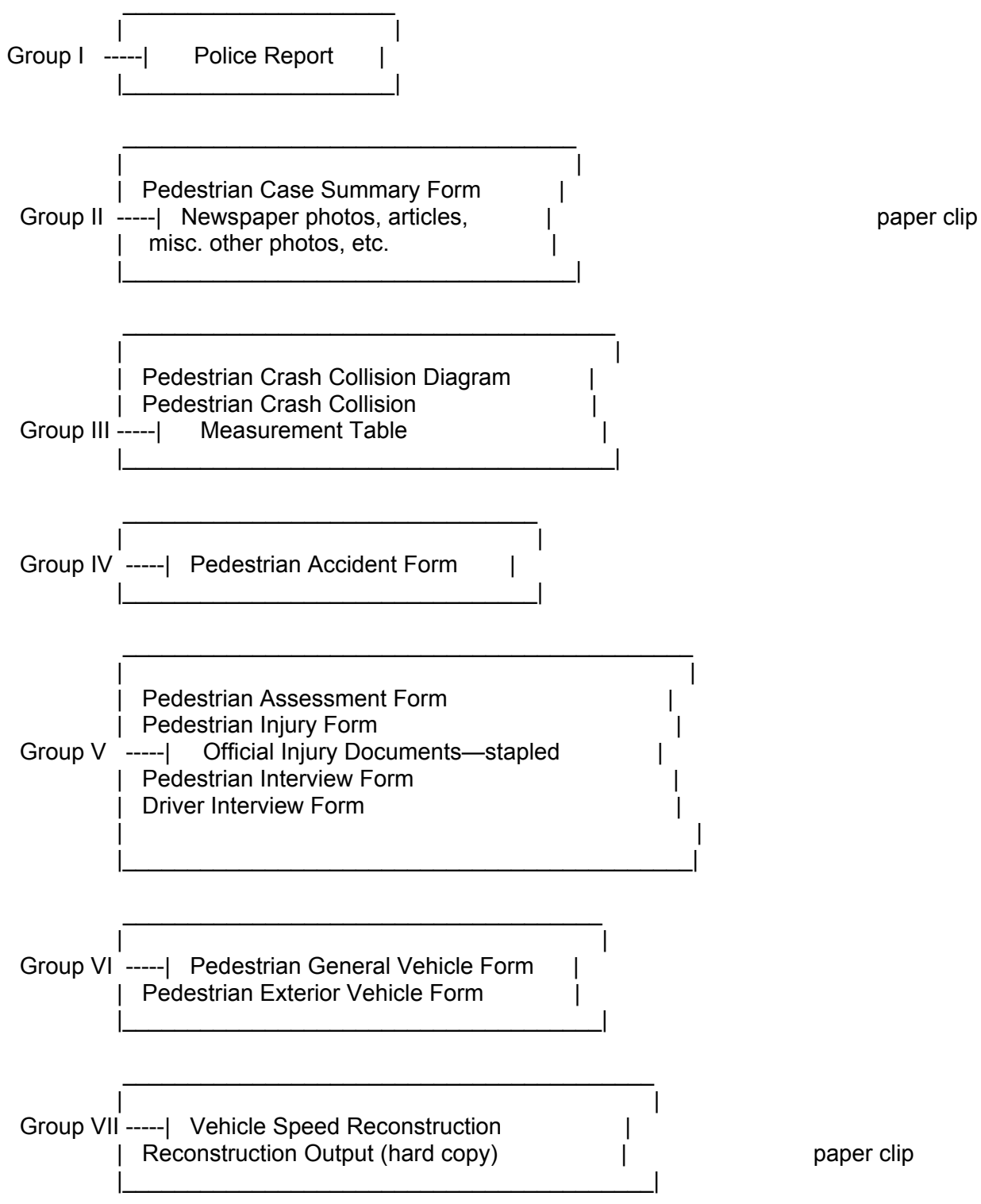
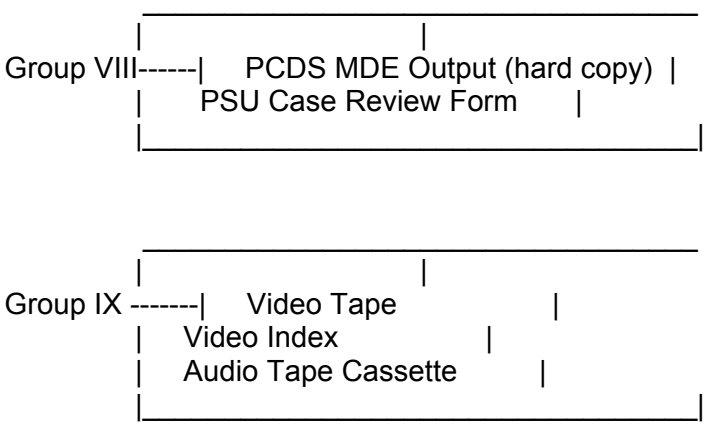


FIGURE 3-1 (Continued)



NOTE: Put Video tape and cassette tape in original plastic case and place inside a small padded envelope; place padded envelope inside case envelope for shipment to the Zone Center

The third group contains the Pedestrian Crash Collision Diagram, Pedestrian Crash Collision Measurement Table; thus, it provides the reviewer with a general overview of the case based upon the PCDS research. Differences between the two versions (Non-PCDS and PCDS) are to be expected periodically, and preliminary review of this and the preceding group will alert the reviewer to those differences and their eventual resolution in the final PCDS version. This group should appear in every case.

Fourth, the Pedestrian Accident Form will appear in every case.

The fifth group contains: [1] the Pedestrian Assessment Form for the involved pedestrian, [2] the Pedestrian Injury Form (inserted by the Zone Center) for the injured pedestrian, and [3] any official injury documents.

The sixth group consists of the Pedestrian General Vehicle and Pedestrian Exterior Vehicle Forms.

The seventh group is composed of the reconstruction [Impact speed reconstruction inputs and the Output (hard copy)], assuming a reconstruction has been exercised for the crash.

The eighth group is composed of the microcomputer data entry (MDE) output and the PSU Case Review Form.

The ninth group consists of the video, video index and audio tapes packaged as previously detailed.

3.3 Information Required on Field Forms (File Structuring Variables)

Case Identification Variables -- When using the microcomputer data entry system to enter the field data, certain information is required on each field form (log data are not entered) before it will be accepted. Every field form submitted must have a Primary Sampling Unit Number and a Case Number. Team members fill out the Primary Sampling Unit Number and Case Number.

Pedestrian Accident Form -- For each accident researched, one Pedestrian Accident Form must be filled out. The additional file structuring information needed on this form is the Number of Vehicle Forms Submitted, Date of Accident, and Number of Recorded Events in This Accident.

Vehicle Forms -- For each accident researched, one Pedestrian General Vehicle and one Pedestrian Exterior Vehicle Form must be submitted. The additional file structuring information to be included on this form consists of the Vehicle Number, Body Type, and Model Year.

Pedestrian Assessment Form -- When the Pedestrian Assessment Form is filled out, Pedestrian Number, and Number of Recorded Injuries For This Pedestrian are required for file structuring purposes.

Pedestrian Injury Form -- When a Pedestrian Injury Form is filled out, the Pedestrian Number is required for file structuring purposes.

Treatment of Missing Data -- The file (i.e., the computerized database file) structure used in the PCDS minimizes the handling of missing data. For example, Pedestrian Injury Forms are inserted by the Zone Center when required -- see the discussion above in Section 3.2, fifth group.

3.4 Update Procedures for Hard Copy Field Forms

Data elements which may be updated in the hard copy case report are restricted to certain variables which appear on either vehicle or pedestrian forms. Other data will not be updated if it is acquired after the initial submission of the case. Note, most variables may be updated before the case is forwarded to the Zone Center. An Update Form has been developed to keep the Zone Center informed of the status of medical records acquisitions. The Update Form is not included with the initial submission of the case; instead, it is retained at the PSU and partially filled out upon initial case submission. Subsequently, it is completed when the updated medical information arrives.

On the original case form, all data variables which the researcher intends to update should be coded with any appropriate available information or the code designating "Unknown". In addition, the variable number should be circled. This will "signal" that an attempt will be made to update that data variable. In the case of injury updates, the "Update Candidate" brackets, on page 4 of the Pedestrian Form, should be marked in the affirmative. The type of injury information obtained should be entered on the front of the Update Form and any supporting documents attached to the back.

Zone Center Work Sheet -- A Zone Center Work Sheet has been developed for those variables which are allowable hard copy update candidates. The Zone Center is to complete the required sections of the Work Sheet prior to completion of case quality review so that the subsequently acquired information may be associated with the right case and vehicle or occupant number.

Update Form--This form should be used when the researcher expects to receive medical data after the initial submission. The information in the Initial Submission column on this form is copied from the Pedestrian Log, prior to initial case submission, and allows the researcher to update variables PL07, PL08, PL14, PL15, and PL16 based on subsequent receipt of official data (e.g., medical record). These data would be difficult to update without recorded knowledge regarding the initial coding.

Update Filing and Submission Instructions -- The researcher must complete the Initial Submission column of the Status of Log Injury Information section on the Update Form, as required, prior to the initial submission. This allows the new information to be associated with the corresponding field form in the initial submission, and this also allows the new information to be combined with the existing information (e.g., using the NASS injury coding rules).

All Update Forms may then be stored in a three-ring binder. Each new addition of an Update Form may then be indexed by Case Number and Pedestrian Number. They may also be partially cross-indexed alphabetically based on the name of the pedestrian. This will facilitate the processing of inquiries from Zone Centers as well as the submission of the Update Form when the official medical data are received.

The name of the individual, and any other descriptive information unique to the team which may identify the individual, should be sanitized from the Update Form and/or the attached medical reports after the information from the latter has been included on the Update Form.

Update Forms should be accumulated, packaged in an individual Zone Center approved size manila envelope (but not one envelope for each update) which identifies the PSU and is boldly marked: UPDATES, and sent to the Zone Center on a periodic basis. If the updates are not obtainable, the reasons the updates could not be obtained are to be indicated on the Update Form and sent to the Zone Center. All updates or reasons the updates were not obtainable must be submitted to the Zone Center within 84 days of the date the case was sampled.

This eighty-four day time-frame is a guideline established in order to keep the processing of update records proceeding at an orderly pace. Sometimes medical records are not available within 84 days. A team can extend, with Zone Center permission, the length of time available to obtain a medical update. The exact length of the extension will depend upon the time of year the case was selected. Medical records from cases selected in January can be held open much longer than medical records from cases selected in December. At issue from the Zone Center perspective is the total number of medical updates outstanding (i.e., effort required of Zone Center to finish processing the updates) and the likelihood of the medical records being eventually obtained.

4.0 PCDS CASE SUBMISSION INSTRUCTIONS

4.1 Quality Control at the PSU Team

Each case should be reviewed by another researcher at the PSU. The scrutiny put forth by the reviewing researcher must be substantive. The purpose for this is twofold. First, the case data should represent an accurate reconstruction of the accident sequence and reflect proper case coding. Secondly, the reviewing researcher will be routinely rotated into PCDS data collection; therefore, a working knowledge of the intricacies of pedestrian crash investigation is necessary.

Noncoded items within the case are vitally important, thus requiring careful review. The reviewer should make sure the case diagram and all the attributes (alignment, surface type and condition, etc.) are correct. The events of the crash should be in proper sequence on the diagram (they should correlate to the events on the Accident Form). The measurements are indicated properly, and in the correct compass direction; and annotations (as necessary) are relevant and concise.

Potential case problems can occur in other areas.

- Is all required video present, and identified on the video index?
- Are all the required data collection forms present, properly completed (including the logs) and appropriately sequenced?
- Are Pedestrian Update Forms (if necessary) completed?
- Are the video and audio tapes included with the case?

4.2 Quality Control Checks Resulting from Microcomputer Data Entry

Inconsistencies, out-of-range values, and other error diagnostics encountered during MDE are detailed in error checks and tables. All errors detected by the computer should be corrected by the PSU prior to the case being released to the Zone Center, unless the Zone Center specifically informs a team to release a case with incomplete data (for later resolution at the Zone Center level).

4.2.1 Check to Make Sure Administrative Procedures Are Being Followed

- o Are control charts and activity logs (when used) updated weekly?
- o Are monthly reports and chase log materials sent to the Zone Center?
- o Are manuals up-to-date and properly displayed?
- o Are needed supplies in stock (e.g., film, etc.)?

4.2.2 Check Data Collection Procedures

- o Periodically review procedures. Document when meetings are held and any problems discovered with the data collection procedures or forms. Indicate problems in the monthly report or over the message system to your Zone Center. Keep a file of problems encountered and go over them with a Zone Center representative during the next Zone Center site visit.

4.2.3 Check to Make Sure Updates Are Being Processed Properly

- o Are the medical update records filed by case number?

- o Do Zone Center and PSU records agree (see Zone Center list of outstanding updates)?

4.2.4 Check Individual Effort and Accuracy in Collecting Evidence and Skill in Interpretation

- o Discuss data collection procedures and efficient ways to execute them in team meetings. Discuss how much effort is needed for obtaining interviews and think about methods for obtaining them as quickly as possible.

4.3 Case Submission

Cases shall be submitted to the Zone Center on a weekly basis. The materials for each case are to be ordered in the recommended format as discussed in Section 3.2 (Sequencing of Case Materials). Each case is to be packaged in a separate envelope with the appropriate identification and accounting of contents on the Administrative log. These procedures will provide uniformity across the teams.

Submission Schedule: Cases shall be submitted weekly. There will be approximately one month (28 days) to make the initial submission of any case. All cases selected are to be submitted within four weeks of the crash date.

Cases that are complete (i.e., no updates needed) should be submitted as soon as practicable after completion. Cases that require a pedestrian medical update, should be submitted with the proper documentation that a medical update will be forthcoming.

Case Envelope: The standard case envelope will be a 10 X 13 inch fiber paper (i.e., Tyvek). The case envelope belongs inside the shipping envelope. The Administrative log belongs on the case envelope. The PSU number, case number, accounting of case materials (e.g., number of specific forms and slides) and the status of the case at the time of submission are entered on the log. The log is to be positioned on the right-hand side of the envelope when the envelope is positioned with the flap on the underside and to the right.

All medical records for each case shall be submitted in a 9 X 12 manilla envelope. A pre-printed injury information label shall be attached to the front of each envelope. The medical information will be used by the Zone Center to complete injury coding for each pedestrian. After completion of injury coding, the Zone Center will keep the medical record envelopes in a separate file.

Case update records, submitted after initial case submission, shall be submitted in a 10 X 13 inch fiber paper envelope. Identify the PSU, and boldly mark the front of the envelope: UPDATES. The updates will be removed from the envelope and collated with the original forms in their respective cases by the Zone Center.

Shipment of Cases: The envelopes containing the individual cases that are eligible for shipment, should be packaged and mailed to the Zone Center. DO NOT use overnight mail services without prior approval of the COTR. The PSU should provide an acknowledgement of delivery card, a return receipt, or a similar confirmation to ensure the shipment was received at the Zone Center.

The addresses for the Zone Centers are:

Zone 01 - Northern	Kendra Perillo Calspan Corporation P.O. Box 400 Buffalo, New York 14225	(716) 631-6991 (U.S. Mail)
	4455 Genesee Street Cheektowaga, New York 14225	UPS physical address
Zone 02 - Western	KLD Associates Incorporated 8632 Fredericksburg Road Suite 126 San Antonio, TX 78240	(210) 699-9065

4.4 Case Deletion Procedures

PSUs

The following procedure for deleting cases after a case number has been assigned should be adhered to for all PCDS cases:

1. Call your Zone Center for approval. Request that the case be dropped and give the reason.

2. Send a follow-up message informing the Zone Center and NCSA (HDQ) of the case to be dropped. Include the following information in the message.

   a. Case Number
   b. Selection Date
   c. Accident Date
   d. Accident Time
   e. PAR Number
   f. Jurisdiction
   g. Dropped Date (date Zone Center/HDQ gave approval)
   h. Reason Dropped
   j. Dropped By (person who authorized dropping the case)

3. The case must be MDE'ed by the PSU and subsequently released to the Zone Center.

NOTE: Once the case has been approved to be dropped, the NASS Hotline will provide the necessary variables to encode to release the case.

5.0 CODING INSTRUCTIONS

This section provides the general instructions for collecting and coding the data called for in the field forms. Documentation for each data element includes variable name, element values (attributes), definitions where needed, data sources, collection methodology, reference materials (if needed) and remarks.

PEDESTRIAN CASE SUMMARY FORM

The Pedestrian Case Summary Form is a noncoded description of the vehicle(s) and pedestrian(s) involved in the accident. Additionally, any case peculiarities are noted. The form is divided into four sections:

A. Case Identification

B. Description of the Accident Sequence and Accident Peculiarities

C. Pedestrian Profile

D. Vehicle Profile

Through this form, the researcher is able to provide the Zone Center, the clinical user or any other person interested in the PCDS case a quick reference of accident particulars. This form should be typed. However, legible hand written PRINT is acceptable. The form must be neat and legible. Section "A", Description of the Accident Sequence and Accident Peculiarities, must be double spaced, if typed. NO coded values (except where indicated below) should be used. The form provides a non-jargon account of the accident.

A. CASE IDENTIFICATION

The header items are used to identify the PSU and case number. In addition, a general description of the accident type is provided. This section contains the following elements.

PSU: Indicate the appropriate PSU number.

Case Number: Indicate the case number for which the Pedestrian Case Summary Form is being completed.

Accident Type: Provide a general description of the crash configuration in terms common to the traffic safety community. Appropriate configurations are listed below; however additional terms can be used as warranted.

Car / Pedestrian / Crossing road, straight
Car / Pedestrian / Crossing road, diagonally
Car / Pedestrian / Moving in road, with traffic
Car / Pedestrian / Moving in road, against traffic
Car / Pedestrian / Off road, approaching road
Car / Pedestrian / Off road, leaving road
Car / Pedestrian / Off road, moving parallel

Light truck / Pedestrian / Crossing road, straight
Light truck / Pedestrian / Crossing road, diagonally
Light truck / Pedestrian / Moving in road, with traffic
Light truck / Pedestrian / Moving in road, against traffic
Light truck / Pedestrian / Off road, approaching road
Light truck / Pedestrian / Off road, leaving road
Light truck / Pedestrian / Off road, moving parallel

Accident Type (cont'd.)

Light van / Pedestrian / Crossing road, straight
Light van / Pedestrian / Crossing road, diagonally
Light van / Pedestrian / Moving in road, with traffic
Light van / Pedestrian / Moving in road, against traffic
Light van / Pedestrian / Off road, approaching road
Light van / Pedestrian / Off road, leaving road
Light van / Pedestrian / Off road, moving parallel

Researchers should attempt to make the best possible fit of the existing responses. However, additional responses may be more appropriate.

B. DESCRIPTION OF THE ACCIDENT AND ACCIDENT PECULIARITIES

This part of the Pedestrian Case Summary Form should provide a brief synopsis of the accident sequence as reconstructed by the researcher. Culpability is not assessed here. An example of the sequence could be as follows:

> *Vehicle #1 was traveling north on the roadway and pedestrian #1 was crossing the roadway in a westerly direction. The front of vehicle #1 contacted pedestrian #1 on his left side. The pedestrian rotated onto the hood of the vehicle and slid into the windshield. The pedestrian was carried for approximately 10 meters, where he fell of the vehicle and came to rest on the roadway. The vehicle came to rest immediately prior to the final rest of the pedestrian.*

Thus, the configuration and specifics are highlighted to give an overall summation of the sequence.

C. PEDESTRIAN PROFILE

The pedestrian involved in the NASS PCDS case (i.e., for whom a Pedestrian Form is submitted) should be noted in this section. This section contains the following information.

Pedestrian Number: See variable PED03.

Age: Indicate the pedestrian's age at the time of the accident (refer to PED04).

Sex: Specify the gender of the pedestrian (refer to PED05).

Treatment/ Mortality: Indicate the treatment or mortality of the pedestrian involved in the accident (refer to PED26).

Most Severe Injury (To Be Completed By Zone Center): The most severe injury (i.e., highest AIS) of the pedestrian should be noted using the injury's Body Region, Injury Type, AIS, and Injury Source -- see variables PI05 - PI17. Use the coded value only for AIS. If more than one injury has the highest AIS, choose one with the highest source of data (i.e., Autopsy over ER record, etc.). If the person did not sustain an injury indicate: "Not Injured".

D. VEHICLE PROFILE

The vehicle involved in this case should be documented in this section. This section contains the following information:

Vehicle Number: See variable VEH03.

Class of Vehicle: See variable AC14. The written attribute (e.g., compact, intermediate, pickup truck, etc.) should be used, NOT the code!

Year/Make/Model: See variables VEH04-VEH06. Provide the actual year, make, and model for the vehicle involved in the NASS PCDS accident (e.g., 1995 / Ford / Mustang). Do not use the codes for the variables.

Damaged Plane
(for pedestrian impact): Indicate the vehicular plane that the pedestrian initially contacted.

Scene Information File

To perform detailed reconstructions for the NASS Pedestrian Crash Data Study (PCDS), accurate scene data are essential. Standardized data collection forms are used to collect an assortment of information from the scene of the crash. The two data collection forms used for this purpose are the Pedestrian Crash Collision Measurement Table and the Pedestrian Crash Collision Diagram. All applicable information must be accurately collected and documented.

Pedestrian Crash Collision Measurement Table

The information collected on the Pedestrian Crash Collision Measurement Table, although noncoded, is critical for reconstructing the crash. The following information is necessary for each crash scene.

- Road Surface Type (e.g., bituminous, concrete, gravel, brick, etc.) is needed to determine the coefficient of friction for the roadway.

- Road Surface Condition at the time of the accident (e.g., wet, dry, ice covered, snow covered, etc.) is also used to determine the coefficient of friction for the roadway.

- Horizontal Alignment of the roadway at the point of impact - straight, curved to the right, curved to the left.

- Vertical Alignment of the roadway at the point of impact. The grade should be indicated as a fractional measurement (i.e., _ 3cm of rise/61cm of run = 5% uphill grade). A positive prefix is used to indicate uphill alignments; a negative is used to indicate downhill alignments. Alignment is measured with respect to the intended path of travel of the vehicle involved in the initial pedestrian impact.

- Reference Point / Reference Line documented to specifically locate scene physical evidence, point(s) of impact(s), and final rest position for reconstruction purposes.

Pedestrian Crash Collision Diagram

The Pedestrian Crash Collision Diagram must be a scaled representation of the accident scene (physical plant) and the physical evidence present. The scene diagram should be a visual depiction of the entire crash (pre-impact, at-impact, and post-impact). The Uniform Symbols for Accident Diagraming must be used on all case diagrams (refer to appendices of this manual titled: Uniform Symbols for Accident Diagraming). The information on the collision diagram can be broken down into four categories each of which is discussed below.

- Crash Location Specifics
- Vehicle Specifics
- Pedestrian Specifics
- Collision to Final Rest Specifics

CRASH LOCATION SPECIFICS

When applicable, the crash location specifics must depict the following:

• Location Site:	The location of the crash (i.e., intersection, non-intersection, mid block, etc.) must be depicted. If the crash occurred where crosswalks are applicable (either at an intersection or mid-block) they should be drawn to scale.
• Intersection Type:	If applicable, the type of intersection should be accurately documented and depicted (i.e., 3-leg "T"; 3-leg "Y"; 4-leg cross; 4-leg oblique; multi-leg; 4-leg off-set cross; circular; etc.).
• Accident Type:	The type of accident should be shown on the diagram. For example, if the pedestrian ran out between parked cars, then use the Uniform Symbols for Accident Diagraming to show (1) the relative position(s) of the parked vehicle(s), (2) the pedestrian running (each symbol representing the pedestrian is located 2 meters apart), and (3) the point(s) of impact location. If the accident occurred as the pedestrian jogged with traffic along the road, then show the proper positioning (on roadway or shoulder) and directional orientation (with traffic) of the pedestrian.

Pedestrian Crash Collision Diagram (Continued)

Crash Location Specifics (Continued)

• Traffic Controls:	All applicable traffic controls, including but not limited to: signs, traffic signals, pedestrian signals, lane lines, stop lines, etc., should be properly positioned. The number of travel lanes should be delineated by lane lines on the diagram. The roadway edge type should be indicated by uniform symbols to indicate curb, shoulder, etc.
	The positioning of the vehicle and the pedestrian at impact, will show the occurrence of the accident with respect to the trafficway (i.e., which travel lane on roadway; on shoulder; in median; etc.).
VEHICLE SPECIFICS	

The following information must be detailed on the case diagram with respect to the vehicle or vehicles involved.

• Vehicle Travel Direction:	North must be located on each case diagram. When north is referenced, all vehicles and pedestrians can be oriented to their proper headings throughout the accident sequence.
• Vehicle Travel Lane:	Proper documentation of the roadway delineation will pinpoint the travel lane of the vehicle(s) pre-impact, at impact, and final rest.
• Vehicle Location at Impact:	Proper positioning of the vehicle at impact indicates the occurrence of the accident with respect to the trafficway (i.e., which travel lane on roadway; on shoulder; in median; etc.).

Pedestrian Crash Collision Diagram (Continued)

PEDESTRIAN SPECIFICS	
• Pedestrian Location:	Indicate the location of the pedestrian throughout the accident sequence. If the crash occurred where crosswalks are present (either at an intersection or mid-block) they must be drawn to scale and properly positioned.
• Pedestrian Travel Direction:	North must be located on each case diagram. When north is referenced, all vehicles and pedestrians can be oriented to their proper headings throughout the crash sequence.
• Pedestrian Travel Lane at Impact:	Proper documentation of the roadway delineation will pinpoint the location of the pedestrian on the trafficway at impact.

COLLISION TO FINAL REST SPECIFICS

• Vehicle's Initial Point of Impact and Final Rest Positions:	The distance the vehicle traveled from the initial point of impact with the pedestrian to the final rest position is important for documentation on the Reconstruction Form. Using the Uniform Symbols for Scene Diagraming, vehicles in motion are indicated by dashed lines and stationary vehicles are indicated by solid lines. The distance from the initial point of impact can then be measured in meters, to the final rest of the vehicle for speed reconstruction purposes.
• Vehicle Action Between Last Point of Impact and Final Rest:	Indicate the appropriate action of the vehicle, as input by the driver, between the last point of impact and final rest. Question interviewees carefully to determine appropriate action. Annotations may be necessary to explain a particular input by the driver. Actions to consider are: braking, steering left or right, braking and steering left or right, acceleration followed by braking, acceleration followed by braking and steering, releasing brakes, vehicle

	came to rest at last POI, etc.

Pedestrian Crash Collision Diagram (Continued)
Collision to Final Rest Specifics (Continued)

• Vehicle Final Rest Position:	Using the Uniform Symbols for Accident Diagraming, indicate the final rest position of the vehicle(s) on the diagram.
• Pedestrian's Initial Point of Impact and Final Rest Position:	By indicating the pedestrian's point of impact on the diagram and their final rest position, the distance can be measured. The distance the pedestrian traveled between the initial point of impact and the final rest position is required for calculations on the Reconstruction Form.
• Pedestrian's Vehicle/Pedestrian Separation Point and Final Rest Position:	Indicate the point on the diagram that the pedestrian separated from the vehicle. The distance from the point that the pedestrian separated from the vehicle to their final rest position is required for calculations on the Reconstruction Form.
• Pedestrian Final Rest Position:	The proper position of the pedestrian's final rest must be indicated (i.e., on roadway, on shoulder, on median, off roadway, on vehicle, etc.).

COEFFICIENT OF FRICTION

The coefficient of friction is a decimal value. The following table, reproduced from: Fricke, L. B., Traffic Accident Reconstruction, Northwestern University Traffic Institute, 1990, should be used as a guide for determining the coefficient of friction for the roadway.

DESCRIPTION OF ROAD SURFACE	DRY				WET			
	Less than 30 mph		More than 30 mph		Less than 30 mph		More than 30 mph	
	From	To	From	To	From	To	From	To
PORTLAND CEMENT								
New, Sharp	.80	1.20	.70	1.00	.50	.80	.40	.75
Traveled	.60	.80	.60	.75	.45	.70	.45	.65
Traffic Polished	.55	.75	.50	.65	.45	.65	.45	.60
ASPHALT or TAR								
New, Sharp	.80	1.20	.65	1.00	.50	.80	.45	.75
Traveled	.60	.80	.55	.75	.45	.70	.40	.65
Traffic Polished	.55	.75	.45	.65	.45	.65	.40	.60
GRAVEL								
Packed, Oiled	.55	.85	.50	.80	.40	.80	.40	.60
Loose	.40	.70	.40	.70	.45	.75	.45	.75
CINDERS								
Packed	.50	.70	.50	.70	.65	.75	.65	.75
ROCK								
Crushed	.55	.75	.55	.75	.55	.75	.55	.75
ICE								
Smooth	.10	.25	.07	.20	.05	.10	.05	.10
SNOW								
Packed	.30	.55	.35	.55	.30	.60	.30	.60
Loose	.10	.25	.10	.20	.30	.60	.30	.60

Variable Name: Primary Sampling Unit Number

Element Values:

Zone Center One

PSU - 41 Fort Lauderdale and Hollywood, Florida
ZC1 - 40 Buffalo, NY

Zone Center Two

PSU - 49 Dallas, Texas
PSU - 72 Chicago, Illinois
PSU - 82 Seattle, Washington
ZC1 - 90 San Antonio, TX

Source: Defined By NCSA.

Remarks: None

Variable Name: Case Number

Element Values:

Range: Case number - 600 through 699
PCDS Sampling Stratum -- P

Source: Assigned by the automated PCDS system

Remarks:

The Case Number is assigned by the PCDS Case Selection System and is assigned a sequential 600 series case number.

No numbers will be skipped. If a case must be dropped, the number will not be reused.

The stratum character is automatically assigned as a "P" for all 600 series pedestrian crashes.

Variable Name: Number of General Vehicle Forms Submitted

Element Values:

01 This is a precoded value.

Remarks:

One Pedestrian General Vehicle form is submitted per case.

If multiple pedestrians are contacted, each pedestrian is treated as a separate case.

If multiple pedestrians are contacted, initiate the case and contact your Zone Center for final applicability of the subsequent pedestrian impact(s).

Variable Name: Date of Accident

Element Values:

Month

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

Day

Range: 01 through 31

Year

96 - 1996 is a precoded value for current year

Source: Police Report, Researcher determined on-scene.

Remarks:

The date of the accident should be known due to the researcher performing an on-scene inspection. If the scene is initiated as a follow-on investigation, use the date and time on the police report.

Variable Name: Time of Accident

Element Values:

Code the military time of accident.

For example: 1200 = Noon
2400 = Midnight
9999 = Unknown

Source: Police Report

Remarks:

Code the time to the nearest minute (e.g., 4:20 p.m. = 1620 hours). The time coded is taken form the police reported time in the "accident time" section of the report. Code "0000" is NOT a valid time! Midnight or 12:00 a.m. (which will be extremely rare for this study) can either be coded "2400" or "0001" depending on how the particular jurisdiction handles midnight.

If the police are unsure as to the exact time of the accident, but the interval is one hour or less, code the midpoint of the interval (e.g., 8:00 to 9:00 a.m., code "0830").

Variable Name: SS15 - Administrative Use
SS16 - Pedestrian Crash Data Study
SS17 - Impact Fires
SS18 - Unsafe Driver Actions
SS19 - Not Used

Element Values:

0 - No
1 - Yes

Source: Special Study Procedures

Remarks:

Code "0" (No) means the special study does not apply or the special study indicator is not in use. (No) is precoded for AC06, AC08, AC09 and AC10.

Code "1" (Yes) means the special study criteria are met. (Yes) is precoded for AC07.

Definition of SS15 (Administrative Use)

To be used by the NASS CDS Data Base Administrator in case automation functions.

Definition of SS16 (Pedestrian Crash Data Study)

- A Pedestrian Crash Data Study case is initiated (and a 600 level case number assigned) for all accident events where a vehicle strikes a person and the person meets the "Pedestrian Definition" and the impact meets the "Case Selection Criteria" shown below. For example: If a vehicle impacts two pedestrians and the "Pedestrian Definition" and "Case Selection Criteria" shown below are met for both, then two cases are initiated, one for the vehicle/pedestrian #1 impact and one for the vehicle/pedestrian #2.

- Pedestrian Definition:

  - A pedestrian is any person who is on a trafficway or on a sidewalk or path contiguous with a trafficway, or on private property (e.g., parking lot). NOTE: Pedestrians include persons who are in contact with the ground, roadway, etc., and are pushing carts, wagons, etc., or are holding on to a vehicle.

AC06

AC07
AC08
AC09
AC10
(2)

Variable Name: SS15 - Administrative Use
SS16 - Pedestrian Crash Data Study
SS17 - Impact Fires
SS18 - Unsafe Driver Actions
SS19 - Not Used

- Persons in or on a nonmotorist conveyance are not pedestrians and are excluded from this study. A nonmotorist conveyance is defined as any human powered device by which a nonmotorist may move, or by which a pedestrian or nonmotorist may move another nonmotorist. A nonmotorist conveyance for purposes of this study includes the following: bicycles, baby carriages, roller skates/blades, push carts, scooters, wheelchairs, animals, etc. For example, persons on a bicycle/scooter, roller skating/blading, in a baby carriage/push cart/wheelchair or on a horse are excluded.

• Criteria for Case Selection:

- A forward moving, late model year (VEH04 equals 90 to 95) CDS applicable vehicle (VEH07 equals 01 to 49) must strike a pedestrian.

- The pedestrian may not be lying or sitting.

- The striking portion of the vehicle must be original equipment manufacturer (OEM) without previous damage and or parts removed in the impact area. For example, vehicles equipped with deer guards, winches, snow plows, etc. or previously damaged in the impact area are excluded.

- The pedestrian impact(s) are the vehicle's only impact(s).

- The first point of contact between the late model year, CDS vehicle and the pedestrian must be forward of the top of the A pillar.

• Case meeting pedestrian study criteria and sampled at the following PSUs and Zone Centers:

Z1	Buffalo, NY
41	Ft. Lauderdale and Hollywood, Florida
49	Dallas, Texas
72	Chicago, Illinois
82	Seattle, Washington
Z2	San Antonio, TX

AC06
AC07
AC08
AC09
AC10
(3)

- Case numbers shall be from 601-699

- All crash investigations are initiated on-scene. If a vehicle or pedestrian (or surrogate in the case of a fatality) cannot be located/interviewed, and vehicle damage measurements obtained within 24 hours of the crash, the case is dropped.

Variable Name: Number of Recorded Events in This Accident

Element Values:

01 - This value is precoded.

Remarks:

This is a file structuring variable.

Variable Name: Accident Event Sequence Number

Element Values:

01 - This value is precoded.

If multiple pedestrians are contacted, each pedestrian is treated as a separate case.

If multiple pedestrians are contacted, initiate the case and contact your Zone Center for final applicability of the subsequent pedestrian impact(s).

Variable Name: Vehicle Number

Element Values:

01 - This value is precoded.

Variable Name: Class of Vehicle

Element Values:

01 Subcompact/mini (wheelbase <254 cm)
02 Compact (wheelbase Æ 254 but < 265 cm)
03 Intermediate (wheelbase Æ 265 but < 278 cm)
04 Full size (wheelbase Æ 278 but < 291 cm)
05 Largest (wheelbase Æ 291 cm)
09 Unknown passenger car size
11 Compact utility vehicle
12 Large utility vehicle (æ 4,536 kgs GVWR)
13 Passenger van (æ 4,536 kgs GVWR)
14 Other Van (æ 4,536 kgs GVWR)
15 Pickup truck (æ 4,536 kgs GVWR)
18 Other truck (æ 4,536 kgs GVWR)
19 Unknown light truck type

Source: Researcher determined - inputs include police report, vehicle inspection, VIN breakdown, and interviews.

Remarks:

The Passenger Car Classification Subcommittee, A3B11(1), of the Transportation Research Board, Traffic Records and Accident Analysis Committee, A3B11, assesses size based on vehicle wheelbase. The guidelines for this classification can be found in the report entitled Recommended Definitions for Passenger Car Size Classification by Wheelbase and Weight, August 1984, by the previously mentioned subcommittee.

Codes "01" through "05" rely on the guidelines for wheelbase alone. If one of these codes is used, then the vehicle's body type, VEH07, must be coded as an automobile (codes "01" - "09") or automobile derivative (codes "10" - "13").

Code "09" (Unknown passenger car size) is used when it is known that a vehicle is a passenger car (codes "01" through "05"), but the wheelbase is unknown.

Code "11" (Compact utility vehicle) refers to vehicles defined in code "14" (Compact utility) in variable VEH07, Body Type. Use this code if the size of the utility vehicle is unknown.

Variable Name: Class of Vehicle

Code "12" [Large utility vehicle (æ 4,536 kgs GVWR)] refers to the vehicles defined in codes "15" (Large utility) and "16" (Utility station wagon) in variable VEH07, body type.

Code "13" Passenger van [(æ 4,536 kgs GVWR)] includes all vehicle types defined in codes "20" (Minivan) and "21" (Large van) and "29" (Unknown van type) in variable VEH07, and designed with seats installed for passengers in excess of two seat positions. Also included are codes "24" (Van based school bus) and "25 (Van based other bus). Cargo vans are recorded in code "14".

Code "14" [Other van (æ 4,536 kgs GVWR)] includes all vehicles as described in variable VEH07, Body Type, codes "22" (Step van or walk-in van), "23" (Van based motorhome), and "28" (Other van type) not fitting into the definition of code "13" above. This code also includes vehicles described in variable VEH07, Body Type, codes "20" (Minivan) and "21" (Large van) which are designed as cargo vans.

Code "15" [Pickup truck (æ 4,536 kgs GVWR)] is defined in variable VEH07, Body Type, codes "30", "31", "32", "33" and "39".

Code "18" [Other truck (æ 4,536 kgs GVWR)] is defined in codes "40", "41", "42", "45", in variable VEH07, Body Type.

Code "19" (Unknown light truck type) is defined in code "48" [Unknown other light truck type (not a pickup)] in variable VEH07, Body Type.

Variable Name: General Area of Damage

Element Values:

9 = Unknown

CDC Applicable Vehicles

F Front
R Right side
L Left Side
U Undercarriage

Source: Researcher determined

Remarks:

Code "9" (Unknown) must be coded when the General Area of Damage (AC13) on a vehicle is not known from any reliable source. Note, for all vehicles the rules developed in SAE J224MAR80, for determining the plane of damage, should be used for completion of this variable.

For vehicles which are CDC applicable (e.g. pickups, light vans and passenger cars) the guidelines from J224MAR80 must be applied, and the codes provided under the "CDC Applicable Vehicles" categories must be used.

Variable Name: Vehicle Number or Object Contacted

Element Values:

72 - (Pedestrian) This value is precoded.

Variable Name: Class of Vehicle

Element Values:

00 - (Not a motor vehicle) This value is precoded.

Variable Name: General Area of Damage

Element Values:

0 - (Not a motor vehicle) This value is precoded.

Variable Name: Pedestrian Number

Element Values:

Range: 01

Source:

Remarks:

This variable is precoded 01. Only one Pedestrian Assessment Form is submitted per case.

Variable Name: Pedestrian's Age

Element Values:

Range: 00-97, 99
- 00 Less than one year old
- 01-96 Actual age
- 97 97 years old or older
- 99 Unknown

Source: Primary source is the interviewee; secondary sources include police reports and other official records (i.e., medical records).

Remarks:

The pedestrian's age at the time of the accident is recorded with respect to the pedestrian's last birthday.

Variable Name: Pedestrian's Sex

Element Values:

1 Male
2 Female - not reported pregnant
3 Female - pregnant, first trimester (1st-3rd month)
4 Female - pregnant, second trimester (4th-6th month)
5 Female - pregnant, third trimester (7th-9th month)
6 Female - pregnant, term unknown
9 Unknown

Source: Primary source is the interviewee; secondary sources include police reports and other official records (e.g., medical records).

Remarks:

Code "1" (Male) consists of men and boys of the masculine gender.

Code "2" (Female - not reported pregnant) consists of women and girls of the feminine gender who are not pregnant or where pregnancy is unknown.

Code "3" [Female - pregnant, first trimester (1st-3rd month)] consists of women and girls of the feminine gender who are less than or equal to 3 months (12 weeks) pregnant.

Code "4" [Female - pregnant, second trimester (4th-6th month)] consists of women and girls of the feminine gender who are more than 3 months (12 weeks) and less than or equal to 6 months (24 weeks) pregnant.

Code "5" [Female - pregnant, third trimester (7th-9th month)] consists of women and girls of the feminine gender who are more than 6 months (24 weeks) pregnant.

Code "6" (Female - pregnant, term unknown) consists of women and girls of the feminine gender who are pregnant, but the term is unknown.

Variable Name: Pedestrian's Overall Height

Element Values:

Range: 030 through 220 centimeters
999 Unknown

Source: Researcher determined -- inputs include interviewee or official records (i.e., medical records).

Remarks:

Code the actual height to the nearest centimeter.

Code "220" (220 centimeters) is used for any pedestrian whose height equals or exceeds 219.5 centimeters.

The PAR may be used as a source if it contains this data, but it is superseded if other data exists.

Autopsies often include this information; use it when present.

Conversion: 1 inch = 2.54 centimeters

Variable Name: Pedestrian's Height - Ground to Knee

Element Values:

Range: 005 through 200 centimeters
999 Unknown

Source: Researcher determined -- inputs include interviewee or official records (i.e., medical records).

Remarks:

Code the measurement, to the nearest centimeter, from the ground to the center of the knee cap.

NOTE: This measurement should include an adjustment for the heel height of the shoes that the pedestrian was wearing at the time of the crash. If the heel height cannot be measured, it should be reasonably estimated by the interviewee.

If the shoes are unavailable to measure the heel height, and an estimation cannot be reasonably provided, assign the adjustment based on the following general guidelines.

Males: Add 2 cm.
Females: Add 3 cm.

Conversion: 1 inch = 2.54 centimeters

Variable Name: Pedestrian's Height - Ground to Hip

Element Values:

Range: 005 through 200 centimeters
999 Unknown

Source: Researcher determined -- inputs include interviewee or official records (i.e., medical records).

Remarks:

Code the measurement, to the nearest centimeter, from the ground to the hip, measured to the iliac crest (i.e.,top of hip bone on the right or left sides).

NOTE: This measurement should include an adjustment for the heel height of the shoes that the pedestrian was wearing at the time of the crash. If the heel height cannot be measured it should be reasonably estimated by the interviewee.

If the shoes are unavailable to measure the heel height, and an estimation cannot be reasonably provided, assign the adjustment based on the following general guidelines.

Males: Add 2 cm.
Females: Add 3 cm.

Conversion: 1 inch = 2.54 centimeters

Variable Name: Pedestrian's Height - Ground to Shoulder

Element Values:

Range: 005 through 200 centimeters
999 Unknown

Source: Researcher determined -- inputs include interviewee or official records (i.e., medical records).

Remarks:

Code the measurement, to the nearest centimeter, from the ground to shoulder, measured to the acromioclavicular joint (i.e., the joining of the clavicle and acromion).

NOTE: This measurement should include an adjustment for the heel height of the shoes that the pedestrian was wearing at the time of the crash. If the heel height cannot be measured it should be reasonably estimated by the interviewee.

If the shoes are unavailable to measure the heel height, and an estimation cannot be reasonably provided, assign the adjustment based on the following general guidelines.

Males: Add 2 cm.
Females: Add 3 cm.

Conversion: 1 inch = 2.54 centimeters

Variable Name: Pedestrian's Weight

Element Values:

Range: 002 through 150 kilograms
999 Unknown

Source: Researcher determined -- inputs include interviewee or official records (i.e., medical records).

Remarks:

Code actual weight to the nearest kilogram.

Code "150" (150 kilograms) is used for any pedestrian whose weight equals or exceeds 149.5 kilograms.

The PAR may be used as a source if it contains this data, but it is superseded if other data exists.

Autopsies often include this information; use it when available.

Conversion: 1 pound = .4536 kilograms

Variable Name: Pedestrian Attitude

Element Values:

1 Standing
2 Crouching
3 Kneeling
4 Bending at waist
8 Other (specify):
9 Unknown

Source: Researcher determined -- inputs include interviews and police report.

Remarks:

Code the attribute which best describes the pedestrian's vertical orientation just prior to the pedestrian's first avoidance action. If there are no avoidance actions, code the attribute which best describes the pedestrian's vertical orientation just prior to the first impact. Thus individuals who are standing in a stationary position, walking, running, etc., are all classified as code "1" (Standing). Variations in the several upright positions are distinguished in variable PED12, Pedestrian Motion.

Code "1" (Standing) is used when the pedestrian is upright on both feet; this code includes pedestrians who are leaning to one side or against an object, walking, running, hopping, skipping or jumping.

Code "2" (Crouching) is used when the pedestrian is stooped down or bent low by using the knees as the pivot point.

Code "3" (Kneeling) is used when at least one knee of the pedestrian is in contact with the ground or an object.

Code "4" (Bending at waist) is used when the pedestrian is bent over using the hips as the pivot point.

Variable Name: Pedestrian Motion

Element Values:

0 Not moving
1 Walking slowly
2 Walking rapidly
3 Running or jogging
4 Hopping
5 Skipping
6 Jumping
7 Falling/stumbling or rising
8 Other (specify):
9 Unknown

Source: Researcher determined -- inputs include interviews, and police report.

Remarks:

Code the attribute which best describes the pedestrian's motion just prior to the pedestrian's first avoidance action. If there are no avoidance actions, code the attribute which best describes the pedestrian's motion just prior to the first impact.

Code "0" (Not moving) is used when the pedestrian is stationary and includes crouching, kneeling and bending at the waist.

Code "1" (Walking slowly) is used when the pedestrian is advancing on foot in such a manner that part of one foot or the other is always in contact with the ground and the pace is a normal walking stride.

Code "2" (Walking rapidly) is used as described for code "01" except that the pedestrian is advancing at an accelerated rate, i.e., deliberately moving his/her legs quickly to achieve a more rapid advance than a normal walking stride, but not running.

Code "3" (Running or jogging) is used when the pedestrian is moving rapidly in such a manner that both feet are off the ground for a portion of each step.

Code "4" (Hopping) is used when the pedestrian is moving by making short leaps on one or both feet.

Code "5" (Skipping) is used when the pedestrian is moving in light springy steps, alternating a hop between steps while walking.

Code "6" (Jumping) is used when the pedestrian is springing or propelling from the ground in generally an upward motion.

PED12
(2)

Variable Name: Pedestrian Motion (cont'd.)

Code "7" (Falling/stumbling or rising) is used in two circumstances to describe a pedestrian who is not stationary, as coded under value "00," but who is also not engaged in controlled motion as coded under values "01" through "06." "Falling/stumbling" refers to situations where the pedestrian's control of his/her motion is interrupted such that balance is lost and the pedestrian is no longer in an upright posture. "Rising" refers to situations where the pedestrian was previously not in an upright posture (i.e., was kneeling, crouching, etc., or had just fallen or stumbled) and was engaged in the act of attaining an upright standing posture.

Code "8" [Other (specify): _____] is used when the pedestrian's motion cannot be coded as described for values "00" through "07." A brief annotation must be included to describe the situation.

Code "9" Unknown

Variable Name: Pedestrian's Action Relative to Vehicle

Element Values:

00 Stopped
01 Crossing road, straight
02 Crossing road, diagonally
03 Moving in road, with traffic
04 Moving in road, against traffic
05 Off road, approaching road
06 Off road, going away from road
07 Off road, moving parallel
08 Off road, crossing driveway
09 Off road, moving along driveway
98 Other (specify):
99 Unknown

Source: Researcher determined -- inputs include interviews, scene inspection, vehicle inspection, and police report

Remarks:

Select the appropriate code to describe the direction of pedestrian motion, with respect to the vehicle, prior to the pedestrian's first avoidance action. If there are no avoidance actions, select the attribute which describes the pedestrian's motion, with respect to the vehicle, just prior to the first impact. Thus, code "01" (Crossing Road, Straight) indicates the pedestrian is crossing the road perpendicular to the traffic flow just prior to the pedestrian's first avoidance action (or just prior to the impact if there are no avoidance actions).

If more than one of the above codes apply (e.g., "07"- Off road, moving parallel and "08"- Off road, crossing driveway) the codes are hierarchic; so, "07" would take precedence over "08".

Code "00" (Stopped) is used when a pedestrian is in a stationary position.

Code "01" (Crossing road, straight) is used when the pedestrian is crossing a road perpendicular to the traffic flow.

Code "02" (Crossing road, diagonally) is used when the pedestrian is crossing a road and the pedestrian's direction of travel is oblique to the traffic flow.

Code "03" (Moving in road, with traffic) is used when the pedestrian is in the road and moving in the same direction as the traffic flow.

Code "04" (Moving in road, against traffic) is used when the pedestrian is in the road and moving in the opposite direction of the traffic flow.

Code "05" (Off road, approaching road) is used when the pedestrian is not in the road, but moving toward the road.

(2)

Variable Name: Pedestrian's Action Relative to Vehicle

Code "06" (Off road, going away from road) is used when the pedestrian is not in the road, and moving in a direction away from the road.

Code "07" (Off road, moving parallel) is used when the pedestrian is not in the road, and moving parallel to the road.

Code "08" (Off road, crossing driveway) is used when the pedestrian is struck by a vehicle which is entering or leaving a driveway. Use this code when the pedestrian is crossing the driveway.

Code "09" (Off road, moving along driveway) is used when the pedestrian is struck by a vehicle which is entering or leaving a driveway. Use this code when the pedestrian is moving along the driveway.

Code "98" [Other (specify):_____] is used when the pedestrian's action cannot be described by codes "00" to "09"; a brief annotation is included to describe the situation.

Variable Name: Pedestrian's Body (Chest) Orientation Relative to Striking Vehicle Prior to Avoidance Actions

Element Values:

1 Facing vehicle
2 Facing away
3 Left side to vehicle
4 Right side to vehicle
8 Other (specify):
9 Unknown

Source: Researcher determined

Remarks:

This variable describes the pedestrian's body orientation with respect to the striking vehicle prior to avoidance actions. "Facing vehicle" means the pedestrian is facing the path of travel of the (tracking or yawing) vehicle.

View the pedestrian as having four planes (i.e., front, back, left, and right; code top and bottom in code "8"). Choose the plane that best indicates how the pedestrian was positioned prior to any avoidance actions. For example, if the left side and rear area of the pedestrian's body are exposed to the striking vehicle (i.e., 45 degrees off of the assumed 90 degrees), then select either code "2" (Facing away) or code "3" (Left side to vehicle), depending on the pedestrian's activity and action. If, as in the above example, the pedestrian was crossing the road, then select code "3" (Left side to vehicle), and if the pedestrian was moving with or against traffic, then select code "2" (facing away). For orientations between 45 degrees and 90 degrees, select the appropriate code based on the body area which is exposed the most (i.e., side or rear).

Variable Name: Pedestrian's First Avoidance Actions

Element Values:

00 No avoidance actions
01 Stopped
02 Accelerated pace
03 Ran away (along vehicle path)
04 Jumped
05 Turned toward vehicle
06 Turned away from vehicle
07 Dove or fell away

Used Hand(s) to :

11 Vault corner of vehicle
12 Vault onto vehicle
13 Brace against vehicle
14 Crouched and braced hands against vehicle
98 Other (specify):
99 Unknown

Source: Researcher determined

Remarks:

It should be noted that to be considered an avoidance action, the pedestrian activity must be a conscious or instinctive action and not a kinematic response to the impact. This does not imply however, that the pedestrian must recall initiating the maneuver.

Indicate the response of the pedestrian, relative to the recognition of the impending impact. Note that, in situations involving personal danger, people do not always behave rationally. The action coded as the pedestrian's avoidance maneuver need not be a "sensible" or appropriate response to danger. If more than one response was initiated (e.g., pedestrian saw vehicle, stopped, and then used their hands to vault the corner of the vehicle) use code "98" [Other (specify): _____].

Code "00" (No avoidance actions) is used when the pedestrian did not take any action to avoid an impending impact.

Code "01" (Stopped) is used when the pedestrian was engaged in some form of motion (PED12 Pedestrian Motion is not coded "00") and the pedestrian ceased this motion upon recognizing the impending impact.

PED15
(2)

Variable Name: Pedestrian's First Avoidance Actions

Code "02" (Accelerated pace) is used when the pedestrian was engaged in some form of motion (PED12 Pedestrian Motion is not coded "00") and the pedestrian began or attempted to move more quickly upon recognizing the impending impact.

Code "03" [Ran away (along vehicle path)] is used when the pedestrian attempted to avoid the impact by running away from the approaching vehicle and the pedestrian's path of attempted escape was in the same direction as the vehicle's path of travel.

Code "04" (Jumped) is used when the pedestrian attempted to avoid the impact by jumping out of the way.

Code "05" (Turned toward vehicle) is used when the pedestrian, upon recognizing the impending impact, turned toward the vehicle such that he or she was facing the vehicle at impact.

Code "06" (Turned away from vehicle) is used when the pedestrian, upon recognizing the impending impact, turned away from the vehicle such that his or her back was toward the vehicle at impact.

Codes "05" and "06" may be appropriate when the pedestrian had the intention to attempt an avoidance maneuver but was not successful in executing this intent. For example, a pedestrian may turn toward the vehicle with the intent to brace or vault, but was struck before he or she could complete the avoidance maneuver. Similarly, a pedestrian may turn away from the vehicle with the intent to run or dive but was struck before the running or diving was accomplished.

Code "07" (Dove or fell away) is used when the pedestrian made a dive or permitted him or her self to fall to the ground in an attempt to avoid the impending impact. Diving is distinguished from jumping in that when jumping, the intent is to land on the feet, where as in diving the action is a head first lunge with the diver not intending to land on the feet.

Code "11" (Vault corner of vehicle) is used when the pedestrian attempted to avoid the impact by placing his or her hands at or near the corner of the vehicle and attempted to use the combined strength of the arms and legs to propel him or her self off and away from the vehicle.

Code "12" (Vault onto vehicle) is used when the pedestrian placed his or her hands on the vehicle and used the combined strength of the arms and legs to propel him or her self up onto the vehicle.

The term "vault" is used to describe a vigorous leap when the strength of the arms is included in the motive force.

PED15
(3)

Variable Name: Pedestrian's First Avoidance Actions

Code "13" (Brace against vehicle) is used when the pedestrian extended his or her arms and attempted to resist the force of the impact with the strength of the arms.

Code "14" (Crouched and braced hands against vehicle) is used when the pedestrian assumed a low, stooping posture with knees bent, and braced as described under Code "13."

Code "98" [Other (specify): _____] is used when the pedestrian's avoidance maneuver is not among the attributes listed or when more than one of the above responses is initiated. The use of this code must include an annotation indicating the specific actions performed.

Code "99" (Unknown) is used when the pedestrian's avoidance maneuver is not known.

Variable Name: Pedestrian's Head Orientation at Initial Impact

Element Values:

1 To front
2 To left
3 To right
4 Up
5 Down
8 Other (specify):
9 Unknown

Source: Researcher determined

Remarks:

Select the appropriate code to indicate the direction in which the pedestrian's facial area is oriented relative the body's anatomical (midsagittal plane) axis at initial impact. For example, if the pedestrian's right side is exposed to the vehicle and he turns his head to the right to see the vehicle (i.e., head is facing vehicle) then code "3" (to right).

Variable Name: Pedestrian's Body (Chest) Orientation at Initial Impact

Element Values:

1 Facing vehicle
2 Facing away
3 Left side to vehicle
4 Right side to vehicle
8 Other (specify):
9 Unknown

Source: Researcher determined

Remarks:

This variable describes the pedestrian's body orientation with respect to the striking vehicle at initial impact. "Facing vehicle" means the pedestrian is facing the path of travel of the (tracking or yawing) vehicle. View the pedestrian as having four planes (i.e., front, back, left, and right; use code "8" for top and bottom). Choose the plane which best describes the pedestrian's body (chest) orientation at initial impact. For example, if the left rear area of the pedestrian's body is exposed to the striking vehicle (i.e., 45 degrees off of the assumed 90 degrees), select either code "2" (Facing away) or code "3" (Left side to vehicle), depending on the pedestrian's activity and action. If the pedestrian was crossing the road, select code "3" (Left side to vehicle), and if the pedestrian was moving with or against traffic, select code "2" (facing away). For orientations between 45 degrees and 90 degrees, select the appropriate code based on the body area which is exposed the most (i.e., side or rear).

Variable Name: Pedestrian's Arm Orientation at Initial Impact

Element Values:

01 At sides
02 Folded across chest
03 Hands clasped behind back
04 Hands on hips
05 Hands in pockets

One or both arms:

06 Extended upward
07 Extended to side
08 Extended forward, bracing
09 Extended forward or backward holding or pulling object (holding briefcase, pulling suitcase, bag, etc.)
10 Holding object (young child, grocery bag etc.) in arm(s)
11 Holding object (young child, grocery bag etc.) on shoulder(s) or head
98 Other (specify):
99 Unknown

Source: Researcher determined

Remarks:

Note that all codes designate positions relative to anatomical body orientation and that for codes 06-11, if one arm is in the designated position, then the code is applicable.

Code "01" (At sides) is used when both arms are positioned generally in line vertically with the upper torso and legs. Normal swaying of arm (as in running or jogging) is acceptable for this code.

Code "02" (Folded across chest) is used when the arms are in a crossing pattern relative to the chest. It is not necessary for the arms to be folded together or in a locked position to use this code.

Code "03" (Hands clasped behind back) is used when the hands are interlocked behind the lateral surface of the back.

Code "04" (Hands on hips) is used when the hand(s) of the pedestrian is (are) in a slightly bent position and resting on the hip(s).

Code "05" [Hand(s) in pockets] is used when any hand is in any pocket of the pedestrian. The pockets can be pants, shirt, or jacket, and front side or rear pockets.

Code "06" (Extended upward) is used when either arm or arms are above the longitudinal plane of the shoulders.

Variable Name: Pedestrian's Arm Orientation at Initial Impact (cont'd.)

Code "07" (Extended to side) is used when either arm or arms are extended laterally to the side of the pedestrian.

Code "08" (Extended forward, bracing) is used when the pedestrian's arm(s) are extended forward and acting as a brace to the vehicle.

Code "09" [Extended, holding object (holding briefcase, pulling suitcase, bag, etc.,)] is used when the pedestrian is holding or pulling an object.

Variable Name: Pedestrian's Leg Orientation at Initial Impact

Element Values:

01 Together
02 Apart-laterally
03 Apart-right leg forward
04 Apart-left leg forward
05 Apart-forward leg unknown
06 Left foot off the ground
07 Right foot off the ground
08 Both feet off the ground
98 Other (specify):
99 Unknown

Source: Researcher determined

Remarks:

Select the appropriate code to indicate the pedestrian's leg orientation at initial impact. Codes 01-05 are intended for use in those situations where both feet are in contact with the road or ground surface. For codes 03-05, the forward direction is relative to the body's anatomical orientation.

Code "08" (Both feet off the ground) is used when the pedestrian jumps off the ground immediately prior to impact (e.g., PED15 Pedestrian Avoidance Maneuver = "04" - "Jumped").

Code "98" [Other (specify): _____] refers to a leg orientation not listed in codes "01" through "08."

Variable Name: Vehicle/Pedestrian's Interaction

Element Values:

01 Carried by vehicle wrapped position 02 Carried by vehicle, slid to windshield 03 Carried by vehicle, position unknown 04 Passed over vehicle top 05 Thrown straight forward 06 Thrown forward and left of vehicle 07 Thrown forward and right of vehicle 08 Knocked to pavement, forward 09 Knocked to pavement, left of vehicle 10 Knocked to pavement, right of vehicle	11 Knocked to pavement, run over or dragged by vehicle 12 Shunted to left (corner impacts only) 13 Shunted to right (corner impacts only) 14 Bumped or pushed aside 15 Snagged, rotated 16 Snagged, dragged by vehicle 17 Foot or legs run over 98 Other (specify): 99 Unknown

Source: Researcher determined - inputs include vehicle inspection, scene inspection and interviews.

Remarks:

Select the appropriate code to describe the vehicle/pedestrian.

Codes "01" through "13" and "17" are used when the impact with the pedestrian was through the front plane of the vehicle or was at a corner of the vehicle. Codes "14" through "16" are used when the impact with the pedestrian was through the left or right side plane of the vehicle, forward of the top of the A-pillar.

Codes "01," "02" and "03" (Carried by vehicle...) refer to circumstances where the initial vehicle-to-pedestrian impact was through the vehicle's front plane and the pedestrian's body remained in contact with the vehicle such that the pedestrian was carried by the vehicle. This is distinguished from circumstances where the impact pushes the pedestrian away from the vehicle and the vehicle-pedestrian contact is brief.

Code "01" (Carried by vehicle, wrapped position) is used when the impact caused the pedestrian's body to fold such that part of the body was against the frontal structures (bumper, grille, headlights) and part of the body was laying across the hood or the top of the fenders.

Code "02" (Carried by vehicle, slid to windshield) is used when the force of the impact caused the pedestrian to slide along the hood and impact the windshield.

PED20
(2)

Variable Name: Vehicle/Pedestrian's Interaction

Code "03" (Carried by vehicle, position unknown) is used when it is known that the pedestrian was carried by the vehicle, but the pedestrian's position is not known.

Code "04" (Passed over vehicle top) is used when the force of the impact caused the pedestrian to slide up and over the windshield, along the roof and subsequently to fall away from the vehicle rearward of the passenger cabin.

Codes "05," "06," and "07" (Thrown...) refer to circumstances where the force of the impact caused the pedestrian to be lifted from the ground and propelled through the air away from the location of the impact.

Code "05" (Thrown straight forward) is used when the force of the impact caused the pedestrian to be thrown or pushed forward along the vehicle's path of travel.

Code "06" (Thrown forward and left of the vehicle) or
Code "07" (Thrown forward and right of the vehicle) is used when the force of the impact caused the pedestrian to be thrown forward and off to the left or right, respectively, of the vehicle's path of travel.

Codes "08," "09," "10," and "11" (Knocked to pavement...) refer to circumstances where the force of the impact caused the pedestrian to fall to the ground at or immediately adjacent to the location of the impact.

Code "08" (Knocked to pavement, forward) is used when the force of the impact caused the pedestrian to fall to the ground immediately in front of the vehicle.

Code "09" (Knocked to pavement, left of vehicle) or
Code "10" (Knocked to pavement, right of vehicle) is used when the force of the impact caused the pedestrian to fall to the ground immediately to the left or right, respectively, of the vehicle.

Code "11" (Knocked to pavement, run over or dragged by vehicle) is used when the force of the impact caused the pedestrian to fall to the ground immediately adjacent to the location of the impact and the pedestrian was subsequently run over or dragged by the vehicle.

Code "12" (Shunted to left (corner impact only)) or
Code "13" (Shunted to right (corner impact only)) is used in the circumstance where the impact with the pedestrian was at a corner (æ 41cm from the corner of the vehicle) and the pedestrian was pushed away from the vehicle to the left or right, respectively.

PED20
(3)

Variable Name: Vehicle/Pedestrian's Interaction

Code "14" (Bumped or pushed aside) is used when the vehicle/pedestrian contact was through a side plane of the vehicle and the force of the impact caused the pedestrian to be pushed away from the vehicle.

Code "15" (Snagged, rotated) is used when the vehicle/pedestrian contact was through a side plane of the vehicle and some component of the pedestrian's body or clothing became attached (caught, snared) to a vehicle component and the pedestrian was caused to rotate or spin.

Code "16" (Snagged, dragged) is used when the vehicle/pedestrian contact was through a side plane of the vehicle and some component of the pedestrian's body or clothing became attached (caught, snared) to a vehicle component and the pedestrian was dragged by the vehicle.

Code "17" (Foot or legs run over) is used when the pedestrian's lower extremity was extended such that the limb(s) was/were under the vehicle and run over. This may occur, for example, when a pedestrian is striding with one leg extended, or when a pedestrian looses his or her footing and "his feet went out from under him." If the position of the extremity under the vehicle is the result of being thrown, knocked, shunted, dragged or bumped, one of the other codes defined above is used. It is expected that this code will be rarely used.

Code "98" [Other (specify): _____] is used when the pedestrian/vehicle interaction cannot be expressed by codes defined above. Use of code "98" includes an annotation describing the situation.

Code "99" (Unknown) is used when the vehicle/pedestrian interaction is not known.

Variable Name: Police Reported Alcohol Presence for Pedestrian

Element Values:

0 No alcohol present
1 Yes (alcohol present)
7 Not reported
9 Unknown

Source: Police report

Remarks:

The phrase "alcohol present" means that the pedestrian had consumed an alcoholic beverage. Presence is not an indication that alcohol was in any way a cause of the impact, even though it may have been. Finding opened or unopened alcoholic beverages on or around the pedestrian does not by itself constitute presence.

Code "0" (No alcohol present) is used if the investigating officer's assessment (as reported on the police report) is that no alcohol was present in the pedestrian.

Code "1" [Yes (alcohol present)] is used if the police indicate alcohol presence in the pedestrian via: (1) a specific data element on the police report form, (2) the police charge the pedestrian with public drunkenness, drunk and disorderly conduct, or similar charge, (3) the police mention in the narrative section of the report that the pedestrian had been drinking, was intoxicated, or alcohol was present or involved, or (4) the police report has a positive BAC test result (BAC > .00).

Code "7" (Not reported) is used if there is a specific location on the police report for assessment of the alcohol presence but the investigating officer fails to make either a positive or negative assessment.

Code "9" (Unknown) is used if the alcohol presence is indicated as unknown. In general, police reports have blocks to check either positive or negative alcohol presence. However, if a police report has a provision for the investigating officer to respond "unknown presence" then use this code.

Some PARs have a block labeled "Alcohol/Drugs". If "presence" is indicated, and it cannot be determined which was used (e.g., narrative, arrest/charged section etc.), then assume alcohol presence.

Variable Name: Alcohol Test Result for Pedestrian

Element Values:

Range: 00-49; 95-97, 99

xx Code actual value (decimal implied before first digit -- 0.xx).
95 Test refused
96 None given
97 AC (Alcohol Content) test performed, results unknown
99 Unknown

Source: Police report, medical reports, or other official sources

Remarks:

Blood Alcohol Content (BAC) measures the percentage (expressed as a decimal) of the number of grams of alcohol in a liter of blood. The standard measure is expressed as the number of milligrams per deciliter (tenth of a liter) (e.g., .05 = 50 mg/100 ml; .15 = 150 mg/100 ml). A blood alcohol concentration (BAC) test could be a blood, breath, or urine test.

No psychomotor (police observation of pedestrian actions) test results are coded here. Also be aware of preliminary test results. These preliminary tests, including an instrumented field screening test, indicate the presence of alcohol, but not necessarily the particular content level. Preliminary tests are designed to segregate candidates for further testing from those persons where the suspected presence of alcohol is either nonexistent or too low for additional tests.

If an instrumented field screening test was given and it was determined that:

- no BAC test was required, code "96" (None given);
- a BAC test was required, but the precise level was not obtained, code "97" (AC test performed, results unknown) or
- a BAC test was required and the precise level was obtained, code the reported BAC from the subsequent test (codes "00 - 49).

If the BAC was given on the police report or subsequently added after the case was initiated, code the reported value. In essence, if any BAC is obtained, code the reported value. Use normal rounding rules (i.e., the number five or greater is rounded upward, less than five is rounded down). For example, a BAC of 117 mg/dl is coded "12".

(2)
Variable Name: Alcohol Test Result for Pedestrian (Continued)

Codes "00 - 49" report the actual number value representing the fraction of alcohol present.

Code "00" is used when a test was performed, but no alcohol was detected.

Code "95" (Test refused) is used when the person refuses to voluntarily take a BAC test, and no subsequent test is given. If the person refuses, but a test is performed, code the reported BAC or "97" (AC test performed results unknown).

Code "96" (None given) is used when no BAC test was administered to this pedestrian.

Code "97" (AC test performed, results unknown) is used after all available sources have been exhausted. Verbal BACs obtained from official sources are acceptable if written approval (or approval via the message system) has been obtained from the Zone Center. Obtain BAC test results whenever possible.

Code "99" (Unknown) is used when it is not known if a test was administered.

OTHER DRUGS OVERVIEW

These variables focus upon "other drugs". For the purpose of these variables the word "drug" is defined in nonmedical terms. A "drug" is any chemical substance, natural or synthetic, which when taken into the human body, can impair the ability of a pedestrian's motor and cognitive skills. The word "other" in this phrase means all "drugs" except alcohol.

No laboratory, no matter how modern its equipment or competent its staff, can identify all drugs that are currently abused. Add to this the fact that new drugs, both licit and illicit, become available every week, and it soon becomes evident that the capacity for drug abuse always stays ahead of the capacity for chemical drug detection. Even if the laboratory does have the capability of identifying a particular drug, it will require that the drug be present at a specific minimum concentration before it can conclude that a "real" chemical detection has occurred. This is referred to as the detection threshold, and it varies from drug to drug, and from one chemical analytic method to another. Some of the analytic methods used by some laboratories to detect certain drugs do not actually seek to find the drug itself, but look instead for a metabolite of the drug. A metabolite is a chemical breakdown product of the drug.

Variable Name: Police Reported Other Drug Presence for Pedestrian

Element Values:

0 No other drug(s) present
1 Yes other drug(s) present
7 Not reported
9 Unknown

Source: Police report

Remarks:

The phrase "other drug present" includes prescription and "over-the counter" medications as well as "illicit" substances (e.g., in most cases, marijuana, cocaine, heroin, etc. where usage has not been prescribed by a doctor). Also, "other drug present" means that the pedestrian had ingested an other drug prior to the accident, but it is not an indication that the drug usage was in any way the cause of the accident (or event), even though it may have been. Finding other drugs on or around the pedestrian does not by itself constitute presence.

Code "0" [No other drug(s) present] is used if the investigating officer's assessment (as reported on the police report) is that no other drugs were present in the pedestrian.

Code "1" [Yes other drug(s) present] is used if the police indicate an other drug presence in the pedestrian via: (1) a specific data element on the police report form, (2) the police mention in the narrative section of the report that the pedestrian had ingested an other drug.

Code "7" (Not reported) is used if there is a specific location on the police report for assessment of other drug presence but the investigating officer fails to make either a positive or negative assessment. In addition, use this code if the PAR does not have a specific location for reporting other drugs and the police do not mention other drugs in the narrative section.

Code "9" (Unknown) is used if the other drug presence is indicated as unknown. A growing number of police reports have blocks to check either positive or negative other drug presence. However, if a police report has a provision for the investigating officer to respond "unknown presence" then use this code.

Some PARs have a block labeled "Alcohol/Drugs". If "presence" is indicated, and it cannot be determined which was used (e.g., narrative, arrest/charged section etc.), then assume alcohol presence.

Variable Name: Other Drug Specimen Test Result for Pedestrian

Element Values:

O No specimen test given
1 Drug not found in specimen
2 Drug found in specimen (specify):
3 Specimen test given, results unknown or not obtained
9 Unknown if tested

Source: Medical records, police report

Remarks:

A "result" of a test for other drugs must be from a specimen test (e.g., blood, urine, nasal swab, saliva). A toxicology report would indicate the presence of a particular drug or drugs.

In PCDS the "presence" alone of other drugs is sufficient for coding purposes.

Code "0" (No specimen test given) is used when there is no indications of a specimen test being performed to determine other drug presence.

Code "1" [Drug not found in specimen] is used when a specimen test indicates that a drug, other than alcohol was present in the specimen.

Code "2" [Drug found in specimen (specify: _____] is used when the pedestrian's specimen was tested for other drugs, and the result was negative.

Code "3" (Specimen test given, results unknown or not obtained) is used when the pedestrian's specimen is tested for other drug presence, and the results are unknown or inconclusive.

Code "9" (Unknown if tested) is used if it is not known whether any pedestrian's specimen was tested for other drugs.

PED25

Variable Name: Injury Severity (Police Rating)

Element Values:

0 O - No injury
1 C - Possible injury
2 B - Nonincapacitating injury
3 A - Incapacitating injury
4 K - Killed
5 U - Injury, severity unknown
6 Died prior to accident
9 Unknown

Source: Police report.

Remarks:

Code the police reported injury severity for this pedestrian. It is possible that the police could have updated the PAR between the time it was stratified and when it was picked up. For example, a person might have been listed originally with incapacitating injuries (code "3"). Later the person dies (code "4"), and the PAR is changed accordingly. Therefore, use the latest information on the PAR at the time it was obtained from the police agency.

If the police report contains a detailed description of the injuries but does not translate the injuries into the KABCO codes, use the police method for doing so. For example, injuries which are considered to be of an incapacitating nature are classified as "A" (code "3"), nonincapacitating-evident injuries are classified as "B" (code "2"), and possible injuries are "C" (code "1"). Property damage only is classified as "O" (code "0").

Code "5" (U - Injury, severity unknown) is used when the police report indicates a "U" or in any other way communicates the idea that the person was injured but their severity is unknown.

Code "6" (Died prior to accident) is only used if the police explicitly so indicate.

As a general rule, if the PAR is "blank" where the injury severity is assessed and the person was at the scene during the police investigation, then code "0" (O - No injury). If the PAR is "blank" and the person was not present during the police investigation, then code "9" (Unknown).

Not all states use the KABCOU scheme. Listed below, by state, are alternative schemes; a mapping to the NASS scheme is provided.

PED25
(2)

Variable Name: Injury Severity (Police Rating) [cont'd.]

State	PAR Code/Definition	NASS Scheme/Code
Florida	1 = No Injury	0 - 0
	2 = Possible Injury	C - 1
	3 = Nonincapacitating Injury	B - 2
	4 = Incapacitating Injury	A - 3
	5 = Fatal (IN 90 Days) Injury	K - 4
	6 = Non-Traffic Fatality	U - 9
	= No set unknown code	- 9

New York	Location of Injury {14}	Type of Injury {15}	Victim Status {16}	
	1-12 Any entry	1-13 Any entry	1 Apparent death	K - 4
	1-12 Any entry	1-13 Any entry	2 Unconscious, 3 Semi-conscious, 4 Incoherent	A - 3
	1-12 Any entry	1 Amputation, 2 Concussion, 3 Internal, 5 Severe Bleeding, 7 Moderate Burn, 8 Severe Burn, 9 Fracture - Dislocation	5 Shock 6 Conscious	A - 3
	3 Eye	4 Minor Bleeding, 6 Minor Burn, 12 Complaint of Pain	5 Shock 6 Conscious	A - 3
	All but eye 1,2, 4-12	4 Minor Bleeding, 6 Minor Burn	5 Shock 6 Conscious	B - 2
	1-12 Any entry	10 Contusions - Bruise, 11 Abrasion	5 Shock 6 Conscious	B - 2
	All but eye 1,2, 4-12	12 Complaint of Pain	5 Shock 6 Conscious	C - 1
	-	13 None Visible	6 Conscious	0 - 0
	X	X	X	- 9

PED25
(3)

Variable Name: Injury Severity (Police Rating) [cont'd.]

Washington	1 = No injury	0 - 0
	2 = Dead at scene	K - 4
	3 = Dead on arrival	K - 4
	4 = Died in hospital	K - 4
	5 = Disabling injury	A - 3
	6 = Nondisabling injury	B - 2
	7 = Possible injury	C - 1
	Blank = Unknown	- 9

Variable Name: Treatment - Mortality

Element Values:

0 No treatment
1 Fatal
2 Fatal - ruled disease (specify):

Nonfatal

3 Hospitalized
4 Transported and released
5 Treatment at scene - not transported
6 Treatment later
8 Treatment - other (specify):
9 Unknown

Source: Researcher determined - inputs include interviewee, police report, and medical records.

Remarks:

Official sources (if they exist) take precedence over interview data.

Code "0" (No treatment) includes persons transported to a hospital but who refuse treatment. As long as there was transportation directly from the scene, to a treatment facility, and all treatment was refused.

Code "1" (Fatal) is used when death occurs within 30 days of the accident. Death must have occurred as a consequence of injuries sustained in this accident. Interview information alone should not be sufficient to select this code.

Code "2" [Fatal - ruled disease (specify):_____] is used in two situations. The first is when the effects of a disease can be deemed as a cause of the accident. Cause means that the on-set of the disease occurred prior to the first harmful event. When determining the on-set (relative to the first harmful event), the researcher can use any information source available. The researcher makes his/her determination after weighing all the evidence. (Note: the use of all available information sources is restricted to the determination of when the on-set occurred.)

Code "2" (Fatal - ruled disease) is additionally used when a medical examiner (or other official vested by the state to verify the cause of death) or official medical report verifies that the cause of death resulted from either (1) a diseased condition, or (2) not from accident related injuries.

Variable Name: Treatment - Mortality (Continued)

Code "3" (Hospitalized) is used when hospitalization occurs as a result of injury (need not be taken directly to a hospital). See Hospital Stay (PED28) for hospitalization criteria. Also use this code if a person is treated and released then subsequently hospitalized as a result of injuries sustained in the accident.

Code "4" (Transported an released) is used when the person went directly from the accident scene to a treatment facility (hospital, clinic, doctor's office, etc.), and the person is examined for injuries at the facility. The person need no have been injured. The means of transportation is not a consideration.

Code "5" (Treatment at scene - not transported) includes treatment at scene such as: first aid, self treatment, EMT treatment, doctor treatment, etc. - and the person is not transported or does not go to a treatment facility (e.g., doctor, clinic, hospital, etc.) as a result of the injuries sustained in the accident.

Code "6" (Treatment later) includes only professional treatment (e.g., doctor, clinic, hospital, etc.) where the person (1) did not go directly from the scene to treatment, and (2) was treated and released. If a person is treated at the scene, is not transported from the scene, and subsequently receives later treatment (without being hospitalized), then use this code.

Code "8" (Treatment - other) includes nonprofessional treatment such as first aid, self treatment, etc., not at the scene of the accident.

If a person survives the injuries and receives treatment at a hospital, but is not admitted for hospitalization, that person's treatment is to be coded either "4" (Transported and released) or "6" (Treatment later), depending upon whether the person went directly or indirectly to the hospital. It does not matter if the person is treated for one hour or twelve, only that the person is released following treatment. Nor does it matter if the treatment begins prior to midnight and spans into the following day.

PED27

Variable Name: Type of Medical Facility (for Initial Treatment)

Element Values:

0 Not treated at a medical facility
1 Trauma center
2 Hospital
3 Medical clinic
4 Physician's office
5 Treatment later at medical facility
8 Other (specify):
9 Unknown

Source: Researcher determined--inputs include police report, interviewee, official records, and the American College of Surgeons classification criteria.

Remarks:

The treatment of injuries by a physician immediately (i.e., within one hour) following an accident is of utmost importance in serious injury accidents. In order to assess the quality of immediate care available to the victims in CDS accidents, the following criteria are used to categorize the various treatment facilities. Teams must develop a listing of treatment facilities serving their PSU and categorize each into this variable's coding scheme. Teams must communicate their list to their respective Zone Center.

Code "0" (Not treated at a medical facility) is used when the person was not injured or receives nonprofessional treatment such as first-aid, self-treatment, etc. In addition, use this code for persons who "died" at the scene or "died in-route" to a medical facility. Treatment at the scene or in-route to a medical facility by emergency medical personnel is not considered initial treatment for the purposes of this variable. This is true even if the facility has radio communications with their EMTs. If a person arrives at a medical facility and subsequently dies or is declared dead, then use one of the following codes. For example, an pedestrian arrives with no vital signs, CPR in progress, and a "flat" EKG and is declared "dead on arrival" on the ER report, code the facilities classification from one of the codes below.

Code "1" (Trauma center) is used when the pedestrian was initially treated at a Level I or Level II Trauma Center as defined by the American College of Surgeon's Committee on Trauma report entitled: "Hospital and pre-hospital resources for optimal care of the injured patient", American College of Surgeons Bulletin, Vol. 71, No. 10, October 1986, pp. 4-12.

The fact that a medical facility calls itself a "Trauma Center" or something of the same nature does not mean that it satisfies the criteria for code "1" (Trauma center). The facility must meet the criteria as noted in the preceding paragraph. Teams should contact their "hospitals" and ask each what they

Variable Name: Type of Medical Facility (for Initial Treatment) [cont'd.]

consider themselves to be (according to criteria referenced above). Teams should also be alert for communication releases (i.e., newspapers, radio, TV, etc.) which concern the trauma capability status of their area emergency rooms.

Code "2" (Hospital) is used for all "hospitals" which do not fall into the definition of a Level I or Level II Trauma Center as defined.

Code "3" (Medical clinic) is used for treatment facilities which provide outpatient medical care with related in-house laboratory facilities (e.g., x ray). These are usually a group practice in which several physicians work cooperatively. This code also includes school clinics, work place clinics, or similar facilities if they are staffed by a physician while open. If a doctor is not normally present at a clinic while it is open, then the appropriate code is "8" (Other).

Code "4" (Physician's office) is used when the person is initially treated in an office of a professional health care provider which does not qualify for codes "1" (Trauma center), "2" (Hospital), or "3" (Medical clinic).

Code "5" (Treatment later at medical facility) is used when a person's initial treatment by a health care professional (i.e., doctor) took place more than one hour after the accident. In addition, use this code when PED26, Treatment-Mortality, is coded "6" (Treatment later).

Code "8" (Other (specify): _____) is used when a health care provider's facility is used for the initial treatment, and the facility does not qualify for one of the codes "1" (Trauma center), "2" (Hospital), "3" (Medical clinic), or "4" (Physician's office) above.

Code "9" (Unknown) is used when it is unknown what type of initial treatment facility was used or when it is unknown if treatment of any kind was obtained.

Variable Name: Hospital Stay

Element Values:

Range: 00-61, 99

00 Not Hospitalized
01-60 Code the number of days (up through 60) that the pedestrian stayed in the hospital
61 61 days or more
99 Unknown

Source: Researcher determined - inputs include interviewee or medical reports.

Remarks:

Official sources (if they exist) take precedence over interview data.

Code "00" (Not hospitalized) is used when the person was not injured or injured but not admitted to the facility (i.e., admission to the facility's emergency room is not "admission" to the facility for the purpose of the hospitalization question). In addition, use this code if fatal at scene, pronounced dead on arrival, or survival does not extend beyond the emergency room.

The basis for the number of days coded is an overnight criterion. Every time a persons remains past midnight subsequent to admission, it is one day. However there are two exceptions. One exception occurs when a person dies on the same day as the admission. In this situation, use code "01". The other exception occurs when a person is admitted in the early morning hours (between midnight and 7:00 a.m.), usually for observation, and is subsequently released later in the same day (usually late morning or early afternoon). Code "01" is used because the person was hospitalized [PED27, Treatment - Mortality, equals "3" (Hospitalized)].

If your information indicates that the person died while in the critical care unit [e.g., intensive (i.e., ICU), coronary (i.e., CCU), etc.], then at least code "01" is used even if the person expires on the same day. In other words, a person is considered admitted if they are alive when they are transferred to a critical care unit. On the other hand, in the event that the person survives the emergency room but subsequently dies during surgery, then code "00" (Not hospitalized) is used, because the person who goes directly from the emergency room to an operating room is not considered to have been admitted.

If the person is admitted, lives four days in the hospital, and subsequently expires, then use code "04".

This variable reports the number of days this pedestrian is hospitalized at a primary care facility. Primary care facilities include medical facilities that receive patients via air transfer (e.g.,"lifeline" and "medivac"). However, the number of days spent at a secondary care facilities (i.e., rehabilitation or convalescent units, centers, facilities; or nursing homes) are not included in this variable.

Variable Name: Working Days Lost

Element Values:

Range: 00-62, 97, 99

00	No working days lost
01-60	Code the number of days (up through 60) that the pedestrian lost from work due to the accident
61	61 days or more
62	Fatally injured
97	Not working prior to accident
99	Unknown

Source: Primary source is the interviewee; a secondary source is the person's employer.

Remarks:

Report the actual number of "work" days lost due to the accident by an employed person or a full-time college student. Children, adolescents, retirees, or unemployed persons are not included [code "97" (Not working prior to accident)].

Employed is defined to mean that the person was scheduled to work at least four hours on each of the days lost. Each day is counted as a full day so long as the person was scheduled to work at least four hours on the day lost. Do not accumulate the hours and convert to equivalent full-time days; however, indicate on the form if the person works less than full-time but greater than four hours per day by annotating "part-time" or "PT".

If during the interview a reasonable projection of future days lost can be made, then add those days to those already known to have been lost. If a reasonable projection cannot be made, then code "99" (Unknown).

The days lost need not be due to injury.

Days lost include Saturdays, Sundays, and afternoon and evening shifts if so scheduled. Do not count double shifts or days at time and one-half pay, etc., as more than one day.

Code "62" (Fatally injured) is used if a person is "fatal - ruled disease", fatal at scene, pronounced dead on arrival, or survival does not extend beyond the emergency room. In addition, if a person expires within thirty days following the accident, use this code regardless of whether or not the person missed any work days.

Code "97" (Not working prior to accident) is used when a person is not employed, not a full-time college student, or works less than four hours per day. This code includes all persons (except fatals) who do not qualify to lose working days.

Variable Name: Working Days Lost (Continued)

If the reported work days lost includes a fraction, round one-half (½) day or greater up to a whole day. Less than one-half day is excluded (rounded down).

If someone loses their job as a result of the accident, then count only work days lost between the accident and the date of termination, inclusive.

Do not include days lost by persons who were not directly involved in the accident but who lost days because of it (e.g., husband who was not involved in the accident but stayed home to take care of wife who was injured and required assistance).

If an involved person changes their work schedule as a result of an accident (e.g., to take care of someone injured in the accident), then the work time, which was given up as a result of the accident, shall not be considered as lost.

If no interview is obtained, assume that persons over 65 or under 17 are not employed full time; for those persons code "97" (Not working prior to accident) is used unless the person is fatally injured [codes "1" (Fatal) or "2" (Fatal - ruled disease) for PED27, Treatment - Mortality].

PED30

Variable Name: Glasgow Coma Scale (GCS) Score
(at Medical Facility)

Element Values:

00 Not injured
01 Injured - not treated at medical facility
02 No GCS Score at medical facility
03-15 Code the actual value of the initial GCS Score recorded at medical facility
97 Injured, details unknown
99 Unknown if injured

Source: Zone Center determined from official medical records.

Remarks:

Code "00" (Not injured) is used when the pedestrian sustained no injuries as a result of the accident. Use this code whenever PED37, Number of Recorded Injuries for This Pedestrian, equals "00" (No recorded injuries).

Code "01" (Injured - not treated at medical facility) is used when the person was injured and received only nonprofessional treatment such as first-aid, self-treatment, etc., or was treated at the scene by emergency medical personnel. In addition, use this code for persons who "died" at the scene or "died in-route" to a medical facility. This is true even if the medical facility has radio communications with the emergency medical personnel.

Code "02" (No GCS Score at medical facility) is used when the pedestrian was injured (i.e., PED37, Number of Recorded Injuries for This Pedestrian, equals "01" through "96") and received professional medical treatment but no Glasgow Coma Scale Score was assessed or recorded at a medical facility. Use this code if the only GCS Score obtained was reported on an emergency medical report. If GCS Scores are obtained by both emergency medical personnel and at a medical facility, then report the initial score obtained (i.e., codes "03" through "15") at the medical facility.

If a person was treated at a medical facility and their medical records are pending, then use this code.

Codes "03" through "15" report the actual value of the initial GCS score obtained at a medical facility [i.e., PED27, Type of Medical Facility (for Initial Treatment), equals "1" through "8"]. The Glasgow Coma Scale assesses three neurologic functions: eye opening, motor response, and verbal response. The GCS value can often be found in medical records by looking for the abbreviation "GCS". The number following the abbreviation is the score unless the value is less than "03" or greater than "15". It is not uncommon to find the GCS Score accompanied by information about eye pupil size and motor strength.

Variable Name: Glasgow Coma Scale (GCS) Score [Cont'd.]

If more than one Glasgow Coma Scale (GCS) Score is recorded in the document without reference to initial GCS Score, then select the GCS Score to be coded in the following order:

(a) code the GCS Score from the medical record with the earliest time to hospital treatment (i.e., code ER record over discharge summary)
(b) code the GCS Score that appears first in a medical record other than the ER record
© if two or more GCS Scores are recorded in the same record without reference to time, code the lowest GCS Score.

Code "15" is encoded when the pedestrian's medical record does not specifically indicate the GCS Score but does indicate one or more of the following pieces of information:

- AxOx3 (alert and oriented times three)
- neurologically intact, normal, etc., or
- CN II-XII okay, normal, intact, etc.

Code "97" (Injured, details unknown) is used when the pedestrian is injured but the details are unknown. Use this code whenever PED37, Number of Recorded Injuries for This Pedestrian, equals "97" (Injured, details unknown).

Code "99" (Unknown if injured) is used when it is unknown if the pedestrian was injured. Use this code whenever PED37, Number of Recorded Injuries for This Pedestrian, equals "99" (Unknown if injured).

PED31

Variable Name: Was the Pedestrian Given Blood?

Element Values:

1 No - blood not given
2 Yes - blood given (specify units):
9 Unknown if blood given

Source: Zone Center determined from official medical records or Emergency Medical Service (EMS) reports.

Remarks:

In general, blood consists of red blood cells (erythrocytes), white blood cells (leukocytes) and platelets (thrombocytes) suspended in plasma. In a transfusion, blood can be given in four separate forms: whole blood, packed red blood cells, plasma, or platelets; or in a combination of these forms.

Whole blood is blood from which none of the elements have been removed.

Packed red blood cells are whole blood from which plasma has been removed.

Plasma is the fluid (pale yellow liquid) of the blood in which the particulate components are suspended. Plasma is often given to burn patients.

Platelets are known for their role in blood coagulation. Platelets are often given when blood clotting is desired.

Code "1" (No - blood not given) is used whenever PED30, Glasgow Coma Scale (GCS) Score equals "00" (Not injured) or "01" (Injured - not treated at medical facility) or it is known that the person did not receive any professional treatment. In addition, use this code when:

- it is known that the pedestrian was injured and not given blood; or
- an pedestrian is transported and released and not subsequently hospitalized [i.e., PED26, Treatment - Mortality, equals "4" (Transported and released) or "6" (Treatment later)], independent of whether the pedestrian's records are acquired.

Code "2" (Yes - blood given) is used when this pedestrian was given "blood" in any of the four forms, or combinations, discussed above for injuries sustained as a result of their motor vehicle traffic accident. Excluded are transfusions which result from noninjury. For example, if a spontaneous abortion results to a mother who was not injured, but who was given a transfusion, then do not consider this pedestrian to have had blood given. Whenever an pedestrian is "taken to surgery" researchers should be alert to the possibility that a blood transfusion occurred. Whenever a transfusion occurs, write down the number of units of blood given. Do not specify the type of blood transfusion.

PED31
(2)

Variable Name: Was the Pedestrian Given Blood?

Code "9" (Unknown if blood given) is used whenever PED37, Number of Recorded Injuries for This Pedestrian, equals "97" (Injured, details unknown) or "99" (Unknown if injured). In addition, use this code when the pedestrian is:

- injured and treated at a medical facility [i.e., PED30, Glasgow Coma Scale (GCS) Score equals "02" through "15"] but it cannot be determined if blood was given.
- hospitalized and the pedestrian's records are inconclusive regarding whether blood was given;
- taken to surgery, regardless of hospitalization (e.g., died prior to being hospitalized), and the pedestrian's records are inconclusive regarding whether blood was given; or
- hospitalized or taken to surgery and the medical records are pending.

PED32

Variable Name: Arterial Blood Gases (ABG) - HCO_3

Element Values:

Range: 00-50, 96, 97, 99
00 Not injured
01 Injured, ABGs not measured or reported
02-50 Code the actual value of the HCO_3
96 ABGs reported, HCO_3 unknown
97 Injured, details unknown
99 Unknown if injured

Source: Zone Center determined from official medical records.

Remarks:

The table below presents the normal measures of arterial blood gases followed by the definitions of these measures and other keywords.

Measure	Normal	Respiratory acidosis	Respiratory alkalosis	Metabolic alkalosis	Metabolic alkalosis
pH	**7.35 to 7.45**	**Normal or decreased**	**Increased**	**Decreased**	**Increased**
PO_2	**90 to 95 mm Hg**	**Decreased**	**Altered**	**Normal or Increased**	**Normal or decreased**
PCO_2	**34 to 46 mm Hg**	**Increased**	**Decreased**	**Decreased**	**Increased**
HCO_3	**24 to 26 mEq/L**	**Increased**	**Decreased**	**Decreased**	**Increased**
RR	**10/min to 20/min**	**Irregular**	**Altered**	**Increased**	**Decreased**

Arterial Blood Gases (ABGs)

Definitions of Measures

pH -- the symbol relating the hydrogen ion (H^+) concentration or activity of a solution to that of a given standard solution. Numerically the pH is approximately equal to the negative logarithm of H^+ concentration expressed in molarity. pH 7 is neutral; above it alkalinity increases and below it acidity increases.

Variable Name: Arterial Blood Gases (ABGs) - HCO_3 (Cont'd.)

PO_2, pO_2, Po_2 -- oxygen partial pressure (tension).

PCO_2, pCO_2, Pco_2 -- carbondioxide partial pressure or tension.

HCO_3 -- bicarbonate radical.

RR -- Respiratory rate.

Alphabetical Definitions of Keywords

acidosis (as"l-do/sis) -- a pathologic condition resulting from accumulation of acid or depletion of the alkaline reserve (bicarbonate content) in the blood and body tissues, and characterized by an increase in hydrogen ion concentration (decrease in pH). metabolic a. -- a disturbance in which the acid-base status of the body shifts toward the acid side because of loss of base or retention of noncarbonic, or fixed (nonvolatile), acids; called also nonrespiratory a. respiratory a. -- a state due to excess retention of carbon dioxide in the body; called also hypercapnic a.

alkali (al/kah-li) -- any of a class of compounds which form soluble soaps with fatty acids ... and form soluble carbonates.

alkalosis (al"kah-lo/sis) -- a pathologic condition resulting from accumulation of base, or from loss of acid without comparable loss of base in the body fluids, and characterized by decrease in hydrogen ion concentration (increase in pH). metabolic a. -- a disturbance in which the acid-base status of the body shifts toward the alkaline side because of retention of base or loss of noncarbonic, or fixed (nonvolatile), acids. respiratory a. -- a state due to excess loss of carbon dioxide from the body.

anion (an/l-on) -- an ion carrying a negative charge owing to a surplus of electrons.

bicarbonate (bi-kar/bo-na-t) -- any salt containing the HCO_3- anion. blood b. -- the bicarbonate of the blood, an index of the alkali reserve.

ion (l/on) -- an atom or radical having a charge of positive (cation) or negative (anion) electricity owing to the loss (positive) or gain (negative) of one or more electrons.

mEq/L -- milliequivalent per liter: a milliequivalent is the number of grams of a solute contained in one milliliter of a normal solution; therefore, the normal range for the bicarbonate of blood is 0.024 - 0.026 grams per milliliter. Thus, for a thousand milliliters, the normal values become 24 to 26 grams.

PED32
(3)
Variable Name: Arterial Blood Gases (ABGs) - HCO_3 (Cont'd.)

Medical records often provide ABG information in a condensed format. For example, a medical record presented the ABG information as follows.

ABG: 7.56 / 25 / 171 / 100 %

This equates to: pH = 7.56; PCO_2 = 25; PO_2 = 171 -- at 100 percent saturation

In this example, the measure desired is not reported; use code "96" (ABGs reported, HCO_3 unknown). The measure of interest is the HCO_3 (also referred to as the bicarbonate). Researchers must look carefully at their reported ABGs to insure that the desire measure is being obtained. The closeness in range between the normal values of HCO_3 and PCO_2, makes mistaking them easy. In general, when ABGs are reported as a set of three values, consider them to be the pH, PO_2, and PCO_2.

Code "00" (Not injured) is used when the pedestrian sustained no injuries as a result of the accident. Use this code whenever PED37, Number of Recorded Injuries for This Pedestrian, equals "00" (No recorded injuries).

Code "01" (Injured, ABGs not measured or reported) is used when:

- the pedestrian is injured (i.e., PED37, Number of Recorded Injuries for This Pedestrian, equals "01"-"96") and
- (1) was not treated at a medical facility [i.e., PED30, Glasgow Coma Scale Score, equals "01" (Injured - not treated at medical facility)], or
- (2) was treated at a medical facility but no official medical records were obtained, or
- (3) no ABG measures are reported in any of the pedestrian's obtained official medical records.

Codes "02" through "50" are used to report the measured HCO_3 (bicarbonate) value obtained for this pedestrian. If multiple ABG HCO_3 values are reported, code the lowest value.

Code "96" (ABGs reported, HCO_3 unknown) is used when ABG value(s) are reported in this pedestrian's medical records but the HCO_3 measure is unknown.

Code "97" (Injured, details unknown) is used when the pedestrian is injured but the details are unknown. Use this code whenever PED37, Number of Recorded Injuries for This Pedestrian, equals "97" (Injured, details unknown).

Code "99" (Unknown if injured) is used when it is unknown if the pedestrian was injured. Use this code whenever PED37, Number of Recorded Injuries for This Pedestrian, equals "99" (Unknown if injured).

PED33

Variable Name: Time to Death

Element Values:

Range: 00 through 24, 31 through 60, 96, 99

00	Not fatal
96	Fatal - ruled disease
99	Unknown

Source: Zone Center determined from police report, hospital/medical records, autopsy report, or other official records for actual time of death for fatally injured pedestrians.

Remarks:

Code "00" (Not fatal) identifies (from any source) all pedestrians who are not fatally injured (i.e., death does not occur, or death does not occur within thirty days of the accident). Pedestrians of hit-and-run vehicles are assumed not killed.

Record the time-of-death of all pedestrians who die within thirty days of the accident unless their death meets the criteria of code "96" (Fatal - ruled disease).

Code "01" identifies pedestrians who die within (less than) one and a half hours of the time of the accident.

Codes"02" through "24" identify pedestrians who die in the period of time between one and a half hours from the time of the accident to twenty-four hours after the accident. Code the time between accident and death to the nearest hour except for code "24" which is used only for the period between twenty-three and a half hours after the accident and twenty-four hours after the accident.

Codes"31" through "60" identify pedestrians who die in the period of time between greater than twenty-four hours after the accident and thirty days after the accident (24 hours and one minute is coded as "31" while 24 hours is coded as "24"). (NOTE: One day = "31", two days = "32", ..., twenty-nine days = "59", and thirty days = "60".) The number of days is rounded off to the nearest whole day except for code "60" which is used for the period between twenty- nine days and twelve hours and thirty days after the accident.

Code "96" (Fatal - ruled disease) is used in two situations. The first is when the effects of a disease can be deemed as a cause of the accident. Cause means that the on-set of the disease occurred prior to the first harmful event. When determining the time of on-set (relative to the first harmful event), the researcher can use any information source available. The researcher makes his/her determination after weighing all the evidence. (NOTE: The use of all available information sources is restricted to the determination of when the on-set occurred.)

PED33
(2)

Variable Name: Time to Death (cont'd.)

Code "96" (Fatal - ruled disease) is used additionally when a medical examiner (or other official vested by the state to verify the cause of death) or an official medical report verifies that the death resulted from either (1) a diseased condition, or (2) not from accident-related injuries.

Code "99" (Unknown) is used when the length of time between the time of the accident and the time the person was pronounced dead by a qualifying person (coroner, state medical examiner, etc.) is unknown. Do not code "01" unless the length of time is known to be less than one and one-half hours. Autopsy reports do not always specify time to death; thus, emergency room records must always be sought even when it is known that an autopsy report can be obtained.

The exact time period which applies to each code is shown in the table below.

Code	Time period in hours
01	0 - < 1 ½
02	1 ½ - < 2 ½
03	2 ½ - < 3 ½
04	3 ½ - < 4 ½
05	4 ½ - < 5 ½
06	5 ½ - < 6 ½
07	6 ½ - < 7 ½
08	7 ½ - < 8 ½

Code	Time period in days
31	> 1 - < 1 ½
32	1 ½ - < 2 ½
33	2 ½ - < 3 ½
34	3 ½ - < 4 ½
35	4 ½ - < 5 ½
36	5 ½ - < 6 ½
37	6 ½ - < 7 ½
38	7 ½ - < 8 ½

PED34
PED35
PED36

Variable Name: 1st Medically Reported Cause of Death
2nd Medically Reported Cause of Death
3rd Medically Reported Cause of Death

Element Values:

00 Not fatal or no additional causes
Code the Pedestrian Injury from line number(s) for the medically reported injury(s) which reportedly contributed to this pedestrian's death
96 Mode of death given but specific injuries are not linked to cause of death. (specify):
97 Other result (includes fatal ruled disease) (specify):
99 Unknown

Source: Zone Center determined from official records

Remarks:

This variable records the injury(s) which was/were determined by the medical professional completing the report, or by trained Zone Center injury coders using official medical records, to be the cause of death. A "cause of death" statement may appear at the beginning or end of an official medical record or it may also appear in a "diagnosis" section or body of a medical record. Like the coding rule for injuries, probable or possible causes of death are not coded. If the pedestrian was not fatally injured, then these variables must all be coded "00" (Not fatal or no additional causes). If the pedestrian was killed and no official medical data was obtained, or the data obtained inadequately describes injuries which could have an affect on the pedestrian's death, then code PED34 as "99" (Unknown) and PED35 and PED36 as "00" (Not fatal or no additional causes). If the pedestrian was killed and acquired medical data do not provide a specific official medically reported cause of death, then the Zone Center injury coder will determine if injury data are sufficient to code PED34, and/or PED35, and/or PED36 with an appropriate coded injury row(s).

Code the row number(s) of the injury(s), from the Pedestrian Injury Form, which caused the death. If only one injury is reported as, or determined to be, the cause of death, code that injury row's number for PED34 and code PED35 and PED36 as "00" (Not fatal or no additional causes). The same logic applies if two injuries are reported.

Code up to three specific injuries detailed in a medically reported "cause of death" statement.

If the "cause of death" statement consist of nonspecific indefinite injuries (e.g., multiple injuries of head, trunk, etc., blunt force injuries of the chest etc., massive injury, and multiple traumatic injuries) and injuries are detailed in the official medical records such that the cause of death can be logically determined, then choose up to three specific injuries using the following guidelines:

PED34
PED35
PED36
(2)

Variable Name: 1st Medically Reported Cause of Death
2nd Medically Reported Cause of Death
3rd Medically Reported Cause of Death

- Choose the specific injuries which had the greatest affect on the pedestrian's death.

- Proceed by first considering specific AIS-6 injuries, followed by AIS-5, then AIS-4, then AIS-3.

Note: AIS levels do not automatically identify an injury as the selected cause of death. For example, if the pedestrian has an AIS-6 burn injury but the medical says that the pedestrian was dead prior to the pedestrian's vehicle catching on fire, then burn was not the cause of death.

- Within each AIS level, determine the contribution the specific injury had on the pedestrian's chance of survival.

Code "96" (Mode of death given but specific injuries are not linked to cause of death) is used when it is determined that the pedestrian qualifies for code "1" (Fatal) in variable PED26, Treatment - Mortality, but specific injuries are not medically reported for the cause of death. The official medical report may give a mode of death such as (1) acute pulmonary embolism, (2) respiratory failure, (3) cardiac arrest, or (4) asphyxiation. This code is also used when the cause of death is reported from complications or consequences of injuries.

Code "97" (Other result) is used when it is determined that the pedestrian qualifies for code "2" (Fatal-ruled disease) in variable PED26, Treatment - Mortality.

If no cause of death is directly from an injury and there is no officially reported mode of death, then encode PED34 as "97" (Other result) and PED35 and PED36 as "00" (Not fatal or no additional causes).

PED37

Variable Name: Number of Recorded Injuries for This Pedestrian

Element Values:

Range: 00-96, 97, 99

00 No recorded injuries
Code the actual number of injuries recorded for this pedestrian
97 Injured, details unknown
99 Unknown if injured

Source: Zone Center determined--inputs include official medical records and interviewee data from the PSU.

Remarks:

The Zone Center will record this pedestrian's total number of coded injury rows that were recorded on the Pedestrian Injury Form.

Code "00" (No recorded injuries) is used when the pedestrian is uninjured.

Code "97" (Injured, details unknown) is used when the pedestrian is injured but the details are unknown. This means that the source(s) of injury information does not have sufficient injury detail to allow for the coding of injury data on the Pedestrian Injury Form.

Code "99" (Unknown if injured) is used when it is unknown if the pedestrian was injured.

If "00", "97", or "99" is coded, then the Pedestrian Injury Form is not used.

INJURY DATA OVERVIEW

The Pedestrian Injury Form is a complete coded chronological sequence of all injuries sustained by the pedestrian contacted by the case vehicle. The injuries are reported using a series of numeric codes to form a description of the injury, its severity, and associated information. The associated information includes the source of the injury data, the source of the injury, the striking profile of the injury source, the type of residual damage to the source, and the depth of damage to the source, the confidence the Zone Center coder has in assigning that particular injury source, and the directness of the injury as a result of a remotely applied force. These data are grouped by columns and titles as seen on the form. The variable numbers are consecutive, and there is no theoretical upper limit to the number of injuries that can be coded.

Historically, injury information has provided a measure of the severity of the accident from the pedestrian or occupant's frame of reference. Beginning in 1993 the NASS CDS adopted the Association for the Advancement of Automotive Medicine's (AAAM) Abbreviated Injury Scale 1990 Revision (AIS 90), with a minor modification to include the injury aspect. The 1993 NASS CDS version of AIS 90 describes an injury and its severity based on an 8 digit numeric coding system. It includes the Body Region, Type of Anatomic Structure, Specific Anatomic Structure, Level of Injury, AIS Severity, and Aspect. This provides a complete coded description of the injury in an analyzable format that is widely accepted and can be compared against other injury assessment studies.

In past accident research, injury information by itself was often used as a measurement scale but still was incomplete in that the mechanism causing the injury was unknown. To rectify this situation, the early NASS included variables to report the object which caused the injury and whether or not the injury was caused by direct contact with the object. Since the codes for these variables are based at times on less than concrete evidence, it was necessary to evaluate the reliability of the data by adding a variable for confidence level.

The availability of reliable injury information has long been a concern. In many of the prior accident research studies, injury data were accepted only from a medically qualified source such as a hospital or a physician. Problems in acquiring the injury information from official medical sources have led to allowing the researcher to obtain injury descriptions from the occupants, pedestrians, or selected surrogates (e.g., Interviewee injury information). In allowing interviewee injury information, it was necessary to segregate the data by source since interviewee information are known to be less than totally reliable at times. The variable "Source of Injury Data" answers this need.

The addition of these associated variables to the coded injuries (AIS 90) has created a database which can be analyzed for direct evaluation of some of the Federal Motor Vehicle Safety Standards (FMVSS). These standards came into being because of concerns about the injuries sustained in accidents in the early 1960's. Areas such as driver education and training and driver licensing criteria were found to be an inefficient means of reducing injuries to accident victims on the highways. This left occupant protection and injury reduction as

the areas to focus upon. Attention was focused on the vehicle. Hard, unforgiving interior surfaces were removed; sharp fixed exterior objects such as hood ornaments were removed; and exterior surfaces became more rounded or softened. Vehicles were designed to absorb the impact forces rather than transfer the force to the occupants or pedestrians. Many other improvements in overall vehicle design have taken place to satisfy the requirements specified by the FMVSS. These improvements were implemented by the automobile manufacturers and are monitored and tested by NHTSA. Much of the monitoring now comes from analyzing data provided by real world experience. All the standards can be evaluated to some extent using data from these variables.

Analysts may use these data to identify the injury severity levels of accidents, search for particular injury sources, determine direct versus indirect injury mechanism ratios, relate percentage of injuries by Body Region, Type of Anatomic Structure, Specific Anatomic Structure, Level of Injury, AIS severity level, and Aspect, and compare many other data combinations. These relationships can be determined by using the data from these variables. Comparisons with other variable groups can also be used to explore additional relationships.

For the Zone Center, these variables, for the most part, represent a distillation of several data sources. The injuries are coded from information found on the medical records, supplemented by the interviewee descriptions. The Component Contacted will be obtained from the inspection of the vehicle. Injury Source Confidence Level and Direct/Indirect Injury are based on the Zone Center's assessment of all available information. The Zone Center's determination of injury source is derived primarily from vehicle data, pedestrian's kinematics, interview data and official medical records.

NOTE: For the NASS Pedestrian Crash Data Study the Zone Center will sequence the injuries in chronological order, reflecting the kinematic pattern of the pedestrian. For example: when a pedestrian contacts the front bumper of the vehicle with the left (lateral) knee; wraps to the hood, causing a contusion to the left hip area and a fracture of the facial bones in the zygomatic region; then slides into the windshield lacerating the scalp on the superior portion, the Pedestrian Injury Form should reflect each injury in the order incurred.

INJURY DATA OVERVIEW

Official Injury Data Documentation on Diagrams
Specific Medical Record Data Used in Coding AIS 90

The injury data from official medical records should be indicated on the appropriate diagram. There are three Official Injury Data diagrams. The first, for soft tissue injuries, is on Page 2 of the Pedestrian Injury Form. The second, on Page 3, is for skeletal injuries; the third, on the reverse of Page 3, is for injuries to internal organs. Injuries should be clearly and precisely located on the diagrams, and the medical record classification of the injury and its extent should be completely annotated. All data used to code the AIS 90 version of injuries [e.g., size of lacerations, the first observed level of consciousness by a medical authority, loss of consciousness, size of hematoma or hemothorax (in "cc"s of blood), etc.] should be written on the diagram.

INJURY DATA OVERVIEW

NASS CDS Injury Information Coding

Beginning in data collection year 1993 the Zone Centers coded all NASS CDS injury information. In support of this effort, the selected NASS Primary Sampling Units (PSU) participating in PCDS are required to follow the protocol outlined below:

- Review all sources of crash information (i.e., police reports, newspapers, medical records, interview information, etc.) that will support injury coding and extract and code useful data on demographics and crash circumstances, including pedestrian information, alcohol and injury consequences;

- Obtain and complete the interview injury information on the Interview Form manikin;

- Obtain and submit any official medical records as initial or update submissions (see procedure on next page);

- Continuously track the acquisition of medical records and report any significant delays to the Zone Center;

- Immediately report any changes in hospital cooperation which affect timeliness of submission and/or quality of data to the Zone Center and COTR.

- Thoroughly examine and document the exterior (and interior, if applicable) of the vehicle for pedestrian contact points.

- Complete the Vehicle Sketch on page 2 of the Pedestrian Exterior Vehicle Form. Be sure to note all areas of contact.

- Obtain all required video for case documentation and submission (see NASS PCDS Video Guideline requirements).

- Contact points must be highlighted with incremented tape, removable mats or magnets to highlight transfers and damage from pedestrian.

- All areas where any pedestrian contact is known or suspected must be annotated.

INJURY DATA OVERVIEW

PSU Procedure For Submission of Official Injury Information

Beginning in data collection year 1993 the Zone Centers began coding all NASS CDS injury information. In support of this effort, the NASS Primary Sampling Units (PSU) participating in PCDS are required to submit all official injury information following the protocol outlined below:

Initial Submissions of Official Injury Records:

- The team shall print the following information on each official injury record:

  PSU and Case Number,
  Pedestrian Number.

- The teams shall enclose all of the official injury information record(s) in a 9 x 12 inch manilla envelope for each case.

- The team shall include the following information for each official injury record on the envelope. A pre-printed label (see Figure 1 on next page) will be provided by Headquarters. One Label per injured pedestrian shall be completed.

  PSU and Case Number,
  Pedestrian Number, and
  Type of Medical(s) enclosed.

- The envelope shall then be included with the casework after the last Pedestrian Form(s).

- Administrative Log-A variable ADL16 (Injury Coding Required?) must be coded as "1" (Yes).

- Pedestrian Log variable PL14 (Was This Pedestrian Injured?) must be coded as "1" (Yes).

Update Submissions

If an official injury information record was submitted with the initial submission then complete the following:

- The team shall print the following information on each official injury record:

  PSU and Case Number,
  Pedestrian number

MEDICAL ENVELOPE INJURY LABEL

U.S. DOT/NHTSA NASS/PCDS

INJURY INFORMATION

TO BE COMPLETED BY TEAM

1. PSU Number ___ ___

2. Case Number ___ ___ ___ ___

3. Pedestrian Number ___ ___

4. Type of Medical Information

Official

a. Autopsy (invasive examination) ____

b. Post-ER medical record which includes information about death based on non-invasive examination ____

c. Admission record/summary of admission/discharge face sheet ____

d. Discharge summary____

e. Operative report____

f. Radiographic record(s) (x-ray, CT scan) ____

g. History and physical examination and/or consultation records ____

h. Emergency room records (includes nurses' notes) ____

i. Private physician____

Unofficial

j. Lay Coroner ____

k. EMS record ____

Figure 1

PSU

For code "4," check each type of document included with your initial case submission.

Zone Center

Add check marks as needed to reflect additional types of medical records obtained through the update process.

PEDESTRIAN INJURY FORM
PI05 et al. - PI17 et al.
(7)

INJURY DATA OVERVIEW

PSU Procedure For Submission of Official Injury Information (Continued)

Update Submissions (Continued)

- The official injury information record(s) shall be attached to the back of a completed Update Form. These updates shall be submitted in accordance with procedures listed in section 4.3 (Case Submission -- Case Envelope). See page 15.

If an official injury information record was not submitted with the initial submission then complete the following:

- The team shall print the following information on each official injury record:

  PSU and Case Number,
  Pedestrian Number

- The teams shall enclose all of the official injury information record(s) in a 9 x 12 inch manilla envelope for each case.

- The team shall include the following information for each official injury record on the envelope. A pre-printed label will be provided by Headquarters. One label per injured pedestrian shall be used.

  PSU and Case Number,
  Pedestrian number and
  Type of Medical(s) enclosed.

- The envelope containing the official injury information record(s) for this case shall be attached to the back of a completed Update Form(s) These update envelopes shall be combined with all other updates and submitted in accordance with procedures listed in section 4.3 (Case Submission -- Case Envelope). See page 15.

INJURY DATA OVERVIEW

NASS CDS PSU Official Medical Record Acquisition Procedure

The procedure that shall be followed by NASS PCDS PSUs for obtaining official medical records from medical facilities for injured pedestrians are as follows:

1. Review the police accident report (PAR) for pedestrian injury status to determine the pedestrians for which an official medical record should be obtained.

2. Request official medical records within two days of selection of the PCDS case for each injured pedestrian where a patient release form is not required.

3. Review the injury information on the Interview Form obtained from interviewees and other unofficial sources to ascertain if any pedestrians received treatment from a medical facility or physician, including follow-up treatment. Ensure that official injury records have been requested or obtained. Obtain a signed medical release form if required.

4. Verify that the facility listed by the interviewee is consistent with the facility from which records were originally requested.

5. Review the official medical record to determine if all applicable records are obtained (i.e., a discharge summary is required for admitted pedestrians). If required, request additional records immediately.

6. For teams that transcribe medical data, if the official medical record indicates a possible injury source (i.e., specific vehicle component or other object), the researcher must ensure that the data is part of the injury documentation.

NASS PCDS Official Medical Record Coding Procedure

1. Review the official medical record for information such as names, addresses, and phone numbers that will help in contacting pedestrians.

2. Review the official medical record for information to code the alcohol and drug variables.

3. Review the official medical record obtained to determine the treatment level or mortality of this pedestrian.

PEDESTRIAN INJURY FORM
PI05 et al. - PI17 et al.
(9)

INJURY DATA OVERVIEW

NASS Zone Center Injury Coding Overview

The Zone Centers are required to follow the protocol outlined below for completion of injury information coding.

- All injury information will be coded by Zone Center personnel and selected qualified PSU researchers trained in AIS 90 coding procedures. Qualified PSU researchers are selected for injury coding at the discretion of their respective Zone Center with COTR approval;

- No Zone Center Team Coordinator shall code more than 50% of their assigned team cases;

- Injury mechanisms shall be assigned by team coordinators or other senior case reviewers;

- Zone Centers shall code the following Pedestrian Form variables:

  PED26 Treatment - Mortality
  PED28 Hospital Stay

- If all of the applicable injury Information is submitted with the case then the injury information shall be added to a case within 30 days of the date the hard copy is received at the Zone Center. Injury information submitted as an "update" shall be coded within 2 weeks of receipt, and;

- The Zone Center shall be responsible for identification of cases with injury information and log data record keeping.

NASS Zone Center Quality Assurance Measures

- An in-house review of injury information coded by the Zone Center injury staff (including coordinators) shall be made by an expert injury coding reviewer on 10% of cases coded, and;

- A sample of approved cases will be selected by NCSA to be shipped to the Field Operations Branch for review and evaluation. This includes copying and submitting cases to the other Zone Center for comparison coding. The final coding of each of the Zone Centers will be analyzed by the staff of the Field Operations Branch. Coding inconsistencies will then be discussed with the two Zone Centers and corrective measures taken if appropriate.

PEDESTRIAN INJURY FORM
PI05 et al. - PI17 et al.
(10)

INJURY DATA OVERVIEW

NASS Zone Center Injury Coding Procedures

The procedure that shall be followed by NASS Zone Centers in performing the injury coding tasks are as follows:

1. Determine if the official medical record(s) obtained are appropriate for this pedestrian. Correct or update the Pedestrian Log Form.

2. Review the official medical records to identify NASS codable injuries as defined in the NASS Injury Coding Manual. Highlight or underline these injuries.

3. Review the Interview Form for injury data from interviewees and other unofficial sources to ascertain NASS codable injuries. Verify that all required information is transcribed onto the unofficial data manikin. Make corrections as needed.

4. Combine and review the official and unofficial injury information to determine which injuries should be coded on the Pedestrian Injury Form.

Pedestrian Injury Form

5. List the NASS codable injuries on the "Official Manikin" of the Pedestrian Injury Form. Include all the information required to meet the NASS standard specified in the Documentation of Official Data on Manikin.

6. Code all the injuries on the Pedestrian Injury Form using the most current version of the NASS Injury Coding Manual as the primary source.

7. Determine the injury source mechanisms for all injuries. Evaluate the vehicle inspection information, including the PDOF, the vehicle damage sketches, the pedestrian contact points, and the photographic documentation to identify injury mechanisms for each injury. Make corrections as needed.

8. When the injury source is located, specifically identify the Striking Profile, the Type of Damage, and the Damage Depth for the contact.

9. Determine and code the confidence level of the injury source for each line of injury coded.

10. Complete the Pedestrian Injury Log information.

11. Check all updatable variables and recode based on injury information reviewed.

PI05
et al.

Variable Name: Source of Injury Data
(1st through 10th or higher)

Element Values:

Official	Unofficial
1 Autopsy records with or without hospital/medical records	5 Lay coroner report
2 Hospital/medical records other than emergency room (e.g., discharge summary)	6 E.M.S. personnel
3 Emergency room records only (including associated x-rays or other lab reports)	7 Interviewee
4 Private physician, walk-in or emergency clinic	8 Other source (specify):
	9 Police

Source: Element chosen

Remarks:

Code "1" (Autopsy records with or without hospital/medical records) excludes records from lay, nonmedical personnel; they must be the result of an autopsy by a physician or other similarly qualified life scientist. A non-invasive external examination by a physician, though, should be coded either "2" (Hospital medical records other than emergency room) or "4" (Private physician, walk-in or emergency clinic) since it is generally a superficial listing of external injuries and possible internal injuries; therefore, injuries from a non-invasive exam should not be grouped with those from a thorough autopsy report.

Code "2" [Hospital/medical records other than emergency room (e.g., discharge summary)] is used whenever the injury is listed on the official post-emergency room records of a hospital or medical facility. If the injury was also listed on a facility's associated emergency room records, then the "2" code takes precedence. If the injury is also contained in an autopsy record--where the autopsy was performed by a physician or similarly qualified life scientist--then, code "1" (Autopsy records with or without hospital/medical records) takes precedence. However, this code includes non-invasive (external) examinations conducted by a physician on a deceased victim and documented as a hospital or medical examiner's record.

Code "3" [Emergency room records only (including associated x-rays or other lab reports)] is used when the injury only appears on a facility's emergency room record or on records that were completed in support of the person's examination in an emergency room. For example, an x-ray report that was completed because the emergency room physician requested it as a part of his/her examination would be included under this code. This code should not be used if the injury is subsequently listed on a post-emergency room record in a medical autopsy.

Variable Name: Source of Injury Data
(1st through 10th or higher)

If both types of records (emergency room and post-emergency room) refer to the same injury, code "2" [Hospital/medical records other than emergency room (e.g., discharge summary)] is used as the code even if the detail provided on the emergency room records exceeds the detail provided on the post-emergency room records.

Code "4" (Private physician, walk-in or emergency clinic) refers to any physician (in private practice) who saw the injured person and who has records of that treatment (i.e., other than hospital or autopsy records). Also included in this code are non-invasive (external) examinations conducted by a private physician or similarly qualified life scientist on a deceased victim and documented as other than a hospital record (e.g., coroner's report).

In summary, examinations of deceased persons are distinguished first by qualifications of examiner [official (codes "1", "2", and "4") versus unofficial (code "5")], second by the type of examination [autopsy (code "1") versus non- invasive (codes "2" or "4")], and third by type of examination record [hospital (code "2") versus other than hospital (code "4")].

Code "5" (Lay coroner report) is used if the injury data is contained in a report where a non-invasive examination of the deceased was performed a non-physician, or lay coroner.

Code "6" (E.M.S. personnel) refers to a person certified by the state as trained in emergency medical service techniques. This code should not be used for ambulance attendants, police, or other personnel not trained in E.M.S. techniques.

Code "7" (Interviewee) refers to the person who was interviewed to get the information on this form (not necessarily the person described on this form). The interviewee is defined in a log variable.

Code "8" [Other source (specify): _____] is used when data are obtained from an unofficial source different from those explicitly listed above (e.g., chiropractors).

Code "9" (Police) can be used, but only when no other source of injury information is available.

PEDESTRIAN INJURY FORM
PI06
et al.

Variable Name: Body Region
(1st through 10th or higher)

Element Values:

1 Head
2 Face
3 Neck
4 Thorax
5 Abdomen
6 Spine
7 Upper Extremity
8 Lower Extremity
9 Unspecified

Source: Variables PI05 et al., respectively

Remarks:

The 1993 NASS Injury Coding Manual contains a listing of most injuries. Use the manual to code, for each injury, its body region and record it on the form.

PEDESTRIAN INJURY FORM
PI07
et al.

Variable Name: Type of Anatomic Structure
(1st through 10th or higher)

Element Values:

1 Whole Area
2 Vessels
3 Nerves
4 Organs (includes muscles/ligaments)
5 Skeletal (includes joints)
6 Head - LOC
9 Skin

Source: Variables PI05 et al., respectively

Remarks:

The 1993 NASS Injury Coding Manual contains a listing of most injuries. Use the manual to code, for each injury, its type of anatomic structure and record it on the form.

PEDESTRIAN INJURY FORM
PI08
et al.

Variable Name: Specific Anatomic Structure
(1st through 10th or higher)

Element Values:

Whole Area
02 Skin - Abrasion
04 Skin - Contusion
06 Skin - Laceration
08 Skin - Avulsion
10 Amputation
20 Burn
30 Crush
40 Degloving
50 Injury - NFS
90 Trauma, other than mechanical

Head - LOC
02 Length of LOC
04, 06, 08 Level of Consciousness
10 Concussion

Spine
02 Cervical
04 Thoracic
06 Lumbar

Vessels, Nerves, Organs. Bones, Joints are assigned consecutive two digit numbers beginning with 02

Source: Variables PI05 et al., respectively

Remarks:

The 1993 NASS Injury Coding Manual contains a listing of most injuries. Use the manual to code, for each injury, its specific anatomic structure and record it on the form.

PEDESTRIAN INJURY FORM
PI09
et al.

Variable Name: Level of Injury
(1st through 10th or higher)

Element Values:

Specific injuries are assigned consecutive two-digit numbers beginning with 02.

To the extent possible, within the organizational framework of the AIS, 00 is assigned to an injury NFS as to severity or where only one injury is given in the dictionary for that anatomic structure. 99 is assigned to any injury NFS as to lesion or severity.

Source: Variables PI05 et al., respectively

Remarks:

The 1993 NASS Injury Coding Manual contains a listing of most injuries. Use the manual to code, for each injury, its level of injury and record it on the form.

PEDESTRIAN INJURY FORM
PI10
et al.

Variable Name: Abbreviated Injury Scale
(1st through 10th or higher)

Element Values:

1 Minor injury
2 Moderate injury
3 Serious injury
4 Severe injury
5 Critical injury
6 Maximum (untreatable)
7 Injured, unknown severity

Source: Variables PI05 et al., respectively

Remarks:

The 1993 NASS Injury Coding Manual contains a listing of most injuries. Use the manual to code, for each injury, its A.I.S. value and record it on the form.

PEDESTRIAN INJURY FORM
PI11
et al.

Variable Name: Aspect
(1st through 10th or higher)

Element Values:

1 Right
2 Left
3 Bilateral
4 Central
5 Anterior
6 Posterior
7 Superior
8 Inferior
9 Unknown
0 Whole region

Source: Variables PI05 et al., respectively

Remarks:

The 1993 NASS Injury Coding Manual contains a listing of most injuries. Use the manual to code, for each injury, its aspect value and record it on the form.

Variable Name: Injury Source

Element Values:

Front Components

Front bumper 700
Front lower valance/spoiler 701
Front grille 702
Hood edge and/or trim 703
Hood ornament (fixed) 704
Hood ornament (spring loaded) 705
Headlight 706
Retractable headlight door (Open/Closed) 707
Turn signal/parking lights 708
Other front object (specify):_____ 718
Unknown front object 719

Left Side Components

Front fender side surface 720
Front antenna 721
A1 pillar 722
A2 pillar 723
B pillar 724
C pillar 725
D pillar 726
Other pillar (specify): _____ 728
Left side roof rail 729
Left side door surface 730
Left Door handle 731
Left side mirror fixed housing 732
Left side folding mirror 733
Left side glazing forward of B pillar 734
Left side glazing rearward of B pillar 735
Left side back fender or quarter panel 736
Rear antenna 737
Other left side object (specify): _____ 738
Unknown left side component 739

Right Side Components

Front fender side surface 740

Right Side Components (cont'd.)

A2 pillar 743
B pillar 744
C pillar 745
D pillar 746
Other pillar (specify): 748

Right side roof rail 749

Right side door surface 750
Right Door handle 751
Right side mirror fixed housing 752

Right side folding mirror 753
Right side glazing forward of B pillar 754
Right side glazing rearward of B pillar 755
Rear antenna 756
Rear fender or quarter panel 757
Other right side object (specify): _____ 758
Unknown right side component 759

Back Components

Rear (back) bumper 760
Tailgate 761
Hatchback, vertical surface 762
Other back component (specify): _____ 768
Unknown back component 769

Top Components

Hood surface 770
Hood surface reinforced by under hood component 771
Front fender top surface 772
Cowl area 773
Wiper blade & mountings 774
Windshield glazing 775
Front header 776
Roof surface 777
Backlight glazing 778

Front antenna 741 A1 pillar 742	Rear header 779 Hatchback 780

PI12
et al.
(2)

Variable Name: Injury Source (Cont'd.)

Top Components (cont'd)		Other Object or Vehicle in Environment	
Rear trunk lid	781		
Other top component (specify): _____	788	Other object in environment (specify): _____	948
Unknown top component	789	Ground	947
		Unknown object in environment	949
Wheels/tires		Unknown object on contacting vehicle	959
Left front wheel/tire	790	Noncontact injury source	997
Right front wheel/tire	791	Unknown injury source	999
Left rear wheel/tire	792		
Right rear wheel/tire	793		
Other wheel/tire (specify): _____	798		
Unknown wheel/tire	799		
Undercarriage components			
Front crossmember	800		
Steering assembly/Front suspension	801		
Oil pan	802		
Exhaust system pipe	803		
Transmission	804		
Drive shaft	805		
Catalytic converter	806		
Muffler	807		
Floor pan	808		
Fuel tank	809		
Rear suspension	810		
Other undercarriage component (specify): ___	818		
Unknown undercarriage component	819		
Accessories			
Air scoop, deflector	820		
Cellular or CB radio antenna	821		
Emergency lights or bar	822		

Fog lights 823 Luggage, ski, or bike rack 824 Cargo (specify): _____ 825 Spare tire 826 Spotlight 827 Other accessory (specify): _____ 828	

Variable Name: Injury Source (Cont'd.)

Source: Zone Center determined -- inputs include vehicle inspection, interviewees, and medical records.

Remarks:

Code "718" (Other front or add on object (specify):_____) is used when a object is attached to the front of the vehicle (i.e., bug screen, deer whistle, etc.)

Code "721" (Front antenna) is used when a radio antenna is permanently affixed to the front left of the vehicle. Cellular or CB radio antennas are coded "821."

Code "732" (Left side mirror fixed housing) is used when the rear view mirror, attached to the left side of the vehicle, has a permanent housing and base. The mirror glass itself will be adjustable, not the housing of the mirror.

Code "733" (Left side folding mirror) is used when the rear view mirror, attached to the left side of the vehicle has a movable housing. The mirror glass itself can be adjustable or fixed; the housing of the mirror will articulate on a pivot for adjustment.

Code "734" (Left side glazing forward of B pillar) is used when any glazing in front of the B pillar (i.e., driver's window, vent or opera window on left front door, glazing between A1/A2 pillar) causes an injury to the pedestrian.

Code "735" (Left side glazing rearward of the B pillar) is used when glazing behind the B pillar (i.e., left rear door, glazing between C and D pillars, etc.) causes an injury to the pedestrian.

Code "737" (Rear antenna) is used when the radio antenna is permanently affixed to the left rear of the vehicle. Cellular or CB radio antennas are coded "821" (cellular or CB radio antenna).

Code "741" (Front antenna) is used when a radio antenna is permanently affixed to the front right of the vehicle. Cellular or CB radio antennas are coded "821" (cellular or CB radio antenna).

Code "752" (Right side mirror fixed housing) is used when the rear view mirror, attached to the right side of the vehicle, has a permanent housing and base. The mirror glass itself will be adjustable, not the casing of the mirror.

Variable Name: Injury Source (Cont'd.)

Code "753" (Right side folding mirror) is used when the rear view mirror, attached to the right of the vehicle, has a movable housing. The mirror glass itself can be adjustable or fixed; the housing of the mirror will articulate on a pivot for adjustment.

Code "754" (Right side glazing forward of B pillar) is used when any glazing in front of the B pillar (i.e., passenger side window, vent or opera window on right front door, glazing between A1/A2 pillar) causes an injury to the pedestrian.

Code "755" (Right side glazing rearward of the B pillar) is used when glazing behind the B pillar (i.e., right rear door, glazing between C and D pillars, etc.) causes an injury to the pedestrian.

Code "756" (Rear antenna) is used when the radio antenna is permanently affixed to the right rear of the vehicle. Cellular or CB radio antennas are coded "821."

Code "781" (Rear trunk lid) is used when the pedestrian contacts the trunk lid deck. Note: this code is for trunk lids only. Minivan tailgate doors are captured in code "761" (Tailgate).

Code "798" [Other wheel/tire (specify):____] is used when a pedestrian was injured from a tire other than those listed (e.g., inside wheel or tire of a dual wheel vehicle, wheel or tire on a trailer towed by vehicle).

Code "801" (Steering assembly/front suspension) includes all components of the steering assembly/front suspension system (e.g., upper and lower control arms, upper and lower ball joints, shocks, struts, springs etc.). Note this code should only be used for injuries sustained by a pedestrian, when the vehicle traveled over the pedestrian.

Code "810" (Rear suspension) includes all components of the rear suspension system (e.g., leaf or coil springs, shocks, struts, etc.). Note: this code should only be used for injuries sustained by a pedestrian, when the vehicle traveled over the pedestrian.

Code "947" (Ground) is used whenever an injury resulted from a pedestrian contacting the surface of the road or ground.

Code "997" (Noncontact injury source) is used whenever an injury resulted from a noncontact source such as heat, flame or chemical.

Use Page 6 (or its reverse side) of the Pedestrian Interview Form to record the interviewee reported injury source evidence and page 3 of the Pedestrian Exterior Vehicle Form to record the physical injury source evidence. On the Pedestrian Exterior Vehicle Form, the researcher should record only those contact mechanisms which can be documented by physical evidence (e.g., scuffs, hair, smudges, dents, cracks, etc.).

Variable Name: Injury Source (Cont'd.)

The element values encoded can be based on physical evidence, pedestrian kine-matics, and interviewee information. Although physical evidence is preferred, it does not have to be present to support a contact mechanism.

* Note: Whenever an "other" code (i.e., "718", "738", "748", "758", "768", "788", "798, "818", "828" or "948") is encoded as injury source, clearly identify, in the space provided next to each code on the reverse side of Page 2 of the Pedestrian Injury Form, a description of the "other" source.

PEDESTRIAN INJURY FORM
PI13
et al.

Variable Name: Injury Source Confidence Level
(1st through 10th or higher)

Element Values:

1 Certain
2 Probable
3 Possible
9 Unknown

Source: Zone Center determined--inputs include vehicle inspection, interviewee, and medical records.

Remarks:

The intent of this variable is to give analysts an assessment of the injury coder's confidence in the injury source coded for a specific injury.

Code "1" (Certain) if there is no reasonable doubt in the mind of the injury coder, based on pedestrian kinematics, accident dynamics, contact points, and injury mechanism.

Code "2" (Probable) in those situations where there is not a certainty based on the factors noted above for code "1" (Certain).

Code "3" (Possible) if there is no supporting physical evidence but all factors point to an area of the vehicle or an object as the injury source.

Code "9" (Unknown) if the injury source is "719 (Unknown front object), "739" (Unknown left side component), "759" (Unknown right side component), "769" (Unknown back component), "789" (Unknown top component), "799" (Unknown wheel/tire), "819" (Unknown undercarriage component), "949" (Unknown object in environment), "959" (Unknown object on contacting vehicle), or "999" (Unknown injury source).

PEDESTRIAN INJURY FORM
PI14
et al.

Variable Name: Direct/Indirect Injury
(1st through 10th or higher)

Element Value:

1 Direct contact injury
2 Indirect contact injury
3 Noncontact injury
7 Injured, unknown source

Source: Zone Center determined--inputs include vehicle inspection, interviewee, and medical records.

Remarks:

The distinction between direct and indirect is covered in greater detail in the NASS Injury Coding Procedures.

Code "1" (Direct contact injury) if the coded injury results from a force impacted directly on the injured O.I.C. Body Region by the component/object coded as the Injury Source (PI12 et al.).

Code "2" (Indirect contact injury) if the coded injury results from a force transmitted from the component/object coded as the Injury Source (PI04 et al.) through another O.I.C. Body Region to the injured O.I.C. Body Region (e.g., pedestrian's head contacts A pillar or windshield, force transmitted to neck causing cervical spine fracture).

If a pedestrian's Body Region (PI06 et al.) impacts an object producing an injury to the same Body Region, but the force was transmitted through the pedestrian's eyeglass, objects in the person's pocket, etc., code the injury as a direct contact ("1").

Code "3" (Noncontact injury) is used when the respective PI12 et al. equals "997" (Noncontact injury source).

Code "7" (Injured, unknown source) is used whenever the Injury Source PI12 et al. is coded "719" (Unknown front object), "739" (Unknown left side component), "759" (Unknown right side component), "769" (Unknown back component), "789" (Unknown top component), "799" (Unknown wheel/tire), "819" (Unknown undercarriage component), "949" (Unknown object in environment), "959" (Unknown object on contacting vehicle), or "999" (Unknown injury source).

Variable Name: Striking Profile

Element Values:

0 Injury not from vehicle contact
1 Flat-narrow (< 15 centimeters)
2 Flat-wide (Æ 15 centimeters)
3 Rounded (contoured)
4 Rounded edge
5 Sharp edge
8 Other (specify):
9 Unknown

Source: Zone Center determined -- inputs include vehicle inspection, interviewee and medical records.

Remarks:

Describe the surface area of the vehicle that caused the injury to the pedestrian.

Code "0" (Injury not from vehicle contact) describes an injury sustained from something in the environment, not on the contacting vehicle [i.e., injury source (PI12) equals "948", "949" or "997"].

Code "1" [Flat-narrow (< 15 centimeters)] describes a striking surface that is flat, but less than 15 centimeters wide or 15 centimeters long.

Code "2" [Flat-wide (Æ 15 centimeters)] describes a striking surface that is flat, but greater than or equal to 15 centimeters wide and 15 centimeters long (i.e., hood).

Code "3" [Rounded (contoured)] describes a striking surface that is arched with a radius of curvature of 15 centimeters or more.

Code "4" (Rounded edge) describes a striking surface that is an edge structure with a radius of curvature of more than 3 centimeters but less than 15 centimeters.

Code "5" (Sharp edge) describes a striking surface that is an edge structure with a radius of curvature of 3 centimeters or less.

Code "8" [Other (specify):____] describes a striking profile other than those indicated above. Briefly describe the striking profile.

Code "9" (Unknown) is used when the source of the contact is unknown [i.e., PI12 equals] "719" (Unknown front object), "739" (Unknown left side component), "759" (Unknown right side component), "769" (Unknown back component), "789" (Unknown top component), "799" (Unknown wheel/tire), "819" (Unknown undercarriage component), "949" (Unknown object in environment), "959" (Unknown object on contacting vehicle), or "999" (Unknown injury source).

Variable Name: Type of Damage

Element Values:

0 Injury not from vehicle contact
1 No damage/contact
2 Scratch, scuff, cloth transfer, or smear
3 Dent
4 Large deformation
5 Cracked, fractured, shattered
6 Separated from vehicle
7 Noncontact injury
8 Other (specify):
9 Unknown

Source: Zone Center determined -- inputs include vehicle inspection, interviewee and medical records.

Remarks:

Code the type of damage for each source of injury.

Code "0" (Injury not from a vehicle contact) is used when the injury was caused by something in the environment, not on the vehicle [i.e., injury source (PI12 et. al.) = “947" "948", "949" or "997"].

Code "1" (No damage) is used when there is no damage from the contact with the vehicle visible.

Code "2" (Scratch, scuff, cloth transfer, or smear) is used when the the damage from the contact is of a non-permanent nature (i.e., transfers, smears etc.).

Code "3" (Dent) is used when the residual damage is approximately circular, and the diameter does not exceed 15 centimeters. If the damaged area is not approximately circular, use the perimeter measurements as a basis for coding. For example, an area of damage is considered a dent if the area is less than 15 centimeters wide and less than 15 centimeters long.

Code "4" (Large deformation) is used when the residual damage is approximately circular, and the diameter is more than 15 centimeters. If the damaged area is not approximately circular, use the perimeter measurements as a basis for coding. For example, an area of damage is considered a "large deformation" if it is greater than or equal to 15 centimeters wide and greater than or equal to 15 centimeters long.

Code "6" (Separated from vehicle) is used when the component causing the injury detached from the vehicle because of the contact (e.g., a left side mirror separating from its mounting because of pedestrian loading).

Code "7" (Noncontact injury) is used when an injury resulted from a noncontact source such as heat, flame or chemical.

PI16
et al.
(2)

Variable Name: Type of Damage (cont'd.)

Code "8" [Other (specify):_____] describes a striking profile other than those indicated above. Briefly describe the striking profile.

Code "9" (Unknown) is used when the source of the contact is unknown [i.e., PI12 equals] "719" (Unknown front object), "739" (Unknown left side component), "759" (Unknown right side component), "769" (Unknown back component), "789" (Unknown top component), "799" (Unknown wheel/tire), "819" (Unknown undercarriage component), "949" (Unknown object in environment), "959" (Unknown object on contacting vehicle), or "999" (Unknown injury source).

Variable Name: Damage Depth

Element Values:

0 Injury not from vehicle contact
1 No residual damage
2 Surface only damage
3 Crush depth >0 to 2 centimeters
4 Crush depth >2 to 5 centimeters
5 Crush depth >5 to 10 centimeters
8 Other (specify):
9 Unknown

Source: Zone Center determined -- inputs include vehicle inspection, interviewee and medical records.

Remarks:

The depth of the deformation is recorded in this variable. The depth is measured at the deepest part of the damage and recorded based on the above ranges.

Code "0" (Injury not from a vehicle contact) is used when the injury was caused by something in the environment, not on or in the vehicle [i.e., injury source (PI12 et. al.) = “947" "948", "949" or "997"].

Code "2" (Surface damage only) refers to transfers and scratches deposited on the vehicle from the contact/injury [i.e., PI16 equals "2" (Scratch, scuff, cloth transfer, or smear)].

Code "8" [Other (specify):_____] describes a striking profile other than those indicated above. Briefly describe the striking profile.

Code "9" (Unknown) is used when the source of the contact is unknown [i.e., PI12 equals] "719" (Unknown front object), "739" (Unknown left side component), "759" (Unknown right side component), "769" (Unknown back component), "789" (Unknown top component), "799" (Unknown wheel/tire), "819" (Unknown undercarriage component), "949" (Unknown object in environment), "959" (Unknown object on contacting vehicle), or "999" (Unknown injury source).

PEDESTRIAN INJURY FORM

VEH03

Variable Name: Vehicle Number

Element Values:

01 This value is precoded

GENERAL VEHICLE FORM
VEH04

Variable Name: Vehicle Model Year

Element Values:

Range: 00 through 96

Code the last two digits of the model year
99 Unknown

Source: Primary source is the VIN during vehicle inspection; secondary sources include the police report and interviews.

Remarks:

Code the last two digits of the model year for which the vehicle was manufactured. A vehicle manufactured as a 1996 model is coded "96".

Code "99" (Unknown) if the vehicle model year cannot be determined.

GENERAL VEHICLE FORM
VEH05

Variable Name: Vehicle Make (specify):

Element Values:

Passenger Vehicles/Light Trucks (01-69)

VEH06	
01	American Motors
02	Jeep (includes Kaiser-Jeep)
03	AM General
06	Chrysler
07	Dodge
08	Imperial
09	Plymouth
10	Eagle
12	Ford
13	Lincoln
14	Mercury
18	Buick
19	Cadillac
20	Chevrolet
21	Oldsmobile
22	Pontiac
23	GMC
24	Saturn
25	Grumman
29	Other domestic: VEH06 = 001 - Studebaker/Avanti; 002 - Checker; 398 - Other automobile (i.e., DeSoto Hudson, Packard)
30	Volkswagen
31	Alfa Romeo
32	Audi
33	Austin/Austin Healey

VEH06	
34	BMW
35	Nissan/Datsun
36	Fiat
37	Honda
38	Isuzu
39	Jaguar
40	Lancia
41	Mazda
42	Mercedes Benz
43	MG
44	Peugeot
45	Porsche
46	Renault
47	Saab
48	Subaru
49	Toyota
50	Triumph
51	Volvo
52	Mitsubishi
53	Suzuki
54	Acura
55	Hyundai
56	Merkur
57	Yugo
58	Infiniti
59	Lexus
60	Daihatsu
61	Sterling
62	Land Rover
63	KIA
69	Other foreign

Motored Cycle/ATC/ATV (70-79)

VEH06	
70	BSA
71	Ducati
72	Harley-Davidson
73	Kawasaki
74	Moto-Guzzi
75	Norton
76	Yamaha

VEH06	
78	Other make moped
79	Other Motored Cycle

Also see: [34] - BMW

GENERAL VEHICLE FORM

[37] - Honda
[50] - Triumph
[53] - Suzuki

VEH05
(2)

Medium/Heavy Trucks and Buses (80-89)

VEH06

80 Brockway
81 Diamond Reo/Reo
82 Freightliner/White
83 FWD
84 International Harvester/Navistar
85 Kenworth
86 Mack
87 Peterbilt
88 Iveco/Magirus
98 Other Make VEH06 =
801 - Autocar
802 - Auto-Union-DKW
803 - Divco
804 - Western Star
805 - Oshkosh
806 - Hino
807 - Scania
850 - Truck based motorhome
898 - Other truck (e.g., Ward LaFrance, Marmon)

902 - NeoPlan (bus)
950 - Bus based motorhome
988 - Other bus
998 - Other vehicle (i.e., farm vehicle, go-kart)
99 Unknown

VEH06

Also see:

[03] AM General
[07] Dodge
[12] Ford
[20] Chevrolet
[23] GMC
[25] Grumman
[35] Nissan/Datsun
[36] Fiat
[38] Isuzu
[42] Mercedes Benz
[51] Volvo
[52] Mitsubishi

Source: Vehicle inspection, police report, and interview

Remarks:

Write the Vehicle Make in the available space for ready visual reference.

Code "99" (Unknown) is used for a "hit-and-run" vehicle unless reliable evidence indicates the vehicle's make.

Model	Includes	Start	End	Size	Stiffness	Model Code
ACURA						
INTEGRA	RS, LS, GS (use 9 stiffness for front impacts, size value for side or rear impacts)	1986		2	9	31
LEGEND	L, LS, GS, Special Edition, GS-R (use 9 stiffness for front impacts, size value for side or rear impacts)	1986	1995	3	9	32
RL	3.5 (use 9 stiffness for front impacts, size value for side or rear impacts)	1996		4	9	32
NSX	NTX-T	1991		2	2	33
VIGOR	(use 9 stiffness for front impacts, size value for side or rear impacts)	1992	1994	3	9	34
CL	2.2, 2.3, 3.0 Coupe (use 9 stiffness for front impacts, size value for side or rear impacts)	1996		3	9	35
TL	3.2 (Stiffness 9 applies only to frontal imapcts. Use size value for rear or side impacts.)	1996		4	9	35
OTHER AUTOMOBILE		1986				398
UNKNOWN AUTOMOBILE		1986				399
SLX	(Applies to front and rear impacts. Use side value for side impacts.)	1996		3	8	401
OTHER LIGHT TRUCK		1986				498
UNKNOWN TYPE LIGHT TRUCK		1986				499
UNKNOWN VEHICLE		1986				999
ALFA ROMEO						
SPIDER	All roadsters, Veloce, 1750 / 2000 roadsters	1933	1994	1	1	31
SPORTS SEDAN	All 4 door sedans (except 164); Giulia, Super, Berlina, Alfetta, Milano, 1750 / 2000 sedans	1933	1989	PER WB	PER WB	32
SPRINT SPECIAL	All 2-door coupes; Alfetta GT, 1750 / 2000 sedans	1933	1980	PER WB	PER WB	33
GTV-6		1981	1986	1	1	34
164		1990	1995	3	3	35
OTHER AUTOMOBILE		1933	1995			398
UNKNOWN AUTOMOBILE		1933	1995			399
UNKNOWN VEHICLE		1933	1995			999

Model	Includes	Start	End	Size	Stiffness	Model Code
AM GENERAL						
DISPATCHER	Post Office (Jeep)	1965	1994	1	1	401
HUMMER		1993		NA	NA	421
DISPATCHER	DJ - series Post Office Van	1965	1991	NA	NA	466
OTHER LIGHT TRUCK		1940	1994			498
UNKNOWN LIGHT TRUCK		1940	1994			499
MEDIUM / HEAVY TRUCK	Military off-road	1965	1994	NA	NA	884
OTHER MEDIUM / HEAVY TRUCK		1965	1994			898
UNKNOWN TYPE TRUCK (LIGHT / MEDIUM / HEAVY)		1965	1994			899
UNKNOWN MEDIUM / HEAVY TRUCK		1965	1994			899
BUS - REAR ENGINE / FLAT FRONT	Transit	1965	1994	NA	NA	983
OTHER BUS		1965	1994			988
UNKNOWN BUS TYPE		1965	1994			989
UNKNOWN VEHICLE		1965				999
AMC						
RAMBLER / AMERICAN	Rogue, Scambler, 220, 440	1954	1969	3	3	1
REBEL / MATADOR	Barcelona, Classic, Brougham, 550, 660, 770, Marlin: WB = 114"	1964	1978	4	4	2
	Matador: WB = 115"	1964	1978	5	5	2
	Barcelona, Classic, Brougham, 550, 660, 770, Marlin: WB = 115"	1964	1978	5	5	2
	Matador: WB = 114"	1958	1974	4	4	2
AMBASSADOR	Brougham, DPL, SST, DL, Limited, 880. 990	1958	1974	5	5	3
PACER	Limited, DL	1975	1980	2	2	4
AMX	2-seater only	1968	1970	2	2	5
JAVELIN	SST	1968	1974	2	2	6
	AMX	1971	1974	2	2	6
HORNET / CONCORD	Sportabout, limited, DL, SC-360, SST	1970	1983	2	2	7
	AMX	1975	1978	2	2	7
SPIRIT / GREMLIN	Limited, DL. Custom,. X	1970	1983	2	2	8
	GT	1983	1983	2	2	8
	AMX	1979	1983	2	2	8
EAGLE	Concord based	1980	1988	3	3	9
EAGLE SX-4	Spirit / Gremilin based	1981	1984	2	2	10
OTHER AUTOMOBILE		1940	1988			398
UNKNOWN AUTOMOBILE		1940	1988			399
UNKNOWN VEHICLE		1940	1988			999

Model	Includes	Start	End	Size	Stiffness	Model Code
ASTON MARTIN						
LAGONDA	DBMark III, DB4, DB4GT, DB5, DB6, DB7	1965		per WB	= size	31
OTHER AUTOMOBILE		1965				31
SALOON		1968		per WB	= size	31
UNKNOWN AUTOMOBILE		1965				31
VANTAGE		1968		per WB	= size	31
VOLANTE		1968		per WB	= size	31
AUDI						
SUPER 90		1966	1972	2	2	31
100 / A6	S, LS, GL	1970	1977	3	3	32
	A6	1995		3	3	32
	Quattro	1989	1994	3	3	32
FOX		1973	1979	2	2	33
4000	Quattro, Coupe GT, CS, S	1980	1993	2	2	34
5000	Quattro, CS, S, Turbo	1978	1993	3	3	35
80 / 90	Quattro-80	1988	1992	2	2	36
	Quattro-90	1988	1995	2	2	36
200	Quattro	1989	1992	3	3	37
V8 QUATTRO		1990	1994	3	3	38
COUPE QUATTRO		1990	1991	2	2	39
S4 / S6	S4	1992	1995	3	3	40
	S6	1995	1996	3	3	40
CABRIOLET		1994	1998	2	2	41
A4		1996		TBD	TBD	42
A3		1996		2	2	43
A8		1996		TBD	TBD	44
TT	FWD, Quattro, Roadster (Stiffness 9 applies only to frontal imapcts. Use size value for rear or side impacts.)	2000		4	9	45
OTHER AUTOMOBILE		1970				398
UNKNOWN AUTOMOBILE		1970				399
UNKNOWN VEHICLE		1970				999
AUSTIN / AUSTIN HEALEY						
MARINA	GT	1973	1975	2	2	31
AMERICA		1968	1972	1	1	32
HEALEY SPRITE		1958	1970	1	1	33
HEALY 3000	Healy 100	1953	1967	1	1	34
MINI		1960	1969	1	1	35
OTHER AUTOMOBILE		1947	1975			398
UNKNOWN AUTOMOBILE		1947	1975			399
UNKNOWN VEHICLE		1947	1975			999

Model	Includes	Start	End	Size	Stiffness	Model Code
AUTOCAR						
MEDIUM / HEAVY - CBE		1965				801
MEDIUM / HEAVY - COE/ENTRY POSITION UNKNOWN		1968				801
MEDIUM / HEAVY - COE / HIGH ENTRY		1968				801
MEDIUM / HEAVY - COE / LOW ENTRY		1968				801
MEDIUM / HEAVY - OTHER		1968				801
MEDIUM / HEAVY - UNKOWN ENGINE LOCATION		1968				801
MEDIUM / HEAVY BASED MOTORHOME		1968				801
MEDIUM / HEAVY - COE / LOW ENTRY		1968				802
AUTO - UNION - DKW						
MEDIUM / HEAVY - CBE		1965	1988			802
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN		1965	1988			802
MEDIUM / HEAVY - COE / HIGH ENTRY		1965	1988			802
MEDIUM / HEAVY - OTHER		1965	1988			802
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1965	1988			802
MEDIUM / HEAVY BASED MOTORHOME		1965	1988			802
AVANTI						
OTHER AUTOMOBILE		1940	1966			1
UNKNOWN AUTOMOBILE		1940	1966			399
BERTONE						
OTHER AUTOMOBILE	X / 19	1989	1991			52
UNKNOWN AUTOMOBILE						52

Model	Includes	Start	End	Size	Stiffness	Model Code
BMW						
1600 --- 2002	Ti, Tii, Tilux, 1800i, TR, CS, 1600-2, SA, Turbo, A, 1500, 2600, 501, 502, 200CS	1955	1976	2	2	31
COUPE	2800CS, 3.0CS, 3.0csi, 3.o csl, 3200, 503, 507, M1, 1802, 2000c / s, 2002	1956	1976	3	3	32
BAVARIA SEDAN	2500, 2800, 2.8, Bavarian	1969	1974	3	3	33
3 SERIES	318i, 318ti, 320i, 325e, 325es, 325i, 328, M3	1971		2	2	34
5 SERIES	525i (wagon), M5, 540iA, 540i	1993		3	3	35
	524i, 258i, 530i, 533i, 535i, TD	1975		3	3	35
6 SERIES	630, 633, 635, csi, M6	1976	1989	3	3	36
7 SERIES	733i, 435i, L7, 740i, 750iL	1978		3	3	37
8 SERIES	850, 840ci, 850i	1991	1997	3	3	38
Z3	M coupe (Brickland), M Roadster, 2.3, 2.8 coupe	1996		2	2	39
Z8	Roadstar	2000				40
OTHER AUTOMOBILE		1955				398
UNKNOWN AUTOMOBILE		1955				399
X5	4X4	2000				401
MOTORCYCLE (000-050CC)		1948				701
MOTORCYCLE (051-124CC)		1948				702
MOTORCYCLE (125-349CC)		1950	1966			703
MOTORCYCLE (350-449CC)		1950				704
MOTORCYCLE (450-749CC)		1950				705
MOTORCYCLE (750CC-OVER)		1969				706
MOTORCYCLE (UNKNOWN CC)		1948				709
UNKNOWN MOTORED CYCLE		1948				799
UNKNOWN VEHICLE		1948				999
BRICKLIN						
OTHER AUTOMOBILE		1965	1991			32
UNKNOWN AUTOMOBILE		1965	1991			32

Model	Includes	Start	End	Size	Stiffness	Model Code
BROCKWAY						
MEDIUM / HEAVY TRUCK BASED MOTORHOME		1965	1977			850
MEDIUM / HEAVY - CBE		1965	1977			881
MEDIUM/HEAVE - COE / LOW ENTRY		1965	1977			882
MEDIUM / HEAVY - COE HIGH ENTRY		1965	1977			883
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1965	1977			884
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN		1965	1977			890
MEDIUM / HEAVY - OTHER		1965	1977			898
BSA						
MOTORCYCLE (000-050CC)		1950	1972			701
MOTORCYCLE (051-124CC)		1950	1972			702
MOTORCYCLE (125-349CC)		1950	1972			703
MOTORCYCLE (350-449CC)		1950	1972			704
MOTORCYCLE (450-749CC)		1950	1972			705
MOTORCYCLE (750CC-OVER)		1950	1972			706
MOTORCYCLE (UNKNOWN CC)		1950	1972			709
OTHER MOTORED CYCLE		1950	1972			798
UNKNOWN MOTORED CYCLE		1950	1972			799

Model	Includes	Start	End	Size	Stiffness	Model Code
BUICK						
SPECIAL / SKYLARK (thru 1972)	GS, GS-350, GS-400, GS-455, GS California, Sport wagon, Custom	1946	1972	4	4	1
LESABRE / CENTURION / WILDCAT	Wagon, Luxus, Invicta, Custom, Limited	1959	1985	4	4	2
	Wagon, Luxus, Invicta, Custom, Limited	1959	1976	6	6	2
	T-Type (use 9 stiffness for front impacts, size value for side or rear impacts)	1986	1998	4	9	2
ELECTRA / ELECTRA 225 / PARK AVENUE (1991-ON)	LImited, Park Avenue, Ultra (use 9 stiffness for front impacts, size value for side or rear impacts)	1985		4	9	3
	Limited, Park Avenue, Ultra	1977	1984	5	5	3
	Limited, Park Avenue, Ultra	1959	1976	6	6	3
ROADMASTER	Estate Wagon, Limited	1991	1996	4	4	4
RIVIERA	S-Type, T-Type	1963	1965	4	4	5
	S-Type, T-Type	1966	1976	5	5	5
	S-Type, T-Type	1977	1985	4	4	5
	S-Type, T-Type Anniv. Edition, Silver Arrow, (use 9 stiffness for front impacts, size value for side or rear impacts)	1994		4	9	5
	S-Type, T-Type (use 9 stiffness for front impacts, size value for side or rear impacts)	1986	1993	3	9	5
CENTURY	Luxus, Custom	1954	1977	4	4	7
	Custom, FWD (use 9 stiffness for front impacts, size value for side or rear impacts)	1982		3	9	7
	Luxus, Regal	1972	1977	4	4	7
	Custom	1978	1981	3	3	7
APOLLO / SKYLARK (73-1976)	Skylark (1975), S / R	1973	1976	4	4	8
REGAL	Turbo, Luxux, Gran National, GNX, T-Type	1978	1988	3	3	10
SKYHAWK	(use 9 stiffness for front impacts, size value for side or rear impacts)	1982	1989	2	9	12
	S-Type, Roadhawk, T-Type, GT	1975	1981	2	2	12
SKYLARK (1976-1985)	S / R, S, Limited, Sport, T-Type (use 9 stiffness for front impacts, size value for side or rear impacts)	1980	1985	3	9	15
	S / R, S, Limited, Sprot, T-Type	1976	1979	4	4	15
SOMERSET (1985-1987) / SKYLARK (1986-ON)	Skylark (1986-on) (Use 9 stiffness for frontal impacts).	1986		3	9	18
	Somerset, GS Regal, Custom, Limited, T-Type (use 9 stiffness for frontal impacts).	1985	1987	3	9	18
REGAL (FWD)	Limited	1988		3	9	20
REATTA		1988	1991	2	2	21

Model	Includes	Start	End	Size	Stiffness	Model Code
BUICK (cont'd)						
OPEL KADETT		1965	1972	2	2	31
OPEL MANTA	1900, Luxus, Rallye, Sports Coupe	1966	1975	2	2	32
OPEL GT		1969	1975	2	2	33
OPEL ISUZU	Deluxe, Sport	1976	1979	2	2	34
OTHER AUTOMOBILE		1965				398
UNKNOWN AUTOMOBILE		1965				399
UNKNOWN VEHICLE		1965				999
CADILLAC						
DEVILLE / FLEETWOOD	Coupe de Ville, Sedan de Ville, Fleetwood Brougham, Fleetwood 60 Special, d'Elegance (use 9 stiffness for front impacts, size value for side or rear impacts)	1940	1976	6	6	3
	Concourse (use 9 stiffness for front impacts, size value for side or rear impacts)	1994		4	9	3
	FWD d'Elegance (use 9 stiffness for front impacts, size value for side or rear impacts)	1985		4	9	3
	RWD--Coupe de Ville, Sedan de Ville, Fleetwood Brougham, Fleetwood 60 Special, d'Elegance (use 9 stiffness for front impacts, size value for side or rear impacts	1977	1996	5	5	3
LIMOUSINE	Fleetwood 75, Formal, DeVille-Based	1940		6	6	4
ELDORADO	Biarritz, El-doro, Touring Coupe	1940	1978	6	6	5
	Biarritz, El-doro, Touring Coupe (use 9 stiffness for front impacts, size value for side or rear impacts)	1986		3	9	5
	Biarritz, El-doro, Touring Coupe	1979	1985	4	4	5
COMMERCIAL SERIES	Ambulance / Hearse	1940		6	6	6
ALLANTE		1987	1993	2	2	9
SEVILLE	Elegante	1976	1985	4	4	14
	STS (use 9 stiffness for front impacts, size value for side or rear impacts)	1986		3	9	14
CIMARRON	D'oro (use 9 stiffness for front impacts, size value for side or rear impacts)	1982	1988	2	9	16
CATERA	RWD	1997		3	3	17
ESCALADE	(use 8 stiffness for end impacts, size value for side impacts)	1999		5	8	401
OTHER AUTOMOBILE		1940				398
UNKNOWN AUTOMOBILE		1940				399
UNKNOWN VEHICLE		1940				999

Model	Includes	Start	End	Size	Stiffness	Model Code
CHECKER						
AEROBUS		1965	1982	per WB	= size	2
MARATHON		1965	1982	per WB	= size	2
OTHER AUTOMOBILE		1965	1982	per WB	= size	2
SUPERBA		1965	1982	per WB	= size	2
TAXI		1965	1982	per WB	= size	2
UNKNOWN AUTOMOBILE		1965	1982	per WB	= size	2
CHEVROLET						
CHEVELLE / MALIBU	Classic, Concours, S-3, Laguna, Nomad, 300, Greenbriar, Estate, Deluxe, SS 396 / 454	1978	1983	3	3	1
	Classic, Concours, S-3, Laguna, Nomad, 300, Greenbriar, Estate, Deluxe, SS 396 / 454	1964	1977	4	4	1
IMPALA / CAPRICE	Brookwood, Kingswood	1977		4	4	2
	St. Wgn. Biscayne, Belair, Super sport, Classic Classic Brougham, Townsman	1955	1976	6	6	2
	Biscayne, Belair, Super sport, Classic Classic Brougham, Townsman	1955	1976	5	5	2
IMPALA		2000		TBD	TBD	2
CORVETTE	Stingray	1963		2	2	4
	Stingray	1953	1962	3	3	4
CORVAIR	Monza, Corsa, 500, Yenko	1960	1969	NA	NA	6
EL CAMINO	Royal Knight, SS (use 8 stiffness for end impacts, size value for side impacts)	1959	1960	5	8	7
	Royal Knight, SS (use 8 stiffness for end impacts, size value for side impacts)	1978	1994	3	8	7
	Royal Knight, SS (use 8 stiffness for end impacts, size value for side impacts)	1964	1977	4	8	7
NOVA (-1979)	Chevy II, LN, LE, Concours SS-350 / 396, Rally	1962	1979	4	4	8
CAMARO	SS, RS, LT, Berlinetta, IROC-Z, Z28	1967	1998	3	3	9
MONTE CARLO (RWD ONLY)	LS, SS, Aerocoupe, Landau	1978	1988	3	3	10
	LS, SS, Aerocoupe, Landau	1970	1977	4	4	10
VEGA	GT, Cosworth	1971	1977	2	2	11
MONZA	Spyder, 2+2, Towne Coupe	1974	1980	2	2	12
CHEVETTE	S, Scooter, CS-4 door	1976	1987	2	2	13
	S, Scooter, CS--2 door	1976	1987	1	1	13
CITATION	X-11, Citation II (use 9 stiffness for front impacts, size value for side or rear impacts)	1980	1985	3	9	15
CAVALIER	CS, RS, Z24, LS	1982		2	9	16
CELEBRITY	CS, Eurosport, VR	1982	1990	3	9	17
BERETTA / CORSICA	GT, Z26 (use 9 stiffness for front impacts, size value for side or rear impacts)	1988	1996	3	9	19

Model	Includes	Start	End	Size	Stiffness	Model Code
CHEVROLET (Cont'd)						
LUMINA	Z-34, Euro (use 9 stiffness for front impacts, size value for side or rear impacts)	1990		3	9	20
SPECTRUM		1985	1989	1	1	31
NOVA / GEO PRIZM	CL, NUMMI-built vehicle (use 9 stiffness for front impacts, size value for side or rear impacts)	1985		2	9	32
SPRINT / GEO SPRINT		1985	1989	1	1	33
GEO METRO	LSi, Xfi	1989		1	1	34
GEO STORM	Gsi	1985	1993	1	1	35
MONTE CARLO (FWD ONLY)	FWD, LS, Z34 (use 9 stiffness for front impacts, size value for side or rear impacts)	1995		3	9	36
MALIBU (1997-)		1997		3	9	37
OTHER AUTOMOBILE	Fleetmaster, Fleetline, Styline Special, One-fifty, Bel-Air, Del Ray, Biscayne	1930				398
UNKNOWN AUTOMOBILE		1930				399
S-10 BLAZER, BLAZER	Blazer (use 9 stiffness for end impacts, size value for side impacts)	1995		2	7	401
	S-10 pickup-based (100.5" WB) (use 7 stiffness for end impacts, size value for side impacts)	1983	1994	2	7	401
GEO TRACKER	Lsi (use 8 stiffness for end impacts, size value for side impacts)	1989		2	8	402
TRAVERSE		2000		TBD	TBD	
FULLSIZE BLAZER (K, Tahoe)	Tahoe (use 8 stiffness for end impacts, size value for side impacts)	1995		3	8	421
	K-series, fullsized pickup-based (use 8 stiffness for end impacts, size value for rear impacts)	1969	1994	3	8	421
AVALANCHE		2000		TBD	TBD	
SUBURBAN	(use 8 stiffness for end impacts, size value for side impacts)	1950		6	8	431
ASTRO VAN	Minivan (use 7 stiffness for end impacts, size value for side impacts)	1985		7	7	441
LUMINA APV / VENTURE.	Venture (use 7 stiffness for end impacts, size value for side impacts)	1990		3	7	442
G-SERIES VAN	Beauville, Chevy Van, Sport Van, G10-G30, Express (use 7 stiffness for end impacts, size value for side impacts)	1957		7	7	461
P-SERIES VAN	(use 7 stiffness for end impacts, size value for side impacts)	1965	1995	7	7	466
VAN DERIVATIVE	Hi-cube, Parcel Van (use 7 stiffness for end impacts, size value for side impacts)	1965		7	7	470

Model	Includes	Start	End	Size	Stiffness	Model Code
CHEVROLET (cont'd)						
S-10 / T-10	4 X 4 (use 8 stiffness for end impacts, size value for side impacts)	1982		PER WB	8	471
LUV	Imported pickup (use 7 stiffness for end impacts, size value for side impacts)	1972	1991	7	7	472
C, K, R, V-SERIES PICKUP	C10-C30, K10-K30, R10-R30, V10-V30, Silverado, C-K 1500, 2500, 3500 (use 8 stiffness for end impacts, size value for side impacts)	1940		PER WB	8	481
OTHER LIGHT TRUCK		1940				498
UNKNOWN LIGHT TRUCK		1940				499
MEDIUM / HEAVY CBE	C50 / 60 / 65; M60/65; H70/80/90; J70 / 80 / 90; Bison 90; all other CBE	1955		NA	NA	881
MEDIUM / HEAVY COE LOW ENTRY	T60 / 65 - all other COE low entry	1960	1980	NA	NA	882
MEDIUM / HEAVY COE HIGH ENTRY	Titan 90, all other COE hight entry	1971	1990	NA	NA	883
MEDIUM / HEAVY; UNKNOWN ENGINE LOCATION		1951				884
MEDIUM / HEAVY; UNKNOWN ENGINE LOCAITON	MKIII, 1500	1965		1	1	890
OTHER MEDIUM / HEAVY TRUCK		1949				898
UNKNOWN TYPE TRUCK (LIGHT / MEDIUM / HEAVY)		1949				899
UNKNOWN MEDIUM / HEAVY TRUCK		1949				899
BUS	S-60 series	1967		NA	NA	981
OTHER BUS		1965				988
UNKNONW BUS TYPE		1965				988
OTHER VEHICLE		1934				998
UNKNOWN VEHICLE		1933				999

Model	Includes	Start	End	Size	Stiffness	Model Code
CHRYSLER						
CORDOBA	Crown, 300, LS	1975	1983	4	4	9
NEW YORKER FIFTH AVENUE (1989)	New Yorker (through 1978)	1946	1989			10
NEWPORT		1979	1983			10
RAMPAGE 2.2 (CAR BASED PICKUP)	GT, Sport	1982	1984	2	2	13
NEW YORKER (1983-1990)		1983	1990			14
NEW YORKER SALON						14
NEW YORKER / E CLASS / IMPERIAL / 5TH AVENUE	Imperial (use 9 stiffness for front impacts, size value for side or rear impacts)	1990	1993	3	9	14
	FWD vehicles, Turbo (use 9 stiffness for front impacts, size value for side or rear impacts)	1983	1993	3	9	14
NEW YORKER / NEWPORT / 5TH AVENUE / IMPERIAL (RWD ONLY)	Custom, Royal, Brougham, Town and Country	1979	1981	5	5	14
	Custom, Royal, Brougham, Town and Country	1946	1978	6	6	14
	Custom, Royal, Brougham, Town and Country	1982	1989	4	4	14
	300	1946	1971	6	6	14
LASER	Turbo, XE, XT (use 9 stiffness for front impacts, size value for side or rear impacts)	1984	1986	2	9	15
LEBARON	FWD except GTS or GTC Sport Coupe (use 9 stiffness for front impacts, size value for side or rear impacts)	1982	1994	2	9	16
	Medallion, Salon (RWD), Landau, LX	1977	1981	4	4	16
LEBARON GTS / GTC	GTC-Sport Coupe (use 9 stiffness for front impacts, size value for side or rear impacts)	1987	1995	2	9	17
	GTS-Turbo (use 9 stiffness for front impacts, size value for side or rear impacts)	1985	1995	3	9	17
TC (MASERATI SPORT)	Turbo Convertible	1988	1991	1	1	31
CONQUEST	TSI, Turbo	1987	1989	2	2	35
CONCORDE		1993		4	4	41
LHS	New Yorker (use 9 stiffness for front impacts, size value for side or rear impacts)	1994		4	9	42
SEBRING		1995		3	3	43
CIRRUS	(use 9 stiffness for front impacts, size value for side or rear impacts)	1995		3	9	44
300M		1999		4	9	51
OTHER AUTOMOBILE		1946				398
UNKNOWN AUTOMOBILE		1946				399

Model	Includes	Start	End	Size	Stiffness	Model Code
CHRYSLER (Cont'd)						
TOWN AND COUNTRY	Minivan (use 7 stiffness for end impacts, size value for side impacts)	1990		5	7	441
OTHER LIGHT TRUCK		1946				498
UNKNOWN LIGHT TRUCK		1946				499
UNKNOWN VEHICLE		1946				999
CITROEN						
OTHER AUTOMOBILE		1965	1991			33
UNKNOWN AUTOMOBILE		1965	1991			33
CONSULIER						
OTHER AUTOMOBILE				per WB	= size	398
UNKNOWN AUTOMOBILE				per WB	= size	398
DAEWOO						
LANOS		1999		TBD	TBD	1
NUBIRA		1999		TBD	TBD	2
LEGANZA		1999		TBD	TBD	3
DAIHATSU						
CHARADE		1988	1994	3	3	31
OTHER AUTOMOBILE						398
UNKNOWN AUTOMOBILE						399
ROCKY	(use 8 stiffness for end impacts, size value for side impacts)	1990	1992	1	8	401
OTHER LIGHT TRUCK						498
UNKNOWN LIGHT TRUCK						499
UNKNOWN VEHICLE		1990	1994			999
DELOREAN						
OTHER AUTOMOBILE		1981	1983			34
UNKNOWN AUTOMOBILE						34

Model	Includes	Start	End	Size	Stiffness	Model Code
DESOTO						
OTHER AUTOMOBILE		1940		per WB	= size	398
UNKNOWN AUTOMOBILE		1940		per WB	= size	398
DESTA						
OTHER AUTOMOBILE		1985				48
UNKNOWN AUTOMOBILE						48
DIAMOND REO / REO						
MEDIUM / HEAVY TRUCK BASED MOTORHOME		1954	1975			850
MEDIUM / HEAVY - CBE		1954	1975			881
MEDIUM / HEAVY - COE / LOW ENTRY		1954	1975			882
MEDIUM / HEAVY - COE / HIGH ENTRY		1954	1975			883
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1954	1975			884
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN		1954	1975			890
MEDIUM / HEAVY - OTHER		1954	1975			898
DIVCO						
MEDIUM / HEAVY - CBE						803
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN						803
MEDIUM / HEAVY - COE / HIGH ENTRY						803
MEDIUM / HEAVY - COE / LOW ENTRY						803
MEDIUM / HEAVY - OTHER						803
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION						803
MEDIUM / HEAVY BASED MOTORHOME						803

Model	Includes	Start	End	Size	Stiffness	Model Code
DODGE						
DART	Custom, Swinger, Sport, GT, Demon, Special, Special Edition, 170, 270, 340, 360: WB = 111"	1960	1976	4	4	1
	Custom, Swinger, Sport, GT, Demon, Special, Special Edition, 170, 270, 340, 360: WB = 108"	1960	1976	3	3	1
CORONET / CHARGER / MAGNUM	Brougham, Custom, Superbee, Crestwood, Deluxe, XE, R / t, SE 440, 500, Police	1964	1979	4	4	2
	Charger	1964	1978	4	4	2
POLARA / MONACO / ROYAL MONACO	Custom, Special, Crestwood, Brougham, Police Taxi	1977	1978	4	4	3
	Custom, Special, Crestwood, Brougham, Police Taxi	1964	1976	5	5	3
VIPER	RT / 10, GTS	1992		2	2	4
CHALLENGER	R / T, T / A, Rallye	1970	1974	3	3	5
ASPEN	Custom, Special Edition, Police, R / T, Sport: WB = 109"	1976	1980	4	3	6
	Custom, Special Edition, Police, R / T, Sport: WB = 113"	1976	1980	4	3	6
DIPLOMAT	Medallion, Salon, S	1977	1989	4	4	7
OMNI / CHARGER	Charger 2.2	1983	1990	2	2	8
	O24, DeTomaso, Miser, GLH, GLHS, Shelby, America, Expo	1978	1990	2	2	8
MIRADA		1980	1983	4	4	9
ST REGIS	Police, Taxi	1979	1981	5	5	10
ARIES (K)	Custom, SE, LE (use 9 stiffness for front impacts, size value for side or rear impacts)	1981	1989	2	9	11
400	LS (use 9 stiffness for front impacts, size value for side or rear impacts)	1982	1983	2	9	12
RAMPAGE	2.2, GT, SPORT (Car-based pickup)	1982	1984			13
600	ES, Turbo (use 9 stiffness for front impacts, size value for side or rear impacts)	1983	1988	2	9	14
DAYTONA	Turbo Z, Shelby Z, Pacifica, C/S Competition, IROC R /T (use 9 stiffness for front impacts, size value for side or rear impacts)	1984	1994	2	9	15
LANCER	Pacifica, Turbo, ES, Shelby (use 9 stiffness for front impacts, size value for side or rear impacts)	1985	1989	3	9	16
SHADOW	ES, Turbo (use 9 stiffness for front impacts, size value for side or rear impacts)	1987	1994	2	9	17
DYNASTY	(use 9 stiffness for front impacts, size value for side or rear impacts)	1988	1993	3	9	18
SPIRIT	ES, Shelby, R / T (use 9 stiffness for front impacts, size value for side or rear impacts)	1989	1995	3	9	19
NEON	Expresso (use 9 stiffness for front impacts, size value for side or rear impacts)	1994		3	9	20
CHALLENGER	all imported	1978	1983	2	2	33

Model	Includes	Start	End	Size	Stiffness	Model Code
DODGE (Cont'd)						
COLT (EXCLUDES VISTA)	RS, Turbo, Custom, GTS, DL, E, Premier, Deluxe Carousel, GT	1977	1980	2	2	34
	RS, Turbo, Custom, GTS, DL, E, Premier, Deluxe Carousel, GT	1974	1976	2	2	34
	RS, Turbo, Custom, GTS, DL, E, Premier, Deluxe Carousel, GT	1980	1994	1	1	34
	RS, Turbo, Custom, GTS, DL, E, Premier, Deluxe Carousel, GT: WB<93"	1977	1980	1	2	34
CONQUEST	Turbo	1984	1989	2	2	35
STEALTH		1991		2	2	39
MONACO		1990	1992	3	3	40
INTREPID		1993		4	4	41
AVENGER		1995		3	3	42
STRATUS	(use 9 stiffness for front impacts, size value for side or rear impacts)	1995		3	9	43
OTHER AUTOMOBILE						398
UNKNOWN AUTOMOBILE						399
RAIDER	Sport (use 8 stiffness for end impacts, size value for side impacts)	1986	1994	1	8	401
DURANGO	Use 8 stiffness for end impacts, size value for side impacts.	1998		4	8	402
RAMCHARGER	(use 8 stiffness for end impacts, size value for side impacts)	1974	1993	3	8	421
VISTA	4 X 4 (use 7 stiffness for end impacts, size value for side impacts)	1984	1991	3	7	441
CARAVAN	Mini-Ram, SE, ES, LE, SE: WB = 119" (use 7 stiffness for end impacts, size value for side impacts)	1984	1998	5	7	442
	Mini-Ram, SE, ES, LE, SE: WB = 112" (use 7 stiffness for end impacts, size value for side impacts)	1984	1998	4	7	442
B-SERIES VANS	Sportsman, Royal, Maxiwagon, Ram, B150-B350, Tradesman, Maxivan (use 7 stiffness for front impacts, size value for side or rear impacts)	1963		7	7	461
VAN DERIVATIVE	Kary Van, Parcel Van (use 7 stiffness for end impacts, size value for side impacts)	1971		7	7	470
D50, COLT PICKUP / RAM 50 / RAM 100	Ram 50 / Ram 100 (use 8 stiffness for end impacts, size value for side impacts)	1983	1993	per WB	8	471
	D50, Colt Pickup (use 8 stiffness for end impacts, size value for side impacts)	1979	1982	per WB	8	471
DAKOTA	WB = 124" (use 8 stiffness for end impacts, size value for side impacts)	1987		6	8	472
	WB = 112" (use 8 stiffness for end impacts, size value for side impacts)	1987		3	8	472

Model	Includes	Start	End	Size	Stiffness	Model Code
DODGE (Cont'd)						
D, W-SERIES PICKUP, W100-W350	Ram, Custom, Royal, Miser, D100-D350 (use 8 stiffness for end impacts, size value for side impacts)	1955	1993	per WB	8	481
RAM PICKUP	1500 / 2500 / 3500, Pickup (use 8 stiffness for end impacts, size value for side impacts)	1994		per WB	8	482
OTHER LIGHT TRUCK		1979				498
UNKNOWN LIGHT TRUCK		1949				499
MEDIUM / HEAVY: CBE		1966				881
MEDIUM / HEAVY: COE LOW ENTRY		1967				882
MEDIUM / HEAVY: COE HIGH ENTRY		1967				883
MEDIUM / HEAVY: UNKNOWN ENGINE LOCATION		1962				884
MEDIUM / HEAVY: COE ENTRY POSITION UNKNOWN		1965				890
OTHER MEDIUM / HEAVY TRUCK		1930				898
UNKNOWNTYPE TRUCK (LIGHT / MEDIUM / HEAVY		1930				899
UNKNOWN MEDIUM / HEAVY TRUCK		1966				899
MEDIUM BUS	not van based	1966	1998	NA	NA	981
OTHER BUS		1965				988
UNKNOWN BUS TYPE						989
OTHER VEHICLE		1965				998
UNKNOWN VEHICLE		1952				999

Model	Includes	Start	End	Size	Stiffness	Model Code
DUCATI						
MOTORCYCLE (000-050CC)		1965				701
MOTORCYCLE (051-124CC)		1965				702
MOTORCYCLE (125-349CC)		1965				703
MOTORCYCLE (350-449CC)		1965				704
MOTORCYCLE (450-749CC)		1965				705
MOTORCYCLE (750CC-OVER)		1965				706
MOTORCYCLE (UNKNOWN CC)		1965				709
OTHER MOTORED CYCLE		1965				798
UNKNOWN MOTORED CYCLE		1965				799
EAGLE						
SUMMIT	DL, LX, ES	1989	1996	3	3	34
TALON	FWD, TSi, Tsi-FWD, ESi	1990		2	2	37
PREMIER	LX, ES	1988	1992	3	3	40
VISION		1993	1997	4	4	41
MEDALLION	DL, LX	1988	1989	3	3	44
OTHER AUTOMOBILE		1988				398
UNKNOWN AUTOMOBILE		1988				399
SUMMIT WAGON	WB = 99.2" (use 7 stiffness for end impacts, size value for side impacts)	1992	1996	2	7	441
OTHER LIGHT TRUCK						498
UNKNOWN LIGHT TRUCK						499
UNKNOWN VEHICLE						999
EXCALIBER						
OTHER AUTOMOBILE		1940	1991	per WB	= size	398
UNKNOWN AUTOMOBILE		1940	1991	per WB	= size	398
FERRARI						
OTHER AUTOMOBILE	All Models	1965				35
UNKNOWN AUTOMOBILE		1965				35

Model	Includes	Start	End	Size	Stiffness	Model Code
FIAT						
124 (COUPE / SEDAN)	Sport	1967	1975	1	1	31
124 SPIDER / RACER	Spider 2000 / 1500	1968	1983	1	1	32
BRAVA - 131		1975	1982	2	2	33
850 (COUPE / SPYDER)		1967	1973	1	1	34
128		1972	1979	2	2	35
X-1/9		1975	1983	1	1	36
STRADA		1979	1983	1	1	37
OTHER AUTOMOBILE		1967	1983			398
UNKNOWN AUTOMOBILE		1967	1983			399
MEDIUM / HEAVY COE LOW ENTRY		1967	1983			882
MEDIUM / HEAVY COE HIGH ENTRY		1967	1983			883
MEDIUM / HEAVY COE ENTRY POSITION UNKNOWN		1967	1983			890
OTHER MEDIUM / HEAVY TRUCK		1967	1983			898
UNKNOWN MEDIUM / HEAVY TRUCK		1967	1983			899
UNKNOWN VEHICLE		1967	1983			999

Model	Includes	Start	End	Size	Stiffness	Model Code
FORD						
FALCON	Sprint, GT, Futura	1960	1970	4	3	1
FAIRLANE	Torino	1955	1970	4	4	2
MUSTANG / MUSTANG II	Mach, Boss, Granada, Cobra	1965	1973	3	3	3
	Ghia, SVO, GT, LX, Shelby	1974	1998	2	2	3
THUNDERBIRD (ALL SIZES)	Landau, Heritage, Turbo coupe, Elan, Fila	1980	1988	3	3	4
	Landau, Heritage, Turbo coupe, Elan, Fila	1977	1979	4	4	4
	Landau, Heritage, Turbo coupe, Elan, Fila	1972	1976	5	6	4
	Landau, Heritage, Turbo coupe, Elan, Fila	1958	1971	4	4	4
	Landau, Heritage, Turbo coupe, Elan, Fila	1989	1998	4	4	4
	Landau, Heritage, Turbo coupe, Elan, Fila	1955	1957	3	3	4
LTD II	S, Squire, Brougham	1977	1979	4	4	5
LTD / CUSTOM / GALAXIE (ALL SIZES)	XL, Landau, Ranch Wagon, Country Squire, S, 500, Brougham, XL, GT	1983	1986	3	3	6
	XL, Landau, Ranch Wagon, Country Squire, S, 500, Brougham, XL, GT	1978	1982	4	4	6
	XL, Landau, Ranch Wagon, Country Squire, S, 500, Brougham, XL, GT	1963	1977	5	5	6
RANCHERO	Flacon / Fairlane based	1960	1971	3	3	7
	Torino / LTD II based	1972	1979	4	4	7
MAVERICK	Grabber	1969	1978	3	3	8
PINTO	Pony, MPG, ESS (Stiffness for front impacts, Stiffness 2 for rear or side impacts)	1971	1980	1	1/2	9
TORINO / GRAN TORINO / ELITE	GT, Cobra, Sport, Squire, Brougham	1971	1976	4	4	10
GRANADA	ESS, Ghia	1975	1982	3	3	11
FAIRMONT	Futura, Sport Coupe	1978	1983	3	3	12
ESCORT / EXP	L, GL, GLX, SS, GT, LX, ZX2 (use 9 stiffness for front impacts, size value for side or rear impacts)	1981		1	9	13
TEMPO	L, GL, GLX, Sport, 4X4 (use 9 stiffness for front impacts, size value for side or rear impacts)	1984	1994	2	9	15
CROWN VICTORIA		1981		4	4	16
TAURUS	Mt-5, L, GL, LX, SHO	1986		3	3	17
PROBE	GL, LX, GT	1987	1997	2	2	18
ENGLISH FORD	Cortina, Angila, Zephyr / Zodiac	1946	1970	per WB	per WB	31
FIESTA	Sport, Ghia	1978	1980	1	1	32
FESTIVA	L, GL	1988	1993	1	1	33
LASER		1993	1994	per WB	per WB	34
CONTOUR	Sport, LX, SE, SVT	1994		3	9	35
ASPIRE	(use 9 stiffness for front impacts, size value for side or rear impacts)	1994	1997	1	1	36
FOCUS	(use 9 stiffness for front impacts, size value for side or rear impacts)	2000		3	9	37
OTHER AUTOMOBILE	Deluxe, Ford Six, Mainline, Crestline, Model A	1924				398
UNKNOWN AUTOMOBILE		1924				399

Model	Includes	Start	End	Size	Stiffness	Model Code
FORD (Cont'd)						
BRONCO II / BRONCO (-1977) / EXPLORER	Bronco II--Eddie Bauer, XL, XLT, Limited (use 7 stiffness for end impacts, size value for side impacts)	1983	1989	1	7	401
	Explorer (use 7 stiffness for end impacts, size value for side impacts)	1990		1	7	401
	Bronco (use 7 stiffness for end impacts, size value for side impacts)	1966	1977	1	7	401
BRONCO - FULLSIZE	Eddie Bauer, Custom, XL, XLT (use 8 stiffness for end impacts, size value for side impacts)	1978		3	8	421
EXPEDITION		1997		TBD	TBD	422
EXCURSION		2000		TBD	TBD	423
AEROSTAR	XLT, Cargo Van (use 7 stiffness for end impacts, size value for side impacts)	1984	1998	7	7	441
WINDSTAR	(use 7 stiffness for end impacts, size value for side impacts)	1995		5	7	442
E-SERIES VANS	Econoline, Clubwagon, Chateau, E150-E350 (use 7 stiffness for end impacts, size value for side impacts)	1960		7	7	461
VAN DERIVATIVE	Parcel van (use 7 stiffness for end impacts, size value for side impacts)	1960		7	7	470
RANGER	Supercab, 4X4, STX, Splash: WB = 114" (use 8 stiffness for end impacts, size value for side impacts)	1982		4	8	471
	Supercab, 4X4, STX, Splash: WB = 108" (use 8 stiffness for end impacts, size value for side impacts)	1982		3	8	471
COURIER	Imported pickup (use 7 stiffness for end impacts, size value for side impacts)	1972	1991	7	7	472
F-SERIES PICKUP	F100-F350 (use 8 stiffness for end impacts, size value for side impacts)	1940		per WB	8	481
OTHER LIGHT TRUCK		1972				498
UNKNOWN LIGHT TRUCK		1928				499
MEDIUM / HEAVY CBE	F-5 through F-8, L-series, FT-series	1953		NA	NA	881
MEDIUM / HEAVY COE LOW ENGRY	C / Ct series	1964		NA	NA	882
MEDIUM / HEAVY COE HIGH ENTRY	C / CLT series	1967		NA	NA	883
MEDIUM / HEAVY: UNKNOWN ENGINE LOCATION		1956				884
MEDIUM / HEAVY: COE ENTRY POSITION UNKNOWN		1956				890
OTHER MEDIUM / HEAVY TRUCK		1965				898

Model	Includes	Start	End	Size	Stiffness	Model Code
FORD (Cont'd)						
UNKNOWNTYPE TRUCK (LIGHT / MEDIUM / HEAVY)		1956				899
UNKNOWN MEDIUM / HEAVY TRUCK		1956				899
MEDIUM BUS	B-series (not van based)	1964		NA	NA	981
OTHER BUS		1965				988
UNKNOWN BUS TYPE		1964				989
OTHER VEHICLE		1950				998
UNKNOWN VEHICLE		1960				999
FREIGHTLINER / WHITE						
MEDIUM / HEAVY TRUCK BASED MOTORHOME						850
MEDIUM / HEAVY - CBE		1965				881
MEDIUM / HEAVY - COE / LOW ENTRY		1968				882
MEDIUM / HEAVY - COE / HIGH ENTRY		1965				883
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1963				884
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN		1965				890
MEDIUM / HEAVY - OTHER		1965				898
FWD						
MEIDUM / HEAVY TRUCK BASED MOTORHOME		1965				850
MEDIUM / HEAVY - CBE		1965				881
MEDIUM / HEAVY - COE / LOW ENTRY		1965				882
MEDIUM / HEAVY - COE / HIGH ENTRY		1965				883
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1965				884
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN		1965				898
MEDIUM / HEAVY - OTHER		1965				898

Model	Includes	Start	End	Size	Stiffness	Model Code
GMC						
CABALLERO / SPRINT	Sierra Madre del Sur, SP (use 8 stiffness for end impacts, size value for side impacts)	1965	1977	4	8	7
	Sierra Madre del Sur, SP (use 8 stiffness for end impacts, size value for side impacts)	1978	1987	3	8	7
OTHER AUTOMOBILE						398
UNKNOWN AUTOMOBILE						399
JIMMY / TYPHOON / ENVOY	S15 based (100.5" WB) (use 7 stiffness for end impacts, size value for side impacts)	1983		2	7	401
FULLSIZE JIMMY / YUKON	fullsize pikup based (use 8 stiffness for end impacts, size value for side impacts)	1969		3	8	421
SUBURBAN	all models (use 8 stiffness for end impacts, size value for side impacts)	1950		6	8	431
	Yukon XL	2000		TBD	TBD	431
SAFARI (MINIVAN)	(use 7 stiffness for end impacts, size value for side impacts)	1985		7	7	441
G-SERIES VAN	Rally Van, Vandura, G15-G35 (use 7 stiffness for end impacts, size value for side impacts)	1965		7	7	461
P-SERIES VAN	(use 7 stiffness for end impacts, size value for side impacts)	1965		TBD	TBD	466
VAN DERIVATIVE		1965		3	3	470
S15 / T15 / SONOMA	4X4, Cyclone (use 8 stiffness for end impacts, size value for side impacts)	1982		PER WB	8	471
C, K, R, V-SERIES PICKUP	C15-C35, K15-K35, R15-R35, V15-V35, SIERRA (use 8 stiffness for end impacts, size value for side impacts)	1940		PER WB	8	481
OTHER LIGHT TRUCK		1930				498
UNKNOWN LIGHT TRUCK		1951				499
MEDIUM / HEAVY CBE	W5000 / 6000 / 7000 series, Brigadier / General models	1967		NA	NA	881
MEDIUM / HEAVY COE LOW ENTRY	W6000 / W7000, all other COE, low entry	1968		NA	NA	882
MEDIUM / HEAVY COE HIGH ENTRY	Astro 95, all other COE, high entry	1969		NA	NA	883
MEDIUM / HEAVY: UNKNOWN ENGINE LOCATION		1948		NA	NA	884
MEDIUM / HEAVY: COE ENTRY POSITION UNKNOWN		1967				890
OTHER MEDIUM / HEAVY TRUCK		1930				898
UNKNOWNTYPE TRUCK (LIGHT / MEDIUM / HEAVY		1930				899
UNKNOWN MEDIUM / HEAVY TRUCK		1948				899

Model	Includes	Start	End	Size	Stiffness	Model Code
GMC (Cont'd)						
MEDIUM BUS	B6000	1950		NA	NA	981
OTHER BUS		1965				988
UNKNOWN BUS TYPE		1950				989
UNKNOWN VEHICLE		1940				999
GRUMMAN						
LLV	Postal vehicles (see Chevrolet for VIN)	1987		NA	NA	441
STEP-IN VAN	Multi-stop, step van	1987		NA	NA	442
OTHER LIGHT TRUCK		1987				498
UNKNOWN LIGHT TRUCK		1987				499
MEDIUM / HEAVY TRUCK - CBE		1987				881
MEDIUM / HEAVY TRUCK - COE LOW ENTRY		1987				882
MEDIUM / HEAVY TRUCK - COE HIGH ENTRY		1987				883
MEDIUM / HEAVY TRUCK UNKNOWN ENGINE LOCATION		1987				884
MEDIUM / HEAVY TRUCK ENTRY POSITION UNKNOWN		1987				890
OTHER MEDIUM / HEAVY TRUCK		1987				898
UNKNOWNTYPE TRUCK (LIGHT / MEDIUM / HEAVY		1987				899
UNKNOWN MEDIUM / HEAVY TRUCK		1987				899
BUS-FLAT FRONT, REAR ENGINE	Transit	1950		NA	NA	983
OTHER BUS		1950				988
UNKNOWN BUS TYPE		1950				989
UNKNOWN VEHICLE		1950				999

Model	Includes	Start	End	Size	Stiffness	Model Code
HARLEY - DAVIDSON						
MOTORCYCLE (000-050CC)		1965	1966			701
MOTORCYCLE (051-124CC)		1948	1978			702
MOTORCYCLE (125-349CC)		1948	1978			703
MOTORCYCLE (350-449CC)		1969	1974			704
MOTORCYCLE (450-749CC)		1971	1978			705
MOTORCYCLE (750CC-OVER)		1932				706
MOTORCYCLE (UNKNOWN CC)		1932				709
OTHER MOTORED CYCLE						798
UNKNOWN MOTORED CYCLE						799
HILLMAN						
UNKNOWN AUTOMOBILE		1965	1991			35
OTHER AUTOMOBILE		1965	1991			36
HINO						
MEDIUM / HEAVY - CBE		1985				806
MEDIUM / HEAVY - COE/ENTRY POSITION UNKNOWN		1985				806
MEDIUM / HEAVY - COE/HIGH ENTRY		1985				806
MEDIUM / HEAVY - COE/LOW ENTRY		1985				806
MEDIUM / HEAVY - OTHER		1985				806
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1985				806
MEDIUM / HEAVY BASED MOTORHOME		1985				806

Model	Includes	Start	End	Size	Stiffness	Model Code
HONDA						
CIVIC / CRX / DEL SOL	del Sol	1993	1997	1	1	31
	1300, 1500, CVCC, DX, EX, VX, CRX, S, Si, HF, 4WD Wagon	1973		1	1	31
ACCORD	LX, CVCC, SE-i, LX-i, EX, EX wagon (use 9 stiffness for front impacts, size value for side or rear impacts)	1982	1986	2	9	32
	LX, CVCC, SE-i, LX-i, EX, EX wagon, 6 cylinder LX / EX (use 9 stiffness for front impacts, size value for side or rear impacts)	1987		3	9	32
	LX, CVCC, SE-i, LX-i, EX, EX wagon	1976	1981	1	1	32
PRELUDE	Si (use 9 stiffness for front impacts, size value for side or rear impacts)	1984	~~1998~~	2	9	33
	Si	1979	1983	1	1	33
600	Coupe, Sedan	1968	1972	1	1	34
S 2000		2000		TBD	TBD	35
INSIGHT		2000		TBD	TBD	36
OTHER AUTOMOBILE		1968				398
UNKNOWN AUTOMOBILE		1968				399
PASSPORT	LX, EX, DX (use 8 stiffness for end impacts, size value for side impacts)	1994		3	8	401
C-RV	LX, EX (use 8 stiffness for end impacts, size value for side impacts)	1997		3	8	402
ODYSSEY	LX, EX (use 8 stiffness for end impacts, size value for side impacts)	1995		4	8	441
OTHER LIGHT TRUCK		1994				498
UNKNOWN LIGHT TRUCK		1994				499
MOTORCYCLE (000-050CC)		1978				701
MOTORCYCLE (051-124CC)		1965				702
MOTORCYCLE (125-349CC)		1965				703
MOTORCYCLE (350-449CC)		1965				704
MOTORCYCLE (450-749CC)		1970				705
MOTORCYCLE (750CC-OVER)		1970				706
MOTORCYCLE (UNKNOWN CC)		1965				709
ATC / ATV (000-050CC)		1972				731
ATC / ATV (051-124CC)		1972				732
ATC / ATV (125-349CC)		1972				733
ATC / ATV (350CC-OVER)		1972				734

Model	Includes	Start	End	Size	Stiffness	Model Code
HONDA (Cont'd)						
ATC / ATV (UNKNOWN CC)		1972				739
UNKNOWN VEHICLE		1965				999
HUDSON						
OTHER AUTOMOBILE		1940		per WB	= size	398
UNKNOWN AUTOMOBILE		1940		per WB	= size	398
HYUNDAI						
PONY	Pony Excel (foreign)	1979	1988	2	2	31
EXCEL	GL, GLS, GS	1984	1994	1	1	32
SONATA	GL, GLS	1989		3	3	33
SCOUPE	LS Turbo	1991	1995	1	1	34
ELANTRA	GLS, GL	1992		2	2	35
ACCENT	L, GL, GS, Gsi, GT, Brio	1995		1	1	36
TIBURON	FX	1997		2	2	37
SANTA FE		2000		TBD	TBD	401
CROSSTOUR		2000		TBD	TBD	
OTHER AUTOMOBILE		1984				398
UNKNOWN AUTOMOBILE		1984				399
UNKNOWN VEHICLE		1984				999
IMPERIAL						
IMPERIAL	Lebaron	1954	1975	6	6	10
	Mark Cross, Frank Sinatra editions		~~1983~~	4	4	10
OTHER AUTOMOBILE		1965	1975			398
UNKNOWN AUTOMOBILE		1965	1975			399
UNKNOWN VEHICLE		1950	1975			999

Model	Includes	Start	End	Size	Stiffness	Model Code
INFINITI						
M30		1990	1992	3	3	31
Q45	Q45t, Touring	1990		4	4	32
G20	G20t, Touring, Standard	1991	1996	2	2	33
		1999		2	2	33
J30		1993	1997	3	3	34
I30		1996		3	3	35
OTHER AUTOMOBILE		1990				398
UNKNOWN AUTOMOBILE		1990				399
QX4		1997		8	8	401
OTHER LIGHT TRUCK		1997				498
UNKNOWN LIGHT TRUCK		1997				499
UNKNOWN VEHICLE		1990				999

Model	Includes	Start	End	Size	Stiffness	Model Code
INTERNATIONAL HARVESTER / NAVISTAR						
SCOUT	Scout II, Utility pu, SS-2, Roadstar, 800 series, Traveler, Terra Traveltop (use 8 stiffness for front and rear impacts, size value for side impacts)	1962	1980	per WB	8	421
TRAVELALL	1010-1210, 100-200 (use 8 stiffness for front and rear impacts, size value for side impacts)	1963	1975	per WB	8	431
MULTISTOP VAN	Metro RM, 120-160, MS 1210, MS 1510 (use 7 stiffness for front and rear impacts, size value for side impacts)	1960	1984	per WB	7	466
PICKUP	R-100-500, 900A-1500C/D, 1010-1510 (use 8 stiffness for front and rear impacts, size value for side impacts)	1951	1976	per WB	8	481
OTHER LIGHT TRUCK		1960				498
UNKNOWN LIGHT TRUCK		1951				499
TRUCK BASED MOTORHOME		1965				850
MEDIUM HEAVY - CBE	Loadstar / Fleetstar, Paystar, CBE Transtar, 4200, S-series Mixer	1963				881
MEDIUM / HEAVY - COE LOW ENTRY	CO, VCO, DCO, 190-1950, Cargostar, LFM, 5370 (Garbage)	1973				882
MEDIUM / HEAVY - COE HIGH ENTRY	DCO, DCOT, UCO, VCOT, 405-series, COE Transtar, Unistar, Conco 707B, 9600	1961				883
MEDIUM / HEAVY: UNKNOWN ENGINE LOCATION		1948				884
MEDIUM / HEAVY: COE ENTRY POSITION UNKNOWN		1964				890
OTHER MEDIUM / HEAVY TRUCK	Fire Truck - R140-R306, CO 8190-	1955	1998			898
UNKNOWNTYPE TRUCK (LIGHT / MEDIUM / HEAVY)		1953				899
UNKNOWN MEDIUM / HEAVY TRUCK		1953				899
BUS BASED MOTOHOME		1965				950
CONVENTIONAL BUS	R153-1853 - Loadstar, 1603-1853	1953	~~1998~~			981
BUS-FLAT FRONT, FRONT ENGINE	173FC, 183FC	1972	~~1998~~			982
BUS-FLAT FRONT, REAR ENGINE	183RE, 193RD-transit	1965	~~1998~~			983
OTHER BUS		1953				988
OTHER VEHICLE		1954				998
UNKNOWN VEHICLE		1951				999

Model	Includes	Start	End	Size	Stiffness	Model Code
ISUZU						
I-MARK	S, RS, Turbo	1981	1990	1	1	31
IMPULSE	Turbo, RS	1983	1992	2	2	32
STYLUS		1991	1994	2	2	33
OTHER AUTOMOBILE		1981	1994			398
UNKNOWN AUTOMOBILE		1981	1994			399
TROOPER / TROOPER II	Deluxe, LS (use 8 stiffness for end impacts, size value for side impacts)	1984	~~1998~~	2	7	401
RODEO	(use 8 stiffness for end impacts, size value for side impacts)	1991		3	8	402
AMIGO	(use 8 stiffness for end impacts, size value for side impacts)	1989	1994	2	8	403
OASIS	(use 7 stiffness for end impacts, size values for side impacts)	1996		4	7	441
P'UP (PICKUP) HOMBRE	4x4 (use 8 stiffness for end impacts, size value for side impacts)	1976	1995	3	8	471
	Hombre (use 8 stiffness for end impacts, size value for side impacts)	1996		3	8	471
OTHER LIGHT TRUCK		1981				498
UNKNOWN LIGHT TRUCK		1981				499
MEDIUM / HEAVY - CBE		1981				881
MEDIUM / HEAVY COE LOW ENTRY		1981				882
MEDIUM / HEAVY COE HIGH ENTRY		1981				883
MEDIUM / HEAVY COE UNKNOWN ENGINE LOCATION		1981				884
MEDIUM / HEAVY COE ENTRY POSITION UNKNOWN		1981				890
OTHER MEDIUM / HEAVY TRUCK		1981				898
UNKNOWNTYPE TRUCK (LIGHT / MEDIUM / HEAVY)		1981				899
UNKNOWN MEDIUM / HEAVY TRUCK		1981				899
CONVENTIONAL FRONT ENGINE		1981				981
FRONT ENGINE/FLAT FRONT		1981				982
REAR ENGINE/FLAT FRONT		1981				983
OTHER BUS		1981				988

Model	Includes	Start	End	Size	Stiffness	Model Code
ISUZU (Cont'd)						
UNKNOWN BUS TYPE		1981				989
UNKNOWN VEHICLE		1981				999
IVECO / MAGIRUS						
MEDIUM / HEAVY BASED MOTORHOME		1980	1991			850
MEDIUM / HEAVY - CBE		1980	1991			881
MEDIUM / HEAVY - COE/LOW ENTRY		1980	1991			882
MEDIUM / HEAVY - COE/HIGH ENTRY		1980	1991			883
MEDIUM / HEAVY - UNKOWN ENGINE LOCATION		1980	1991			884
MEDIUM / HEAVY - COE/ENTRY POSITION UNKNOWN		1980	1991			890
MEDIUM / HEAVY - OTHER		1980	1991			898
JAGUAR						
XJ-S COUPE		1976		3	3	31
VANDEN PLAS		1999		5	5	32
XJ6 / 12 SEDAN / COUPE / XJ8	L, XJ, C, 340/420 Sedan	1949		3	3	32
XKE	V12, Roadster, 120	1946	1974	2	3	33
	2+2	1946	1974	3	3	33
X 100		1997	1998	TBD	TBD	34
S-TYPE		2000		TBD	TBD	35
OTHER AUTOMOBILE		1949				398
UNKNOWN AUTOMOBILE		1949				399
UNKNOWN VEHICLE		1949				999

Model	Includes	Start	End	Size	Stiffness	Model Code
JEEP / KAISER-JEEP						
CJ-2 / CJ-3 / CJ-4	Military: WB = 81" (use 8 stiffness for end impacts, size value for side impacts)	1940	1966	1	8	401
	Military: WB = 101" (use 8 stiffness for end impacts, size value for side impacts)	1940	1966	2	8	401
CJ-5 / CJ-6 / CH-7 / CH-8	Scrambler, Bolde Eagle, Renegade, Laredo, Wrangler: WB = 84" (use 8 stiffness for end impacts, size value for side impacts)	1967	1993	1	8	402
	Scrambler, Bolde Eagle, Renegade, Laredo, Wrangler: WB = 104" (use 8 stiffness for end impacts, size value for side impacts)	1967	1993	3	8	402
YJ-SERIES	Wrangler (use 8 stiffness for end impacts, size value for side impacts)	1986	1995	1	8	403
CHEROKEE 1984 ON	Grand (use 8 stiffness for end impacts, size value for side impacts)	1992		2	8	404
	Limited, Loredo, Pioneer, Briarwood (use 8 stiffness for end impacts, size value for side impacts)	1984		2	8	404
CHEROKEE (1963 - 1983)	Wide Track, Chief, Commando, Jeepster (use 8 stiffness for end impacts, size value for side impacts)	1963	1983	2	8	421
GRAND WAGONEER	Wagoneer (use 8 stiffness for end impacts, size value for side impacts)	1971	1991	3	8	431
	Custom, Bougham Limited (use 8 stiffness for end impacts, size value for side impacts)	1971	1991	2	8	431
PICKUP	J-10, J-20, Honcho (use 8 stiffness for end impacts, size value for side impacts)	1940	1993	per WB	8	481
COMANCHE	Chief: WB = 119" (use 8 stiffness for end impacts, size value for side impacts)	1986	1992	4	8	482
	Chief: WB = 111" (use 8 stiffness for end impacts, size value for side impacts)	1986	1992	3	8	482
OTHER LIGHT TRUCK		1940				498
UNKNOWN LIGHT TRUCK		1940				499
UNKNOWN VEHICLE		1940				999
JENSEN						
HEALY		1965	1991	per WB	= size	37
OTHER AUTOMOBILE		1965	1991			37
UNKNOWN AUTOMOBILE		1965	1991			37

Model	Includes	Start	End	Size	Stiffness	Model Code
KAWASAKI						
MOTORCYCLE (000-050CC)		1965	1982			701
MOTORCYCLE (051-124CC)		1965				702
MOTORCYCLE (125-349CC)		1965				703
MOTORCYCLE (350-449CC)		1975	1998			704
MOTORCYCLE (450-749CC)		1972				705
MOTORCYCLE (750CC-OVER)		1972				706
MOTORCYCLE (UNKNOWN CC)		1965				709
ATC / ATV (000-050CC)		1970	1988			731
ATC / ATV (051-124CC)		1970				732
ATC / ATV (125-349CC)		1970				733
ATC / ATV (350CC-OVER)		1970				734
ATC / ATV (UNKNOWN CC)		1970				739
OTHER MOTORED CYCLE		1965				798
UNKNOWN MOTORED CYCLE		1965				799
KENWORTH						
MEDIUM / HEAVY TRUCK BASED MOTORHOME		1965				850
MEDIUM / HEAVY - CBE	520, 540, T400, T600, T800, C500-550, W900	1947				881
MEDIUM / HEAVY - COE/LOW ENTRY	L700	1972				882
MEDIUM / HEAVY - COE / HIGH ENTRY	K100, K100E	1965				883
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1954				884
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN		1964				890
MEDIUM / HEAVY - OTHER		1965				898

Model	Includes	Start	End	Size	Stiffness	Model Code
KIA						
SEPHIA	RL, LS, GS (use 9 stiffness for front impacts, size value for side or rear impacts)	1994		2	9	31
OTHER AUTOMOBILE		1994				398
UNKNOWN AUTOMOBILE		1994				399
SPORTAGE	EX (use 8 stiffness for end impacts, size value for side impacts)	1995		3	8	401
OTHER LIGHT TRUCK		1995				498
UNKNOWN LIGHT TRUCK		1995				499
UNKNOWN VEHICLE		1994				999
LADA						
OTHER AUTOMOBILE		1965	1991			53
UNKNOWN AUTOMOBILE		1965	1991			53
LAMBORGHINI						
COUNTACH 5000S		1965		per WB	= size	38
JALPA		1965		per WB	= size	38
OTHER AUTOMOBILE		1965				38
UNKNOWN AUTOMOBILE		1965				38
LANCIA						
BETA SEDAN-HPE		1946	1980	2	2	31
BETA COUPE - ZAGATO		1946	1982	1	1	32
SCORPION		1946	1978	1	1	33
OTHER AUTOMOBILE		1946	1982			398
UNKNOWN AUTOMOBILE		1946	1982			399
UNKNOWN VEHICLE		1946	1982			999

Model	Includes	Start	End	Size	Stiffness	Model Code
LAND ROVER						
DISCOVERY (LR)	SD, SE, SE7, LE, LSE, Series II, SER-Li (use 8 stiffness for end impacts, size value for side impacts)	1994		2	8	401
COUNTY LWB (RR) / COUNT CLASSIC (RR)	Count Classic (RR) (use 8 stiffness for end impacts, size value for side impacts)	1994		2	8	421
	County LWB (RR) (use 8 stiffness for end impacts, size value for side impacts)	1987	1994	3	8	421
4.0 SE (RR)	(use 8 stiffness for end impacts, size value for side impacts)	1995		3	8	422
DEFENDER 90 (LR)	(use 8 stiffness for end impacts, size value for side impacts)	1993	1995	1	8	422
OTHER LIGHT TRUCK		1987				498
UNKNOWN LIGHT TRUCK		1987				499
UNKNOWN VEHICLE		1987				999
LEXUS						
ES250 / ES-300		1990		3	3	31
LS400		1990		4	4	32
SC-300 / SC-400	2-door Coupe	1992		3	3	33
GS300 / GS400		1993		3	3	34
OTHER AUTOMOBILE		1990				398
UNKNOWN AUTOMOBILE		1990				399
RX300	(use 8 stiffness for end impacts, size value for side impacts)	1999		3	8	401
LX 450 / 470	(use 8 stiffness for end impacts, size value for side impacts)	1996		3	8	421
OTHER LIGHT TRUCK		1996				498
UNKNOWN LIGHT TRUCK		1996				499
UNKNOWN VEHICLE		1990				999

Model	Includes	Start	End	Size	Stiffness	Model Code
LINCOLN						
CONTINENTAL / TOWN CAR	Continental	1940	1979	6	6	1
	Continental	1980	1981	4	5	1
	Town Car	1982		4	5	1
MARK	VI	1980	1983	4	4	2
	VIII	1993	1998	4	4	2
	LSC, all Signature / Designer Series	1971	1980	5	5	2
	I, II, III, IV, V	1956	1970	4	4	2
	VII	1984	1992	3	3	2
CONTINENTAL (1982-ON)	All Signature / Designer Series	1982	1987	4	5	5
	All Signature / Designer Series	1988		3	3	5
VERSAILLES		1977	1980	3	3	11
LS		2000		TBD	TBD	12
OTHER AUTOMOBILE	Cosmopolitan, Capri, Premiere	1940				398
UNKNOWN AUTOMOBILE		1940				399
NAVIGATOR	(use 8 stiffness for end impacts, size value for side impacts)	1997		5	8	421
BLACKWOOD		2000		TBD	TBD	
OTHER LIGHT TRUCK		1997				498
UNKNOWN LIGHT TRUCK		1997				499
UNKNOWN VEHICLE		1997				999
LOTUS						
ESPRIT		1967		per WB	= size	39
EUROPE		1967		per WB	= size	39
OTHER AUTOMOBILE		1967				39
UNKNOWN AUTOMOBILE		1967				39
MACK						
MEDIUM / HEAVY BASED MOTORHOME	Truck based	1965				850
MEDIUM / HEAVY - CBE		1968				881
MEDIUM / HEAVY - COE / LOW ENTRY		1965				882
MEDIUM / HEAVY - COE / HIGH ENTRY		1977				883
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1956				884
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN		1972				890
MEDIUM / HEAVY - OTHER		1971				898

Model	Includes	Start	End	Size	Stiffness	Model Code
MARMON						
MEDIUM / HEAVY - CBE						898
MEDIUM / HEAVY - COE/ENTRY POSITION UNKNOWN						898
MEDIUM / HEAVY - COE/HIGH ENTRY						898
MEDIUM / HEAVY - COE / LOW ENTRY						898
MEDIUM / HEAVY - OTHER						898
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION						898
MEDIUM / HEAVY BASED MOTORHOME						898
MASERATI						
BITURBO		1965		per WB	= size	40
OTHER AUTOMOBILE		1965				40
UNKNOWN AUTOMOBILE		1965				40

Model	Includes	Start	End	Size	Stiffness	Model Code
MAZDA						
RX2		1972	1974	2	2	31
RX3		1972	1978	1	1	32
RX4		1974	1978	2	2	33
RX7	S, GS, GSL, SE	1979	1998	2	2	34
GLC / PROTÉGÉ / 323	DX	1977		1	1	35
	323	1977	1994	1	1	35
	Protege	1990		1	1	35
COSMO		1976	1978	2	2	36
626	GT, GS, GSL, SE	1979		2	2	37
808		1972	1977	1	1	38
MIZER		1976	1976	1	1	39
R-100		1950	1972	1	1	40
616 / 618		1968	1972	2	2	41
1800		1968	1972	2	2	42
929		1988	1996	3	3	43
MX-6	Turbo	1988	1996	2	2	44
MIATA	MX-5	1990		1	1	45
MX-3	GS	1992	1995	1	1	46
MILLENIA		1995		3	3	47
OTHER AUTOMOBILE	1200	1950				398
UNKNOWN AUTOMOBILE		1950				399
NAVAJO	(use 8 stiffness for end impacts, size value for side impacts)	1991	1994	3	8	401
TRIBUTE		2000		TBD	TBD	
MPV	LX, ES, DX, All Sport (use 7 stiffness for end impacts, size value for side impacts)	1989		3	7	441
MAZDA PICKUP	Cab Plus, B-4000 (use 8 stiffness for end impacts, size value for side impacts)	1994		PER WB	8	471
	B-2000, B-2200, B-2600, SE-5, LX (use 8 stiffness for end impacts, size value for side impacts)	1972		PER WB	8	471
OTHER LIGHT TRUCK		1965				498
UNKNOWN LIGHT TRUCK		1965				499
UNKNOWN VEHICLE		1950				999

Model	Includes	Start	End	Size	Stiffness	Model Code
MERCEDES BENZ						
200 / 220 / 230 / 240 / 250 / 260 / 280 / 300 / 320 SE, CD, D, SD, ETC	Sedan and 5 passenger "C" only, SE, CD, D, SD, TD, TE, CE, E, (DOES NOT include 280 SE) (75 on)	1950	1997	3	3	31
230 / 280 SL	2 seater only	1964		1	1	32
300 / 350 / 380 / 450 / 500SL / 560SL	300/500 SL	1990	1994	2	2	33
	2 seater only	1972	1994	2	2	33
350 / 380 / 420 / 450 / 560 / SLC		1973	1994	4	4	34
280 / 300SEL		1967	1972	4	4	35
380 / 420 / 450 / 500 / 560SEL / 500SEC / 560SEC / 350SDL / 300SDL		1973	1994	4	4	36
300 SE / 380 / 450 SE	280 S, 300 SD Sedan / 350 SD	1968	1974	4	4	37
	280 SE	1975	1994	4	4	37
600, 6.9 SEDAN	Pullman	1978	1987	6	6	38
190	D, E, 2.3, 2,5	1984	1993	3	3	39
300	CE Cabriolet	1993	1994	3	3	40
E 400 / 500	SE	1992	1994	3	3	41
C 220 / 280	C220 / C230 (Kompressor) / C280 / C36 / C43	1997		3	3	42
S CLASS	S320 / S350 / S420 / S430 / S500 / S600	1995				43
SL CLASS	SL320 / 500 / 600	1995				44
SLK	SLK 230, Kompressor	1998				45
CL	CL500, CL 600	1998				46
CLK	CLK320, CLK430, Cabriolet	1998				47
E	E300 / TD, E320, E320 Wagon, E420, E430, E55	1996				48
OTHER AUTOMOBILE		1946				398
UNKNOWN AUTOMOBILE		1946				399
M	ML320 / ML430 (use 8 stiffness for end impacts, size value for side impacts)	1997		4	8	401
VAN DERIVATIVE	Kurbstar	1982		NA	NA	470
OTHER LIGHT TRUCK		1946				498
UNKNOWN LIGHT TRUCK		1946				499
MEDIUM / HEAVY - CBE		1965				881
MEDIUM / HEAVY - COE LOW ENTRY		1965				882
MEDIUM / HEAVY - COE HIGH ENTRY		1965				883
MEDIUM / HEAVY; UNKNOWN ENGINE LOCATION		1965				884
MEDIUM / HEAVY: COE ENTRY POSITION UNKNOWN		1965				890

Model	Includes	Start	End	Size	Stiffness	Model Code
MERCEDES (Cont'd)						
OTHER MEDIUM / HEAVY TRUCK		1965				898
UNKNOWNTYPE TRUCK (LIGHT / MEDIUM / HEAVY)		1965				899
UNKNOWN MEDIUM / HEAVY TRUCK		1965				899
MEDIUM BUS		1965				981
OTHER BUS		1965				988
UNKNOWN BUS TYPE		1965				989
UNKNOWN VEHICLE		1946				999

Model	Includes	Start	End	Size	Stiffness	Model Code
MERCURY						
CYCLONE	GT, CJ, Spoiler	1964	1971	4	4	2
CAPRI - DOMESTIC	RS, Turbo, GS, Black Magic	1979	1986	2	2	3
COUGAR / XR7	XR-7, RS, LS, GS, Eliminator, Brougham, Villager, (includes all body styles): WB=118"	1977	1979	5	5	4
	XR-7, RS, LS, GS, Eliminator, Brougham, Villager, (includes all body styles): WB=114"	1977	1979	4	4	4
	XR-7, RS, LS, GS, Eliminator, Brougham, Villager, (includes all body styles)	1980	1988	3	3	4
	XR-7, RS, LS, GS, Eliminator, Brougham, Villager, (includes all body styles)	1989	1997	4	4	4
	XR-7, RS, LS, GS, Eliminator, Brougham, Villager, (includes all body styles)	1967	1976	4	4	4
MARQUIS / MONTEREY	Marauder, X-100, Parklane, S-55, Custom, Brougham, Montclair, Grand Marquis: WB=121"	1952	1978	5	5	6
	Marauder, X-100, Parklane, S-55, Custom, Brougham, Montclair, Grand Marquis	1979	1982	4	4	6
	Marauder, X-100, Parklane, S-55, Custom, Brougham, Montclair, Grand Marquis: WB=106"	1982	1998	3	3	6
	Marauder, X-100, Parklane, S-55, Custom, Brougham, Montclair, Grand Marquis: WB=114"	1982	1998	4	4	6
	Marauder, X-100, Parklane, S-55, Custom, Brougham, Montclair, Grand Marquis: WB=124"	1952	1978	6	6	6
COMET	Capri	1966	1967	4	4	8
	Caliente, GT, Voyager, 202	1971	1977	3	3	8
	Caliente, GT, Voyager, 202	1962	1967	4	4	8
BOBCAT	Runabout, Villager (Stiffness 1 for front and side impacts, Stiffness 2 for rear impacts)	1975	1980	1 / 2	1	9
MONTEGO	GT, MX, Villager, Brougham	1968	1973	3	3	10
	GT, MX, Villager, Brougham: WB = 114"	1972	1976	4	4	10
	GT, MX, Villager, Brougham: WB = 114"	1972	1976	3	3	10
	Comet	1968	1970	3	3	10
MONARCH	Ghia	1975	1980	3	3	11
ZEPHYR	GS, Z-7	1978	1983	3	3	12
LYNX / LN-7 (1982-1983)	L, LS, GS, RS, XR-3 (use 9 stiffness for front impacts, size value for side or rear impacts)	1981	1987	1	9	13
TOPAZ	L, LS, GS, 4 X 4 (use 9 stiffness for front impacts, size value for side or rear impacts)	1984	1994	2	9	15
SABLE	LS, GS	1986		3	3	17
CAPRI - FOREIGN	Capri II	1970	1977	2	2	31
	2 + 2	1989	1994	1	1	31
PANTERA	deTomaso	1972	1974	2	2	33
TRACER	L, GL	1994		1	1	36
MYSTIQUE	(use 9 stiffness for front impacts, size value for side or rear impacts)	1994		3	9	37
COUGAR	V-6, I-4	1999				38
OTHER AUTOMOBILE		1962				398
UNKNOWN AUTOMOBILE		1950				399

Model	Includes	Start	End	Size	Stiffness	Model Code
MERCURY (Cont'd)						
MOUNTAINEER	(use 7 stiffness for end impacts, size value for side impacts)	1996		.	7	401
VILLAGER	LS, GS, Nautica, Estate, Sport (use 7 stiffness for end impacts, size value for side impacts)	1993		4	7	443
OTHER LIGHT TRUCK		1993				498
UNKNOWN LIGHT TRUCK		1993				499
UNKNOWN VEHICLE		1950				999
MERKUR						
XR4Ti	Turbo	1985	1989	3	3	31
SCORPIO	Turbo	1987	1990	3	3	32
OTHER AUTOMOBILE		1985	1990			398
UNKNOWN AUTOMOBILE		1985	1990			399
UNKNOWN VEHICLE		1985	1990			999
MG						
MIDGET	GAN I / II / III / 4 / 5 ? MKI , MKII, MKIII	1962	1980			31
MGB (1976 - 1979)		1976	1979	1	1	32
MGB (1967-1975)	GT, MKIII	1967	1975	1	1	33
MGA	1500, 1600, YT, TC, TD / II, MK I / II, A	1945	1962	1	1	34
TA / TC / TD / TF	Y-Type, 430, TDC	1945	1962	1	1	35
MGC	GT	1968	1969	1	1	36
MAGNETTE / SPORTS SEDANS	ZB, ZA / YA / YB, MK III, MK IV, 1100,1300	1945	1966			
OTHER AUTOMOBILE		1945	1980			398
UNKNOWN AUTOMOBILE		1945	1980			399
UNKNOWN VEHICLE		1945	1980			999

Model	Includes	Start	End	Size	Stiffness	Model Code
MITSUBISHI						
STARION	2+2, LE, Turbo	1983	1990	2	2	31
TREDIA	L, LS, Turbo	1983	1988	2	2	32
CORDIA	L, Turbo	1983	1988	2	2	33
GALANT	Sigma	1985	1988	3	3	34
	ECS, ES, LS, DE, GTZ	1985		3	3	34
MIRAGE	L, Turbo, GS, LS, DS, DE	1985		1	1	35
PRECIS		1987	1994			36
ECLIPSE	GS, DOHL, Turbo, GS-T,GSX, Spyder, RS	1990		2	2	37
SIGMA	(prior to 1989 see Galant)	1989	1990	3	3	38
3000GT	Spyder, VR-4, SL	1991		2	2	39
DIAMANTE	LS, ES, LE	1992		3	3	40
OTHER AUTOMOBILE	500, 1000, Debonair, Galant (1969)	1960				398
UNKNOWN AUTOMOBILE		1960				399
MONTERO	Sport, LS, SR, XLS, ES, LTD (use 8 stiffness for end impacts, size value for side impacts)	1985		1	8	401
MINIVAN	LS (use 8 stiffness for end impacts, size value for side impacts)	1987	1990	1	8	441
EXPO WAGON	LRV, Sport WB = 107.1" (use 7 stiffness for end impacts, size value for side impacts)	1992	1995	3	7	442
	LRV, Sport WB = 99.2" (use 7 stiffness for end impacts, size value for side impacts)	1992	1995	2	7	442
PICKUP	Mighty Max, SPX, 4 X 4 (use 8 stiffness for end impacts, size value for side impacts)	1983	1996	3	8	471
OTHER LIGHT TRUCK		1983				498
UNKNOWN LIGHT TRUCK		1983				499
MEDIUM / HEAVY - COE LOW ENTRY	FUSO FE	1983		NA	NA	882
OTHER MEDIUM / HEAVY TRUCK		1983				898
UNKNOWN TYPE TRUCK (LIGHT / MEDIUM / HEAVY)		1983				899
UNKNOWN MEDIUM / HEAVY TRUCK		1983				899
CONVENTIONAL FRONT ENGINE		1981				981
FRONT ENGINE / FLAT FRONT		1981				982
REAR ENGINE / FLAT FRONT		1981				983
OTHER BUS		1981				988
UNKNOWN TYPE BUS		1981				989
UNKNOWN VEHICLE		1981				999

Model	Includes	Start	End	Size	Stiffness	Model Code
MORRIS						
MINOR		1965	1991	per WB	= size	41
OTHER AUTOMOBILE		1965	1991			41
UNKNOWN AUTOMOBILE		1965	1991			41
MOTO-GUZZI						
MOTORCYCLE (000-050CC)						701
MOTORCYCLE (051-124CC)						702
MOTORCYCLE (125-349CC)						703
MOTORCYCLE (350-449CC)		1965	1976			704
MOTORCYCLE (450-749CC)		1965	1976			705
MOTORCYCLE (750CC-OVER)		1965				706
MOTORCYCLE (UNKNOWN CC)		1965				709
ATC / ATV (000-050CC)						731
ATC / ATV (051-124CC)						732
ATC / ATV (125-349CC)						733
ATC / ATV (350CC-OVER)						734
ATC / ATV (UNKNOWN CC)						739
OTHER MOTORED CYCLE						798
UNKNOWN MOTORED CYCLE						799
NEOPLAN						
BUS - CONVENTIONAL FRONT ENGINE		1950				902
BUS - FRONT ENGINE / FLAT FRONT		1950				902
BUS - REAR ENGINE / FLAT FRONT		1950				902
BUS BASED MOTORHOME		1950				902
OTHER BUS		1950				902

Model	Includes	Start	End	Size	Stiffness	Model Code
NISSAN / DATSUN						
F10		1977	1978	1	1	31
200 / 240 SX	SE, SE-R, LE	1984	1998	2	2	32
		1974	1983	1	1	32
1200 / 210 / B210	Honeybee	1971	1982	1	1	33
Z-CAR, ZX	240 / 260 / 280Z, 300 ZX, Turbo	1970	1996	1	1	34
	2+2	1975	1978	3	3	34
	2+2	1979	1996	2	2	34
310		1979	1982	1	1	35
510	PL,	1978	1981	1	1	36
	PL, WPL	1968	1973	2	2	36
610	PL	1973	1976	2	2	37
710	PL	1974	1977	2	2	38
810 / MAXIMA	SE, GXE, GLE	1977		3	3	39
ROADSTER	SPL 311, SRL 311, 1600, 2000, convertible, Fairlady	1950	1970	1	1	40
311, 411	1000, Bluebird, PL311 / PL312 / PL410 / PL411 / RL411	1959	1967	1	1	41
STANZA	XE, GXE	1982	1992	2	2	42
SENTRA	E, XE, GXE, SE, SE-R, GLE	1983		1	1	43
PULSAR	EXA	1986	1990	2	2	44
	NX	1983	1990	2	2	44
MICRA		1987	1994	1	1	45
NX 1600 / 2000	T-bar coupe	1992	1994	2	2	46
ALTIMA	XE, GXE, SE, GLE	1993		2	2	47
OTHER AUTOMOBILE	110 sedan, K110	1955				398
UNKNOWN AUTOMOBILE		1955				399
PATHFINDER	MPV, 4X4, XE, LE, SE use 8 stiffness for end impacts, size value for side impacts)	1986		3	8	401
Xterra	XE, SE	2000				
VAN	XE, GXE (use 7 stiffness for end impacts, size value for side impacts)	1988		1	7	441
AXXESS	(use 7 stiffness for end impacts, size value for side impacts)	1989	1990	3	7	442
QUEST	XE, GXE, SE, GLE (use 7 stiffness for end impacts, size value for side impacts)	1993		4	7	443
Altra EV	Electric Vehicle	1998				
DATSUN / NISSAN PICKUP / FRONTIER	PL620, King Cab, Hardbody (use 8 stiffness for end impacts, size value for side impacts)	1955		PER WB	8	471
OTHER LIGHT TRUCK	Patrol (1960) (use 8 stiffness for end impacts, size value for side impacts)	1955		PER WB	8	498
UNKNOWN LIGHT TRUCK		1955				499

Model	Includes	Start	End	Size	Stiffness	Model Code
NISSAN / DATSUN (Cont'd)						
MEDIUM / HEAVY COE HIGH ENTRY		1986				883
OTHER MEDIUM / HEAVY TRUCK		1986				898
UNKNOWN TYPE TRUCK (LIGHT / MEDIUM / HEAVY)		1986				899
UNKNOWN MEDIUM / HEAVY TRUCK		1986				899
UNKNOWN VEHICLE		1950				999
NORTON						
MOTORCYCLE (000-050CC)						701
MOTORCYCLE (051-124CC)						702
MOTORCYCLE (125-349CC)						703
MOTORCYCLE (350-449CC)		1950				704
MOTORCYCLE (450-749CC)		1950				705
MOTORCYCLE (750CC-OVER)		1950				706
MOTORCYCLE (UNKNOWN CC)		1950				709
OTHER MOTORED CYCLE		1950				798
UNKNOWN MOTORED CYCLE		1950				799

Model	Includes	Start	End	Size	Stiffness	Model Code
OLDSMOBILE						
CUTLASS (RWD-ONLY)	Classic	1988	1988	3	3	1
	Supreme, S, LS, Salon, Brougham, Vista Cruiser, Rallye 350, Hurst Olds, 442, Calais	1978	1988	3	3	1
	Supreme, S, LS, Salon, Brougham, Vista Cruiser, Rallye 350, Hurst Olds, 442, Calais (use 9 stiffness for front impacts, size value for side or rear imp	1960	1977	4	4	1
	F85	1960	1972	4	4	1
DELTA 88	Royale, Custom, Delta, Jetstar 88, Delmont 88, Custom Cruiser	1977	1985	4	4	2
	Royale, Custom, Delta, Jetstar 88, Delmont 88, Custom Cruiser	1949	1976	6	6	2
	Royale, Custom, Delta, Jetstar 88, Delmont 88, Custom Cruiser (use 9 stiffness for front impacts, size value for side or rear impacts)	1985		4	9	2
	Starfire		1966	6	6	2
NINETY-EIGHT	Regency, Luxury	1986		4	4	3
	Regency, Luxury	1977	1984	5	5	3
	Regency, Luxury		1976	6	6	3
TORONADO	XSR, Trofeo, Brougham, Custom	1986	1992	3	3	5
	XSR, Trofeo, Brougham, Custom	1979	1985	4	4	5
	XSR, Trofeo, Brougham, Custom	1966	1978	5	5	5
COMMERCIAL SERIES	Ambulance / Hearse	1940		6	6	6
STARFIRE	SX, GT	1975	1980	2	2	12
OMEGA	X-body type FWD (use 9 stiffness for front impacts, size value for side or rear impacts)	1980	1985	3	9	15
	RWD	1975	1979	4	4	15
FIRENZA	S, LS, SX, Cruiser, GT (use 9 stiffness for front impacts, size value for side or rear impacts)	1982	1988	2	9	16
CIERA	Cutlass Ciera, Brougham, ES (use 9 stiffness for front impacts, size value for side or rear impacts)	1982	1996	3	9	17
CALAIS	GT, ES, 500 (use 9 stiffness for front impacts, size value for side or rear impacts)	1985	1991	3	9	18
CUTLASS (FWD)	Supreme (use 9 stiffness for front impacts, size value for side or rear impacts)	1988		3	9	20
ACHIEVA	SC (use 9 stiffness for front impacts, size value for side or rear impacts)	1992		3	9	21
AURORA	(use 9 stiffness for front impacts, size value for side or rear impacts)	1994		4	9	22
INTRIGUE	GL, GX, GLS	1997				23
ALERO		1999				24
OTHER AUTOMOBILE		1930				398
UNKNOWN AUTOMOBILE		1930				399

Model	Includes	Start	End	Size	Stiffness	Model Code
OLDSMOBILE (Cont'd)						
BRAVADA	(use 7 stiffness for end impacts, size value for side impacts)	1991	1994	2	7	401
	(use 7 stiffness for end impacts, size value for side impacts)	1996		2	7	401
SILHOUETTE	GL, GLS, Series I, Series II, GS, Premier Edition (use 7 stiffness for end impacts, size value for side impacts)	1990		3	7	441
OTHER LIGHT TRUCK		1932				498
UNKNOWN LIGHT TRUCK		1932				499
OTHER VEHICLE		1932				998
UNKNOWN VEHICLE		1932				999
OSHKOSH						
MEDIUM / HEAVY - CBE		1965				805
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN		1965				805
MEDIUM / HEAVY - COE / HIGH ENTRY		1965				805
MEDIUM / HEAVY - COE / LOW ENTRY		1965				805
MEDIUM / HEAVY - OTHER		1965				805
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1965				805
MEDIUM / HEAVY BASED MOTORHOME		1965				805
OTHER DOMESTIC MANUFACTURER						
OTHER AUTOMOBILE						398
UNKNOWN MAKE						399
OTHER LIGHT TRUCK						498
OTHER MEDIUM / HEAVY TRUCK						898
OTHER BUS						988
OTHER VEHICLE						998

Model	Includes	Start	End	Size	Stiffness	Model Code
OTHER FOREIGN MANUFACTURER						
OTHER AUTOMOBILE						398
OTHER LIGHT TRUCK						498
OTHER MEDIUM / HEAVY TRUCK						898
OTHER BUS						988
OTHER VEHICLE						998
OTHER MAKE						
OTHER AUTOMOBILE						398
OTHER LIGHT TRUCK						498
TRUCK BASED MOTORHOME						850
OTHER MEDIUM / HEAVY TRUCK						898
BUS BASED MOTORHOME						950
OTHER BUS						988
OTHER VEHICLE						998
OTHER MAKE MOPED						
OTHER MOTORED CYCLE						798
UNKNOWN MOTORED CYCLE						799
OTHER MAKE MOTORED CYCLE						
0-50cc						701
51-124cc						702
125-349cc						703
350-449cc						704
450-749cc						705
750c or greater						706
Unknown cc						709

Model	Includes	Start	End	Size	Stiffness	Model Code
PETERBILT						
MEDIUM / HEAVY BASED MOTORHOME		1965				850
MEDIUM / HEAVY - CBE		1974				881
MEDIUM / HEAVY - COE / LOW ENTRY		1965				882
MEDIUM / HEAVY - COE / HIGH ENTRY		1965				883
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1961				884
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN		1964				890
MEDIUM / HEAVY - OTHER		1965				898
PEUGEOT						
304		1971	1973	3	3	31
403		1955	1967	3	3	32
404	Station Wagon	1961	1970	4	4	33
		1961	1970	3	3	33
504 / 505	STI, STX, Turbo, S, GL GLS, Liberte	1970	1991	3	3	34
	Station Wagon	1970	1991	4	4	34
604	SL, D	1977	1984	3	3	35
405	Mi-16, DL, S (use 9 stiffness for front impacts, size value for side or rear impacts)	1989	1991	3	9	36
OTHER AUTOMOBILE		1945	1991			398
UNKNOWN AUTOMOBILE		1945	1991			399
MOTORCYCLE (000-050CC)		1965	1983			701
MOTORCYCLE (051-124CC)		1965	1983			702
MOTORCYCLE (UNKNOWN CC)		1965	1983			709
UNKNOWN MOTORED CYCLE		1960	1983			799
UNKNOWN VEHICLE		1945	1983			999

Model	Includes	Start	End	Size	Stiffness	Model Code
PLYMOUTH						
VALIANT / DUSTER / SCAMP	100, 200, Brougham, Signet, Custom, Special, 340 / 360, Twister: WB = 108"	1960	1976	3	3	1
	100, 200, Brougham, Signet, Custom, Special, 340 / 360, Twister: WB = 111"	1960	1976	4	4	1
SATELLITE / BELVEDERE	Belveder I / II, GTX, Roadrunner, Sebring, Sebring Plus, Superbird, Brougham	1951	1974	4	4	2
FURY	Roadrunner	1975	1975	5	5	3
	I, II, III	1957	1974	5	5	3
	Salon, VIP, Sport, Suburban	1975	1978	4	4	3
GRAN FURY	Sedan, Brougham, Custom Sport, Suburban	1975	1981	5	5	4
	Sedan, Brougham, Custom Sport, Suburban	1982	1989	4	4	4
BARRACUDA	Formula, S, 340, AAR, 'Cuda, Gran Coupe	1965	1973	3	3	5
VOLARE	Custom, Premier, Roadrunner, Police: WB=109"	1976	1980	3	3	6
	Custom, Premier, Roadrunner, Police: WB=113"	1976	1980	4	4	6
CARAVELLE	Turbo, SE (use 9 stiffness for front impacts, size value for side or rear impacts)	1985	1989	3	9	7
HORIZON	TC-3, Miser, Turismo 2.2, Custom, SE, America Expo	1978	1990	2	2	8
	Duster	1985	1990	2	2	8
RELIANT (K)	SE, LE (use 9 stiffness for front impacts, size value for side or rear impacts)	1981	1989	2	9	11
SCAMP (CAR BASED PICKUP)	GT, 2.2	1982	1984	2	2	13
SUNDANCE	Turbo (use 9 stiffness for front impacts, size value for side or rear impacts)	1987	1994	2	9	17
ACCLAIM	LX, LE (use 9 stiffness for front impacts, size value for side or rear impacts)	1989	1995	3	9	19
NEON	Expresso, Sport, Highline (use 9 stiffness for front impacts, size value for side or rear impacts)	1994		3	9	20
CRICKET		1971	1972	2	2	31
ARROW	Fire Arrow, GS, GT	1976	1980	1	1	32
SAPPORO	all imported	1978	1983	2	2	33
CHAMP / COLT (EXCLUDES VISTA)	Turbo, Custom	1979	1994	1	1	34
	Station Wagon (WB = 103")	1984	1994	3	2	34
CONQUEST	TSI	1984	1989	2	2	35
LASER	RS, Turbo	1989		2	2	37
BREEZE	(use 9 stiffness for front impacts, size value for side or rear impacts)	1996		3	9	38
PROWLER	Roadster	1997				39
PT CRUISER		2000		TBD	TBD	
OTHER AUTOMOBILE		1930				398
UNKNOWN AUTOMOBILE		1965				399

Model	Includes	Start	End	Size	Stiffness	Model Code
PLYMOUTH (Cont'd)						
TRAILDUSTER	(use 8 stiffness for end impacts, size value for side impacts)	1974	1993	3	8	421
COLT VISTA	4 X 4 (use 7 stiffness for end impacts, size value for side impacts)	1987	1994	3	7	441
VOYAGER (MINIVAN)	SE, LX: WB = 112" (use 7 stiffness for end impacts, size value for side impacts)	1984		4	7	442
	SE, LX: WB = 119" (use 7 stiffness for end impacts, size value for side impacts)	1984		5	7	442
ARROW PICKUP (FOREIGN)	(use 8 stiffness for end impacts, size value for side impacts)	1975	1991	per WB	8	471
OTHER LIGHT TRUCK		1965				498
UNKNOWN LIGHT TRUCK		1974				499
UNKNOWN VEHICLE		1957				999

Model	Includes	Start	End	Size	Stiffness	Model Code
PONTIAC						
LEMANS / TEMPEST (THRU 1979)	Safari, T-37, Luxury, Grand Sport, GT-37, Sprint, Grand Lemans	1976	1977	4	4	1
	Safari, T-37, Luxury, Grand Sport, GT-37, Sprint, Judge Grand AM, Grand Lemans	1973	1975	4	4	1
	Safari, T-37, Luxury, Grand Sport, GT-37, Sprint, Grand Lemans	1978	1979	3	3	1
	Safari, T-37, Luxury, Grad Sport, GTO, GT-37, Sprint, Grand Lemans	1961	1973	4	4	1
BONNEVILLE / CATALINA / PARISIENNE	Brougham, Gand Safari, Safari, Granville, 2+2 Executive, Starchief	1954	1968	5	5	2
	Brougham, Gand Safari, Safari, Granville, 2+2 Executive, Starchief	1977	1981	4	4	2
	Brougham, Gand Safari, Safari, Granville, 2+2 Executive, Starchief	1982	1984	3	3	2
	Parisienne	1983	1984	4	4	2
	SE, SSE, SSEi	1987		4	4	2
	Brougham, Gand Safari, Safari, Granville, 2+2 Executive, Starchief	1969	1976	6	6	2
FIERO	2M4, 2M6, GT, SE	1984	1988	1	1	5
VENTURA	II, SJ, Sprint, Custom	1971	1977	4	4	8
	GTO	1974	1977	4	4	8
FIREBIRD / TRANS- AM	Esprit, Formula, GTA, Redbird, Yellowbird, Skybird, SE	1967	1981	3	3	9
	Esprit, Formula, GTA, Redbird, Yellowbird, Skybird, SE	1982		2	2	9
GRAND PRIX (RWD)	J, LJ, SJ, Brougham, 2+2	1978	1987	3	3	10
	J, LJ, SJ, Brougham, 2+2	1973	1977	4	4	10
	J, LJ, SJ, Brougham, 2+2	1963	1972	5	5	10
ASTRE	Safari, SJ, Custom	1975	1977	2	2	11
SUNBIRD (THRU 80)	Safari, Sport, Formula	1976	1980	2	2	12
T1000 / 1000	4 door	1981	1987	2	2	13
	2 door	1981	1987	1	1	13
PHOENIX	LJ, SJ (use 9 stiffness for front impacts, size value for side or rear impacts)	1980	1984	3	9	15
	LJ, SJ	1977	1979	4	4	15
J2000 / SUNBIRD / SUNFIRE	Sunbird (use 9 stiffness for front impacts, size value for side or rear impacts)	1984	1994	2	9	16
	Sunfire-GT / SE (use 9 stiffness for front impacts, size value for side or rear impacts)	1995		2	9	16
	Le, Se, GT, Convertible (use 9 stiffness for front impacts, size value for side or rear impacts)	1982	1994	2	9	16
6000	STE, SE, LE (use 9 stiffness for front impacts, size value for side or rear impacts)	1982	1991	3	9	17
GRAND AM	SE, LE	1980	1980	3	3	18
	SE, LE (use 9 stiffness for front impacts, size value for side or rear impacts)	1985		3	9	18

Model	Includes	Start	End	Size	Stiffness	Model Code
PONTIAC (Cont'd)						
GRAND PRIX (FWD)	SE, McLaren Turbo, GTP (use 9 stiffness for front impacts, size value for side or rear impacts)	1988		3	9	20
LEMANS (1988-on)	SE, Tempest (Canadian)	1988	1993	2	2	31
OTHER AUTOMOBILE	Torpedo, Streamliner, Chieftain Star Chief, Super Cheif	1946				398
UNKNOWN AUTOMOBILE		1926				399
TRANS SPORT / MONTANA	SE, Montana (use 7 stiffness for end impacts, size value for side impacts)	1990		3	7	441
OTHER LIGHT TRUCK		1951				498
UNKNOWN LIGHT TRUCK		1951				499
UNKNOWN VEHICLE		1926				999
PORSCHE						
911	L, S, E, T, SC, Carrera, Slopenose, Speedstar, Carrera Targa, 4S, Turbo, B-series, S-Coupe, S-Cabriolet	1965		1	1	31
	Panorama	1996		1	1	31
912	E, T	1966	1969	1	1	32
		1976	1976			32
914	S, 1.8, 2.0, 914 / 6	1970	1976	2	2	33
924	Turbo, S	1977	1988	1	1	34
928	S, S4, GT, GTS	1978	1995	2	2	35
930	Turbo	1979	1979	1	1	36
944	Turbo, S	1983	1992	1	1	37
959	(Not Imported to U.S.)	1989	1994	1	1	38
968		1992	1995	1	1	39
986 BOXSTER		1997				40
OTHER AUTOMOBILE	Spyder, Speedster (prior to 1965), 356, (A, B, C) Grund, America, Super, 1500	1948		PER WB	PER WB	398
UNKNOWN AUTOMOBILE		1948				399
UNKNOWN VEHICLE		1948				999
RELIANT						
OTHER AUTOMOBILE		1960	1991			49
UNKNOWN AUTOMOBILE		1960	1991			49

Model	Includes	Start	End	Size	Stiffness	Model Code
RENAULT / AMC						
LECAR	R-5, R5TL, GTL, TL, DLX	1976	1983	2	2	31
DAUPHINE / 10 / R-8 / CARAVELLE		1955	1971	1	1	32
12	R-12L, R-12TL / GTL	1972	1977	2	2	33
15	R15TL	1973	1976	2	2	34
16	R16, R-1152	1969	1972	3	3	35
17	R17, Gordini Coupe, R17TL	1973	1980	2	2	36
R18i	Sportwagon, Deluxe, DLX	1981	1986	2	2	37
FUEGO	TL, TS, GTL, GTS, Turbo	1982	1985	2	2	38
ALLIANCE / ENCORE / GTA, CONVERTIBLE	L, DL, Limited, X-37	1983	1987	2	2	39
ALPINE	GT, GTA Coupe (not imported to U.S.)	1971	1990	PER WB	PER WB	41
MEDALLION	DL, LX	1987	1987	3	3	44
PREMIER		1987	1987	3	3	45
OTHER AUTOMOBILE	Juvaquatre,4CV, Fregate, Domaine	1946	1989			398
UNKNOWN AUTOMOBILE		1946	1989			399
UNKNOWN VEHICLE		1946	1989			999
ROLLS ROYCE / BENTLEY						
CLOUD / SHADOW SERIES	Cloud / Shadow Series, Silver Spur, Silver Dawn, Silver Spirit, Silver Seraph	1926		per WB	= size	42
OTHER AUTOMOBILE		1926				42
UNKNOWN AUTOMOBILE		1926				42
SAAB						
99 / 99E / 900	S, Turbo, Cabriolet, GL,GLE, L, LE, 2CM, 4CM, 2EM, 4EM, CM, SE	1969	1998	2	2	31
SONNETT	II, III, V-4	1968	1974	1	1	32
95 / 96 / 97	V-4, M, S, M-S, Special	1959	1973	2	2	33
9000, CS	CS	1993	1998	3	3	34
	S, Turbo, CS, CD, CDE, E, AERO, CSE	1985	1998	3	3	34
9 - 3		1999				35
9 - 5		1999				36
OTHER AUTOMOBILE	Monte Carlo 850, GT850, GT750, 92, 93	1950				398
UNKNOWN AUTOMOBILE		1950				399
UNKNOWN VEHICLE		1950				999

Model	Includes	Start	End	Size	Stiffness	Model Code
SATURN						
SL	SL1, SL2, SL3	1991		3	3	1
SC	includes 3 door coupe	1997		3	3	2
	SC1, SC2	1991	1996	2	2	2
SW	SW1, SW2	1993		3	3	3
EV	EV1 (electric vehicle)	1997		TBD	TBD	4
LS		2000		TBD	TBD	5
OTHER AUTOMOBILE		1991				398
UNKNOWN AUTOMOBILE		1991				399
UNKNOWN VEHICLE		1991				999
SCANIA						
MEDIUM / HEAVY - CBE		1986				807
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN		1986				807
MEDIUM / HEAVY - COE / HIGH ENTRY		1986				807
MEDIUM / HEAVY - COE / LOW ENTRY		1986				807
MEDIUM / HEAVY - OTHER		1986				807
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1986				807
MEDIUM / HEAVY BASED MOTORHOME		1986				807
SIMCA						
OTHER AUTOMOBILE		1965	1991			44
UNKNOWN AUTOMOBILE		1965	1991			44
STERLING						
827S	Li, SL,S, SLI	1986	1991	3	3	31
OTHER AUTOMOBILE	825 S / SL , Oxford Edition	1986	1991			398
UNKNOWN AUTOMOBILE		1986	1991			399
UNKNOWN VEHICLE		1986	1991			999

Model	Includes	Start	End	Size	Stiffness	Model Code
STERLING TRUCKS						
MEDIUM / HEAVY - CBE						808
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN						808
MEDIUM / HEAVY - COE / HIGH ENTRY						808
MEDIUM / HEAVY - COE / LOW ENTRY						808
MEDIUM / HEAVY - OTHER						808
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION						808
STUDEBAKER						
CRUISER		1940	1966	per WB	= size	1
GRAN TURISMO		1940	1966	per WB	= size	1
HAWK		1940	1966	per WB	= size	1
LARK		1940	1966	per WB	= size	1
OTHER AUTOMOBILE		1940	1966			1
UNKNOWN AUTOMOBILE		1940	1966			1
STUTZ						
OTHER AUTOMOBILE				per WB	= size	398
UNKNOWN AUTOMOBILE				per WB	= size	398

Model	Includes	Start	End	Size	Stiffness	Model Code
SUBARU						
DL / FE / G / GF / GL / GLF / STD / LOYALE	4 wheel drive, Turbo	1972	1989	PER WB	=SIZE	31
	Loyale	1990	1994	PER WB	=SIZE	31
STAR	FF-1 Star, 1100	1970	1971	2	2	32
360		1969	1970	1	1	33
LEGACY	Brighton, Outback, Outback II, Outback Limited, Sport Utility Sedan, 30th Anniv. Outback	1989		2	2	34
XT / XT6	4WD Turbo, convertible, DL, GL	1986	1991	2	2	35
JUSTY	DL, GL	1987	1994	1	1	36
SVX	LS,LSL, XR, LSi	1992	1997	3	3	37
IMPREZA	Outback, Outback II, L, LS, Brighton, Outback Sport	1993		2	2	38
BRAT DL, GL		1978	1987	2	2	43
OTHER AUTOMOBILE		1968				398
UNKNOWN AUTOMOBILE		1968				399
FORESTER	L, S	1997				401
UNKNOWN VEHICLE		1958				999
SUNBEAM						
OTHER AUTOMOBILE		1965	1991			45
UNKNOWN AUTOMOBILE		1965	1991			45

Model	Includes	Start	End	Size	Stiffness	Model Code
SUZUKI						
SA310	GLX	1986		1	1	31
SWIFT	GTi, GTX	1989		1	1	34
ESTEEM		1995		TBD	TBD	35
OTHER AUTOMOBILE	800 Fronte, Alto	1989				398
UNKNOWN AUTOMOBILE		1989				399
SAMURAI	Standard, Deluxe (use 8 stiffness for end impacts, size value for side impacts)	1985	1995	1	8	401
SIDEKICK / GRAND VITARA	JS, JX, JLX, Sport	1989				402
X-90 / VITARA		1996				403
OTHER LIGHT TRUCK		1986				498
UNKNOWN LIGHT TRUCK		1986				499
MOTORCYCLE (000-050CC)		1970				701
MOTORCYCLE (051-124CC)		1970				702
MOTORCYCLE (125-349CC)		1969				703
MOTORCYCLE (350-449CC)		1970	1993			704
MOTORCYCLE (450-749CC)		1969				705
MOTORCYCLE (750CC-OVER)		1970				706
MOTORCYCLE (UNKNOWN CC)		1969				709
ATC / ATV (000-050CC)		1969				731
ATC / ATV (051-124CC)		1969				732
ATC / ATV (125-349CC)		1969				733
ATC / ATV (350CC-OVER)		1969				734
ATC / ATV (UNKNOWN CC)		1969				739
UNKNOWN MOTORED CYCLE		1969				799
UNKNOWN VEHICLE		1969				999

Model	Includes	Start	End	Size	Stiffness	Model Code
TOYOTA						
CORONA	Mark II, Custom, 1900, 2000, Deluxe	1966	1982	2	2	31
COROLLA	FX-16 (use 9 stiffness for front impacts, size value for side or rear impacts)	1986		2	9	32
	1100, 1200, 1600, SR-5, LE, Deluxe, Custom	1969	1985	1	1	32
CELICA	1900, 2000, GT, ST, VE	1972		2	2	33
	GTS	1972	1993	2	2	33
SUPRA	Celica Supra, Soarer	1979	1998	3	3	34
CRESSIDA		1978	1992	3	3	35
CROWN	2300, 2600, Toyopets	1958	1971	3	3	36
CARINA	2000	1972	1973	2	2	37
TERCEL	Corolla Tercel, 4WD Wagon, EZ, DX, LE, DLX, CE	1980	1998	2	2	38
STARLET		1981	1984	1	1	39
CAMRY	LE, Deluxe, XLE, Coupe, DLX, SE, All-Trac, CE	1983		3	3	40
MR-2		1985	1995	1	1	41
PASEO	Turbo, T-bar	1992	1997	1	1	42
AVALON	XL, XLS	1995		3	3	43
SOLARA	Camry Solara, SE, SLE	1999				44
ECHO		2000		TBD	TBD	45
MR SPYDER		2000		TBD	TBD	46
OTHER AUTOMOBILE	2000 GT Coupe (1960's), Sports 800, Vipor, Tiara	1960				398
UNKNOWN AUTOMOBILE		1960				399
4-RUNNER	SR5, Limited (use 8 stiffness for end impacts, size value for side impacts)	1985		3	8	401
RAV-4	L, EV - electric	1996		TBD	TBD	402
LANDCRUISER	(use 8 stiffness for end impacts, size value for side impacts)	1964		3	8	421
MINVAN / PREVIA	Previa (use 7 stiffness for end impacts, size value for side impacts)	1991		4	7	441
	LE, Cargo (use 7 stiffness for end impacts, size value for side impacts)	1984	1990	1	7	441
SIENNA	CE, LE, XLE	1998				442
PICKUP	SR-5, Extra Cab, Sport, LN44, Chinook, Wonder Wagon (use 8 stiffness for end impacts, size value for side impacts)	1974	1995	PER WB	8	471
TACOMA	SR5, Xtracab, Limited, Prerunner	1995				472
T-100	DX, SR5, Limited, Xtracab (use 8 stiffness for end impacts, size value for side impacts)	1993	1998	PER WB	8	481
	Tundra	2000		TBD	TBD	481
OTHER LIGHT TRUCK		1970				498
UNKNOWN LIGHT TRUCK		1973				499
UNKNOWN VEHICLE		1966				999

Model	Includes	Start	End	Size	Stiffness	Model Code
TRIUMPH						
SPITFIRE	I, II, III, IV, 1500	1962	1981	1	1	31
GT-6	MK3	1967	1973	1	1	32
TR4	TR2, TR3, TR4A	1958	1968	1	1	33
TR6		1969	1976	1	1	34
TR7 / 8		1975	1981	1	1	35
HERALD	Vitesse	1960	1974	TBD	TBD	36
STAG		1971	1973	2	2	37
OTHER AUTOMOBILE	1200, 1800, 2000, Mayflower, Renown,	1946	1981	PER WB	PER WB	398
UNKNOWN AUTOMOBILE		1946	1981			399
MOTORCYCLE (000-050CC)		1965	1983			701
MOTORCYCLE (051-124CC)		1965	1983			702
MOTORCYCLE (125-349CC)		1950	1974			703
MOTORCYCLE (350-449CC)		1950	1971			704
MOTORCYCLE (450-749CC)		1950	1983			705
MOTORCYCLE (750CC-OVER)		1950	1974			706
MOTORCYCLE (UNKNOWN CC)		1950				709
UNKNOWN MOTORED CYCLE		1950				799
UNKNOWN VEHICLE		1950				999
TVR						
OTHER AUTOMOBILE		1965	1991			46
UNKNOWN AUTOMOBILE		1965	1991			46
UNKNOWN DOMESTIC MANUFACTURER						
UNKNOWN AUTOMOBILE						399
UNKNOWN LIGHT TRUCK						499
UNKNOWN MOTORED CYCLE						799
UNKNOWN MEDIUM / HEAVY TRUCK						899
UNKNOWN BUS TYPE						989
UNKNOWN VEHICLE						999

Model	Includes	Start	End	Size	Stiffness	Model Code
UNKNOWN FOREIGN MANUFACTURER						
UNKNOWN AUTOMOBILE						399
UNKNOWN LIGHT TRUCK						499
UNKNOWN MOTORED CYCLE						799
UNKNOWN MEDIUM / HEAVY TRUCK						899
UNKNOWN BUS TYPE						989
UNKNOWN VEHICLE						999
UNKNOWN MANUFACTURER						
UNKNOWN AUTOMOBILE						399
UNKNOWN LIGHT TRUCK						499
UNKNOWN MOTORED CYCLE						799
UNKNOWN TYPE TRUCK (LIGHT / MEDIUM / HEAVY)						899
UNKNOWN MEDIUM / HEAVY TRUCK						899
UNKNOWN BUS TYPE						989
UNKNOWN VEHICLE						999
UNKNOWN MEDIUM / HEAVY TRUCKS AND BUSES MANUFACTURER						
UNKNOWN MEDIUM / HEAVY TRUCK						899
UNKNOWN BUS TYPE						988

Model	Includes	Start	End	Size	Stiffness	Model Code
VOLKSWAGEN						
KARMANN GHIA		1954	1974	1	1	31
BEETLE 1300 / 1500	flat windshield, 94.5" WB	1948	1977	1	1	32
SUPER BEETLE	Distinguished by curved windshield, 95.3" WB	1971	1980	2	1	33
411 / 412	Squareback / Fastback	1971	1974	2	1	34
SQUAREBACK / FASTBACK	Type 3, 1600	1965	1974	1	1	35
RABBIT	L, GTI, Sport, LS, Custom, DL, Deluxe	1975	1984	1	1	36
DASHER		1974	1981	2	2	37
SCIROCCO	16V	1975	1988	1	1	38
JETTA	GL, GLI, GT, Carat, TDI, GLX (VR6), GLS (TDI, VR6)	1981	1992	2	2	40
QUANTUM	Synco	1982	1988	2	2	41
GOLF / CABRIOLET	Synco, GTI, Cabriolet, GT, GL	1985	1992	2	1	42
RABBIT PICKUP	car / based pickup	1980	1983	1	1	43
FOX	GL	1987	1994	1	1	44
CORRADO		1989	1994	2	2	45
PASSAT	GL, GLS, TDI, GLX	1990		2	2	46
JETTA III		1993		2	2	47
GOLF / III		1993		2	2	48
	GTI	2000		TBD	TBD	48
NEW BEETLE		1998				49
OTHER AUTOMOBILE		1965				398
UNKNOWN AUTOMOBILE		1965				399
THE THING (181)		1973	1975	1	1	401
VANAGON / CAMPER	Bus, Kombi, Van (use 7 stiffness for end impacts, size value for side impacts)	1955	1991	1	7	441
EUROVAN	(use 7 stiffness for end impacts, size value for side impacts)	1992	1993	7	7	442
	(use 7 stiffness for end impacts, size value for side impacts)	1999		7	7	442
OTHER LIGHT TRUCK		1967	1980			498
UNKNOWN LIGHT TRUCK		1965				499
OTHER VEHICLE		1965				998
UNKNOWN VEHICLE		1956				999

Model	Includes	Start	End	Size	Stiffness	Model Code
VOLVO						
122	S	1958	1968	3	3	31
142 / 144 / 145	S, E, GL, GLS, Deluxe	1968	1974	3	3	32
164	S, E	1969	1975	3	3	33
240 / 242 / 244 / 245	DL. GL, GLE, GLT, Deluxe	1975	1993	3	3	34
262 / 264 / 265	GL, c, Volvo Coupe, Volvo Diesel	1976	1982	3	3	35
1800	E, S, ES, P1800	1960	1973	2	2	36
760 / 780	GLE, Turbo	1983	1990	3	3	38
	GLE, Turbo, Bertone Coupe	1987	1992	3	3	38
740	GLE, GT, Turbo, GL	1986	1992	3	3	39
940	GLE, Turbo, SE	1991	1995	3	3	40
960		1992	1997	3	3	41
850	GLT, Wagon, Turbo, T-5, GTAS, GTMS, Cross Country	1993	1997	3	3	42
70 SERIES	C70, S70, V70	1998				43
90 SERIES	S90, V90	1998				44
S 40		2000		TBD	TBD	45
S 80		2000		TBD	TBD	46
OTHER AUTOMOBILE		1958				398
UNKNOWN AUTOMOBILE		1958				399
MEDIUM / HEAVY CBE		1981	1993			881
		1996				
MEDIUM / HEAVY COE LOW ENTRY		1981	1993			882
		1996				
MEDIUM / HEAVY COE HIGH ENTRY		1981	1993			883
		1996				
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1981	1993			884
		1996				
MEDIUM / HEAVY: COE ENTRY POSITION UNKNOWN		1981	1993			890
		1996				
OTHER MEDIUM / HEAVY TRUCK		1981	1993			898
		1996				
UNKNOWN MEDIUM / HEAVY TRUCK		1981	1993			899
		1996				
MEDIUM BUS		1981				981
OTHER BUS		1981				988
UNKNOWN TYPE BUS		1981				989
UNKNOWN VEHICLE		1958				999

Model	Includes	Start	End	Size	Stiffness	Model Code
WARD LAFRANCE						
MEDIUM / HEAVY - CBE						898
MEDIUM / HEAVY - COE / ENTRY POSITION UNKNOWN						898
MEDIUM / HEAVY - COE / HIGH ENTRY						898
MEDIUM / HEAVY - COE / LOW ENTRY						898
MEDIUM / HEAVY - OTHER						898
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION						898
MEDIUM / HEAVY BASED MOTORHOME						898
WESTERN STAR						
MEDIUM / HEAVY - CBE		1965				804
MEDIUM / HEAVY - COE/ENTRY POSITION UNKNOWN		1965				804
MEDIUM / HEAVY - COE/HIGH ENTRY		1965				804
MEDIUM / HEAVY - COE/LOW ENTRY		1965				804
MEDIUM / HEAVY - OTHER		1965				804
MEDIUM / HEAVY - UNKNOWN ENGINE LOCATION		1965				804
MEDIUM / HEAVY BASED MOTORHOME		1965				804

Model	Includes	Start	End	Size	Stiffness	Model Code
YAMAHA						
MOTORCYCLE (000-050CC)		1979				701
MOTORCYCLE (051-124CC)		1972				702
MOTORCYCLE (125-349CC)		1969				703
MOTORCYCLE (350-449CC)		1972				704
MOTORCYCLE (450-749CC)		1971				705
MOTORCYCLE (750CC-OVER)		1974				706
MOTORCYCLE (UNKNOWN CC)		1969				709
ATC / ATV (000-050CC)		1965	1991			731
ATC / ATV (051-124CC)		1965				732
ATC / ATV (125-349CC)		1965				733
ATC / ATV (350CC-OVER)		1999				734
ATC / ATV (UNKNOWN CC)		1965				739
OTHER MOTORED CYCLE		1965				798
UNKNOWN MOTORED CYCLE		1965				799
YUGO						
GV	GVX, Cabriolet	1986	1992	1	1	31
OTHER AUTOMOBILE		1986	1992			398
UNKNOWN AUTOMOBILE		1986	1992			399
UNKNOWN VEHICLE		1986	1992			999

Variable Name: Vehicle Model (specify): [cont'd.]

Vehicle Classification: Medium/Heavy Trucks and Buses

Variable VEH05 Vehicle Make	Truck	Bus	Code	Variable VEH06 Vehicle Model	Code
AM General	x	x	03	M/H truck based motorhome	850
Dodge	x	x	07	Medium/Heavy - CBE	881
Ford	x	x	12	Medium/Heavy - COE/low entry	882
Chevrolet	x	x	20	Medium/Heavy - COE/high entry	883
GMC	x	x	23	Medium/Heavy - Unknown engine location	884
Grumman	x	x	25		
Nissan/Datsun	x		35	Medium/Heavy - COE/entry position unknown	890
Fiat	x		36		
Isuzu	x	x	38	Medium/Heavy - Other	898
Mercedes Benz	x	x	42	Unknown medium/heavy truck	899
Volvo	x	x	51		
Mitsubishi	x		52	Bus based motorhome	950
Brockway	x		80	Bus - conventional front engine	981
Diamond Reo/Reo	x		81		
Freightliner/White	x		82	Bus - front engine/flat front	982
FWD	x		83	Bus - rear engine/flat front	983
International Harvester/Navistar	x	x	84	Other bus	988
				Unknown bus type	989
Kenworth	x		85		
Mack	x		86	Unknown vehicle	999
Peterbilt	x		87		
Iveco/Magirus	x		88		
Other: (if code "98" is used for VEH05, then VEH06 must be 801-807, 850, 898, 902, 950, 988, or 998, irrespective of Body Type)			98		
				Autocar	801
				Auto-Union-DKW	802
				Divco	803
				Western Star	804
				Oshkosh	805
				Hino	806
				Scania	807
				Truck based motorhome	850
				Other truck: e.g., Marmon, Ward LaFrance, (specify)	898
				Neoplan (bus)	902
				Bus based motorhome	950
				Other bus	988
				Other vehicle	998

Variable Name: Vehicle Model (specify): [cont'd.]

Source: Vehicle inspection, police report, and interview.

Remarks:

For the purposes of the Model codes the following applies.

001 - 399 - Passenger vehicles
398 - Other automobile
399 - Unknown automobile

401 - 499 - Light trucks
401 - 420 Compact utilities
421 - 430 Large utilities
431 - 440 Utility station wagons
441 - 460 Minivans
461 - 470 Large vans (includes step vans, van derivatives)
471 - 480 Compact pickups
481 - 490 Large pickups
498 - Other light truck
499 - Unknown light truck

701 - 799 - Motored Cycles/ATCs/ATVs
(701 - 706 motorcycles/mopeds)
701 0-50cc
702 51-124cc
703 125-349cc
704 350-449cc
705 450-749cc
706 750cc or greater
709 Unknown cc

(731 - 739 ATCs/ATVs)
731 0-50cc
732 51-124cc
733 125-349cc
734 350cc or greater
739 Unknown cc

798 - Other motored cycle
799 - Unknown motored cycle

801 - 899 - Medium/heavy trucks
850 M/H truck based motorhome
881 Medium/Heavy: CBE
882 Medium/Heavy: COE low entry
883 Medium/Heavy: COE high entry
884 Medium/Heavy: Unknown engine location
890 Medium/Heavy: COE entry position unknown
898 Other medium/heavy truck

GENERAL VEHICLE FORM

899 Unknown medium/heavy truck

GENERAL VEHICLE FORM
VEH06
(49)

Variable Name: Vehicle Model (specify): [cont'd.]

Source: Vehicle inspection, police report, and interview.

Remarks:

901 - 989 - Buses
- 950 Bus based motorhome
- 981 Conventional front engine
- 982 Front engine/flat front
- 983 Rear engine/flat front
- 988 Other bus
- 989 Unknown bus type

998 - Other vehicle (i.e., farm vehicle, go-kart, etc.)
999 - Unknown vehicle

The stiffness codes assigned in VEH06, Vehicle Model (specify):, are based upon either limited crash test data, wheelbase, or a correlation with vehicles currently listed in the CRASH3 manual. These assignments replace the vehicle assignments in "Table 8-2 Vehicle Stiffness Categories" in the "CRASH3 User's Guide and Technical Manual".

GENERAL VEHICLE FORM

VEH07

Variable Name: Body Type

Element Values:

PCDS APPLICABLE VEHICLES

Automobiles

01 Convertible (excludes sun-roof, t-bar)
02 2-door sedan, hardtop, coupe
03 3-door/2-door hatchback
04 4-door sedan, hardtop
05 5-door/4-door hatchback
06 Station wagon (excluding van and truck based)
07 Hatchback, number of doors unknown
08 Other automobile type (specify):
09 Unknown automobile type

Automobile Derivatives

10 Auto based pickup (includes El Camino, Caballero, Ranchero, Brat, and Rabbit pickup)
11 Auto based panel (cargo station wagon, auto based ambulance/hearse)
12 Large limousine - more than four side doors or stretched chassis
13 Three-wheel automobile or automobile derivative

Utility Vehicles (æ 4,536 kgs GVWR)

14 Compact utility (Jeep CJ-2 - CJ-7, Scrambler, Golden Eagle, Renegade, Laredo, Wrangler, Cherokee [84 and after], Dispatcher, Raider, Bronco II, Bronco [76 and before], Explorer, S-10 Blazer, Geo Tracker, Bravada, S-15 Jimmy, Thing, Pathfinder, Trooper, Trooper II, Rodeo, Amigo, Navajo, 4-Runner, Montero, Samurai, Sidekick, Rocky)
15 Large utility (includes Jeep Cherokee [83 and before], Ramcharger, Trailduster, Bronco-fullsize [78 and after], fullsize Blazer, fullsize Jimmy, Landcruiser, Rover, Scout)
16 Utility station wagon (Chevy Suburban, GMC Suburban, Travelall, Grand Wagoneer, includes suburban limousine)
19 Utility, unknown body type

Van Based Light Trucks (æ 4,536 kgs GVWR)

20 Minivan (Chrysler Town and Country, Caravan, Grand Caravan, Voyager, Grand Voyager, Mini-Ram, Dodge/Plymouth Vista, Aerostar, Lumina APV, Trans Sport, Silhouette, Astro, Villager, Safari, Toyota Van, Toyota Minivan, Previa, Nissan Minivan, Quest, Mitsubishi Minivan, Vanagon/Camper.)
21 Large van (B150-B350, Sportsman, Royal, Maxiwagon, Ram, Tradesman, Voyager [83 and before], E150-E350, Econoline, Clubwagon, Chateau, G10-G30, Chevy Van, Beauville, Sport Van, G15-G35, Rally Van, Vandura.)
22 Step van or walk-in van (æ 4,536 kgs GVWR)
23 Van based motorhome (æ 4,536 kgs GVWR)
24 Van based school bus (æ 4,536 kgs GVWR)
25 Van based other bus (æ 4,536 kgs GVWR)
28 Other van type (Hi-Cube Van, Kary) specify:
29 Unknown van type

Variable Name: Body Type (cont'd.)

Light Conventional Trucks (Pickup style cab, æ 4,536 kgs GVWR)

30 Compact pickup (D50, Colt P/U, Ram 50, Dakota, Arrow Pickup [foreign], Ranger, Courier, S-10 , T-10, LUV, S-15, T-15, Sonoma, Datsun/Nissan Pickup, P'up, Mazda Pickup, Toyota Pickup, Mitsubishi Pickup)
31 Large Pickup (Jeep Pickup, Comanche, Ram Pickup, D100-D350, W100-W350, F100-F350, C10-C35, K10-K35, R10-R35, V10-V35, Silverado, Sierra, R100-R500,)
32 Pickup with slide-in camper
33 Convertible pickup
39 Unknown pickup style light conventional truck type

Other Light Trucks (æ 4,536 kgs GVWR)

40 Cab chassis based (includes rescue vehicles, light stake, dump, and tow truck)
41 Truck based panel
42 Light truck based motorhome (chassis mounted)
45 Other light conventional truck type
48 Unknown light truck type
49 Unknown light vehicle type (automobile, utility, van, or light truck)

Source: Vehicle inspection, police report, and interview.

Remarks:

Automobiles

Codes "01"-"09" are used to describe different types of passenger cars. These light vehicles referred to as automobiles, are designed primarily to transport passengers.

Code "01" [Convertible (excludes sun-roof, t-bar)] refers to a passenger car equipped with a removable or retractable roof. To qualify for this code, the entire roof must open. Convertible roofs are generally fabric; however, removable hardtops are also included. This code takes priority over 2-door (codes "02" and "03") or 4-door (codes "04" and "05") codes.

Code "02" (2-door sedan, hardtop, coupe) refers to a passenger car equipped with two doors for ingress/egress and a separate trunk area for cargo (i.e., trunk lid hinged below the backlight). Folding rear seats do not necessarily violate the separate "trunk area" concept.

Variable Name: Body Type (cont'd.)

Code "03" (3-door/2-door hatchback) refers to a passenger car equipped with two doors for ingress/egress and a rear hatch opening for cargo (i.e., hinged above the backlight). The cargo area is not permanently partitioned from the passenger compartment area.

Code "04" (4-door sedan, hardtop) refers to a passenger car equipped with four doors for ingress/egress and a separate trunk area for cargo (i.e., trunk lid hinged below the backlight). Folding rear seats do not necessarily violate the separate "trunk area" concept.

Code "05" (5-door/4-door hatchback) refers to a passenger car equipped with four doors for ingress/egress and a rear hatch opening for cargo (i.e., hinged above the backlight). The cargo area is not permanently partitioned from the passenger compartment area.

Code "06" [Station wagon (excluding van and truck based)] refers to a passenger car with an enlarged cargo area. The entire roof covering the cargo area is generally equal in height from front to rear and full height side glass is installed between the C and D-pillars. The rearmost area is not permanently partitioned from the forward passenger compartment area (e.g., "horizontal window shades" to hide cargo do not constitute partitions).

Code "07" (Hatchback, number of doors unknown) refers to a passenger car with an unknown number of doors for ingress/egress and a rear hatch opening for cargo (i.e., hinged above the backlight). The cargo area is not permanently partitioned from the passenger compartment area.

Code "08" (Other automobile type) refers to any passenger car that cannot be described by elements "01" through "07" or "10" through "13".

Code "09" (Unknown automobile type) is used when it is known that the vehicle is a passenger car, but there is insufficient data to determine the type.

Automobile Derivatives

Codes "10"-"13" are used to describe certain passenger cars that have been modified to perform cargo-related tasks.

Code "10" [Auto based pickup (includes El Camino, Caballero, Ranchero, Brat, and Rabbit pickup)] refers to a passenger car based, pickup type vehicle. The roof area (and side glass) rearward of the front seats on a station wagon have been removed and converted into a pickup-type cargo box.

Code "11" [Auto based panel (cargo station wagon, auto based ambulance/hearse)] refers an automotive station wagon that may have sheet metal rearward of the B-pillar rather than glass.

Variable Name: Body Type (cont'd.)

Code "12" (Large limousine - more than four side doors or stretched chassis) refers to an automobile that has sections added within its wheelbase to increase length and passenger/cargo carrying capacity.

Code "13" (Three-wheel automobile or automobile derivative) refers to three-wheel vehicles with an enclosed passenger compartment.

Utility Vehicles (æ 4,536 kgs GVWR)

Codes "14" - "19" are used to describe multi-purpose vehicles (MPV) that are designed to have off-road capabilities. These vehicles are: generally four wheel drive (4 x 4), have increased ground clearance, and are equipped with a strong frame. Four wheel drive automobiles are not considered MPVs.

Code "14" [Compact utility (Jeep CJ-2 - CJ-7, Scrambler, Golden Eagle, Renegade, Laredo, Wrangler, Cherokee [84 and after], Dispatcher, Raider, Bronco II, Bronco [76 and before], Explorer, S-10 Blazer, Geo Tracker, Bravada, S-15 Jimmy, Thing, Pathfinder, Trooper, Trooper II, Rodeo, Amigo, Navajo, 4-Runner, Montero, Samurai, Sidekick, Rocky)] refers to a short wheelbase and narrow tracked multi-purpose vehicle designed to operate in rugged terrain.

Code "15" [Large utility (includes Jeep Cherokee [83 and before], Ramcharger, Trailduster, Bronco-fullsize [78 and after], fullsize Blazer, fullsize Jimmy, Landcruiser, Rover, Scout)] refers to fullsize multi-purpose vehicles primarily designed around a shortened pickup truck chassis. While generally a station wagon style body, some models are equipped with a removable top.

Code "16" [Utility station wagon (Chevy Suburban, GMC Suburban, Travelall, Grand Wagoneer, includes suburban limousine)] refers primarily to a pickup truck based chassis enlarged to a station wagon.

Code "19" (Utility, unknown body type) is used when it is known that the vehicle is a utility vehicle, but there is insufficient data to determine the specific type. Class of Vehicle (AC12) is coded "11" (Compact utility vehicle).

Van Based Light Trucks (æ 4,536 kgs GVWR)

Codes "20"-"29" are used to describe light trucks (æ 4,536 kgs GVWR) that are designed to maximize cargo/passenger area versus overall length. Basically a "box on wheels" these vehicles are identifiable by their enclosed cargo/passenger area and relatively short (or non-existent) hood.

Code "20" [Minivan (Chrysler Town and Country, Caravan, Grand Caravan, Voyager, Grand Voyager, Mini-Ram, Dodge/Plymouth Vista, Aerostar, Lumina APV, Trans Sport, Silhouette, Astro, Safari, Toyota Van, Toyota Minivan, Previa, Nissan Minivan, Mitsubishi Minivan, Vanagon/Camper)] refers to down-sized cargo or passenger vans.

Variable Name: Body Type (cont'd.)

Code "21" [Large van (B150-B350, Sportsman, Royal, Maxiwagon, Ram, Tradesman, Voyager [83 and before], E150-E350, Econoline, Clubwagon, Chateau, G10-G30, Chevy Van, Beauville, Sport Van, G15-G35, Rally Van, Vandura)] refers to a standard cargo or passenger van. These vans will generally have a larger capacity in both volume and GVWR.

Code "22" [Step van or walk-in van (æ 4,536 kgs GVWR)] refers to a multi-stop delivery vehicle with a GVWR less than or equal to 4,536 kilograms. Examples are the Grumman LLV used by the US Postal Service or the Aeromate manufactured by Utilimaster Motor Corporation.

Code "23" [Van based motorhome (æ 4,536 kgs GVWR)] refers to a van where the chassis and cab portions from the B-pillar forward of this vehicle are the same as in codes "20" and "21", however, a frame mounted recreational unit is added behind the driver/cab area. This code takes priority over codes "20" and "21".

Code "24" [Van based school bus (æ 4,536 kgs GVWR)] is a passenger van designed to carry students (passengers) to and from educational facilities and/or related functions. The vehicles are characteristically painted yellow and clearly identified as school buses. Use this code regardless of whether the vehicle is owned by a school system or a private company. Van based school buses converted for other uses (e.g., church bus) also take this code.

Code "25" [Van based other bus (æ 4,536 kgs GVWR)] is a van derivative (e.g., taxi, small local transit) designed to carry passengers for low occupancy functions or purposes. Van based school buses do not use this code.

Code "28" [Other van type (Hi-Cube Van, Kary)] refers to a cargo or delivery van where that chassis and cab portions from the B-pillar forward of this vehicle are the same as in codes "20" and "21" with a frame mounted cargo area unit added behind the driver/cab area, or if the van cannot be described in codes "20", "21", "22" or "23". Annotate the van type when using this code. This code takes priority over codes "20" and "21".

Code "29" (Unknown van type) is used when it is known that this vehicle is a light van, but its specific type cannot be determined.

Light Conventional Trucks (Pickup Style Cab, æ 4,536 kgs GVWR)

Codes "30"-"39" are used to describe vehicles commonly referred to as pickup trucks and some of their derivatives. These light trucks are characteristically designed: with a small cab containing a single row of seats (extended cabs with additional seats are available for some models), a large hood covering a conventional engine placement, and a separate open box area (approximately 180 to 240 centimeters long) for cargo.

Code "30" [Compact pickup (D50, Colt P/U, Ram 50, Dakota, Arrow Pickup [foreign], Ranger, Courier, S-10 , T-10, LUV, S-15, T-15, Sonoma, Datsun/Nissan Pickup, P'up, Mazda Pickup, Toyota Pickup, Mitsubishi Pickup)] is used to describe a pickup truck having a width of 178 centimeters or less.

Code "31" [Large Pickup (Jeep Pickup, Comanche, Ram Pickup, D100-D350, W100-W350, F100-F350, C10-C35, K10-K35, R10-R35, V10-V35, Silverado, Sierra, R100-R500,)] is used to describe a pickup truck having a width of greater than 178 centimeters.

Code "32" (Pickup with slide-in camper) is used to describe any pickup truck that is equipped with a slide-in camper. A slide-in camper is a unit that mounts within a pickup bed. Pickup bed caps, tonneau covers, or frame mounted campers are not applicable for this code.

Code "33" (Convertible pickup) refers to a pickup truck equipped with a removable or retractable roof. To qualify for this code, the entire roof must open. Convertible roofs are generally fabric; however, removable hardtops are also included. This code takes priority over compact and large pickups (codes "30" and "31").

Code "39" (Unknown pickup style light conventional truck) is used when this vehicle qualifies for a code in the "30" to "33" range, but there is insufficient data to determine the specific code.

Other Light Trucks (æ 4,536 kgs. GVWR)

Codes "40"-"49" are used to describe vehicles that are based upon a conventional light pickup frame, but a commercial or recreational body has been affixed to the frame rather than a pickup box.

Code "40" [Cab chassis based (includes rescue vehicles, light stake, dump, and tow truck)] is used to describe a light vehicle with a pickup style cab and a commercial (nonpickup) body attached to the frame. Included are pickup based ambulances and tow trucks.

Code "41" (Truck based panel) is used to describe a truck based station wagon that has sheet metal rather than glass above the beltline rearward of the B-pillars.

Code "42" [Light truck based motorhome (chassis mounted)] is used to describe a frame mounted recreational unit attached to a light van or conventional chassis.

Code "45" (Other light conventional truck type) is used for light conventional trucks that cannot be described in codes "30"-"39" or "40"-"42".

Code "48" (Unknown light truck type) is used when it is known that the vehicle is a light truck chassis based vehicle but insufficient data exist to specify between codes "19", "29", "39", or "40"-"42".
VEH07
(7)

Variable Name: Body Type (cont'd.)

GENERAL VEHICLE FORM

Code "49" [Unknown light vehicle type (automobile, utility, van, or light truck)] is used when it is known that the vehicle is a light vehicle, but insufficient data exists to specify between codes "09", "10"-"14", "19", "29", "39", or "40"-"48".

Code "99" (Unknown body type) is used when there is no available information regarding the type of vehicle. This lack of information prohibits the accurate classification of this vehicle within one of the preceding codes.

GENERAL VEHICLE FORM
VEH08

Variable Name: Vehicle Identification Number

Element Values:

Code the entire VIN, left justify
No VIN
99999999999999999 Unknown

Source: Vehicle inspection

Remarks:

The VIN must be obtained from the vehicle.

If part of the VIN is missing or not decipherable, leave the column any such character would ordinarily occupy "Blank".

Code "99999999999999999" (Unknown) if the entire VIN is unknown or missing.

Variable Name: Vehicle Identification Number (cont'd.)

In those cases where the VIN does not match the references given below (e.g., a character is missing or an invalid character is coded in a space), the encoded VIN must follow the correct format indicated by the references below and a note is made on the form indicating the discrepancy.

The location of the VIN will vary among, and within, vehicles. Reference sources which may prove helpful in locating the VIN include, but are not limited to:

(1) Passenger Vehicle Identification Manual
National Insurance Crime Bureau

Manuals available from

National Insurance Crime Bureau
10330 South Roberts Road
Palos Hills, Illinois 60465

(2) Passenger Car and Truck-Accident
Investigator's Manual
American Automobile Manufacturers Association
7430 Second Avenue, Suite 300
Detroit, Michigan 48202

(3) Lee S. Cole
Lee Books
Post Office Box 906
Novato, California 94948-0906
(415) 897-3550
(Vehicle Identification 1938-1968)
(Vehicle Identification 1968-1982)

(4) N.A.D.A. Official Used Car Guide
National Automobile Dealers Association
8400 Westpark Drive
McLean, Virginia 22102

Vehicles manufactured after September 1980 conform to Federal Motor Vehicle Safety Standard 115. This standard requires that: (1) each VIN have 17 characters, and (2) the VIN does not contain the letters "I", "O", or "Q". There are many other requirements, one of which is that the VIN pass a mathematical test; thus, the use of the "check digit".

Each character in a VIN has a value, and each place has a weight. Each weight is multiplied by the value of the character in it; the products are summed and divided by eleven (11). The remainder (once converted from a decimal to an integer) must be the same as the value of the check digit character (the ninth one), except when the remainder is ten (10), in which case, the check digit character is "X".

GENERAL VEHICLE FORM
VEH08
(3)

Variable Name: Vehicle Identification Number (cont'd.)

VIN Place	Value Factor	Character Values				
1st	8	A-1	B-2	C-3	D-4	E-5
2nd	7					
3rd	6	F-6	G-7	H-8		J-1
4th	5					
5th	4	K-2	L-3	M-4	N-5	
6th	3					
7th	2	P-7		R-9	S-2	T-3
8th	10					
Check Digit	0	U-4	V-5	W-6	X-7	Y-8
10th	9					
11th	8	Z-9				
12th	7					
13th	6	0-0	1-1	2-2	3-3	4-4
14th	5					
15th	4	5-5	6-6	7-7	8-8	9-9
16th	3					
17th	2					

Example:

VIN Character	1	G	4	A	H	5	9	H	4	5	G	1	1	8	3	4	1	Sum
Assigned Value	1	7	4	1	8	5	9	8	4	5	7	1	1	8	3	4	1	
Weight Factor	8	7	6	5	4	3	2	10	0	9	8	7	6	5	4	3	2	
Product	8	49	24	5	32	15	18	80	0	45	56	7	6	40	12	12	2	411

Divide sum by eleven (11): 411/11 = 37.3636.... = 37 and 4/11s.
Compare integer remainder to check digit: "4" equals "4".

Remainders of Eleven:

Decimal	Integer	Decimal	Integer	Decimal	Integer
.000000	0	.363636	4	.727272	8
.090909	1	.454545	5	.818181	9
.181818	2	.545454	6	.909090	X*
.272727	3	.636363	7		

* The character X is used instead of the integer ten (10) since the field is only one character wide.

GENERAL VEHICLE FORM
VEH09

Variable Name: Police Reported Travel Speed (kph)

Element Values:

Range: 000 through 160, 999

Code to the nearest kph (Note: 000 means less than 0.5 kph)
160 159.5 kph and above
999 Unknown

Source: Police report only

Remarks:

Code the travel speed for this vehicle if indicated on the police report by the investigating officer. Do not use estimates by drivers or witnesses.

Code to the nearest kph, or if the travel speed is reported as a range, code the average. For example:

Reported Speed:	50.2 kph	50.5 kph	55-60 kph
Code:	"50"	"51"	"58"

Code "000" (000 kph) is used if this vehicle is stopped or traveling less than 0.5 Kph.

Code "160" (159.5 kph and above) is used if this vehicle's speed is reported as equal to or exceeding 159.5 kph.

Code "999" (Unknown) is used if the estimated travel speed is unknown.

Variable Name: Speed Limit (kph)

Element Values:

Range: 000 through 105, 999

000 No statutory limit
Code posted or statutory speed limit in kph
999 Unknown

Source: Primary sources are scene inspection or statutory law. Do not use the police report for selecting this variable's value.

Remarks:

Convert all speed limits from miles per hour (mph) to kilometers per hour (kph). A conversion chart is provided below.

Disregard advisory or other speed signs which do not indicate the legal speed limit. Furthermore, do not confuse advisory signs on entrance/exit ramps or near intersections with the actual legal maximum speed limit.

If no speed limit sign is posted within a reasonable distance from the location of the first accident event along the approach leg of the roadway this vehicle was traveling on, then reference state statutes to obtain the applicable statutory maximum speed limit for the location (local or state).

If a state has a statute that uniformly reduces the maximum allowable speed within or near a construction zone, then code the indicated reduced limit.

Code "000"(No statutory limit) is used on roadways which are neither posted nor have a statutory limit (e.g., parking lot roadways or entrance/exits, service station entrance/exits, or driveways, etc.).

Code "999"(Unknown) is used only in situations where an accident scene cannot be located. Note, speed limit must be identified for all known accident scene locations.

Miles Per Hour To Kilometers Per Hour Conversion

MPH	KPH	MPH	KPH
05	08	40	64
10	16	45	72
15	24	50	80
20	32	55	89
25	40	60	97
30	48	65	105
35	56	70	113

Conversion formula: MPH X 1.6093 = KPH

Variable Name: Police Reported Alcohol Presence for Driver

Element Values:

0 No alcohol present
1 Yes alcohol present
7 Not reported
8 No driver present
9 Unknown

Source: Police Report

Remarks:

The phrase "alcohol present" means that the driver had consumed an alcoholic beverage. Presence is not an indication that alcohol was in any way a cause of the crash, even though it may have been. Finding opened or unopened alcoholic beverages in the vehicle does not by itself constitute presence.

Code "0" (No alcohol present) is used if the investigating officer's assessment (as reported on the police report) is that no alcohol was present in the driver.

Code "1" (Yes alcohol present) is used if the police indicate alcohol presence in the driver via: (1) a specific data element on the police report form, (2) the police charge the driver with Driving Under the Influence (DUI), Driving While Intoxicated [or Impaired (DWI)], or similar, (3) the police mention in the narrative section of the report that the driver had been drinking (or alcohol was present or involved), or (4) the police report has a positive BAC test result (BAC > .00).

Code "7" (Not reported) is used if there is a specific location on the police report for assessment of the alcohol presence but the investigating officer fails to make either a positive or negative assessment.

Code "8" (No driver present) is used when an in-transport vehicle was involved in the accident, but no driver was in the vehicle at the time.

Code "9" (Unknown) is used if the alcohol presence is indicated as unknown. In general, police reports have blocks to check either positive or negative alcohol presence. However, if a police report has a provision for the investigating officer to respond "unknown presence" then use this code. In addition, use this code for hit-and-run drivers unless clear evidence to the contrary exists.

Some PARs have a block labeled "Alcohol/Drugs". If "presence" is indicated, and it cannot be determined which was used (e.g., narrative, arrest/charged section etc.), then assume alcohol presence. If the police report indicates that a driver was charged with DWI (driving while intoxicated or driving while impaired) and no clarification is offered to indicate if the DWI was alcohol related or other drug related (i.e., a specific data element; mentioned in the narrative section; or BAC results), then assume alcohol presence.

Variable Name: Alcohol Test Result for Driver

Element Values:

Range: 00-49; 95-99

xx Code actual value (decimal implied before first digit -- 0.xx).
95 Test refused
96 None given
97 AC (Alcohol Content) test performed, results unknown
98 No driver present
99 Unknown

Source: Police report, medical reports, or other official sources

Remarks:

Blood Alcohol Content (BAC) measures the percentage (expressed as a decimal) of the number of grams of alcohol in a liter of blood. The standard measure is expressed as the number of milligrams per deciliter (tenth of a liter) (e.g., .05 = 50 mg/100 ml; .15 = 150 mg/100 ml). A blood alcohol concentration (BAC) test could be a blood, breath, or urine test.

No psychomotor (police observation of driver actions) test results are coded here. Also be aware of preliminary test results. These preliminary tests, including an instrumented field screening test, indicate the presence of alcohol, but not necessarily the particular content level. Preliminary tests are designed to segregate candidates for further testing from those persons where the suspected presence of alcohol is either nonexistent or too low for additional tests.

If an instrumented field screening test was given and it was determined that:

- no BAC test was required, code "96" (None given);
- A BAC test was required, but the precise level was not obtained, code "97" (AC test performed, results unknown) or
- a BAC test was required and the precise level was obtained, code the reported BAC from the subsequent test (codes "00 - 49).

If the BAC was given on the police report or subsequently added after the case was initiated, code the reported value. In essence, if any BAC is obtained, code the reported value. Use normal rounding rules (i.e., the number five or greater is rounded upward, less than five is rounded down). For example, a BAC of 117 mg/dl is coded "12".

For drivers of and non-PCDS applicable vehicles, use only PAR information when coding tests results.

Codes "00 - 49" report the actual number value representing the fraction of alcohol present.

Code "00" is used when a test was performed, but no alcohol was detected.

Variable Name: Alcohol Test Result for Driver (cont'd).

Code "95" (Test refused) is used when the person refuses to voluntarily take a BAC test, and no subsequent test is given. If the person refuses, but a test is performed, code the reported BAC or "97" (AC test performed results unknown).

Code "96" (None given) is used when no BAC test was administered to the driver.

Code "97" (AC test performed, results unknown) is used after all available sources have been exhausted. Verbal BACs obtained from official sources are acceptable if written approval (or approval via the message system) has been obtained from the Zone Center. Obtain BAC test results whenever possible.

Code "98" (No driver present) is used when an in-transport vehicle was involved in the accident but no driver was in the vehicle at the time.

Code "99" (Unknown) is used when it is not known if a test was administered.

Variable Name: Police Reported Other Drug Presence for Driver

Element Values:

0 No other drug(s) present
1 Yes other drug(s) present
7 Not reported
8 No driver present
9 Unknown

Source: Police report

Remarks:

The phrase "other drug present" includes prescription and "over-the counter" medications as well as "illicit" substances (e.g., in most cases, marijuana, cocaine, heroin, etc. where usage has not been prescribed by a doctor). Also, "other drug present" means that the driver had ingested an other drug prior to the accident, but it is not an indication that the drug usage was in any way the cause of the accident (or event), even though it may have been. Finding other drugs in the vehicle does not by itself constitute presence.

Code "0" [No other drug(s) present] is used if the investigating officer's assessment (as reported on the police report) is that no other drugs were present in the driver.

Code "1" {Yes [other drug(s) present]} is used if the police indicate an other drug presence in the driver via: (1) a specific data element on the police report form, (2) the police mention in the narrative section of the report that the driver had ingested an other drug.

Code "7" (Not reported) is used if there is a specific location on the police report for assessment of other drug presence but the investigating officer fails to make either a positive or negative assessment. In addition, use this code if the PAR does not have a specific location for reporting other drugs and the police do not mention other drugs in the narrative section.

Code "8" (No driver present) is used when an in-transport vehicle was involved in the accident but no driver was in the vehicle at the time.

Code "9" (Unknown) is used if the other drug presence is indicated as unknown. A growing number of police reports have blocks to check either positive or negative other drug presence. However, if a police report has a provision for the investigating officer to respond "unknown presence" then use this code. In addition, use this code for hit-and-run drivers unless clear evidence to the contrary exists.

Some PARs have a block labeled "Alcohol/Drugs". If "presence" is indicated, and it cannot be determined which was used (e.g., narrative, arrest/charged section etc.), then assume alcohol presence. If the police report indicates that a driver was charged with DWI (driving while intoxicated or driving while impaired) and no clarification is offered to indicate if the DWI was alcohol related or other drug related (i.e., a specific data element; mentioned in the narrative section; BAC results), then assume alcohol presence.

Variable Name: Other Drug Specimen Test Result for Driver

Element Values:

0 No specimen test given
1 Drug not found in specimen
2 Drug found in specimen (specify):
3 Specimen test given, results unknown or not obtained
8 No driver present
9 Unknown

Source: Police report, medical reports, or other official sources.

Remarks:

Code "0" (No specimen test given) is used when VEH16 (Police Reported Other Drug Presence) is coded "0" (No other drugs present).

Code "1" (Drug not found in specimen) is used if the driver had at least one type of specimen tested for an "other" drug and the test results came back "negative" or the medical or other records had no "other" drug mentioned among the drugs for which a positive result was found.

Code "2" [Drug found in specimen (specify):___] is used if it is known that the driver had at least one specimen tested and the driver had a positive test result for an "other" drug. A positive test result is any measured quantity that exceeds the detection threshold of the laboratory which performed the test.

Code "3" (Specimen test given, results unknown or not obtained) is used when positive test results were found for at least one of the seven DEC drug categories and the medical (or other) records fail to specify whether or not at least one non-DEC drug was evaluated.

Code "8" (No driver present) is used when an in-transport vehicle was involved in the accident but no driver was in the vehicle at the time.

Code "9" (Unknown) is used if VEH16 (Police reported other drug presence) is coded "9" (Unknown).

If it is known that a drug screen was given and it is unknown if any positive results were found and it is also unknown what drugs were screened for, then use this code.

GENERAL VEHICLE FORM
VEH15

Variable Name: Vehicle Curb Weight (kg)

Element Values:

Range: 045 through 610, 999

Code weight to the nearest 10 kilograms.
045 450 kilograms or less
610 6,100 kilograms or more
999 Unknown

Source: Primary and secondary sources are listed below.

Remarks:

Code this vehicle's curb weight to the nearest 10 kilograms as in the examples.

Weight: 1,465 kilograms	Weight: 3,402 kilograms
Code: "147"	Code: "340"

Do not confuse the rated Gross Vehicle Weight Rating (GVWR) with the curb weight since it is likely to be significantly greater than the curb weight.

"Vehicle" is defined on this variable to mean the same as that coded on VEH07, Body Type.

If the vehicle model (VEH06) is known, but the engine size is unknown (e.g., 6 or 8 cylinders), code the average between the high and low curb weights for the model and annotate that the "average" was reported.

When the vehicle specifications do not report the vehicle weight with the proper engine size, adjustments must be made. First, try to determine the weight differences from the vehicle specifications. If the weight difference cannot be determined from the specifications, then adjust as follows: 8 cyl. to 6 cyl. - subtract 45 kilograms; 6 cyl. to 4 cyl. - subtract 34 kilograms.

Add 45 kilograms to the shipping weight to obtain a curb weight on all PCDS applicable vehicles.

The primary source for obtaining this vehicle's curb weight is the first source of reference material listed below; the next three sources are secondary.

Variable Name: Vehicle Curb Weight (cont'd.)

Passenger Vehicle Specifications
American Automobile Manufacturers Association (AAMA)
300 New Center Building
Detroit, Michigan 48202

Automotive News
Crain Automotive Group, Inc.
965 East Jefferson Avenue
Detroit, Michigan 48207

Branham Automobile Reference Book
Branham Publishing Company
Post Office Box 1948
Santa Monica, California 90406-1948

Gasoline Truck Index and
Diesel Truck Index
Truck Index, Inc.
Post Office Box 10291
Santa Ana, California 92711

Annotate the source used in the space provided on the Vehicle Form under this variable.

If the vehicle is towing a trailer then the weight of the trailer and its cargo is not coded here. Instead, it is coded under variable VEH16, Vehicle Cargo Weight. For example, the weight of a boat trailer and its cargo are encoded on Vehicle Cargo Weight (VEH16), distinct from the weight of the vehicle.

Code "999" (Unknown) when the curb weight of this vehicle cannot be determined.

GENERAL VEHICLE FORM
VEH16

Variable Name: Vehicle Cargo Weight (kg)

Element Values:

Range: 000 through 450, 999

Code weight to nearest 10 kilograms.
000 Less than 5 kilograms
450 4,536 kilograms or more
999 Unknown

Source: Researcher determined -- inputs include vehicle inspection and interviewees.

Remarks:

If the vehicle is towing a trailing unit, then the weight of the trailer and its cargo is coded here. Cargo may also be located in the passenger compartment area and/or trunk.

Do not include the weight of the occupants in the cargo weight. The weight of the occupants is included (along with cargo and vehicle curb weight) as a component of the single value which represents the vehicles combined weight on the Reconstruction Program Summary Form, if used.

Code this vehicle's cargo weight to the nearest 10 kilograms as in the examples.

Weight: 81 kilograms	Weight: 1,465 kilograms
Code: "008"	Code: "147"

Code "000" (Less than 5 kilograms) is used if the cargo weight is less than 5 kilograms.

Code "450" (4,536 kilograms or more) is used if the cargo weight is 4,536 kilograms or more.

Code "999" (Unknown) is used if the cargo weight is unknown.

GENERAL VEHICLE FORM
VEH17

Variable Name: Vehicle Special Use (This Trip)

Element Value

0 No special use
1 Taxi
2 Vehicle used as school bus
3 Vehicle used as other bus
4 Military
5 Police
6 Ambulance
7 Fire truck or car
8 Other (specify):
9 Unknown

Source: Researcher determined; primary source is the police report; secondary sources include vehicle inspection, and interviewees.

Remarks:

Code "0" (No special use) is used when no source indicates or implies that this vehicle was applicable to any of the special uses listed below.

Codes "1" (Taxi), "2" (Vehicle used as school bus), and "3" (Vehicle used as other bus) are "this trip" specific. The vehicle must be "on duty" as either a taxi or as a bus. External identification on the vehicle as a bus or taxi is not sufficient to determine its special use.

Code "1" (Taxi) is used when this vehicle was being used during this trip (at the time of the accident) on a "fee-for-hire" basis to transport persons. Most of these vehicles will be marked and formally registered as taxis; however, vehicles which are used as taxis, even though they are not registered (e.g., "Gypsy Cabs"), are included here. Taxis and drivers which are off-duty at the time of the accident are not included.

Code "2" (Vehicle used as school bus) is used if this motor vehicle (GV07, Body Type) satisfies all of the following criteria:

- externally identifiable to other traffic units as a school/pupil transport vehicle. The vehicle may be equipped with flashing lights and/or a sway stop arm, and traffic may be required to stop for the vehicle when occupants enter or exit;
- operated, leased, owned, or contracted by a public or private school-type institution;
- whose occupants, if any, are associated with the institution; and,
- the vehicle is in operation at the time of the accident to and from the school or on a school-sponsored activity or trip.

Variable Name: Vehicle Special Use (This Trip), cont'd.

Code "3" (Vehicle used as other bus) is used when this motor vehicle is designed for transporting more than ten persons and does not satisfy all of the above criteria of a school bus.

Codes "4" (Military), "5" (Police), "6" (Ambulance), and "7" (Fire truck or car) are considered to be in use at all times. Special use means "in use" and not necessarily emergency use. External identification to the normal driving public is the sole criterion.

Code "4" (Military) is used for any vehicle which is owned by any of the Armed Forces regardless of body type. This code includes:

- military police vehicles;
- military ambulances;
- military hearses; and
- military fire vehicles

Code "5" (Police) is used for any readily identifiable (lights or markings) vehicle which is owned by any local, county, state, or federal police agency. Vehicles not owned by the agency or not readily identifiable which are used by officers or agents (e.g., undercover) are excluded.

Code "6" (Ambulance) is used for any readily identifiable (lights or markings) vehicles: (1) whose sole purpose is to provide ambulance service, or (2) who serve the dual purposes of a hearse--used for funeral services, and an ambulance--used for emergency services. For these dual purpose vehicles (ambulance/hearse), use this code only when the vehicle is used as an ambulance.

Code "7" (Fire truck or car) is used for any readily identifiable (lights or markings) vehicle which is owned by any government (typically local) or cooperative agency for the purpose of fire protection. For volunteer fire companies, fire fighting apparatus and other vehicles owned by the company or government qualify for this code. Privately owned vehicles, which are not in authorized use, even if equipped with lights, do not qualify (i.e., the volunteer firemen's vehicle).

Code "8" [Other (specify): ____] is used for any special use vehicle which is not identifiable above. This includes funeral hearses.

Code "9" (Unknown) is used when no information is available on the vehicle's special use for this trip (i.e., a hit-and-run vehicle).

GENERAL VEHICLE FORM

VEH18
Variable Name: Impact Speed

Element Values:

Code to the nearest kph (Note: 000 means less than 0.5 kph)

160 159.5 kph and above
999 Unknown

Source: Zone Center determined

Remarks:

Code to the nearest kph; if the calculated speed is 50.5 kph, then round up to 51 kph.

Formula to convert mph to kph: _ _ mph X 1.6093 = _ _ _ kph.

Code "000" (000 kph) is used if the vehicle is traveling less than 0.5 kph.

Code "160" (159.5 kph and above) is used if the vehicle's speed is calculated to be equal to or exceeding 159.5 kph.

Code "998" (Not Applicable) is used when the crash parameters prohibit a calculation of the vehicle's impact speed.

Code "999" (Unknown) is used if the impact speed is unknown or cannot be reasonably calculated by the Zone Center.

Variable Name: Accuracy Range of Impact Speed Estimate

Element Values:

0 No speed reconstruction

1 Less than 2 kph
2 Æ 2 and æ 8 kph
3 Æ 9 and æ 16 kph
4 Æ 17 and æ 26 kph

9 Unknown

Source: Zone Center determined

Remarks:

Impact speed error range estimates are rounded to the nearest kph (e.g., 16.6 kph is rounded up to 17 kph).

Code "0" (No speed reconstruction) is used when there is no mathematically generated speed reconstruction in the case.

Code "1" (Less than 2 kph) is used when the Zone Center generated an impact speed and the error range is < 2 kph.

Code "2" (Æ 2 and æ 8 kph) is used when the impact speed, calculated by the Zone Center, has a 2 through 8 kph error range.

Code "3" (Æ 9 and æ 16 kph) is used when the impact speed, calculated by the Zone Center, has a 9 through 16 kph error range.

Code "4" (Æ 17 and æ 26 kph) is used when the impact speed, calculated by the Zone Center, has a 17 through 26 kph error range.

Code "9" (Unknown) is used when an impact speed is indicated, but due to certain crash parameters, the impact speed is solely an estimate based on known evidence or a police calculation, where the researcher was not able to obtain the necessary inputs to allow the Zone Center to calculate impact speed. This code is also used when VEH18 (Impact Speed) is unknown.

Variable Name: Data Source of Impact Speed

Element Values:

0 No impact speed calculated or estimated
1 Zone Center calculation
2 Police calculation
3 Driver/witness/police estimates

Source: Zone Center determined

Remarks:

Note: code 1 takes precedence over code 2 and code 2 takes precedence over code 3.

Code "0" (No impact speed calculated or estimated) is used when there is no impact speed calculated or estimated for this impact.

Code "1" (Zone Center calculation) is used when physical evidence was present at the accident site and sufficiently documented so an impact speed for the striking vehicle could be computed.

Code "2" (Police calculation) is used when the police used physical evidence present at the scene to calculate an impact speed. This data must be attached to the PAR, and the physical evidence used by the police was either inaccessible to the researcher or obliterated, so the researcher could not obtain the necessary inputs to enable the Zone Center to calculate impact speed.

Code "3" (Driver/eyewitness/police estimates) is used either when there is no physical evidence present to determine an impact speed, or there are mitigating circumstances so that a speed reconstruction is not possible. The only useable impact speed estimates are those provided by the driver, an eyewitness or police estimates. Note: if more than one eyewitness provides an estimated impact speed, annotate all speeds and code the average of the results for the impact speed.

Variable Name: Driver's Attention To Driving (Prior to Recognition of Critical Event)

Element Values:

1 Full attention to driving
2 Distracted by other occupant
3 Distracted by moving object in vehicle
4 Distracted by outside person, object, or event
5 Talking on cellular phone or CB radio (specify):
6 Sleeping or dozing while driving
8 Other (specify):
9 Unknown

Source: Researcher determined

Remarks:

Note: If more than one code (2 through 8) applies, choose the one which contributed most to the driver's inattention to the driving task just prior to recognition of the critical event or pedestrian impact.

Code "1" (Full attention to driving) is used when the driver's attention, prior to recognition of the critical event or impact with the pedestrian, is focused on the driving task.

Code "2" (Distracted by other occupant) is used when the driver's attention, prior to recognition of the critical event or impact with the pedestrian, is diverted from the driving task to another occupant in the vehicle. For example, the driver was looking at a back seat occupant, just prior to the pedestrian impact.

Code "3" (Distracted by moving object in vehicle) is used when the driver's attention, prior to recognition of the critical event or impact with the pedestrian, is diverted from the driving task to some moving object in the vehicle. For example, the driver was trying to find a ball rolling around on the floor just prior to the impact with the pedestrian.

Code "4" (Distracted by outside person, object, or event) is used when the driver's attention, prior to recognition of the critical event or impact with the pedestrian, is diverted from the driving task to a person, object or event outside of the vehicle. For example, the driver was looking at addresses on mail boxes or houses just prior to the impact with the pedestrian.

Code "5" [Talking on cellular phone or CB radio (specify): ____] is used when the driver is talking on a cellular phone or CB radio prior recognition of the critical event or impact with the pedestrian.

Code "6" (Sleeping or dozing while driving) is used when the driver is sleeping or dozing prior to recognition of the critical event or impact with the pedestrian.

Variable Name: Driver's Attention To Driving (Prior to Recognition of Critical Event), cont'd

Code "8" [Other (specify): _____] is used when the driver's attention is not focused on the driving task for some other reason. Examples are (1) looking for cigarettes, (2) burned by hot cigarette ashes, (3) taking off or putting on shoes, (4) reaching in the back seat for food or drink, (5) driver spilling a drink or (6) driver adjusting mirrors, radio or CD player.

PRECRASH DATA OVERVIEW

Coding of the precrash variables is completed for each of the in-transport vehicles in the accident. This means that the entire accident is first coded from the perspective of one vehicle, then coded from the perspective of a second vehicle, if any, and so forth. The precrash variables are:

- VEH22, Pre-Event Movement (Prior to Recognition of Critical Event),
- VEH23, Critical Precrash Event,
- VEH24, Attempted Avoidance Maneuver,
- VEH25, Precrash Stability After Avoidance Maneuver, and
- VEH26, Precrash Directional Consequences of Avoidance Maneuver (Corrective Action)

The precrash variables are designed to identify the following:

- what was this vehicle doing just prior to the critical precrash event,
- what made this vehicle's situation critical,
- what was the avoidance response, if any, to this critical situation, and
- what was the subsequent movement of the vehicle to the avoidance maneuver?

The most important determination that must be made for each in-transport vehicle is: what was this vehicle's Critical Precrash Event, VEH23 (i.e., what action by this vehicle, another vehicle, person, animal, or nonfixed object was critical to this vehicle's accident?). Once this determination is made, then determine the vehicle's avoidance response to the action which made this vehicle's involvement critical.

Attempted Avoidance Maneuver, VEH24, is defined as movements/actions taken by the driver's vehicle, within a critical crash envelope, in response to a Critical Precrash Event, VEH23.

Do not consider culpability as a factor for determining precrash data. Many accident scenarios will suggest fault, but this is considered coincidental rather than by design.

Critical Crash Envelope

The critical crash envelope begins at the point where:

(1) the driver recognizes an impending danger (e.g., deer runs into the roadway), or
(2) the vehicle is in an imminent path of collision with another vehicle, pedestrian, pedalcyclist, other nonmotorist, object, or animal.

The critical crash envelope ends when:

(1) (a) the driver has made a successful avoidance maneuver
    (b) has full steering control, and
    (c) the vehicle is tracking; or
(2) the driver's vehicle impacts another vehicle, pedestrian, pedalcyclist, other nonmotorist, object, or animal.

PRECRASH DATA OVERVIEW (CONT'D)

Simple Single Critical Crash Envelope

Most accidents involve only a single critical crash envelope in which the object contacted is captured under the Critical Precrash Event, VEH23 (e.g., A vehicle is traveling straight on a roadway; a deer runs into the roadway and is struck by the vehicle.). This scenario and similar ones are very straightforward and will not present many coding problems.

Complex Single Critical Crash Envelope

However, some single critical crash envelopes are more complex.

Example A: A driver avoids one obstacle and immediately impacts another vehicle, person, object, or animal. Because immediate is defined as not having an opportunity or sufficient time to take any additional avoidance actions, the Critical Precrash Event, VEH23, is coded to the vehicle, person, object, or animal which the driver successfully avoided instead of the vehicle's first harmful event (i.e., its impact); see examples 4 and 7 below.

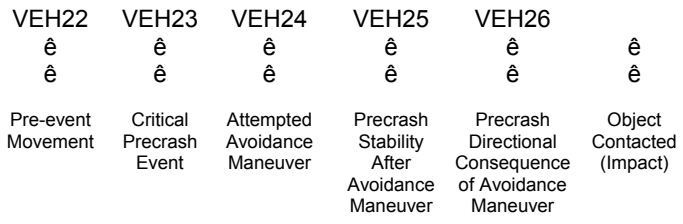
Example B: The driver avoids an obstacle only to (a) lose steering control and/or (b) have the vehicle stop tracking, and the vehicle subsequently impacts another vehicle, person, object, or animal. Regardless of whether the driver attempted to regain steering control; caused the vehicle to resume a tracking posture; or avoided the impacted vehicle, person, object, or animal; the Critical Precrash Event, VEH23, is similarly coded to the vehicle, person, object, or animal which the driver successfully avoided because the driver's critical crash envelope was never stabilized.

In both examples above, the Attempted Avoidance Maneuver, VEH24, records the successful action taken to avoid the Critical Precrash Event, VEH23.

Vehicles that are not involved in an impact with another vehicle, person, object, or animal in the sequence of accident events that defines the accident are not included in the Crashworthiness Data System; and therefore, automated, encoded data are not collected for these vehicles. However, these vehicles are included in the recording of nonautomated information contained on the Accident Collision Diagram.

The coding order for a single critical crash envelope is illustrated below.

Typical Order of a Single Critical Crash Envelope

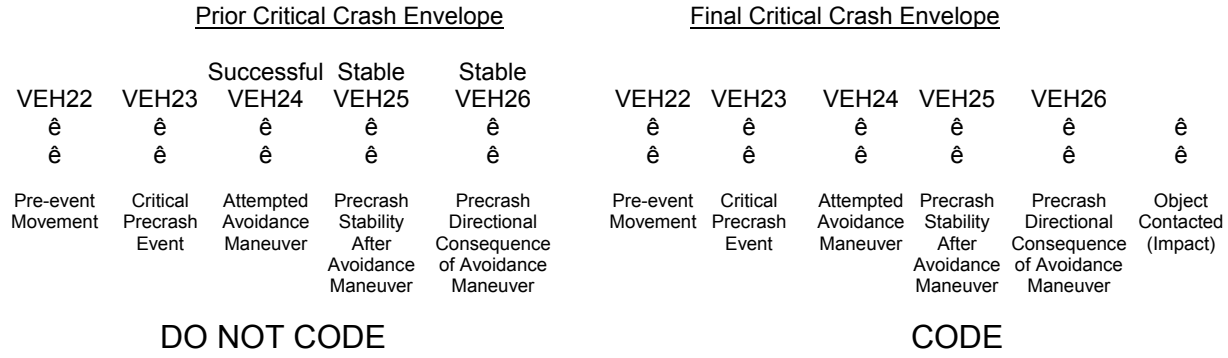


PRECRASH DATA OVERVIEW (CONT'D)

Multiple Critical Crash Envelopes

When accidents involve multiple critical crash envelopes, code only the final critical crash envelope. In this situation, encode the variable Pre-Event Movement ... , VEH22, using code "16" (Successful avoidance maneuver to a previous critical event). The final critical crash envelope is the one that resulted in this vehicle's first harmful event (i.e., its impact) as shown in the following illustration.

Typical Order of Multiple Critical Crash Envelopes



When there is doubt as to whether this vehicle had experienced multiple critical crash envelopes, code the Critical Precrash Event, VEH23, to the vehicle, person, object, or animal which the driver successfully avoided. See Complex Single Critical Crash Envelope examples A and B above.

The pages that follow contain, first, a flowchart illustrating the proper method and protocol for determining the precrash variables, and second, seven examples of various accident event sequences which contain one or more critical crash envelopes.

PRECRASH DATA OVERVIEW (CONT'D)

Researcher Method for Determining Precrash Data

Method Flowchart

Yes
Yes
Yes
Yes
Yes
Yes

Police Report | Vehicle Inspection | Scene Inspection | Interviewee

Determine VEH23

What action by this vehicle, another vehicle, person, animal, or object was critical to this vehicle's accident?

Use the "BUT FOR"* Test!

Vehicle Loss-of-control critical?
VEH23="01"-"09"

No

Vehicle position in environment critical?
VEH23="10"-"19"

No

Other vehicle "in" this vehicle's lane?
VEH23="50"-"59"

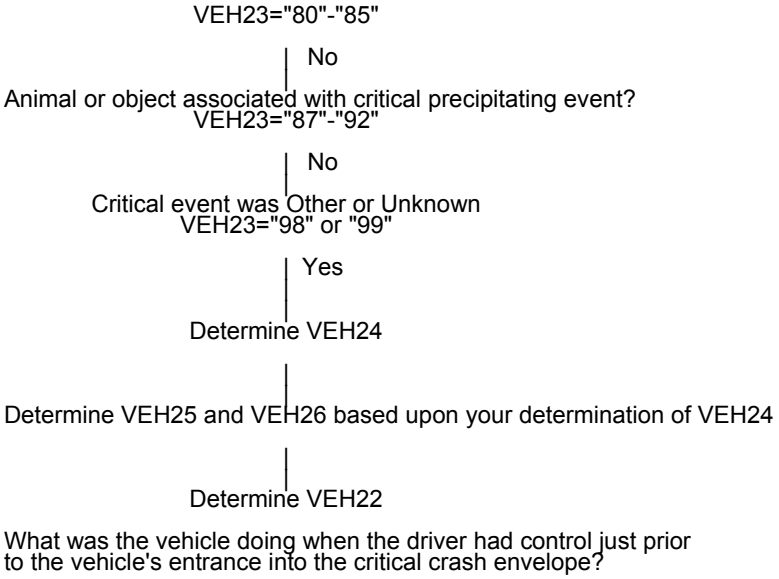
No

Other vehicle encroaching into this vehicle's lane?
VEH23="60"-"78"

No

Pedestrian, pedalcyclist, or other nonmotorist associated with critical precipitating event?

GENERAL VEHICLE FORM



* F O R E X A M P L E :

"But for" Vehicle # going left-of-center, this vehicle would not have been involved in this accident.

"But for" having entered into the intersection, this vehicle would not have been involved in this accident.

(5)

PRECRASH DATA OVERVIEW (CONT'D)

Researcher Method for Determining Precrash Data -- Continued

Method Protocol

Consider the information obtained from the Police Report, scene and vehicle inspections, and from the interviewee(s) as inputs to your decision making process.

1. Determine VEH23, Critical Precrash Event.

   What action by this vehicle, another vehicle, person, animal, or object was critical to this driver becoming involved in the accident (i.e., use the "BUT FOR"* test)?

   ASK yourself questions (a) through (f) below. Proceed through each question that applies to the accident you are researching. Stop when the answer to the questions is "Yes". This is the Critical Precrash Event, VEH23.

   (a) Did the vehicle exhibit a control loss?
   (b) Does the evidence suggest that the vehicle was in an environmentally dangerous position?
   (c) Was another vehicle "in" this vehicle's lane?
   (d) Was another vehicle entering into this vehicle's lane?
   (e) Was a pedestrian, pedalcyclist, or other nonmotorist in or approaching this vehicle's path?
   (f) Was an animal in or approaching this vehicle's path or was an object in this vehicle's path?

2. Determine VEH24, Attempted Avoidance Maneuver.

   What does your information indicate that the driver tried to do to avoid the accident?

3. Determine VEH25, Precrash Stability After Avoidance Maneuver, and VEH26, Precrash Directional Consequences of Avoidance Maneuver (Corrective Action).

4. Determine VEH22, Pre-Event Movement (Prior to Recognition of Critical Event).

* F O R E X A M P L E :

"But for" Vehicle # going left-of-center, this vehicle would not have been involved in this accident.

"But for" having entered into the intersection, this vehicle would not have been involved in this accident.

GENERAL VEHICLE FORM

VEH22-VEH26

(6)

PRECRASH DATA OVERVIEW (CONT'D)

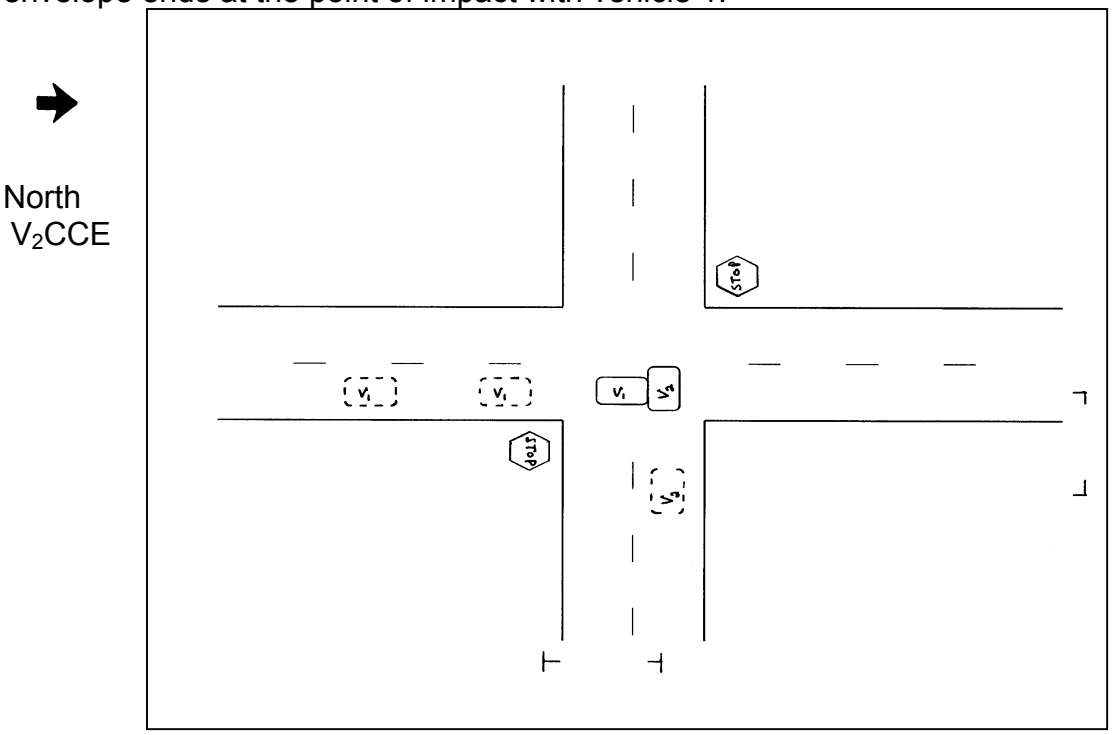
Example 1

Vehicle 2 is northbound and passing through an intersection on a roadway without a traffic control. Vehicle 1 is eastbound on a crossing roadway with a stop sign but did not stop or slow down. Vehicle 1 crashes into the side of vehicle 2. Vehicle 2 did not see vehicle 1 coming. Vehicle 1 braked (leaving skid marks) just prior to impact, without any steering.

	Vehicle 1		Vehicle 2	
VEH22	(01)	Going straight	(01)	Going straight
VEH23	(17)	Crossing over (passing through) intersection	(66)	From crossing street across path
VEH24	(03)	Braking (lockup)	(01)	No avoidance actions
VEH25	(2)	Skidding longitudinally - rotation less than 30 degrees	(0)	No avoidance maneuver
VEH26	(1)	Vehicle stayed in travel lane where avoidance maneuver was initiated	(0)	No avoidance maneuver

In this example, vehicle 1 has one critical crash envelope (V_1CCE) which begins at the point where driver 1 recognizes that vehicle 1 is in an imminent collision path with vehicle 2. Vehicle 1's critical crash envelope ends at the point of impact with vehicle 2.

Vehicle 2 has one critical crash envelope (V_2CCE). Although the driver of vehicle 2 did not recognize the danger, vehicle 2's critical crash envelope begins at the point where vehicle 2 is in an imminent path of collision with vehicle 1. Vehicle 2's critical crash envelope ends at the point of impact with vehicle 1.



PRECRASH DATA OVERVIEW (CONT'D)

Example 2

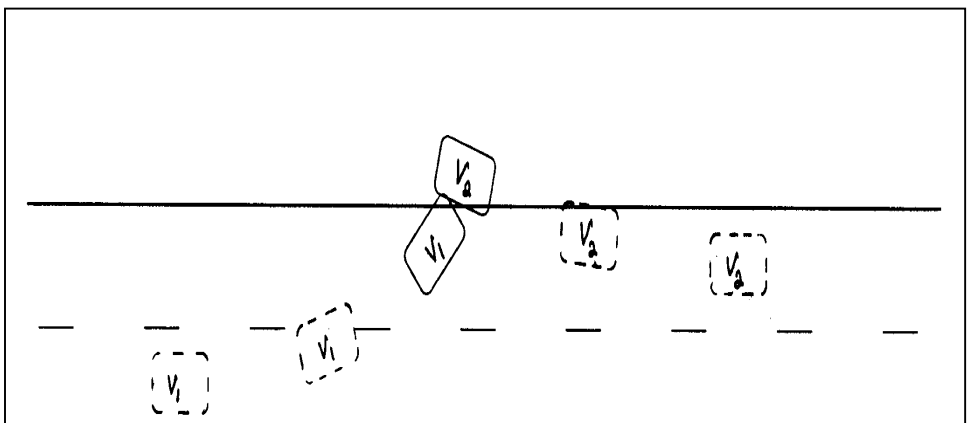
Vehicle 1 and vehicle 2 are traveling in opposite directions on the same roadway. The driver of vehicle 1 falls asleep and crosses over the center line into the travel lane of vehicle 2. Vehicle 2 attempted to avoid vehicle 1 by steering right onto the shoulder and accelerating. Vehicle 1 impacted vehicle 2 in the side.

	Vehicle 1		Vehicle 2	
VEH22	(01)	Going straight	(01)	Going straight
VEH23	(10)	Over the lane line on left side of travel lane	(62)	From opposite direction - over left lane line
VEH24	(01)	No avoidance actions	(12)	Accelerating and steering right
VEH25	(0)	No avoidance maneuver	(1)	Tracking
VEH26	(0)	No avoidance maneuver	(4)	Vehicle departed roadway

In this example, vehicle 1 has one critical crash envelope (V_1CCE) which begins at the point where vehicle 1 crosses over the lane line and ends at the point of impact with vehicle 2.

Vehicle 2 has one critical crash envelope (V_2CCE) which begins at the point where driver 2 recognizes vehicle 1 encroaching into his/her travel lane. Vehicle 2's critical crash envelope ends at the point of impact with vehicle 1.

North



V_1CCE V_2CCE

PRECRASH DATA OVERVIEW (CONT'D)

Example 3

Vehicle 1 is eastbound and passing through an intersection on a roadway without a traffic control. The noncontact vehicle (NCV) is northbound and stopped at the intersection on a crossing roadway with a stop sign. The noncontact vehicle turns right into the travel path of Vehicle 1. Vehicle 1 braked (without lockup) and steered left to avoid the noncontact vehicle. The driver of vehicle 1 successfully avoided the noncontact vehicle, maintained full control of vehicle 1, but consequently put vehicle 1 in the travel path of vehicle 2. Vehicle 2 attempted to avoid vehicle 1 by steering right and braking (with lockup). Vehicle 1 attempted to avoid vehicle 2 by steering right and braking (with lockup). Vehicle 1 and vehicle 2 crashed front left corner to front left corner.

	Vehicle 1		Vehicle 2	
VEH22	(16)	Successful avoidance maneuver to a previous critical event	(01)	Going straight
VEH23	(10)	Over the lane line on left side of travel lane	(53)	Traveling in opposite direction
VEH24	(09)	Braking and steering right	(09)	Braking and steering right
VEH25	(2)	Skidding longitudinally - rotation less than 30 degrees	(2)	Skidding longitudinally - rotation less than 30 degrees
VEH26	(1)	Vehicle stayed in travel lane where avoidance maneuver was initiated	(1)	Vehicle stayed in travel lane where avoidance maneuver was initiated

In this example, vehicle 1 has two critical crash envelopes (V_1CCE_1 and V_1CCE_2). Vehicle 1's first critical crash envelope (V_1CCE_1) ends at the point where the driver of vehicle 1 made a successful avoidance maneuver and maintained full control of the vehicle. Vehicle 1's second critical crash envelope (V_1CCE_2) begins immediately following the successful avoidance maneuver and ends at the point of impact with vehicle 2. Code the critical crash envelope which resulted in vehicle 1's first impact (V_1CCE_2).

Vehicle 2 has one critical crash envelope (V_2CCE) which begins at the point where driver 2 recognizes vehicle 1 in his/her travel lane and ends at the point of impact with vehicle 1.

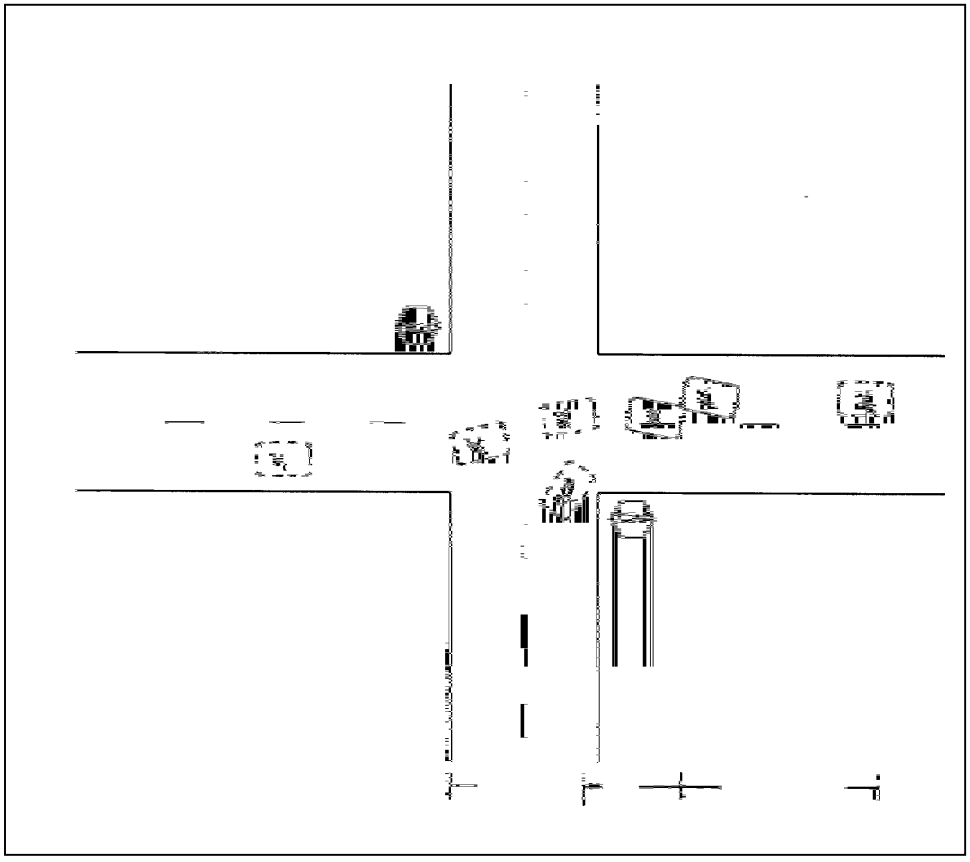
GENERAL VEHICLE FORM

The noncontact vehicle was not involved in an impact with another vehicle, person, animal, or object in the sequence of accident events and is therefore not included in the Crashworthiness Data System. However, the noncontact vehicle must be shown on the Accident Collision Diagram.

PRECRASH DATA OVERVIEW (CONT'D)

Example 3 (Cont'd)

North



V_1CCE_1 V_1CCE_2 V_2CCE

PRECRASH DATA OVERVIEW (CONT'D)

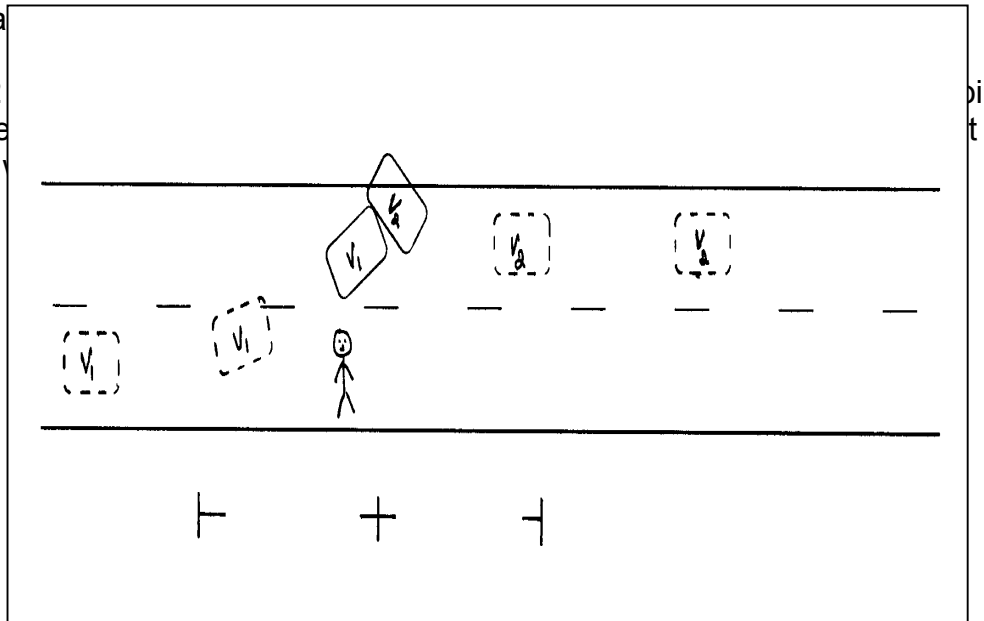
Example 4

Vehicle 1 and vehicle 2 are traveling in opposite directions on the same roadway. The driver of vehicle 1 brakes (without lockup) and steers left to avoid a pedestrian who darted into his/her travel lane. Vehicle 1 crosses over the center line into the travel path of vehicle 2. Vehicle 2 attempted to avoid vehicle 1 by braking and steering right onto the shoulder. Vehicle 2 skids and rotates clockwise about 45 degrees before it is impacted in the side by vehicle 1.

	Vehicle 1		Vehicle 2	
VEH22	(01)	Going straight	(01)	Going straight
VEH23	(80)	Pedestrian in roadway	(62)	From opposite direction - over left lane line
VEH24	(08)	Braking and steering left	(09)	Braking and steering right
VEH25	(1)	Tracking	(3)	Skidding laterally - clockwise rotation
VEH26	(2)	Vehicle stayed on roadway but left travel lane where avoidance maneuver was initiated	(1)	Vehicle stayed in travel lane where avoidance maneuver was initiated

In this example, vehicle 1 has one critical crash envelope (V_1CCE). Vehicle 1's critical crash envelope involved a successful avoidance of a pedestrian [i.e., VEH23 (Critical Precrash Event) equals code "80"] which resulted in an immediate impact to vehicle 2. Therefore, the pedestrian is coded as the critical precrash event for vehicle 1. Vehicle 1's avoida

Vehicle 2 int where driver 2 re t the point of impact



North

V_1CCE V_1CCE

PRECRASH DATA OVERVIEW (CONT'D)

Example 5

Vehicle 1 and vehicle 2 are traveling in opposite directions on the same roadway. The driver of vehicle 1 steers left to avoid a pedestrian who darted into his/her travel lane. Vehicle 1 crosses over the center line and the adjacent travel lane, departing the roadway. Then driver 1 reenters the roadway, in full control of the vehicle but traveling in the lane of opposing traffic. Vehicle 2 attempted to avoid vehicle 1 by steering right and braking (with skidding and clockwise rotation greater than 30 degrees). Vehicle 1 attempted to avoid vehicle 2 by steering right without braking. Vehicle 1 impacted vehicle 2 in the side.

	Vehicle 1		Vehicle 2	
VEH22	(16)	Successful avoidance maneuver to a previous critical event	(01)	Going straight
VEH23	(10)	Over the lane line on left side of travel lane	(53)	Traveling in opposite direction
VEH24	(07)	Steering right	(09)	Braking and steering right
VEH25	(1)	Tracking	(3)	Skidding laterally - clockwise rotation
VEH26	(1)	Vehicle stayed in travel lane where avoidance maneuver was initiated	(1)	Vehicle stayed in travel lane where avoidance maneuver was initiated

In this example, vehicle 1 has two critical crash envelopes (V_1CCE_1 and V_1CCE_2). Vehicle 1's first critical crash envelope (V_1CCE_1) begins at the point where driver 1 recognize the pedestrian coming into his/her travel path and ends at the point where the driver of vehicle 1, having made a successful avoidance maneuver, regains full control of the vehicle. Vehicle 1's second critical crash envelope (V_1CCE_2) begins when driver 1, in full control of vehicle 1, reenters the roadway in the travel lane of opposing traffic and ends at the point of impact with vehicle 2. Code the critical crash envelope which resulted in vehicle 1's first impact (V_1CCE_2).

Vehicle 2 has one critical crash envelope (V_2CCE) which begins at the point where driver 2 recognized and reacted to vehicle 1 in his/her travel lane and ends at the point of impact with vehicle 1.

GENERAL VEHICLE FORM

North

V_1CCE_1 V_1CCE_2 V_2CCE

PRECRASH DATA OVERVIEW (CONT'D)

Example 6

Vehicle 1 and vehicle 2 are traveling in the same direction in adjacent lanes on a divided highway (with a painted median). Vehicle 1 has a blow out, driver 1 loses control, crosses the left lane line and impacts the right rear of vehicle 2. Vehicle 2 is redirected across the painted median, skidding and rotating clockwise, and subsequently impacts vehicle 3. Vehicle 3 attempted to avoid vehicle 2 by steering right and accelerating.

	Vehicle 1		Vehicle 2	
VEH22	(01)	Going straight	(01)	Going straight
VEH23	(01)	Blow out or flat tire	(61)	From adjacent lane (same direction) - over right lane line
VEH24	(01)	No avoidance actions	(01)	No avoidance actions
VEH25	(0)	No avoidance maneuver	(0)	No avoidance maneuver
VEH26	(0)	No avoidance maneuver	(0)	No avoidance maneuver

	Vehicle 3	
VEH22	(01)	Going straight
VEH23	(62)	From opposite direction - over left lane line
VEH24	(12)	Accelerating and steering right
VEH25	(1)	Tracking
VEH26	(1)	Vehicle stayed in travel lane where avoidance maneuver was initiated

In this example, vehicle 1 has one critical crash envelope (V_1CCE) which begins with control loss due to the blow out and ends at the point of impact with vehicle 2. The blow out is coded as the critical precrash event (VEH23 equals 01).

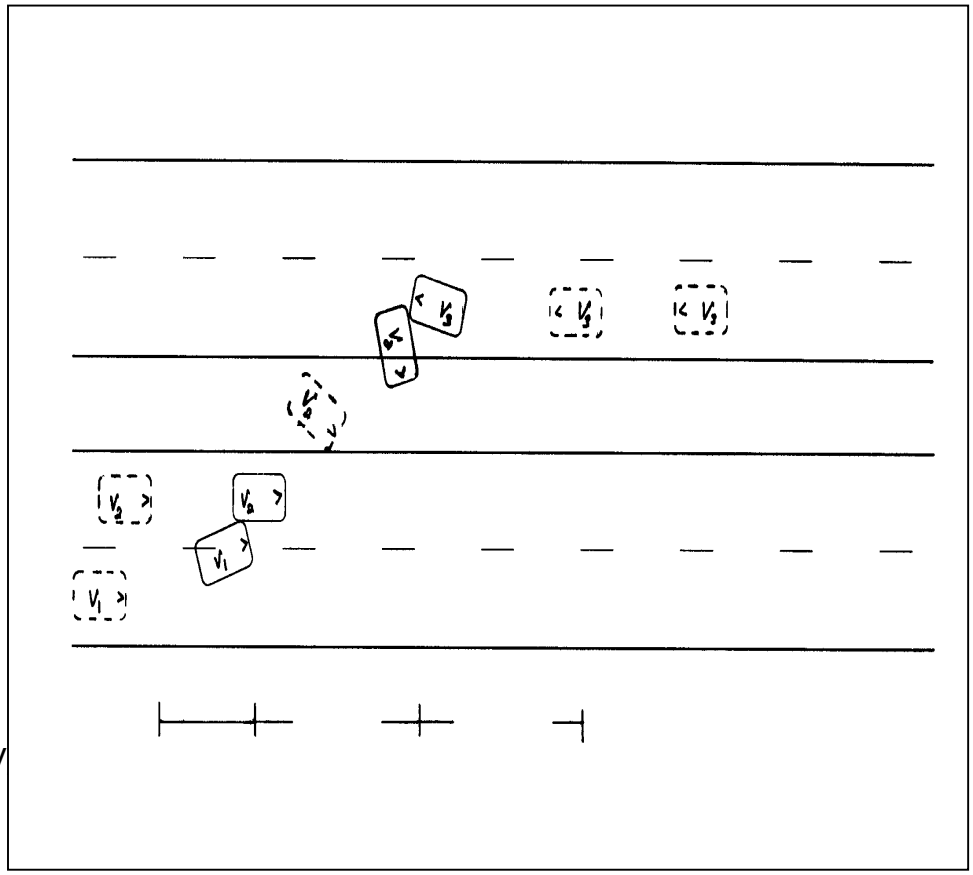
Vehicle 2 has two critical crash envelopes (V_2CCE_1 and V_2CCE_2). Vehicle 2's first critical crash envelope (V_2CCE_1) begins when vehicle 1 enters vehicle 2's travel lane and ends at the point of impact with vehicle 1. Vehicle 2's second critical crash envelope (V_2CCE_2) begins immediately after the first impact and ends at the point of impact with vehicle 3. Code the critical crash envelope which resulted in vehicle 2's first impact (V_2CCE_1), because the NASS CDS is only interested in coding the critical crash envelope which leads to a vehicle's first harmful event.

Vehicle 3 has one critical crash envelope (V_3CCE) which begins when driver 3 recognizes and reacts to vehicle 2 which is in an imminent path of collision with vehicle 3 and ends at the point of impact with vehicle 2.

PRECRASH DATA OVERVIEW (CONT'D)

Example 6 (Cont'd)

North



V_2CCE_1 V
V_1CCE

PRECRASH DATA OVERVIEW (CONT'D)

Example 7

Vehicle 1 and vehicle 2 are traveling in opposite directions on the same roadway. A noncontact vehicle is parked in front of a noncontact truck-tractor (with a trailer) on the road shoulder and suddenly enters the roadway into vehicle 1's travel lane. The driver of vehicle 1 instantly brakes (with lockup) and steers left (with counterclockwise rotation) to avoid the noncontact vehicle. Vehicle 1 crosses over the center line and immediately impacts vehicle 2. Vehicle 2 had no avoidance maneuvers.

	Vehicle 1		Vehicle 2	
VEH22	(01)	Going straight	(01)	Going straight
VEH23	(64)	From parking lane	(62)	From opposite direction - over left lane line
VEH24	(08)	Braking and steering left	(01)	No avoidance actions
VEH25	(4)	Skidding laterally - counterclockwise rotation	(0)	No avoidance maneuver
VEH26	(2)	Vehicle stayed on roadway but left travel lane where avoidance maneuver was initiated	(0)	No avoidance maneuver

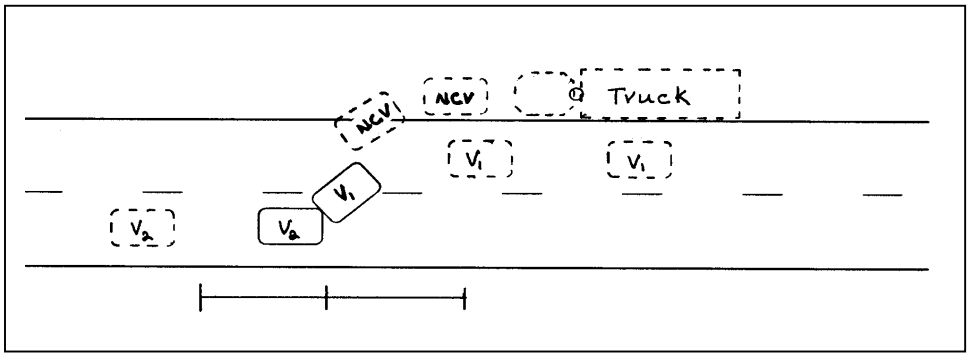
In this example, vehicle 1 has one critical crash envelope (V_1CCE). Vehicle 1's critical crash envelope involved a successful avoidance of a noncontact vehicle and resulted in an immediate impact to vehicle 2. Vehicle 1's critical crash envelope was initiated by the noncontact vehicle, afterwards there was no opportunity for subsequent avoidance actions. Therefore, the encroachment of the noncontact vehicle into vehicle 1's travel lane is coded as the critical precrash event for vehicle 1. Vehicle 1's avoidance maneuver is coded as the action taken to avoid the noncontact vehicle.

Vehicle 2 has one critical crash envelope (V_2CCE) which begins at the point where vehicle 1 is in an imminent path of collision with vehicle 2 and ends at the point of impact with vehicle 1.

The noncontact vehicle and the noncontact truck were not involved in an impact in the sequence of accident events and are therefore not coded in the Crashworthiness Data System. However, the noncontact vehicle and truck must be shown on the Accident Collision diagram.

North

GENERAL VEHICLE FORM



V_2CCE V_1CCE

GENERAL VEHICLE FORM
VEH22

Variable Name: Pre-Event Movement (Prior to Recognition of Critical Event)

Element Values:

01 Going straight
02 Slowing or stopping in traffic lane
03 Starting in traffic lane
04 Stopped in traffic lane
05 Passing or overtaking another vehicle
06 Disabled or parked in travel lane
07 Leaving a parking position
08 Entering a parking position
09 Turning right
10 Turning left
11 Making a U-turn
12 Backing up (other than for parking position)
13 Negotiating a curve
14 Changing lanes
15 Merging
16 Successful avoidance maneuver to a previous critical event
97 Other (specify):
98 No driver present
99 Unknown

Source: Researcher determined -- inputs include interviews and police report.

Remarks:

Record the attribute which best describes this vehicle's activity prior to the driver's realization of an impending critical event or just prior to impact if the driver took no action or had no time to attempt any evasive maneuvers.

Actions taken by the driver, of this vehicle, <u>after realization</u> of an impending danger are coded in VEH25, Attempted Avoidance Maneuver.

Code "01" (Going straight) is used when this vehicle's path of travel was straight ahead without any attempted or intended changes.

Code "02" (Slowing or stopping in traffic lane) is used when this vehicle was traveling straight ahead within the traffic lane and was decelerating.

Code "03" (Starting in traffic lane) is used when this vehicle was in the process of starting forward from a stopped position within the traffic lane (e.g., start up from traffic signal).

Code "04" (Stopped in traffic lane) is used when this vehicle was stopped momentarily, with the motor running within the traffic lane (e.g., stopped for traffic signal).

Code "05" (Passing or overtaking another vehicle) is used when this vehicle was traveling straight ahead and was in the process of passing or overtaking another vehicle on the left or right.

Variable Name: Pre-Event Movement (Prior to Recognition of Critical Event)

Code "06" (Disabled or parked in travel lane) is used when this vehicle was parked in a travel lane (e.g., double parked, disabled) with a driver present in the vehicle.

Code "07" (Leaving a parking position) is used when this vehicle was entering the travel lane from a parking area adjacent to the traffic lanes.

Code "08" (Entering a parking position) is used when this vehicle was leaving the travel lane to a parking area adjacent to the traffic lanes (i.e., in the process of parking).

Code "09" (Turning right) is used when this vehicle was moving forward and turned right, changing lanes from one roadway to a different roadway (e.g., from or to a driveway, parking lot, or intersection).

Code "10" (Turning left) is used when this vehicle was traveling from one roadway to a different roadway by making a left turn.

Code "11" (Making a U-turn) is used when this vehicle was making a U-turn (i.e., 180 degrees directional change) on the roadway.

Code "12" [Backing up (other than for parking position)] is used when this vehicle was traveling backwards within the trafficway. Use code "08" if the vehicle was backing into a parking space.

Code "13" (Negotiating a curve) is used when this vehicle was continuing along a roadway that curved to the right or left.

Code "14" (Changing lanes) is used when this vehicle was traveling straight ahead and changed travel lanes to the right or left while on the same roadway.

Code "15" (Merging) is used when this vehicle was moving forward and merging from the left or right into a traffic lane (e.g., roadway narrows, exit/entrance ramps).

Code "16" (Successful avoidance maneuver to a previous critical event) is used when this vehicle responded to a previous critical event and successfully avoided an impact. However, this precipitated a subsequent critical crash envelope which resulted in this vehicle's first impact.

Code "97" [Other (specify): ____] is used when this vehicle's pre-event movement is known but none of the specified codes are applicable.

Code "98" (No driver present) is used if no driver was in the vehicle when the accident occurred.

Code "99" (Unknown) is used when the vehicle's movement prior to the driver's realization of an impending critical event is unknown.

GENERAL VEHICLE FORM
VEH23

Variable Name: Critical Precrash Event

Element Values:

This Vehicle Loss of Control Due To:
- 01 Blow out or flat tire
- 02 Stalled engine
- 03 Disabling vehicle failure (e.g., wheel fell off) (specify):
- 04 Non-disabling vehicle problem (e.g., hood flew up) (specify)
- 05 Poor road conditions (puddle, pot hole, ice, etc.) (specify):
- 06 Traveling too fast for conditions
- 08 Other cause of control loss (specify):
- 09 Unknown cause of control loss

This Vehicle Traveling
- 10 Over the lane line on left side of travel lane
- 11 Over the lane line on right side of travel lane
- 12 Off the edge of the road on the left side
- 13 Off the edge of the road on the right side
- 14 End departure
- 15 Turning left at intersection
- 16 Turning right at intersection
- 17 Crossing over (passing through) intersection
- 19 Unknown travel direction

Other Motor Vehicle In Lane
- 50 Stopped
- 51 Traveling in same direction with lower speed (i.e., lower steady speed or decelerating)
- 52 Traveling in same direction with higher speed
- 53 Traveling in opposite direction
- 54 In crossover
- 55 Backing
- 59 Unknown travel direction of other motor vehicle in lane

Other Motor Vehicle Encroaching Into Lane
- 60 From adjacent lane (same direction)—over left lane line
- 61 From adjacent lane (same direction)—over right lane line
- 62 From opposite direction—over left lane line
- 63 From opposite direction—over right lane line
- 64 From parking lane
- 65 From crossing street, turning into same direction
- 66 From crossing street, across path
- 67 From crossing street, turning into opposite direction
- 68 From crossing street, intended path not known
- 70 From driveway, turning into same direction
- 71 From driveway, across path
- 72 From driveway, turning into opposite direction
- 73 From driveway, intended path not known
- 74 From entrance to limited access highway
- 78 Encroachment by other vehicle—details unknown

Pedestrian or Pedalcyclist, or Other Nonmotorist
- 80 Pedestrian in roadway
- 81 Pedestrian approaching roadway
- 82 Pedestrian - unknown location
- 83 Pedalcyclist or other nonmotorist in roadway (specify):
- 84 Pedalcyclist or other nonmotorist approaching roadway (specify):
- 85 Pedalcyclist or other nonmotorist—unknown location (specify):

Object or Animal

87 Animal in roadway
88 Animal approaching roadway
89 Animal—unknown location
90 Object in roadway
91 Object approaching roadway
92 Object—unknown location
98 Other critical precrash event (specify):
99 Unknown

Variable Name: Critical Precrash Event (Cont'd.)

Source:Researcher determined -- inputs include scene inspection, vehicle inspection, driver interview, and police report.

Remarks:

This variable identifies the critical event which made the crash imminent (i.e., something occurred which made the collision possible). Responsive actions to this situation, if any, are coded under VEH24, Attempted Avoidance Maneuver.

A precrash event is coded for each vehicle and identifies the circumstances leading to this vehicle's first impact in the accident.

Responses are grouped into six major categories and are prioritized as follows:

- This Vehicle Loss of Control Due To
- This Vehicle Traveling
- Other Motor Vehicle In Lane
- Other Motor Vehicle Encroaching Into Lane
- Pedestrian or Pedalcyclist, or Other Nonmotorist
- Object or Animal

Reference to culpability should be avoided. Many accident scenarios will suggest fault, but this should be considered coincidental rather than by design. As an example, vehicle A was traveling too fast for conditions (code "06") when vehicle B crossed vehicle A's path from a driveway (code "71"). The situation which made the precrash event critical for vehicle A was vehicle B's movement across vehicle A's path and not vehicle A's speed.

<u>This Vehicle Loss of Control Due To:</u>

Codes "01"-"09" identify situations where the critical factor leading to the collision involved control loss of this vehicle. Control loss can be related to either mechanical failure or environmentally induced vehicle instability. When more than one condition applies and it cannot be determined which one had a greater effect, choose the lower element number (i.e., code "01" takes priority over code "02").

Code "01" (Blow out or flat tire) is used when a vehicle in motion loses control as the result of a tire "air out".

Code "02" (Stalled engine) refers to a vehicle which is in motion and loses engine power. A stalled engine situation must precipitate a collision to be coded in this

variable. A vehicle which is stopped as the result of an engine malfunction does not take this code.

Variable Name: Critical Precrash Event (Cont'd.)

Code "03" [Disabling vehicle failure (e.g., wheel fell off)] is used when a mechanical malfunction, such as a component of the vehicle suspension or steering system, leads to the critical reason for the collision. Specify which component failure was involved in the space provided under this element.

Code "04" [Non-disabling vehicle problem (e.g., hood flew up)] is used when some mechanical abnormality occurred to this vehicle which leads to the critical reason for the collision. The abnormality must not be disabling damage. A space is provided under this element to specify the non-disabling vehicle problem.

Code "05" [Poor road conditions (puddle, pot hole, ice, etc.)] captures control loss due to environmental conditions of the roadway. These conditions must have initiated the precrash event which resulted in the collision. A space is provided under this element to specify the road condition attributed to initiating the precrash event.

Code "06" (Traveling too fast for conditions) identifies this vehicle's movement relative to its surroundings in which the subsequent loss of control lead to the collision. An example is a roadway departure on a curve where the driver failed to negotiate and departed the roadway resulting in an impact. If the driver merely steered straight while in a curve and departed the roadway, then codes "10" - "13" may apply.

Code "08" (Other cause of control loss) is used when it was determined that this vehicle's loss of control was the primary reason which made the event critical and codes "01" - "06" do not adequately identify the control loss condition. The condition cited should be annotated in the space provided on the form.

Code "09" (Unknown cause of control loss) is used when it is known control loss made the situation critical, but it is not known whether the vehicle or the environment caused the control loss.

<u>This Vehicle Traveling</u>

Codes "10" - "19" identify situations where the critical factor leading to the collision involved the travel path of this vehicle.

Code "10" (Over the lane line on left side of travel lane) is used when this vehicle departs its lane to the left and is entering or had entered the adjoining lane or shoulder. To use this code, change of travel path by this vehicle must precipitate the critical event for the collision. As an example, this vehicle attempts to pass another vehicle on the other vehicle's left and is struck by a vehicle traveling within its travel lane in the opposite direction. The

Variable Name: Critical Precrash Event (Cont'd.)

correct code for this vehicle would be "10" (Over the lane line on left side of travel lane). However, by modifying the scenario slightly the lane change may not always be the factor leading to the precrash event. Consider the same situation where this vehicle is passing to the left of the lead vehicle. If an animal runs into the roadway and is stuck by this vehicle, then the correct choice would be code "87" (Animal in roadway).

Code "11" (Over the lane line on right side of travel lane) is used when the vehicle departs its lane to the right. This departure is either to another lane or shoulder, but within the road area.

Code "12" (Off the edge of the road on the left side) identifies a situation where the initial precrash event occurred beyond the left side shoulder area. This also includes departure into a median.

Code "13" (Off the edge of the road on the right side) identifies a situation where the initial precrash event occurred beyond the right side shoulder area.

Code "14" (End departure) is used when the vehicle departs the end of the roadway (e.g., "T" intersection).

Code "15" (Turning left at intersection) is used when this vehicle attempts a left turn from its roadway to another roadway or driveway.

Code "16" (Turning right at intersection) is used when this vehicle attempts a right turn from its roadway to another roadway or driveway.

Code "17" [Crossing over (passing through) intersection] identifies this vehicle's travel as proceeding through the intersection without any planned turning.

Code "19" (Unknown travel direction) is used for those occasions where this vehicle's travel made the situation critical, but it is unknown which travel direction this vehicle was moving.

<u>Other Motor Vehicle In Lane</u>

Codes "50" - "59" identify situations where the critical factor leading to the collision involved the travel of the other vehicle in the same lane as this vehicle.

Code "50" (Stopped) identifies a situation where the other vehicle is not in motion (i.e., stopped, parked, disabled) and in this vehicle's travel lane.

Variable Name: Critical Precrash Event (Cont'd.)

Code "51" [Traveling in same direction with lower speed (i.e., lower steady speed or decelerating)] is used when the other vehicle was the lead vehicle in the same travel lane, traveling in the same direction, and was either traveling slower than this vehicle or decelerating.

Code "52" (Traveling in same direction with higher speed) is used when the speed of the other vehicle was higher than this vehicle. The other vehicle must be overtaking this vehicle.

Code "53" (Traveling in opposite direction) is used when the other vehicle was in this vehicle's travel lane and traveling head-on in the opposite direction of this vehicle.

Code "54" (In crossover) is used when the other vehicle enters a cross over already occupied by this vehicle. A crossover is defined as a designated opening within a median used primarily for "U-turns".

Code "55" (Backing) identifies a situation where the other vehicle was in the process of backing up while in this vehicle's travel lane.

Code "59" (Unknown travel direction of other motor vehicle in lane) is used for situations where the other vehicle's activity (while in the same lane as this vehicle) precipitated the precrash event, but the travel direction and/or speed could not be determined.

<u>Other Motor Vehicle Encroaching Into Lane</u>

Codes "60" - "78" identify situations where the critical factor leading to the collision involves the other vehicle's movement into or across this vehicle's travel lane from another lane, intersection, driveway, or ramp.

Code "60" [From adjacent lane (same direction)—over left lane line] is used when the other vehicle was traveling in the same direction as this vehicle and crosses the left lane line with respect to this vehicle's travel lane (i.e., other vehicle crosses its right lane line).

Code "61" [From adjacent lane (same direction)—over right lane line] is used when the other vehicle was traveling in the same direction as this vehicle and crosses the right lane line with respect to this vehicle's travel lane (i.e., other vehicle crosses its left lane line).

Code "62" (From opposite direction—over left lane line) identifies a situation where the other vehicle crosses the left lane line while traveling in the opposite direction from this vehicle.

Variable Name: Critical Precrash Event (Cont'd.)

Code "63" (From opposite direction—over right lane line) identifies a situation where the other vehicle crosses the right lane line while traveling in the opposite direction from this vehicle.

Code "64" (From parking lane) is used when the other vehicle was departing a parking lane and entering the travel lane of this vehicle.

Code "65" (From crossing street, turning into same direction) is used when the other vehicle was turning from another roadway and attempted to travel in the same direction as this vehicle. This code is used for entrance ramps leading onto limited access highways.

Code "66" (From crossing street, across path) is used when the other vehicle was continuing straight through the intersection.

Code "67" (From crossing street, turning into opposite direction) is used when the other vehicle was entering an intersection from another roadway and was turning or attempting to turn into the opposite travel direction of this vehicle.

Code "68" (From crossing street, intended path not known) is used in those situations where the other vehicle's entrance into the intersection was the critical factor which led to the collision, however, the other vehicle's travel direction could not be determined.

Code "70" (From driveway, turning into same direction) identifies a situation where the other vehicle was turning from a driveway and attempted to travel in the same direction as this vehicle.

Code "71" (From driveway, across path) is used when the other vehicle was traversing this vehicle's travel lane from a driveway and was continuing straight across to another driveway or roadway.

Code "72" (From driveway, turning into opposite direction) is used when the other vehicle was entering this vehicle's roadway from a driveway and was attempting to turn into the opposite travel direction of this vehicle.

Code "73" (From driveway, intended path not known) is used to identify driveway related precrash events where details surrounding the other vehicle's intended path are not known.

Code "74" (From entrance to limited access highway) identifies an entrance ramp situation where the other vehicle was attempting to enter (merge) onto the limited access highway which was being traveled by this vehicle.

Variable Name: Critical Precrash Event (Cont'd.)

Code "78" (Encroachment by other vehicle—details unknown) is used for situations where the other vehicle initiated the critical precrash event, but circumstances surrounding the other vehicle's encroachment are not known.

Pedestrian or Pedalcyclist, or Other Nonmotorist

Codes "80" - "85" identify situations where the critical factor leading to the collision for this vehicle involved a pedestrian, pedalcyclist, or other nonmotorist. A pedalcyclist is defined as a person riding a pedal power conveyance (e.g., bicycle, tricycle, etc.). A nonmotorist is defined as a person riding on or in a conveyance which is not motorized or propelled by pedalling (e.g., baby carriage, skate board, roller blades, etc.).

Code "80" (Pedestrian in roadway) is used when a pedestrian was present (e.g., sitting, standing, walking, or running, etc.) in the roadway.

Code "81" (Pedestrian approaching roadway) identifies situations where a pedestrian was within the trafficway and moving toward the roadway or attempting to enter the roadway, but was not on the roadway.

Code "82" (Pedestrian - unknown location) is used when it was determined the presence or action of a pedestrian was the critical factor which lead to this vehicle's collision, but the location or action of the pedestrian was not known.

Code "83" (Pedalcyclist or other nonmotorist in roadway) is used when a pedalcyclist or other nonmotorist was present in the roadway (irrespective of relative motion).

Code "84" (Pedalcyclist or other nonmotorist approaching roadway) identifies situations where the pedalcyclist or other nonmotorist was within the trafficway and moving toward the roadway or attempting to enter the roadway, but was not on the roadway.

Code "85" (Pedalcyclist or other nonmotorist—unknown location) is used when it was determined the presence or action of a pedalcyclist or other nonmotorist was the critical factor which lead to this vehicle's collision, but the action of the pedalcyclist or other nonmotorist was not known.

Object or Animal

Codes "87" - "92" identify situations where the critical factor leading to the collision for this vehicle involved an object or animal.

Variable Name: Critical Precrash Event (Cont'd.)

Code "87" (Animal in roadway) is used when an animal was present (i.e., stationary or moving) in the roadway.

Code "88" (Animal approaching roadway) identifies situations where an animal was within the trafficway and moving toward the roadway or attempting to enter the roadway, but not on the roadway.

Code "89" (Animal - unknown location) is used when it was determined the presence or action of an animal was the critical factor which lead to this vehicle's collision, but the action of the animal was not known.

Code "90" (Object in roadway) is used when an object was present in the roadway. An object is defined as being either fixed or nonfixed (refer to the object contacted codes listed under variable AC16 et al., Vehicle Number or Object Contacted, and PEV05, ... C.D.C - Object Contacted).

Code "91" (Object approaching roadway) identifies situations where an object was within the trafficway and moving toward the roadway, but not on the roadway.

Code "92" (Object—unknown location) is used when it was determined the presence or movement of an object was the critical factor which lead to this vehicle's collision, but details surrounding the location of the object were not known.

Code "98" (Other critical precrash event) is used when a critical factor not previously listed resulted in the collision for this vehicle. Previous impacts in the accident are not considered as other critical precrash events. For example, use this code if the critical event developed from this vehicle's departure from a driveway.

Code "99" (Unknown) is used when the critical precrash event which resulted in the collision is not known. Missing interviews do not automatically result in the use of the "Unknown" code.

GENERAL VEHICLE FORM
VEH24

Variable Name: Attempted Avoidance Maneuver

Element Values:

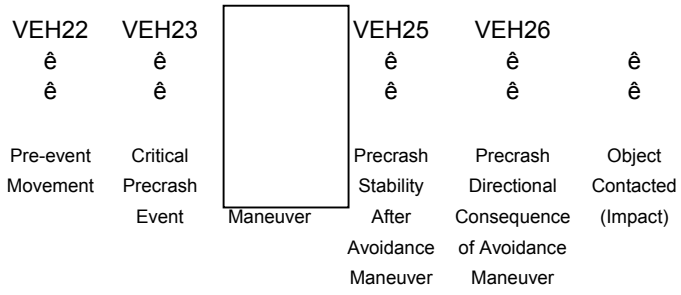
00 No driver present
01 No avoidance actions
02 Braking (no lockup)
03 Braking (lockup)
04 Braking (lockup unknown)
05 Releasing brakes
06 Steering left
07 Steering right
08 Braking and steering left
09 Braking and steering right
10 Accelerating
11 Accelerating and steering left
12 Accelerating and steering right
98 Other action (specify):
99 Unknown

Source:Researcher determined--inputs include the driver interview, police report, and the scene inspection.

Remarks:

Attempted avoidance maneuvers are movements/actions taken by the driver's vehicle, within a critical crash envelope, in response to a Critical Precrash Event, VEH23. See the PRECRASH DATA OVERVIEW (precedes VEH22, Pre-event Movement ...) for an expanded discussion on precrash definitions. Attempted avoidance maneuvers occur after the driver has realization of an impending danger. This variable assesses what the driver's action(s) were in response to his/her realization.

Most accidents have only one critical crash envelope and thus only one Critical Precrash Event; however, multiple critical crash envelopes with their respective Critical Precrash Events, can exist. The following chronological illustration shows the placement of this variable within the precrash data variables.



This variable's meaning changed with the 1992 data collection year and differs in some situations from the previous focus upon the driver's action just prior to the first harmful

event (see PRECRASH DATA OVERVIEW).

Variable Name: Attempted Avoidance Maneuver (Cont'd.)

Code the element value which best describes the actions taken by the driver's vehicle in response to the Critical Precrash Event, VEH23, within the critical crash envelope that occurred just prior to this vehicle's impact. When there was a known action (e.g., braking), but you cannot determine whether there was more than one action (e.g., braking and steering left), default to the known action (e.g., braking).

Code "00" (No driver present) is used when no driver was in the vehicle at the time it was involved in the accident.

Code "01" (No avoidance action) is used whenever the driver did not attempt any evasive (pre-impact) maneuvers.

GENERAL VEHICLE FORM
VEH25

Variable Name: Precrash Stability After Avoidance Maneuver

Element Values:

0 No driver present
1 No avoidance maneuver
2 Tracking
3 Skidding longitudinally—rotation less than 30 degrees
4 Skidding laterally—clockwise rotation
5 Skidding laterally—counterclockwise rotation
8 Other vehicle loss-of-control (specify):
9 Precrash stability unknown

Source: Researcher determined: inputs include vehicle and scene evidence, interviews and police report.

Remarks:

The purpose of this variable is to assess the stability of the vehicle which resulted from the initiation of the avoidance maneuver coded in VEH24, Attempted Avoidance Maneuver. The stability of the vehicle prior to an avoidance action is not considered except in the following situation: A vehicle that is out of control (e.g., yawing clockwise) prior to an avoidance maneuver is coded "7" (Other vehicle loss-of-control) only if an avoidance action was taken in response to an impending danger. Thus, this variable focuses upon this vehicle's dynamics which resulted from its avoidance maneuver.

Code "0" (No driver present) is used when no driver was in the vehicle at the time it was involved in the accident.

Code "1" (No avoidance maneuver) is used whenever the driver took no evasive action prior to the first impact in the accident.

Code "2" (Tracking) is used whenever the driver took an avoidance maneuver which did not result in brake lockup and the vehicle continued along its intended path without rotating. Slowing, turning, moderate braking, or accelerating to avoid a rear-end collision are examples.

Code "3" (Skidding longitudinally—rotation less than 30 degrees) is coded whenever the driver applied the brakes with sufficient force to lock the brakes causing the car to skid. The vehicle must continue along its initial path (tracking) and cannot rotate more than 30 degrees clockwise or counterclockwise. If there is no information to support rotation greater than or equal to 30 degrees, then use this code.

Code "4" (Skidding laterally—clockwise rotation) is used whenever the driver of a vehicle applies the brakes with sufficient force to lock the wheels and the vehicle rotates clockwise, relative to the driver's seating position. The vehicle must rotate 30 degrees or more. This code also applies when the driver attempts a steering input (i.e., swerves right), but the vehicle rotates clockwise. In addition, use this code when it is known the vehicle rotated clockwise 30 degrees or more but it is unknown whether wheel lockup occurred.

Variable Name: Precrash Stability After Avoidance Maneuver

Code "5" (Skidding laterally - counterclockwise rotation) is used whenever the driver of a vehicle applies the brakes with sufficient force to lock the wheels and the vehicle rotates counterclockwise, relative to the driver's seating position. The vehicle must rotate 30 degrees or more. This code also applies when the driver attempts a steering input (i.e., swerves left), but the vehicle rotates counterclockwise. In addition, use this code when it is known the vehicle rotated counterclockwise 30 degrees or more but it is unknown whether wheel lockup occurred.

Code "8" (Other vehicle loss-of-control) is used whenever a driver loses control of a vehicle prior to attempting the avoidance action coded in VEH24, Attempted Avoidance Maneuver, and is involved in an accident without regaining control. For example, if a driver loses control on a roadway and attempts to avoid the impending danger by taking some corrective action (e.g., steering), then use this code.

Code "9" (Precrash stability unknown) is used whenever the stability of the vehicle following the avoidance maneuver cannot be determined. This code is also used whenever the attempted avoidance maneuver for this vehicle is unknown (i.e., VEH24 equals "99").

GENERAL VEHICLE FORM
VEH26

Variable Name: Precrash Directional Consequences of Avoidance Maneuver (Corrective Action)

Element Values:

0 No driver present
1 No avoidance maneuver
2 Vehicle stayed in travel lane where avoidance maneuver was initiated
3 Vehicle stayed on roadway but left travel lane where avoidance maneuver was initiated
4 Vehicle stayed on roadway, not known if left travel lane where avoidance maneuver was initiated
5 Vehicle departed roadway
6 Avoidance maneuver initiated off roadway
9 Directional consequences unknown

Source: Researcher determined: inputs include vehicle and scene evidence, interviews and police report.

Remarks:

This variable describes the consequences of the avoidance maneuver identified in variable VEH24, Attempted Avoidance Maneuver, and further reports the results of the vehicle's precrash stability coded in variable VEH25, Precrash Stability After Avoidance Maneuver. The responses for this variable must relate directly to the response coded for variable VEH25.

Code "0" (No driver present) is used when no driver was present in the vehicle at the time it was involved in the accident.

Code "1" (No avoidance maneuver) is coded whenever the driver took no evasive action prior to the first impact for this vehicle.

Code "2" (Vehicle stayed in travel lane where avoidance maneuver was initiated) is used whenever a corrective action was taken and the "majority" of the vehicle remained within the boundaries of its initial travel lane. The perimeter of the vehicle is to be considered when determining the vehicle's status within its travel lane.

Code "3" (Vehicle stayed on roadway but left travel lane where avoidance maneuver was initiated) is coded whenever the "majority" of the vehicle departed its initial travel lane as a result of an avoidance maneuver; however, the "majority" of the vehicle remained within the boundaries of the roadway (travel lanes). The perimeter of the vehicle is to be considered when determining the vehicles status within the roadway.

Code "4" (Vehicle stayed on roadway, not known if left travel lane where avoidance maneuver was initiated) is coded whenever it was determined that an avoidance maneuver occurred, however, it cannot be ascertained whether the "majority" of the vehicle remained within its initial travel lane. To use this code, the "majority" of the vehicle must have remained within the boundaries of the roadway.

GENERAL VEHICLE FORM
VEH26
(2)

Variable Name: Precrash Directional Consequences of Avoidance Maneuver (Corrective Action)

Code "5" (Vehicle departed roadway) is used whenever the "majority" of the vehicle departed the roadway as a result of an avoidance maneuver initiated on the roadway. The roadway departure must be a result of an avoidance maneuver and not related to the post impact trajectory of an accident within the roadway.

Code "6" (Avoidance maneuver initiated off roadway) is used whenever the avoidance maneuver was initiated outside the boundaries of the travel lanes. This includes maneuvers taken on the shoulders, within the median, on the roadside, or off the trafficway.

Code "9" (Directional consequences unknown) is used whenever the directional consequences of an avoidance maneuver cannot be determined. This code also applies when the attempted avoidance maneuver for this vehicle is unknown (i.e., VEH24 equals "99")

GENERAL VEHICLE FORM

VEH27

Variable Name: Relation to Junction

Element Values:

0 Non-junction
1 Interchange area

Non-Interchange

2 Intersection
3 Intersection-related
4 Drive, alley access related
5 Other non-interchange (specify):
6 Unknown type of non-interchange
9 Unknown if interchange

Source: Researcher determined -- inputs include scene inspection, police report and definitions below.

Remarks:

(The elements are defined beginning on page VEH-114 following the remarks.)

The element value selected is based on the location of the pedestrian impact. If the pedestrian impact occurs off the roadway, the element value selected is based on the section of roadway at the point of the vehicle's departure.

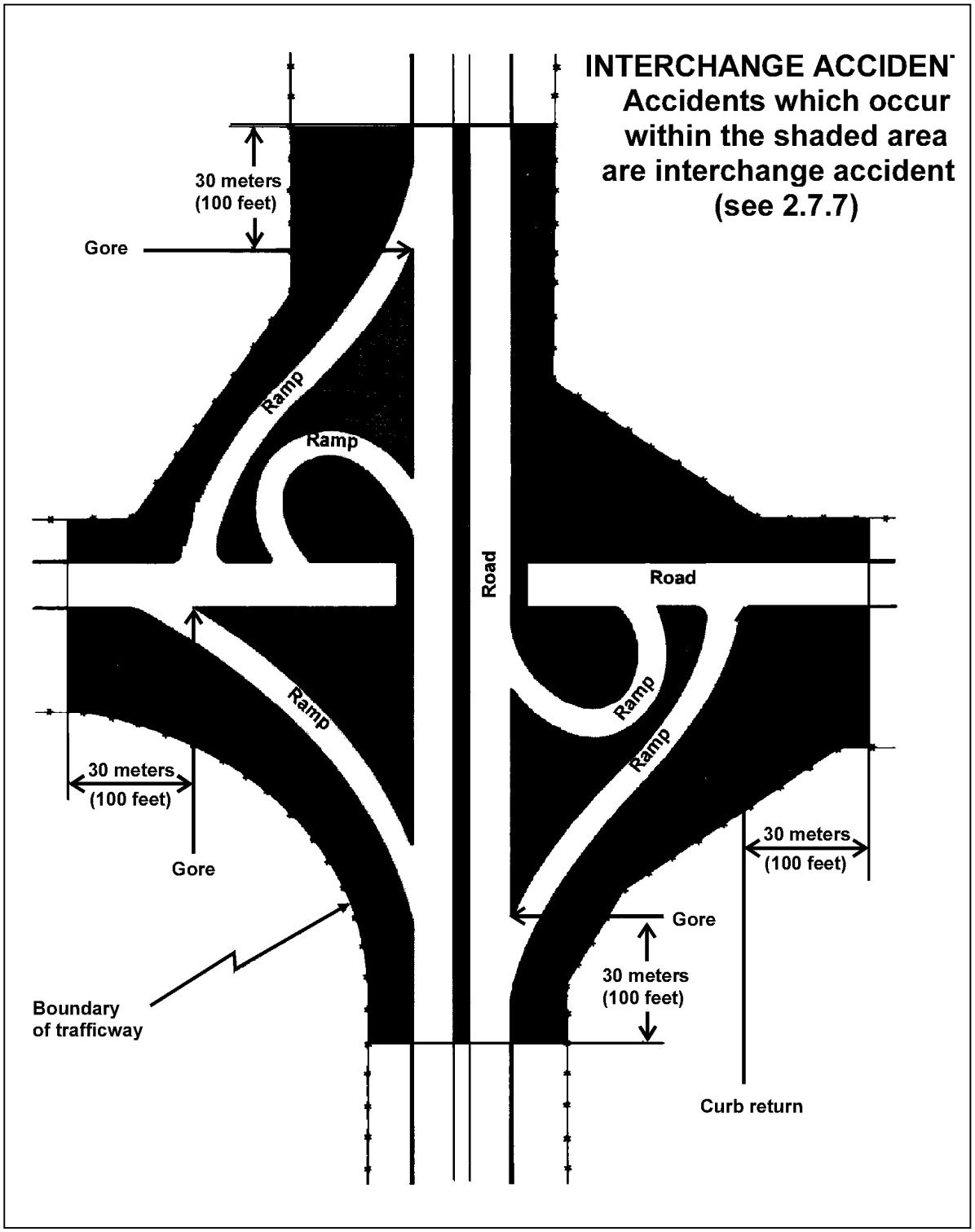
A junction is the area formed by the connection of two roadways. It includes: (1) all at-grade intersections, (2) connections between a driveway access or alley access and a roadway which is not a driveway access or an alley access, (3) connections between two alley accesses or driveway accesses, or (4) a connection between a driveway access and an alley access.

An interchange is 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.

An interchange area is the area around a grade separation which involves at least two trafficways which are directly connected. Included within its boundaries are: (1) all ramps which connect the roadways, and (2) each roadway entering or leaving the interchange to a point 30 meters (100 feet) beyond the gore or curb return at the outermost ramp connection for the roadway (see diagram below).

An intersection is a type of junction which: (1) contains a crossing or connection of two or more roadways not classified as a driveway access or alley 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 meters (33 feet), the two areas and the roadway connecting them are considered to be parts of a single intersection. The measurement is made from inside-to-inside of the lateral curb/boundary lines. If the lines are not parallel, then the distance between them is measured along the shortest side of the roadway (see examples on continuation pages).

Variable Name: Relation to Junction (cont'd.)

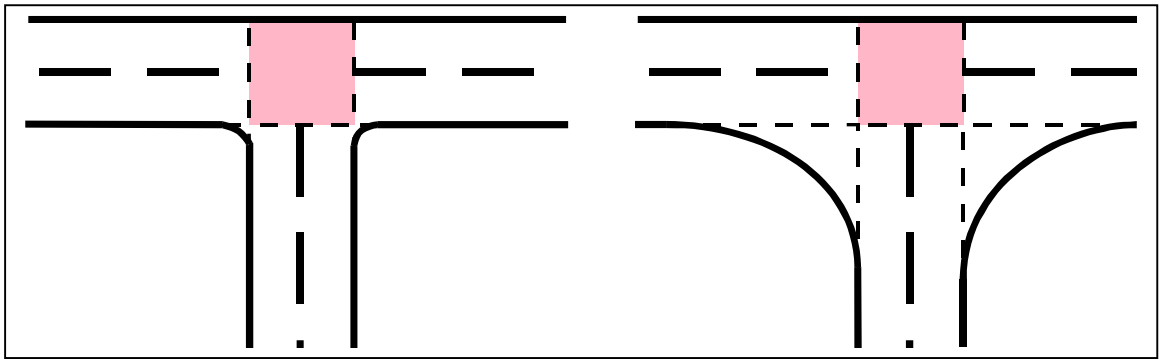


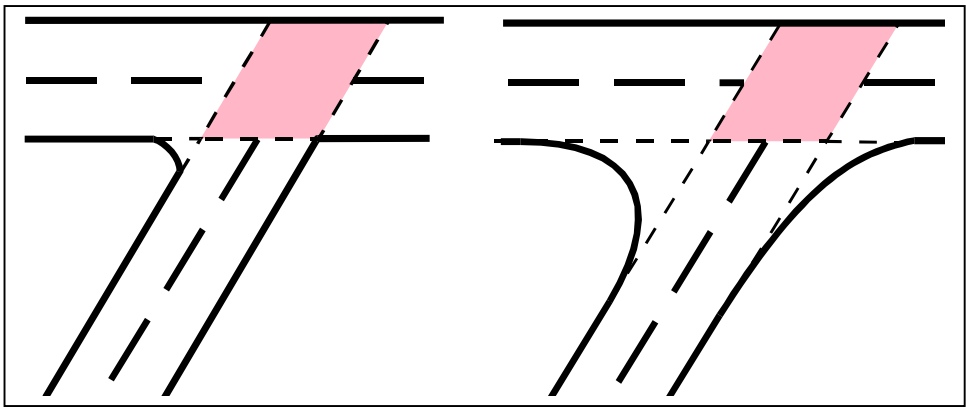
This example shows an interchange area:

Variable Name: Relation to Junction (cont'd.)

A driveway is an unnamed roadway that provides access to property adjacent to a trafficway. An alley is an unnamed roadway providing access, in general, to the rear of buildings; an alley may be further served by a driveway. The junction formed by the connection of a driveway or alley with a named roadway is not an intersection (see discussion of "intersection," above). Note that many shopping plazas and other facilities may have a traffic control device at the mouth of the driveway that provides access to a parking lot, including automatic signals, turn lanes, etc. If the parking lot access road is not a named street, then the junction is not an intersection. If, however, the driveway or alley access is within 10 meters (33 feet) of the prolongations that define an intersection (as depicted in the illustrations), the junction should be treated as an intersection and code "2" (intersection) or "3" (intersection-related) should be used.

The following examples, although not intended to be inclusive, are presented for the purpose of helping to clarify the meaning of "prolongation" as it is used with respect to junctions.

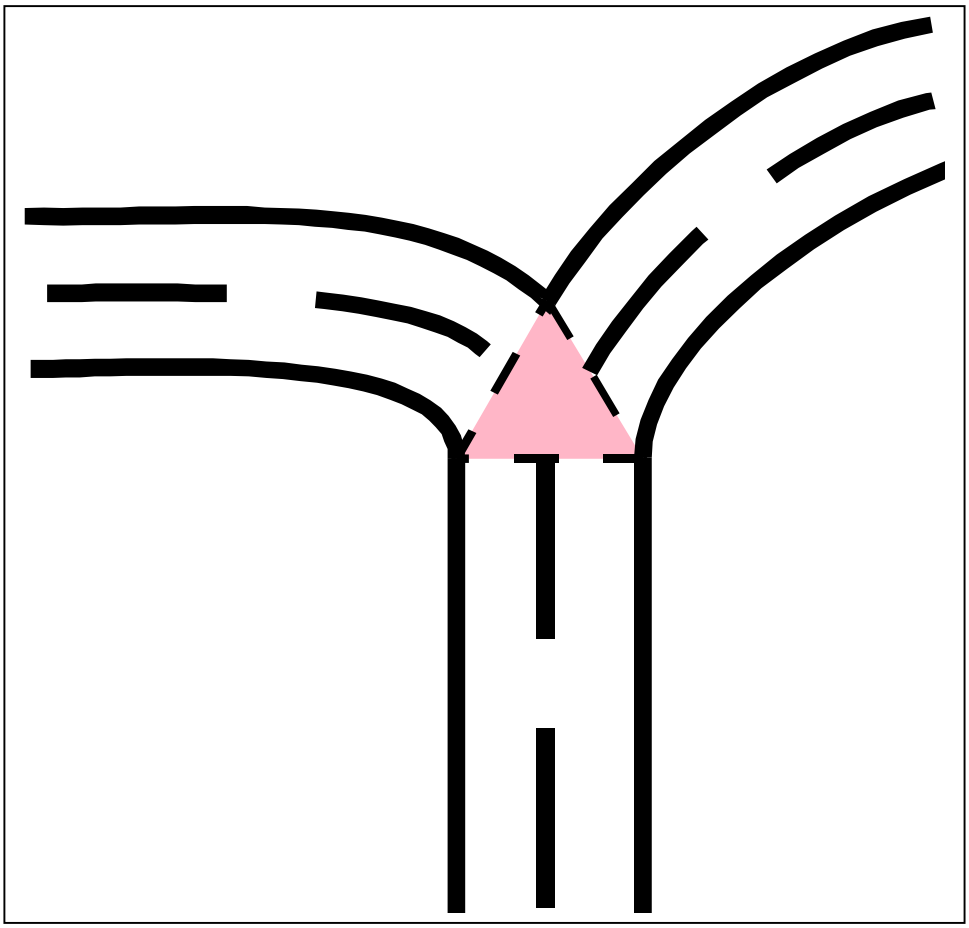




(4)

Variable Name: Relation to Junction (cont'd.)

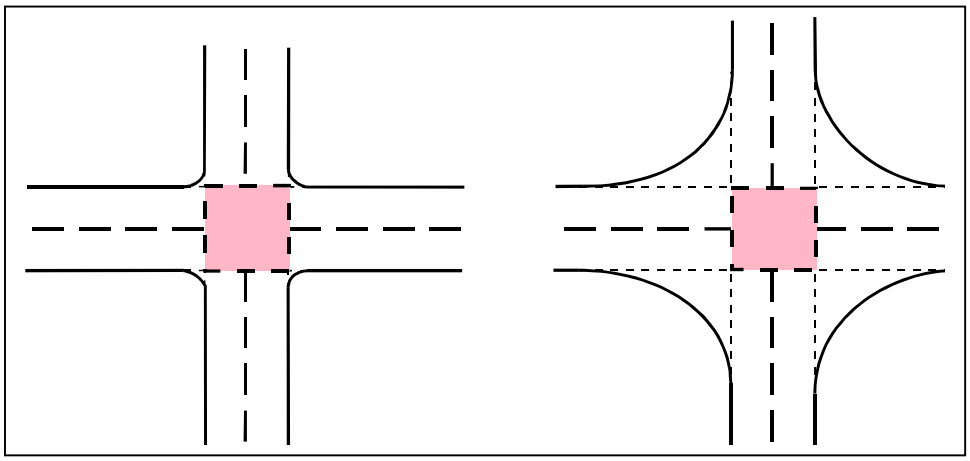
This example illustrates prolongation in the case of a diverging "Y" type (three leg) intersection. Find the location along the Y's stem where the prolongation from the divergence is farthest from the apex. If the distance from the apex to a line perpendicular to the lateral boundary lines of the stem at the farthest point is greater than or equal to 16 meters (50 feet), then consider the first shaded area (vertical hash marks in the example) as the intersection. If the distance is less than 16 meters (50 feet), then add an additional 10 meters (33 feet) -- should shaded area (diagonal hash marks in the example) -- to the distance and consider both shaded areas as the intersection.

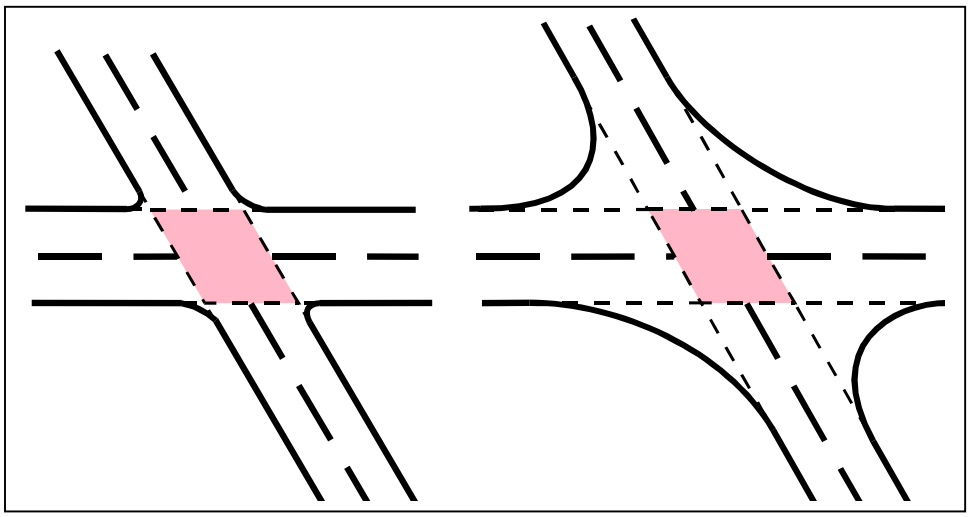


(5)

Variable Name: Relation to Junction (cont'd.)

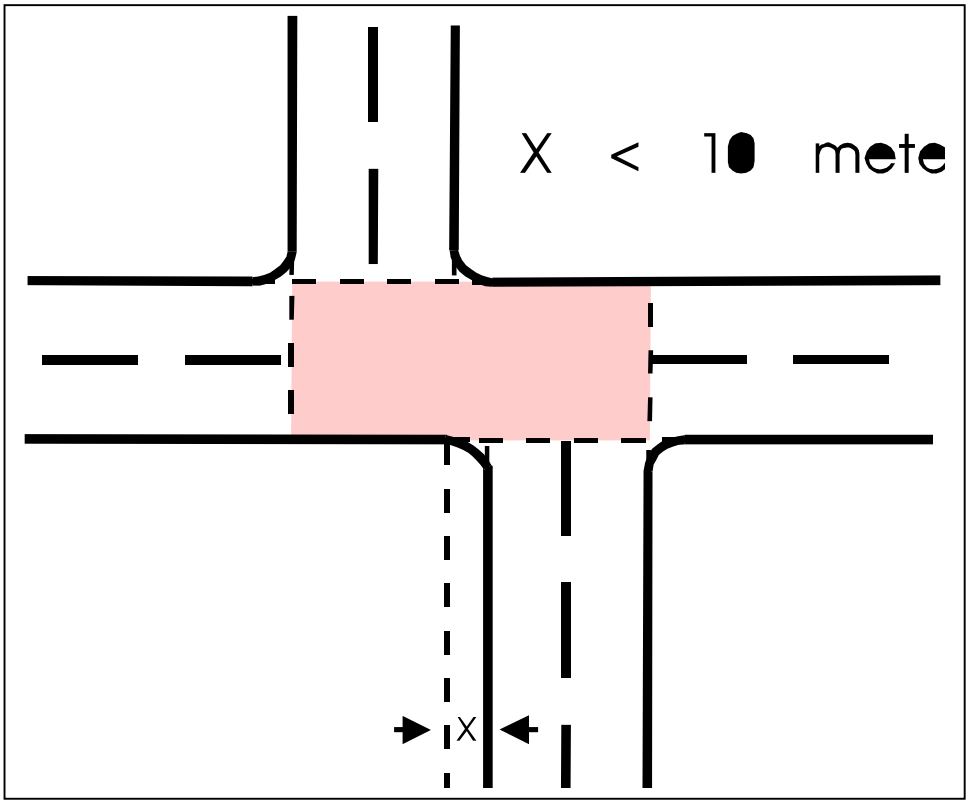
Examples of four leg intersections:



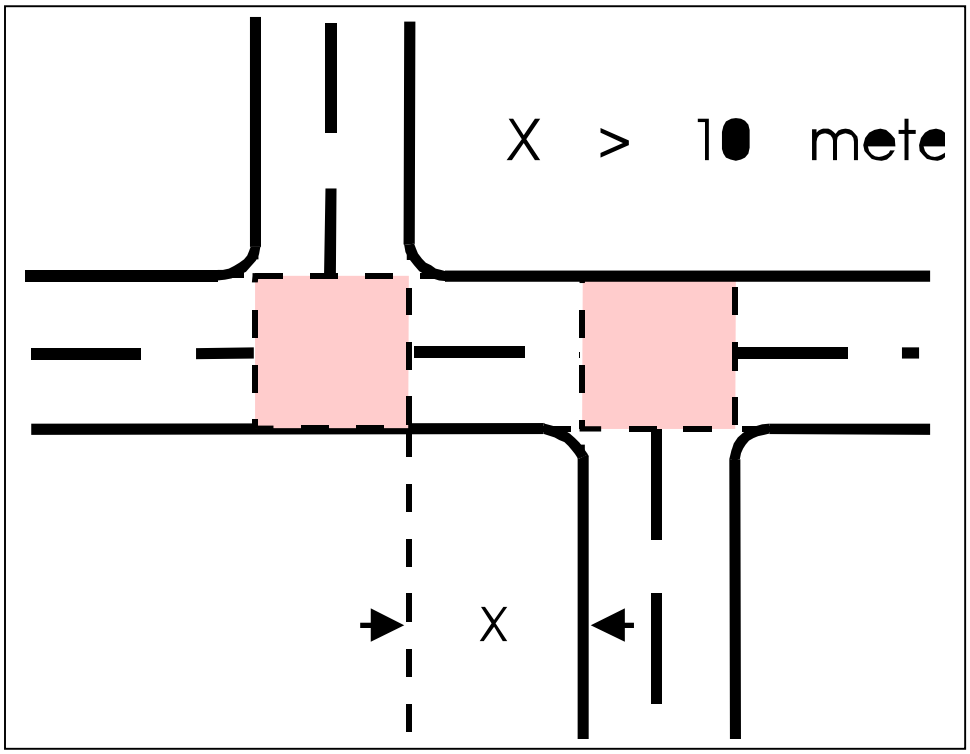


(6)

Variable Name: Relation to Junction (cont'd.)



Variable Name: Relation to Junction (cont'd.)



(8)

Variable Name: Relation to Junction (cont'd.)

Code "0" (Non-junction) is used when the pedestrian impact was not in a location that qualifies for any of the other codes discussed below. For example, if the pedestrian impact or roadway departure is within an interchange area, then use code "1" (Interchange area).

Code "1" (Interchange area) is used when the pedestrian impact occurred in an interchange area as defined above, including the off-road area contained within the trafficway boundaries. If codes "0", "2", "3", "4", "5" or "6" also apply; use code "1" (Interchange area).

Code "2" (Intersection) is used when the pedestrian impact occurred within the prolongation that defines an intersection, as discussed and illustrated above. If the pedestrian impact is within an interchange area, then use code "1" (Interchange area).

Code "3" (Intersection-related) is used when the pedestrian impact: (1) occurs on an approach to or departure from an intersection; and (2) results from activity, behavior or control related to the movement of traffic through an intersection. If the pedestrian impact occurs outside but near an intersection and involves a motor vehicle that was engaged in (or should have been) making a maneuver necessary to negotiate the intersection (such as turning or stopping), then intersection-related must be coded. If the pedestrian impact results from a loss of control not related to negotiating the intersection (e.g., the motor vehicle simply "drifts" off the roadway and strikes a pedestrian on the roadside), use code "0" (non-junction). If the pedestrian impact or roadway departure is within an interchange area, use code "1" (Interchange area).

Code "4" (Drive, alley access related) is used when the pedestrian impact: (1) occurs on an approach to or departure from a driveway or alley; and (2) results from activity, behavior or control related to the movement of traffic through a driveway or alley access. The use of this code is restricted to pedestrian impacts that occur in close proximity to the junction formed by the driveway or alley and a named roadway. If the pedestrian impact occurs, e.g., around the pump islands at a service station or in the parking stalls of a parking lot, code "0" (non-junction) should be used. If the pedestrian impact or roadway departure is within an interchange area, then use code "1" (Interchange area).

Code "5" [Other non-interchange (specify): _____] is used when a pedestrian impact occurs at a location that is not properly described by codes "0" - "4." One example would be a pedestrian impact that occurred at the junction of two alleys. The use of this code must include a brief annotation. If the pedestrian impact or roadway departure is within an interchange area, then use code "1" (Interchange area).

Variable Name: Relation to Junction (cont'd.)

Code "6" (Unknown type of non-interchange) is used when the type of non-interchange location cannot be determined. If the pedestrian impact or roadway departure is within an interchange area, then use code "1" (Interchange area).

Code "9" (Unknown if interchange) is used when it is not known if the pedestrian impact occurred in an interchange area.

GENERAL VEHICLE FORM
VEH28

Variable Name: Trafficway Flow

Element Values:

1 Not physically divided (two way traffic)
2 Divided trafficway - median strip without positive barrier
3 Divided trafficway - median strip with positive barrier
4 One way trafficway
9 Unknown

Source: Researcher determined -- inputs include the scene inspection and definitions below.

Remarks:

The researcher selects the descriptor that best represents the vehicle's environment just prior to this vehicle's first harmful event.

Code "1" [Not physically divided (two way traffic)] is used when there is two way traffic with no division/median strip. NOTE: although gores separate roadways and traffic islands separate travel lanes, neither is a trafficway division/median strip.

Code "2" (Divided trafficway - median strip without positive barrier) is used when the trafficway is "divided" by vegetation (including trees, water, embankments, ravines and gravel), a curbed/raised median or a paved flush (painted or unpainted) median. If multiple medians are present, choose the first median encountered laterally to the left (with respect to the normal traffic flow) from the first harmful event.

Code "3" (Divided trafficway - median strip with positive barrier) is used when the trafficway is "divided" by concrete or other types of longitudinal barriers (i.e., all manufactured barriers), bridge or underpass supporting structures, or bridge rails. If multiple medians are present, choose the first median encountered laterally to the left (with respect to the normal traffic flow) from the first harmful event.

Code "4" (One way trafficway) is used whenever the trafficway is undivided and traffic flows in but one direction (e.g., one-way streets). However, this code can also be used where a median is present so long as all the traffic on the trafficway goes in the same direction. An example occurs where the opposing roadway of the same named trafficway had to be split by such a distance that the right-of-way divides to accommodate other property. If (rare) one of the trafficways is further divided into multiple roadways by a median, then in this instance code "3" (One way trafficway) should be used.

GENERAL VEHICLE FORM
VEH29

Variable Name: Number of Travel Lanes

Element Values:

1 One
2 Two
3 Three
4 Four
5 Five
6 Six
7 Seven or more
9 Unknown

Source: Researcher determined -- inputs include the scene inspection, police report and definitions shown below.

Remarks:

If the collision occurred other than in a junction, code the value on the basis of the most representative description of this driver's roadway leading to the location of this vehicle's first harmful event.

If the first harmful event occurs off the roadway, code the value on the basis of the most representative description of the roadway leading to the point of departure.

If the first harmful event is located in the junction of two or more roadways, code the number of lanes on the basis of the most representative description of the approach leg to the junction for this vehicle.

A roadway is that part of a trafficway where vehicles travel. A divided trafficway is composed of two or more roadways.

If traffic flows in both directions and is undivided, code the number of lanes in both directions. If the trafficway is divided into two or more roadways, code only the number of lanes for the roadway on which the vehicle under consideration was traveling.

If turn bays, acceleration, deceleration, or two-way left turn lanes exist and are physically located within the cross section of the roadway where the first harmful event occurred, and these lanes are the most representative of the driver's environment just prior to the impact, then they are to be included in the number of lanes. Channelized lanes, by their definition (see ANSI D16.1-1989, section 2.5.13), are separated from other "through" or "turn" related lanes. (NOTE: The separation normally will not involve a physical barrier). Because a channelized lane is separated, it should not be included (in the "number of travel lanes" count) unless it is preceded by a turn bay or turn lane and this bay or lane is felt to be most representative of the driver's environment just prior to impact.

The number of lanes counted includes any which are narrowed or rendered unusable by restriction of the right-of-way.

Only those lanes ordinarily used for motor vehicle travel should be considered when coding this variable (i.e., pedestrian/bicycle lanes are excluded).

VEH29
(2)

Variable Name: Number of Travel Lanes (cont'd.)

In a number of instances, there will be uncertainty as to the number of lanes due to: (1) nonstandard roadway widths; (2) variability of width in the same roadway due to disrepair and other reasons; or (3) absence of lane, center, and edge lines, etc. The number coded in these cases should represent the number of operational lanes based on customary or observed usage.

On a road that has legal parking such that the legal parking area ends short of the junction of the roadway with another roadway or drive, and the space left between the end of the legal parking area and the beginning of the junction can be utilized for turning by a vehicle on the roadway, do not consider this additional area as another travel lane (regardless of customary or observed usage in this instance). This area should be construed as additional width to the existing travel lane(s). The only time that another lane will be counted at a junction is when that space is expressly designated for turning [e.g., by lane (line or turn arrow) marking, signs, or signals].

The number of lanes for driveways, widemouth parking lots, etc. should be coded as follows: If it is possible to determine the number of lanes through either lane markings or observed or customary use, code the actual number of lanes present. If the number of lanes cannot be accurately established, use code "9" (unknown).

If the most representative roadway for the vehicle is a channel or an entrance or exit ramp, code the number of "channel or entrance/exit ramp" lanes.

If the most representative travel surface for the vehicle is a driveway or crossover (a designated opening within a median used primarily for "U-turns"), code the number of lanes associated with the driveway or crossover.

GENERAL VEHICLE FORM
VEH30

Variable Name: Roadway Alignment

Element Values:

1 Straight
2 Curve right
3 Curve left
9 Unknown

Source: Researcher determined -- inputs include the scene inspection, police report and definitions shown below.

Remarks:

The attribute is determined from the same roadway which was used to determine the Number of Travel Lanes VEH29. The researcher selects the descriptor that best represents the vehicle's environment just prior to this vehicle's first harmful event.

Code "1" (Straight) is used when there is no perceptible curve to the section chosen as the "most representative" for the vehicle.

Code "2" (Curve right) and "3" (Curve left) are used when there is any perceptually-determined curvature to the section chosen as the "most representative" for the vehicle. The vehicle's direction of travel determines whether the curvature is right or left.

GENERAL VEHICLE FORM
VEH31

Variable Name: Roadway Profile

Element Values:

1 Level
2 Uphill grade (>2%)
3 Downhill grade (>2%)
4 Hillcrest
5 Sag
9 Unknown

Source: Researcher determined -- inputs include the scene inspection, police report and definitions shown below.

Remarks:

The attribute is determined from the same roadway which was used to determine the Number of Travel Lanes (VEH29). The researcher selects the attribute that best represents the vehicle's environment just prior to this vehicle's first harmful event.

Code "1" (Level) refers to a tangent surface whose gradient is æ 2%.

Code "2" [Uphill grade (> 2%)] refers to a tangent surface whose uphill gradient is > 2 percent.

Code "3" [Downhill grade (> 2%)] refers to a tangent surface whose downhill gradient is > 2 percent.

Code "4" (Hillcrest) refers to a curved (convex) surface in transition between uphill and downhill grades.

Code "5" (Sag) refers to a curved (concave) surface in transition between downhill and uphill grades.

VEH32

Variable Name: Roadway Surface Type

Element Values:

1 Concrete
2 Bituminous (asphalt)
3 Brick or block
4 Slag, gravel or stone
5 Dirt
8 Other (specify):
9 Unknown

Source: Researcher determined -- inputs include the scene inspection and police report.

Remarks:

The attribute is determined from the same roadway which was used to determine the Number of Travel Lanes (VEH29). The researcher selects the descriptor that best represents the vehicle's environment just prior to the vehicle's first harmful event.

If the lateral cross section contains lanes of more than one surface type, code the surface type of the lane the driver's vehicle was traveling on prior to impact.

GENERAL VEHICLE FORM
VEH33

Variable Name: Roadway Surface Condition

Element Values:

1 Dry
2 Wet
3 Snow and slush
4 Ice
5 Sand, dirt or oil
8 Other (specify):
9 Unknown

Source: Researcher determined -- inputs include the scene inspection, police report, interviews and definitions shown below.

Remarks:

The element value selected is based on the location which the researcher determines best represents the driver's pre-crash environment. In determining the surface condition, the researcher should use police reports, interviews and observation of the site.

Consider the same lanes which were used to determine the Number of Travel Lanes (VEH29) and report the surface condition for those lanes.

It is possible for different surface conditions to exist on the same roadway (e.g., intermittent wet and dry sections). The researcher should select the value which is most representative.

If sand, dirt or oil (code "5") occurs in combination with moisture (codes "2", "3", or "4"), code the moisture condition. Code "5" only if the road was otherwise dry.

Asphalt will "bleed." If, in the opinion of the researcher, the bleeding was such as to constitute a road surface detriment, then code "8" (Other). On the other hand, bleeding which is intermittent and insignificant, in terms of area, should be coded as "1" (Dry). If moisture occurs with the bleeding, code "2" (Wet) should be used.

GENERAL VEHICLE FORM
VEH34

Variable Name: Traffic Control Device

Element Values:

0 No traffic control(s)
1 Trafficway traffic control signal (not RR crossing)

Regulatory or School Zone Sign (Not RR Crossing)

2 Stop sign
3 Yield sign
4 School zone sign
5 Other sign (specify):
6 Unknown sign
7 Warning sign (not RR crossing)
8 Miscellaneous/other controls including RR controls (specify):
9 Unknown

Source: Researcher determined -- inputs include the scene inspection, police report and definitions shown below.

Remarks:

Traffic Control Device is coded in reference to the same section of the roadway that was used to code VEH29, (Number of Travel Lanes) -- see the discussion for VEH29.

A traffic control device is a signal or sign that regulates the flow of traffic on a roadway. This variable measures controls that regulate vehicular traffic only. Control devices that regulate only pedestrian traffic are excluded from consideration. Additionally, painted marks on the pavement or curb, whether lane lines, directional arrows or words, should not be considered as control devices.

Traffic control devices are of two types, a signal or a sign. A signal is an active device, usually colored lights but also including moving parts (as seen in some railroad crossing or construction zone controls). A sign is a passive device, with no lights or moving parts.

A traffic control device may be permanent, temporary (as with construction zone controls or special events such as a parade) or transitory (stop signals/signs on a school bus). Code this variable in reference to the traffic control device that was present at the time of the crash.

The element values for this variable are prioritized. Multiple control devices may be present at a location -- code the element with the lowest numerical value. The functional status of a control device is not a consideration; code the highest priority (lowest numerical) signal that is present.

Code "0" [No traffic control(s)] is used when there are no traffic control devices present at the location of the pedestrian impact.

Variable Name: Traffic Control Device (cont'd.)

Code "1" [Trafficway traffic control signal (not RR crossing)] is used when any active signal is present. This includes on-color automatic signals, flashing beacons, school bus "stop" arm/lights, and also includes active lane control devices such as flashing arrows indicating lane closure for a construction zone or on commuting routes where the direction of travel changes by time of day.

Code "2" (Stop sign) is used to code the standard octagonal stop sign. For any non-octagonal sign with the word "stop," use code "4" (other sign).

Code "3" (Yield) is used to code the standard triangle-with-point-down yield sign. For any non-triangular sign with the word "yield," use code "4" (other sign).

Code "4" (School zone sign) is used only if the pedestrian impact occurred when the sign is in effect.

Code "5" [Other sign (specify): _____] is used for any regulatory sign that is not a standard "stop" or "yield" sign. Regulatory signs are rectangles with the long side vertical. Also included are "no-passing zone" signs, which can be pennant-shaped (a narrow triangle with the base perpendicular to the ground). Regulatory signs include speed limit, school zone, crossing zone, etc. Informational signs are excluded; informational signs are rectangles with the long side horizontal. Non-standard "stop" and "yield" signs are included in this code. The use of this code requires a brief annotation.

Code "6" (Unknown sign) is used when it is known that a sign was present, but it is not known what type of sign.

Code "7" (Warning sign) is used for any warning sign. Warning signs are diamond-shaped (a square with a point down) and may include symbols or words.

Code "8" [Miscellaneous/other controls including RR controls (specify): ____] is used when traffic control at the location of the pedestrian impact is not properly described by any of the above codes and includes any railroad crossing signs. Other examples include a police officer, construction flagman or school crossing guard who is directing traffic. Note that in the U.S., any traffic control orders by a police officer supersede any signal or sign that may be present. If a police officer was directing traffic at the time of the crash, use this code to the exclusion of any other control device that may have been present. The use of this code must be accompanied by an annotation explaining the circumstances.

Code "9" (Unknown) is used when it is not known if a traffic control device was present at the time of the crash.

GENERAL VEHICLE FORM
VEH35

Variable Name: Traffic Control Device Functioning

Element Value:

0 No traffic control

1 Not functioning
2 Functioning
9 Unknown

Source: Researcher determined -- inputs are the scene inspection, police report and interviews.

Remarks:

Code "1" (Not functioning) is used when a trafficway traffic control signal is not lighted (signal out) or functioning was improper or inadequate (e.g., signal working but cycles are short, long or irregular). This code is also used when stop, yield, etc. signs are defaced, badly worn or obscured.

Code "2" (Functioning) is used when a trafficway traffic control signal is functioning properly or stop, yield, etc., signs are in an acceptably visible condition.

Code "9" (Unknown) is used only when VEH34, Traffic Control Device, is coded "9" (unknown).

GENERAL VEHICLE FORM
VEH36

Variable Name: Light Conditions

Element Values:

1 Daylight
2 Dark
3 Dark, but lighted
4 Dawn
5 Dusk
9 Unknown

Source: Researcher determined -- inputs include the scene inspection, police report, interviews and definitions shown below.

Remarks:

Code "2" (Dark) is used when the light conditions at the time and location of the accident are dark with no artificial lighting via luminaries or light standards specifically directed at the roadway.

Code "3" (Dark, but lighted) is used when the light conditions at the time and location of the accident are dark with artificial lighting via luminaries or light standards specifically directed at the roadway.

GENERAL VEHICLE FORM
VEH37

Variable Name: Atmospheric Conditions

Element Values:

1 No adverse atmospheric related driving conditions
2 Rain
3 Sleet
4 Snow
5 Fog
6 Rain and fog
7 Sleet and fog
8 Other (e.g., smog, smoke, blowing sand or dust, etc.) (specify):
9 Unknown

Source: Researcher determined -- inputs include the scene inspection, police report, interview and definitions shown below.

Remarks:

Code "3" (Sleet) includes hail.

Code "8" (Other) should not be used solely because of cloudy or overcast skies. The element values for this variable are oriented toward precipitation, or particle dispersion which may affect the driver's visual ability or the vehicle's controllability.

PEDESTRIAN EXTERIOR VEHICLE FORM
INSTRUCTIONS FOR COMPLETION OF PCDS APPLICABLE FIELD MEASUREMENTS PAGES
(Note: All Measurements Are In Metric Dimensions)

The field measurements page of the Vehicle Form is designed to be a comprehensive data collection tool arranged in a format to allow sufficient space for documenting vehicle damage profiles and associated relevant measurements.

Information is collected relative to all pedestrian impacts. The data collected for PCDS cases adheres to the protocols established for obtaining crush data defined in the NASS Vehicle Measurement Techniques (July 1989) document. The procedures for recording that data, in a format that will maintain system-wide consistency, are included in the following remarks.

In general for pedestrian crashes, there will not be crush measurements as in CDS NASS. The detailed measurements that are obtained will document the pedestrian/vehicle interaction, along with specifically locating pedestrian contact points on the vehicle. Since the contour gauge will not be used to document a pedestrian's impact to a vehicle, specific annotations on the exterior page of the Vehicle Form are critical. Data will be coded in the case, relative to particular contacted vehicle components, based solely on a thorough vehicle inspection and documentation.

PEDESTRIAN CONTACT DOCUMENTATION

NOTE: If multiple pedestrians are contacted all contacts should be documented on the contact page. This page should then be photocopied for use in the subsequent case.

When a contact is located for a pedestrian, complete the following:

- Highlight the contact with contrasting-colored mats.

- Measure the center of the contact on the vehicle, using the Pedestrian Contact Gauge set along the centerline, and across the front axle. Measure the X, Y coordinate of the contact following the contour of the vehicle. Record the measurements on the Points of Pedestrian Contact page of the Pedestrian Exterior Vehicle Form. Large or extended contacts will require more than one set of X, Y coordinates.

- Sketch the contact on the exterior vehicle view and annotate any physical evidence present.

- Indicate the contact on the Points of Pedestrian Contact Page in chronological order.

- In the column adjacent to the contact number, indicate the component number or specify an unlisted component.

- In the sixth column, specify the suspected O.I.C. (knee, lower leg, forearm, etc.) body region contacted.

PEDESTRIAN EXTERIOR VEHICLE FORM

o The supporting physical evidence column should indicate the evidence present to justify the contact (i.e., scuff, tissue transfer, dent, shattered, etc.).

(2)

INSTRUCTIONS FOR COMPLETION OF PCDS APPLICABLE FIELD MEASUREMENTS PAGES (cont'd.)

o Specify the level of confidence that the contact identified was caused by the pedestrian. Choose the value that best represents the conclusion using the scale of: 1 (Certain), 2 (Probable), 3 (Possible), or 9 (Unknown).

PEDESTRIAN FRONT CONTACT WORK SHEET

Spaces are provided for the following measurements/information:

- Front Bumper Cover Material
- Front Bumper Reinforcement Material
- Hood Material
- Hood Length
- Hood Width-Forward Opening
- Hood Width-Midway
- Hood Width-Rear Opening

VERTICAL MEASUREMENTS

- Front Bumper-Bottom Height
- Front Bumper-Top Height
- Front/Top Transition Point
- Forward Hood Opening
- Front Bumper Lead

WRAP DISTANCES

- Ground to Forward Hood Opening
- Ground to Rear Hood Opening
- Ground to Base of Windshield
- Ground to Top of Windshield
- Ground to Head Contact

PEDESTRIAN SIDE CONTACT WORK SHEET

- Hood Material

PEDESTRIAN EXTERIOR VEHICLE FORM

- Hood Length
- Hood Width-Forward Opening
- Hood Width-Midway
- Hood Width-Rear Opening

PEDESTRIAN SIDE CONTACT WORK SHEET (cont'd)

VERTICAL MEASUREMENTS

- Ground Clearance
- Side Bumper-Bottom Height
- Side Bumper-Top Height
- Centerline of Wheel
- Top of Wheel
- Top of Wheel Well Opening
- Fender Height
- Bottom of A-Pillar at Windshield
- Top of A-Pillar at Windshield
- Top of Side View Mirror
- Maximum Side Protrusion Forward of Top of A-Pillar

LATERAL DISTANCES

- Centerline to A-Pillar at Bottom of Windshield
- Centerline to A-Pillar at Top of Windshield
- Centerline to Maximum Side View Mirror Protrusion
- Centerline to Maximum Side Protrusion Forward of Top of A-Pillar

WRAP DISTANCES

- Ground to Side to Top Transition
- Ground to Hood Edge at Contact
- Ground to Centerline of Hood
- Ground to Head Contact

PEDESTRIAN EXTERIOR VEHICLE FORM
INSTRUCTIONS FOR COMPLETION OF VEHICLE DAMAGE SKETCH

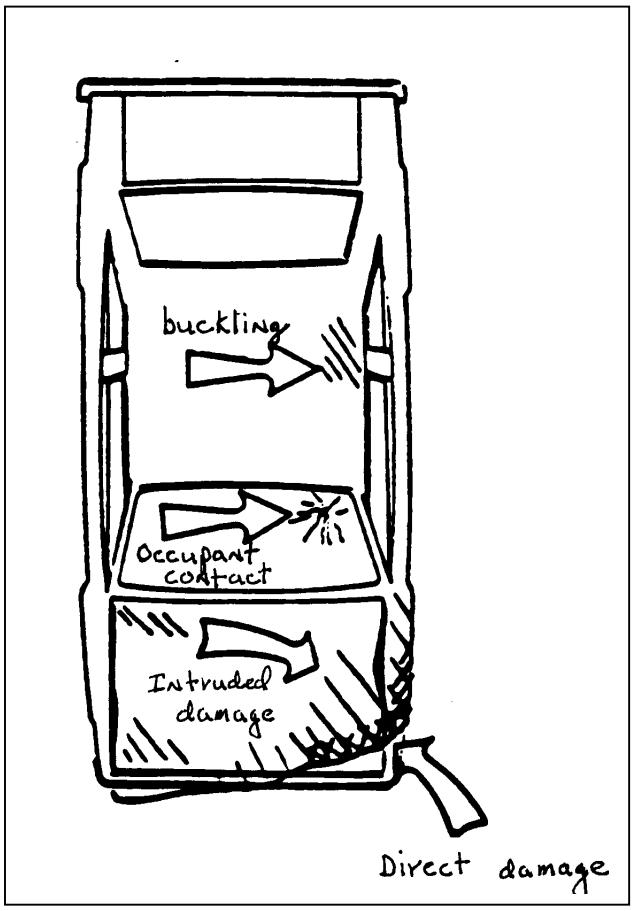
Pedestrian Exterior Vehicle Form Page 2 enables researchers to report data that are not encoded and might otherwise be omitted from the case. Pertinent data such as scrapes, scratches, buckling, transfers, and other indications of pedestrian contact are reported on this page. In addition, sketch the vehicle damage profile on the outlines provided, using the established protocol as below.

· Outline the damage profile (if any) produced by the impact.

· Use cross hatches to indicate direct damage.

· Highlight induced damage and/or remote buckling with diagonal lines.

The following sketch exemplifies these procedures on the overhead profile.



Although researchers are reporting a vehicle's pedestrian impact damage, other damage may be observed which existed prior to the accident. These damaged areas, in addition to any towing related damage, are indicated and annotated accordingly.

Relevant measurements are required on the Vehicle Damage Sketch page in order to support other coded and noncoded data elements.

PEDESTRIAN EXTERIOR VEHICLE FORM

PEV04

Variable Name: Original Wheelbase

Element Values:

Code to the nearest centimeter.
999 Unknown

Source: Primary and secondary sources are listed below.

Remarks:

The wheelbase dimension is obtained from source materials and not from vehicle measurements. This dimension is encoded to the nearest centimeter.

Code "999" (Unknown) is used when this vehicle's original specification is not

The primary source for obtaining this vehicle's original wheelbase is the first source listed below; the next three sources are secondary.

Passenger Vehicle Specifications
American Automobile Manufacturers Association (AAMA)
of the U.S., Inc.
300 New Center Building
Detroit, Michigan 48202

Automotive News
Crain Automotive Group, Inc.
965 East Jefferson Avenue
Detroit, Michigan 48207

Branham Automobile Reference Book
Branham Publishing Company
Post Office Box 1948
Santa Monica, California 90406-1948

Gasoline Truck Index and
Diesel Truck Index
Truck Index, Inc.
Post Office Box 10291
Santa Anna, California 92711

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV05

Variable Name: Original Average Track Width

Element Values:

Range: 100-185, 999

Code to the nearest centimeter.
185 185 centimeters or more
999 Unknown

Source: Primary and secondary source materials are listed in variable PEV04, Original Wheelbase.

Remarks:

The original average track width dimension is obtained from source materials and not from vehicle measurements. This dimension is encoded to the nearest centimeter.

Code "999" (Unknown) is used when this vehicle's original specification is not

Variable Name: Hood Material

Element Values:

1 Plastic
2 Fiberglass
3 Steel
4 Aluminum
5 Stainless steel
8 Other (specify):
9 Unknown

Source: Vehicle inspection

Remarks:

Indicate the predominant material which is used in the manufacture of the hood of the vehicle.

Code "1" (Plastic) is used when the hood is made of a synthetic compound that is molded to a flexible compound.

Code "2" (Fiberglass) is used when the hood is made of a finespun filaments of glass material.

Code "3" (Steel) is used when the hood is made of a hardened, iron-alloyed material.

Code "4" (Aluminum) is used when the hood is made of silvery, lightweight, easily worked metallic material.

Code "5" (Stainless steel) is used when the hood is made of a steel alloyed with chrome.

Code "8" (Other specify: ___) is used when the hood is made from a different structure than listed above.

Code "9" (Unknown) is used when the hood material type cannot be determined and code "0" does not apply.

Variable Name: Hood Original Equipment Manufacturer (OEM)

Element Values:

1 OEM factory installed hood
2 OEM Replacement
3 Non-OEM replacement
9 Unknown

Source: Vehicle inspection

Remarks:

The information is coded for the hood attached to the vehicle at the time of the crash.

Code "1" (OEM factory installed hood) is used when the hood attached to the vehicle at the time of the crash is the original equipment manufacturer's (OEM) factory installed hood.

Code "2" (OEM replacement) is used when the hood is OEM, however, it is not the factory installed hood on the vehicle.

Code "3" (Non-OEM replacement) is used when the hood has been replaced with a Non-OEM hood.

Code "9" (Unknown) is used when the hood's replacement status is unknown.

Variable Name: Hood Length

Element Values:

Code actual measurement to the nearest centimeter.
180 180 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Hood length is the undamaged flat plane distance from the front of the hood edge, at the grille area, to the trailing edge near the base of the windshield. The length is measured longitudinally, at the center of the vehicle.

The measurement obtained for the vehicle's hood length is a pre-crash (undamaged) measurement. If the hood on the vehicle is relatively undamaged (not grossly distorted from this accident) it can be used to obtain this measurement.

(Hood length) is measured to the nearest centimeter.

Code "180" (180 centimeters or more) is used when the hood length is 180 centimeters or more.

Code "999" (Unknown) is used when the hood length cannot be determined.

PEV09

Variable Name: Hood Width Forward Opening

Element Values:

Code actual measurement to the nearest centimeter.
210 210 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Hood width (at the) forward opening (of the hood) is the width of the hood, measured parallel to the lateral axis of the vehicle, at the point of the forward hood opening.

The measurement obtained is a pre-crash (undamaged) measurement. If the hood is relatively undamaged, it can be used to obtain this measurement.

(Hood width forward opening) is measured to the nearest centimeter.

Code "210" (210 centimeters or more) is used when the hood width at the forward hood opening is 210 centimeters or more.

Code "999" (Unknown) is used when the hood width at the forward hood opening cannot be determined.

Variable Name: Hood Width Midway

Element Values:

Code actual measurement to the nearest centimeter.
210 210 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Hood width (at the point) midway (between the forward hood opening and rear hood opening) is the width of the hood (measured parallel to the lateral axis of the vehicle) at the point midway between the forward and rear hood opening.

The measurement obtained is a pre-crash (undamaged) measurement. If the hood is relatively undamaged, it can be used to obtain this measurement.

(Hood width midway) is measured to the nearest centimeter.

Code "210" (210 centimeters or more) is used when the hood width midway between the forward and rear hood opening is 210 centimeters or more.

Code "999" (Unknown) is used when the hood width midway between the forward and rear hood opening cannot be determined.

Variable Name: Hood Width Rear Opening

Element Values:

Code actual measurement to the nearest centimeter.
210 210 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Hood width (at the) rear opening (of the hood) is the width of the hood (measured parallel to the lateral axis of the vehicle) at the point of the rear hood opening.

The measurement obtained is a pre-crash (undamaged) measurement. If the hood is relatively undamaged, it can be used to obtain this measurement.

(Hood width rear opening) is measured to the nearest centimeter.

Code "210" (210 centimeters or more) is used when the hood width at the rear hood opening is 210 centimeters or more.

Code "999" (Unknown) is used when the hood width at the rear hood opening cannot be determined.

Variable Name: Hood/Fender Vertical/Lateral Crush From Pedestrian

Element Values:

0 Not damaged
1 Surface scratching only, no residual crush
2 Minor crush (1-3 centimeters)
3 Moderate crush (4-7 centimeters)
4 Severe crush (> 7 centimeters)
8 Damage present, unknown if from pedestrian impact
9 Unknown

Source: Vehicle inspection

Remarks:

This variable indicates residual damage to the hood or the fender of the vehicle from the pedestrian. If the pedestrian contacted the frontal plane, and subsequently damaged the hood, then measure the amount of vertical crush to the hood, caused by the pedestrian.

If the pedestrian contacted a side plane (fender area) then measure the amount of lateral crush caused by the pedestrian.

If the pedestrian damaged both the fender and the hood, code this variable based on the surface with the greater amount of crush.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV13

Variable Name: Windshield Contact Damage From Pedestrian Contact

Element Values:

0 Not contacted by pedestrian
1 Contacted by pedestrian - not damaged
2 Contacted by pedestrian - damaged
7 Unknown if contacted by pedestrian - not damaged
8 Unknown if contacted by pedestrian - damaged
9 Unknown if contacted by pedestrian - unknown if damaged

Source: Vehicle inspection

Remarks:

Damage to the vehicle's windshield from direct pedestrian contact is recorded. Damage to the windshield from environmental objects (i.e., signs, poles, etc.) objects carried by the pedestrian (i.e., briefcase, walking cane), or vehicle occupants, are not considered for this variable.

Code "0" (Not contacted by pedestrian) is used when the pedestrian does not contact the windshield.

Code "1" (Contacted by pedestrian - not damaged) is used when the pedestrian contacts the windshield without causing damage (e.g., cracking).

Code "2" (Contacted by pedestrian - damaged) is used when the pedestrian contacts the windshield causing damage (e.g., cracking).

Code "3" (Unknown if contacted by pedestrian - not damaged) is used when it is not known if the pedestrian contacted the windshield and the windshield is not damaged.

Code "4" (Unknown if contacted by pedestrian - damaged) is used when it is not known if the pedestrian contacted the windshield, but the vehicle's windshield sustained damage in the crash.

Code "5" (Unknown if contacted by pedestrian - unknown if damaged) is used when it is not known if the pedestrian contacted the windshield. It is also not known if the windshield was damaged.

Variable Name: Front Bumper Cover Material

Element Values:

Range: 0-4, 9

0 No front contact
1 Plastic
2 Fiberglass
3 Rubber
4 Other (specify):
9 Unknown

Source: Vehicle inspection

Remarks:

The bumper cover material is obtained when there is a pedestrian contact through the frontal plane of the vehicle.

The bumper cover material is the sheath that encompasses the reinforcement bar (see PEV15, Front Bumper Reinforcement Material). Bumper guard material is not to be considered for this variable.

Some bumpers have rubber strips along the face, for protection from minor scratches, this should not be considered as the bumper material.

Code "0" (No front contact) is used when there is no pedestrian contact through the frontal plane of the vehicle.

Code "1" (Plastic) is used when the bumper cover material is of a synthetic compound that is molded to encompass the bumper.

Code "2" (Fiberglass) is used when the bumper cover material is made of a finespun filaments of glass material and attaches to the bumper.

Code "3" (Rubber) is used when the bumper cover material is made of a synthetic elastic material (usually black in color).

Code "4" [Other (specify): ___] is used when some other material is used, or a combination of materials are used.

Code "9" (Unknown) is used when composition of the bumper cover material cannot be determined and code "0" does not apply.

Variable Name: Front Bumper Reinforcement Material

Element Values:

Range: 0-4, 9

0 No front contact
1 Steel
2 Aluminum
3 Stainless steel
4 Other (specify):
9 Unknown

Source: Vehicle inspection, OEM dealerships

Remarks:

The bumper reinforcement material is obtained when there is a pedestrian contact through the frontal plane of the vehicle.

The bumper reinforcement material is that which is attached to (or part of) the frame or structure of the vehicle.

Code "0" (No front contact) is used when there is no pedestrian contact through the frontal plane of the vehicle.

Code "1" (Steel) is used when the front reinforcement structure is made of a hardened, iron-alloyed material.

Code "2" (Aluminum) is used when the front reinforcement structure is made of silvery, lightweight, easily worked metallic material.

Code "3" (Stainless steel) is used when the front reinforcement structure is made of a steel alloyed with chrome.

Code "4" [Other (specify): ___] is used when the front reinforcement structure is made from a different structure than listed above.

Code "9" (Unknown) is used when the front bumper reinforcement material cannot be determined and code "0" does not apply.

Variable Name: Front Bumper-Bottom Height

Element Values:

Code to the nearest centimeter.

000	No front contact
150	150 centimeters or more
999	Unknown

Source: Vehicle inspection

Remarks:

The bumper-bottom height measurement is obtained when there is a pedestrian contact through the frontal plane of the vehicle.

The measurement obtained for the vehicle's bumper-bottom height is a pre-crash (undamaged) measurement. If the front bumper on the vehicle is relatively undamaged (not grossly distorted from this accident) it can be used to obtain this measurement.

To obtain the measurement, measure from the BOTTOM of the front bumper, at the point of impact, to the ground.

(Front bumper-bottom height) is coded to the nearest centimeter.

Code "000" (No front contact) is used when there is no pedestrian contact through the frontal plane of the vehicle.

Code "150" (150 centimeters or more) is used when the bumper-bottom height is greater than or equal to 150 centimeters.

Code "999" (Unknown) is used when the original undamaged height of the front bumper bottom cannot be determined and code "000" does not apply.

Variable Name: Front Bumper-Top Height

Element Values:

Code to the nearest centimeter.

000 No front contact
150 150 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

The bumper-top height measurement is obtained when there is a pedestrian contact through the frontal plane of the vehicle.

The measurement obtained for the vehicle's bumper-top height is a pre-crash (undamaged) measurement. If the front bumper on the vehicle is relatively undamaged (not grossly distorted from this accident) it can be used to obtain this measurement.

To obtain the measurement, measure the vertical distance from the TOP of the front bumper, at the point of impact, to the ground.

(Front bumper-top height) is coded to the nearest centimeter.

Code "000" (No front contact) is used when there is no pedestrian contact through the frontal plane of the vehicle.

Code "150" (150 centimeters or more) is used when the bumper-top height is greater than or equal to 150 centimeters.

Code "999" (Unknown) is used when the undamaged height of the front bumper top cannot be determined and code "000" does not apply.

Variable Name: Forward Hood Opening

Element Values:

Code actual measurement to the nearest centimeter.
000 No front contact
200 200 centimeters or more
999 Unknown

Source: Vehicle Inspection

Remarks:

The forward hood opening height measurement is obtained when there is a pedestrian contact through the frontal plane of the vehicle.

The forward hood opening height is the undamaged vertical height from the ground to the front edge of the hood, at the point of impact.

(Forward Hood Opening) height measurements are to the nearest centimeter.

Code "000" (No front contact) is used when there is no pedestrian contact through the frontal plane of the vehicle.

Code "200" (200 centimeters or more) is used when the forward hood opening height is 200 centimeters or more.

Code "999" (Unknown) is used when the forward hood opening height cannot be determined and code "000" does not apply.

Variable Name: Front Bumper Lead

Element Values:

Code actual measurement to the nearest centimeter.
00 No front contact
30 30 centimeters or more
99 Unknown

Source: Vehicle inspection

Remarks:

The bumper lead measurement is obtained when there is a pedestrian contact through the frontal plane of the vehicle.

Bumper lead is the longitudinal width of the bumper. The width is measured from the leading edge of the bumper to where the horizontal structure ends and the vertical structure begins (i.e., the base of the front grille or light assembly). This measurement should be taken at the point of pedestrian impact. The measurement obtained for the vehicle's bumper lead is a pre-crash (undamaged) measurement. If the front bumper on the vehicle is relatively undamaged (not grossly distorted from this or any previous accident) it can be used to obtain this measurement.

(Front bumper lead) is measured to the nearest centimeter.

Code "00" (No front contact) is used when there is no pedestrian contact through the frontal plane of the vehicle.

Code "30" (30 centimeters or more) is used when the bumper lead is 30 centimeters or more.

Code "99" (Unknown) is used when the front bumper lead cannot be determined and code "00" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV20

Variable Name: Ground to Forward Hood Opening

Element Values:

Code actual measurement to the nearest centimeter.
000 No front contact
200 200 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the continuous distance, following the contour of the vehicle along the vehicle's centerline, from the ground or road surface to the forward hood opening. (See PEV25, Ground to Head Contact, diagram for measurement technique).

(Ground to forward hood opening) measurements are coded to the nearest centimeter.

Code "000" (No front contact) is used when there is no pedestrian contact through the frontal plane of the vehicle.

Code "200" (200 centimeters or more) is used when the ground to forward hood opening measurement is 200 centimeters or more.

Code "999" (Unknown) is used when the ground to forward hood opening distance cannot be determined and code "000" does not apply.

Variable Name: Ground to Front/Top Transition Point

Element Values:

Code actual measurement to the nearest centimeter.
000 No front contact
180 180 centimeters or more
999 Unknown

Source: Vehicle Inspection

Remarks:

The front/top transition point height measurement is obtained when there is a pedestrian contact through the frontal plane of the vehicle.

The front/top transition point is the location on the front of the vehicle where the top hood plane transitions into the frontal structure. This could be (1) the point at which the front of the hood curves downward (i.e., in the case of some vehicles where the hood edge is part of the front structure), (2) the hood edge or (3) the top edge of the upper grille panel. The measurement is the vertical distance from the ground to the front/top transition point, measured along the vehicle's centerline.

(Front/top transition point) height is measured to the nearest centimeter.

Code "000" (No front contact) is used when there is no pedestrian contact through the frontal plane of the vehicle.

Code "180" (180 centimeters or more) is used when the front/top transition point is 180 centimeters or more.

Code "999" (Unknown) is used when the front/top transition point cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV22

Variable Name: Ground to Rear Hood Opening

Element Values:

Code actual measurement to the nearest centimeter.
000 No front contact
400 400 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the continuous distance, following the contour of the vehicle, along the vehicle's centerline, from the ground or road surface to the rear hood opening. (See PEV25, Ground to Head Contact, diagram for measurement technique).

(Ground to rear hood opening) measurements are coded to the nearest centimeter.

Code "000" (No front contact) is used when there is no pedestrian contact through the frontal plane of the vehicle.

Code "400" (400 centimeters or more) is used when the ground to rear hood opening measurement is 400 centimeters or more.

Code "999" (Unknown) is used when the ground to rear hood opening distance cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV23

Variable Name: Ground to Base of Windshield

Element Values:

Code actual measurement to the nearest centimeter.
000 No front contact
400 400 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the continuous distance, following the contour of the vehicle, along the vehicle's centerline, from the ground or road surface to the base of the windshield. (See PEV25, Ground to Head Contact, diagram for measurement technique).

(Ground to base of windshield) measurements are coded to the nearest centimeter.

Code "000" (No front contact) is used when there is no pedestrian contact through the frontal plane of the vehicle.

Code "400" (400 centimeters or more) is used when the ground to base of windshield measurement is 400 centimeters or more.

Code "999" (Unknown) is used when the ground to base of windshield distance cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV24

Variable Name: Ground to Top of Windshield

Element Values:

Code actual measurement to the nearest centimeter.
000 No front contact
500 500 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the continuous distance, following the contour of the vehicle, along the vehicle's centerline, from the ground or road surface to the top of the windshield. (See PEV25, Ground to Head Contact, diagram for measurement technique).

(Ground to top of windshield) measurements are coded to the nearest centimeter.

Code "000" (No front contact) is used when there is no pedestrian contact through the frontal plane of the vehicle.

Code "500" (500 centimeters or more) is used when the ground to top of windshield measurement is 500 centimeters or more.

Code "999" (Unknown) is used when the ground to top of windshield distance cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV25

Variable Name: Ground to Head Contact

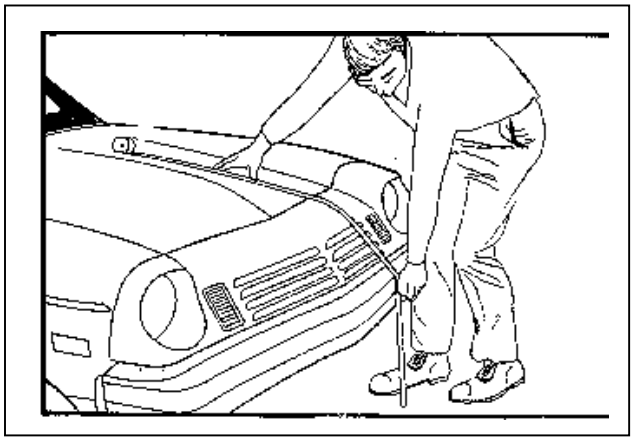
Element Values:

000 No front contact
Code actual measurement to the nearest centimeter.
800 800 centimeters or more
998 No head contact
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the continuous distance, following the contour of the vehicle, from the ground or road surface to the contact point of the pedestrian's head. If there is more than one head contact, measure the distance associated with the first head contact. The value is recorded for frontal plane impacts only. Accidents where there is no pedestrian impact through the frontal plane are coded "000" - no front contact (See diagram for measurement technique).



Code "000" (No front contact) is used when there is no pedestrian impact through the frontal plane or when the pedestrian's head does not contact the vehicle's hood or cowl region.

(Ground to head contact) measurements are coded to the nearest centimeter.

Code "800" (800 centimeters or more) is used when the ground to head contact measurement is 800 centimeters or more.

Code "998" (No head contact) is used when there is a pedestrian impact through the frontal plane of the vehicle, however the pedestrian's head did not contact the vehicle.

Code "999" (Unknown) is used when the ground to head contact distance cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV26

Variable Name: Ground Clearance

Element Values:

Code to the nearest centimeter.

000	No side contact
150	150 centimeters or more
999	Unknown

Source: Vehicle inspection

Remarks:

The ground clearance measurement is obtained when there is a pedestrian contact through the side plane of the vehicle.

The measurement obtained for the vehicle's ground clearance height is a pre-crash (undamaged) measurement. If the side surface of the vehicle is relatively undamaged (not grossly distorted from this accident) it can be used to obtain this measurement.

To obtain the ground clearance height, measure the vertical distance from the ground to the bottom of the exterior side surface (excluding tires and wheels) of the vehicle at the center of the pedestrian impact area.

(Ground clearance) is coded to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian contact through the side plane of the vehicle.

Code "150" (150 centimeters or more) is used when the ground clearance height is greater than or equal to 150 centimeters.

Code "999" (Unknown) is used when the ground clearance height cannot be determined and code "000" does not apply.

Variable Name: Side Bumper-Bottom Height

Element Values:

Code to the nearest centimeter.

000 No side contact
150 150 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

The side bumper-bottom height measurement is obtained when there is a pedestrian contact through the side plane of the vehicle.

The measurement obtained for the vehicle's bumper-bottom height is a pre-crash (undamaged) measurement. If the front bumper on the vehicle is relatively undamaged (not grossly distorted from this accident) it can be used to obtain this measurement.

To obtain the side bumper-bottom height, measure the vertical distance from the BOTTOM of the front bumper to the ground. This measurement is taken at the side plane of the front bumper on the side of the vehicle contacted by the pedestrian.

(Side bumper-bottom height) is coded to nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian contact through the side plane of the vehicle.

Code "150" (150 centimeters or more) is used when the side bumper-bottom height is greater than or equal to 150 centimeters.

Code "999" (Unknown) is used when the original undamaged height of the side bumper-bottom cannot be determined and code "000" does not apply.

Variable Name: Side Bumper-Top Height

Element Values:

Code to the nearest centimeter.

000 No side contact
150 150 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

The side bumper-top height measurement is obtained when there is a pedestrian contact through the side plane of the vehicle.

The measurement obtained for the vehicle's side bumper-top height is a pre-crash (undamaged) measurement. If the front bumper on the vehicle is relatively undamaged (not grossly distorted from this accident) it can be used to obtain this measurement.

To obtain the side bumper-top height, measure the vertical distance from the TOP of the front bumper to the ground. This measurement is taken at the side plane of the front bumper on the side of the vehicle contacted by the pedestrian.

(Side bumper-top height) is coded to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian contact through the side plane of the vehicle.

(Side bumper-top height) is coded to the nearest centimeter.

Code "150" (150 centimeters or more) is used when the side bumper-top height is greater than or equal to 150 centimeters.

Code "999" (Unknown) is used when the undamaged height of the side bumper-top cannot be determined and code "000" does not apply.

Variable Name: Centerline of Wheel

Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
150 150 centimeters or more
999 Unknown

Source: Vehicle Inspection

Remarks:

The centerline of wheel measurement is obtained when there is a pedestrian contact through the side plane of the vehicle.

The centerline of wheel measurement is the undamaged vertical distance from the ground to the centerline of the undamaged front wheel/tire on the side of the vehicle contacted by the pedestrian.

(Centerline of wheel) height is measured to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian contact through the side plane of the vehicle.

Code "150" (150 centimeters or more) is used when the vertical measurement from the ground to the center of the front wheel is 150 centimeters or more.

Code "999" (Unknown) is used when the vertical measurement from the ground to the centerline of wheel cannot be determined and code "000" does not apply.

Variable Name: Top of Tire

Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
200 200 centimeters or more
999 Unknown

Source: Vehicle Inspection

Remarks:

The Top of wheel measurement is obtained when there is a pedestrian contact through the side plane of the vehicle.

The top of wheel measurement is the undamaged vertical height from the ground to the top of the undamaged front tire on the side of the vehicle contacted by the pedestrian.

(Top of tire) height is measured to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian contact through the side plane of the vehicle.

Code "200" (200 centimeters or more) is used when the vertical height from the ground to the top of the front tire is 200 centimeters or more.

Code "999" (Unknown) is used when the height of the front tire cannot be determined and code "000" does not apply.

Variable Name: Top of Wheel Well Opening

Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
250 250 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

The top of wheel well opening measurement is obtained when there is a pedestrian contact through the side plane of the vehicle.

The top of wheel well opening measurement is the vertical distance from the ground to the highest wheel well opening point. The measurement obtained for the vehicle's top of wheel well opening is a pre-crash (undamaged) measurement. If the front wheel well opening is relatively undamaged (not grossly distorted from this accident) it can be used to obtain this measurement.

(Top of wheel well opening) height is measured to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian contact through the side plane of the vehicle.

Code "250" (250 centimeters or more) is used when the top of wheel well opening height is 250 centimeters or more.

Code "999" (Unknown) is used when the top of wheel well opening height cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV32

Variable Name: Bottom of A-Pillar at Windshield

Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
200 250 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the vertical distance from the ground to the bottom of the A-pillar at the windshield.

(Bottom of A-pillar at windshield) height is coded to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian contact through the side plane of the vehicle.

Code "250" (250 centimeters or more) is used when the vertical distance from the ground to the bottom of the A-pillar at the windshield is 250 centimeters or more.

Code "999" (Unknown) is used when the bottom of A-pillar height cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV33

Variable Name: Top of A-Pillar at Windshield

Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
300 300 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the vertical distance from the ground to the top of the A-pillar at the windshield.

(Top of A-pillar at windshield) height is coded to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian contact through the side plane of the vehicle.

Code "300" (300 centimeters or more) is used when the vertical distance from the ground to the top of the A-pillar at the windshield is 300 centimeters or more.

Code "999" (Unknown) is used when the vertical distance from the ground to the top of the A-pillar at the windshield cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV34

Variable Name: Top of Side View Mirror

Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
300 300 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the vertical distance from the ground to the top of the side view mirror.

(Top of side view mirror) height is coded to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian contact through the side plane of the vehicle.

Code "300" (300 centimeters or more) is used when the vertical height from the ground to the top of the side view mirror is 300 centimeters or more.

Code "999" (Unknown) is used when the vertical height from the ground to the top of the side mirror cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV35

Variable Name: Centerline to A-Pillar at Bottom of Windshield

Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
250 250 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the lateral (i.e., parallel to both the ground and the lateral axis of the vehicle) distance from the longitudinal centerline of the vehicle to the CENTER of the A-pillar at the bottom of the windshield.

(Centerline to A-pillar at bottom of windshield) measurements are coded to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian contact through the side plane of the vehicle.

Code "250" (250 centimeters or more) is used when the lateral distance from the longitudinal centerline of the vehicle to the A-pillar at the bottom of the windshield is 250 centimeters or more.

Code "999" (Unknown) is used when the lateral distance from the longitudinal centerline of the vehicle to the A-pillar at the bottom of the windshield cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV36

Variable Name: Centerline to A-Pillar at Top of Windshield

Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
250 250 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the lateral (i.e., parallel to both the ground and the lateral axis of the vehicle) distance from the longitudinal centerline of the vehicle to the CENTER of the A-pillar along the top of the windshield glass.

(Centerline to A-pillar at top of windshield) measurements are coded to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian contact through the side plane of the vehicle.

Code "250" (250 centimeters or more) is used when the lateral distance from the longitudinal centerline of the vehicle to the A-pillar at the bottom of the windshield is 250 centimeters or more.

Code "999" (Unknown) is used when the lateral distance from the longitudinal centerline of the vehicle to the A-pillar at the bottom of the windshield cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV37

Variable Name: Centerline to Maximum Side View Mirror Protrusion

Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
300 300 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the lateral (i.e., parallel to both the ground and the lateral axis of the vehicle) distance from the longitudinal centerline of the vehicle to the maximum side view mirror protrusion.

(Centerline to maximum side view mirror protrusion) measurements are coded to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian contact through the side plane of the vehicle.

Code "300" (300 centimeters or more) is used when the lateral distance from the longitudinal centerline of the vehicle to the maximum side mirror protrusion is 300 centimeters or more.

Code "999" (Unknown) is used when the lateral distance from the longitudinal centerline of the vehicle to the maximum side mirror protrusion cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV38

Variable Name: Ground to Side / Top Transition

Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
400 400 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the continuous distance, following the contour of the vehicle, from the ground or road surface, through the side plane of the vehicle, to the transition point between the side and top surfaces of the vehicle. The measurement is taken at the center of the pedestrian impact area. Accidents where there is no pedestrian impact through the side plane of the vehicle are coded "000" - no side contact. (See figure under PEV41, Ground to Head Contact, below for diagram of technique for front wrap measurements. The same principle applies for side wrap distances except the measurement is taken through the side plane).

(Ground to side to top transition) measurements are coded to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian impact through the side plane of the vehicle.

Code "400" (400 centimeters or more) is used when the measurement from the ground to the transition point between the side and top surfaces of the vehicle is 400 centimeters or more.

Code "999" (Unknown) is used when the distance from the ground to the transition point between the side and top surfaces of the vehicle cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV39

Variable Name: Ground to Hood Edge

Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
500 500 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the continuous distance, following the contour of the vehicle, from the ground or road surface to the nearest longitudinal hood edge. The measurement is taken at the center of the pedestrian impact area. Accidents where there is no pedestrian impact through the side plane of the vehicle are coded "000" - no side contact. (See figure under PEV41, Ground to Head Contact, below for diagram of technique for front wrap measurements. The same principle applies for side wrap distances except the measurement is taken through the side plane).

(Ground to hood edge at contact) measurements are coded to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian impact through the side plane of the vehicle.

Code "500" (500 centimeters or more) is used when the measurement from the ground to nearest longitudinal hood edge of the vehicle is 500 centimeters or more.

Code "999" (Unknown) is used when the measurement from the ground to the nearest longitudinal hood edge cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV40

Variable Name: Ground to Centerline of Hood

Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
700 700 centimeters or more
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the continuous distance, following the contour of the vehicle, from the ground or road surface to the longitudinal centerline of the hood. The measurement is taken at the center of the pedestrian impact area. Accidents where there is no pedestrian impact through the side plane of the vehicle are coded "000" - no side contact. (See figure under PEV41, Ground to Head Contact, below for diagram of technique for front wrap measurements. The same principle applies for side wrap distances except the measurement is taken through the side plane).

(Ground to centerline of hood) measurements are coded to the nearest centimeter.

Code "000" (No side contact) is used when there is no pedestrian impact through the side plane of the vehicle.

Code "700" (700 centimeters or more) is used when the measurement from the ground to the longitudinal centerline of the hood is 700 centimeters or more.

Code "999" (Unknown) is used when the measurement from the ground to the longitudinal centerline of the hood cannot be determined and code "000" does not apply.

PEDESTRIAN EXTERIOR VEHICLE FORM
PEV41

Variable Name: Ground to Head Contact

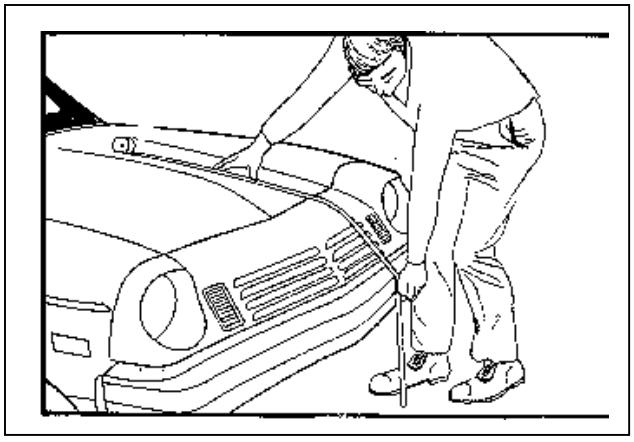
Element Values:

Code actual measurement to the nearest centimeter.
000 No side contact
800 800 centimeters or more
998 No head contact
999 Unknown

Source: Vehicle inspection

Remarks:

Measure the continuous distance, following the contour of the vehicle, from the ground or road surface to the contact point of the pedestrian's head. If there is more than one pedestrian head contact through the side plane of the vehicle, measure the first head contact. Accidents where there is no pedestrian impact through the side plane are coded "000" - no side contact. (See the figure below for a diagram of the technique for front impacts--the same principle applies for side wrap distances except the measurement is taken through the side plane instead of the front plane).



(Ground to head contact) measurements are coded to the nearest centimeter.

Code "000" (No side contact) is used when the pedestrian does not impact the vehicle through the side plane or when the pedestrian's head does not contact the vehicle.

Code "800" (800 centimeters or more) is used when the ground to head contact measurement is 800 centimeters or more.

Code "998" (No head contact) is used when there is a pedestrian impact through the side plane of the vehicle, however the pedestrian’s head did not contact the vehicle.

Code "999" (Unknown) is used when the ground to head contact distance cannot be determined and code "000" does not apply.

INTERVIEW FORM

NOTE: This is a general outline of interview data needed from pedestrians, drivers, and witnesses.

Before completing the Interview Form make sure that the interviewee(s) have been clearly identified, including their relationship to the vehicle's driver. For example, "driver" is sufficient. On the other hand, "other occupant" needs further clarification if three or more persons were present in the vehicle. In general, if a surrogate is used, then both name and relationship must be indicated.

The Interview Form is designed to obtain accident, vehicle, and pedestrian data in an efficient and organized manner. The interviewer is encouraged to use this form as a guide for conducting the interview. It is understood that this interview structure may not meet the style of every NASS interviewer or attempt to meet all contingencies presented by interviewees. The interviewer will have the option of asking questions in a different order to successfully complete the requirements of the interview. However, this form should be followed in the order presented when possible to avoid overlooking data items.

Interview data are required for all drivers and pedestrians.

Pedestrian or Driver's Description of Accident Events

Let the pedestrian, driver, or other interviewee tell you what happened. Refrain from interrupting the interviewee's train-of-thought. Let the interviewee finish, then return with follow-up questions to areas of the accident sequence that are unclear.

Write legibly. Record faithfully the interviewee's response even when it disagrees with information and/or evidence that you have already acquired (e.g., from the vehicle and/or scene inspection).

Query the interviewee on all pedestrian-related issues. If this interviewee's vehicle was involved in the accident sequence, then interview so that particular attention is paid to accident details which would help you identify both its impact and final rest locations. Although it is desirable to locate both impact and final rest exactly, it is not necessary. The reasonable approximation of these locations based on accident dynamics and scene evidence enables you to perform calculations to determine an impact speed, and report the confidence level of the generated speed. Drivers generally know their pre-impact location, intended movements, and pre-crash avoidance maneuver. They can sometimes locate their vehicle at final rest relative to fixed objects in the environment (e.g., curb, tree, pole, etc.). Police measurements can also be used to approximate the vehicle's final rest position.

Immediately following the interview, summarize on the Interview Form interviewee comments obtained over the course of the interview which were not provided during the initial uninterrupted statement and were not part of any itemized questions on the Interview Form. Sufficient space has been provided under the Driver's Description of Accident Events section to accommodate additional writing. If additional space is required, use as many Interview Forms sheets as required.

INTERVIEW FORM (Cont'd.)

Occupant's Description of Accident Events

Space is provided to record statements obtained from the occupant or other interviewees. As noted by the layout of the Interview Form, more emphasis is placed upon statements obtained from the driver. The researcher should record as much information from the occupant as possible when the driver is not readily available. However, an appointment should be made to contact the driver for a follow-up interview.

Accident Diagram

Although the use of this diagram is optional, it can be of particular help during an in-person interview. Using your knowledge of the scene, you can pre-sketch the scene on this page. During the interview, you may confirm with the interviewee the accuracy of your sketch while simultaneously refreshing the interviewee's recollection of the scene by means of your visual aid. In addition, you may also assist the interviewee in recalling and reporting the accident sequence by using miniature vehicles (e.g., Matchbox) on the sketch. Have the interviewee describe or show you how the vehicle(s) moved during the accident. This technique may sometimes reveal new insights into the accident dynamics. In addition, you may be able to obtain a good locational fix regarding the vehicle's final rest position. The ability to visualize the process may stimulate recollection.

Accident Data Questions

Specific questions regarding accident dynamics and pedestrian movement are also required. In the Accident Data Section the following questions must be asked of the interviewee:

- Which direction the vehicle was traveling? What direction was it facing at impact and at rest?
- What travel lane or location was the vehicle in prior to the crash, at the time of impact, and at final rest?
- Estimated travel speed before the crash? And estimated speed at the time of impact?
- Driver's intended action (i.e., going straight, turning left, slowing, etc.)?
- Avoidance actions (if applicable) by the driver?
- Number of pedestrians, vehicles and/or objects contacted during the accident sequence?

INTERVIEW FORM (Cont'd.)

Pedestrian Related Information

The driver, or other occupants, can sometimes provide information relative to the pedestrian's attitude, motion, action, orientation, avoidance maneuver, vehicle/pedestrian interaction, and the pedestrian final rest position. Question the driver or occupants carefully to determine, confirm, or abandon any hypothesis.

APPENDICES

- Uniform Symbols for Scene Markings
- Uniform Symbols for Accident Diagramming

UNIFORM SYMBOLS FOR SCENE MARKING

- Mark to show beginning of rear skidmarks. Arrow shows direction of travel. Number indicates identity of vehicle involved.

- Mark to show beginning of front skidmarks. Arrow shows direction of travel. Number indicates identity of vehicle involved.

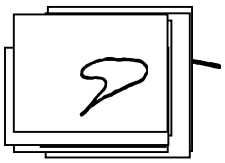
- Position of rear wheels at impact; | Notes end of post-impact skid

- Position of front wheels at impact; | Notes end of post-impact skid.

- Rear wheel at final position

- Front wheel at final position

- Position of impact point 1-First impact
  2-Second impact



Indicative mark for scratches

- Indicative mark for gouges

- Indicative mark for scuffs

- Indicative mark for centripetal curve scuffs

- Indicative mark for rotating tire print

- Indicative mark for puddle (liquids)

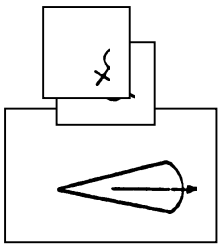
- Indicative mark for puddle with run-off

(Initials--G for gasoline; M for motor oil; R for radiator coolant; T for transmission oil; B for battery acid; F for brake fluid; W for water; and H for blood--to be inserted inside the circles for further identification).

- Indicative mark for debris; Arrow to show direction of force

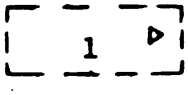
- Male body (arrow pointing toward feet)

- Female body (cross indicating direction of feet)

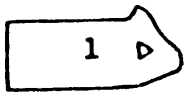


UNIFORM SYMBOLS FOR ACCIDENT DIAGRAMMING

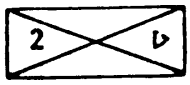
Vehicle and Pedestrian Symbols



Automobile (pre-impact or at-impact position) Exception: draw solid outline if stopped at-impact.

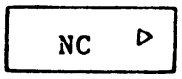


Automobile (final rest position)--showing damaged area

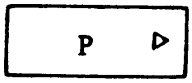


Automobile (final position on its top)

Automobile (final position on its left side) (reverse for right side)

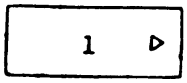


Automobile involved in the accident as a temporary environmental factor, but not physically involved in the collision. (Noncontact Unit)



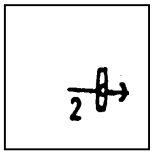
Parked automobile not struck (give it a number if it was struck)

Vehicle in which a witness was an occupant



Truck (Panel, Van, Dump, etc.)

Truck tractor and semi-trailer



Utility trailer

Bus or streetcar

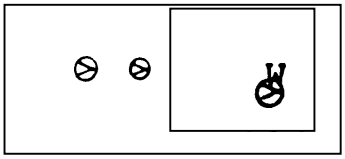
Motorcyclist: bicyclist (handlebars are curved opposite the direction of travel)

Pedestrian [pointer oriented to show direction of movement and dot spacing to show rate of movement (i.e., 1 meter apart walking and 2 meters apart running)]

Final position of body

Pedestrian who witnessed accident

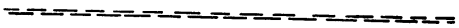
All symbols referring to colliding vehicles (plus Noncontact, Witness and Parked vehicles) are to have a broken outline if they are moving at the point in which they are depicted; the outline should be solid if the vehicle is stopped where depicted, or at final rest. Be careful to insure proper placement (location) or orientation on the diagram.



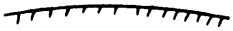
UNIFORM SYMBOLS FOR ACCIDENT DIAGRAMMING -- Continued

Scene Road Marking

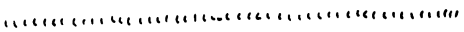
Point of impact



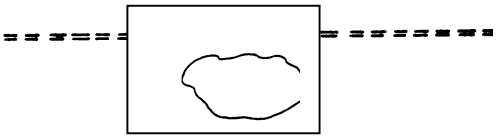
Skidmarks



Centripetal curve scuffs



Tire scuff marks



Rotating tire print

Gouges

Scratches

Liquids (puddle and run-off)

Debris (funnel out away from point of impact to show direction of force)

Any other accident-induced markings, components from vehicles, etc. should be shown in their approximate location and a reasonable likeness sketched on the diagram. However, do not clutter diagram; make an additional diagram, if necessary.

Pavement edge

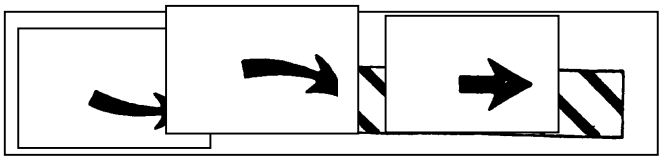
Shoulder edge line (non-formal)

Shoulder edge line (formal)

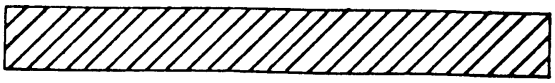
Broken center or lane lines (4.6 meters long - 7.6 meters apart)

Broken center line with No-Passing line

Double yellow center lines



Raised island and Grass median



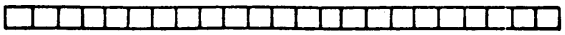
Painted median

Curb

Paved shoulders with diagonal lines

Turn arrows

UNIFORM SYMBOLS FOR ACCIDENT DIAGRAMMING -- Continued



Wall

Bridge abutment and railing

Guardrail

Topographical Highway & Environmental Symbols (Cont'd.)

Fence

Railroad tracks

Embankment (arrows show "DOWN")

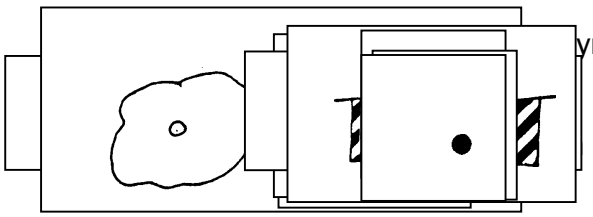
Shrubbery - hedges

Trees (draw trunk and perimeter of foliage to approximate size)

Traffic signal

Flashing light

Traffic signs back to back



ymbols)

length may change with scene)

• Street light without arm

Public utility pole

Building

Fire Hydrant

Street Sign

Delineator post

All crosswalks, road surface symbols and other relevant markings should be depicted and drawn to approximate scale on the diagram as much as possible.