U.S. DEPARTMENT
OF TRANSPORTATION

National Highway
Traffic Safety
Administration

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National Automotive Sampling System (NASS)
General Estimates System (GES)

Analytical User's Manual
1988-1997

NASS GES Analytical User's Manual
1988 - 1997

U. S. Department of Transportation
National Highway Traffic Safety Administration
National Center for Statistics and Analysis
Washington, D.C. 20590

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Introduction

One of the primary objectives of the National Highway Traffic Safety Administration (NHTSA) is to reduce the staggering human toll and property damage that motor vehicle traffic crashes impose on our society. Crashes each year result in thousands of lives lost, hundreds of thousands of injured victims, and billions of dollars in property damage. Good data are required to support the development, implementation, and assessment of highway safety programs aimed at reducing this toll. NHTSA uses data from many sources, including the National Automotive Sampling System General Estimates System (GES) which began operation in 1988. Providing data about all types of crashes involving all types of vehicles, the GES is used to identify highway safety problems areas, provide a basis for regulatory and consumer information initiatives, and form the basis for cost and benefit analyses of highway safety initiatives.

The GES obtains its data from a nationally representative probability sample selected from the estimated 6.8 million police-reported crashes which occur annually. These crashes include those which result in a fatality or injury and those involving major property damage. Although various sources suggest that there are many more crashes that are not reported to the police, the majority of these unreported crashes involve only minor property damage and no significant personal injury. By restricting attention to police-reported crashes, the GES concentrates on those crashes of greatest concern to the highway safety community and the general public.

This multi-year analytical user's manual provides documentation on variables that are contained in the GES and other useful information that will enable the users to become familiar the data system.

GES Operations

The GES is directed by the National Center for Statistics and Analysis, which is a component of Research and Development in NHTSA. The data are obtained by GES data collectors in 60 geographic sites across the United States. These data collectors make weekly, biweekly, or monthly visits to approximately 400 police agencies within the 60 sites. During the visit, the data collectors list all police traffic crash reports (PARs) not previously listed and then select a sample of the listed PARs. The collector obtains copies of these selected PARs and sends them to a central contractor for coding. Trained personnel interpret and code data directly from the PARs onto an electronic file. To protect individual privacy, no personal information such as names, addresses, specific crash location, etc., is coded.

During data coding, the data are checked for validity and consistency. After the data file is created, quality checks are performed on the data. When these are completed, the electronic data are made available to governments, researchers, motor vehicle manufacturers, insurance companies, and others. The GES data are also used to respond to requests from the international and national highway safety communities, state and local government, the Congress, federal agencies, research organizations, industry, the media, and private citizens. Currently, the 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, and 1997 data files are available. For information on obtaining a copy of any of these data files, contact:

> Marjorie Saccoccio, DTS-44
> DOT/Transportation Systems Center
> Kendall Square
> Cambridge, MA 02142

GES Sample Design

The police accident reports (PARs) from which GES data are coded are a probability sample of police-reported crashes that occurred in the United States. Since each crash that occurred in the survey year had a chance of being selected, the design makes it possible to compute not only national estimates but also probable errors associated with the estimates.

The selection of the sample of PARs for the GES was accomplished in three stages. The first stage is a sample of geographic areas, called Primary Sampling Units (PSUs), from across the United States. A PSU is either a central city, a county surrounding a central city, an entire county, or a group of contiguous counties. The U.S. was divided into 1,195 of these PSUs. The PSUs were then grouped into 12 categories according to the following geographic regions and types of PSUs:

➤   Geographic Region: Northeast, South, Central, and West

➤   Type: Large Central City, Large Suburban Area, and All others.

The second stage of the design is a sample of police jurisdictions within the geographic areas. In most areas, the number of police jurisdictions is more than can reasonably be visited by a data collector. All jurisdictions within a PSU were enumerated and the number of crashes investigated by each was determined. A probability sample of jurisdictions within each PSU was selected with probability proportional to the number of crashes investigated, i.e., as the number of crashes investigated increased, the probability of selecting that jurisdiction increased. An average of six or seven police jurisdictions were selected within each area.

The third and final stage is the selection of PARs within the sampled police jurisdictions. The PARs are grouped, or stratified, into one of four groups by the data collector:

➤   Group 1:   All crashes involving a towed passenger vehicle, i.e., a passenger car, sport utility vehicle, pickup truck or van, but no medium or heavy trucks;

➤   Group 2:   All crashes involving a medium or heavy truck and where at least one passenger vehicle was towed or an involved person was injured;

➤   Group 3:   All crashes not involving a towed passenger vehicle or medium or heavy truck, but one in which an involved person was injured; and,

➤   Group 4:   All other crashes.

Within each of these groups a systematic sample of crashes is selected, based on different sampling ratios. In some very large police jurisdictions the number of police investigated crashes is too many for reasonable listing. In these jurisdictions the data collector will list a subsample of PARs, with those listed depending on the PAR number.

The data collector obtains copies of the selected PARs and sends them to the NASS zone centers for quality review and processing. The zone center forwards the selected PARs to the data processing contractor, who extracts the required data, codes it into a common format, and creates an electronic file. In 1997 approximately 55,000 PARs were sampled and coded.

A thorough discussion of the sample design can be found in the *National Accident Sampling System General Estimates Technical Note*, DOT HS 807 796. For a copy, write:

Department of Transportation
National Highway Traffic Safety Administration
National Center for Statistics and Analysis, NRD-31
400 Seventh Street SW
Washington, D.C. 20590

GES SAS Files

Overview

Once the GES data are coded onto an electronic file, a Statistical Analysis System (SAS) data file is created. SAS is a software system for data analysis.

The SAS data file for GES consists of three individual data sets: the *Accident File, Vehicle/Driver File, and Person File*. The *Accident File* contains information describing environmental conditions and roadway characteristics at the time of the crash. The *Vehicle/Driver File* contains information describing the vehicles involved in the crash and their drivers. It includes information such as: make/model of the vehicle, model year of the vehicle, driver maneuvered to avoid, and driver distracted by. The *Person File* contains general information describing all persons involved in the crash: drivers, passengers, pedestrians, pedalcyclists, and non-motorists. It includes information such as age, sex, and injury severity.

Using the SAS File

The following SAS program shows how to use the GES file. This program counts injured pedestrians by the severity of their injury and their age.

```
1       LIBNAME GES97 'path';
2       LIBNAME LIBRARY 'path';
3       DATA PEDES;
4          SET GES97.PERSON;
5          IF PER_TYPE = 5;
6
7       PROC FREQ;
8       TABLE AGE*INJ_SEV;
9       TITLE "PEDESTRIANS BY INJURY SEVERITY AND AGE";
10      RUN;
```

The LIBNAME statements in line 1 and 2 define the path where the GES97 data files and library are stored. These statements enable the computer to find the GES SAS data sets and to associate the GES formats with the variables in the data sets.

In line 3, the program creates a working data set called "PEDES". The data set name can be any 8 alphanumeric characters, "PEDES" was chosen to identify the members of the data set.

Line 4 identifies the original data set that the working data will be created from. The first part of "**GES97**.PERSON" refers back to the line 1. This should be the same as what follows the "LIBNAME" in line 1.

The second part of "GES97.**PERSON**" refers to the internal SAS name saved when the data set was created.

Line 5 keeps only pedestrian records. PER_TYPE = 5 are pedestrians. (See Person Type variable) Lines 7 through 9 produce the output. The PROC FREQ in line 7 counts the frequency of pedestrians by each age and injury severity combination for the just created data set. The TABLE statement in line 8 produces the table containing these frequencies. Line 9 adds a title to the produced table. In this case, the title is "PEDESTRIANS BY INJURY SEVERITY AND AGE".

Line 6 is not required, however, it was added to make the program easy-to-read. Similarly, lines 4 and 5 are indented to signify these lines are executed on the "PEDES" working data set, but do not need to be indented. Lines 8 and 9 are indented to indicate they refer to the "PROC FREQ" statement.

Understanding the GES Imputation Process

GES data are obtained either directly from an item on the PAR or by interpreting the information provided in the report through reviewing the crash diagram, the Officer's written summary of the crash, or combinations of variables on the PAR. Because of this interpretation, and because the police officer may not have entered some item of information or provide complete information, data can be missing. Two different statistical procedures are used on GES data to complete values for unknown data: univariate imputation and hot-deck imputation. A thorough discussion of the imputation procedures can be found in *Imputation in the NASS General Estimates System*, **DOT HS 807 985**. We are in the process of updating the imputation procedures and documentation. It will be available at a later date. For a copy of the existing documentation, write:

> Department of Transportation
> National Highway Traffic Safety Administration
> National Center for Statistics and Analysis, NRD-31
> 400 Seventh Street, S.W.
> Washington, D.C. 20590

The univariate imputation procedure was developed in SAS to randomly assign values to the unknowns in the same proportion as the known values for that one variable. For example, consider the variable *EJECTION*. The values might be:

No	**60**
Yes	**40**
Unknown	**5**
Total	**105**

The SAS univariate imputation program would assign values to the five unknown values in the following proportions:

No	**60/100**
Yes	**40/100**

The new variable, *EJECT_I* would have these values:

No	**63**
Yes	**42**
Total	**105**

Hot-deck imputation was also accomplished using SAS. Hot-decking replaces the unknown values for one variable using information from other correlated variables. For example, the hot-deck imputation program fro *SEX* used the following correlated variables: *AGE, HOUR, DAY OF WEEK, VIOLATIONS CHARGED, PERSON TYPE, SEATING POSITION, DRUG & ALCOHOL*

INVOLVEMENT, and NUMBER OF OCCUPANTS & VEHICLES INVOLVED. When *SEX* was unknown for a person record, the hot-deck program searches for another record that has a set of variables similar to the unknown sex record. When that record is found, the *SEX* value is used for the unknown *SEX* record.

Imputed variables can be identified by the "_H" or "_I" in their labels. For example, hot-deck imputed *Body Type* is labeled *BDYTYP_H* and univariate imputed *EJECTION* is labeled *EJECT_I*.

All original variables still exist on the data files. The analyst can choose to use the original variables with unknowns or the univariate/hot-deck imputed variables without unknowns.

National Estimates

Since the GES data are obtained from a probability sample of police-reported traffic crashes, national estimates can be made from these data. In order to calculate estimates of national level crash characteristics, data from each PAR on the file must be weighted. The national weight has been added to the file for each PAR and is called "WEIGHT". (Technically, this weight is the product of the inverse of the probabilities of selection at each of the three stages in the sampling process.)

The variable called WEIGHT that produces the national estimates is available on each of the three levels.

The example from p. 5 would become:

```
1          LIBNAME GES97 'path';
2          LIBNAME LIBRARY 'path';
3          DATA PER;
4              SET GES97.PERSON (KEEP=PER_TYPE AGE INJ_SEV WEIGHT);
5              IF PER_TYPE = 5;
6
7          PROC FREQ;
8              TABLE AGE * INJ_SEV;
8.1            WEIGHT WEIGHT;
9              TITLE "PEDESTRIAN INJURY SEVERITY BY AGE";
10             RUN;
```

Line 8.1 produces the national estimates.

The national estimates produced from GES data may differ from the true values, because they are based on a probability sample of crashes and not a census of all crashes. The size of these differences may vary depending on which sample of crashes was selected. The standard error of an estimate is a measure of the precision or reliability with which an estimate from this particular GES sample approximates the results of a census.

It is impractical to compute a standard error for each national estimate crash characteristic. Instead, generalized standard errors for estimates of totals are provided in Appendix D.

For more information on GES estimation and the reliability of these estimates, refer to the *National Accident Sampling System General Estimates System Technical Note*, DOT HS 807 796.

GES Variable List

Listed below are all variables that are contained in the GES data files. From 1988 through the present, quite a few changes were made to the data files. These changes include modifications, deletions, and additions of variables. The asterisk (*) denotes the variables that changed within the 1988 through 1997 operation of the GES. For more detailed information, refer to the *GES Variables and Definitions* section of this manual.

ALL LEVELS
(Appears on the Accident, Vehicle, & Person Files)

Variable Description	SAS Name	Page
Case Number	CASENUM	15
Primary Sampling Unit	PSU	15
Stratum	STRATUM	15
Region of the Country	REGION	15
Case Weight	WEIGHT	15
Police Jurisdiction	PJ	15

ACCIDENT FILE

	Variable Description	SAS Name	Page
A1	Month of the Crash	MONTH	16
A1B	Year of the Crash	YEAR	16
A1C	Day of the Week	WEEKDAY	16
A2	Hour of the Crash	HOUR	17
A2A	Minute of the Crash	MINUTE	17
A3	Number of Vehicles Involved	VEH_INVL	18
A3A	Number of Vehicles Coded*	VEH_COD	18
A3B	Number of Persons Involved*	PER_INVL	18
A3C	Number of Persons Coded*	PER_COD	18
A4	Number of Non-Motorists Involved	NON_INVL	19
A4A	Number of Non-Motorists Coded*	NON_COD	19
A5	Land Use	LAND_USE	20
A5A	Percentage Rural	RUR_URB	20
A6	First Harmful Event*	EVENT1	21
A7	Manner of Collision	MAN_COL	22
A8	Interstate Highway	INT_HWY	22
A9	Relation to Junction*	REL_JCT	23
A10	Relation to Roadway	REL_RWY	24
A11	Trafficway Flow	TRAF_WAY	24
A12	Number of Travel Lanes	NUM_LAN	24

VEHICLE/DRIVER FILE

PERSON FILE

GES Variables and Definitions

The following list includes GES variables and their definitions from the 1988 through 1997 data files. Changes are identified by the appropriate year. The variable definition may have notes attached to help clarify the changes. All variables are numeric with the exception of V7 (VIN). The SAS variable names appear in parentheses "( )". If the SAS variables have associated formats, then the format name will appear in brackets "[ ]".

These variables appear on each of the three data files:

GES Case Number (CASENUM): This variable is a unique number assigned to each crash. It appears on each of the three files and is used to merge the various information from the files together.

Primary Sampling Unit (PSU): There are 60 possible values ranging from 1 to 97. A PSU is either a large central city, a county surrounding a city, or a group of counties.

Police Jurisdiction (PJ): The number (range 1 through 120) of the police jurisdiction from which the PAR was originally sampled.

Region of the Country (REGION): Indicates the region of the country where the crash occurred. It is based on the primary sampling unit and is defined as follows:

1 = Northeast (PA, NJ, NY, NH, VT, RI, MA, ME, CT)
2 = Midwest (OH, IN, IL, MI, WI, MN, ND, SD, NE, IA, MO, KS)
3 = South (MD, DE, DC, WV, VA, KY, TN, NC, SC, GA, FL, AL, MS, LA, AR, OK, TX)
4 = West (MT, ID, WA, OR, CA, NV, NM, AZ, UT, CO, WY, AK, HI)

Stratum (STRATUM): The number (1 through 4) of the column in which the PAR was originally listed on the Stratification Record.

GES Case Weight (WEIGHT): This is the variable used to produce national estimates from the data.

ACCIDENT FILE

A1   Month of the Crash

Definition: The month in which the crash occurred.

1988 - Later

SAS Name: (MONTH) [A1Z.]

> 1 = January
> 2 = February
> 3 = March
> 4 = April
> 5 = May
> 6 = June
> 7 = July
> 8 = August
> 9 = September
> 10 = October
> 11 = November
> 12 = December

A1B   Year of the Crash

Definition: The last two digits of the year in which the crash occurred.

1988 - Later

SAS Name: (YEAR)

A1C   Day of Week

Definition: The day of the week in which the crash occurred. This variable is derived from the SAS "Weekday" function. The SAS "Weekday" function returns the day of the week from a date.

1988 - Later

SAS Name: (WEEKDAY) [A1CZ.]

> 1 = Sunday
> 2 = Monday
> 3 = Tuesday
> 4 = Wednesday
> 5 = Thursday
> 6 = Friday
> 7 = Saturday
> 9 = Unknown

A1CI   **Univariate Imputed Day of Week**

Definition: This imputed variable have the same definition and element values as ***Day of Week***, excluding value "9" for unknown day of week. (See ***Understanding the GES Imputation Process*** section of this manual)

1988 - Later

SAS Name: (WKDY_I) [A1CZ.]

A2   **Hour of the Crash**

Definition: The hour in which the crash occurred. Military time is used. Noon is coded as "12" and midnight is coded as "24". But for one minute after midnight to fifty-nine minutes after midnight the hour is coded as "00". "99" is coded for unknown hour.

1988 - Later

SAS Name: (HOUR)

A2I   **Univariate Imputed Hour of the Crash**

Definition: This imputed variable has the same definition and element values as ***Hour of the Crash***, excluding value "99" for unknown hour. (See ***Understanding the GES Imputation Process*** section of this manual.)

1988 - Later

SAS Name: (HOUR_I)

A2A   **Minute of the Crash**

Definition: The minute in which the crash occurred. Possible values range from "00" to "59", with a value of "99" for unknown.

1988 - Later

SAS Name: (MINUTE)

A2AI   **Univariate Imputed Minute of the Crash**

Definition: This imputed variable has the same definition and element values as ***Minute of the Crash***, excluding value "99" for unknown minutes. (See ***Understanding the GES Imputation Process*** section.)

1988 - Later

SAS Name: (MINUTE_I)

A3   **Number of Vehicles Involved**

Definition: The number of vehicles involved in the crash. This number includes hit and run vehicles and phantom vehicles (a vehicle which may have caused the crash but left the scene).

1988 - Later

SAS Name: (VEH̲INVL)

A3A   **Number of Vehicles Coded***

Definition: This variable is calculated by counting the number of vehicles listed in the vehicle file for a crash. This number may be different from the number of vehicles involved (A3) because information on phantom vehicles is not included in the vehicle file. In most cases, information on phantom vehicles is not available on the PAR. (*** Note: This variable was dropped from the accident file in 1990.**)

1988 - 1989

SAS Name: (VEH̲COD)

A3B   **Number of Persons Involved***

Definition: The number of persons involved in the crash. A value "99" represents unknown number of persons involved. A value "0" is coded when there are no persons involved in the crash. For example, if a parked vehicle slips into gear, rolls down a driveway and hits a vehicle parked on the street, the number of persons involved is "0". (*** Note: This variable was dropped from the accident file in 1990.**)

1988 - 1989

SAS Name: (PER̲INVL)

A3C   **Number of Persons Coded***

Definition: This variable is derived by calculating the number of listed persons in the person file for the crash. A value "0" is coded when there are no persons coded in the crash. This number may be less than number of persons involved because some states report only the number of non-injured occupants, but no further information. (*** Note: This variable was dropped from the accident file in 1990.**)

1988 - 1989

SAS Name: (PER̲COD)

A4   **Number of Non-Motorists Involved**

Definition: The number of non-motorists involved in the crash. A non-motorist is defined as a pedestrian, a cyclist, an occupant of a motor vehicle not in transport, a person riding a horse, or an occupant of animal drawn conveyance. A value "00" is coded if there were no non-motorists involved.

1988 - Later

SAS Name: (NON_INVL)

A4A   **Number of Non-Motorists Coded***

Definition: This variable is derived by counting the number of listed non-motorists in the person file for the crash. A value "0" is coded when there were no non-motorists coded in the crash. **(* Note: This variable was dropped from the accident file in 1990.)**

1988 - 1989

SAS Name: (NON_COD)

A5   **Land Use***

Definition: This variable is based on the police jurisdiction. The coder identifies the name of the city or town where the crash occurred. Depending on the population of the city or town, the coder classifies the city or town accordingly. Population figures were taken from the 1980 County and City Data Book published by the Census. If city or town population is less the 25,000 or the population was not listed in the County/City Book, then "8" is coded. **(*Note: In 1995, population figures were taken from the 1994 County and City Data Book published by the Census.)**

1988 - Later

SAS Name: (LAND_USE) [A5Z.]

> 1 = Within Area of Population 25,000-50,000
> 2 = Within Area of Population 50,000-100,000
> 3 = Within Area of Population 100,000+
> 8 = Other Area
> 9 = Unknown

A5A   **Percentage Rural***

Definition: This variable is computer generated based on 1980 Census data and the primary sampling unit (PSU). **(*Note: In 1995, population figures were taken from the 1994 County and City Data Book published by the Census. In 1997, this variable was dropped from the accident file.)**

1988 - 1996

SAS Name: (RUR_URB) [A5AZ.]

> 0 = Rural
> 1 = 10 % of Area is Rural
> 2 = 20 % of Area is Rural
> 3 = 30 % of Area is Rural
> 4 = 40 % of Area is Rural
> 5 = 50 % of Area is Rural
> 6 = 60 % of Area is Rural
> 7 = 70 % of Area is Rural
> 8 = 80 % of Area is Rural
> 9 = 90 % of Area is Rural
> 10 = 100 % of Area is Rural

A6   **First Harmful Event***

Definition: Indicates the first property damaging or injury producing event in the crash. (***Note: In 1990, element value "97"** *Other - No Details* **has been deleted. In 1992, element value "50"** *Pavement Surface Irregularity* **has been added and element value numbering has been modified. Element value "4"** *Gas Inhalation,* **has been deleted.**)

SAS Name: (EVENT1) [A6NZ.]

1988 - 1991	**1992 - Later**
Noncollision	*Noncollision*
1 = Rollover/Overturn	1 = Rollover/Overturn
2 = Fire/Explosion	2 = Fire/Explosion
3 = Immersion	3 = Immersion
4 = Gas Inhalation	
5 = Jackknife	5 = Jackknife
6 = Noncollision Injury	6 = Noncollision Injury
(Injured in Vehicle, or Fell From Veh.)	(Injured in Vehicle, or Fell From Veh.)
8 = Other Noncollision	8 = Other Noncollision
9 = Noncollision - No Details	9 = Noncollision - No Details
10 = Thrown or Falling Object	10 = Thrown or Falling Object
Collision with Object Not Fixed	*Collision with Object Not Fixed*
21 = Pedestrian	21 = Pedestrian
22 = Cycle or Cyclist (Pedalcyclist or Pedalcycle)	22 = Cycle or Cyclist (Pedalcyclist or Pedalcycle)
23 = Railway Train	23 = Railway Train
24 = Animal	24 = Animal
25 = Motor Vehicle in Transport	25 = Motor Vehicle in Transport
26 = Parked Motor Vehicle (or Other M.V. Not in Transport)	26 = Parked Motor Vehicle (or Other M.V. Not in Transport)
27 = Other Type Non-Motorist	27 = Other Type Non-Motorist
28 = Other Object Not Fixed	28 = Other Object Not Fixed
29 = Object Not Fixed - No Details	29 = Object Not Fixed - No Details
Collision with Fixed Object	*Collision with Fixed Object*
31 = Ground	31 = Ground
32 = Building	32 = Building
33 = Impact Attenuator/Crash Cushion	33 = Impact Attenuator/Crash Cushion
34 = Bridge Structure (Bridge Pier/Abutment/Parapet End/Rail)	34 = Bridge Structure (Bridge Pier/Abutment/Parapet End/Rail)
35 = Guardrail	35 = Guardrail
36 = Concrete Traffic Barrier or Other Longitudinal Barrier Type	36 = Concrete Traffic Barrier or Other Longitudinal Barrier Type
37 = Post, Pole or Support (Sign Post, Utility Post)	37 = Post, Pole or Support (Sign Post, Utility Post)
38 = Culvert or Ditch	38 = Culvert or Ditch
39 = Curb	39 = Curb
40 = Embankment	40 = Embankment
41 = Fence	41 = Fence
42 = Wall	42 = Wall
43 = Fire Hydrant	43 = Fire Hydrant
44 = Shrubbery or Bush	44 = Shrubbery or Bush
45 = Tree	45 = Tree
46 = Boulder	46 = Boulder
	50 = Pavement Surface Irregularity (Ruts, Potholes, Grates,etc.)
48 = Other Fixed Object	58 = Other Fixed Object
49 = Fixed Object - No Details	59 = Fixed Object - No Details
Other/Unknown	
97 = Other - No Details (1988-1989 only)	
99 = Unknown	99 = Unknown

A6I   **Univariate Imputed First Harmful Event**

Definition: This imputed variable has the same definition as *First Harmful Event*, excluding value"99" for unknown first harmful event**.** (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (EVENT1_I) [A6NZ.]
.

A7   **Manner of Collision**

Definition: Indicates the orientation of the vehicles in a collision. If a non-collision, it is classified as such.

1988 - Later

SAS Name: (MAN_COL) [A7Z.]

    0 = Not Collision with Motor Vehicle in Transport
    1 = Rear-End
    2 = Head-On
    3 = Rear-to-Rear
    4 = Angle
    5 = Sideswipe, same direction
    6 = Sideswipe, opposite direction
    8 = Other
    9 = Unknown

A7I   **Univariate Imputed Manner of Collision**

Definition: This imputed variable has the same definition and element values as "*Manner of Collision*", excluding value "9" for unknown manner of collision. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (MANCOL_I) [A7Z.]

A8   **Interstate Highway**

Definition: Indicates whether or not the crash occurred on an interstate highway. Interstate highway is a Federal Highway Administration classification.

1988 - Later

SAS Name: (INT_HWY) [A8Z.]

    0 = No
    1 = Yes
    9 = Unknown

A9   Relation to Junction*

Definition: Indicates whether or not the location of the first harmful event occurred within or outside the boundaries of an interchange. (*** Note: In 1992, this variable has been modified into two categories:** *Non-Interchange Area* **and** *Interchange Area*. **Element value numbering has been modified. In 1995, two elements values were added: "06"** *On A Bridge (N) and "16" On A Bridge (I)*.)

SAS Name: (REL_JCT) [A9NZ.]

1988 - 1991	**1992 - Later**
	Non-interchange Area
0 = Non-Junction	00 = Non-Junction
1 = Intersection	01 = Intersection
2 = Intersection Related	02 = Intersection Related
3 = Interchange Area	03 = Driveway, Alley Access, Etc.
4 = Driveway, Alley Access, Etc.	04 = Entrance/Exit Ramp
5 = Entrance/Exit Ramp	05 = Rail Grade Crossing
6 = Rail Grade Crossing	06 = On A Bridge* (added in 1995)
8 = Other	08 = Other, Non-interchange
9 = Unknown	09 = Unknown, Non-interchange
	Interchange Area
	10 = Non-Junction
	11 = Intersection
	12 = Intersection Related
	13 = Driveway, Alley Access, Etc.
	14 = Entrance/Exit Ramp
	16 = On A Bridge* (added in 1995)
	18 = Other Location in Interchange
	19 = Unknown, Interchange Area
	99 = Unknown if Interchange

A9I   Univariate Imputed Relation to Junction

Definition: This imputed variable has the same definition and element values as *Relation to Junction*, excluding value 9, 19, 99 for unknown relation to junction. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (RELJCT_I) [A9NZ.]

A10   Relation to Roadway

Definition: Indicates the location of the first harmful event.

1988 - Later

SAS Name: (REL_RWY) [A10Z.]

    1 = On Roadway
    2 = On Shoulder or Parking Lane
    3 = Off Roadway/Shoulder/Parking Lane
    4 = On Median
    8 = Other
    9 = Unknown

A11   Trafficway Flow

Definition: Indicates whether or not the roadway was divided.

1988 - Later

SAS Name: (TRAF_WAY) [A11Z.]

    1 = Not Physically Divided (Two Way Trafficway)
    2 = Divided Highway (Median Strip, Barrier)
    3 = One Way Trafficway
    9 = Unknown

A12   Number of Travel Lanes

Definition: Indicates the number of lanes of travel. If a divided trafficway, the number of travel lanes are only lanes in the direction of travel of the first harmful event. If an undivided trafficway, the number of travel lanes are all the lanes regardless of their direction of travel.

1988 - Later

SAS Name: (NUM_LAN) [A12Z.]

    1 = One Lane
    2 = Two Lanes
    3 = Three Lanes
    4 = Four Lanes
    5 = Five Lanes
    6 = Six Lanes
    7 = Seven or More Lanes
    9 = Unknown

A13   **Roadway Alignment**

Definition: Horizontal alignment of roadway in the immediate vicinity of the first harmful event.

1988 - Later

SAS Name: (ALIGN) [A13Z.]

> 1 = Straight
> 2 = Curve
> 9 = Unknown

A13I   **Univariate Imputed Roadway Alignment**

Definition: This imputed variable has the same definition and element values as ***Roadway Alignment***, excluding value "9" for unknown roadway alignment.   (See ***Understanding the GES Imputation Process*** section of this manual.)

1988 - Later

SAS Name: (ALIGN_I) [A13Z.]

A14   **Roadway Profile**

Definition: Vertical alignment of roadway in the immediate vicinity of the first harmful event.

1988- Later

SAS Name: (PROFILE) [A14Z.]

> 1 = Level
> 2 = Grade
> 3 = Hillcrest
> 8 = Other
> 9 = Unknown

A14I   **Univariate Imputed Roadway Profile**

Definition: This imputed variable has the same as definition and element values as ***Roadway Profile***, excluding value "9" for unknown roadway profile. (See ***Understanding the GES Imputation Process*** section of this manual.)

1988- Later

SAS Name: (PROFIL_I) [A14Z.]

A15   Roadway Surface Condition

Definition: Condition of road surface at the time of the crash.

1988 - Later

SAS Name: (SUR_COND) [A15Z.]

> 1 = Dry
> 2 = Wet
> 3 = Snow or Slush
> 4 = Ice
> 5 = Sand, Dirt, Oil
> 8 = Other
> 9 = Unknown

A15I   Univariate Imputed Roadway Surface Condition

Definition: This imputed variable has the same definition and element values as ***Roadway Surface Condition***, excluding value "9" for unknown roadway surface condition. (See ***Understanding the GES Imputation Process*** section of this manual.)

1988 - Later

SAS Name: (SURCON_I) [A15Z.]

A16   Traffic Control Device*

Definition: Indicates whether or not a traffic control device was present and the type of traffic control device. **(* Note: In 1990, element values "2" and "3" have been deleted, element value "14" *Warning Signs* was separated out into its own category, and element value numbering has changed.)**

SAS Name: (TRAF_CON) [A16N.]

1988 - 1989	**1990 - Later**
00 = No Controls	00 = No Controls
Not at Railroad Grade Crossing	*Not at Railroad Grade Crossing*
Traffic Signals:	*Trafficway Traffic Signals:*
01 = Traffic Control Signal (on colors) w/o Pedes. Signal	01 = Traffic Control Signal (on colors)
02 = Traffic Control Signal (on colors) w/ Pedes. Signal	
03 = Traffic Control Signal (on colors) Pedes. Signal Not Known	
04 = Flashing Traffic Control Signal or Flashing Beacon	04 = Flashing Traffic Control Signal or Flashing Beacon
08 = Other Traffic Signal	08 = Other Traffic Signal
09 = Unknown Traffic Signal	09 = Unknown Traffic Signal
Regulatory, School Zone or Warning Signs:	*Regulatory, School Zone or Warning Signs:*
11 = Stop Sign	21 = Stop Sign
12 = Yield Sign	22 = Yield Sign
13 = School Zone Related Sign	23 = School Zone Related Sign
14 = Warning Sign	
18 = Other Sign	28 = Other Sign
19 = Unknown Sign	29 = Unknown Sign
	Warning Signs:
	40 = Advisory Speed Sign
	41 = Warning Sign For Road Conditions (Hill, Steep Grade, Etc.)
	42 = Warning Sign For Road Construction
	43 = Warning Sign For Environment/Traffic (Fog Ahead, Wind, Crash Ahead, Etc.)
	49 = Unknown Type Warning
Miscellaneous not at Railroad Crossing:	*Miscellaneous not at Railroad Crossing:*
21 = Officer, Crossing Guard, Flagman, etc	51 = Officer, Crossing Guard, Flagman, etc
At Railroad Grade Crossing:	*At Railroad Grade Crossing*:
31 = Active Devices (e.g., Gates, Flashing Lights, Traffic Signal)	61 = Active Devices (e.g., Gates, Flashing Lights, Traffic Signal)
32 = Passive Devices (e.g., Stop Sign, Cross Bucks)	62 = Passive Devices (e.g., Stop Sign, Cross Bucks)
Other:	*Other*:
97 = Traffic Control Present - No Details	97 = Traffic Control Present - No Details
98 = Other Traffic Control (whether or not at RR Grade Crossing)	98 = Other Traffic Control (whether or not at RR Grade Crossing)
99 = Unknown	99 = Unknown

A16I   Univariate Imputed Traffic Control Device

Definition: This imputed variable has the same definition and element values as *Traffic Control Device*, excluding "99" for unknown traffic control device. See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (TRFCON_I) [A16Z.]

A17   Traffic Device Functioning*

Definition: Indicates whether or not the traffic control device was functioning. **(* Note: This variable is not available after 1989.)**

1988 - 1989

SAS Name: (DEV_FUNC) [A17Z.]

> 0 = No Controls
> 1 = Device Not Functioning
> 2 = Device Functioning
> 9 = Unknown

A18   Speed Limit

Definition: Actual posted speed limit in miles per hour.

1988 - Later

SAS Name: (SPD_LIM) [A18Z.]

> 0   = No Statutory Limit (parking lot, alley, etc.)
> 05-75 = (Actual Speed Limit)
> 99   = Unknown

A18H   Hot-deck Imputed Speed Limit

Definition: This imputed variable has the element values as *Speed Limit*, excluding value "99" for unknown speed limit. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (SPDLIM_H) [A18Z.]

A19   Light Condition

Definition: General light conditions at the time of the crash, taking into consideration the existence of external roadway illumination fixtures.

1988 - Later

SAS Name: (LGHT_CON) [A19Z.]

> 1 = Daylight
> 2 = Dark
> 3 = Dark but Lighted
> 4 = Dawn
> 5 = Dusk
> 6 = Dawn or Dusk
> 9 = Unknown

A19I   Univariate Imputed Light Condition

Definition: This imputed variable has the same definition and element values as *Light Condition*, excluding value "9" for unknown light condition. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (LGTCON_I) [A19Z.]

A20   Atmospheric Conditions

Definition: General atmospheric conditions at the time of crash.

1988 - Later

SAS Name: (WEATHER) [A20Z.]

> 1 = No Adverse Conditions
> 2 = Rain
> 3 = Sleet
> 4 = Snow
> 5 = Fog
> 6 = Rain and Fog
> 7 = Sleet and Fog
> 8 = Other (Smog, Smoke, Blowing Sand/Dust/Snow, Crosswind, Hail)
> 9 = Unknown

A20I   **Univariate Imputed Atmospheric Conditions**

Definition: This imputed variable has the same definition and element values as *Atmospheric Conditions*, excluding value "9" for unknown atmospheric conditions. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (WEATHR_I) [A20Z.]

A21   **School Bus-Related**

Definition: Indicates if a school bus is related to the crash. The number of school bus related crashes may not equal the number of crashes with school buses involved. For example, if a vehicle goes around a stopped school bus and hits a pedestrian, the school bus usually will not be coded, but the crash is school bus related.

1988 - Later

SAS Name: (SCHL_BUS) [A21Z.]

    0 = No
    1 = Yes

A24   **Pedestrian/Cyclist Crash Type***

Definition: Information to code this variable is obtained from the police narrative. The values 1 through 99 pertain to cyclist crash types and 110 through 920 pertain to pedestrian crash types. (*** Note: Starting in 1989, four-digit codes have been added pertaining to wheelchair involved crash types. The codes are similar to the 110-920 codes for pedestrians, with a '1' added as the first-digit. For example, 1110 is wheelchair involved with a commercial bus.) The crash types are prioritized. The lower category number the higher the priority. For example, if after examining the PAR the cyclist crash could be classified as either a 3 or 13, the Crash Type would be classified as a 3.**

1988 - Later

SAS Name: (PED_ACC)

0 = No pedestrian/cyclist involved

Bicyclist Rides out from a Driveway, Alley, or Other Mid-block Location
1 = Cyclist fails to yield to motorist at a residential driveway or alley; pre-crash path perpendicular to roadway.
2 = Cyclist fails to yield to motorist at a commercial driveway or alley; pre-crash path perpendicular to roadway.
3 = Cyclist turns or merges into the path of motorist from a residential driveway or alley; pre-crash path parallel to roadway.
4 = Cyclist fails to yield to motorist at a mid-block location: entry is over curb or shoulder.

Bicyclist Rides out from a Controlled Intersection
5 = Cyclist fails to yield to motorist at an intersection controlled by a stop sign or a flashing red signal.
6 = Cyclist fails to clear intersection controlled by signal before light turns green for cross traffic; motorists' view of cyclist was not obstructed.

7 = Cyclist fails to clear intersection controlled by signal before light turns green for cross traffic; motorists' view of cyclist was obstructed by standing traffic.

Motorist Turns or Drives out in Front of Bicyclist
 8 = Motorist exiting from driveway, alley, or other mid-block location fails to yield to cyclist.
 9 = At an intersection controlled by a stop sign or flashing red light, motorist obeys the sign but fails to yield to cyclist.
10 = At an intersection controlled by a signal, motorist obeys signal but fails to yield to cyclist while making right turn on red.
11 = Motorist backing from driveway fails to yield to cyclist.
12 = Motorist fails to stop at an intersection controlled by a stop sign.

Motorist Overtakes Bicyclist
13 = Motorist fails to detect cyclist he/she is overtaking.
14 = Motorist loses control of vehicle while overtaking cyclist; in some cases motorist is in uncontrolled slide or spin, but more often, merely loses precise control and veers too far to right.
15 = T he motorist and the cyclist counteract each other's evasive action.
16 = Motorist misjudges space required to pass cyclist.
17 = Cyclist's path is obstructed, causing cyclist to strike obstruction or overtaking motorist.

Bicyclist Makes Unexpected Turn or Swerve
18 = Cyclist turns left in front of motorist proceeding in the same direction.
19 = Cyclist turns left in front of motorist approaching from straight ahead.
20 = Cyclist loses control and swerves into the path of a motorist proceeding in the same direction.
21 = Cyclist riding on wrong side of street makes right turn in path of approaching motorist.

Motorist Make Unexpected Turn
22 = Motorist make left turn in front of cyclist proceeding in the same direction; in some cases cyclist was riding on wrong side of street.
23 = Motorist make left turn in front of cyclist approaching from straight ahead.
24 = Motorist makes right turn in front of cyclist proceeding in a parallel path; bicyclist either proceeding in same direction or from opposite direction (riding on the wrong side of the street).

Other/Infrequent
25 = Vehicles collide at uncontrolled intersection: crossing paths
26 = Vehicles collide head-on: wrong-way bicyclist
27 = Bicyclist overtaking motor vehicle
28 = Vehicles collide head-on; wrong-way motorist
29 = Parking lot, other open area: crossing paths
30 = Vehicles collide head-on: counteractive evasive action
31 = Bicyclist cuts corner when turning left: crossing paths
32 = Bicyclist swings wide when turning right: crossing paths
33 = Motorist cuts corner when turning left: crossing paths
34 = Motorist swings wide when turning right: crossing paths
35 = Motorist drives out from on-street parking
36 = Weird
37 = Insufficient information to classify
39 = Motorist overtaking (Cyclist)
40 = Play vehicle (Big wheel, other tricycle, or bicyclist with training wheels)
41 = Cyclist struck parked vehicle
48 = Drive out - Intersection (Motorist drove out into or in front of cyclist)
49 = Ride out - intersection (Bicyclist)
55 = Controlled intersection - other
97 = Unknown* (added in 1989)
98 = Parallel path - unknown
99 = Intersecting path - unknown

Pedestrian Crash Types
110 = Commercial Bus
120 = School Bus
130 = Ice Cream Vendor
140 = Mailbox Related
150 = Entering/Exiting
210 = Driverless Vehicle
220 = Backing
230 = Hot Pursuit
310 = To/from Disabled Vehicle
320 = Disabled Vehicle Related
330 = Emergency Vehicle Related
410 = Working on Roadway
420 = Play Vehicle Related
430 = Playing in Roadway
510 = Hitchhiking
520 = Expressway Crossing
531 = Walking along Roadway with Traffic
532 = Walking along Roadway against Traffic
539 = Walking along Roadway Can't Specify
610 = Waiting to Cross
620 = Not in Roadway
710 = Multiple Threat, Intersection
720 = Vehicle Turn/Merge
730 = Intersection Dash
740 = Trapped
750 = Pedestrian Walked into Vehicle, Intersection
760 = Driver Violation
790 = Intersection - other
810 = Multiple Threat, Mid-block
821 = Mid-block Dart-out, First half
822 = Mid-block Dart-out, Second half
829 = Mid-block Dart-out, Can't specify
830 = Mid-block dash
840 = Pedestrian Walked into Vehicle, Mid-block
890 = Mid-block - other
910 = Other - weird
920 = Inadequate information

Wheelchair Pedestrian Crash Types* (added in 1989)
1620 = Wheelchair - Not in Roadway*
1710 = Wheelchair - Multiple Threat / Intersection*
1720 = Wheelchair - Vehicle Turn/Merge*
1730 = Wheelchair - Intersection Dash*
1740 = Wheelchair - Trapped*
1790 = Wheelchair - Intersection/Other*
1890 = Wheelchair - Mid-block/Other*

A25   Work Zone*

Definition: Indicates if the crash occurred in a construction area or in a "work zone". **(*Note: This variable was added to the accident file in 1995.)**

1995 - Later

SAS Name: (WRK_ZONE) [A25Z.]

>   0 = No
>   1 = Yes

A26   National Highway System (NHS) Roadway Type*

Definition: This variable was added to indicate whether this roadway is designated as part of the National Highway System. This variable also indicates if this roadway is considered "urban", "rural", or "urban or rural".   **(*Note: This variable was added to the accident file in 1995.)**

1995 - Later

SAS Name: (NHS_RWTP)[A26Z.]

00 = Not NHS Roadway

Urban
01 = Eisenhower Interstate (EIS)
02 = Congressional High Priority Route
03 = STRAHNET Route
04 = STRAHNET Major Connector
05 = Other NHS Route
09 = Unknown Urban Route

Rural
11 = Eisenhower Interstate (EIS)
12 = Congressional High Priority Route
13 = STRAHNET Route
14 = STRAHNET Major Connector
15 = Other NHS Route
19 = Unknown Urban Route

Urban or Rural
21 = Eisenhower Interstate
22 = Congressional High Priority Route
23 = STRAHNET Route
24 = STRAHNET Major Connector
25 = Other NHS Route
98 = Unknown if Urban or Rural
99 = Unknown if NHS Route

A90   **Maximum Injury Severity in Crash**

Definition: Indicates the most severe injury of all persons involved in the crash. This variable is derived from injury severity variable in the person file.

1988 - Later

SAS Name: (MAX_SEV) [A90Z.]

> 0 = No Injury
> 1 = Possible Injury
> 2 = Non-incapacitating
> 3 = Incapacitating
> 4 = Fatal
> 5 = Unknown Injury Severity
> 6 = Died Prior
> 8 = No Person Coded in the Crash
> 9 = Unknown

A90I   **Univariate Imputed Maximum Injury Severity in Crash**

Definition: This imputed variable has the same definition and element values as *Maximum Injury Severity in Crash*, excluding value "9" for unknown maximum injury severity. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (MAXSEV_I) [A90Z.]

A91   **Number Known Injured in Crash**

Definition: Derived by counting all the persons with an injury severity of 1, 2, 3, 4, or 5 in an crash.

1988 - Later

SAS Name: (NUM_INJ) [A91N.]

> 00 = No Person Injured/Property Damage Only Crash
> 98 = No Person Coded
> 99 = Unknown

A91I   Imputed Number Known Injured In Crash

Definition: This imputed variable was derived from the hot-deck injury severity variable in the person file. This variable has the same definition and element values as *Number Known Injured in Crash*, excluding values 98 and 99 for no person coded and unknown number injured, respectively.

1988 - Later

SAS Name: (NO_INJ_I) [A91N.]

A92   Alcohol Involved in Crash

Definition: This is a derived variable based on police-reported alcohol involvement on the person file. This variable indicates alcohol use for a driver, a pedestrian, or a cyclist in the crash:.

1988 - Later

SAS Name: (ALCOHOL) [A92Z.]

> 1 = Alcohol Involved
> 2 = No Alcohol Involved
> 8 = No Person Coded
> 9 = Unknown

A92I   Imputed Alcohol Involved in Crash

Definition: This variable has the same definition and element values as *Alcohol Involved in Crash*, excluding element value "9" for unknown alcohol involvement and element value "8" was added to element value "2". This imputed variable was derived from the hot-deck imputed police reported alcohol involvement on the person file.

1988 - Later

SAS Name: (ALCHL_I) [A92Z.]

VEHICLE/DRIVER FILE

V1   Vehicle Number

Definition: Number assigned to all motor vehicles in transport. Numbers assigned must be consecutive starting with "1" for each crash. (These numbers are computer assigned.)

1988 - Later

SAS Name: **(VEHNO)**

V2   Hit and Run

Definition: Hit and run is coded when a motor vehicle in-transport, or its driver, departs from the scene; therefore, fleeing pedestrians and motor vehicles not in transport are excluded. It does not matter whether the hit-and-run vehicle was striking or struck.

1988 - Later

SAS Name: (HIT_RUN) [V2Z.]

>   0 = No, Did Not Leave Scene
>   1 = Yes, Driver or Car and Driver Left Scene
>   9 = Unknown

V2I   Univariate Imputed Hit and Run

Definition: This imputed variable has the same definition and element values as ***Hit and Run***, excluding value "9" for unknown hit and run. (See ***Understanding the GES Imputation Process*** section of this manual.)

1988 - Later

SAS Name: (HITRUN_I) [V2Z.]

V3   Vehicle Make

Definition: A numerical code indicating the make of each motor vehicle in transport. See Appendix A.

1988 - Later

SAS Name: (MAKE) [V3Z.]

V4   **Vehicle Model**

Definition: A numerical code indicating the model of each motor vehicle in transport. See Appendix A.

1988 - Later

SAS Name: (MODEL)

V5   **Body Type***

(* Note: After 1989, there were numerous changes made to this variable.)

1988 - 1989

SAS Name: (BODY_TYP) [V5NZ.]

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
09 = Unknown automobile type

Automobile Derivatives
10 = Auto based pickup (included El Camino, Caballero, Ranchero, and Brat)
11 = Auto based panel (Cargo Station Wagon, auto-based ambulance/hearse)
12 = Large limousine (More than four side doors or stretched chassis)

Utility Vehicles
14 = Utility - (includes Jeep CJ-2 - CJ7, Renegade, Landrover, Bronco, Landcruiser, Thing, Blazer, Bronco II,
        Jimmy, Ramcharger, Cherokee, Trailduster, Scout)

Van-Based Light Trucks ($\leq$ 10,000 lbs GVWR)
20 = Minivan (Astro, Caravan, Plymouth Vista, Aerostar, Safari, Voyager, Dodge Vista, Toyota Cargo Van, Toyota Van,
        Vanagon, VW Bus, Kombi)
21 = Standard Van (Sportvan, Chevy Van, Club Wagon, Ford Econoline, Ram Van, Mini Ram Van, Chateau,
         Ram Wagon, Vandura, Rally Voyager, Beauville, Sportsman)
28 = Other Van Type
29 = Unknown Van type

Light Conventional Trucks (Pickup style cab, $\leq$ 10,000 lbs GVWR)
30 = Compact Pickup (< 4,500 lbs GVWR, S-10, LUV, Ram 50, Rampage, Courier, Ranger, S-5, Pup, Mazda Pickup,
        Mitsubishi Truck, Nissan Pickup, Arrow Pickup, Scamp, Toyota Pickup, VW Pickup)
31 = Standard Pickup (4,500 to 10,000 lbs GVWR, C10-C30, K10-K30, T10, D100-D300, W150, F100-F350, Comanche,
        J10, J20)
32 = Pickup with slide-in camper
33 = Truck based station wagon (4-door; includes Suburban, Travelall, Wagoneer)
34 = Light truck based suburban limousine
39 = Unknown (pickup style) light conventional truck

Other Light Trucks (< 10,000 lbs GVWR)
40 = Cab chassis based (included rescue vehicle, light stake, dump, and tow truck)
41 = Truck based panel
42 = Light truck based motor home (chassis mounted)
47 = Other light conventional truck type (not a pickup)
48 = Unknown other light truck type (not a pickup)
49 = Unknown light vehicle type (automobile, van, or light truck)

Buses (excludes van based)
50 = School bus type (designed to carry students, not cross country or transit)
58 = Other bus (e.g., transit, intercity, bus based motor home)
59 = Unknown bus type

Medium/Heavy Trucks (>10,000 lbs GVWR)
60 = Single unit straight truck
63 = Medium/heavy truck based motor home
65 = Truck-tractor (cab only, or with any number of trailing units; any WEIGHT)
68 = Unknown medium/heavy truck type
69 = Unknown truck type (light/medium/heavy)

Motored Cycles (Does not include all terrain vehicles/cycles)
70 = Motorcycle
71 = Moped (motorized bicycle)
72 = Three wheeled motorcycle or moped
78 = Other motored cycle type (minibike, motor scooter)
79 = Unknown motored cycle type

Other Vehicles
80 = ATV (all terrain vehicle including dune/swamp buggy) and ATC (all terrain cycle)
81 = Snowmobile
82 = Farm equipment other than trucks
83 = Construction equipment other than trucks (includes graders)
88 = Other type vehicle (includes go-cart, fork lift, city street sweeper)
89 = Unknown other vehicle
99 = Unknown body type

V5   Body Type*

(* Note: In 1990, element values "11" and "12" were modified. Element values "13" *Limousine* and "22" *Step Van or Walk-in Van* were added. Element values "33", "34", and "47" were deleted.)

1990 - 1991

SAS Name: (BODY_TYP) [V5NZ.]

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
09 = Unknown automobile type

Automobile Derivatives
10 = Auto based pickup (included El Camino, Caballero, Ranchero, and Brat)
11 = Ambulance *
12 = Hearse*
13 = Limousine*

Utility Vehicles
14 = Utility - (includes Jeep CJ-2 - CJ7, Renegade, Landrover, Bronco, Landcruiser, Thing, Blazer, Bronco II,
         Jimmy, Ramcharger, Cherokee, Trailduster, Scout)

Van-Based Light Trucks (≤ 10,000 lbs GVWR)
20 = Minivan (Astro, Caravan, Plymouth Vista, Aerostar, Safari, Voyager, Dodge Vista, Toyota Cargo Van, Toyota Van,
         Vanagon, VW Bus, Kombi)
21 = Large Van (Sportvan, Chevy Van, Club Wagon, Ford Econoline, Ram Van, Chateau, Ram Wagon, Vandura, Rally
         Voyager, Beauville, Sportsman)
22 = Step Van or Walk-in Van (*< 10,000 lbs GVWR)**
28 = Other Van Type
29 = Unknown Van type

Light Conventional Trucks (Pickup style cab, ≤ 10,000 lbs GVWR)
30 = Compact pickup (S-10, LUV, Ram 50, Rampage, Courier, Ranger, S-5, Pup, Mazda Pickup, Mitsubishi Truck,
         Nissan Pickup, Arrow Pickup, Scamp, Toyota Pickup, VW Pickup)
31 = Standard pickup (C10-C30, K10-K30, T10, D100-D300, W150, F100-F350, Comanche, J10, J20)
32 = Pickup with slide-in camper
39 = Unknown (pickup style) light conventional truck

Other Light Trucks (< 10,000 lbs GVWR)
40 = Cab chassis based (included rescue vehicle, light stake, dump, and tow truck)
41 = Truck based panel
42 = Light truck based motor home (chassis mounted)
48 = Unknown other light truck type (not a pickup)
49 = Unknown light vehicle type (automobile, van, or light truck)

Buses (excludes van based)
50 = School bus type (designed to carry students, not cross country or transit)
58 = Other bus (e.g., transit, intercity, bus based motor home)

59 = Unknown bus type

Medium/Heavy Trucks (>10,000 lbs GVWR)
60 = Single unit straight truck
63 = Medium/heavy truck based motor home
65 = Truck-tractor (cab only, or with any number of trailing units; any WEIGHT)
68 = Unknown medium/heavy truck type
69 = Unknown truck type (light/medium/heavy)

Motored Cycles (Does not include all terrain vehicles/cycles)
70 = Motorcycle
71 = Moped (motorized bicycle)
72 = Three wheeled motorcycle or moped
78 = Other motored cycle type (minibike, motor scooter)
79 = Unknown motored cycle type

Other Vehicles
80 = ATV (all terrain vehicle including dune/swamp buggy) and ATC (all terrain cycle)
81 = Snowmobile
82 = Farm equipment other than trucks
83 = Construction equipment other than trucks (includes graders)
88 = Other type vehicle (includes go-cart, fork lift, city street sweeper)
89 = Unknown other vehicle
99 = Unknown body type

V5   Body Type*

(* Note: In comparing 1992 element values to previous years, there were quite a few changes which include modifications, deletions, and additions of element values. The asterisk (*) denotes change. Element values "11", "12", "13", "14", "20", "21", "30", "31", "60", and "65" have been modified. Element values "15", "16", "19", "23", "33", "45", "64", and "64" were added. Some of the existing element value numbering has changed. In 1993, element values "24" and "25" have been added. Also, for the GVWR, kilograms were used, not pounds.)

1992 - Later

SAS Name: (BODY_TYP) [V5NZ.]

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
09 = Unknown automobile type

Automobile Derivatives
10 = Auto based pickup (included El Camino, Caballero, Ranchero, and Brat)
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
14 = Compact Utility - (includes Jeep CJ-2 - CJ7, Scrambler, Golden Eagle, Renegade, Laredo, Cherokee , Wrangler,
        Commando, Jeepster, GEO Tracker, Dispatcher, Bronco & Bronco II, 4 Runner, S15 Jimmy, Typhoon, Bravada,
        Thing, T30, Raider, Pathfinder, Trooper, Trooper II, Amigo, Rodeo, Navajo, RAV-4, Montero, Samurai,
        Sidekick, Rocky, Passport, Defender, Sportage, and Mountaineer)*
15 = Large Utility (Jeep Cherokee (83 & before), Ramcharger, Trail duster, Bronco-full size, Blazer Fullsize, Tahoe,
        Jimmy Fullsize, Land Cruiser, Rover, Range Rover, Hummer, Expedition, Navigator, and Scout)*
16 = Utility Station wagon (Chevrolet Suburban, GMC Suburban, Travelall, Grand Wagoneer)*
19 = Utility Vehicle, Unknown Body type*

Van-Based Light Trucks ($\leq$ 4,500 kg GVWR)
20 = Minivan (Chrysler Town & Country, Astro, Caravan, Plymouth Vista, Aerostar, Safari, Voyager, Mini-Ram,
        Dodge Vista, Toyota Cargo Van, Toyota Van, Vanagon, VW Bus, Kombi,   Previa, Lumina APV, Windstar,
        Odyssey Oasis)*
21 = Large Van (Sportvan, Chevy Van, Club Wagon, Ford Econoline, Ram Van, Chateau, E150-E350, G10-G30,
         Ram Wagon, Vandura, Rally Voyager, Beauville, Sportsman, B150-350, Royal, Maxi-wagon)*
22 = Step Van or Walk-in Van (< 4,500 kg GVWR)
23 = Van-based Motor-home*
24 = Van-based School Bus* (added in 1993)
25 = Van-based Other Bus* (added in 1993)
28 = Other Van Type
29 = Unknown Van type

Light Conventional Trucks (Pickup style cab, ≤ 4,500 kg GVWR)
30 = Compact pickup (S-10, LUV, Ram 50, Rampage, Courier, Ranger, S-5, Pup, Mazda Pickup, Mitsubishi Truck,
        Nissan Pickup, Arrow Pickup, Scamp, Toyota Pickup, VW Pickup, D50, Colt P/U, T-10, S-15, T-15)*
31 = Large pickup (C10-C35, Jeep P/U, Comanche, Ram P/U, K10 - K35, D100-D350, W100-350,
        F100-F350, R100-500, R10-R35)*
32 = Pickup with slide-in camper
33 = Convertible Pickup*
39 = Unknown (pickup style) light conventional truck

Other Light Trucks (< 4,500 kg GVWR)
40 = Cab chassis based (included rescue vehicle, light stake, dump, and tow truck)
41 = Truck based panel
42 = Light truck based motor home (chassis mounted)
45 = Other light truck type*
48 = Unknown other light truck type (not a pickup)
49 = Unknown light vehicle type (automobile, van, or light truck)

Buses (excludes van based)
50 = School bus type (designed to carry students, not cross country or transit)
58 = Other bus (e.g., transit, intercity, bus based motor home)
59 = Unknown bus type

Medium/Heavy Trucks (>4,500 kg GVWR)
60 = Step van*
64 = Single unit straight truck*
65 = Medium/heavy truck-based motor home*
66 = Truck-tractor (cab only, or with any number of trailing units; any WEIGHT)*
78 = Unknown medium/heavy truck type*
79 = Unknown truck type (light/medium/heavy)*

Motored Cycles (Does not include all terrain vehicles/cycles)
80 = Motorcycle*
81 = Moped (motorized bicycle)*
82 = Three wheeled motorcycle or moped*
88 = Other motored cycle type (minibike, motor scooter)*
89 = Unknown motored cycle type*

Other Vehicles
90 = ATV (all terrain vehicle including dune/swamp buggy) and ATC (all terrain cycle)*
91 = Snowmobile*
92 = Farm equipment other than trucks*
93 = Construction equipment other than trucks (includes graders)*
97 = Other type vehicle (includes go-cart, fork lift, city street sweeper)*
99 = Unknown body type

V5H   **Hot-deck Imputed Body Type**

Definition: This imputed variable has the same element values as *Body Type*, excluding values "49", "79", and "99" for unknown light vehicle type, unknown truck type (light/medium/heavy), and unknown body type, respectively. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (BDYTYP_H) [V5NZ.]

V6   **Model Year**

Definition: Last two digits of model year for vehicle.

1988 - Later

SAS Name: (MODEL_YR) [V6Z.]

> 40   = all vehicles manufactured for 1940 model year and before.
> 41-97 = (Actual Value)
> 99   = Unknown

V6I   **Univariate Imputed Model Year**

Definition: This imputed variable has the same definition and element values as *Model Year*, excluding value "99" for unknown model year. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (MDLYR_I) [V6Z.]

V7   **Vehicle Identification Number**

Definition: A vehicle identification number is a number assigned by the vehicle manufacturer. The VIN contains information on the vehicle such as: manufacturer, model year, model, body type, restraint type, etc. For VINs with a length of more than 11 characters, any positions past the 11th character were blanked out. The positions that were blanked out contain the serial number which can uniquely identify the vehicle. For more detailed information on VINs in the GES, see Appendix D.

1988 - Later

SAS Name: (VIN)

> Actual value (left justified, up to 11 alphanumeric characters)
> 99999999999 = Unknown VIN

V8   **Special Use***

Definition: Indicates if the vehicle has a special use. Special use means "in use" and not necessarily emergency use. All military vehicles are classified as "4" even if they are police, ambulance, or fire trucks. **(* Note: In 1992, element value "7" was modified. Element value "8" was deleted and values "10", "11", and "12" were added.)**

SAS Name: (SPEC_USE) [V8NZ.]

1988 - 1991	**1992 - Later**
0 = No Special Use	00 = No Special Use
1 = Taxi	01 = Taxi
2 = Vehicle Used as School Bus	02 = Vehicle Used as School Bus
3 = Vehicle Used as Other Bus	03 = Vehicle Used as Other Bus
4 = Military	04 = Military
5 = Police	05 = Police
6 = Ambulance	06 = Ambulance
7 = Fire truck	07 = Fire Truck and Car*
	10 = Hearse*
8 = Other (Farm or Construction Equip., Etc.)	11 = Farm Equipment*
	12 = Construction Equipment*
9 = Unknown	99 = Unknown

V9   **Emergency Use**

Definition: Indicates if a "4" through "7" "Special Use" vehicle is on an emergency run. Value "0" is coded if applicable vehicle was not on an emergency run or it was not one of the applicable vehicles.

1988 - Later

SAS Name: (EMCY_USE) [V9Z.]

    0 = No
    1 = Yes
    9 = Unknown

V10   **Number of Occupants Involved***

Definition: Indicates the actual number of persons (including drivers) that were occupants of this vehicle. **(* Note: In 1990, this variable changed slightly. The actual value if total known goes up to 30.)**

SAS Name: (OCC_INVL)

1988 - 1989	**1990 - Later**
00-95 = (Actual Value if Total Known)	00-30 = (Actual Value if Total Known)
96 = 96 or more	
97 = Unknown - Only Injured Reported	
99 = Unknown	99 = Unknown

V10A   **Number of Occupants Coded***

Definition: Derived by counting the number of persons (including drivers that were occupants of this vehicle. **(* Note: This variable was dropped from the accident file in 1990.)**

1988 - 1989

SAS Name: (OCC_COD)

> 00-30 = (Actual Value if Total Known)
> 99   = Unknown

V11   **Travel Speed**

Definition: Actual miles per hour.

1988 - Later

SAS Name: (SPEED) [V11Z.]

> 00   = Stopped Vehicle
> 01-96 = (Actual Travel Speed (MPH))
> 97   = Ninety-Seven MPH or Greater
> 99   = Unknown

V12   Vehicle Contributing Factors *

Definition: Indicates whether or not the vehicle had "contributing factors" which may have aided the cause of the crash. Only one "contributing factor" for each vehicle is coded. If a vehicle has multiple "contributing factors" (some of which may not be defects), the lowest numerical value is coded. For example, "02" is coded if both brake system and steering system "contributing factors" were indicated. **(* Note: In 1995, the name of this variable was changed from *Vehicle Defects* to *Vehicle Contributing Factors* to allow for inclusion of all factors that may have contributed to this vehicle's involvement in the crash.)**

1988 - 1994	**1995 - Later**
SAS Name: (DEFECT)[V12Z.]	**SAS Name: (FACTOR) [V12N.]**
00 = None	00 = None
01 = Tires	01 = Tires
02 = Brake System	02 = Brake System
03 = Steering System - Tie Rod, Kingpin, Ball Joint, etc.	03 = Steering System - Tie Rod, Kingpin, Ball Joint, etc.
04 = Suspension - Springs, Shock Absorbers, McPherson Struts, Control Arms, etc.	04 = Suspension - Springs, Shock Absorbers, McPherson Struts, Control Arms, etc.
05 = Power Train - Universal Joint, Drive Shaft, Transmission, etc.	05 = Power Train - Universal Joint, Drive Shaft, Transmission, etc.
06 = Exhaust System	06 = Exhaust System
07 = Headlights	07 = Headlights
08 = Signal Lights	08 = Signal Lights
09 = Other Lights	09 = Other Lights
10 = Wipers	10 = Wipers
11 = Wheels	11 = Wheels
12 = Mirrors	12 = Mirrors
13 = Driver Seating and Control	13 = Driver Seating and Control
14 = Body, Doors	14 = Body, Doors
15 = Trailer Hitch	15 = Trailer Hitch
50 = Hit-and-Run Vehicle	50 = Hit-and-Run Vehicle
97 = Vehicle Defects - No Details	97 = Vehicle Contributing Factors - No Details*
98 = Other Vehicle Defects	98 = Other Vehicle Contributing Factors*
99 = Unknown if Vehicle Has Defects	99 = Unknown if Vehicle Has Contributing Factors*

V13   Vehicle Trailing

Definition: Indicates if vehicle was pulling a trailer unit. A trailer unit can be a horse trailer, fifth wheel trailer, camper, boat, truck trailer, towed vehicle or any other trailer.

1988 - Later

SAS Name: (TRAILER) [V13Z.]

0 = No
1 = Yes, One Trailing Unit
2 = Yes, Two Trailing Units
3 = Yes, Three or More Trailing Units
4 = Yes, Number of Trailing Units Unknown
9 = Unknown

V14   **Jackknife**

Definition: Indicates if a jackknife occurred. Jackknife can occur at any time during the crash sequence. In 1988-1990, jackknife is not restricted to truck-tractor vehicles; it may occur with a passenger car, van, motorcycle, etc. which is pulling a trailing unit. In 1991 and later, it is restricted to truck-tractor vehicles.

1988 - Later

SAS Name: (JACKNIFE) [V14Z.]

> 0 = No Jackknife Noted on PAR
> 1 = Jackknife Occurred

V15   **Rollover***

Definition: Indicates if a rollover occurred (tripped or untripped). Rollover is defined as any vehicle rotation of 90 degrees or more about any true longitudinal or lateral axis. Rollover can occur at any time during the crash. **(* Note: The coding of this variable changed after 1991. See *Rollover Type (V30)* of this document for revised coding scheme.)**

1988 - 1991

SAS Name: (ROLLOVER) [V15Z.]

> 0 = No Rollover Noted on PAR
> 1 = Rollover Occurred

V16   **Fire Occurrence**

Definition: Indicates whether or not a vehicle sustained fire damage.

1988 - Later

SAS Name: (FIRE) [V16Z.]

> 0 = No Fire Noted on PAR
> 1 = Fire Occurred in Vehicle

V17   **Maximum Damage Area***

Definition: This variable reports the most severe area of damage on the vehicle. **(*Note: In 1990, this variable was replaced with *Initial Point of Impact (V24) and Damage Areas (V25).)***

1988 - 1989

SAS Name: (DAM_AREA) [V17Z.]

> 0 = No damage
> 1 = Front
> 2 = Right Side
> 3 = Left Side
> 4 = Back
> 5 = Top
> 6 = Undercarriage
> 8 = Multiple Damage Areas
> 9 = Damage Area Not Determinable or Unknown

V18   **Damage Severity**

Definition: Reports the severity of the vehicle damage.

1988 - Later

SAS Name: (VEH_SEV) [V18Z.]

      0 = None
      1 = Minor
      2 = Functional (Moderate)
      3 = Disabling (Severe)
      9 = Unknown

V19   **Manner of Leaving Scene***

Definition: Measures the disposition of the vehicle, or power unit of an articulated combination, at the crash scene. **(* Note: In 1990, element value "2" was modified into two different values. Therefore, changing the numbering of existing element values.)**

1988 - 1989	**1990 - Later**
SAS Name: (TOWED) [V19Z.]	**SAS Name: (TOWED) [V19N.]**
1 = Driven	1 = Driven
2 = Towed Away	2 = Towed Due to Damage*
	3 = Towed Not Due to Damage*
3 = Abandoned	4 = Abandoned
4 = Unknown	9 = Unknown if Towed

V20   Most Harmful Event*

Definition: Indicates the most severe property damage or injury producing event for the vehicle.
(* Note: In 1990, element value "97" *Other - No Details* **was deleted. In 1992, element value "50"** *Pavement Surface Irregularity* **was added and the numbering of some existing values were modified. Also, element value "4"** *Gas Inhalation* **was deleted.**)

1988 - 1991

SAS Name: (V_EVENT) [V20Z.]

Noncollision
1 = Rollover/Overturn
2 = Fire/Explosion
3 = Immersion
4 = Gas Inhalation
5 = Jackknife
6 = Noncollision Injury
   (Injured in Vehicle, or Fell From Veh.)
8 = Other Noncollision
9 = Noncollision - No Details
10 = Thrown or Falling Object

Collision with Object Not Fixed
21 = Pedestrian
22 = Cycle or Cyclist (Pedalcyclist or Pedalcycle)
23 = Railway Train
24 = Animal
25 = Motor Vehicle in Transport
26 = Parked Motor Vehicle (or Other M.V. Not in Transport)
27 = Other Type Non-Motorist
28 = Other Object Not Fixed
29 = Object Not Fixed - No Details

Collision with Fixed Object
31 = Ground
32 = Building
33 = Impact Attenuator/Crash Cushion
34 = Bridge Structure (Bridge Pier/Abutment/Parapet End/Rail)
35 = Guardrail
36 = Concrete Traffic Barrier or Other Longitudinal Barrier Type
37 = Post, Pole or Support (Sign Post, Utility Post)
38 = Culvert or Ditch
39 = Curb
40 = Embankment
41 = Fence
42 = Wall
43 = Fire Hydrant
44 = Shrubbery or Bush
45 = Tree
46 = Boulder

48 = Other Fixed Object
49 = Fixed Object - No Details

Other/Unknown
97 = Other - No Details
99 = Unknown

1992 - Later

SAS Name: (V_EVENT) [V20N.]

Noncollision
1 = Rollover/Overturn
2 = Fire/Explosion
3 = Immersion

5 = Jackknife
6 = Noncollision Injury
   (Injured in Vehicle, or Fell From Veh.)
8 = Other Noncollision
9 = Noncollision - No Details
10 = Thrown or Falling Object

Collision with Object Not Fixed
21 = Pedestrian
22 = Cycle or Cyclist (Pedalcyclist or Pedalcycle)
23 = Railway Train
24 = Animal
25 = Motor Vehicle in Transport
26 = Parked Motor Vehicle (or Other M.V. Not in Transport)
27 = Other Type Non-Motorist
28 = Other Object Not Fixed
29 = Object Not Fixed - No Details

Collision with Fixed Object
31 = Ground
32 = Building
33 = Impact Attenuator/Crash Cushion
34 = Bridge Structure (Bridge Pier/Abutment/Parapet End/Rail)
35 = Guardrail
36 = Concrete Traffic Barrier or Other Longitudinal Barrier Type
37 = Post, Pole or Support (Sign Post, Utility Post)
38 = Culvert or Ditch
39 = Curb
40 = Embankment
41 = Fence
42 = Wall
43 = Fire Hydrant
44 = Shrubbery or Bush
45 = Tree
46 = Boulder
50 = Pavement Surface Irregularity (Ruts, Potholes, Grates,etc.)*
58 = Other Fixed Object*
59 = Fixed Object - No Details*

99 = Unknown

V20   **Hot-deck Imputed Most Harmful Event**

Definition: This imputed variable has the same element values as *Most Harmful Event*, excluding value "99" for unknown most harmful event . (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (V_EVNT_H) [V20Z.]

V21   **Vehicle Maneuver***

Definition: Reports the last action this vehicle's driver engaged in either just prior to the impact or just before the driver's realized the impending danger. (***Note: In 1992, GES began to collect precrash information. The variable, Vehicle Maneuver, was changed to Movement Prior to Critical Event to be part of the precrash variables. The definition of this variable changed slightly. Some element values were added, modified, or deleted. Also, the SAS name changed after 1991.)**

1988-1991

SAS Name: (MANEUVER) [V21Z.]

> 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 = Leaving a Parked Position
> 07 = Parked
> 08 = Entering a Parked Position
> 09 = Maneuvering to Avoid an Animal, Pedestrian, Object or Vehicle
> 10 = Turning Right
> 11 = Turning Left
> 12 = Making U-turn
> 13 = Backing Up (other than for parking purposes)
> 14 = Changing Lanes or Merging
> 15 = Negotiating a Curve
> 98 = Other
> 99 = Unknown

V21   Movement Prior to Critical Event*

Definition: Records 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 to any evasive maneuvers. **(* Note: In 1992, element values "16", "17", "18" and "94" were added and "09"** *Maneuving to Avoid* **was deleted. In 1995, element value "00" was added and element value "94"** *More than Two Vehicles Involved* **was deleted.**)

1992 - Later

SAS Name: (P_CRASH1)* **[V21N.]**

> 00 = No Driver Present* (added in 1995)
> 01 = Going Straight
> 02 = Decelerating 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 Parked Position*
> 08 = Entering a Parked Position
> 10 = Turning Right
> 11 = Turning Left
> 12 = Making U-turn
> 13 = Backing Up (other than for parking purposes)
> 15 = Negotiating a Curve
> 16 = Changing Lanes* (added in 1992)
> 17 = Merging* (added in 1992)
> 18 = Successful Corrective Action to a Previous Critical Event* (added in 1992)
> 94 = More than Two Vehicles Involved*
> 98 = Other
> 99 = Unknown

V21I   Univariate Imputed Vehicle Maneuver*

Definition: This imputed variable has the same as definition and element values as ***Vehicle Maneuver***, excluding value "99" for unknown vehicle maneuver. (See ***Understanding the GES Imputation Process*** section of this manual.)

1988 - 1991

SAS Name: (MANEUV_I) [V21Z.]

V21I **Univariate Imputed Movement Prior to Critical Event***

Definition: This imputed variable has the same as definition and element values as *Movement Prior to Critical Event*, excluding value "99" for unknown movement prior to critical event. (See *Understanding the GES Imputation Process* section of this manual.)

1992 - Later

SAS Name: (MANEUV_I) [V21N.]

V22 **Vehicle Role**

Definition: Indicates vehicle role in single or multi-vehicle crashes.

1988 - Later

SAS Name: (VEH_ROLE) [V22Z.]

    0 = Non-Collision
    1 = Striking
    2 = Struck
    3 = Both
    9 = Unknown

V22I **Univariate Imputed Vehicle Role**

Definition: This imputed variable has the same definition and element values as *Vehicle Role*, excluding value "9" for unknown vehicle role. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (VROLE_I) [V22Z.]

V23 **Accident Type***

Definition: Categorizes the precrash situation. For possible values see Appendix B. **(* Note: Element value "97" was added in 1992.)**

SAS Name: (ACC_TYPE) [V23N.]

1988 - 1991	1992 - Later
00 = No Impact	00 = No Impact
	97 = Untripped Rollover
98 = Other Accident Type	98 = Other Accident type
99 = Unknown	99 = Unknown

V24 **Initial Point of Impact***
Definition: Codes the first impact point that produced property damage or personal injury (regardless of
FIRST or MOST HARMFUL EVENT). **(* Note: In 1992, element values "11", "12", "13", and "14" were
added to replace element value "7" *Corner*.)**

SAS Name: (IMPACT) [V24NZ.]

1990 - 1991	**1992 - Later**
0 = No Damage/Non-Collision	00 = No Damage/Non-Collision
1 = Front	01 = Front
2 = Right Side	02 = Right Side
3 = Left Side	03 = Left Side
4 = Back	04 = Back
5 = Top	05 = Top
6 = Undercarriage	06 = Undercarriage
7 = Corner	11 = Front Right Corner
	12 = Front Left Corner
	13 = Back Right Corner
	14 = Back Left Corner
9 = Initial Point of Impact Unknown	99 = Initial Point of Impact Unknown

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V24H **Hot-deck Imputed Initial Point of Impact**
Definition: This imputed variable has the same definition and element values as *Initial Point of Impact*,
excluding value "9" for unknown initial point of impact. (See *Understanding the GES Imputation Process*
section of this manual.)

1988 - Later

SAS Name: (IMPACT_H) [V24NZ.]

V25 **Damage Areas***

Definition: This variable reports this vehicle's specific areas damaged due to impact. The totality of the
damage is used when determining the specific areas. A five character field is used to indicate up to five
specific areas of damage on the vehicle. **(* Note: This variable has replaced *Maximum Damage Area (V17)*.
The coding and definition for this variable has been enhanced.)**

1990 - Later

SAS Name: (DAM_AREA) [V25N.]

0 = No damage
1 = Front
2 = Right side
3 = Left side
4 = Back
5 = Top
6 = Undercarriage
7 = All areas damaged
9 = Unknown damage areas

In 1992, variables **V21, V26-V29** were added to the vehicle /driver file in the GES. These variables are precrash variables designed to identify: (1) what was this vehicle doing just prior to the critical precrash event, (2) what made this vehicle's situation critical, (3) what was the corrective action, if any, to this critical situation, and (4) what was the location and stability of the vehicle just prior to impact.

V26   Critical Event*
Definition: Identifies the critical event which made the crash imminent (i.e., something occurred which made the collision possible). A critical event is coded for each vehicle and identifies the circumstances leading to this vehicle's first impact in the crash.

1992 - 1993
SAS Name: (P_CRASH2)

        00 = Not Applicable/No Collision
I. CRITICAL EVENT INITIATED BY THIS VEHICLE

Loss of Control Due to:
        1 = Blow out or flat tire
        2 = Stalled engine
        3 = Disabling vehicle failure (e.g., wheel fell off)
        4 = Minor vehicle failure
        5 = Poor road conditions (puddle, pothole, ice, etc.)
        6 = Excessive speed
        9 = Other or unknown reason

Traveling Over Edge of Roadway:
        10 = Over left edge of roadway
        11 = Over right edge of roadway
        12 = End departure
        19 = Unknown which edge

In Another Vehicle's Lane:
        20 = Stopped
        21 = Traveling in same direction with lower speed
        22 = Traveling in same direction with higher speed
        23 = Traveling in opposite direction

Encroaching Into Another Vehicle's Lane: At Non-Junction
        26 = From adjacent lane (opposite direction)
        30 = From adjacent lane (same direction) - over left lane line
        31 = From adjacent lane (same direction) - over right lane line
        32 = From parallel/diagonal parking lane

Encroaching Into Another Vehicle's Lane: At Junction
        33 = Entering intersection - turning into same direction
        34 = Entering intersection - straight across path
        35 = Entering intersection - turning into opposite direction
        36 = Entering intersection - intended path unknown
        37 = Entering driveway, alley access, etc.
        38 = From driveway, alley access, etc. - turning into same direction
        39 = From driveway, alley access, etc. - straight across path
        40 = From driveway, alley access, etc. - turning into opposite direction
        41 = From driveway, alley access, etc. - intended path unknown
        42 = Entering from "Yield" entrance (ramp/channel)
        48 = Encroaching - details unknown
        49 = This vehicle initiated critical event - details unknown

II. CRITICAL EVENT INITIATED BY THE OTHER VEHICLE

Motor Vehicle Already In This Vehicle's Lane:
        50 = Stopped
        51 = Traveling in same direction with lower speed
        52 = Traveling in same direction with higher speed
        53 = Traveling in opposite direction

Another Vehicle Encroaching Into This Vehicle's Lane: At Non-Junction
        56 = From adjacent lane (opposite direction)
        60 = From adjacent lane (same direction) - over left lane line
        61 = From adjacent lane (same direction) - over right lane line
        64 = From parallel/diagonal parking lane

Another Vehicle Encroaching Into This Vehicle's Lane: At Junction
        65 = Entering intersection - turning into same direction
        66 = Entering intersection - straight across path
        67 = Entering intersection - turning into opposite direction
        68 = Entering intersection - intended path unknown
        69 = Entering driveway, alley access, etc.
        70 = From driveway, alley access, etc. - turning into same direction
        71 = From driveway, alley access, etc. - straight across path
        72 = From driveway, alley access, etc. - turning into opposite direction
        73 = From driveway, alley access, etc. - intended path unknown
        74 = Entering from "Yield" entrance (ramp/channel)
        78 = Encroaching - details unknown
        79 = Other vehicle initiated critical event - details unknown

III. CRITICAL EVENT INITIATED BY PEDESTRIAN, PEDALCYCLIST, OTHER NON-MOTORIST, ANIMAL OR OBJECT

        80 = Pedestrian in roadway
        81 = Pedestrian approaching roadway
        83 = Pedalcyclist/other non-motorist in roadway
        84 = Pedalcyclist/other non-motorist approaching roadway
        86 = Pedestrian/Pedalcyclist/other non-motorist - unknown location
        87 = Animal in roadway
        88 = Animal approaching roadway
        90 = Object in roadway
        93 = Animal or object - unknown location

IV. MISCELLANEOUS

        94 = More than two vehicles involved
        98 = Other event
        99 = Unknown

V26 **Critical Event***
Definition: Identifies the critical event which made the crash imminent (i.e., something occurred which made the collision possible). A critical event is coded for each vehicle and identifies the circumstances leading to this vehicle's first impact in the crash. **(* Note: In 1994, all the 2-digit element values have changed to 3-digit numbers.   In 1995, two element values were added: "215" and "515".)**

1994 - Later

SAS Name: (P_CRASH2)

000 = Not Applicable/No Collision
I. CRITICAL EVENT INITIATED BY THIS VEHICLE

Loss of Control Due to:
010 = Blow out or flat tire
020 = Stalled engine
030 = Disabling vehicle failure (e.g., wheel fell off)
040 = Minor vehicle failure
050 = Poor road conditions (puddle, pothole, ice, etc.)
060 = Excessive speed
099 = Other or unknown reason

Traveling Over Edge of Roadway:
100 = Over left edge of roadway
101 = Over right edge of roadway
102 = End departure
199 = Unknown which edge

In Another Vehicle's Lane:
200 = Stopped
210 = Traveling in same direction with lower steady speed
215 = Traveling in same direction while decelerating* (added in 1995)
220 = Traveling in same direction with higher speed
230 = Traveling in opposite direction

Encroaching Into Another Vehicle's Lane: At Non-Junction
300 = From adjacent lane (opposite direction)
310 = From adjacent lane (same direction) - over left lane line
320 = From adjacent lane (same direction) - over right lane line
330 = From parallel/diagonal parking lane

Encroaching Into Another Vehicle's Lane: At Junction
410 = Entering intersection - turning into same direction
411 = Entering intersection - straight across path
412 = Entering intersection - turning across path
413 = Entering intersection - turning into opposite direction
429 = Entering Intersection - intended path unknown
430 = Entering driveway, alley access, etc.
440 = From driveway, alley access, etc. - turning into same direction
441= From driveway, alley access, etc. - straight across path
442= From driveway, alley access, etc. - turning into opposite direction
459 = From driveway, alley access, etc. - intended path unknown
460 = Entering from "Yield" entrance (ramp/channel)
497 = Encroaching - other
498 = Encroaching - details unknown
499 = This vehicle initiated critical event - details unknown

II. CRITICAL EVENT INITIATED BY THE OTHER VEHICLE

Motor Vehicle Already In This Vehicle's Lane:
     500 = Stopped
     510 = Traveling in same direction with lower steady speed
     515 = Traveling in same direction while decelerating* (added in 1995)
     520 = Traveling in same direction with higher speed
     530 = Traveling in opposite direction

Another Vehicle Encroaching Into This Vehicle's Lane: At Non-Junction
     600 = From adjacent lane (opposite direction)
     610 = From adjacent lane (same direction) - over left lane line
     620 = From adjacent lane (same direction) - over right lane line
     630 = From parallel/diagonal parking lane

Another Vehicle Encroaching Into This Vehicle's Lane: At Junction
     710 = Entering intersection - turning into same direction
     711 = Entering intersection - straight across path
     712 = Entering Intersection - turning across path
     713 = Entering intersection - turning into opposite direction
     729 = Entering intersection - intended path unknown
     730 = Entering driveway, alley access, etc.
     740 = From driveway, alley access, etc. - turning into same direction
     741 = From driveway, alley access, etc. - straight across path
     742 = From driveway, alley access, etc. - turning into opposite direction
     759 = From driveway, alley access, etc. - intended path unknown
     760 = Entering from "Yield" entrance (ramp/channel)
     797 = Encroaching -other
     798 = Encroaching - details unknown
     799 = Other vehicle initiated critical event - details unknown

III. CRITICAL EVENT INITIATED BY PEDESTRIAN, PEDALCYCLIST, OTHER NON-MOTORIST, ANIMAL OR OBJECT

     800 = Pedestrian in roadway
     801 = Pedestrian approaching roadway
     810 = Pedalcyclist/other non-motorist in roadway
     811 = Pedalcyclist/other non-motorist approaching roadway
     829 = Pedestrian/Pedalcyclist/other non-motorist - unknown location
     830 = Animal in roadway
     831 = Animal approaching roadway
     840 = Object in roadway
     841 = Object approaching roadway
     859 = Animal or object - unknown location

IV. MISCELLANEOUS

     994 = More than two vehicles involved
     998 = Other event
     999 = Unknown

V27   **Corrective Action Attempted***
Definition: Describes the actions taken by the driver of this vehicle in response to the impending danger. Because this variable focuses upon the driver's action just prior to the first harmful event it is coded independently of any maneuvers associated with this vehicle's Accident Type (V23).

1992 - Later

SAS Name: (P_CRASH3) [V27N.]

>   00 = Not Applicable/
>   No Corrective Action Attempted
> *Single Corrective Action*
>   01 = Braked/slowed
>   02 = Steered to left
>   03 = Steered to right
>   04 = Accelerated
>   05 = Backed
>
> *Multiple Corrective Action*
>   11 = Braked and steered to left
>   12 = Braked and steered to right
>   13 = Accelerated and steered to left
>   14 = Accelerated and steered to right
>   15 = Steered in both directions
>   94 = More than two vehicles involved
>   97 = Corrective action attempted - no details
>   98 = Other single or multiple corrective action
>   99 = Unknown if driver attempted any corrective action

V28   **Vehicle Control After Corrective Action***

Definition: Assesses the stability of the vehicle during the period immediately after the attempted corrective action up to the initial impact in the crash sequence. The stability of the vehicle prior to a corrective action is not considered here. **(* Note: In 1995, the name and definition of this variable changed to reflect the control of the vehicle at the time of the critical event and the first harmful event, not as a result of any corrective action.)**

1992 - 1994

SAS Name: (P_CRASH4) [V28N.]

>   00 = No driver present
>   01 = Vehicle control maintained after corrective action
>   02 = Vehicle rotated (yawed) clockwise
>   03 = Vehicle rotated (yawed) counter-clockwise
>   04 = Vehicle slid/skid longitudinally - no rotation
>   05 = Vehicle slid/skid laterally - no rotation
>   09 = Vehicle rotated (yawed) unknown direction
>   20 = Combination of 02 - 09
>   94 = More than two vehicles involved
>   98 = Other or unknown type of vehicle control was lost after corrective action
>   99 = Unknown if vehicle control was lost after corrective action

V28   Precrash Vehicle Control*

Definition: Assesses the stability of the vehicle during the period immediately prior to this vehicle's initial involvement in the crash sequence. **(* Note: The name and definition changed in 1995. Also, element "05"** *Vehicle slid/skid laterally - No Rotation* **was deleted.)**

1995 - Later

SAS Name: (PCRASH4) [V28NZ.]

> 00 = No driver present
> 01 = Vehicle control maintained
> 02 = Vehicle rotated (yawed) clockwise
> 03 = Vehicle rotated (yawed) counter-clockwise
> 04 = Vehicle slid/skid longitudinally - no rotation
> 09 = Vehicle rotated (yawed) unknown direction
> 20 = Combination of 02 - 09
> 94 = More than two vehicles involved
> 98 = Other or unknown type of vehicle control was lost
> 99 = Unknown if vehicle control was lost

V29   Vehicle Path After Corrective Action*

Definition: Identifies the consequences of the corrective action identified in variable *V27* and further reports the results of the vehicle's precrash stability coded in variable *V28*. The response for this variable must relate directly to the response coded for variable *V27*. **(* Note: In 1995, the name and definition of this variable changed to reflect the control of the vehicle at the time of the critical event and the first harmful event, not as a result of any corrective action.)**

1992 - 1994

SAS Name: (P_CRASH5) [V29Z.]

> 00 = No corrective action
> 01 = Vehicle stayed in travel lane where corrective action was initiated
> 02 = Vehicle stayed on roadway but left travel lane where corrective action was initiated
> 03 = Vehicle stayed on roadway, not known if left travel lane where corrective action was initiated
> 04 = Vehicle departed roadway
> 05 = Corrective action initiated off roadway
> 94 = More than two vehicles involved
> 99 = Vehicle path unknown

V29 **Precrash Location***

Definition: Identifies the path of this vehicle prior to its first involvement in the crash sequence, and further reports the results of the vehicle's precrash stability coded in variable V28. **(* Note, the name and definition change in 1995.)**

1995 - Later

SAS Name: (PCRASH5) [V29N.]

> 00 = No driver present*
> 01 = Vehicle stayed in travel lane
> 02 = Vehicle stayed on roadway but left travel lane
> 03 = Vehicle stayed on roadway, not known if left travel lane
> 04 = Vehicle departed roadway
> 06 = Vehicle remained off roadway*
> 07 = Vehicle returned to roadway*
> 94 = More than two vehicles involved
> 99 = Vehicle path unknown

V30 **Rollover Type***

Definition: Indicates if a rollover occurred (tripped or untripped). Rollover is defined as any vehicle rotation of 90 degrees or more about any true longitudinal or lateral axis. Rollover can occur at any time during the crash. **(* Note: Prior to 1992, information pertaining to rollover was obtained from the variable *Rollover (V15)*. In 1992, this variable was modified to include more specific rollover information.)**

1992 - Later

SAS Name: (ROLLOVER) [V30N.]

> 00 = No rollover
> 10 = Untripped rollover
> 20 = Tripped rollover - by curb
> 21 = Tripped rollover - by guardrail
> 22 = Tripped rollover - by ditch
> 23 = Tripped rollover - by soft soil
> 28 = Tripped rollover - other
> 29 = Tripped rollover - unknown mechanism
> 99 = Rollover, unknown whether untripped or tripped

In 1992, variables **V31-V36** were added to the vehicle/driver file in the GES. These variables include that portion of the National Governors Association (NGA) data elements which pertain specifically to crashes involving medium/heavy trucks and buses. These elements provide essential information required to analyze motor carrier crashes and are not relevant to other crashes.

V31   **Carrier's Identification Number***
       Definition: The Carrier's ID is the unique number assigned to the Carrier by the United States Department of Commerce Commission, or the State. This number will be found only on vehicles of interstate for-hire or private carriers in the transportation business. The number can be either a US DOT number (on interstate private carriers) or an ICC MC number (interstate for-hire carriers).

       1992 - Later

       SAS Name: (C_ID_NO) [V31N.]

000000	= Not applicable
000001 - 999998	= US DOT or ICC MC number
999999	= Unknown

V32   **Number of Axles on Vehicle, Including Trailers***

       Definition: Coded for buses and trucks over 4,500 kg GVWR (V5 = 50-79)

       1992 - Later

       SAS Name: (AXLES) [V32N.]

00	= Not applicable
02 - 20	= (Actual number of axles)
99	= Unknown

V33   **Cargo Body Type***

       Definition: Coded for buses and trucks over 4,500 kg GVWR (V5 = 50-79)

       1992 - Later

       SAS Name: (CARG_TYP) [V33N.]

       00 = Not applicable
       01 = Bus
       02 = Van/enclosed bus
       03 = Cargo tank
       04 = Flatbed
       05 = Dump
       06 = Concrete mixer
       07 = Auto transporter
       08 = Garbage/refuse
       98 = Other
       99 = Unknown cargo body type

V34   **Hazardous Materials Placarded***

Definition: Coded for buses and trucks over 4,500 kg GVWR (V5 = 50-79)

1992 - Later

SAS Name: (HAZ_MAT) [V34N.]

> 0 = Not applicable
> 1 = Yes
> 2 = No
> 9 = Unknown

V35   **Hazardous Materials Placard Number***

Definition: Coded for buses and trucks over 4,500 kg GVWR (V5 = 50-79).

1992 - Later

SAS Name: (HAZM_NO) [V35N.]

> 0000   = Not applicable
> 0001 - 9998 = (Actual number)
> 9999   = Unknown

V36   **Hazardous Materials Release***

Definition: Indicates whether or not any hazardous cargo was released from the vehicle cargo tank or compartment. Coded for buses and trucks over 4,500 kg GVWR (V5 = 50-79).

1992 - Later

SAS Name: (HAZ_MA_R) [V36N.]

> 0 = Not applicable
> 1 = Yes
> 2 = No
> 9 = Unknown

V90   **Maximum Injury Severity in Vehicle**

Definition: Indicates the single most severe injury level reported for any occupant in this vehicle. This variable is derived by scanning the injury severity for each occupant record in this vehicle.

1988 - Later

SAS Name: (MAX_VSEV) [V90Z.]

   0 = No Injury
   1 = Possible Injury
   2 = Non-incapacitating Injury
   3 = Incapacitating Injury
   4 = Fatal Injury
   5 = Injured Severity Unknown
   6 = Died Prior
   8 = No Person Coded
   9 = Unknown

V90I   **Imputed Maximum Injury Severity in Vehicle**

Definition: This imputed variable has the same definition and element values as ***Maximum Injury Severity in Vehicle***, excluding value "9" for unknown maximum injury severity. The variable is derived from the *Hot-deck Imputed Injury Severity (P9)* in the person file.

1988 - Later

SAS Name: (MXVSEV_I) [V90Z.]

V91   **Number Injured in Vehicle**

Definition: Computed by counting the total number of injured occupants in this vehicle. It is derived by totaling the number of occupant records in which the variable *Injury Severity (P9)* has a value 1 through 5. This count includes fatally injured occupants.

1988 - Later

SAS Name: (NUM_INJV) [V91N.]

   1-97 = (Actual Number)
   98 = No Person Coded
   99 = Unknown if Injured

V91I   **Imputed Number Injured in Vehicle**

Definition: This imputed variable has the same definition and element values as *Number Injured in Vehicle*, excluding value 98 and 99 for no person coded and unknown injured in vehicle, respectively. This variable is derived from the *Hot-deck Imputed Injury Severity (P9)* variable.

1988 - Later

SAS Name: (NUMINJ_I) [V91N.]

V92   **Driver Drinking in Vehicle***

Definition: Reports alcohol use by driver of the vehicle. The variable is derived from the police-reported alcohol involvement variable in the person file. **(* Note: In 1989, this variable was changed from *Alcohol Involved in Vehicle* to *Driver Drinking in Vehicle* to report alcohol use by the driver. In 1988, this variable reported alcohol use by any occupant in the vehicle, including the driver.)**

1988 - Later

SAS Name: (VEH_ALCH) [V92Z.]

> 1 = Alcohol Involved
> 2 = No Alcohol
> 8 = No Person Coded
> 9 = Unknown

V92I   **Imputed Driver Drinking in Vehicle**

Definition: This imputed variable is derived from the *Hot-deck Imputed Police Reported Alcohol Involvement (P11)* variable in the person file. Element value "9" for unknown driver drinking in vehicle was imputed and element value "8" was added to element value "2".

1988 - Later

SAS Name: (V_ALCH_I) [V92Z.]

D1   Driver Presence

Definition: This variable serves to identify driverless motor vehicle in transport.

1988 - Later

SAS Name: (DR_PRES) [D1Z.]

> 0 = Unattended Vehicle (Driverless, or No Driver Involved)
> 1 = Driver Operated Vehicle
> 2 = Hit and Run
> 9 = Unknown Driver Presence

D2   Violations Charged*

Definition: Indicates violation charged to the driver of vehicle. Elements "1" or "2", and "4" through "7" are prioritized in decreasing numerical value ("1" or "2" takes precedence over "4", "4" takes precedence over "5", etc.). Element "3" is entered if the driver is cited for alcohol/drugs and speeding. **(*Note: In 1990, element values '50' and '97' were added. Also, element value numbering was modified.)**

SAS Name: (VIOLATN) [D2Z.]	SAS Name: (VIOLATN) [D2N.]
1988 - 1989	**1990 - Later**
0 = None	00 = None
1 = Alcohol or Drugs	01 = Alcohol or Drugs
2 = Speeding	02 = Speeding
3 = Alcohol or Drugs and Speeding	03 = Alcohol or Drugs and Speeding
4 = Reckless Driving	04 = Reckless Driving
5 = Driving With a Suspended or Revoked License	05 = Driving With a Suspended or Revoked License
6 = Failure to Yield Right-of-Way	06 = Failure to Yield Right-of-Way
7 = Running a Traffic Signal or Stop Sign	07 = Running a Traffic Signal or Stop Sign
	50 = Hit & Run (and No Information)*
	97 = Violation Charged - No Details*
8 = Other Violation	98 = Other Violation
9 = Unknown if Charged	99 = Unknown if Charged

D2I   Univariate Imputed Violations Charged

Definition: This imputed variable has the same definition and element values as *Violations Charged*, excluding value "99" for unknown violations charged. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (VLTN_I) [D2N.]

D3   Driver Physical/Mental Impairment*

Definition: Identifies circumstances that may have contributed to the cause of the accident. If two or more circumstances apply, the lowest numerical value is coded. **(* Note: This variable is not available after 1989.)**

1988 - 1989

SAS Name: (DR_IMPMT) [D3Z.]

> 00 = No Impairments
> 01 = Drowsy, Sleepy, Asleep, Fatigued
> 02 = Ill, Blackout
> 03 = Emotional (e.g., Depression, Angry, Disturbed)
> 04 = Drugs-Medication
> 05 = Other Drugs (Marijuana, Cocaine, etc.)
> 06 = Restricted to Wheelchair
> 07 = Impaired Due to Previous Injury
> 08 = Deaf
> 50 = Hit-and Run Vehicle
> 97 = Physical/Mental Impairment - No Details
> 98 = Other Physical/Mental Impairment
> 99 = Unknown Physical/Mental Condition

D4   Driver's Vision Obscured By*

Definition: Identifies visual circumstances that may have contributed to the cause of the crash. If two or more visual obstructions apply, the lowest numerical value is coded. **(* Note: In 1992, element value "15" *Fog* was added and *Fog* was removed from element value "1".)**

SAS Name: (VIS_OBSC) [D4N.]

1988 - 1991	**1992 - Later**
00 = No Obstruction	00 = No Obstruction
01 = Rain, Snow, Fog, Smoke, Sand, Dust	01 = Rain, Snow, Smoke, Sand, Dust
02 = Reflected Glare, Bright Sunlight, Headlights	02 = Reflected Glare, Bright Sunlight, Headlights
03 = Curve Or Hill	03 = Curve Or Hill
04 = Building, Billboard, or Other Design Features (Includes Signs, Embankment)*	04 = Building, Billboard, or Other Design Features (Includes Signs, Embankment)
05 = Trees, Crops, Vegetation	05 = Trees, Crops, Vegetation

06 = Moving Vehicle (including load)
07 = Parked Vehicle
08 = Splash or Spray of Passing Vehicle
09 = Inadequate Defrost or Defog System
10 = Inadequate Lighting System
11 = Obstruction Interior to Vehicle
12 = Mirrors
13 = Head Restraints
14 = Broken or Improperly Cleaned Windshield

50 = Hit & Run Vehicle (And No Information)
97 = Vision Obscured - No Details
98 = Other Obstruction
99 = Unknown Whether Vision was Obscured

06 = Moving Vehicle (including load)
07 = Parked Vehicle
08 = Splash or Spray of Passing Vehicle
09 = Inadequate Defrost or Defog System
10 = Inadequate Lighting System
11 = Obstruction Interior to Vehicle
12 = Mirrors
13 = Head Restraints
14 = Broken or Improperly Cleaned Windshield
15 = Fog*

50 = Hit & Run Vehicle (And No Information)
97 = Vision Obscured - No Details
98 = Other Obstruction
99 = Unknown Whether Vision was Obscured

D5   Driver's Action*

Definition: Indicates if the driver was avoiding, swerving, or sliding due to one of the following. If two or more elements can be describe the driver's action, the lowest numerical element will be coded. (***Note: This variable is not available after 1989. It was replaced with *Driver Maneuvered to Avoid (D6).*)**

1988 - 1989

SAS Name : (DR_ACT) [D5Z.]

>   00 = Not Avoiding, Swerving, or Sliding
>   01 = Severe Crosswind
>   02 = Wind from Passing Truck
>   03 = slippery or Loose Surface
>   04 = Tire Blow-out or Flat
>   05 = Debris or Objects in Road
>   06 = Ruts, Holes, Bumps in Road
>   07 = Animals in Road
>   08 = Vehicle in Road
>   09 = Phantom Vehicle
>   10 = Pedestrian, Pedalcyclist, or Other Non-motorist in Road
>   11 = Water, Snow, Oil slick in Road
>   50 = Hit-and Run Vehicle
>   97 = Avoiding, Swerving, or Sliding - No Details
>   98 = Other Cause
>   99 = Unknown Action

D6   **Driver Maneuvered to Avoid***

Definition: Attempts to identify an action taken by the driver to avoid something or someone in the road. The maneuver may have subsequently contributed to the cause of the crash. **(* Note: In 1990, this variable has replaced *Driver's Action (D5)*.)**

1990 - Later

SAS Name: (DRMAN_AV) [D6N.]

> 00 = Driver Did Not Maneuver To Avoid
> 01 = Object In Road
> 02 = Poor Road Conditions (Puddle, Ice, Pot Hole, etc.)
> 03 = Animal In Road
> 04 = Vehicle In Road
> 05 = Pedestrian, Pedalcyclist, or Other Non-Motorist In Road
> 50 = Hit & Run (And No Information)
> 97 = Avoidance Maneuver - No details
> 99 = Unknown If Driver Maneuvered To Avoid

D7   **Driver Distracted By***

Definition: Attempts to capture distractions which may have influenced driver performance and contributed to the cause of the crash. The distractions can be both inside the vehicle (internal) and outside the vehicle (external). **(* Note: This variable was added to the vehicle/driver file in 1990.)**

1990 - Later

SAS Name: (DR_DSTRD) [D7N.]

> 00 = Not Distracted
> 01 = Passengers, Occupants
> 02 = Vehicle Instrument Display (Radio, Cassette, CB, Heating/AC)
> 03 = Phone
> 04 = Other Internal Distractions
> 05 = Other Crash ("Rubbernecking")
> 06 = Other External Distractions
> 50 = Hit & Run (And No Information)
> 97 = Distractions - No Details
> 99 = Unknown if Distracted

D8   **Driver's Zip Code***

Definition: For the purposes of this variable, a driver is considered to reside at the address listed on the police accident report. **(* Note: This variable was added to the vehicle/driver file in 1992.)**

1992 - Later

SAS Name: (DR_ZIP_C) [D8N.]

        00000   = Not Resident of U.S. or territories/driver not present
        00001- 99998 = (Code actual 5-digit zip code)
        99999   = Unknown

D9   **Speed Related***

Definition: This variable will capture when a speed related factor which may have contributed to the cause of the crash is involved.

1997 - Later

SAS Name: (SPEEDREL) [D9N.]

        0 = No
        1 = Yes
        9 = Unknown

PERSON FILE

P1   **Vehicle Number**

Definition: This is the vehicle number for the in-transport vehicle, in or on which, this occupant was riding. All pedestrians and non-motorists have "00" for vehicle number. (This variable is computer assigned.) Possible range "00" through "30". This variable is used to merge the person level data onto the vehicle level records such that people in the crash can be place in a specific vehicle.

1988 - Later

SAS Name: (VEHNO)

P2   **Person Number**

Definition: Assigned to each occupant, pedestrian, or non-motorists involved in the crash. The assumed driver of a hit-and-run vehicle is coded 01. (This variable is computer assigned.)

1988 - Later

SAS Name: (PERNO)

P3   **Person Type**

Definition: Indicates the role of the person in the vehicle.

1988 - Later

SAS Name: (PER_TYPE) [P3Z.]

Motorists
>   1 = Driver of a Motor Vehicle in Transport
>   2 = Passenger of a Motor Vehicle in Transport

Non-Motorists - Occupant
>   3 = Occupant of a Motor Vehicle Not in Transport
>   4 = Occupant of a Non-Motor Vehicle Transport Device

Non-Motorists - Non-Occupant
>   5 = Pedestrian
>   6 = Cyclist (Pedalcyclist)
>   8 = Other or Unknown Non-Occupant

>   9 = Unknown Occupant Type in a Motor Vehicle in Transport

P4   **Seating Position***

Definition: Indicates the location of the occupants in the vehicle. More than one person can be assigned the same seat position, however, this is allowed only when a person is sitting on someone's lap. **(*Note: In 1992, a third seat position was added. Element value numbering has been modified.)**

SAS Name: (SEAT_POS) [P4N.]

1988 - 1991	**1992 - Later**
00 = Non-motorist	00 = Non-motorist
11 = Front Seat - Left Side (Driver's Side)	11 = Front Seat - Left Side (Driver's Side)
12 = Front Seat - Middle	12 = Front Seat - Middle
13 = Front Seat - Right Side	13 = Front Seat - Right Side
18 = Front Seat - Other	18 = Front Seat - Other
19 = Front Seat - Unknown	19 = Front Seat - Unknown
21 = Second Seat - Left Side	21 = Second Seat - Left Side
22 = Second Seat - Middle	22 = Second Seat - Middle
23 = Second Seat - Right Side	23 = Second Seat - Right Side
28 = Second Seat - Other	28 = Second Seat - Other
29 = Second Seat - Unknown	29 = Second Seat - Unknown
	31 = Third Seat - Left Side*
	32 = Third Seat - Middle*
	33 = Third Seat - Right Side*
	38 = Third Seat - Other*
	39 = Third Seat - Unknown*
30 = Sleeper Section of Cab (Truck)	50 = Sleeper Section of Cab (Truck)*
40 = Other Passenger in Passenger or Cargo Area	51 = Other Passenger in Passenger or Cargo Area*
50 = Trailing Unit	52 = Trailing Unit *
60 = Riding on Vehicle Exterior	53 = Riding on Vehicle Exterior*
99 = Unknown Seating Position	99 = Unknown Seating Position

P4H   **Hot-deck Imputed Seating Position**

Definition: This imputed variable has the same definition and element values as *Seating Position,* excluding 18, 19, 28, 29, 38, 39, and 99 unknown seating position. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (SEAT_H) [P4N.]

P5   Safety Equipment Use*

Definition: Indicates the occupant's use of available vehicle restraints. The presence of an air bag system does not mean that there are no active belts present. **(*Note: This variable was dropped from the Person file in 1990 and was replaced with *Restraint System Use (P15)*.)**

1988 - 1989

SAS Name: (SAF_EQMT) [P5Z.]

          00 = Non-motorist
          01 = Child Restraint Used
          02 = Manual Lap Belt Used
          03 = Manual Shoulder Belt Only Used
          04 = Manual Shoulder and Lap Belt Used
          05 = Automatic Belt Used
          06 = Deployed Air Bag
          07 = Motorcycle Helmet Used
          08 = Other Restraint / Safety Equipment Used
          09 = Restraint Used - Type Unknown
          10 = None Used
          11 = None Available
          99 = Unknown Use or Availability

P6   Ejection*

Definition: Refers to occupants being totally or partially thrown from the vehicle as a result of an impact or rollover. **(*Note: In 1990, elements "*Totally Ejected*" and "*Partially Ejected*" were collapsed into one element and element "*Ejected - No Details*" was dropped. In 1995, this variable changed back to the original coding scheme in the 1988 Person File.)**

SAS Name: (EJECT) [P6N.]

1988 - 1989	**1990 - 1994**	**1995 - Later**
0 = Not Ejected	0 = Not Ejected	0 = Not Ejected
1 = Totally Ejected	1 = Ejected (Partial or Total)	1 = Totally Ejected*
2 = Partially Ejected		2 = Partially Ejected*
7 = Ejected - No Details		7 = Ejected - No Details*
9 = Unknown	9 = Unknown	9 = Unknown

P6I   Univariate Imputed Ejection

Definition: This imputed variable has the same definition and element values as *Ejection*, excluding "9" for unknown ejection. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (EJECT_I) [P6N.]

P7   Age

Definition: Indicates the person's age at the time of the crash, with respect to the person's last birthday.

1988 - Later

SAS Name: (AGE) [P7Z.]

        00   = Up to One Year
        01-96 = (Actual Age)
        97   = 97 Years or Older
        99   = Unknown

P7H   Hot-deck Imputed Age

Definition: This imputed variable has the same definition and element values as *Age*, excluding "99" for unknown age. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (AGE_H) [P7Z.]

P8   Sex

Definition: Indicates the police reported sex for this person

1988 - Later

SAS Name: (SEX) [P8Z.]

        1 = Male
        2 = Female
        9 = Unknown

P8H   Hot-deck Imputed Sex

Definition: This imputed variable has the same definition and element values as *Sex*, excluding "9" for unknown sex. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (SEX_H) [P8Z.]

P9   Injury Severity

Definition: Indicates the police reported injury severity for this person.

1988 - Later

SAS Name: (INJ_SEV) [P9Z.]

> 0 = No Injury (O)
> 1 = Possible Injury (C)
> 2 = Non-incapacitating Injury (B)
> 3 = Incapacitating Injury (A)
> 4 = Fatal Injury (K)
> 5 = Injured, Severity Unknown (U)
> 6 = Died Prior to Crash
> 9 = Unknown if Injured

P9H   Hot-deck Imputed Injury Severity

Definition: This imputed variable has the same definition and element values as *Injury Severity*, excluding value "9" for unknown if injured. (See *Understanding the GES Imputation Process* section of this manual.)

1988 - Later

SAS Name: (INJSEV_H) [P9Z.]

P10   Taken to Hospital or Treatment Facility

Definition: Indicates whether persons involved in the crash were transported to a hospital or treatment facility.

1988 - Later

SAS Name: (HOSPITAL) [P10Z.]

> 0 = No
> 1 = Yes
> 9 = Unknown

P11   **Police-Reported Alcohol Involvement***

Definition: Indicates that the person (drivers of in-transport motor vehicles and non-motorists only) had consumed an alcoholic beverage. This variable does not indicate that alcohol was a cause of the crash. If a PAR indicates that opened or unopened alcohol bottles were found in the vehicle, then this information **does not** by itself constitute involvement. **(*Note: In 1990, the element "Alcohol and/or Drugs Involved" was added.)**

SAS Name: (PER_ALCH) [P11N.]

1988 - 1989	**1990 - Later**
0 = No (Alcohol Not Involved)	0 = Alcohol Not Involved or N/A
1 = Yes (Alcohol Involved)	1 = Alcohol Involved
	7 = Alcohol and/or Drugs Involved*
8 = Not Reported	8 = Not Reported
9 = Unknown (Police Reported)	9 = Unknown (Police-Reported)

P11H   **Hot-deck Imputed Police-Reported Alcohol Involvement***

Definition: The definition and element values are the same as *Police-Reported Alcohol Involvement*. From 1988 - 93, the element value "9" for unknown (police-reported) was imputed and element value "8" was added to element value "0". Beginning in 1994, the element values "8" and "9" were imputed. **(*Note: The methodology to create the hot-deck imputed police-reported alcohol involvement variable was modified slightly in 1994. Therefore, the SAS name of the imputed variable has changed.)** (See *Understanding the GES Imputation Process* section of this manual.)

1988 - 1993	**1994 - Later**
SAS Name: (ALCH_H) [P11Z.]	**SAS Name: (PERALC_H) [P11N.]**

P12   Non-motorist's Physical/Mental Condition*

Definition: Indicates the physical/mental condition for non-motorists. If the person is a driver or occupant of a motor vehicle in transport, they are coded as "00". When two or more circumstances apply, the element of lowest numerical value is coded. **(*Note: In 1989, element value "50" was deleted. In 1990, this variable was dropped and replaced with *Person's Physical Impairment (P18)*.)**

1988 - 1989

SAS Name: (PHY_COND) [P12Z.]

> 00 = Not Applicable - Driver or Occupant of Motor Vehicle in Transport
>   No Physical/Mental Conditions - Non-occupant
> 01 = Ill, Blackout
> 02 = Emotional (e.g. Depression, Angry, Disturbed)
> 03 = Drugs - Medication
> 04 = Other Drugs (e.g. Cocaine, Marijuana, etc.)
> 05 = Walking with Cane or Crutches
> 06 = Paraplegic or Restricted to Wheelchair
> 07 = Impaired Due to Previous Injury
> 08 = Deaf
> 09 = Blind
> 50 = No Known Physical/Mental Impairment*
> 97 = Physical/Mental Impairment - No Details
> 98 = Other Physical/Mental Impairment
> 99 = Unknown Physical/Mental Condition

P13   Non-motorist Location

Definition: Reports the location of non-motorists at the time of impact. Intersection locations are coded only if non-motorists were struck in the area formed by a junction of two or more trafficways. Non-intersection location may include non-motorists struck in a junction of a driveway/alley access and a named trafficway. Non-motorists who are occupants of motor vehicles not in transport are coded with respect to the location of the vehicle.

1988 - Later

SAS Name: (LOCATN) [P13Z.]

> 00 = Not Applicable - Driver or Occupant of M.V. in Transport
> 01 = Intersection - In Crosswalk
> 02 = Intersection - On Roadway
> 08 = Intersection - Other
> 09 = Intersection - Unknown Location
> 11 = Non-Intersection - In Crosswalk
> 12 = Non-Intersection - On Roadway
> 18 = Non-Intersection - Other
> 19 = Non-Intersection - Unknown Location
> 20 = In Crosswalk - Unknown if Intersection
> 98 = Other Location
> 99 = Unknown Location

P14   Person's Action*

Definition: Person's actions are indicated for everyone involved in the crash except the driver of a motor vehicle in transport. **(*Note: This variable was dropped from the Person file in 1990 and was replaced with the variable *Non-motorist's Action (P19)*.)**

1988 - 1989

SAS Name: (ACTION) [P14Z.]

>   00 = Not Applicable - Driver or
>   No Action - Everyone except a driver

Non-motorist Vehicle Operator:
>   01 = Failing to have Lights on When Required
>   02 = Operating without Required Equipment
>   03 = Improper or Erratic Lane Changing
>   04 = Failure to Keep in Proper Lane or Running Off Road
>   05 = Making Improper Entry to or Exit from Trafficway
>   06 = Operating the Vehicle in Erratic, Reckless, Negligent Manner
>   07 = Failure of Yield Right of Way
>   08 = Failure to Obey Traffic Signs/Control Devices/Officers, Failure to Observe Safety Zone
>   09 = Making Other Improper Turns
>   10 = Driving on Wrong Side of Road

Motor Vehicle Occupant:
>   20 = Interfering with Driver

Other Non-motorists:
>   21 = Darting or Running into Road
>   22 = Improper Crossing of Roadway or Intersection (Jaywalking)
>   23 = Walking/Riding with or Against Traffic, Playing, Working, Sitting, Lying, Standing in Roadway
>   24 = Inattentive (Talking, Eating, etc..)
>   25 = Jogger
>   26 = Non-motorist Pushing Vehicle
>
>   98 = Other Action
>   99 = Unknown Action

P15   **Restraint System Use** *

Definition: Encodes what was documented on the PAR regarding occupant <u>use</u> of available vehicle restraints (i.e., belts child safety seat, helmet, or automatic restraints). There is no differentiation here regarding the type of restraint (i.e. manual or automatic). This is accomplished by using variable *Restraint Type (P16)*. **(*Note: This variable has replaced *Safety Equipment Use (P5)* in 1990. In 1992, element values "4" and "5" has been deleted. In 1995, element values were modified.)**

SAS Name: (REST_SYS) [P15N.]

1990 - 1991   **1992 - 1994**

0 = None Used or Not Applicable   0 = None Used or Not Applicable
1 = Lap/Shoulder Belt   1 = Lap/Shoulder Belt
2 = Lap Belt   2 = Lap Belt
3 = Shoulder Belt   3 = Shoulder Belt
4 = Air Bag Deployed
5 = Air Bag Deployed and Lap/Shoulder Belt
6 = Child Safety Seat   6 = Child Safety Seat
7 = Motorcycle Helmet   7 = Motorcycle Helmet
8 = Restraint Used - Specifics Unknown or Other   8 = Restraint Used - Specifics Unknown or Other
9 = Unknown if Used   9 = Unknown if Used

1995 - Later

0 = None Used or Not Applicable
1 = Lap/Shoulder Belt
2 = Lap Belt
3 = Shoulder Belt
5 = Motorcycle Helmet*
6 = Child Safety Seat
7 = None Available*
8 = Restraint Used - Specifics Unknown or Other
9 = Unknown if Used

P16   **Restraint Type***

Definition: Provides additional information about the restraint system coded in the variable *Restraint System Use (P15)*, distinguishing between automatic and manual type devices used. **(*Note: This variable was added to the Person File in 1990.)**

1990 - Later

SAS Name: (REST_TYP) [P16N.]

0 = None Available or Not Applicable
1 = Automatic (Passive)
2 = Manual (Active)
9 = Unknown Type

P17   **Police-Reported Drug Involvement***

Definition: Indicates that the person (drives of in-transport motor vehicles and non-motorists only) had taken drugs. Involvement is not an indication that drugs were in any way cause of the crash, even though it may have been. If PAR indicates that drugs were found in the vehicle, then this information **does not** by itself constitute involvement. **(*Note: This variable was added to the Person File in 1990.)**

1990 - Later

SAS Name: (PER_DRUG) [P17N.]

> 0 = Drugs Not Involved or N/A
> 1 = Drugs Involved
> 7 = Drugs and/or Alcohol Involved
> 8 = Not Reported
> 9 = Unknown (Police-Reported)

P18   **Person's Physical Impairment***

Definition: Attempts to identify physical impairments for all drivers which may have contributed to the cause of the crash. These impairments can appear anywhere on the PAR-- in the narrative section, in the violations section, in a column entitled "Contributing Factors" or "Driver Action", etc. **(*Note: In 1990, this variable has replaced *Non-Motorist's Physical/Mental Condition (P12)* in the Person File and *Driver Physical/Mental Impairment (D3)* in the Vehicle File.)**

1990 - Later

SAS Name: (IMPAIRMT) [P18N.]

> 00 = None
> 01 = Ill, Blackout
> 02 = Drowsy, Sleepy, Fell Asleep, Fatigued
> 03 = Requires Cane or Crutches
> 04 = Paraplegic or Restricted to Wheelchair
> 05 = Impaired Due to Previous Injury
> 06 = Deaf
> 07 = Blind
> 97 = Physical Impairment - No Details
> 98 = Other Physical Impairments
> 99 = Unknown if Physically Impaired

P19   Non-Motorist Action*

Definition: Attempts to identify circumstances that may have contributed to the cause of the crash. These circumstances ("actions") can appear anywhere on the PAR--in the narrative section, in the violations section, in a column entitled "Contributing Factors" or "Driver Action", etc. **(* Note: In 1990, this variable has replaced *Person's Action (P14)*. Element value "20", Interfering with Driver, has been deleted. In 1992, element value "23" has been deleted and values "27", "28", and "29" were added.)**

1990 - 1991

SAS Name: (ACTION) [P19N.]

    00 = No Action

Non-Motorist Vehicle Operator:
    01 = Failing to Have Lights on When Required
    02 = Operating without Required Equipment
    03 = Improper or Erratic Lane Changing
    04 = Failure to Keep in Proper Lane or Running Off Road
    05 = Making Improper Entry to or Exit from Trafficway
    06 = Operating the Vehicle in Erratic, Reckless, Negligent Manner
    07 = Failure to Yield Right of Way
    08 = Failure to Obey Traffic Signs/Control Devices/Officers, Failure to Observe Safety Zone
    09 = Making other Improper Turn
    10 = Driving on Wrong Side of Road

Other Non-motorist:
    21 = Darting or Running into Road
    22 = Improper Crossing of Roadway or Intersection (Jaywalking)
    23 = Walking/Riding with or Against Traffic, Playing, Working, Sitting, Lying, Standing in Roadway
    24 = Inattentive (Talking, Eating, etc.)
    25 = Jogging
    26 = Non-Motorist Pushing Vehicle
    98 = Other Action
    99 = Unknown Action

1992 - Later

SAS Name: (ACTION) [P19N.]

    00 = No Action

Non-Motorist Vehicle Operator:
    01 = Failing to Have Lights on When Required
    02 = Operating without Required Equipment
    03 = Improper or Erratic Lane Changing
    04 = Failure to Keep in Proper Lane or Running Off Road
    05 = Making Improper Entry to or Exit from Trafficway
    06 = Operating the Vehicle in Erratic, Reckless, Negligent Manner
    07 = Failure to Yield Right of Way
    08 = Failure to Obey Traffic Signs/Control Devices/Officers, Failure to Observe Safety Zone
    09 = Making other Improper Turn
    10 = Driving on Wrong Side of Road

Other Non-motorist:
- 21 = Darting or Running into Road
- 22 = Improper Crossing of Roadway or Intersection (Jaywalking)
- 24 = Inattentive (Talking, Eating, etc.)
- 25 = Jogging
- 26 = Non-Motorist Pushing Vehicle
- 27 = Walking With Traffic*
- 28 = Walking Against Traffic*
- 29 = Playing, Working, Sitting, Lying, Standing, Etc. In Roadway*
- 98 = Other Action
- 99 = Unknown Action

P20   Non-Motorist Safety Equipment Use*

Definition: Attempts to identify safety equipment worn or carried by the non-motorist [Person Type (P3) = "4" (Occupant of a Non-Motor Vehicle Transport Device), "5" (Pedestrian, "6" (Pedalcyclist) or "8" (Other or Unknown)]. **(* Note: This variable was added to the Person File in 1990.**)

1990 - Later

SAS Name: (SAF_EQMT) [P20N.]

- 0 = None Used or N/A
- 1 = Bicycle Helmet
- 2 = Reflective Equipment
- 3 = Bicycle Helmet and Reflective Equipment
- 8 = Other Safety Equipment
- 9 = Unknown if Used

P21   Air Bag Availability/Function*

Definition: Seeks to capture whether the vehicle was equipped with an air bag (in the seat position of this occupant) and, if so; did it deploy. **(*Note: This variable was added to the Person File in 1992.**)

1992 - Later

SAS Name: (AIRBAG) [P21N.]

- 0 = No Air Bag Available
- 1 = Deployed
- 2 = Non-Deployed
- 9 = Unknown if Available or Deployed

P22   Non-Motorist Striking Vehicle Number*

Definition: This variable captures the vehicle which made contact with the non-motorist being coded. The value entered must match the vehicle number of the striking vehicle. (*** Note: This variable was added to the Person File in 1994**.)

1994 - Later

SAS Name: (STR_VEH)

APPENDICES

Appendix A: Make/Model Designations

Appendix B: V23 Accident Type Diagram

Appendix C: Summary Statistics

Appendix D: Generalized Estimated Sampling Errors

Appendix E: Analytical Data Classification of Select GES Variables

APPENDIX A: Make/Model Designations

V3   Vehicle Make (MAKE)

Indicates the make of a vehicle in transport.

Passenger Vehicles (01-69)

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
  001 Studebaker/Avanti
  002 Checker
  398 Other make (i.e.,
       Desoto, Excaliber,
       Stutz, Hudson, Packard)
  399 Unknown make

30 Volkswagen
31 Alfa Romeo
32 Audi
33 Austin/Austin Healey
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 Rover
63 Kia
69 Other foreign

Motorcycles (70-79)

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

78 All mopeds other than those above
79 Other motorcycle

Also see: 34 BMW
                    37 Honda
                    44 Peugeot
                    50 Triumph
                    53 Suzuki

Trucks and Buses (80-98)

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: 801 Autocar
                  802 Auto-Union-DKW
                  803 Divco
                  804 Western Star
                  805 Oshkosh
                  806 Hino
                  807 Scania
                  850 Truck based motor-home
                  898 Other truck (e.g., Ward LaFrance, Marmon)
                  902 NeoPlan (bus)
                  950 Bus-based motor-home
                  988 Other bus
                  989 Unknown bus
                  998 Other vehicle (i.e., farm vehicle, go-cart)
99 Unknown

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

MAKE: (01) American Motors*

Model Codes	Includes	Model Years
Automobiles		
001 Rambler/American	Rogue, 220, 440, Scrambler	57-69
002 Rebel/Matador	550, 660, 770, Classic Brougham	64-78
	Barcelona, X, Marlin, Matador (-78)	
003 Ambassador	880, 990, SST, DPL, Brougham, DL, Limited	57-74
004 Pacer	DL, Limited	75-80
005 AMX	(2-seater only)	68-70
006 Javelin SST, AMX (1971-1974)		68-74
007 Hornet/Concord	SST, Sportabout, AMX (1975-1978)	70-83
	Limited, DL, SC-360	
008 Spirit/Gremlin	Limited, DL, GT (1983 on), Custom,	70-83
	X, AMX (1979 on)	
009 Eagle	Concord based	80-87
010 Eagle SX-4	Spirit/Gremlin-based	81-84
398 Other (automobile)		40-87
399 Unknown (automobile)		40-87
998 Other vehicle		40-87
999 Unknown (American Motors)		40-87

* NOTE: Alliance, Encore, Premier (including L, DL, and Limited) is coded under Renault (46).

MAKE: (02) Jeep* (Includes Willys**/Kaiser-Jeep)

Model Codes	Includes	Model Years
Light Trucks		
401 CJ-2/CJ-3/CJ-4	Military	40-66
402 CJ-5/CJ-6/CJ-7/CJ-8	Scrambler, Renegade, Golden Eagle,	67-96
(thru 86;YJ 87 on)	Laredo, Wrangler	
403 YJ series	Wrangler	86-on
404 Cherokee (1984-on)	Limited, Loredo, Pioneer	84-on
421 Cherokee (thru 1983)	Wide Track, Chief, Commando, Jeepster,	70-83
431 Grand Wagoneer	Custom, Brougham Limited, Wagoneer	71-91
481 Pick-up	J-10, J-20, Honcho	40-on
482 Comanche	Chief	86-92
498 Other (light truck)		40-on
499 Unknown (light truck)		40-on
998 Other vehicle		40-on
999 Unknown vehicle (Jeep)		40-on

*   Note that Jeep DJ-series are coded under MAKE 03, MODEL 466.
** Willys Jeep can be coded 401, 481, 498 or 499 for MODEL.

MAKE: (03) AM General

Model Codes	*Includes*	*Model Years*
Light Trucks		
401 Dispatcher	Post Office (Jeep)	65-on
421 Hummer		93-on
466 Dispatcher	DJ-Series, Post Office Delivery Van	65-on
498 Other (light truck)		65-on
499 Unknown (light truck)		65-on
Medium/Heavy Trucks		
884 Medium/Heavy Truck	Military off-road	65-on
898 Other (medium/heavy truck)		65-on
899 Unknown (medium/heavy truck)		65-on
Buses		
950 Bus based motorhome		
983 Bus: Rear engine	Transit	65-on
Flat front		-
988 Other bus		-
989 Unknown bus		-
998 Other vehicle		65-on
999 Unknown (AM General)		65-on

MAKE: (06) Chrysler

Model Codes	*Includes*	*Model Years*
Automobiles		
009 Cordoba	Crown, 300, LS	75-83
010 New Yorker (thru 78)/ Newport/5th Avenue/ Imperial (1979-81)	Town and Country, Brougham, Custom, Royal, 300 (thru 1971)	64-89
014 New Yorker/E-Class Imperial (1990-on)	Fifth Avenue, New Yorker	83-on
015 Laser	Turbo, XE, XT	84-86
016 LeBaron	Medallion, Salon (RWD), FWD except GTS or GTC Sport Coupe	77-on
017 LeBaron GTS/GTC	GTS-Turbo, GTC-Coupe	82-on
031 TC (Maserati Sport)	Turbo Convertible	88-91
035 Conquest	TSI, Turbo	87-89
041 Concorde		93-on
042 LHS	New Yorker	94-on
043 Sebring		95-on
044 Cirrus		95-on
398 Other (automobile)		65-on
399 Unknown (automobile)		60-on
Light Trucks		
441 Town and Country	Minivan	90-on
498 Other light truck		90-on
499 Unknown light truck		90-on
998 Other vehicle		90-on
999 Unknown (Chrysler)		90-on

MAKE: (07) Dodge

Model Codes	*Includes*	*Model Years*
Automobiles		
001 Dart	170, 270, Custom, GT, Swinger, Demon, 340, 360, Special, Special Edition	60-76
002 Coronet/Magnum/ Charger (thru 1978)	Brougham, Custom, Super Bee, 500, Crestwood Deluxe, XE, R/T, 440	64-79
003 Polara/Monaco/ Royal Monaco	Custom, Special, Police, Taxi, Crestwood, Brougham	64-78
004 Viper	RT/10	92-on
005 Challenger	R/T, T/A, Rallye	70-74
006 Aspen	Custom, Special Edition, Police, R/T, Sport	76-80
007 Diplomat	Medallion, S, Salon	77-89
008 Omni/Charger (1983 on)	024, De Tomaso, Miser, Charger 2.2, Custom, Shelby, GLH, GLHS, American Expo	78-90
009 Mirada		80-83
010 St. Regis	Police, Taxi	79-81
011 Aries (K)	Custom, SE, LE	81-89
012 400	LS	82-83
013 Rampage (car-based pickup)	2.2, GT, Sport	82-84
014 600	ES, Turbo	83-88
015 Daytona	Turbo, Z, C/S Competition, Shelby Z, Pacifica	84-on
016 Lancer	Pacifica, Turbo, ES, Shelby	85-89
017 Shadow	ES, Turbo	87-on
018 Dynasty		88-on
019 Spirit	ES, Shelby, RT	89-on
020 Neon	Expresso	94-on
033 Challenger	import	78-83
034 Colt (excludes Vista)	GT, Custom, Carousel, Premier, Deluxe, E, DL, GTS, Turbo, RS	74-94
035 Conquest	Turbo	84-86
039 Stealth		91-on
040 Monaco		90-92
041 Intrepid		93-on
042 Avenger		95-on
043 Stratus		95-on
398 Other (automobile)		40-on
399 Unknown (automobile)		40-on
Light Trucks		
401 Raider	Sport	86-on
421 Ramcharger		74-on
441 Vista Van	4x4	84-91
442 Caravan	T-Van, Mini Ram Van, LE, 112 and 119 WB, SE, Grand Caravan	84-on
461 B-Series Van	Sportsman, Royal, Maxiwagon, Ram, Tradesman, Ram Wagon, B150-B350	63-on
470 Van Derivative	Kary Van	71-on
471 D50, Colt pickup, Ram 50, Ram 100		79-on
472 Dakota		87-on
481 D, W-Series pickup	Custom, Royal, Ram, Miser, D100-350,W100-350	55-on
482 Ram	1500, 2500, 3500	94-on
498 Other (light truck)		79-on
499 Unknown (light truck)		49-on

Medium/Heavy Trucks

850 Truck based motor-home	-
881 Medium/Heavy: CBE	66-on
882 Medium/Heavy: COE low entry	67-on
883 Medium/Heavy: COE high entry	67-on
884 Medium/Heavy: unk. engine loc.	62-on
890 Medium/Heavy: COE entry pos. unk.	65-on
898 Other (medium/heavy truck)	30-on
899 Unknown (medium/heavy truck)	66-on

Buses

950 Bus-based motor-home	-
981 Bus**: Conventional (not van-based) (Engine out front)	66-on
988 Other bus	-
989 Unknown bus	-
998 Other vehicle	40-on
999 Unknown (Dodge)	52-on

** Use code "981" (bus) if the frontal plane or the engine location is unknown.

MAKE: (08) Imperial

Model Codes	*Includes*	*Model Years*
Automobiles		
010 Imperial	LeBaron, Mark Cross, Frank Sinatra editions	50-76, 81-83
398 Other (automobile)		65-83
399 Unknown (automobile)		65-83

MAKE: (09) Plymouth

Model Codes	*Includes*	*Model Years*
Automobiles		
001 Valiant/Scamp/ Duster (thru 1976)	100, 200, Taxi, Brougham, Signet, Custom, Special, 340, 360, Twister	60-76
002 Satellite/Belvedere	Belvedere I, II, GTX, Road Runner (through 1974), Brougham Sebring, Sebring Plus, Superbird	55-74
003 Fury	I, II, III, Road Runner (1975), Suburban, Salon, VIP, Sport	57-78
004 Gran Fury	Sedan, Brougham, Custom, Sport, Suburban	75-89
005 Barracuda	Formula S, 340, Gran Coupe, AAR, 'Cuda	65-73
006 Volare	Custom, Premier, Road Runner (76 on), Police	76-80
007 Caravelle	Turbo, SE	85-89
008 Horizon	TC-3, Turismo 2.2, Miser, American, Custom, SE, Duster (1985 on), Expo	78-on
011 Reliant(K)	Custom, SE, LE	81-89
013 Scamp-auto based p/u	GT, 2.2	82-84
017 Sundance	Turbo	87-on
019 Acclaim	LX, LE	89-on
020 Neon	Expresso	94-on
031 Cricket		71-72
032 Arrow	GS, GT, Fire Arrow	76-80
033 Sapporo	import	78-83

034 Champ/Colt import (excludes Vista)	Turbo, Custom - Station wagon (1984 on)	79-94
035 Conquest	TSI	84-86
037 Laser	RS, Turbo	89-on
038 Breeze		96-on
039 Prowler		96-on
398 Other (automobile)		40-on
399 Unknown (automobile)		40-on

Light Trucks

421 Trailduster		74-on
441 Vista	4x4	87-on
442 Voyager (minivan)	SE, Grand Voyager, LE	84-on
461 Van-fullsize (B-series)	Voyager (thru 1983), Sport, Premier	65-on
471 Arrow pickup (foreign)		75-on
498 Other (light truck)		65-on
499 Unknown (light truck)		79-on
998 Other vehicle		65-on
999 Unknown (Plymouth)		64-on

MAKE: (10) Eagle

Model Codes	*Includes*	*Model Years*
Automobiles		
034 Summit	DL, LX	89-on
037 Talon		90-on
040 Premier	LX, ES	88-92
041 Vision		93-on
044 Medallion	DL, LX	88-90
398 Other (automobile)		88-on
399 Unknown (automobile)		88-on
Light Trucks		
441 Summit Wagon		92-on
498 Other light truck		88-on
499 Unknown light truck		88-on
998 Other vehicle		88-on
999 Unknown (Eagle)		88-on

MAKE: (12) Ford

Model Codes	*Includes*	*Model Years*
Automobiles		
001 Falcon	Sprint, GT, Futura (through 1969)	50-70
002 Fairlane	Torino (1968-70)	50-70
003 Mustang/Mustang II	Mach, Boss, Grande, Cobra, Ghia, SVO, GT, LX, Shelby	65-on
004 Thunderbird (all sizes)	Town Landau, Heritage, Elan, Turbo coupe, Fila, Sport, LX, SC	55-on
005 LTD II	S, Squire, Brougham	77-79
006 LTD/Galaxy/Custom	XL, Landau, Ranch Wagon, Country Squire, S, 500, 500 XL, Brougham	63-on

007 Ranchero	Falcon/Fairlane based, Torino/LTD II based	60-79
008 Maverick	Grabber	70-77
009 Pinto	MPG, Pony, ESS	71-80
010 Torino/Gran Torino/Elite	GT, Cobra, Sport, Squire, Brougham	71-76
011 Granada	Ghia, ESS	75-82
012 Fairmont	Futura, Sport Coupe	78-83
013 Escort/EXP	L, GL, GLX, SS, GT	81-on
015 Tempo	L, GL, GLX, Sport 4 X 4	84-94
016 Crown Victoria		81-on
017 Taurus SHO, MT-5, L, GL, LX		86-on
018 Probe	GL, LX, GT	88-on
031 English Ford	Cortina	60-70
032 Fiesta	Sport, Ghia	78-80
033 Festiva		88-93
034 Laser		93-on
035 Contour		94-on
036 Aspire		94-on
398 Other (automobile)	Laser	40-on
399 Unknown (automobile)		40-on

Light Trucks

401 Bronco II/Bronco (thru 1977)/Explorer	Eddie Bauer, XL, XLT, Explorer (1990 on)	65-on
421 Bronco-fullsize (1978-on)	Eddie Bauer, Custom, XL, XLT	65-on
422 Expedition		97-on
441 Aerostar	XLT, Cargo Van	85-on
442 Windstar		94-on
461 E-Series Van	Econoline, Clubwagon, Chateau, E150-E350	60-on
470 Van Derivative	parcel van	60-on
471 Ranger Supercab (Domestic), 4x4, STX		82-on
472 Courier	Imported pickup	78-on
481 F-Series pickup	F-100 to F-350	40-on
498 Other (light truck)		40-on
499 Unknown (light truck)		40-on

Medium/Heavy Trucks

850 Truck-based motor-home		-
881 Medium/Heavy - CBE	F-500 through F-800, L-series, FT-series	53-on
882 Medium/Heavy - COE low entry	C/CT series	64-on
883 Medium/Heavy - COE high entry	C/CLT series	67-on
884 Medium/Heavy	unknown engine location	56-on
890 Medium/Heavy - COE	entry position unknown	56-on
898 Other (medium/heavy truck)		65-on
899 Unknown (medium/heavy truck)		56-on
950 Bus-based motor-home		-
981 Bus**: Conventional	B-series (not van based)	64-on
988 Other bus		
989 Unknown bus		65-on
998 Other (vehicle)		40-on
999 Unknown (Ford)		40-on

**** Use code "981" (bus) if the frontal plane or the engine location is unknown.**

MAKE: (13) Lincoln

Model Codes	*Includes*	*Model Years*
Automobiles		
001 Continental/Town Car	Continental (thru 81), Town Car (82 on)	40-on
002 Mark	I, II, III, IV, V, VI, VII, LSC, all Signature/Designer series	56-on
005 Continental (82 on)	All Signature/Designer series	82-on
011 Versailles		70-80
398 Other (automobile)		40-on
399 Unknown (automobile)		40-on
998 Other vehicle		40-on
999 Unknown (Lincoln)		40-on
Light Trucks		
421 Navigator		97-on
498 Other (light truck)		97-on
499 Unknown (light truck)		97-on

MAKE: (14) Mercury

Model Codes	*Includes*	*Model Years*
Automobiles		
002 Cyclone	GT, CJ, Spoiler	50-71
003 Capri-domestic	RS, Turbo, GS, Black Magic	79-86
004 Cougar/XR7	Villager, Brougham, RS, LS, GS Eliminator	67-on
006 Marquis/Monterey	Marauder, Montclair, X-100, Parklane, S-55, Custom, Brougham, Grand Marquis	55-on
008 Comet	Caliente, Capri (1966-1967), GT, Voyager, 202	62-77
009 Bobcat Runabout, Villager		75-80
010 Montego	GT, MX, Villager, Brougham, Comet (1968-70)	67-76
011 Monarch	Ghia	75-80
012 Zephyr Z7, GS		78-83
013 Lynx/LN7 (1982-83)	L, LS, GS, RS, XR-3	81-87
015 Topaz	L, LS, GS, 4x4	84-on
017 Sable	LS, GS	86-on
031 Capri-foreign	Capri II, 2+2	70-94
033 Pantera	DeTomaso	72-74
036 Tracer	L, GL	88-on
037 Mystique		94-on
398 Other (automobile)		62-on
399 Unknown (automobile)		50-on
Light Trucks		
401 Moutaineer		96-on
443 Villager	LS,GS	93-on
998 Other vehicle		-
999 Unknown (Mercury)		-

MAKE: (18) Buick

Model Codes	*Includes*	*Model Years*
Automobiles		
001 Special/Skylark	GS, GS350, GS400, GS455, GS California, Sport Wagon, Custom	50-72
002 LeSabre/Centurion/Wildcat	Estate wagon, Luxus, Invicta, Custom, Limited, T-Type	55-on
003 Electra/Electra 225 Park Avenue (91-on)	Limited, Park Avenue, Ultra	60-on
004 Roadmaster	Estate Wagon, Limited	91-on
005 Riviera	S-Type, T-Type	63-on
007 Century	Luxus, T-Type, FWD (82-on), Custom, Regal (72-77)	65-on
008 Apollo/Skylark (75)	Skylark (75), S/R	73-76
010 Regal	Turbo, Luxus, Grand National	78-88
012 Skyhawk	S-Type, Road Hawk, T-Type, GT	75-on
015 Skylark (76-85)	S/R, S, Limited, Sport, T-Type	76-85
018 Somerset/Skylark (86 on)	Regal, Custom, Limited, T-Type	85-on
020 Regal (FWD)	Limited	88-on
021 Reatta		88-91
031 Opel Kadett		65-75
032 Opel Manta	1900, Luxus, Rallye, Sports Coupe	70-75
033 Opel GT		69-75
034 Opel Isuzu	Deluxe, Sport	76-79
398 Other (automobile)		65-on
399 Unknown (automobile)		50-on
998 Other (vehicle)		40-on
999 Unknown (Buick)		40-on

MAKE: (19) Cadillac

Model Codes	*Includes*	*Model Years*
Automobiles		
003 DeVille/Fleetwood (except Limousine)	Coupe de Ville, Sedan de Ville, Brougham, 60-Special, d'Elegance	40-on
004 Limousine	Fleetwood 75, Formal	40-on
005 Eldorado	Biarritz, El-doro, Touring Coupe	67-on
006 Commercial Series	Ambulance/Hearse	40-on
009 Allante		87-on
014 Seville Elegante		76-on
016 Cimarron	D'Oro	82-88
017 Catera	RWD	97-on
398 Other (automobile)		40-on
399 Unknown (automobile)		40-on
998 Other vehicle		40-on
999 Other (Cadillac)		40-on

MAKE: (20) Chevrolet

Model Codes	*Includes*	*Model Years*
Automobiles		
001 Malibu/Chevelle	Classic, Councours, Laguna, S-3, Nomad, Deluxe, Greenbriar, Estate, 300, SS-396/454	63-85
002 Caprice/Impala	Classic, Kingswood, Townsman, Estate, Bel Air Brookwood, Super Sport, Biscayne	55-on
004 Corvette	Stingray	53-on
006 Corvair	Monza, 500, Spyder, Corsa	60-69
007 El Camino	Royal Knight	58-on
008 Nova	Chevy II, Chevy Nova, LN, Concours	62-79
009 Camaro	SS, LT, Z-28, Berlinetta, Iroc-Z	67-on
010 Monte Carlo	G-Car	70-88
011 Vega	GT, Cosworth, Kammback	71-77
012 Monza 2+2, Spyder, Towne Coupe		75-80
013 Chevette	S, Scooter, CS	76-87
015 Citation	X-11, Citation II	80-85
016 Cavalier	CS, RS, Z24	82-on
017 Celebrity	CS, Eurosport, VR	82-on
019 Beretta/Corsica	GT	87-on
020 Lumina	(GM-10 based), Z-34	90-on
031 Spectrum		84-on
032 Nova/Geo Prizm	CL, NUMMI-built vehicles	85-on
033 Sprint/Geo Sprint		85-on
034 Geo Metro	LSI	89-on
035 Geo Storm		90-on
036 Monte Carlo (FWD only)	Z34	95-on
037 Malibu		97-on
398 Other (automobile)		40-on
399 Unknown (automobile)		40-on
Light Trucks		
401 S-10 Blazer, Blazer	S-10 p/u based	83-on
402 Geo Tracker	LSI	89-on
421 Fullsize Blazer,Tahoe	K-series, full-sized p/u-based	69-on
431 Suburban		50-on
441 Astro Van	Minivan	85-on
442 Lumina APV		90-on
443 Ventura		97-on
461 G-series van	Beauville, Chevy Van, Sport Van, G10-G30, Express	57-on
466 P-series van		40-on
470 Van derivative	Hi-cube, Parcel Van	65-on
471 S-10, T-10	4x4	82-on
472 LUV	Imported pickup	78-on
475 Van derivative	Hi-cube, Parcel Van	65-on
481 C, K, R, V-series	C10-C30,K10-K30,R10-R30,V10-V30, Silverado	40-on
498 Other (light truck)	Grumman LLV Postal	59-on
499 Unknown (light truck)		40-on

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Medium/Heavy Trucks

Code		Model Years
850 Truck-based motor-home		-
881 Medium/Heavy - CBE	C50/60/65; M60/65; H70/80/90; J70/80/90; Bison 90; all other CBE	55-on
882 Medium/Heavy - COE low entry	T60/65, all other COE low entry	60-on
883 Medium/Heavy - COE high entry	Titan 90, all other COE	71-on
884 Medium/Heavy - Unknown engine location		51-on
890 Medium/Heavy - COE entry position unknown		65-on
898 Other (medium/heavy truck)		49-on
899 Unknown (medium/heavy truck)		49-on

Buses

Code		Model Years
950 Bus-based motorhome		-
981 Bus**: Conventional (Engine out front)	S-60 series	67-on
988 Other bus		
989 Unknown bus		65-on
998 Other vehicle		40-on
999 Unknown (Chevrolet)		40-on

** Use code "981" (bus) if the frontal plane or the engine location is unknown.

MAKE: (21) Oldsmobile

Model Codes	*Includes*	*Model Years*
Automobiles		
001 Cutlass	Supreme, S, LS, Salon, Brougham, Vista Cruiser, F85 (thru 1972), Rallye 350, Hurst Olds, 442, Calais, Classic (88)	62-88
002 Delta 88	Royale, Custom, Delta, Jetstar 88, Delmont 88,49 Delta, Starfire (thru 1966)	49-on
003 Ninety-Eight	Regency, Luxury	49-on
005 Toronado	XSR, Trofeo, Brougham, Custom	66-92
006 Commercial Series	Ambulance/Hearse	40-on
012 Starfire	SX, GT	75-80
015 Omega X-body type		75-85
016 Firenza	S, LS, SX, Cruiser, GT	82-88
017 Ciera	Cutlass Ciera, ES, Brougham	82-on
018 Calais	GT, ES, 500	85-91
020 Cutlass (FWD)	Supreme	88-on
021 Achieva	SC	92-on
022 Aurora		94-on
398 Other (automobile)		40-on
399 Unknown (automobile)		40-on
Light Trucks		
401 Bravada		91-on
441 Silhouette		90-on
498 Other (light truck)		90-on
499 Unknown (light truck)		90-on
998 Other vehicle		90-on
999 Unknown (Oldsmobile)		90-on

MAKE: **(22) Pontiac**

Model Codes	*Includes*	*Model Years*
Automobiles		
001 LeMans/Tempest	Safari, T-37, Luxury, Grand Sport, GTO (thru 1973), GT-37, Sprint, Judge, Grand AM (73-75)	62-79
002 Bonneville/Catalina/ Parisienne	Brougham, Grand Safari, Safari, Grandville, 2+2 Executive, Starchief SE, SSE	57-on
005 Fiero	2M4, 2M6, GT, SE	84-88
008 Ventura	II, SJ, Sprint, GTO (74-77)	71-77
009 Firebird/Trans Am	Esprit, Formula, GTA, Redbird, Yellowbird, Skybird, SE	67-on
010 Grand Prix (RWD)	J, LJ, SJ, Brougham, 2+2	63-87
011 Astre	Safari, SJ, Custom	75-77
012 Sunbird (thru 1980)	Safari, Sport, Formula	76-80
013 T-1000/1000		81-87
015 Phoenix	LJ, SJ	77-84
016 J-2000/2000/ Sunbird (1985-on)	LE, SE, GT, Convertible	82-on
017 6000	STE, SE, LE	82-on
018 Grand AM	SE, LE	78-on
020 Grand Prix (FWD)	SE, McLaren Turbo, GTP	88-on
031 Lemans (1988-on)	SE, Tempest (Canadian)	88-on
398 Other (automobile)		65-on
399 Unknown (automobile)		51-on
Light Trucks		
441 Trans Sport		90-on
498 Other light truck		-
499 Unknown light truck		-
998 Other vehicle		-
999 Unknown (Pontiac)		51-on

MAKE: **(23) GMC**

Model Codes	*Includes*	*Model Years*
Automobiles		
007 Caballero/Sprint		65-on
398 Other (automobile)		65-on
399 Unknown (automobile)		65-on
Light Trucks		
401 Jimmy/Typhoon	S-15 based	83-on
421 Fullsize Jimmy/Yukon	Full-size pickup based	69-on
431 Suburban		50-on
441 Safari (Minivan)		86-on
461 G-series van	Rally Van, Vandura, G15-G35, Savana	65-on
466 P-series van		65-on
470 Van derivative	Hicube, parcel van, Value Van, Magna Van	65-on
471 S15/Sonoma		82-on
481 C, K, R, V-series pick-up	C15-C35, K15-K35, R15-R35, V15-V35/Sierra	40-on
498 Other (light truck)		40-on
499 Unknown (light truck)		40-on

881 Medium/Heavy - CBE	W5000/6000/7000 series, Brigadier/General model	40-on
882 Medium/Heavy - COE low entry	W6000/W7000, all other COE low entry	40-on
883 Medium/Heavy - COE high entry	Astro 95, all other COE high entry	40-on
884 Medium/Heavy unknown engine location	P5G500, P68042	40-on
890 Medium/Heavy - COE entry position unknown		40-on
898 Other (medium/heavy truck)		40-on
899 Unknown (medium/heavy truck)		40-on

Buses

950 Bus-based motor-home		40-on
981 Bus**: Conventional	B6000	40-on
988 Other (bus)		40-on
989 Unknown		40-on
998 Other (vehicle)		40-on
999 Unknown (GMC)		40-on

** Use code "981" (bus) if the frontal plane or the engine location is unknown.

MAKE: (24) Saturn

Model Codes	*Includes*	*Model Years*
Automobiles		
001 SL	SL1, SL2, SL3	91-on
002 SC	SC1, SC2	91-on
003 SW	SW1, SW2	93-on
004 EV1	(Electric vehicle)	97-on
398 Other (automobile)		91-on
399 Unknown (automobile)		91-on

MAKE: (25) Grumman

Model Codes	*Includes*	*Model Years*
Light Trucks		
441 LLV	Postal vehicle	40-on
442 Step-in van	Multi-stop, step van	40-on
498 Other light truck		40-on
499 Unknown light truck		40-on
Medium/Heavy Trucks		
850 Truck-based motorhome		40-on
881 Medium/Heavy CBE		40-on
882 Medium/Heavy COE	low entry	40-on
883 Medium/Heavy COE	high entry	40-on
884 Medium/Heavy Unknown	engine location	40-on
890 Medium/Heavy COE	entry position unknown	40-on
898 Other medium/heavy truck		40-on
899 Unknown medium/heavy truck		40-on

Buses

983 Bus-flat front, rear engine	Transit		40-on
988 Other bus			40-on
989 Unknown bus			40-on
998 Other vehicle			40-on
999 Unknown (Grumman)			40-on

MAKE: (29) Other Domestic

Model Codes	*Includes*	*Model Years*
001 Studebaker/Avanti	Lark, Gran Turismo, Hawk, Cruiser, all associated subseries	40-66
002 Checker	Marathon, Superba, Taxi, Aerobus	65-82
398 Other (make)	Desoto, Excaliber, Stutz, Hudson, Packard, Consulier	40-on
399 Unknown (make)		-

MAKE: (30) Volkswagen

Model Codes	*Includes*	*Model Years*
Automobiles		
031 Karmann Ghia		60-74
032 Beetle 1300/1500		48-77
033 Super Beetle		71-80
034 411/412	Squareback, Fastback	71-74
035 Squareback/Fastback	Type 3, 1600	65-74
036 Rabbit	L, GTI Sport, LS, Custom, DL, Deluxe	75-84
037 Dasher		74-81
038 Scirocco	16V	75-88
040 Jetta	GL, GLI	81-92
041 Quantum	Synco	82-88
042 Golf	Synco, GTI, Cabriolet, GT, GL	85-92
043 Rabbit Pickup	car-based pickup	80-83
044 Fox		87-on
045 Corrado		89-on
046 Passat		90-on
047 Jetta III		93-on
048 Golf III		93-on
398 Other (automobile)		40-on
399 Unknown (automobile)		40-on
Light Trucks		
401 The Thing (181)		73-75
441 Vanagon/Camper	Bus, Kombi, Van	55-91
442 Eurovan		92-on
498 Other (light truck)		67-80
499 Unknown (light truck)		65-on
998 Other vehicle		40-on
999 Unknown (Volkswagen)		40-on

MAKE: **(31) Alfa Romeo**

Model Codes	*Includes*	*Model Years*
Automobiles		
031 Spider	All roadsters; Veloce, 1750/2000 roadsters	55-on
032 Sports Sedan	All 4-door sedans; Milano (86), Giulia, Super, Berlina, Alfetta, 1750/2000 sedans	55-on
033 Sprint Veloce	All 2-door coupes; Alfetta GT, 1750/2000 GTV, Sprint GT	55-on
034 GTV-6		81-on
035 164		89-on
398 Other (automobile)		65-on
399 Unknown (automobile)		55-on

MAKE: **(32) Audi**

Model Codes	*Includes*	*Model Years*
Automobiles		
031 Super 90		70-72
032 100/A6	S, LS, GL, Quattro (1989-91)	70-77, 89-on
033 Fox		74-79
034 4000	Quattro, Coupe GT, CS, S	80-88
035 5000	Quattro, CS, S, Turbo	78-88
036 80/90	Quattro	88-95
037 200	Quattro	89-92
038 V-8 Quattro		90-94
039 Coupe Quattro		90-93
040 S4/S6		93-on
041 Cabriolet		94-on
042 A4		95-on
043 A3		96-on
044 A8		96-on
398 Other (automobile)		70-on
399 Unknown (automobile)		70-on
998 Other vehicle		70-on
999 Unknown (Audi)		70-on

MAKE: **(33) Austin/Austin Healey**

Model Codes	*Includes*	*Model Years*
Automobiles		
031 Marina	GT	73-75
032 America		68-71
033 Healey Sprite		59-70
034 Healey 3000	Healey 100	55-67
035 Mini		60-67
398 Other (automobile)		68-75
998 Other vehicle		55-75
999 Unknown (Austin)		55-75

MAKE: (34) BMW

Model Codes	*Includes*	*Model Years*
Automobiles		
031 1600, 2002	Tii, 1800, 2000CS	66-76
032 Coupe	2800CS, 3.0CS	69-76
033 Bavaria Sedan	2500, 2800	69-76
034 3-series	318i, 320i, 325e, 325es, 325i, M3, 328	77-on
035 5-series	524i, 525i (wagon) 528i, 530i,	75-on
	533i, 535i, TD, M5,540A,540I	
036 6-series	630, 633, 635, csi, M6	77-on
037 7-series	733i, 735i, L7,740i,750iL	78-on
038 8-series	850i	90-on
039 Z3		96-on
398 Other (automobile)		66-on
399 Unknown (automobile)		66-on
Motorcycles		
701 0-50 cc		70-83
702 51-124 cc		74-on
704 350-449 cc		65-on
705 450-749 cc		70-83
706 750 cc or over		74-on
709 Unknown cc		65-on
799 Unknown (motored cycle)		70-on
998 Other vehicle		65-on
999 Unknown (BMW)		65-on

MAKE: (35) Datsun/Nissan

Model Codes	*Includes*	*Model Years*
Automobiles		
031 F-10		77-78
032 200 SX/240 SX		78-on
033 B210/210/1200	Honeybee	71-82
034 Z-car, ZX	240/260/280/300 ZX, 2+2, Turbo	70-on
035 310		79-82
036 510	PL	68-81
037 610	PL	73-76
038 710	PL	74-77
039 810/Maxima		77-on
040 Roadster	SPL311, SRL311, 1600, 2000, convertible	50-70
041 PL411/RL411		67-87
042 Stanza	XE	82-92
043 Sentra		83-on
044 Pulsar	NX, EXA (1986 on)	83-90
045 Micra		87-on
046 NX 1600/2000		92-on
047 Altima		93-on
398 Other (automobile)		66-on
399 Unknown (automobile)		67-on

Light Trucks

401 Pathfinder	MPV, 4x4		86-on
441 Van	XE, GXE		87-on
442 Axxess			89-90
443 Quest			93-on
471 Pickup PL620, King Cab,			
Hardbody			73-on
498 Other (light truck)	Patrol (1960)		76-on
499 Unknown (light truck)			67-on

Medium/Heavy Trucks

883 Medium/Heavy - COE high entry	86-on
898 Other (medium/heavy truck)	86-on
899 Unknown (medium/heavy truck)	86-on
998 Other Vehicle	50-on
999 Unknown (Nissan)	50-on

MAKE: (36) Fiat

Model Codes	Includes	Model Years
Automobiles		
031 124 (Coupe/Sedan)	Sport	67-75
032 124 Spider/Racer	Spider 2000/1500	68-83
033 Brava/131		75-82
034 850 (Coupe & Spyder)		67-73
035 128		72-79
036 X-1/9		75-83
037 Strada		79-83
398 Other (automobile)	600, 1100	67-83
399 Unknown (automobile)		67-83
Medium/Heavy Trucks		
882 Medium/Heavy - COE low entry		67-83
883 Medium/Heavy - COE high entry		67-83
890 Medium/Heavy - COE entry position unknown		67-83
898 Other (medium/heavy truck)		67-83
899 Unknown (medium/heavy truck)		67-83
998 Other vehicle		67-83
999 Unknown (Fiat)		67-83

MAKE: (37) Honda

Model Codes	Includes	Model Years
Automobiles		
031 Civic/CRX	300, 1500, CVCC, DX, CRX, S, Si, HF, 4WD, Wagon, del Sol	73-on
032 Accord LX, CVCC, SE-i, LX-i, EX Wagon		76-on
033 Prelude	Si	80-on
034 600	Coupe, Sedan	68-72
398 Other (automobile)	all Honda's not listed above	68-on
399 Unknown (automobile)		68-on

Light Trucks

401 Passport		94-on
441 Odyssey		95-on
498 Other light truck		94-on
499 Unknown light truck		94-on

Motorcycles

701 0-50 cc		78-on
702 51-124 cc		65-on
703 125-349 cc		65-on
704 350-449 cc		65-on
705 450-749 cc		70-on
706 750 cc or over		70-on
709 Unknown cc		65-on

All Terrain Cycles/Vehicles

731 0-50 cc	Includes all ATCs/ATVs designed solely for	72-on
732 51-124 cc	off-road use and have 3 or 4 wheel balloon	72-on
733 125-349 cc	tires.	72-on
734 350 cc or greater		72-on
739 Unknown cc		
799 Unknown (motored cycle)		65-on
998 Other vehicle		
999 Unknown (Honda)		65-on

MAKE: (38) Isuzu

Model Codes	*Includes*	*Model Years*
Automobiles		
031 I-Mark	S, RS, Turbo	85-89
032 Impulse	Turbo, RS	84-on
033 Stylus		90-on
398 Other (automobile)		84-on
399 Unknown (automobile)		84-on
Light Trucks		
401 Trooper/Trooper II	Deluxe, LS	84-on
402 Rodeo		91-on
403 Amigo		89-94
441 Oasis		96-on
471 P'up (pickup)	4x4	76-on
498 Other (light truck)		76-on
499 Unknown (light truck)		76-on
Medium/Heavy Trucks		
881 Medium/Heavy - CBE		81-on
882 Medium/Heavy - COE low entry		81-on
883 Medium/Heavy - COE high entry		81-on
884 Medium/Heavy	unknown engine location	81-on
890 Medium/Heavy - COE	entry position unknown	81-on
898 Other (medium/heavy truck)		81-on
899 Unknown (medium/heavy truck)		81-on

Buses

950 Bus based motorhome		81-on
981 Bus**: Conv - Engine out front		81-on
982 Bus: Front engine, Flat Front		81-on
983 Bus: Rear engine, Flat Front		81-on
988 Other (bus)		81-on
989 Unknown (bus)		81-on
998 Other vehicle		96-on

** Use code "981" (bus) if the frontal plane or the engine location is unknown.

MAKE: (39) Jaguar

Model Codes	*Includes*	*Model Years*
Automobiles		
031 XJ-S Coupe		76-on
032 XJ6/XJ12 Sedan/Coupe	L, XJ, C, 340/420 Sedans	68-on
033 XK-E	V12, Roadster, 120 2+2	62-on
034 X100		97-on
398 Other (automobile)		63-on
399 Unknown (automobile)		63-on
998 Other vehicle		-
999 Unknown (Jaguar)		-

MAKE: (40) Lancia

Model Codes	*Includes*	*Model Years*
Automobiles		
031 Beta Sedan/HPE		76-80
032 Beta Coupe/Zagato		76-82
033 Scorpion		76-78
398 Other (automobile)		76-82
399 Unknown (automobile)		76-82
998 Other vehicle		76-82
999 Unknown (Lancia)		76-82

MAKE: (41) Mazda

Model Codes	*Includes*	*Model Years*
Automobiles		
031 RX2		72-74
032 RX3		72-78
033 RX4		74-78
034 RX7	GLE, SE, GSL, GS, S	79-on
035 GLC/323/Protege	DX, Protege (1990 on)	77-on
036 Cosmo		76-78
037 626	GT, GS, GSL, SE	79-on
038 808		72-77
039 Mizer		76
040 R-100		50-72
041 616/618		68-72

042 1800		68-72
043 929		86-on
044 MX-6	Turbo	90-on
045 Miata		90-on
046 MX-3		92-on
047 Milenia		95-on
398 Other (automobile)		50-on
399 Unknown (automobile)		50-on

Light Trucks

401 Navajo		91-on
441 MPV		89-on
471 Madza Pickup	B-2000, B-2200, B-2600, B-4000, SE-5, Cab Plus, LX	72-on
498 Other (light truck)		65-on
499 Unknown (light truck)		65-on
998 Other vehicle		65-on
999 Unknown (Mazda)		65-on

MAKE: (42) Mercedes-Benz

Model Codes	*Includes*	*Model Years*
Automobiles		
031 200/220/230/240/250/260/ 280/300/320/340	Sedan and 5 passenger "C" only, SE, SD, D, SD, TD, CE, E, <u>DOES NOT</u> include <u>280 SE</u> (1975 on), <u>300 SD and SE</u> - see Code 037	50-on
032 230/280 SL	2-seater only	64-71
033 300/350/380/450/500/560 SL	2 seater only, 300/500 SL (1990 on)	72-on
034 350/380/420/450/560	SLC	73-on
035 280/300 SEL	TD, TD-T, CDT	67-72
036 380/420/450/500/560 SEL, 500/560 SEC/350 SDL/300 SDL		73-on
037 300/380/450 SE	280 S, 280 SC (1975 on), 300 SD Sedan	68-on
038 600, 6.9 Sedan	Pullman	78-79
039 190	D, TD, E, 2.3, 2.5, Turbo	84-on
040 300	CE Cabriolet	93-on
041 400/500E		92-on
042 220/280C		94-on
398 Other (automobile)		65-on
399 Unknown (automobile)		65-on
Light Trucks		
470 Van derivative	Kurbstar	82-on
498 Other light truck		82-on
499 Unknown light truck		82-on
Medium/Heavy Trucks		
881 Medium/Heavy - CBE		65-on
882 Medium/Heavy - COE low entry		65-on
883 Medium/Heavy - COE high entry		65-on
884 Medium/Heavy - Unknown engine location		65-on
890 Medium/Heavy - COE entry posit unknown		65-on
898 Other (medium/heavy truck)		65-on
899 Unknown (medium/heavy truck)		65-on
950 Bus based motor-home		65-on

981 Bus**: Conv (Engine out front)		65-on
988 Other (bus)		65-on
989 Unknown (bus)		65-on
998 Other vehicle		65-on
999 Unknown (Mercedes-Benz)		50-on

MAKE: (43) MG

Model Codes	*Includes*	*Model Years*
Automobiles		
031 Midget MKIII, 1500		60-79
032 MGB		76-79
033 MGB	GT	67-75
034 MGA		55-62
035 TA/TC/TD/TF		40-55
036 MGC	GT	68-69
398 Other (automobile)	Sport Sedan	40-79
399 Unknown (automobile)		40-79
998 Other vehicle		40-79
999 Unknown (MG)		40-79

MAKE: (44) Peugeot

Model Codes	*Includes*	*Model Years*
Automobiles		
031 304		71-73
032 403		60-67
033 404		60-70
034 504/505	STI, STX, Turbo, S, GL, GLS, Liberte	70-91
035 604	SL, D	74-84
036 405	Mi-16	89-91
398 Other (automobile)		65-on
399 Unknown (automobile)		60-on
Motorcycles		
701 0-50 CC		65-on
702 51-124 CC		65-on
709 Unknown CC		65-on
799 Unknown (motored cycle)		65-on
998 Other vehicle		65-on
999 Unknown (Peugeot)		60-on

MAKE: (45) Porsche

Model Codes	*Includes*	*Model Years*
Automobiles		
031 911	L, S, E, T, SC, Carrera, Slopenose Speedster, Panorama	66-on
032 912	E, T	66-69
033 914	S, 1.8, 2.0, 914/6	70-76
034 924	Turbo, S	77-88

035 928	S	78-on
036 930	Turbo	79
037 944	Turbo, S	83-91
038 959		89-94
039 968		92-95
040 986		96-on
398 Other (automobile)		65-on
399 Unknown (automobile)		64-on
998 Other vehicle		64-on
999 Unknown (Porsche)		64-on

MAKE: (46) Renault

Model Codes	*Includes*	*Model Years*
Automobiles		
031 LeCar	R5	76-83
032 Dauphine/10/R-8/Caravelle		55-71
033 12	R12L, R12TL	72-77
034 15	R15TL	73-76
035 16	R16	69-72
036 17	R17, Gordini Coupe, R17TL	73-80
037 R18i	Sportwagon	81-on
038 Fuego	TL, TS, GTL, GTS, Turbo	82-85
039 Alliance/Encore GTA, Conv	L, DL, Limited, X-37	83-on
041 Alpine	GT	87-on
044 Medallion	DL, LX	87
045 Premier		87
398 Other (automobile)		65-on
399 Unknown (automobile)		55-on
998 Other vehicle		55-on
999 Unknown (Renault)		55-on

MAKE: (47) Saab

Model Codes	*Includes*	*Model Years*
031 99/99E/900	S, Turbo, Cabriolet	73-on
032 Sonnet II, III, V-4		68-74
033 95/96/97		60-73
034 9000		85-on
398 Other (automobile)		60-on
399 Unknown (automobile)		60-on
998 Other vehicle		60-on
999 Unknown (Saab)		60-on

MAKE: **(48) Subaru**

Model Codes	*Includes*	*Model Years*
Automobiles		
031 DL/FE/G/GF/GL/GLF/ STD/Loyale (1990 on)	4 wheel drive, Turbo	72-94
032 Star		70-71
033 360		69-70
034 Legacy Brighton, Outback, OutbackII		89-on
035 XT/XT6	4WD Turbo, convertible, DL	86-on
036 Justy	DL, GL	87-94
037 SVX		92-on
038 Impreza		93-on
043 Brat	DL, GL	78-on
398 Other (automobile)		70-on
399 Unknown (automobile)		70-on
998 Other vehicle		69-on
999 Unknown (Subaru)		69-on

MAKE: **(49) Toyota**

Model Codes	*Includes*	*Model Years*
Automobiles		
031 Corona Mark II, Custom, 1900, 2000, Deluxe		66-82
032 Corolla	1100, 1200, 1600, SR-5, LE, Deluxe, Custom, FX16	69-on
033 Celica	1900, 2000, GT, ST, GTS	72-on
034 Supra	Celica Supra, Soarer	79-92
035 Cressida		78-92
036 Crown 2300, 2600		66-71
037 Carina	2000	72-73
038 Tercel	Corolla Tercel, 4WD Wagon	80-on
039 Starlet		81-84
040 Camry	LE, Deluxe, XLE, Coupe	83-on
041 MR-2		85-95
042 Paseo		92-on
043 Avalon		95-on
398 Other (automobile)		73-on
399 Unknown (automobile)		73-on
Light Trucks		
401 4-Runner		81-on
402 RAV-4		96-on
421 Landcruiser		76-on
441 Minivan (1984-90)/ Previa (1991 on)	LE, Cargo	84-on
471 Pickup SR-5, Extra Cab, Sport, LN44, Chinook, Wonder Wagon		75-on
472 Takoma		93-on
481 T-100		93-on
498 Other (light truck)		70-on
499 Unknown (light truck)		73-on
998 Other vehicle		66-on
999 Unknown (Toyota)		66-on

MAKE: (50) Triumph

Model Codes	*Includes*	*Model Years*
Automobiles		
031 Spitfire	I, II, III, IV, 1500	62-81
032 GT-6	MK3	67-73
033 TR4	TR3, TR2, TR4A	58-74
034 TR6	TR 250	69-76
035 TR7/TR8		75-81
036 Herald	Vitesse	60-74
037 Stag		71-73
398 Other automobile	2000, 1200 series	65-81
399 Unknown (automobile)		58-81
Motorcycles		
701 0-50 cc		65-on
702 51-124 cc		65-on
703 125-349 cc		50-74
704 350-449 cc		50-70
705 450-749 cc		50-74
706 750 cc or greater		70-83
709 Unknown cc		50-on
799 Unknown (motored cycle)		50-on
998 Other vehicle		50-on
999 Unknown (Triumph)		67-on

MAKE: (51) Volvo

Model Codes	*Includes*	*Model Years*
Automobiles		
031 122	S	58-68
032 142/144/145	S, E, GL, GLS, Deluxe	67-74
033 164	S, E	69-75
034 240/242/244/245	DL, GL, GLE, GLT, Deluxe	75-on
035 262/264/265	GL	76-89
036 1800	E, S, ES	60-73
037 P-544		47-65
038 760/780	GLE	83-92
039 740	GLE, GT, Turbo, GL	85-92
040 940	GLE, Turbo, SE	91-on
041 960		92-on
042 850	GLT,Wagon	93-on
398 Other (automobile)		65-on
399 Unknown (automobile)		47-on
Medium/Heavy Trucks		
881 Medium/Heavy: CBE		81-on
882 Medium/Heavy: COE low entry		81-84
883 Medium/Heavy: COE high entry		81-on
884 Medium/Heavy: unk. eng loc		81-on
890 Medium/Heavy: COE ent pos unk		81-on
898 Other (medium/heavy truck)		81-on
899 Unknown (medium/heavy truck)		81-on

Buses

950 Bus-based motor-home		65-on
981 Bus**: Conv (Engine out front)		81-on
988 Other (bus)		65-on
989 Unknown bus		65-on
998 Other vehicle		63-on
999 Unknown (Volvo)		63-on

MAKE: (52) Mitsubishi

Model Codes	*Includes*	*Model Years*
Automobiles		
031 Starion 2+2, LE, Turbo		83-90
032 Tredia	L, LS, Turbo	83-88
033 Cordia	L, Turbo	83-88
034 Galant	ECS, Sigma (thru 88)	83-on
035 Mirage L, Turbo		85-on
036 Precis		87-on
037 Eclipse		90-on
038 Sigma		89-90
039 3000 GT		91-on
040 Diamante		92-on
398 Other (automobile)		83-on
399 Unknown (automobile)		83-on
Light Trucks		
401 Montero	Sport	89-on
441 Mini-Van	LS, Space Wagon	83-on
442 Expo	LRV, Sport	92-95
471 Pickup Mighty Max, SPX, 4x4		83-on
498 Other (light truck)		83-on
499 Unknown (light truck)		83-on
Medium/Heavy Trucks		
882 Medium/Heavy - COE low	FUSO FE	83-on
898 Other (medium/heavy truck)		83-on
899 Unknown (medium/heavy truck)		83-on
Buses		
950 Bus-based motorhome		81-on
981 Bus**: Conventional (Engine out front)		81-on
982 Bus: Front engine, Flat front		81-on
983 Bus: Rear engine, Flat front		81-on
988 Other (bus)		81-on
989 Unknown bus		81-on
998 Other vehicle		81-on
999 Unknown (Mitsubishi)		83-on

MAKE: (53) Suzuki

Model Codes	*Includes*	*Model Years*
Automobiles		
031 SA310 GLX		85-on
034 Swift	GTI, GTX	89-on
035 Esteem		95-on
398 Other (automobile)		85-95
399 Unknown (automobile)		85-on
Light Trucks		
401 Samurai	Standard, Deluxe	85-95
402 Sidekick		89-on
403 X-90		95-on
498 Other (light truck)		85-on
499 Unknown (light truck)		85-on
Motorcycles		
701 0-50 cc		72-on
702 51-124 cc		72-on
703 125-349 cc		69-on
704 350-449 cc		72-on
705 450-749 cc		69-on
706 750 cc or over		72-on
All Terrain Cycles/Vehicles		
731 0-50 cc	includes all ATCs/ATVs designed solely for	69-on
732 51-124 cc	off-road use and have 3 or 4 wheel	69-on
733 125-349 cc	balloon tires.	69-on
734 350 cc or greater		69-on
799 Unknown (motored cycle)		69-on
998 Other vehicle		69-on
999 Unknown (Suzuki)		69-on

MAKE: (54) Acura

Model Codes	*Includes*	*Model Years*
Automobiles		
031 Integra RS, LS		86-on
032 Legend/RL		86-on
033 NSX	NSX-T	91-on
034 Vigor/TL	TL 2.5/TL 3.2	92-96
035 CL	Coupe	96-on
398 Other (automobile)		86-on
399 Unknown (automobile)		86-on
Light Trucks		
401 SLX		96-on
998 Other vehicle		86-on
999 Unknown (Acura)		86-on

MAKE: (55) Hyundai

Model Codes	*Includes*	*Model Years*
Automobiles		
031 Pony		84-88
032 Excel	GL, GLS	84-94
033 Sonata		89-on
034 Scoupe		91-95
035 Elantra		92-on
036 Accent		95-on
398 Other (automobile)		84-on
399 Unknown (automobile)		84-on
998 Other vehicle		84-on
999 Unknown (Hyundai)		84-on

MAKE: (56) Merkur

Model Codes	*Includes*	*Model Years*
Automobiles		
031 XR4TI Turbo		85-89
032 Scorpio	Turbo	87-90
398 Other (automobile)		85-90
399 Unknown (automobile)		85-90
999 Unknown (Merkur)		85-90

MAKE: (57) Yugo

Model Codes	*Includes*	*Model Years*
Automobiles		
031 GV	GVX, Cabriolet	86-92
398 Other (automobile)		86-on
399 Unknown (automobile)		86-on
999 Unknown (Yugo)		86-on

MAKE: (58) Infiniti

Model Codes	*Includes*	*Model Years*
Automobiles		
031 M30		90-92
032 Q45		90-on
033 G20		91-on
034 J30		93-on
035 I30		96-on
398 Other (automobile)		90-on
399 Unknown (automobile)		90-on

Light Trucks
401 T30		97-on
498 Other Truck		97-on
499 Unknown Light Truck		97-on
999 Unknown (Infiniti)		90-on

MAKE: (59) Lexus

Model Codes	Includes	Model Years
Automobiles		
031 ES-250/ES-300		90-on
032 LS-400		90-on
033 SC-300/SC-400	2 door coupe	92-on
034 GS-300		94-on
398 Other (automobile)		90-on
399 Unknown (automobile)		90-on
Light Trucks		
421 LX-450		96-on
498 Other light truck		96-on
499 Unknown light truck		96-on
999 Unknown (Lexus)		96-on

MAKE: (60) Daihatsu

Model Codes	Includes	Model Years
Automobiles		
031 Charade		90-92
398 Other (automobile)		90-on
399 Unknown (automobile)		90-on
Light Trucks		
401 Rocky		90-92
498 Other (light truck)		90-on
499 Unknown (light truck)		90-on
998 Other vehicle		90-on
999 Unknown (Daihatsu)		90-on

MAKE: (61) Sterling

Model Codes	Includes	Model Years
Automobiles		
031 827S	Li	86-91
398 Other (automobile)		86-on
399 Unknown (automobile)		86-on
998 Other vehicle		86-on
999 Unknown (Sterling)		86-on

MAKE: (62) Rover

Model Codes	Includes	Model Years
Light Trucks		
401 Discovery (LR)		94-on
402 Defender 90 (LR)		94-on
421 County LWB (RR)/County Classic (RR)		40-on
422 4.0 SE (RR)		95-on
498 Other Light Truck		40-on
499 Unknown Light Truck		40-on
998 Other vehicle		40-on
999 Unknown (Rover)		40-on

MAKE: (63) Kia

Model Codes	Includes	Model Years
Automobiles		
031 Sephia		94-on
398 Other (automobile)		94-on
399 Unknown (automobile)		95-on
Light Trucks		
401 Sportage		95-on
998 Other vehicle		95-on
999 Unknown (Kia)		95-on

MAKE: (69) Other Import

Model Codes	Includes	Model Years
031 Aston Martin	Lagonda, Vantage, Volante, Saloon	65-on
032 Bricklin		65-on
033 Citroen		65-on
034 DeLorean		81-on
035 Ferrari		65-on
036 Hillman		65-on
037 Jensen	Healy	65-on
038 Lamborghini	Countach, 5000S, Jalpa	65-on
039 Lotus	Europe, Espirit	67-on
040 Maserati	Biturbo	65-on
041 Morris	Minor	65-on
042 Rolls Royce/Bentley	Cloud/Shadow series	65-on
044 Simca		65-on
045 Sunbeam		65-on
046 TVR		65-on
048 Desta		65-on
049 Reliant (British)		60-on
052 Bertone	X/19	89-on
053 Lada		65-on
398 Other Imported Auto	Morgan, Singer	65-on
399 Unknown make		

MOTORED CYCLES/ATC/ATV

Model Codes	*Includes*	*Model Years*

Motorcycles
      701 0-50 cc
      702 51-124 cc
      703 125-349 cc
      704 350-449 cc
      705 450-749 cc
      706 750-cc and over

All Terrain Cycles/Vehicles
      731 0-50 cc   includes all ATCs/ATVs designed solely for off-road
      732 51-124 cc   use and have 3 or 4 wheel balloon tires.
      733 125-349 cc
      734 350 cc or greater
      799 Unknown (motored cycle)

MAKE: (84) International Harvester/Navistar

Model Codes	*Includes*	*Model Years*
Light Trucks		
421 Scout	Scout II, Utility Pickup, SS-2, Roadstar, Terra Traveltop, 800 Series, Traveler	62-80
431 Travelall	1010-1210, 100-200	63-75
466 Multistop Van	Metro RM 120-160, MS1210, MS1510	60-84
481 Pickup R-100-500, 900A-1500C/D, 1010-1510		51-76
498 Other (light truck)		60-80
499 Unknown (light truck)		51-80
Medium/Heavy Trucks		
850 Truck-based Motorhome		40-on
881 Medium/Heavy - CBE	Loadstar/Fleetstar, Paystar, CBE Transtar, 4200, S-series, Mixer	63-on
882 Medium/Heavy - COE low entry	CO, VCO, DCO, 190-1950, Cargostar, LFM, 5370 (Garbage)	73-on
883 Medium/Heavy - COE high entry	DCO, DCOT, UCO, VCOT, 405-series, COE Transtar, Unistar, Conco 707B, 9600	61-on
884 Medium/Heavy - Unknown engine location		48-on
890 Medium/Heavy - COE entry position unknown		64-on
898 Other (medium/heavy)	Fire truck - R140-R306, CO 8190	55-on
899 Unknown (medium/heavy truck)		53-on
Buses		
950 Bus-based motorhome		40-on
981 Bus**: Conventional (Engine out front)	R153-1853, Loadstar, 1603-1853	53-on
982 Bus: Front engine, Flat front	173FC, 183FC	72-on
983 Bus**: Rear engine, Flat front	183RE, 193RE-transit	65-on
988 Other (bus)		53-on

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989 Unknown bus		40-on
998 Other vehicle		54-on
999 Unknown (Intl Harvester/Navistar)		65-on

** Use code "981" (bus) if the frontal plane or the engine location is unknown.

MAKE: (98) Other Make *

Model Codes	Includes	Model Years
Medium/Heavy Trucks		
801 Autocar		53-on
802 Auto-Union-DKW		65-on
803 Divco		65-on
804 Western Star		65-on
805 Oshkosh		65-on
806 Hino		
807 Scania		
850 Truck-based motorhome		
898 Other (medium/heavy)***	Marmon, Ward LaFrance	55-on

*   Occurs when make is not explicitly listed here.
*** Use code "898" other (truck) if the vehicle's GVWR is unknown.

Buses		
902 Neoplan (bus)		50-on
950 Bus-based motorhome		40-on
988 Other (bus)		55-on
989 Unknown (bus)		
998 Other (vehicle)	snowmobile, go-cart	45-on

*   Occurs when make is not explicitly listed here.
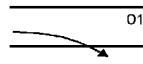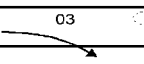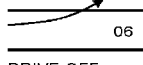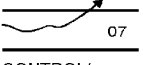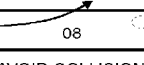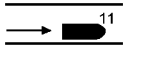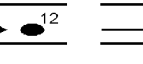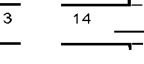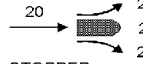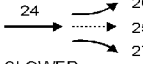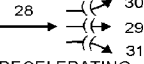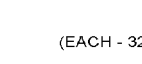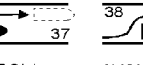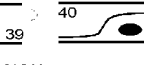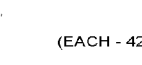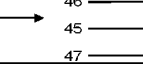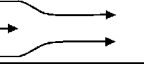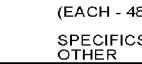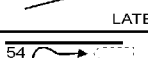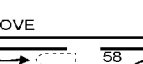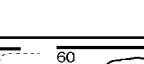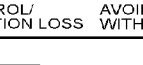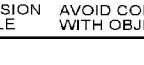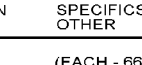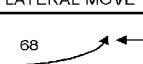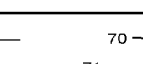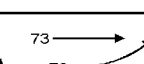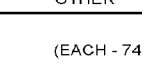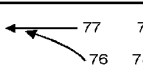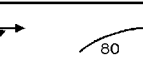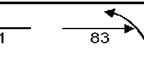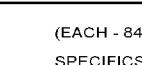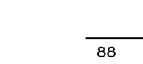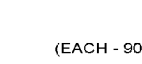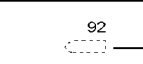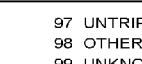
MAKE: (99) Unknown Make

Model Codes	Includes	Model Years
Automobiles		
399 Unknown (automobile)		62-on
Light Trucks		
499 Unknown (light truck)		51-on
Motorcycles		
701 0-50 cc		65-on
702 51-124 cc		65-on
703 125-349 cc		65-on
704 350-449 cc		65-on
705 450-749 cc		65-on
706 750 cc or greater		65-on

All Terrain Cycles/Vehicles

731 0-50 cc	Includes all ATCs/ATVs designed solely for	65-on
732 51-124 cc	off-road use and have 3 or 4 wheel balloon	65-on
733 125-349 cc	tires.	65-on
734 350 cc or greater		65-on
799 Unknown (motored cycle)		65-on

Medium/Heavy Trucks

850 Truck-based motorhome	65-on
881 Medium/Heavy - CBE	65-on
882 Medium/Heavy - COE low entry	65-on
883 Medium/Heavy - COE high entry	65-on
884 Medium/Heavy - Unknown engine location	65-on
890 Medium/Heavy - COE entry position unk.	65-on
898 Other (medium/heavy truck)	65-on
899 Unknown (medium/heavy truck)	65-on

Buses

950 Bus-based motorhome		65-on
981 Bus**: Conventional (Engine out front)		65-on
982 Bus: Front engine, Flat front		76-on
983 Bus: Rear engine, Flat front		65-on
997 Other (bus)		65-on
998 Other vehicle	snowmobile, go-cart	64-on
999 Unknown	automobile, motored cycle, light truck, or truck	40-on

** Use code "981" (bus) if the frontal plane or the engine location is unknown.

Cate-gory	Configur-ation	ACCIDENT TYPES (Includes Intent)				

APPENDIX C: Summary Statistics

The following two tables provides a summary of descriptive statistics from the GES data files. Table 1 represents the actual number of records or "unweighted sample" and Table 2 represents the national estimates or "weighted sample" for the given descriptive from 1988 - 1997. These statistics will provide the user with a benchmark to compare against numbers obtained from the analytical files. The user can confirm that their program is running properly and/or the file is complete.

Table 1: Unweighted Sample

Year	Crashes	Vehicles	People	Drivers	Occupants	Pedestrians	Pedalcyclists
1988	48,831	83,633	122,738	82,708	119,914	1,554	1,021
1989	44,105	74,778	110,896	74,354	107,447	1,880	1,315
1990	46,290	80,154	117,141	79,716	113,493	1,995	1,468
1991	42,600	73,833	108,955	73,481	105,580	1,723	1,348
1992	46,197	80,566	118,933	80,152	115,346	1,891	1,415
1993	55,644	96,544	143,525	96,209	138,759	2,589	1,845
1994	55,759	97,441	143,743	97,109	139,221	2,442	1,715
1995	53,749	95,803	140,512	95,477	136,890	1,909	1,336
1996	56,030	100,861	147,903	100,500	144,332	1,820	1,305
1997	55,562	100,032	145,890	99,688	142,366	1,838	1,266

Drivers:　　　　PER_TYPE = 1
Occupants:　　　PER_TYPE IN (1,2,9)
Pedestrians:　　PER_TYPE = 5
Pedalcyclists:　PER_TYPE = 6

Table 2: Weighted Sample

Year	Crashes	Vehicles	People	Drivers	Occupants	Pedestrians	Pedalcyclists
1988	6,876,780	12,007,970	17,247,886	11,851,683	17,005,088	121,474	82,535
1989	6,644,549	11,556,267	16,612,033	11,485,928	16,361,647	121,403	85,193
1990	6,462,126	11,315,087	16,298,795	11,252,874	16,061,886	116,405	86,059
1991	6,109,931	10,711,298	15,593,416	10,658,830	15,368,100	98,849	77,045
1992	5,992,938	10,535,596	15,339,372	10,485,244	15,136,291	94,646	71,084
1993	6,094,772	10,725,032	15,767,005	10,688,211	15,546,338	102,261	78,438
1994	6,489,122	11,487,378	16,836,682	11,451,723	16,617,814	101,781	70,862
1995	6,690,061	11,979,882	17,517,709	11,937,794	17,309,929	92,350	74,751
1996	6,833,669	12,212,464	17,901,696	12,173,315	17,687,515	89,698	68,353
1997	6,752,136	12,085,226	17,651,831	12,048,751	17,454,926	83,170	64,873

Drivers: PER_TYPE = 1
Occupants: PER_TYPE IN (1,2,9)
Pedestrians: PER_TYPE = 5
Pedalcyclists: PER_TYPE = 6

APPENDIX D: Generalized Estimated Sampling Errors

Generalized standard errors were calculated separately for the crash, vehicle, and person characteristics. The values for the GES estimates and an estimate of one standard error are given in the following tables. By adding and subtracting the standard error to the associated estimate, a 95 percent confidence interval for an estimate can be created.

For example, if the estimated number of injured or killed pedestrians in 1995 was 90,000 (rounded to the nearest 1,000). To calculate one standard error for this person estimate, use the table on page 125. Look under the Person Estimate column for the value of 90,000. Look under the Person Standard Error column to the right for the corresponding person error value. For the person estimate of 90,000 the person standard error value is 7,100. The 95 percent confidence interval for this estimate would be approximately 90,000 + or - 1.96 * (7,100) or 76,000 to 104,000.

If the person estimate falls between the values shown on the table linear interpolation will be required. For example, had the person estimate been 92,000 instead of 90,000 the person standard error would need to be calculated. Use linear interpolation from the standard error values for 90,000 and 100,000. One approximate standard error would be 7,100 + 120 = 7,220. The 95 percent confidence interval for this estimate would be approximately 92,000 + or - 1.96 * (7,220) or 78,000 to 106,000.

More information on standard error estimates can be obtained from the National Center for Statistics and Analysis.

1988 GES ESTIMATES AND STANDARD ERRORS

Crash Estimate (x)	Crash Standard Error (SE)*	Vehicle Estimate (x)	Vehicle Standard Error (SE)**	Person Estimate (x)	Person Standard Error (SE)***
1,000	600	1,000	500	1,000	500
5,000	1,400	5,000	1,200	5,000	1,200
10,000	2,100	10,000	1,800	10,000	1,800
20,000	3,200	20,000	2,900	20,000	2,9000
30,000	4,200	30,000	3,800	30,000	3,800
40,000	5,200	40,000	4,700	40,000	4,700
50,000	6,100	50,000	5,500	50,000	5,600
60,000	6,900	60,000	6,300	60,000	6,400
70,000	7,800	70,000	7,100	70,000	7,200
80,000	8,600	80,000	7,900	80,000	8,000
90,000	9,400	90,000	8,600	90,000	8,800
100,000	10,200	100,000	9,400	100,000	9,500
200,000	17,600	200,000	16,500	200,000	17,000
300,000	24,600	300,000	23,400	300,000	24,200
400,000	31,400	400,000	30,100	400,000	31,300
500,000	38,100	500,000	36,700	500,000	38,300
600,000	44,800	600,000	43,400	600,000	45,400
700,000	51,300	700,000	50,000	700,000	52,500
800,000	57,900	800,000	56,600	800,000	59,500
900,000	64,400	900,000	63,200	900,000	66,600
1,000,000	71,000	1,000,000	69,900	1,000,000	73,800
1,500,000	103,700	2,000,000	137,400	2,000,000	146,800
2,000,000	136,500	3,000,000	207,300	3,000,000	223,000
2,500,000	169,600	4,000,000	279,300	4,000,000	302,200
3,000,000	203,100	5,000,000	353,400	5,000,000	384,000
3,500,000	236,900	6,000,000	429,500	6,000,000	468,200
4,000,000	271,000	7,000,000	507,300	7,000,000	554,700
4,500,000	305,400	8,000,000	586,800	8,000,000	643,300
5,000,000	340,200	9,000,000	667,900	9,000,000	733,900
5,500,000	375,400	10,000,000	750,500	10,000,000	826,300
6,000,000	410,800	11,000,000	834,500	11,000,000	920,600
7,000,000	482,600	12,000,000	919,900	12,000,000	1,016,600

$*SE=e^{a/2+b/2(\ln X)*2}, where$
$a=9.63$
$b=.067$

$**SE=e^{a/2+b/2(\ln X)*2}, where$
$a=9.16$
$b=.069$

$***SE=e^{a/2+b/2(\ln X)*2}, where$
$a=9.04$
$b=.070$

1989 GES ESTIMATES AND STANDARD ERRORS

Crash Estimate (x)	Crash Standard Error (SE)*	Vehicle Estimate (x)	Vehicle Standard Error (SE)**	Person Estimate (x)	Person Standard Error (SE)***
1,000	600	1,000	500	1,000	500
5,000	1,400	5,000	1,200	5,000	1,200
10,000	2,100	10,000	1,800	10,000	1,800
20,000	3,200	20,000	2,900	20,000	2,900
30,000	4,200	30,000	3,800	30,000	3,800
40,000	5,200	40,000	4,700	40,000	4,700
50,000	6,100	50,000	5,500	50,000	5,600
60,000	6,900	60,000	6,300	60,000	6,400
70,000	7,800	70,000	7,100	70,000	7,200
80,000	8,600	80,000	7,900	80,000	8,000
90,000	9,400	90,000	8,600	90,000	8,800
100,000	10,200	100,000	9,400	100,000	9,500
200,000	17,600	200,000	16,500	200,000	17,000
300,000	24,600	300,000	23,400	300,000	24,200
400,000	31,400	400,000	30,100	400,000	31,300
500,000	38,100	500,000	36,700	500,000	38,300
600,000	44,800	600,000	43,400	600,000	45,400
700,000	51,300	700,000	50,000	700,000	52,500
800,000	57,900	800,000	56,600	800,000	59,500
900,000	64,400	900,000	63,200	900,000	66,600
1,000,000	71,000	1,000,000	69,900	1,000,000	73,800
1,500,000	103,700	2,000,000	137,400	2,000,000	146,800
2,000,000	136,500	3,000,000	207,300	3,000,000	223,000
2,500,000	169,600	4,000,000	279,300	4,000,000	302,200
3,000,000	203,100	5,000,000	353,400	5,000,000	384,000
3,500,000	236,900	6,000,000	429,500	6,000,000	468,200
4,000,000	271,000	7,000,000	507,300	7,000,000	554,700
4,500,000	305,400	8,000,000	586,800	8,000,000	643,300
5,000,000	340,200	9,000,000	667,900	9,000,000	733,900
5,500,000	375,400	10,000,000	750,500	10,000,000	826,300
6,000,000	410,800	11,000,000	834,500	11,000,000	920,600
7,000,000	482,600	12,000,000	919,900	12,000,000	1,016,600

$*SE = e^{a/2 + b/2(\ln X)*2}$, where $a = 9.63$ $b = .067$	$**SE = e^{a/2 + b/2(\ln X)*2}$, where $a = 9.16$ $b = .069$	$***SE = e^{a/2 + b/2(\ln X)*2}$, where $a = 9.04$ $b = .070$

1990 GES ESTIMATES AND STANDARD ERRORS

Crash Estimate (x)	Crash Standard Error (SE)*	Vehicle Estimate (x)	Vehicle Standard Error (SE)**	Person Estimate (x)	Person Standard Error (SE)***
1,000	700	1,000	400	1,000	400
5,000	1,400	5,000	1,000	5,000	1,000
10,000	2,100	10,000	1,600	10,000	1,500
20,000	3,300	20,000	2,500	20,000	2,400
30,000	4,200	30,000	3,400	30,000	3,100
40,000	5,100	40,000	4,200	40,000	3,900
50,000	5,900	50,000	4,900	50,000	4,500
60,000	6,800	60,000	5,700	60,000	5,200
70,000	7,500	70,000	6,400	70,000	5,800
80,000	8,300	80,000	7,100	80,000	6,500
90,000	9,000	90,000	7,800	90,000	7,100
100,000	9,700	100,000	8,500	100,000	7,700
200,000	16,400	200,000	15,000	200,000	13,400
300,000	22,600	300,000	21,300	300,000	18,900
400,000	28,600	400,000	27,500	400,000	24,300
500,000	34,400	500,000	33,700	500,000	29,600
600,000	40,000	600,000	39,900	600,000	34,800
700,000	45,700	700,000	46,100	700,000	40,100
800,000	51,200	800,000	52,200	800,000	45,300
900,000	56,700	900,000	58,400	900,000	50,600
1,000,000	62,200	1,000,000	64,700	1,000,000	55,800
2,000,000	116,200	2,000,000	128,300	2,000,000	108,800
3,000,000	169,800	3,000,000	194,500	3,000,000	163,200
4,000,000	223,700	4,000,000	263,100	4,000,000	219,100
5,000,000	278,000	5,000,000	334,000	5,000,000	276,400
6,000,000	332,800	6,000,000	406,900	6,000,000	335,200
7,000,000	388,100	7,000,000	481,600	7,000,000	394,900
8,000,000	444,000	8,000,000	558,200	8,000,000	455,900
9,000,000	500,400	9,000,000	636,400	9,000,000	518,100
10,000,000	557,300	10,000,000	716,100	10,000,000	581,300
11,000,000	614,700	11,000,000	797,400	11,000,000	645,500
12,000,000	672,500	12,000,000	808,100	12,000,000	710,600

$*SE = e^{(a/2)+(b/2)(\ln(x))^2}, where$
$a = 9.93401$
$b = 0.06362$

$**SE = e^{(a/2)+(b/2)(\ln(x))^2}, where$
$a = 8.83524$
$b = 0.06977$

$***SE = e^{(a/2)+(b/2)(\ln(x))^2}, where$
$a = 8.88000$
$b = 0.06800$

1991 GES ESTIMATES AND STANDARD ERRORS

Crash Estimate (x)	Crash Standard Error (SE)*	Vehicle Estimate (x)	Vehicle Standard Error (SE)**	Person Estimate (x)	Person Standard Error (SE)***
1,000	600	1,000	500	1,000	400
5,000	1,400	5,000	1,100	5,000	1,000
10,000	2,100	10,000	1,600	10,000	1,500
20,000	3,200	20,000	2,600	20,000	2,400
30,000	4,200	30,000	3,500	30,000	3,200
40,000	5,000	40,000	4,300	40,000	4,000
50,000	5,900	50,000	5,000	50,000	4,700
60,000	6,700	60,000	5,800	60,000	5,400
70,000	7,500	70,000	6,500	70,000	6,100
80,000	8,200	80,000	7,200	80,000	6,800
90,000	9,000	90,000	7,900	90,000	7,500
100,000	9,700	100,000	8,600	100,000	8,200
200,000	16,500	200,000	15,200	200,000	14,600
300,000	22,800	300,000	21,600	300,000	20,900
400,000	29,000	400,000	27,800	400,000	27,200
500,000	34,900	500,000	34,000	500,000	33,400
600,000	40,800	600,000	40,200	600,000	39,700
700,000	46,600	700,000	46,400	700,000	46,000
800,000	52,400	800,000	52,600	800,000	52,300
900,000	58,100	900,000	58,900	900,000	58,600
1,000,000	63,800	1,000,000	65,100	1,000,000	65,000
2,000,000	120,300	2,000,000	128,600	2,000,000	130,600
3,000,000	176,900	3,000,000	194,600	3,000,000	199,700
4,000,000	234,000	4,000,000	262,900	4,000,000	271,800
5,000,000	291,700	5,000,000	333,200	5,000,000	346,600
6,000,000	350,200	6,000,000	405,500	6,000,000	423,900
7,000,000	409,400	7,000,000	479,600	7,000,000	503,500
8,000,000	469,300	8,000,000	555,400	8,000,000	585,200
9,000,000	529,900	9,000,000	632,700	9,000,000	668,900
10,000,000	591,100	10,000,000	711,600	10,000,000	754,500
11,000,000	652,900	11,000,000	791,900	11,000,000	842,000
12,000,000	715,400	12,000,000	873,600	12,000,000	931,100

$*SE=e^{a+b(\ln X)^2}, where$ $a=4.900441$ $b=0.032292$	$**SE=e^{a+b(\ln X)^2}, where$ $a=4.460186$ $b=0.034701$	$***SE=e^{a+b(\ln X)^2}, where$ $a=4.291460$ $b=0.035576$

Crash Estimate (x)	Crash Standard Error (SE)*	Vehicle Estimate (x)	Vehicle Standard Error (SE)**	Person Estimate (x)	Person Standard Error (SE)***
1,000	400	1,000	400	1,000	400
5,000	1,100	5,000	1,000	5,000	900
6,000	1,200	10,000	1,500	10,000	1,400
7,000	1,300	20,000	2,500	20,000	2,200
8,000	1,400	30,000	3,300	30,000	3,000
9,000	1,600	40,000	4,100	40,000	3,700
10,000	1,700	50,000	4,800	50,000	4,400
20,000	2,700	60,000	5,600	60,000	5,100
30,000	3,600	70,000	6,300	70,000	5,800
40,000	4,400	80,000	7,000	80,000	6,500
50,000	5,200	90,000	7,700	90,000	7,200
60,000	6,000	100,000	8,400	100,000	7,800
70,000	6,800	200,000	15,200	200,000	14,200
80,000	7,600	300,000	21,800	300,000	20,600
90,000	8,300	400,000	28,300	400,000	26,900
100,000	9,100	500,000	34,900	500,000	33,200
200,000	16,200	600,000	41,500	600,000	39,600
300,000	23,200	700,000	48,100	700,000	46,000
400,000	30,100	800,000	54,700	800,000	52,400
500,000	36,900	900,000	61,400	900,000	59,000
600,000	43,800	1,000,000	68,100	1,000,000	65,500
700,000	50,700	2,000,000	137,500	2,000,000	134,100
800,000	57,600	3,000,000	210,800	3,000,000	207,100
900,000	64,600	4,000,000	287,500	4,000,000	284,000
1,000,000	71,600	5,000,000	367,200	5,000,000	364,400
2,000,000	143,600	6,000,000	449,700	6,000,000	447,900
3,000,000	219,200	7,000,000	534,700	7,000,000	534,200
4,000,000	298,000	8,000,000	622,100	8,000,000	623,200
5,000,000	379,700	9,000,000	711,700	9,000,000	714,700
6,000,000	464,000	10,000,000	803,400	10,000,000	808,500
6,500,000	507,100	11,000,000	897,100	11,000,000	904,600

$*SE=e^{a+b(\ln X)^2}, where$
  $a=4.413218$
  $b=0.035447$

$**SE=e^{a+b(\ln X)^2}, where$
  $a=4.294210$
  $b=0.035807$

$***SE=e^{a+b(\ln X)^2}, where$
  $a=4.132995$
  $b=0.036452$

1993 GES ESTIMATES AND STANDARD ERRORS

Crash Estimate (x)	Crash Standard Error (SE)*	Vehicle Estimate (x)	Vehicle Standard Error (SE)**	Person Estimate (x)	Person Standard Error (SE)***
1,000	400	1,000	400	1,000	400
5,000	1,000	5,000	1,000	5,000	900
6,000	1,200	10,000	1,500	10,000	1,400
7,000	1,300	20,000	2,400	20,000	2,200
8,000	1,400	30,000	3,200	30,000	3,000
9,000	1,500	40,000	4,000	40,000	3,700
10,000	1,600	50,000	4,700	50,000	4,400
20,000	2,600	60,000	5,400	60,000	5,100
30,000	3,500	70,000	6,100	70,000	5,700
40,000	4,300	80,000	6,800	80,000	6,400
50,000	5,100	90,000	7,500	90,000	7,000
60,000	5,800	100,000	8,100	100,000	7,600
70,000	6,600	200,000	14,600	200,000	13,700
80,000	7,300	300,000	20,900	300,000	19,600
90,000	8,000	400,000	27,100	400,000	25,400
100,000	8,700	500,000	33,300	500,000	31,300
200,000	15,600	600,000	39,500	600,000	37,100
300,000	22,300	700,000	45,800	700,000	43,000
400,000	29,000	800,000	52,100	800,000	48,900
500,000	35,600	900,000	58,400	900,000	54,800
600,000	42,200	1,000,000	64,700	1,000,000	60,800
700,000	48,800	2,000,000	130,200	2,000,000	122,200
800,000	55,400	3,000,000	199,100	3,000,000	186,900
900,000	62,100	4,000,000	271,000	4,000,000	254,400
1,000,000	68,800	5,000,000	345,600	5,000,000	324,400
2,000,000	137,800	6,000,000	422,700	6,000,000	396,800
3,000,000	210,100	7,000,000	502,000	7,000,000	471,300
4,000,000	285,500	8,000,000	583,500	8,000,000	547,800
5,000,000	363,600	9,000,000	667,000	9,000,000	626,200
6,000,000	444,100	10,000,000	752,400	10,000,000	706,300
6,500,000	485,200	11,000,000	839,600	11,000,000	788,200
7,000,000	526,900	12,000,000	928,600	12,000,000	871,700

$*SE=e^{a+b(\ln X)^2}, where$ $a=4.388598$ $b=0.035368$	$**SE=e^{a+b(\ln X)^2}, where$ $a=4.285811$ $b=0.035587$	$***SE=e^{a+b(\ln X)^2}, where$ $a=4.222608$ $b=0.035587$

		1994 GES ESTIMATES AND STANDARD ERRORS			
Crash Estimate (x)	**Crash Standard Error (SE)***	**Vehicle Estimate (x)**	**Vehicle Standard Error (SE)****	**Person Estimate (x)**	**Person Standard Error (SE)*****
1,000	400	1,000	400	1,000	400
5,000	1,000	5,000	1,000	5,000	900
6,000	1,200	10,000	1,500	10,000	1,400
7,000	1,300	20,000	2,500	20,000	2,300
8,000	1,400	30,000	3,300	30,000	3,100
9,000	1,500	40,000	4,200	40,000	3,800
10,000	1,600	50,000	4,900	50,000	4,500
20,000	2,600	60,000	5,700	60,000	5,200
30,000	3,500	70,000	6,500	70,000	5,900
40,000	4,400	80,000	7,200	80,000	6,500
50,000	5,200	90,000	7,900	90,000	7,200
60,000	6,000	100,000	8,600	100,000	7,800
70,000	6,700	200,000	15,600	200,000	14,100
80,000	7,500	300,000	22,500	300,000	20,300
90,000	8,300	400,000	29,300	400,000	26,400
100,000	9,000	500,000	36,100	500,000	32,600
200,000	16,300	600,000	42,900	600,000	38,700
300,000	23,300	700,000	49,800	700,000	44,900
400,000	30,400	800,000	56,800	800,000	51,100
500,000	37,400	900,000	63,700	900,000	57,400
600,000	44,500	1,000,000	70,800	1,000,000	63,700
700,000	51,500	2,000,000	143,700	2,000,000	128,900
800,000	58,700	3,000,000	220,900	3,000,000	197,800
900,000	65,900	4,000,000	301,900	4,000,000	270,000
1,000,000	73,100	5,000,000	386,300	5,000,000	345,200
2,000,000	147,900	6,000,000	473,700	6,000,000	422,900
3,000,000	227,000	7,000,000	564,000	7,000,000	503,100
4,000,000	309,800	8,000,000	656,800	8,000,000	585,600
5,000,000	395,900	9,000,000	752,200	9,000,000	670,300
6,000,000	485,000	10,000,000	849,800	10,000,000	756,900
6,500,000	530,700	11,000,000	949,700	11,000,000	845,500
7,000,000	577,000	12,000,000	1,051,700	12,000,000	935,900

$$*SE = e^{a+b(\ln X)^2}, where$$
$$a = 4.347699$$
$$b = 0.035898$$

$$**SE = e^{a+b(\ln X)^2}, where$$
$$a = 4.283883$$
$$b = 0.036063$$

$$***SE = e^{a+b(\ln X)^2}, where$$
$$a = 4.206542$$
$$b = 0.035915$$

1995 GES ESTIMATES AND STANDARD ERRORS

Crash Estimate (x)	Crash Standard Error (SE)*	Vehicle Estimate (x)	Vehicle Standard Error (SE)**	Person Estimate (x)	Person Standard Error (SE)***
1,000	400	1,000	400	1,000	400
5,000	1,000	5,000	1,000	5,000	900
6,000	1,200	10,000	1,600	10,000	1,400
7,000	1,300	20,000	2,500	20,000	2,300
8,000	1,400	30,000	3,300	30,000	3,100
9,000	1,500	40,000	4,200	40,000	3,800
10,000	1,600	50,000	4,900	50,000	4,500
20,000	2,600	60,000	5,700	60,000	5,100
30,000	3,500	70,000	6,400	70,000	5,800
40,000	4,300	80,000	7,100	80,000	6,400
50,000	5,100	90,000	7,800	90,000	7,100
60,000	5,900	100,000	8,500	100,000	7,700
70,000	6,600	200,000	15,300	200,000	13,700
80,000	7,400	300,000	22,000	300,000	19,600
90,000	8,100	400,000	28,500	400,000	25,300
100,000	8,800	500,000	35,100	500,000	31,000
200,000	15,800	600,000	41,700	600,000	36,800
300,000	22,700	700,000	48,200	700,000	42,500
400,000	29,400	800,000	54,900	800,000	48,300
500,000	36,200	900,000	61,500	900,000	54,000
600,000	43,000	1,000,000	68,200	1,000,000	59,800
700,000	49,800	2,000,000	137,300	2,000,000	119,300
800,000	56,600	3,000,000	210,100	3,000,000	181,500
900,000	63,500	4,000,000	286,100	4,000,000	246,100
1,000,000	70,400	5,000,000	365,000	5,000,000	313,000
2,000,000	141,700	6,000,000	446,500	6,000,000	381,900
3,000,000	216,800	7,000,000	530,400	7,000,000	452,600
4,000,000	295,200	8,000,000	616,700	8,000,000	525,100
5,000,000	376,500	9,000,000	705,000	9,000,000	599,300
6,000,000	460,600	10,000,000	795,400	10,000,000	675,100
6,500,000	503,600	11,000,000	887,700	11,000,000	752,300
7,000,000	547,200	12,000,000	981,900	12,000,000	831,000

$*SE = e^{a+b(\ln X)^2}, where$ $a = 4.362086$ $b = 0.035627$	$**SE = e^{a+b(\ln X)^2}, where$ $a = 4.329914$ $b = 0.035631$	$***SE = e^{a+b(\ln X)^2}, where$ $a = 4.289002$ $b = 0.035157$

Crash Estimate (x)	Crash Standard Error (SE)*	Vehicle Estimate (x)	Vehicle Standard Error (SE)**	Person Estimate (x)	Person Standard Error (SE)***
1,000	500	1,000	400	1,000	400
5,000	1,100	5,000	1,000	5,000	1,000
6,000	1,200	10,000	1,600	10,000	1,500
7,000	1,300	20,000	2,500	20,000	2,300
8,000	1,500	30,000	3,300	30,000	3,100
9,000	1,600	40,000	4,100	40,000	3,800
10,000	1,700	50,000	4,900	50,000	4,400
20,000	2,600	60,000	5,600	60,000	5,100
30,000	3,500	70,000	6,300	70,000	5,700
40,000	4,300	80,000	7,000	80,000	6,300
50,000	5,000	90,000	7,700	90,000	6,900
60,000	5,800	100,000	8,400	100,000	7,500
70,000	6,500	200,000	14,900	200,000	13,100
80,000	7,200	300,000	21,300	300,000	18,500
90,000	7,900	400,000	27,500	400,000	23,700
100,000	8,500	500,000	33,800	500,000	28,900
200,000	15,000	600,000	40,000	600,000	34,100
300,000	21,100	700,000	46,200	700,000	39,200
400,000	27,100	800,000	52,500	800,000	44,300
500,000	33,100	900,000	58,800	900,000	49,400
600,000	39,000	1,000,000	65,100	1,000,000	54,600
700,000	44,900	2,000,000	129,800	2,000,000	106,400
800,000	50,800	3,000,000	197,400	3,000,000	159,600
900,000	56,700	4,000,000	267,600	4,000,000	214,300
1,000,000	62,700	5,000,000	340,300	5,000,000	270,300
2,000,000	122,600	6,000,000	415,200	6,000,000	327,700
3,000,000	184,300	7,000,000	492,100	7,000,000	386,200
4,000,000	247,800	8,000,000	570,900	8,000,000	445,900
5,000,000	313,000	9,000,000	651,500	9,000,000	506,700
6,000,000	379,800	10,000,000	733,900	10,000,000	568,500
6,500,000	413,700	11,000,000	817,800	11,000,000	631,300
7,000,000	448,000	12,000,000	903,300	12,000,000	695,100

$*SE = e^{a+b(\ln X)^2}, where$ $a=4.521508$ $b=0.034180$	$**SE = e^{a+b(\ln X)^2}, where$ $a=4.374631$ $b=0.035149$	$***SE = e^{a+b(\ln X)^2}, where$ $a=4.417590$ $b=0.034001$

APPENDIX E: Analytical Data Classification of Select GES Variables

Several variables in the GES are classified or collapsed according to analytical needs. In various NCSA's published reports and analysis, select GES variables have been given a standard classification. This section will attempt to show how GES variables are classified, assisting users in understanding and duplicating statistics presented in NCSA's published reports. Only imputed variables (where available) are used in analysis.

Earlier publications using only GES data included the fatal crash data from the GES, but this method is no longer in practice. For analytical purposes, fatal crashes and fatalities are extracted from the Fatality Analysis Reporting System (FARS), not GES. FARS contains data on a census of fatal traffic crashes within the 50 states, the District of Columbia, and Puerto Rico. To be included in FARS, a crash must involve a motor vehicle traveling on a trafficway customarily open to the public and result in the death of a person (occupant of a vehicle or nonmotorist) **within 30 days of the crash**. Since FARS contains records on *all* fatal crashes, it's a more accurate representation of fatal crashes and fatalities than the *sample* contained in GES.

It is important to note that these are NCSA's classifications and are subject to modification.

The following tables show the specific coding scheme of select GES variables that are used in NCSA's publications and analysis:

Univariate Imputed Maximum Injury Severity in Crash

GES DESCRIPTION	CODE	CRASH SEVERITY CLASS
	1988 - Later	
No Injury	0	Property-Damage-Only Crash
Possible Injury	1	Injury Crash
Nonincapacitating	2	Injury Crash
Incapacitating	3	Injury Crash
Fatal*	4	Fatal Crash
Unknown Injury Severity	5	Injury Crash
Died Prior	6	Property-Damage-Only Crash
No Person Coded in the Crash	8	Property-Damage-Only Crash

* Fatal counts from the FARS are used in NCSA's publications and analysis.

Hot-Deck Imputed Injury Severity

GES DESCRIPTION	CODE	INJURY SEVERITY CLASS
	1988 - Later	
No Injury (O)	0	Not Injured
Possible Injury (C)	1	Injured
Nonincapacitating (B)	2	Injured
Incapacitating (A)	3	Injured
Fatal (K)*	4	Killed
Unknown Injury Severity (U)	5	Injured
Died Prior	6	Not Injured

∗ Fatality counts from the FARS are used in NCSA's publications and analysis.

Hot-Deck Imputed Body Type

BODY TYPE CLASS	GES CODES	
	1988 - 1991	**1992-1997**
Passenger Cars	1-11	
Passenger Vehicles	1-11, 14-22, 24-41, 43-48 (for 1993 & later add new body type codes **24 & 25**)	
Light Trucks/ Vans/Utility Vehicles	14, 20-41, 47, 48	14-22, 28-41, 45, 48 (for 1993 & later add new body type codes **24 & 25**)
Medium Trucks	(60,68) and (*Vehicle Trailing* = 0 or 9)	(60,64,78) and (*Vehicle Trailing* = 0 or 9)
Heavy/Combination Trucks	((60,68) and (*Vehicle Trailing*=1-4)) or 65	((60,64,78) and (*Vehicle Trailing*=1-4)) or 66
Large Trucks	60, 65, 68	60, 64,66,78
Buses	50-59	
Motored Cycles	70-79	80-89
Other Vehicles	12, 42, 63, 80-89 (for 1990 and 1991 add new body type code **13**)	12, 13, 23, 42, 65, 90-97

☞ Note: In 1993 & later, when defining **School Buses** be sure to include body type code **24** (van-based school bus) and when defining **Transit Buses**, be sure to include body type code **25** (van-based transit bus).

Person Type

GES DESCRIPTION	CODE	PERSON TYPE CLASS
	1988 - Later	
Driver of a Motor Vehicle in Transport	1	Driver
Passenger of a Motor Vehicle in Transport	2	Passenger
Occupant of a Motor Vehicle Not in Transport	3	Other Nonmotorist
Occupant of a Non-Motor Vehicle in Transport	4	Other Nonmotorist
Pedestrian	5	Pedestrian
Cyclist (Pedalcyclist)	6	Pedalcyclist
Other or Unknown Non-Occupant	8	Other Nonmotorist
Driver, Passenger, or Unknown Occupant Type in a Motor Vehicle in Transport	1,2,9	Occupant

Restraint System Use

GES DESCRIPTION	CODE			RESTRAINT CLASS
	1988-1991	1992-1994	1995-later	
None Used or Not Applicable	0			Restraint Not Used
Lap/Shoulder Belt	1			Restraint Used
Lap Belt	2			Restraint Used
Shoulder Belt	3			Restraint Used
Air Bag Deployed	4	-	-	Restraint Used
Air Bag Deployed & Lap/Shoulder Belt	5	-	-	Restraint Used
Child Safety Seat	6			Restraint Used
Motorcycle Helmet	7		5	Restraint Used
None Available	-	-	7	Restraint Not Used
Restraint Used - Specifics Unknown or Other	8			Restraint Used
Unknown if Used	9			Restraint Use Unknown

Univariate Imputed Traffic Control Device

CONTROL DEVICE CLASS	GES CODES	
	1988 - 1989	**1990 - later**
None	00	
Traffic Signal	01, 02, 03, 04, 08, 09	01, 04, 08, 09
Stop Sign	11	21
Other	12-14, 18,19,21,31,32,97,98	22,23,28,29, 40-43,49,51,61,62,97,98