HIGHWAY SAFETY INFORMATION SYSTEM

GUIDEBOOK FOR THE MICHIGAN STATE DATA FILES

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INTRODUCTION

(NOTE: Major changes from the previous edition of the Guidebook are shown in italics and bold.)

The data files received from the state of Michigan represent perhaps the largest number of data files received from any of the states participating in the HSIS development process. The entire Michigan transportation data and file merging system, referred to as the Michigan Traffic Records System, was upgraded and expanded in the late 1980's and early 1990's. A new accident report form and system was instituted in 1992. ***(All records data will be converted to an***

Oracle system in 1999, and a new crash report form will be in use starting in 2000.) Some of these Michigan files continue to be incomplete at this time. However, because they are already formatted and contain data, they are being included in the HSIS system with the view of looking to inclusion of additional data in the future. It is noted that Michigan is particularly unique in having a Guardrail Inventory File that provides information on roadside hardware for some of the earlier HSIS years.

The raw files requested for the HSIS include the following files:
Transportation Accident Master (TAM) File
State Police Accident Master File
Roadlog File (Roadway Inventory -- ***no longer be prepared after 1997)***
Roadway Sufficiency File
Guardrail Inventory File (1989 and 1992)
Intersection File
Interchange Element File
Electrical Traffic Control Device Inventory

As shown above, there are two files related to accidents in Michigan -- the TAM file and the State Police Accident Master. However, since only the TAM file is linkable with the other roadway-related files, it is the basis for the Michigan HSIS accident data. To make the Michigan HSIS data consistent with that from the other States in the HSIS system, the TAM file, which contains variables on accident and vehicle information, was subdivided into Accident and Vehicle Subfiles. (As with other states, the Vehicle Subfile also contains variables related to drivers.) However, since the original TAM file only contained summary information related to occupants, and thus no information on specific occupants by seating position, a linkage was made between the TAM file and the State Police Accident Master in order to extract occupant variables by seating position. This occupant information was then formatted as a separate Injured Occupant Subfile, just as with the other states. It is noted that while this raw State Police data contained information on all occupants in the crash, a computer error in the State Police system has led to erroneous data for non-injured occupants. This error will be corrected at some point in the future. However, the 1985-97 Occupant Subfiles will only contain information on injured occupants. The Vehicle Subfiles do contain information on all drivers -- both injured and uninjured.

For ease of use, the three Accident Subfiles, the Roadlog File, the Intersection File, the Electrical Traffic Control Device Inventory, the Interchange Element File, and the Guardrail Inventory File have all been converted to SAS files. In addition, a Horizontal Curve File has been developed based on information in the Roadlog File for 1992 and later.

Raw file data are provided to the Highway Safety Research Center where they are retained as backup information. The documentation (variable listings, definitions, etc.) for these raw files and for the SAS files that are developed

from them is available at FHWA offices. The conversion programs developed by HSRC and LENDIS to convert the files into SQL and SAS formats are available at the HSIS offices at FHWA.

Beginning in 1994, the HSIS system was converted to a relational database for internal use. This database, using a SYBASE system, stores the data received from Michigan and other states, and the data files for a given state are linked and manipulated using SQL language. However, this conversion from the original SAS-based system to the newer relational system is somewhat transparent to the end-user of the data since the output files produced by SYBASE for modeling and analysis will be SAS-formatted. As in the past, we have continued to produce SAS format libraries for each of the variables in each of the files. Because it is envisioned that the majority of analyses will utilize these SAS files and formats, this Guidebook will concern these SAS files -- their formats, completeness, and quality. While single-variable tables for key variables from each file were published in the past as "Volume II", this is no longer the case. Users may request specific single- or multiple-variable tables through the HSIS "Data Request" procedure found on this web site.

As noted above, the accident data is in three separate files. The Accident Subfile, containing basic information on accident type, location, environment, etc. can be linked with the Vehicle Subfile (which contains information on each vehicle in the crash and each driver) and the Injured Occupant Subfile (which contains information on each injured occupant in each vehicle) through use of the accident case number. The Accident and other major files can be linked through use of a control section/milepost system. In addition to these three major subfiles, a special subfile containing additional data on vehicles with decodable Vehicle Identification Numbers (VIN's) has been developed.

The Roadlog File contains characteristics of 9,000+ miles of Trunkline Roadway including shoulder and median information, pavement type and width, lane information, etc. Information in the Roadlog File is extracted from Michigan's Roadway Features File which contains the basic roadway inventory information for the trunkline system. Beginning with the 1989 data, additional variables are also extracted from a second inventory file, the Roadway Sufficiency File (e.g., AADT), and added to the HSIS Roadlog File. This Roadlog File is composed of homogeneous segments of trunkline mileage, with a new segment having been defined each time any of the recorded variables changes. Information on horizontal curves has been on the Roadlog File since 1990. However, to make it more consistent with Utah and Washington files, a separate Horizontal Curve File was developed beginning in 1992. This file contains information on location of the curve, degree of curve, and curve direction (i.e., left or right). ***(Note that the Roadway Features File will no longer be produced by Michigan after 1997. Beginning with 1998, the Sufficiency File will be the major source of roadway inventory information. This will change the coding of HSIS Roadlog variables substantially.)***

The Intersection File contains geometric and operational information such as intersection type, control type, number of legs, etc. for all State trunkline intersections. The data in this file are extracted from the Intersection Features File. This file has recently been completed by the Michigan DOT and is now being edited.

The Electrical Traffic Control Device Inventory (i.e., "Signal File"), a final file currently under development, contains data on each electrically controlled traffic control device under the responsibility of the Michigan Department of Transportation. The data concerns both the type and functional specifications of the equipment along with maintenance and cost responsibilities.

The Interchange Element File contains information on all freeway interchanges and their ramps. Information included concerns the interchange elements, roadway geometry, operations, and a summary of accident history.

The Guardrail Inventory File contains information on various types and conditions of guardrail in place on the Michigan Trunkline System for years up to 1992. It is this file that is unique to the State of Michigan in that details of specific pieces of guardrail can be linked to the roadway information and to locations of crashes. These data are not available in any other State that we are aware of. It is important to note that this file does not contain information on concrete median barriers or other non-guardrails.

Details of all the files noted above are presented in the following sections.

DETAILS OF MAJOR FILES

The Accident Subfiles

The accident data in the State of Michigan is collected by various police departments across the State on a standard statewide accident report form and is coded by the Michigan State Police. The Michigan State Police code the crash reports into their internal crash file, and then generates a flat file that is sent to the Michigan Traffic and Safety Division for their use. This file is converted into an Oracle database, keeping almost all variables except personal information (names and addresses of the people involved), and a few additional codes are generated from the data in that file (e.g., added codes for crash type). This file contains information on just the first three vehicles in the crash and contains some summarized data. This is the file sent for use in HSIS.

Prior to 1992, the reporting threshold in the State of Michigan was either personal injury and/or total property damage of at least $200. (It is noted that Property-Damage-Only accidents in Detroit, and perhaps some other cities and rural locations, are not investigated at the scene by the officer, but are reported by the driver to the police at the police station. These records will appear on the file as police-reported accidents, but can be defined by a second variable related to "Investigated at Scene" (i.e., REPORT). Since this procedure could clearly affect the number and quality of reported PDO's, an

examination of these cases was conducted. The results are at the end of this Accident Subfile discussion.) A new accident report form was implemented statewide in 1992. At that time, the total property damage reporting threshold increased to $400.

Currently there are ***twelve*** years of accident data in the Michigan HSIS files -- ***1985 through 1991, and 1993-97***. Accident, vehicle, and occupant data for 1992 are not included in the HSIS system due to massive changes in the police reporting form during that year which made the data unusable for HSIS analyses.

Note again that these are crashes that occur on the Michigan Trunkline System. This dataset includes approximately 142,500 accident per year, 260,000 vehicles per year, and nearly 60,000 injured occupants per year for 1985-91. After the initiation of the new form and higher property damage threshold, the numbers decreased slightly in 1993-97 to approximately 141,000 crashes, 260,000 vehicles, and 52,000 injured occupants. The accidents on the trunklines, and thus on the HSIS, represent approximately 40% of the total Statewide accident count.

As was discussed earlier, the Injured Occupant Subfile was developed by matching the TAM file with the State Police Accident Master through the use of accident control number. Certain occupant and vehicle specific variables not found on the TAM file were then extracted and merged into the TAM File. Again, for consistency, driver-related variables appear both in the Vehicle and Injured Occupant Subfiles. However, data related to uninjured drivers will only appear on the Vehicle Subfile.

Based on runs of the complete files, it appears that approximately 70 percent of the accidents are multivehicle in nature with the remaining 30 percent being various types of single vehicle crashes. Approximately 74 percent of the accidents are property damage only crashes, 0.4 percent are fatal accidents, and 25 percent are injury accidents. Based on the reporting agency, it appears that the file is slightly weighted to urban crashes, but it is very similar to Utah and Maine in that it is slightly more rural than other HSIS states.

The assessment of data completeness and accuracy is based on conversations with Michigan staff, on HSIS analyses conducted with these files, and on a variety of single-variable tabulations. These tabulations are run each year in order for HSIS staff to examine each key variable with respect to coding completeness and each code within the key variables with respect to changes across time. These runs involved 28 variables from the Accident Subfile, 21 variables from the Vehicle Subfile, and 7 variables from the Injured Occupant Subfile. These variables range from various accident descriptors including accident type, day of week, accident severity, number of vehicles involved; to vehicle variables involving vehicle type, make, point of impact, travel speed, driver age, sex, and residence; to occupant variables related to age, sex, position in vehicle, and injury severity.

The quality control runs indicated that there were virtually no uncoded data in any of the three subfiles. Indeed the overwhelming majority of Michigan variables appear to have the most complete coding of any of the HSIS states with the possible exception of Maine. Variables which have higher proportions of uncoded data are marked with a 'NOTE' in the later SAS format sections. In addition, the runs search for significant changes in coding of an individual variable across data years. Again, the data are found to be consistent in most cases, and a "NOTE" is added in the later format section when inconsistencies are found.

In the earlier years of the data, comparisons of similar pairs of variables were made. A high degree of consistency between variables was almost always noted. For example, the variable related to "Road Surface" contains values that are very consistent with values in the variable related to "Weather." In like fashion, the variables related to various counts of injury and occupant injuries within a crash are consistent with the overall "Accident Severity" rating. The number of crashes involving only one vehicle is similar to the number of single-vehicle crashes based on various categories within "Accident Type." In addition, the variable related to alcohol usage indicates approximately eight percent of the crashes involve alcohol, a percentage that is very consistent with alcohol-related data from other States. There are a few variables that appear to have possible inconsistencies. Again, these are marked with a 'NOTE' in the later SAS format sections. (These variable pair comparisons are no longer done on a regular basis, since the year-by-year consistency checks would identify possible major changes in variables.)

Because of the driver-reporting procedures in Detroit and other cities in early HSIS years, runs examining the nature of the "not investigated at scene" accidents were conducted. While it was thought that the proportion of driver reports would be higher in urban (city police) accidents, this is not the case (at least, for those accidents which appear on the file). Overall, accidents are <u>not</u> investigated at the scene 29% of the time with the State Police, 23% with County Sheriffs, 17% with township police, and 26% with city/village police. When the "at-scene" crashes were compared to the "not-at-scene" crashes for each investigating agency, as expected, the overwhelming majority of "not at scene" crashes were Property Damage Only, with PDO's accounting for 84% to 92% of the total "not-at-scene" reports depending on the agency. However, when the percent of reported PDO’s that are investigated at scene are compared by agency, the State Police have a lower "at-scene" percentage than either City/ Village Police, Sheriffs or township police (63%, 69%, 71%, 78%, respectively). While a number of different variables were examined for differences in "at-scene" versus "not-at-scene" for each agency, no major differences within or across agencies were noted. As expected based on crash severity, the "not-at-scene" crashes are more likely to be the less severe rear-end crashes. The drivers less likely to have their crashes investigated are the 20-40 year-old, but there were no differences between agencies. Reporting did not appear to depend on weather, with (surprisingly) a slightly higher proportion of bad-weather crashes being

investigated by all agencies. Thus, in general, even though there are a significant number of crashes not investigated at scene in Michigan, the proportion does not vary much by agency, and examination of the data does not appear to show great bias in the "not-at-scene" cases.

Finally, because of the coding protocol, it should be noted that, prior to the 1992 change in report form, the "Vehicle Object Hit" variable in the Vehicle Subfile denotes the first object struck in a collision sequence. Thus, it is not possible to determine which collisions involved more than one object, or which of the objects caused the resulting occupant injury (i.e., there is no "most harmful event" variable.) A "Most Harmful Event" variable was added for 1993 and later files.

In summary, it appears that most of the variables within the Accident, Vehicle, and (Injured) Occupant Subfiles are both adequately coded and quite accurate based on comparison runs made.

The VIN Subfile

Supplemental data on a vehicle's characteristics (e.g., engine information, air bag presence, wheelbase, etc.) can be developed by decoding the VIN (Vehicle Identification Number) collected on crash forms by police agencies in some states. For Accident/Vehicle Files from 1987-94, formats for the decoded VIN files were included in the original Guidebooks, and separate VIN files were developed for each year of data for the states of Utah, Illinois, Michigan, and North Carolina. Michigan police collected VIN data for 1985-91. The data were no longer collected after 1991.

When a vehicle in the Vehicle File had a legitimate VIN, this decoding was done using the VINDICATOR program distributed by the Highway Loss Data Institute of IIHS (the Insurance Institute of Highway Safety). This detailed information could then be linked back with the vehicle file using the Accident Case Number and the Vehicle Number.

Because of the very limited use of the VIN data by researchers and difficulties we encountered with the decoding process after 1994, the VIN variable listing found in the original Guidebooks for these states has been removed from this version. However, HSIS continues to capture the VIN, and has the capabilities of decoding the VIN for users. For Utah, decoded VIN information is available for 1987-96, and VINs for later years can be decoded upon request. For more information on this data, contact the HSIS staff.

The Roadlog File

Of the 118,000 miles of highway in Michigan, approximately 9,600 are included in the Roadlog File. Of approximately 400,000 accidents that occur yearly in this state, approximately 145,000 are mergable accidents that occur on these roadways. The HSIS system currently contains ***nine*** Roadlog Files -- one representing current characteristics in 1987, and updated yearly files for 1989-92 and ***1994-97***. In Michigan, the Roadlog File is extracted from the Roadway Features File. The Roadway Features File is built from the older MIDAS roadway

files (which have been traditionally maintained by the Michigan DOT Technical Services Unit) and is based on photolog information (i.e., variable values are scaled off of photologs of the roadway). The file contains information on homogeneous sections of roadway, with a new section being defined by a change in any of the variables existing on the file. ***Through 1997, the information on the Features File was updated on a regular basis based on changes in photologs. This means that a change in the file could be as much as one year behind the actual change to the roadway, since the photologs must be updated before changes are captured. In addition, unlike other states, the file sent is not "frozen" at the end of the calendar year. Instead, it is "frozen" and submitted at the time when the Accident File is finalized for a preceding year. This is usually between March and July of the following year. (This would make the annual file more "up to date" since additions from the photologs would be entered during this period.) An extract of the Features File is made each year and sent to FHWA for use in HSIS.***

Michigan also has a "Sufficiency File" which includes roadway inventory variables. Beginning with the 1989 data, additional variables have been extracted from this file and added to the Roadlog File. These additions include such variables as lane width, median width, commercial ADT, and other variables. ***It is important to note that the Sufficiency File differs from the Roadway Features File in the way the data are collected. While the Features File begins a new segment with any change, the Sufficiency File is set up with longer segments, and the data represent the "prevailing conditions" for a variable. For example, if "Surface Width" is 30 ft for 60% of a section, and 40 ft for the other 40%, the section surface width will be coded as 30 ft. This is a significant difference between the two data sources, and is the reason that we have tried to use Features File information whenever possible. However, as noted earlier, the Roadway Features File will not longer be maintained after 1997. The Sufficiency File will then become the only source of roadway inventory data.***

The HSIS Roadlog File itself contains approximately 50,000 records. Thus, given that there are 50,000 segments and only 10,000 miles of roadway, it is very obvious that most of the segments covered here are quite short. The homogeneous sections on this file may differ slightly from (i.e., be longer than) the sections on the Features File in that minor changes in variables that are judged not to have an effect on accidents will not define a new section on this file (e.g., a change in shoulder width from 6 to 8 feet).

Approximately 76-80 percent of the mileage in the Roadlog File are categorized as rural with over 84 percent having speed limits of 55 or 65 miles per hour. Approximately 67 percent of the segments represent two-lane roadways. Approximately 23 percent of the roadways in the more recent files are freeways or other divided highways. The table below provides a categorization of all two-way paved mileage.

Table 1. HSIS roadway mileage by roadway category (1997 data).

ROADWAY CATEGORY	***MILEAGE***
Urban freeways	727.83
Urban freeways < 4 Lanes	0.61
Urban multilane divided non-freeways	283.55
Urban multilane undivided non-freeways	512.41
Urban 2 lane highways	368.23
Rural freeways	1,196.28
Rural freeways < 4 Lns	1.27
Rural multilane divided non-freeways	146.36
Rural multilane undivided non-freeways	228.21
Rural 2 lane highways	6,439.38
Others	110.52
Total	10,014.65

We have attempted to check the accuracy of the data in two ways in addition to inputs from MI staff. First, comparisons of pairs of similar variables in quality control checks indicate that, while it was not possible to compare a large number of pairs of similar variables, those that are similar indicate consistent data. For example, while there are 988 miles with a right shoulder width of zero, there are 1,155 miles where some type of curb exists. The percentage of mileage where there is some type of median indicated by the "Median Type" variable (20 percent) is quite consistent with the percentage of mileage defined as freeway or other divided highway by "Roadway Type" (19.3 percent). The roadway mileage classified as "rural" is very close to the proportion of segments in which the speed limit is 55 mph or greater.

As might be expected, there are some inconsistencies between what should be similar variables and some changes over time with some categories for certain variables. Again, these are marked with a 'NOTE' in the SAS formats.

It was also by Michigan staff that because there is not an exact milepoint match between the Sufficiency File and the Roadlog File, there may be a few cases when data transferred from the Sufficiency File may be placed on the wrong roadway segment -- usually the adjacent one. We have noted one such problem with the Sufficiency File variable related to 'Median Width' and the Roadway variable related to 'Median Type,' which are not always consistent. However, for analysis purposes, these are not felt to be major problems. For informational purposes, the variables extracted from the Sufficiency File are denoted by the prefix "SUF" under the "Description" column of the SAS formats. (Again note that the Sufficiency File variables represent "predominate" values for all variables.)

Second (and unlike other states), due to some questions on variable values in both the Roadlog and Sufficiency Files, an HSIS subcontractor collected actual field measurements of certain variables (i.e., number of lanes, lane width, total and paved shoulder width) for a limited sample of approximately 1,200 miles of roadway in southeastern Michigan. These values were then

compared to values in the HSIS inventory files. As noted in notes in the SAS formats, we did observe some fairly significant differences between the computerized values and the actual field measurements. Some (but certainly not all) of this error could have resulted from the fact that we were comparing slightly earlier computer files with 1999 field data. As indicated in the "NOTEs," it appears that certain coding procedures (e.g., rounding odd shoulder widths to even categories) have resulted in some errors. Grouping data into categories in analyses may be beneficial, since it appears that some of the errors are within ± 1-ft of the actual value.

Since Michigan is the only state in which we have conducted these field measurements, we have no way of comparing the Michigan accuracy to that of other HSIS state's files. We would expect some error in all states due to the very large sample of sites to be inventoried and the sources of the data (i.e., very seldom from actual field measurements). Even with these errors, we feel that, in general, it appears that the variables coded on the Roadlog File are adequately and accurately coded.

Traffic Data

As noted above, information on AADT and Commercial Vehicle AADT is found on the Roadlog File. These data are developed in Michigan's traffic counting program which, like other states, includes both full-time permanent counter locations which operate 365 days each year and short-term coverage counts at a much larger number of locations. Michigan DOT currently operates and maintains 121 permanent traffic-recording (PTRs) stations. These PTRs include 34 on Interstates, 31 on U.S. Routes, 23 on Michigan State Highways, and 12 on other routes.

In addition, there are a varying number of short-term 'coverage counts' conducted each year. Michigan DOT indicated that approximately 3,300 such 48-hour "short" counts were requested in 1995. These coverage counts included the following:

950 short counts (volume only).
1,300 classification counts (volume by vehicle class).
1,000 interchange ramp counts.

Michigan attempts to count every State-maintained road section in a 3-year period. Unless required under the HPMS, Michigan also attempts to collect classification counts over a 6-year cycle. It should be noted that in addition to the State's traffic counting program, other agencies (notably those in urban areas) are also collecting traffic data for HPMS purposes. Furthermore, the Metropolitan Planning Organizations (MPO's) in Michigan have developed and support urban transportation planning models in accordance with ISTEA requirements. These MPO's subsequently have their own counting programs to support their model development and application.

To factor up the short-count to reflect AADT, seasonal factors are developed. Unlike some states where these seasonal factors are based on PRT counts within the same functional class as the short-count location, Michigan has defined 6 to 7 'cluster-analysis-group.' Each of these groups contains a number of PTRs, and the adjustment factors are based on averaging the PRT counts within that group. Each roadway section (and thus each short-count) is assigned to one of these cluster-analysis groups.

When a specific roadway section is not counted in a given year, it's counted from the previous year must be adjusted to represent traffic growth. Here, Michigan attempts to "look up and down the road" and identify the closest, comparable section for which an ADT was estimated (counted) for the given year. They determine the percentage change (e.g., increase or decrease) in the ADT associated with that "comparable" section, and apply that percentage change to the historical count for the specific section in question.

Horizontal Curve File

As noted earlier, information related to horizontal curvature has been contained in the Roadlog File since 1990. To make the Michigan data more consistent with curvature data in Utah and Washington, a separate Horizontal Curve File has been developed for ***1992 and 1994-97***. This file contains information on approximately 2,200 miles of curves. Data elements include degree of curve, curve direction (i.e., left or right in the direction of inventory), and length of curve. The same data elements related to degree of curve, direction of curve, and section length is also retained in the Roadlog File. However, in that file, the 'degree' shown is either a degree of curve, or a degree of bearing if the roadway is a tangent. A new roadlog section begins any time this variable or any other variable changes. Thus a curve may be split into more than one part in the Roadlog File if some other variable (e.g., shoulder width) changes. This also means that the section length for the curve section in the Roadlog File will not always be the full length of curve. These problems have been resolved in the Horizontal Curve File.

The curve data were originally extracted by Michigan staff from curve data in the MIDOT right-of-way books. No field measurements were taken. The milepoints for beginning and ending of the curves were calculated based on the distance to the nearest intersection. Curve data exists for almost all of the State trunkline roadways, but not for county roads. There are a limited number of trunklines that are not in the right-of-way books, and thus do not include data on curvature.

Preliminary indications are that most curves seem to be reasonably accurate (length within 100 or 200 ft of actual and milepoint within 0.02 mile of actual). There are a small number which have significant problems, usually caused by incorrect bearings, especially bearings that have been reversed (a road with a predominant northeast bearing suddenly switches to southwest).

The Intersection File

The Intersection File contains geometric and operational information data for all intersections that are on the trunkline system. The data is extracted from the Roadway Features File and is not maintained directly. Updated versions are obtained by inserting changes in the Features File on an annual basis and then extracting a new copy of this file. The file continued to be expanded and updated on a regular bases through 1997, and a revised version was inputted into the HSIS system for each year. HSIS currently contains annual files for ***1987 and 1989-97. Unfortunately, the Roadway Features File that produces this Intersection File is no longer being maintained after 1997. Unlike the basic roadway inventory data that will continue to be available in a modified form from the Sufficiency File, there will not be a replacement file containing intersection inventory information***.

The files contain initial information on approximately 28,000 intersections. While all intersections are on trunkline roadways, ninety-five percent of the crossing roadways are non-trunkline, and approach inventory information on these non-trunkline roadways is generally not available. It is noted, however, that accidents that occur on these crossing roads within 100 feet of the intersection will be coded to the trunkline intersection milepoint, and thus will appear on the HSIS Accident Subfile.

In terms of coverage and accuracy, there are (expected) problems with the early versions of this file due to its state of development. For example, there are inconsistencies and changes across yearly files with variables related to "Signal Control Type," the "Number of Phases," and a number of variables contain little or no data in the early files. The coding and completeness of the file is continually improving, as Michigan staff correct errors and add data when they find problems through their internal use. Some of this missing data results from the fact that Intersection File information on traffic signals will be extracted from the Electrical Traffic Control Device Inventory, but the necessary computer link between these two files was not complete for early years. According to Michigan staff, linkage is possible for some, but not all, intersection in the early 1990's files, and more linkage is possible for the later files. Other "missing" data is simply data that are not relevant to certain intersections (e.g., signal phasing data for unsignalized intersections). Where coding or accuracy problems have been noted by Michigan or HSIS staff, or in the single-variable quality control runs, a 'NOTE' has been added under the variable in the SAS format section. In summary, this file continues to have some erroneous data, particularly with respect to signal-related information. However, Michigan staff feels that the 1994-97 files are in adequate shape for analysis purposes. Again, the most accurate file will be the latest one.

The Electrical Traffic Control Device Inventory

The final file in the Michigan system, the Electrical Traffic Control Device Inventory (i.e., the "Signal File"), contains data on traffic control

devices under the responsibility of the Michigan DOT that are located on the trunkline system. The HSIS system currently contains files for ***1987, 1989-91 and 1993-96. There was a major change in the file in 1996 due to a shift in Michigan to an Oracle database. Prior to 1996, the file contained approximately 130 variables. For the 1996 and later file, there are 39 variables in the file. Almost all of these 1996 variables are also in the 1995 and earlier files. In the "Format" section, we have noted where new variables began in 1996, and also which older variables are no longer coded after 1995. In general, variables that would be important in safety analyses are still present.***

The data in both files concern the type and functional specifications of the equipment along with the maintenance and cost responsibilities. Each record on the file concerns a signalized intersection or other site with a control device present. There are a total of approximately 4,000 records on the file with approximately 72 percent of the records being traffic signals. Approximately 62 percent of the devices are fixed time traffic control signals. The remaining records concern electrical traffic signs, beacons, flashers, and other devices.

In terms of coverage, there are some gaps in the data, partly as a result of file expansion and partly due to the fact that some information had to be extracted from a separate Signal File in earlier years, and computer linkage of these two files was impossible or difficult. The result is some variables with significant numbers of uncoded cases, particularly in the earlier files. Again, these have been marked with a "NOTE" in the SAS formats. ***However, the data in the 1996 file appears to have few uncoded cases in variables that would be important in safety analyses (e.g., number of phases, turn prohibitions). While the Intersection File and Roadlog File will no longer be coded by Michigan staff after 1997, they anticipate that this "Signal" File will continue to be maintained.***

It is noted that linkage of this file is rather unique. The "Signal" File must be linked to other Michigan HSIS files through linkage with the Intersection File. Thus, common linkage variables such as district, control section and milepost cannot be used in file linkage. Details of the linkage are provided in a later section.

The Interchange Element File

The Interchange Element File contains information on all freeway interchanges and their ramps for approximately 900 interchanges. Each record concerns an element within the interchange -- either a segment of the main line, cross road or service roads, or a ramp or collector distributor road within the interchange area. The location reference variables for each ramp are the control section and milepost of the freeway at the point of intersection between the ramp and the freeway. There are approximately 6,300 records in the file. The HSIS system currently contains Interchange Element Files for ***1987, 1989-90,***

1992-93, and 1996. Like the Intersection File, this information was extracted from the Roadway Features File up through 1997. The interchange data continued to be updated in 1998, but will not be maintained after 1998.

In terms of coverage, all the variables that are entered into the file appear to be coded a very high proportion of the time. There are very few uncoded variables within any of these records.

In addition to the geometric variables, there are a series of variables that summarize accidents that have occurred within the interchanges. The accident summaries are calculated and entered on a three-year basis. The file records will then be updated annually to contain revised accident summaries on the prior three-year period. These variables contain counts of such things as total accidents, injury accidents, wet road accidents, icy accidents, etc. However, because they are summary counts rather than individual accidents, they are of limited use in detailed analyses. (For example, it would not be possible to determine the proportion of wet road accidents that resulted in fatals on ramps from these data.)

In general, based on both quality control runs and inputs from Michigan staff, the file is felt to be adequate for analysis purposes.

The Guardrail Inventory File

The original Michigan Guardrail File contains information on all guardrails on trunkline roads in the state. Currently, HSIS includes Guardrail Files for 1987, 1989, and 1992. These files were maintained by the MI DOT District offices, and maintenance effort was stopped or greatly reduced after 1992.

It must be noted that this file concerns only 'guardrail,' and does not contain information on non-metal barriers such as concrete median barriers. Thus, when linked with the Roadlog or Accident Subfiles, there may appear to be discrepancies when this file indicates no guardrail, but the other files indicate a median barrier.

The original file received from Michigan each year contains one record per guardrail section. Thus, there can be records which 'overlap' each other since there are often more than one piece of guardrail on a given section of roadway -- e.g., one on each side of the roadway, or one on each side plus additional rail in the median. ***(Because much of the HSIS analysis involving this file requires linkage with the Accident Subfile and/or Roadlog File, it became obvious in early analysis attempts that the nature of the overlapping records makes use of the file and linkage with other files very difficult. For these reasons, beginning with the 1989 data, the guardrail data received from Michigan were modified by HSIS staff into what might be considered a 'homogeneous guardrail section' file. Unfortunately subsequent use of this modified files indicated some problems in the complex calculation of guardrail length and guardrail terminal milepoints. HSIS staff can supply these programs to a potential user, along with documentation of the development process and errors***

detected. Due to the age of the file, we have not been able to make corrections to the program or the file.)

The non-modified file contains information on approximately 20,400 individual guardrails on the Michigan Trunkline System. The individual records contain information on such variables as guardrail length to the nearest foot, guardrail type (e.g., w-beam, no blockout, cable barrier, etc.), rail height in inches, lateral offset from roadway edge, terminal type and flare, number of post, post type, etc.).

In terms of accuracy, because there are no variables related to guardrail on other files that can be compared to these, it is not possible to cross-verify the accuracy of the file. In addition, the file is not duplicated in any other HSIS State. Examination of the data does indicate that the variables related to "Roadway Type", "Approach End Flare", and "Trailing End Flare" is not coded in the original file for approximately half of the guardrails. In these cases it appears (and Michigan staff verified) that the "blank" codes might well simple denote the opposite of what is coded. For example, under "Roadway Type", while there are codes available for both "non-freeway" and for "freeway" roadways, only the "freeway" roadways are coded. Thus, uncoded cases appear to be non-freeway data. Similarly, for the variables related to the guardrail end flare, a blank appears to indicate "not flared" in both cases. Except for these variables, the file appears to be quite accurate in terms of the distributions indicated, to have a high proportion of variables coded, and to indeed be a valuable analysis file.

However, one (perhaps minor) problem must be noted here. While the referencing system on this file is the same as for the Trunkline Accident Master, and thus the HSIS Accident Subfile, the mileposts here have not been updated as recently as the TAM or Roadlog Files (say, when a roadway is lengthened or shortened). Thus, the same milepoint on these files may not represent the "exact" same location on the roadway. However, Michigan staff has indicated that even though these differences exist (and cannot be corrected for until the raw file is revised), the differences are relatively minor. In general, they feel that linkage of this file with the accident or roadway inventory information will provide suitable accuracy for analysis purposes.

Issues Related to Merging Files

As noted above, the accident data are subdivided into three subfiles -- accident, vehicle, and injured occupant. These subfiles can be linked together using the "case number" variable (i.e., CASENO) present in each of the three subfiles. When linking the Injured Occupant Subfile, the additional linking variable "vehicle number" (i.e., VEHNO) must match so that the occupants are associated with the vehicle in which they were traveling. To link the Vehicle subfile with the Accident alone, first sort both subfiles by case number. To

link the Injured Occupant Subfile with the other two subfiles, first sort both the Vehicle Subfile and Injured Occupant Subfile by case number and vehicle number. Next sort the Accident subfile by case number. Alternatively, the separate subfiles can linked by specifying an SQL JOIN operation with the constraining condition that case number and vehicle number from each table are equal. SQL processing does not require the data to be presorted and the output will not be in any particular sort order unless ORDER BY is specified.

The Accident Subfile can then be linked with the Roadlog File and other inventory files using information related to district, control section, and milepost on the route. The actual linkage variables on the Accident Subfile that are used in the merging operation are DISCNTL (a combination of district and control section number) and MILEPOST. The linkage variables on the Roadlog File are BEGMP, ENDMP, and SEG_CNTL. Linkage of the Accident Subfile with the Guardrail or Intersection File (and thus indirectly to the Electrical Traffic Control Device Inventory) requires similar matching of district/control section/milepost variables. The variables in the Modified Guardrail File are AREA_1 and CNTLSEC1, BEG_MP_1, and END_MP_1. In the Intersection File, they are INT_CNTL and MILEPOST. (Note that programs to carry out these conversions and file linkages have been developed by HSIS staff and can be obtained from them.)

To prepare the Accident Subfile for linking with the Roadlog File using a SAS data step process, the analyst must sort both the Accident Subfile and the Roadway File into location order by DISCNTL and MILEPOST on the Accident Subfile and by SEG_CNTL and BEGMP on the Roadlog File. Similar sorts would be done with other files to be merged. For the alternative SQL join, the analyst must specify an exact match on DISCNTL and SEG_CNTL from the Accident Subfile and Roadlog Files and a range match where MILEPOST occurs between BEGMP and ENDMP. (Programs to accomplish this merging and division are available at FHWA.)

As indicated earlier, the location linkage variables for the interchange element is keyed to its intersection with the mainline on the freeway. To link crashes from the Accident Subfile with the Interchange Element File, one would first screen the Accident Subfile for interchange crashes using HWY_TYPE ("Highway Area Type") equal to "1". (Note that more precise screening by specific elements within the interchange can be done using HWY_TYCD - a combination of "Highway Area Type" and "Highway Area Code.") These crashes can then be linked to the Interchange Element File using DISCNTL (a combination of district and control section number) and MILEPOST from the Accident Subfile, and INV_CNTL and MIlEPOST in the Interchange Element File.

Linking the inventory files with each other is often a section-to-section match, and will require somewhat more complex programming. Again, programs are available at FHWA.

As noted above, the Electrical Traffic Control Device Inventory (the "Signal File") can only be linked directly to the Intersection File. Thus, linkage with other files (e.g., the Accident Subfiles) must be done using information in the Intersection File. Linkage between the Signal File and the Intersection File is through "Control Section" number and "Spot Number" found on

both files. In the Signal File, the two pertinent variables are CNTL_SEC and SPT_NBR. While there are two variables related to "Control Section" in the Intersection File, the appropriate variables for use in linkage are CNTL_SPT ("Control Section of Intersection Spot Number"), and INT_SPT ("Intersection Spot Number"). Both files must be sorted by the "Control Section" variable first, and then the "Spot Number."

Finally, where appropriate and possible, a format that defines categories within a given variable has been developed for HSIS SAS variables. These categories are shown in the pages below. If you are a SAS user and wish to receive a formatting program that includes these SAS formats (with linkage to the pertinent variable name), please request these from the HSIS staff who provides the data file to you.

MICHIGAN CONTACTS

State computer files contact -- Don Mercer (517-335-2629, mercerd@mdot.state.mi.us) -- Mr. Mercer is our main contact within the State of Michigan when questions arise concerning any parts of the Michigan data files. He works within the Traffic and Safety Division of the Michigan DOT and has been responsible for the development of the Michigan data merging system and subsequent State-level analyses. He should be the primary contact for all questions, and will direct questions he can't answer to others. If he cannot be reached, other contacts include:

Jack Benac (517-335-2975) -- Mr. Benac is very familiar with the Accident Files and was the developer of the Interchange Element File. He has also worked on the development of the Roadlog and Intersection Files.

Brad Hagerty (517-335-2631) -- Mr. Hagerty helped develop the Roadlog and Intersection Files and provides user assistance on Signal Files.

Ken O'Berry (517-335-2981, oberryk@mdot.state.mi.us) -- Mr. O'Berry has worked extensively in the development of the Guardrail File and supervises the building of the Features, Roadlog, and Intersection Files. He is also now in charge of the "Signal" File.

Joyce Newell (517-373-2237) -- Ms. Newell is in charge of the Sufficiency File. Mr. Dick Turcotte (517-335-2916) also works with this file.

David Schade (517-335-2914) -- Mr. Shade has provided HSIS with supplemental data files concerning speed surveys on Michigan highways, and is the primary contact for questions on this speed data. In his absence, Mr. Mike Walimaki (517-373-2272) can also provide information on the speed data.

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
AADT	ANNUAL AVERAGE DAILY TRAFFIC	Roadlog	NUM	I-83
ACC_LOC	ACCIDENT LOCATION	Accident	NUM	I-33
ACCTYPE	ACCIDENT TYPE	Accident	NUM	I-33
ACCYR	ACCIDENT YEAR	Accident	CHA(4)	I-34
ACT_DEN	ACTIVITY DENSITY	Interchange	NUM	I-139
AGE	AGE OF INJURED OCCUPANT	Occupant	CHA(2)	I-77
AGE_GRP	AGE CATEGORY	Occupant	CHA(2)	I-77
AGENCY	ACCIDENT INVESTIGATED BY	Accident	NUM	I-34
AIRBAG	OCCUPANT AIRBAG	Occupant	NUM	I-78
ANALYS	ACCIDENT ANALYSIS - WHERE AND HOW	Accident	NUM	I-34
ANG_ACCS	SUMMARY OF ANGLE ACCS	Interchange	NUM	I-139
ANIM_ACC	SUMMARY OF ANIMAL ACCS	Interchange	NUM	I-139
APP_LFTP	TRUNKLINE APPROACH LEG - LFT TURN PHASE	Intersection	NUM	I-103
APP_NOLF	TRUNKLINE APPROACH LEG - LFT TRN PROHIB	Intersection	NUM	I-103
APP_NTOR	TRUNKLINE APPROACH LEG - NO TRN ON RED	Intersection	NUM	I-104
APPR_END	APPROACH END TYPE	Guardrail	CHA(2)	I-153
APPR_ENF	APPROACH END FLARING	Guardrail	CHA(1)	I-153
ARR_TY1	TURNING ARROW TYPE - CONFIG 1	Signal	CHA(2)	I-119
ARR_TY2	TURNING ARROW TYPE - CONFIG 2	Signal	CHA(2)	I-119
ARR_TY3	TURNING ARROW TYPE - CONFIG 3	Signal	CHA(2)	I-119
ARR_YR1	YEAR OF INSTALL - CONFIG 1	Signal	NUM	I-119
ARR_YR2	YEAR OF INSTALL - CONFIG 2	Signal	NUM	I-119
ARR_YR3	YEAR OF INSTALL - CONFIG 3	Signal	NUM	I-119
AVG_SECR	AVERAGE SECTION RATING	Guardrail	NUM	I-153
AXLN_AL	NO. OF AUX LNS – TRNK APPROACH LEFT SIDE	Intersection	NUM	I-104
AXLN_AR	NO. OF AUX LNS – TRNK APPROACH RIGHT SIDE	Intersection	NUM	I-104
AXLN_DL	NO. OF AUX LNS - TRNK DEPARTURE LEFT SIDE	Intersection	NUM	I-104
AXLN_DR	NO. OF AUX LNS - TRNK DEPARTURE RIGHT SIDE	Intersection	NUM	I-104
BACK_ACC	SUMMARY OF BACKING ACCS	Interchange	NUM	I-139
BAS_LNS	NUMBER OF BASIC LANES	Roadlog	NUM	I-83
BEGMP	HORIZONTAL CURVE BEGINNING MILEPOST	Horiz Curve	NUM	I-99
BEGMP	BEGIN MILEPOINT	Guardrail	NUM	I-154
BEGMP	BEGINNING MLPNT OF SEGMENT	Roadlog	NUM	I-83
BIK_ACCS	SUMMARY OF BICYCLE ACCS	Interchange	NUM	I-140
BIL_CDE	BILLING CODE	Signal	CHA(1)	I-119
BIL_CDE1	BILLING CODE AGENCY NO. 1	Signal	CHA(1)	I-119
BIL_CDE2	BILLING CODE AGENCY NO. 2	Signal	CHA(1)	I-119

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COMPOSITE LIST OF VARIABLES FOR MICHIGAN HSIS FILES

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
BIL_CDE3	BILLING CODE AGENCY NO. 3	Signal	CHA(1)	I-119
BIL_CDE4	BILLING CODE AGENCY NO. 4	Signal	CHA(1)	I-119
BIL_CDE5	BILLING CODE AGENCY NO. 5	Signal	CHA(1)	I-119
CAS_TYP1	CASE SIGNS TYPE - CONFIG 1	Signal	CHA(2)	I-120
CAS_TYP2	CASE SIGNS TYPE - CONFIG 2	Signal	CHA(2)	I-120
CAS_TYP3	CASE SIGNS TYPE - CONFIG 3	Signal	CHA(2)	I-120
CAS_TYP4	CASE SIGNS TYPE - CONFIG 4	Signal	CHA(2)	I-120
CASENO	YEAR + CASE NUMBER	Occupant	CHA(11)	I-78
CASENO	YEAR + CASE NUMBER	Vehicle	CHA(11)	I-59
CASENO	YEAR + CASE NUMBER	Accident	CHA(11)	I-40
CHNG_DT	DATE OF ACTUAL PHYSICAL CHANGE	Intersection	NUM	I-105
CIRC_ONE	FIRST CIRCUIT NUMBER	Signal	CHA(16)	I-120
CIRC_THR	THIRD CIRCUIT NUMBER	Signal	CHA(16)	I-120
CIRC_TWO	SECOND CIRCUIT NUMBER	Signal	CHA(16)	I-120
CIRCUIT	CIRCUIT USAGE CODE	Signal	CHA(3)	I-120
CITY	CITY OR TOWNSHIP	Accident	NUM	I-40
CM_NTWRK	SUF-PRIORITY COMMERCIAL NETWORK	Roadlog	NUM	I-83
CMP_DTE	LIST OF PEDESTRIAN SIGNALS COMPLETE	Signal	CHA(1)	I-121
CNST_LOC	CONSTRUCTION ACTIVITY LOCATION	Accident	CHA(1)	I-41
CNST_TYP	CONSTRUCTION TYPE	Accident	CHA(1)	I-41
CNSTLNCL	CONSTRUCTION ZONE LANE CLOSURE	Accident	CHA(1)	I-41
CNTL_SEC	CONTROL SECTION	Intersection	NUM	I-105
CNTL_SEC	CONTROL SECTION	Roadlog	NUM	I-84
CNTL_SEC	CONTROL SECTION	Signal	NUM	I-121
CNTL_SEC	CONTROL SECTION	Interchange	NUM	I-140
CNTL_SEC	CONTROL SECTION	Guardrail	NUM	I-154
CNTL_SEC	CONTROL SECTION	Accident	NUM	I-41
CNTL_SPT	CONTROL SECT OF INTERSEC - SPOT NBR	Intersection	NUM	I-105
CNTY_CD	COUNTY CODE	Signal	NUM	I-121
CNTY_NBR	COUNTY NUMBER	Interchange	NUM	I-140
COMM_ADT	COMMERCIAL ADT	Roadlog	NUM	I-84
COMP_DTE	WORK ORDER COMPLETION DATE	Signal	CHA(6)	I-121
COMPLT	LIST OF SIGNAL HEAD COMPLETE	Signal	CHA(1)	I-121
CON_MDL	CONTROLLER MODEL	Signal	CHA(6)	I-121
CON_TY1	MEANS OF INTERCONNECT, TYPE NO 1	Signal	CHA(2)	I-122
CON_TY2	MEANS OF INTERCONNECT, TYPE NO 2	Signal	CHA(2)	I-122
CON_YR	CONTROLLER INSTALLATION YEAR	Signal	CHA(2)	I-122
COUNTY	COUNTY NUMBER	Guardrail	NUM	I-154
COUNTY	COUNTY NUMBER - MDOT SCHEME	Accident	NUM	I-41
CRA_LFTP	CROSSRD APPROACH LEG - LFT TURN PHASE	Intersection	NUM	I-105
CRA_NOLF	CROSSRD APPROACH LEG - LFT TURN PROHIB	Intersection	NUM	I-105

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SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
CRA_NTOR	CROSSRD APPROACH LEG - NO TURN ON RED	Intersection	NUM	I-105
CRD_LFTP	CROSSRD DEPARTURE LEG - LFT TURN PHASE	Intersection	NUM	I-105
CRD_NOLF	CROSSRD DEPARTURE LEG - LFT TRN PROHIB	Intersection	NUM	I-106
CRD_NTOR	CROSSRD DEPARTURE LEG - NO TRN ON RED	Intersection	NUM	I-106
CRX_DESC	CROSSROAD ENGLISH DESCRIPTION	Intersection	CHA(18)	I-106
CST_EST	FINAL TOTAL WORK ORDER COST ESTIMATE	Signal	NUM	I-122
CURV_MIN	CURVE OR BEARING MINUTES	Roadlog	NUM	I-84
DAMSEV	VEHICLE DAMAGE SEVER CODE	Vehicle	NUM	I-59
DAYMTH	DAY OF MONTH	Accident	NUM	I-43
DEFECT	VEHICLE DEFECT	Vehicle	NUM	I-59
DEG_CURV	HORIZONTAL CURVE DEGREE	Horiz Curve	NUM	I-99
DEG_CURV	CURVE OR BEARING DEGREES	Roadlog	NUM	I-84
DESC_	ENGLISH DESCRIPTION	Interchange	CHA(25)	I-140
DEV_TYP	DEVICE TYPE	Signal	NUM	I-123
DIR	SUF-TRAVEL DIRECTION CODE	Roadlog	NUM	I-84
DIR_CURV	CURVE CODE OR BEARING DIRECTION	Roadlog	NUM	I-85
DIR_CURV	HORIZONTAL CURVE DIRECTION	Horiz Curve	CHA(1)	I-99
DIR_TRVL	VEHICLE DIRECTION OF TRAVEL	Vehicle	NUM	I-59
DIREC	DIRECTION OF INVENTORY	Guardrail	CHA(1)	I-154
DIS_CNTL	DISTRICT + CONTROL SECTION	Horiz Curve	NUM	I-99
DISCNTL	DISTRICT + CONTROL SECTION NUMBER	Accident	NUM	I-43
DISTRICT	DISTRICT	Roadlog	NUM	I-85
DISTRICT	DISTRICT	Signal	NUM	I-123
DISTRICT	DISTRICT	Intersection	NUM	I-106
DISTRICT	DISTRICT	Accident	NUM	I-43
DISTRICT	DISTRICT	Interchange	NUM	I-140
DIV_CODE	ROAD TYPE	Accident	NUM	I-44
DPR_LFTP	TRUNKLINE DEPARTURE LEG - LFT TURN PHASE	Intersection	NUM	I-106
DPR_NOLF	TRUNKLINE DEPARTURE LEG - LFT TRN PROHIB	Intersection	NUM	I-106
DPR_NTOR	TRUNKLINE DEPARTURE LEG - NO TRN ON RED	Intersection	NUM	I-106
DR_EJECT	DRIVER EJECTION	Vehicle	NUM	I-60
DRAIRBAG	DRIVER AIRBAG	Vehicle	NUM	I-60
DRIVABLE	VEHICLE DRIVABLE AFTER CRASH	Vehicle	NUM	I-60
DRK_ACCS	SUMMARY OF DARK ACCIDENTS	Interchange	NUM	I-140
DRV_AGE	AGE OF DRIVER	Vehicle	NUM	I-60
DRV_INJ	DEGREE OF INJURY TO DRIVER	Vehicle	NUM	I-60
DRV_POS	DRIVER SEATING POSITION	Vehicle	CHA(2)	I-61

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SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
DRV_REST	DRIVER RESTRAINT	Vehicle	CHA(2)	I-61
DRV_SEX	SEX OF DRIVER	Vehicle	CHA(1)	I-62
DRV_TRAP	DRIVER TRAPPED	Vehicle	NUM	I-62
DRW_MAT	DRAWING ON MATES	Signal	CHA(1)	I-123
DWI	DRINKING IN ACCIDENT	Accident	CHA(1)	I-44
EJECT	OCCUPANT EJECTION	Occupant	NUM	I-78
ELEM_CDE	ELEMENT CODE	Interchange	NUM	I-141
ENDMP	HORIZONTAL CURVE ENDING MILEPOST	Horiz Curve	NUM	I-99
ENDMP	ENDING MILEPOINT	Guardrail	NUM	I-154
ENDMP	ENDING MILEPOINT OF SEGMENT	Roadlog	NUM	I-85
EVENT1	VEHICLE HARMFUL EVENT #1	Vehicle	CHA(2)	I-62
EVENT2	VEHICLE HARMFUL EVENT #2	Vehicle	CHA(2)	I-62
EVENT3	VEHICLE HARMFUL EVENT #3	Vehicle	CHA(2)	I-62
EVENT4	VEHICLE HARMFUL EVENT #4	Vehicle	CHA(2)	I-62
EXT_LNL	MISCELLANEOUS EXTRA LANES(LEFT)	Roadlog	NUM	I-85
EXT_LNR	MISCELLANEOUS EXTRA LANES(RIGHT)	Roadlog	NUM	I-86
FAT_ACCS	SUMMARY OF FATAL ACCS	Interchange	NUM	I-142
FED_AID	SUF-FEDERAL AID SYSTEM	Roadlog	NUM	I-86
FIRE	VEH FUEL LEAKS AND FIRES	Vehicle	NUM	I-63
FIX_ACCS	SUMMARY OF FIXED OBJ ACCS	Interchange	NUM	I-142
FRAM_NBR	FILM FRAME NUMBER	Accident	NUM	I-44
FUNC_CLS	SUF-FUNCTIONAL CLASS	Roadlog	NUM	I-86
GRD_LNGT	GUARDRAIL RUN LENGTH	Guardrail	CHA(6)	I-154
GRD_LOC	GUARDRAIL LOCATION	Guardrail	CHA(1)	I-154
GRD_TYP	GUARDRAIL TYPE	Guardrail	CHA(2)	I-155
GRD_USE	GUARDRAIL USE	Guardrail	CHA(1)	I-155
HDON_ACC	SUMMARY OF HEAD ON ACCS	Interchange	NUM	I-142
HELMET	HELMET USE	Vehicle	CHA(1)	I-63
HOUR	HOUR OF OCCURRENCE	Accident	NUM	I-44
HWY_CDE	HIGHWAY AREA CODE	Accident	NUM	I-45
HWY_DIST	HIGHWAY DISTRICT	Guardrail	NUM	I-155
HWY_TYCD	HIGHWAY AREA CODE AND TYPE - COMBINED VARIABLE	Accident	NUM	I-45
HWY_TYPE	HIGHWAY AREA TYPE	Accident	NUM	I-48
HWYCLS	HIGHWAY CLASS SUBSCRIPT	Accident	CHA(1)	I-48
I_TYPE	INTERCHANGE TYPE	Interchange	NUM	I-142
ICE_ACCS	SUMMARY OF ICY ACCS	Interchange	NUM	I-143
INIT_RQS	INITIAL REQUEST DATE	Signal	NUM	I-123
INJ	OCCUPANT DEGREE OF INJURY	Occupant	CHA(1)	I-78
INJ_ACCS	SUMMARY OF INJURY ACCS	Interchange	NUM	I-143
INSP_DAT	INSPECTION DATE	Guardrail	NUM	I-155
INSP_RES	INSPECTION REASON	Guardrail	NUM	I-155
INSTAL	INSTALLATION DATE	Guardrail	NUM	I-156
INT_CNTL	DISTRICT + CONTROL SECTION	Intersection	NUM	I-106
INT_FLG	TRUNKLINE INTERSECTION FLAG	Intersection	NUM	I-107

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COMPOSITE LIST OF VARIABLES FOR MICHIGAN HSIS FILES

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
INT_NAME	INTERSECTING STREET NAME	Accident	CHA(20)	I-48
INT_SPT	INTERSECTION SPOT NUMBER	Intersection	CHA(3)	I-107
INT_TYP	INTERSECTION TYPE CODE	Intersection	NUM	I-107
INTCON	INTERCONNECT TYPE	Signal	CHA(1)	I-123
INTE_NBR	INTERCHANGE NUMBER	Interchange	CHA(7)	I-143
INTER_LT	INTERCHANGE LIGHTING	Interchange	NUM	I-143
INTOX	DRIVER DRINKING/DRUG USE	Vehicle	NUM	I-63
INV_CNTL	DISTRICT + CONTROL SECTION	Interchange	NUM	I-144
INV_WO_C	WORK ORDER COMPLETION DATE	Signal	NUM	I-123
JUN_TYP	JUNCTION TYPE CODE	Interchange	NUM	I-144
LANE_USE	RAMP TERMINAL LANE USAGE	Interchange	NUM	I-144
LANEAGE	LANEAGE OF ELEMENT	Interchange	NUM	I-146
LANEWID	AVERAGE LANE WIDTH	Roadlog	NUM	I-87
LANEWID2	AVERAGE LANE WIDTH (MINUS DIRECTION)	Roadlog	NUM	I-87
LAT_DIST	LATERAL DISTANCE	Guardrail	NUM	I-156
LEFT_TRN	LEFT TURN PROHIBITION	Intersection	NUM	I-108
LFT_ACCS	SUMMARY OF LEFT TURN ACCS	Interchange	NUM	I-146
LFT_TRN	LEFT TURN PROHIBITION	Signal	CHA(5)	I-124
LIGHT	LIGHT CONDITION	Accident	NUM	I-49
LNS_SIZ1	PED SIG HEAD TYPE - LENS SIZE CONFIG 1	Signal	CHA(2)	I-124
NS_SIZ2	PED SIG HEAD TYPE - LENS SIZE CONFIG 2	Signal	CHA(2)	I-124
LNS_SIZ3	PED SIG HEAD TYPE - LENS SIZE CONFIG 3	Signal	CHA(2)	I-124
LOC_AGN1	LOCAL AGENCY NO. 1 CODE	Signal	NUM	I-124
LOC_AGN2	LOCAL AGENCY NO. 2 CODE	Signal	CHA(5)	I-124
LOC_AGN3	LOCAL AGENCY NO. 3 CODE	Signal	CHA(5)	I-124
LOC_AGN4	LOCAL AGENCY NO. 4 CODE	Signal	CHA(5)	I-124
LOC_AGN5	LOCAL AGENCY NO. 5 CODE	Signal	CHA(5)	I-124
LOC_DES	LOCATION DESCRIPTION	Signal	CHA(40)	I-125
LOC_DESC	LOCATION DESCRIPTION	Guardrail	CHA(30)	I-156
LOC_GOV	LOCAL GOVERNMENT	Intersection	CHA(12)	I-109
LOC_INJ	INJURED OCCUPANT LOCATION	Occupant	CHA(1)	I-79
LOC_TYPE	AREA OF ROAD AT CRASH	Accident	CHA(2)	I-49
LSHL_TY2	SHOULDER/CURB TYPE (MINUS DIREC LEFT)	Roadlog	NUM	I-87
LSHL_TYP	SHOULDER/CURB TYPE (LEFT)	Roadlog	NUM	I-87
LSHL_WD2	TOTAL SHLDR WIDTH (MINUS DIREC LEFT)	Roadlog	NUM	I-87
LSHLDWID	TOTAL SHOULDER WIDTH (LEFT)	Roadlog	NUM	I-87
MAIN_RES	MAINTENANCE REASON	Guardrail	NUM	I-156
MAIN_RTE	MAINTENANCE ROUTE	Guardrail	CHA(5)	I-156

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SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
MAKENAME	VEHICLE MAKE	Vehicle	NUM	I-64
MALI_NBR	MALI RAMP NUMBER	Interchange	CHA(4)	I-146
MANUF1	MANUF OF PED SIGNAL HEAD - CONFIG 1	Signal	CHA(1)	I-125
MANUF2	MANUF OF PED SIGNAL HEAD - CONFIG 2	Signal	CHA(1)	I-125
MANUF3	MANUF OF PED SIGNAL HEAD - CONFIG 3	Signal	CHA(1)	I-125
MANUFAC1	MANUF OF SIGNAL HEAD - CONFIG 1	Signal	CHA(1)	I-125
MANUFAC2	MANUF OF SIGNAL HEAD - CONFIG 2	Signal	CHA(1)	I-125
MANUFAC3	MANUF OF SIGNAL HEAD - CONFIG 3	Signal	CHA(1)	I-125
MAT_CDE1	MATERIAL CODE - CONFIG 1	Signal	CHA(1)	I-125
MAT_CDE2	MATERIAL CODE - CONFIG 2	Signal	CHA(1)	I-125
MAT_CDE3	MATERIAL CODE - CONFIG 3	Signal	CHA(1)	I-125
MATE_CD1	PED SIGNAL MATERIAL CODE - CONFIG 1	Signal	CHA(1)	I-125
MATE_CD2	PED SIGNAL MATERIAL CODE - CONFIG 2	Signal	CHA(1)	I-125
MATE_CD3	PED SIGNAL MATERIAL CODE - CONFIG 3	Signal	CHA(1)	I-125
MED_TYPE	MEDIAN TYPE	Roadlog	NUM	I-88
MEDWID	SUF-MEDIAN WIDTH IN FEET	Roadlog	NUM	I-88
MET_SEV	METERED SERVICE	Signal	CHA(1)	I-125
MILE_DIR	MILEAGE DIRECTION	Interchange	NUM	I-146
MILEPOST	MILEPOST	Interchange	NUM	I-146
MILEPOST	CONTROL SECTION MILEPOINT	Accident	NUM	I-49
MILEPOST	MILEPOST	Signal	NUM	I-125
MILEPOST	CONTROL SECTION MILEPOINT	Intersection	NUM	I-109
MISCACT1	DRIVER/PED/OTH INTENT	Vehicle	NUM	I-65
MKE_CON	MAKE OF CONTROLLER	Signal	CHA(1)	I-126
MN_CDE1	MAINTENANCE CODE - AGENCY NO. 1	Signal	CHA(1)	I-126
MN_CDE2	MAINTENANCE CODE - AGENCY NO. 2	Signal	CHA(1)	I-126
MN_CDE3	MAINTENANCE CODE - AGENCY NO. 3	Signal	CHA(1)	I-126
MN_CDE4	MAINTENANCE CODE - AGENCY NO. 4	Signal	CHA(1)	I-126
MN_CDE5	MAINTENANCE CODE - AGENCY NO. 5	Signal	CHA(1)	I-126
MNT_CDE	MAINTENANCE CODE	Signal	CHA(1)	I-126
MONTH	MONTH OF ACCIDENT	Accident	NUM	I-50
MOSTHARM	VEHICLE MOST HARMFUL EVENT	Vehicle	CHA(2)	I-66
MOTH_ACC	SUMMARY OF MULTI-VEH OTHER ACCIDENTS	Interchange	NUM	I-147
MVMT	MILLION VEHICLE MILES TRAVELED	Roadlog	NUM	I-88
NBR_CAS1	NUMBER OF CASE SIGNS - CONFIG 1	Signal	NUM	I-126
NBR_CAS2	NUMBER OF CASE SIGNS - CONFIG 2	Signal	CHA(1)	I-126
NBR_CAS3	NUMBER OF CASE SIGNS - CONFIG 3	Signal	CHA(1)	I-126
NBR_CAS4	NUMBER OF CASE SIGNS - CONFIG 4	Signal	CHA(1)	I-126

(CON'T)

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
NBR_FAC1	PED SIG HEAD TYPE - NBR FACING CONFIG 1	Signal	CHA(2)	I-127
NBR_FAC2	PED SIG HEAD TYPE - NBR FACING CONFIG 2	Signal	CHA(2)	I-127
NBR_FAC3	PED SIG HEAD TYPE - NBR FACING CONFIG 3	Signal	CHA(2)	I-127
NBR_LANE	NUMBER OF LANES	Accident	NUM	I-50
NBR_LEGS	NUMBER OF INTERSECTION LEGS	Intersection	NUM	I-109
NBR_LGHT	NUMBER OF STREET LIGHTS	Signal	NUM	I-127
NBR_PHS	NUMBER OF PHASES	Signal	NUM	I-127
NBR_PHS	NUMBER OF PHASES	Intersection	NUM	I-109
NBR_POST	NUMBER OF POSTS	Guardrail	NUM	I-156
NHS_CODE	SUF-NATIONAL HIGHWAY SYSTEM	Roadlog	CHA(1)	I-89
NO_LANES	NUMBER OF LANES	Roadlog	NUM	I-89
NO_TRN	NO TURN ON RED	Signal	CHA(5)	I-127
NUM_OCCS	NUMBER OF OCCUPANTS	Accident	NUM	I-50
NUMOCC_V	TOTAL OCCUPANTS IN VEH	Vehicle	NUM	I-66
NUMVEHS	NUMBER OF MOVING VEHICLES INVOLVED	Accident	NUM	I-50
OBJECT1	OBJECT HIT	Vehicle	NUM	I-67
ONEWAY	ROADWAY TYPE	Roadlog	NUM	I-89
ONRD_ACC	SUMMARY OF ON ROAD ACCS	Interchange	NUM	I-147
OP_NBR	VEHICLE OPERATOR NUMBER	Vehicle	CHA(5)	I-67
OVT_ACCS	SUMMARY OF OVERTURNED ACCS	Interchange	NUM	I-147
PARKING1	ON STREET PARK (LEFT)	Roadlog	NUM	I-89
PARKING2	ON STREET PARKING (RIGHT)	Roadlog	NUM	I-89
PASSING	NO PASSING ZONE CODE	Roadlog	NUM	I-89
PAV_WDL	PAVED SHOULDER WIDTH (LEFT)	Roadlog	NUM	I-90
PAV_WDML	PAVED SHLDR WIDTH (MINUS DIREC LEFT)	Roadlog	NUM	I-90
PAV_WDMR	PAVED SHLDR WIDTH (MINUS DIREC RIGHT)	Roadlog	NUM	I-90
PAV_WIDR	PAVED SHOULDER WIDTH (RIGHT)	Roadlog	NUM	I-90
PED_ACCS	SUMMARY OF PEDESTRIAN ACCS	Interchange	NUM	I-147
PED_SIG1	NUMBER OF PED SIGNAL HEAD - CONFIG 1	Signal	NUM	I-128
PED_SIG2	NUMBER OF PED SIGNAL HEAD - CONFIG 2	Signal	NUM	I-128
PED_SIG3	NUMBER OF PED SIGNAL HEAD - CONFIG 3	Signal	NUM	I-128
POP_GRP	POPULATION SUBSCRIPT	Accident	NUM	I-51
POP_GRP	SUF-POPULATION GROUP	Roadlog	NUM	I-90
POST_TRE	POST TREATMENT TYPE	Guardrail	CHA(2)	I-157
POST_TYP	POST TYPE	Guardrail	CHA(1)	I-157
POWER_CO	POWER COMPANY	Signal	CHA(3)	I-128

(CON'T)

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
PRKN_ACC	SUMMARY OF PARKING ACCS	Interchange	NUM	I-147
PRKV_ACC	SUMMARY OF PARKED VEH ACCS	Interchange	NUM	I-148
PRT_PCN1	PARTICIPATION PERCENT - AGENCY NO. 1	Signal	NUM	I-128
PRT_PCN2	PARTICIPATION PERCENT - AGENCY NO. 2	Signal	NUM	I-128
PRT_PCN3	PARTICIPATION PERCENT - AGENCY NO. 3	Signal	NUM	I-128
PRT_PCN4	PARTICIPATION PERCENT - AGENCY NO. 4	Signal	NUM	I-128
PRT_PCN5	PARTICIPATION PERCENT - AGENCY NO. 5	Signal	NUM	I-128
PRT_PCNT	PARTICIPATION PERCENT	Signal	NUM	I-128
PURPOSE	PURPOSE OF GUARDRAIL	Guardrail	CHA(2)	I-157
RAIL_HGT	HEIGHT OF RAIL	Guardrail	NUM	I-157
RAIL_MAT	RAIL MATERIAL	Guardrail	CHA(1)	I-157
RD_CHAR1	ROAD ALIGNMENT	Accident	NUM	I-51
RD_DEF	ROAD DEFECT	Accident	NUM	I-51
RD_DEVCD	ROADSIDE DEVELOPMENT CODE	Roadlog	NUM	I-90
RD_LOC	RELATIONSHIP TO ROADWAY	Accident	CHA(1)	I-52
RDSURF	ROAD SURFACE CONDITION	Accident	NUM	I-52
RDWY_TYP	ROADWAY TYPE	Guardrail	CHA(1)	I-158
RED_CLR	ALL RED CLEARANCE PHASE	Intersection	NUM	I-109
REEL_NBR	FILM REEL NUMBER	Accident	NUM	I-52
REFUSAL	DRIVER REFUSED ALC/DRUG TST	Vehicle	NUM	I-67
REMOTE	REMOTE FEATURES	Signal	CHA(3)	I-128
REND_ACC	SUMMARY OF READ END ACCS	Interchange	NUM	I-148
REPORT	ACCIDENT INVESTIGATED AT SCENE	Accident	NUM	I-52
RESIDLOC	RESIDENCE OF DRIVER	Vehicle	NUM	I-67
REST1	OCCUPANT RESTRAINT	Occupant	CHA(2)	I-79
RF_BRDG_	REMOTE FEATURES-COMPUTER CONTROLLED	Signal	CHA(1)	I-129
RF_COMP_	REMOTE FEATURES-OPTICOM PREEMPT	Signal	CHA(1)	I-129
RF_FIRE_	REMOTE FEATURES-FIRE PREEMPT	Signal	CHA(1)	I-129
RF_MNUL_	REMOTE FEATURES-RAILROAD PREEMPT	Signal	CHA(1)	I-129
RF_OPT_P	REMOTE FEATURES-BRIDGE SIGNALS	Signal	CHA(1)	I-129
RF_RR_PR	REMOTE FEATURES-MANUAL OVERRIDE	Signal	CHA(1)	I-130
RGH_ACCS	SUMMARY OF RIGHT TURN ACCS	Interchange	NUM	I-148
RGHT_TRN	RIGHT TURN PROHIBITION	Signal	CHA(5)	I-130
RGHT_TRN	RIGHT TURN PROHIBITION	Intersection	NUM	I-110
RMP_TERM	RAMP TERMINAL OR INTERSEC TRAF CNTL	Interchange	NUM	I-148
RODWYCLS	ROADWAY CLASSIFICATION	Roadlog	CHA(2)	I-91
RODWYCLS	ROADWAY CLASSIFICATION	Accident	CHA(2)	I-52
ROW	SUF-RIGHT OF WAY	Roadlog	NUM	I-91

(CON'T)

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
RSHL_TY2	SHLDR OR CURB TYPE (MINUS DIREC RIGHT)	Roadlog	NUM	I-91
RSHL_TYP	SHOULDER/CURB TYPE (RIGHT)	Roadlog	NUM	I-91
RSHL_WD2	TOTAL SHLDR WIDTH (MINUS DIREC RIGHT)	Roadlog	NUM	I-92
RSHLDWID	TOTAL SHLDR WIDTH (RIGHT)	Roadlog	NUM	I-92
RTE_CLS	ROUTE CLASS	Accident	NUM	I-53
RTE_NBR	ROUTE NUMBER	Accident	NUM	I-53
RTE_NBR	SUF-ROUTE NUMBER	Roadlog	NUM	I-92
RTE_NBR1	ROUTE NUMBER 1	Guardrail	CHA(7)	I-158
RTE_NBR2	ROUTE NUMBER 2	Guardrail	CHA(7)	I-158
RTE_NBR3	ROUTE NUMBER 3	Guardrail	CHA(7)	I-158
RTE_TYPE	SUF-ROUTE DESIGNAT & TYPE	Roadlog	NUM	I-92
RUN_NBR	RUN NUMBER	Guardrail	NUM	I-158
RUN_SUFF	RUN NUMBER SUFFIX	Guardrail	CHA(1)	I-158
RURURB	SUF-RUR/URB DEV CODE	Roadlog	NUM	I-92
SDWP_MET	SUMMARY OF SIDESWIPE-MEET ACCIDENTS	Interchange	NUM	I-148
SDWP_PAS	SUMMARY OF SIDESWIPE-PASS ACCIDENTS	Interchange	NUM	I-149
SEATPOS	OCCUPANT SEAT POSITION	Occupant	CHA(2)	I-79
SEG_CNTL	DISTRICT + CONTROL SECTION	Roadlog	NUM	I-93
SEG_LNG	CALCULATED SECTION LENGTH	Roadlog	NUM	I-93
SEG_LNG	CALCULATED SECTION LENGTH	Horiz Curve	NUM	I-99
SEQ_NBR	RAMP SEQUENCE NUMBER	Interchange	NUM	I-149
SEQ_NBR	PHOTOLOG RAMP SEQ NO	Guardrail	NUM	I-158
SEVERITY	SEVERITY OF ACCIDENT	Accident	CHA(1)	I-53
SEX	OCCUPANT SEX	Occupant	CHA(1)	I-80
SHLD_TYP	SHOULDER TYPE	Guardrail	CHA(1)	I-158
SIG_COL1	SIGNAL HEAD NBR OF COLORS - CONFIG 1	Signal	CHA(2)	I-130
SIG_COL2	SIGNAL HEAD NBR OF COLORS - CONFIG 2	Signal	CHA(2)	I-130
SIG_COL3	SIGNAL HEAD NBR OF COLORS - CONFIG 3	Signal	CHA(2)	I-130
SIG_FAC1	SIGNAL HEAD NBR OF FACING - CONFIG 1	Signal	CHA(2)	I-131
SIG_FAC2	SIGNAL HEAD NBR OF FACING - CONFIG 2	Signal	CHA(2)	I-131
SIG_FAC3	SIGNAL HEAD NBR OF FACING - CONFIG 3	Signal	CHA(2)	I-131
SIG_INT	SUF-NUM SIGNALIZED INTERSECTIONS	Roadlog	NUM	I-93
SIG_LEN1	SIGNAL HEAD LENS SIZE - CONFIG 1	Signal	NUM	I-131
SIG_LEN2	SIGNAL HEAD LENS SIZE - CONFIG 2	Signal	NUM	I-131
SIG_LEN3	SIGNAL HEAD LENS SIZE - CONFIG 3	Signal	NUM	I-131

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SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
SIG_SUP1	SIGNAL HEAD SUPP TYPE - CONFIG 1	Signal	CHA(2)	I-132
SIG_SUP2	SIGNAL HEAD SUPP TYPE - CONFIG 2	Signal	CHA(2)	I-132
SIG_SUP3	SIGNAL HEAD SUPP TYPE - CONFIG 3	Signal	CHA(2)	I-132
SIG_TYP	SIGNAL CONTROL TYPE CODE	Intersection	NUM	I-110
SIG_TYP1	SIGNAL HEAD TYPE - CONFIG 1	Signal	CHA(8)	I-132
SIG_TYP2	SIGNAL HEAD TYPE - CONFIG 2	Signal	CHA(8)	I-132
SIG_TYP3	SIGNAL HEAD TYPE - CONFIG 3	Signal	CHA(8)	I-132
SIGN_ONE	NUMBER OF SIGNAL HEADS - CONFIG 1	Signal	NUM	I-133
SIGN_THR	NUMBER OF SIGNAL HEADS - CONFIG 3	Signal	NUM	I-133
SIGN_TWO	NUMBER OF SIGNAL HEADS - CONFIG 2	Signal	NUM	I-133
SOTH_ACC	SUMMARY OF SINGLE-VEH OTHER ACCIDENTS	Interchange	NUM	I-149
SPD_LIM2	POSTED SPEED LIMIT (MINUS DIRECTION)	Roadlog	NUM	I-93
SPD_LIMT	POSTED SPEED LIMIT	Roadlog	NUM	I-93
SPDLMT	SPEED LIMIT AT CRASH SITE	Accident	NUM	I-53
SPDPOST	SPEED LIMIT POSTED?	Accident	CHA(1)	I-53
SPEC_TAG	SPECIAL ACCIDENT TAGS	Accident	NUM	I-54
SPILL	VEHICLE TRUCK CARGO SPILL	Vehicle	NUM	I-68
SPT_NBR	SPOT NUMBER	Signal	NUM	I-133
STATUS	STATUS	Signal	CHA(2)	I-133
STDY_WAT	STEADY WATTAGE	Signal	NUM	I-133
STR_NAM	ORIGINAL PRIME STREET NAME	Accident	CHA(20)	I-54
SURF_TYP	SUF-PREDOMINANT SURF TYPE	Roadlog	NUM	I-93
SURF_WID	SUF-PREDOMINANT SURF WIDTH	Roadlog	NUM	I-94
TELE_COM	TELEPHONE COMPANY	Signal	NUM	I-133
TERRAIN	SUF-PREDOMINANT TERRAIN TYPE	Roadlog	NUM	I-94
TESTAIR	DRIVER BREATHALYZER TEST	Vehicle	CHA(1)	I-68
TESTBLD	DRIVER BLOOD TEST	Vehicle	CHA(1)	I-68
TESTPBT	DRIVER PBT TEST	Vehicle	CHA(1)	I-68
TESTSOB	DRIVER FIELD SOBRIETY TEST	Vehicle	CHA(1)	I-68
TESTURI	DRIVER URINE TEST	Vehicle	CHA(1)	I-68
TOT_ACCS	TOTAL ACCIDENTS	Interchange	NUM	I-149
TOT_INJ	NUMBER OF PERSONS INJURED	Accident	NUM	I-54
TOT_KILL	NUMBER OF PERSONS KILLED	Accident	NUM	I-54
TOT_NON	NUMBER OF PERSONS UNINJURED	Accident	NUM	I-54
TOTAINJ	TOTAL NUMBER OF TYPE 'A' (INCAPACITATING) INJURED PERSONS	Accident	NUM	I-54
TOTBINJ	TOTAL NUMBER OF TYPE 'B' (NON-INCAPACITATING) INJURED PERSONS	Accident	NUM	I-55

(CON'T)

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
TOTCINJ	TOTAL NUMBER OF TYPE 'C' (POSSIBLE INJURED) PERSONS	Accident	NUM	I-55
TRA_ACCS	SUMMARY OF TRAIN ACCS	Interchange	NUM	I-149
TRAIL_EN	TRAILING END TYPE	Guardrail	CHA(2)	I-159
TRAPPED	OCCUPANT TRAPPED	Occupant	NUM	I-80
TRF_CNTL	TRAFFIC CONTROL	Accident	NUM	I-55
TRFGROW	SUF-FUTURE TRAFF EXPANSION FACTOR	Roadlog	NUM	I-94
TRK_DESC	TRUNKLINE ENGLISH DESCRIPTION	Intersection	CHA(12)	I-110
TRK_RTE	SUF-NATIONAL TRUCK NETWORK	Roadlog	NUM	I-94
TRL_ENF	TRAILING END FLARING	Guardrail	CHA(1)	I-159
TRL_TYPE	VEHICLE TRAILER TYPE	Vehicle	NUM	I-69
TRN_AR1	NUMBER OF TURNING ARROWS - CONFIG 1	Signal	NUM	I-133
TRN_AR2	NUMBER OF TURNING ARROWS - CONFIG 2	Signal	NUM	I-133
TRN_AR3	NUMBER OF TURNING ARROWS - CONFIG 3	Signal	NUM	I-133
TRN_RED	NO TURN ON RED	Intersection	NUM	I-111
TURN_LN	SUF-TURNING LANE	Roadlog	NUM	I-95
TYP_CON	TYPE OF CONTROLLER	Signal	CHA(2)	I-133
TYP_WOOD	TYPE OF WOOD	Guardrail	CHA(2)	I-159
TYPE_HD1	PED SIGNAL HEAD TYPE - CONFIG 1	Signal	CHA(4)	I-134
TYPE_HD2	PED SIGNAL HEAD TYPE - CONFIG 2	Signal	CHA(4)	I-134
TYPE_HD3	PED SIGNAL HEAD TYPE - CONFIG 3	Signal	CHA(4)	I-134
UPDATE_	UPDATED DATE	Guardrail	NUM	I-159
URB_SYS	SUF-F.A. URB AREA SYS	Roadlog	NUM	I-95
V_CARGO	VEHICLE TYPE OF TRUCK CARGO	Vehicle	NUM	I-69
VEH_FAC	VEHICLE CONTRIB CIRCUM	Vehicle	NUM	I-69
VEH_IMP	VEHICLE IMPACT CODE	Vehicle	NUM	I-70
VEH_SIT	VEHICLE SITUATION	Vehicle	NUM	I-70
VEH_TYP2	VEHICLE TYPE - SPECIAL (SP)	Vehicle	NUM	I-71
VEH_USE	VEHICLE USE	Vehicle	NUM	I-71
VEHCOND1	VEHICLE CONDITION	Vehicle	NUM	I-72
VEHNO	VEHICLE NUMBER	Vehicle	NUM	I-72
VEHNO	OCCUPANT TRAFFIC UNIT NUMBER	Occupant	NUM	I-80
VEHTYPE	VEHICLE TYPE	Vehicle	NUM	I-72
VEHYR	YEAR MANUFACTURED	Vehicle	CHA(4)	I-73
VIN	VEHICLE IDENTIFICATION NO	Vehicle	CHA(20)	I-73
VIOL	DRIVER VIOLATIONS	Vehicle	NUM	I-73
VISION	VEHICLE VISUAL OBSTRUCTION	Vehicle	NUM	I-73
WATTAGE	CYCLIC WATTAGE	Signal	NUM	I-134
WEATHER	WEATHER CONDITION	Accident	NUM	I-56
WEEKDAY	DAY OF WEEK	Accident	NUM	I-56
WET_ACCS	SUMMARY OF WET ACCS	Interchange	NUM	I-150

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SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
WK_CODE	WORK CODE	Signal	CHA(2)	I-134
WK_DTE	LAST WORK ORDER DATE	Signal	NUM	I-135
WK_NBR	LAST WORK ORDER NUMBER	Signal	CHA(5)	I-135
WK2_CDE1	WORK CODE AGENCY NO. 1	Signal	CHA(2)	I-135
WK2_CDE2	WORK CODE AGENCY NO. 2	Signal	CHA(2)	I-135
WK2_CDE3	WORK CODE AGENCY NO. 3	Signal	CHA(2)	I-135
WK2_CDE4	WORK CODE AGENCY NO. 4	Signal	CHA(2)	I-135
WK2_CDE5	WORK CODE AGENCY NO. 5	Signal	CHA(2)	I-135
WO_CMPT_	WORK ORDER COMPLETION STATUS INDICATOR	Signal	CHA(1)	I-135
WRN_SPD	POSTED ADVISORY WARN SPEED	Interchange	NUM	I-150
YEAR1	YEAR OF INSTALLATION - CONFIG 1	Signal	NUM	I-135
YEAR2	YEAR OF INSTALLATION - CONFIG 2	Signal	NUM	I-135
YEAR3	YEAR OF INSTALLATION - CONFIG 3	Signal	CHA(2)	I-135
YR_IMPR1	DATE OF LATEST CHANGE	Roadlog	NUM	I-95
YR_INS1	PED SIGNAL YEAR OF INSTALL - CONFIG 1	Signal	NUM	I-135
YR_INS2	PED SIGNAL YEAR OF INSTALL - CONFIG 2	Signal	NUM	I-135
YR_INS3	PED SIGNAL YEAR OF INSTALL - CONFIG 3	Signal	NUM	I-135
ZONE_BMP	BEGIN MILEPOINT OF INFLUENCE ZONE	Intersection	NUM	I-111
ZONE_EMP	END MILEPOINT OF INFLUENCE ZONE	Intersection	NUM	I-111

2 BY 2 TABLE CODE

RODWYCLS	BY ACCTYPE	Accident	
RODWYCLS	BY LIGHT	Accident	
RODWYCLS	BY SEVERITY	Accident	
RODWYCLS	BY WEATHER	Accident	

LIST OF VARIABLES FOR MICHIGAN ACCIDENT SUBFILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
ACC_LOC	ACCIDENT LOCATION	Accident	NUM	I-33
ACCTYPE	ACCIDENT TYPE	Accident	NUM	I-33
ACCYR	ACCIDENT YEAR	Accident	CHA(4)	I-34
AGENCY	ACCIDENT INVESTIGATED BY	Accident	NUM	I-34
ANALYS	ACCIDENT ANALYSIS - WHERE AND HOW	Accident	NUM	I-34
CASENO	YEAR + CASE NUMBER	Accident	CHA(11)	I-40
CITY	CITY OR TOWNSHIP	Accident	NUM	I-40
CNST_LOC	CONSTRUCTION ACTIVITY LOCATION	Accident	CHA(1)	I-41
CNST_TYP	CONSTRUCTION TYPE	Accident	CHA(1)	I-41
CNSTLNCL	CONSTRUCTION ZONE LANE CLOSURE	Accident	CHA(1)	I-41
CNTL_SEC	CONTROL SECTION	Accident	NUM	I-41
COUNTY	COUNTY NUMBER - MDOT SCHEME	Accident	NUM	I-41
DAYMTH	DAY OF MONTH	Accident	NUM	I-43
DISCNTL	DISTRICT + CONTROL SECTION NUMBER	Accident	NUM	I-43
DISTRICT	DISTRICT	Accident	NUM	I-43
DIV_CODE	ROAD TYPE	Accident	NUM	I-44
DWI	DRINKING IN ACCIDENT	Accident	CHA(1)	I-44
FRAM_NBR	FILM FRAME NUMBER	Accident	NUM	I-44
HOUR	HOUR OF OCCURRENCE	Accident	NUM	I-44
HWY_CDE	HIGHWAY AREA CODE	Accident	NUM	I-45
HWY_TYCD	HIGHWAY AREA CODE AND TYPE - COMBINED VARIABLE	Accident	NUM	I-45
HWY_TYPE	HIGHWAY AREA TYPE	Accident	NUM	I-48
HWYCLS	HIGHWAY CLASS SUBSCRIPT	Accident	CHA(1)	I-48
INT_NAME	INTERSECTING STREET NAME	Accident	CHA(20)	I-48
LIGHT	LIGHT CONDITION	Accident	NUM	I-49
LOC_TYPE	AREA OF ROAD AT CRASH	Accident	CHA(2)	I-49
MILEPOST	CONTROL SECTION MILEPOINT	Accident	NUM	I-49
MONTH	MONTH OF ACCIDENT	Accident	NUM	I-50
NBR_LANE	NUMBER OF LANES	Accident	NUM	I-50
NUM_OCCS	NUMBER OF OCCUPANTS	Accident	NUM	I-50
NUMVEHS	NUMBER OF MOVING VEHICLES INVOLVED	Accident	NUM	I-50
POP_GRP	POPULATION SUBSCRIPT	Accident	NUM	I-51
RD_CHAR1	ROAD ALIGNMENT	Accident	NUM	I-51
RD_DEF	ROAD DEFECT	Accident	NUM	I-51
RD_LOC	RELATIONSHIP TO ROADWAY	Accident	CHA(1)	I-52
RDSURF	ROAD SURFACE CONDITION	Accident	NUM	I-52
REEL_NBR	FILM REEL NUMBER	Accident	NUM	I-52
REPORT	ACCIDENT INVESTIGATED AT SCENE	Accident	NUM	I-52
RODWYCLS	ROADWAY CLASSIFICATION	Accident	CHA(2)	I-52
RTE_CLS	ROUTE CLASS	Accident	NUM	I-53
RTE_NBR	ROUTE NUMBER	Accident	NUM	I-53
SEVERITY	SEVERITY OF ACCIDENT	Accident	CHA(1)	I-53
SPDLMT	SPEED LIMIT AT CRASH SITE	Accident	NUM	I-53

(CON'T)

LIST OF VARIABLES FOR MICHIGAN ACCIDENT SUBFILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
SPDPOST	SPEED LIMIT POSTED?	Accident	CHA(1)	I-53
SPEC_TAG	SPECIAL ACCIDENT TAGS	Accident	NUM	I-54
STR_NAM	ORIGINAL PRIME STREET NAME	Accident	CHA(20)	I-54
TOT_INJ	NUMBER OF PERSONS INJURED	Accident	NUM	I-54
TOT_KILL	NUMBER OF PERSONS KILLED	Accident	NUM	I-54
TOT_NON	NUMBER OF PERSONS UNINJURED	Accident	NUM	I-54
TOTAINJ	TOTAL NUMBER OF TYPE 'A' (INCAPACITATING) INJURED PERSONS	Accident	NUM	I-54
TOTBINJ	TOTAL NUMBER OF TYPE 'B' (NON-INCAPACITATING) INJURED PERSONS	Accident	NUM	I-55
TOTCINJ	TOTAL NUMBER OF TYPE 'C' (POSSIBLE INJURED) PERSONS	Accident	NUM	I-55
TRF_CNTL	TRAFFIC CONTROL	Accident	NUM	I-55
WEATHER	WEATHER CONDITION	Accident	NUM	I-56
WEEKDAY	DAY OF WEEK	Accident	NUM	I-56
	2 BY 2 TABLE CODE			
RODWYCLS	BY ACCTYPE	Accident		
RODWYCLS	BY LIGHT	Accident		
RODWYCLS	BY SEVERITY	Accident		
RODWYCLS	BY WEATHER	Accident		

SAS FORMAT DEFINITIONS FOR VARIABLES FROM THE
MICHIGAN ACCIDENT SUBFILE

NOTE: SAS variable names and explanatory names are shown above each listing. (See Discussion for information on SAS formats.)

ACC_LOC ACCIDENT LOCATION

```
1 = 'ON ROADWAY'              On non-limited access roadway
2 = 'OFF ROADWAY'             Off non-limited access roadway
3 = 'ON LIMITED RDWY'         On limited access roadway
4 = 'OFF LIMITED RDWY'        Off limited access roadway
```

NOTE: This variable was discontinued after 1991. See RD_LOC.

ACCTYPE ACCIDENT TYPE

```
000 = 'MISC SINGL VEH'        Miscellaneous single vehicle
010 = 'OVERTURN'              Overturn
020 = 'HIT TRAIN'             Hit train
030 = 'HIT PARKED VEH'        Hit parked vehicle
048 = 'BACKING'               Backing
049 = 'PARKING'               Parking
050 = 'PEDESTRIAN'            Pedestrian
060 = 'FIXED OBJECT'          Fixed object
070 = 'OTHER OBJECT'          Other object
080 = 'ANIMAL'                Animal
090 = 'BICYCLE'               Bicycle
141 = 'HEAD-ON'               Head-on
144 = 'ANGLE STRAIGHT'        Angle straight
147 = 'REAR END'              Rear-end
244 = 'ANGLE TURN'            Angle turn
342 = 'SIDESWIPE SAME'        Sideswipe, same direction
345 = 'REAR END L/TURN'       Rear end left turn
346 = 'REAR END R/TURN'       Rear end right turn
440 = 'OTHER DRIVEWAY'        Other driveway
444 = 'ANGLE DRIVEWAY'        Angle driveway
447 = 'REAR-END DRVWAY'       Rear-end drive
543 = 'SIDESWIPE OPPOS'       Sideswipe, opposite direction
545 = 'HEAD-ON LEFT-TRN'      Head-on left-turn
645 = 'DUAL LEFT TURN'        Dual left-turn
646 = 'DUAL RIGHT-TURN'       Dual right-turn
OTHER = 'ERROR/OTHER CODE'
```

NOTE: Coding for this variable changed significantly in 1993. Prior to that year, this was coded in-house by accident coders based on the sketch, narrative, and a number of variables. After 1993, it is based on a combination of police officer-coded variables, and primarily reflects the initial direction of the vehicle(s), regardless of point of impact or damaged area.

ACCYR **ACCIDENT YEAR**

NON-LABELED VARIABLE -- Year of accident (YYYY).

AGENCY **ACCIDENT INVESTIGATED BY**

1 = 'STATE POLICE'	State police
2 = 'COUNTY SHERIFF'	County sheriff
3 = 'TOWNSHIP POLICE'	Township police
4 = 'CITY VILLAGE POL'	City village police

NOTE: This variable was discontinued after 1991.

ANALYS **ACCIDENT ANALYSIS - WHERE AND HOW**

0101 = 'NOCOL INT FEL VH'	Non-collision, intersectn, fell from veh
0102 = 'NOCOL INT INJ VH'	Non-collision, intersectn, injurd in veh
0110 = 'NOCOL INT UNKNWN'	Non-collision, intersectn, other/unknown
0201 = 'NCOL NINT FEL VH'	Non-collision, non-inters, fell from veh
0202 = 'NCOL NINT INJ VH'	Non-collision, non-inters, injurd in veh
0210 = 'NCOL NINT UNKNWN'	Non-collision, non-inters, other/unknown
0801 = 'NOCOL UKN FEL VH'	Non-collision, ?? location, fell frm veh
0802 = 'NOCOL UKN INJ VH'	Non-collision, ?? location, injrd in veh
0810 = 'NOCOL UKN UNKWN'	Non-collision, ?? location, other/unkwn
1101 = 'MV OVTN INT LSDE'	MV overturn, intersection, left side of trafficway
1102 = 'MV OVTN INT RSDE'	MV overturn, intersection, right side of trafficway
1110 = 'MV OVTN INT UNKN'	MV overturn, intersection, side unknown
1201 = 'MV OVTN NINT LSD'	MV overturn, non-inters, left side of trafficway
1202 = 'MV OVTN NINT RSD'	MV overturn, non-inters, right side of trafficway
1210 = 'MV OVTN NINT UNK'	MV overturn, non-inters, unknown
2110 = 'MV TRAIN-INTERS'	MV-train, intersection
2210 = 'MV TRAIN-NINTER'	MV-train, non-intersection
3110 = 'MV PRKMV INT'	MV hit parked MV, intersection
3210 = 'MV PRKMV NINT'	MV hit parked MV, non-intersection
3710 = 'MV PRKMV DRVWY'	MV hit parked MV, driveway

(CON'T)

4101 = 'MV SAME DIR INT'	MV/MV, same direction,intersection, both straight - headon, rear-end, broadside
4102 = 'MV SD INT SIDSWP'	MV/MV, same direction,intersection, both straight - sideswipe
4103 = 'MV SD INT STR/LF'	MV/MV, same direction,intersection, one straight, one turn left
4104 = 'MV SD INT STR/RG'	MV/MV, same direction,intersection, one straight, one turn right
4105 = 'MV SD INT STR/ST'	MV/MV, same direction,intersection, one straight, one stopped or disabled
4106 = 'MV SD INT STR/BK'	MV/MV, same direction,intersection, one straight, one backing
4107 = 'MV SD INT STR/EN'	MV/MV, same direction,intersection, one straight, one entering parking or drvway
4108 = 'MV SD INT STR/LV'	MV/MV, same direction,intersection, one straight, one leaving parking or drvway
4109 = 'MV SD INT STR/SR'	MV/MV, same direction,intersection, one straight, one starting or stopping
4110 = 'MV SD INT OTHER'	MV/MV, same direction,intersection, other or not known
4201 = 'MV SAME DIR NINT'	MV/MV, same direction, non-inters, both straight - headon, rear-end, broadside
4202 = 'MV SD NINT SIDSW'	MV/MV, same direction, non-inters, both straight - sideswipe
4203 = 'MV SD NINT ST/LF'	MV/MV, same direction, non-inters, one straight, one turn left
4204 = 'MV SD NINT ST/RG'	MV/MV, same direction, non-inters, one straight, one turn right
4205 = 'MV SD NINT ST/ST'	MV/MV, same direction, non-inters, one straight, one stopped or disabled
4206 = 'MV SD NINT ST/BK'	MV/MV, same direction, non-inters, one straight, one backing
4207 = 'MV SD NINT ST/EN'	MV/MV, same direction, non-inters, one straight, one entering parking or drvway
4208 = 'MV SD NINT ST/LV'	MV/MV, same direction, non-inters, one straight, one leaving parking or drvway
4209 = 'MV SD NINT ST/SR'	MV/MV, same direction, non-inters, one straight, one starting or stopping
4210 = 'MV SD NINT OTHER'	MV/MV, same direction, non-inters, other or not known
4301 = 'MV OPPOS DIR INT'	MV/MV, opp direct., intersection, both straight - headon, rear-end, broadside
4302 = 'MV OD INT SIDSWP'	MV/MV, opp direct., intersection, both straight – sideswipe

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4303 = 'MV OD INT STR/LF'	MV/MV, opp direct., intersection, one straight, one turn left
4304 = 'MV OD INT STR/RG'	MV/MV, opp direct., intersection, one straight, one turn right
4305 = 'MV OD INT STR/ST'	MV/MV, opp direct., intersection, one straight, one stopped or disabled
4306 = 'MV OD INT STR/BK'	MV/MV, opp direct., intersection, one straight, one backing
4307 = 'MV OD INT STR/EN'	MV/MV, opp direct., intersection, one straight, one entering parking or drvway
4308 = 'MV OD INT STR/LV'	MV/MV, opp direct., intersection, one straight, one leaving parking or drvway
4309 = 'MV OD INT STR/SR'	MV/MV, opp direct., intersection, one straight, one starting or stopping
4310 = 'MV OD INT OTHER'	MV/MV, opp direct., intersection, other or not known
4401 = 'MV OPP DIR NINT'	MV/MV, opp direct., non-inters, both straight - headon, rear-end, broadside
4402 = 'MV OD NINT SIDSW'	MV/MV, opp direct., non-inters, both straight - sideswipe
4403 = 'MV OD NINT ST/LF'	MV/MV, opp direct., non-inters, one straight, one turn left
4404 = 'MV OD NINT ST/RG'	MV/MV, opp direct., non-inters, one straight, one turn right
4405 = 'MV OD NINT ST/ST'	MV/MV, opp direct., non-inters, one straight, one stopped or disabled
4406 = 'MV OD NINT ST/BK'	MV/MV, opp direct., non-inters, one straight, one backing
4407 = 'MV OD NINT ST/EN'	MV/MV, opp direct., non-inters, one straight, one entering parkway or drvway
4408 = 'MV OD NINT ST/LV'	MV/MV, opp direct., non-inters, one straight, one leaving parkway or drvway
4409 = 'MV OD NINT ST/SR'	MV/MV, opp direct., non-inters, one straight, one starting or stopping
4410 = 'MV OD NINT OTHER'	MV/MV, opp direct., non-inters, other or not known
4501 = 'MV ANGLE INT'	MV/MV, at angle, at intersection, both straight - headon, rear-end, broadside
4502 = 'MV AN INT SIDSWP'	MV/MV, opp direct., intersection, both straight - sideswipe
4503 = 'MV AN INT STR/LF'	MV/MV, opp direct., intersection, one straight, one turn left
4504 = 'MV AN INT STR/RG'	MV/MV, opp direct., intersection, one straight, one turn right
4505 = 'MV AN INT STR/ST'	MV/MV, opp direct., intersection, one straight, one stopped or disabled

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4506 = 'MV AN INT STR/BK'	MV/MV, opp direct., intersection, one straight, one backing
4507 = 'MV AN INT STR/EN'	MV/MV, opp direct., intersection, one straight, one entering parkway or drvway
4508 = 'MV AN INT STR/LV'	MV/MV, opp direct., intersection, one straight, one leaving parkway or drvway
4509 = 'MV AN INT STR/SR'	MV/MV, opp direct., intersection, one straight, one starting or stopping
4510 = 'MV AN INT OTHER '	MV/MV, opp direct., intersection, other or not known
4601 = 'MV ANGLE NINT'	MV/MV, at angle, non-inters, both straight - headon, rear-end, broadside
4602 = 'MV AN NINT SIDSW'	MV/MV, at angle, non-inters, both straight - sideswipe
4603 = 'MV AN NINT ST/LF'	MV/MV, at angle, non-inters, one straight, one turn left
4604 = 'MV AN NINT ST/RG'	MV/MV, at angle, non-inters, one straight, one turn right
4605 = 'MV AN NINT ST/ST'	MV/MV, at angle, non-inters, one straight, one stopped or disabled
4606 = 'MV AN NINT ST/BK'	MV/MV, at angle, non-inters, one straight, one backing
4607 = 'MV AN NINT ST/EN'	MV/MV, at angle, non-inters, one straight, one entering parkway or drvway
4608 = 'MV AN NINT ST/LV'	MV/MV, at angle, non-inters, one straight, one leaving parkway or drvway
4609 = 'MV AN NINT ST/SR'	MV/MV, at angle, non-inters, one straight, one starting or stopping
4610 = 'MV AN NINT OTHER'	MV/MV, at angle, non-inters, other or not known
4701 = 'MV DRIVEWAY STR'	MV/MV, at driveway, both straight - headon, rear-end, broadside
4702 = 'MV DRVWY SIDSWP'	MV/MV, at driveway, both straight - sideswipe
4703 = 'MV DRVWY STR/LF'	MV/MV, at driveway, one straight, one turn left
4704 = 'MV DRVWY STR/RG'	MV/MV, at driveway, one straight, one turn right
4705 = 'MV DRVWY STR/ST'	MV/MV, at driveway, one straight, one stopped or disabled
4706 = 'MV DRVWY STR/BK'	MV/MV, at driveway, one straight, one backing
4707 = 'MV DRVWY STR/EN'	MV/MV, at driveway, one straight, one entering parkway or driveway
4708 = 'MV DRVWY STR/LV'	MV/MV, at driveway, one straight, one leaving parkway or driveway

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4709 = 'MV DRVWY STR/SR' MV/MV, at driveway, one straight, one starting or stopping in traffic
4710 = 'MV DRVWY OTHER' MV/MV, at driveway, other or not known
5101 = 'MV PED INT STR' MV/Pedestrian, at intersection, motor vehicle straight
5102 = 'MV PED INT LFT' MV/Pedestrian, at intersection, motor vehicle turn left
5103 = 'MV PED INT RGT' MV/Pedestrian, at intersection, motor vehicle turn right
5104 = 'MV PED INT BACK' MV/Pedestrian, at intersection, motor vehicle backing
5105 = 'MV PED INT STRT' MV/Pedestrian, at intersection, motor vehicle starting up
5106 = 'MV PED INT ENTR' MV/Pedestrian, at intersection, motor vehicle entering or emerging from parking
5107 = 'MV PED INT SKID' MV/Pedestrian, at intersection, motor vehicle skidding
5110 = 'MV PED INT UNKN' MV/Pedestrian, at intersection, other or not known
5201 = 'MV PED NINT STR' MV/Pedestrian, non-intersection, motor vehicle straight
5202 = 'MV PED NINT LFT' MV/Pedestrian, non-intersection, motor vehicle turn left
5203 = 'MV PED NINT RGT' MV/Pedestrian, non-intersection, motor vehicle turn right
5204 = 'MV PED NINT BACK' MV/Pedestrian, non-intersection, motor vehicle backing
5205 = 'MV PED NINT STRT' MV/Pedestrian, non-intersection, motor vehicle starting up
5206 = 'MV PED NINT ENTR' MV/Pedestrian, non-intersection, motor vehicle entering or emerging from parking
5207 = 'MV PED NINT SKID' MV/Pedestrian, non-intersection, motor vehicle skidding
5210 = 'MV PED NINT UNKN' MV/Pedestrian, non-intersection, other or not known
5701 = 'MV PED DRVWY STR' MV/Pedestrian, at driveway, motor vehicle straight
5702 = 'MV PED DRVWY LFT' MV/Pedestrian, at driveway, motor vehicle turn left
5703 = 'MV PED DRVWY RGT' MV/Pedestrian, at driveway, motor vehicle turn right
5704 = 'MV PED DRVWY BAK' MV/Pedestrian, at driveway, motor vehicle backing
5705 = 'MV PED DRVWY STT' MV/Pedestrian, at driveway, motor vehicle starting up
5706 = 'MV PED DRVWY ENT' MV/Pedestrian, at driveway, motor vehicle entering or emerging from parking
5707 = 'MV PED DRVWY SKD' MV/Pedestrian, at driveway, motor vehicle skidding

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5710 = 'MV PED DRVWY UNK'	MV/Pedestrian, at driveway, other or not known
6101 = 'MV FXOB INT LFSD'	MV/fixed object, at intersection, left side of trafficway
6102 = 'MV FXOB INT RGSD'	MV/fixed object, at intersection, right side of trafficway
6110 = 'MV FXOB INT UNKW'	MV/fixed object, at intersection, not known
6201 = 'MV FXOB NINT LF'	MV/fixed object, not at intersection, left side of trafficway
6202 = 'MV FXOB NINT RG'	MV/fixed object, not at intersection, right side of trafficway
6210 = 'MV FXOB NINT UK'	MV/fixed object, not at intersection, not known
7101 = 'MV OBJE INT LFSD'	MV/other object, at intersection, left side of trafficway
7102 = 'MV OBJE INT RGSD'	MV/other object, at intersection, right side of trafficway
7110 = 'MV OBJE INT UNKW'	MV/other object, at intersection, not known
7201 = 'MV OBJE NINT LF'	MV/other object, not at intersection, left side of trafficway
7202 = 'MV OBJE NINT RG'	MV/other object, not at intersection, right side of trafficway
7210 = 'MV OBJE NINT UK'	MV/other object, not at intersection, not known
8110 = 'MV ANIM INTERSEC'	MV/animal, at intersection
8210 = 'MV ANIM NINTERSE'	MV/animal, non-intersection
9101 = 'MV PDL INT STR'	MV/Pedalcyclist, at intersection, motor vehicle straight
9102 = 'MV PDL INT LFT'	MV/Pedalcyclist, at intersection, motor vehicle turn left
9103 = 'MV PDL INT RGT'	MV/Pedalcyclist, at intersection, motor vehicle turn right
9104 = 'MV PDL INT BACK'	MV/Pedalcyclist, at intersection, motor vehicle backing
9105 = 'MV PDL INT STRT'	MV/Pedalcyclist, at intersection, motor vehicle starting up
9106 = 'MV PDL INT ENTR'	MV/Pedalcyclist, at intersection, motor vehicle entering or emerging from parking
9107 = 'MV PDL INT SKID'	MV/Pedalcyclist, at intersection, motor vehicle skidding
9110 = 'MV PDL INT UNKN'	MV/Pedalcyclist, at intersection, other or not known
9201 = 'MV PDL NINT STR'	MV/Pedalcyclist, not at intersection, motor vehicle straight
9202 = 'MV PDL NINT LFT'	MV/Pedalcyclist, not at intersection, motor vehicle turn left
9203 = 'MV PDL NINT RGT'	MV/Pedalcyclist, not at intersection, motor vehicle turn right

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9204 = 'MV PDL NINT BACK'	MV/Pedalcyclist, not at intersection, motor vehicle backing
9205 = 'MV PDL NINT STRT'	MV/Pedalcyclist, not at intersection, motor vehicle starting up
9206 = 'MV PDL NINT ENTR'	MV/Pedalcyclist, not at intersection, motor vehicle entering or emerging from parking
9207 = 'MV PDL NINT SKID'	MV/Pedalcyclist, not at intersection, motor vehicle skidding
9210 = 'MV PDL NINT UNKN'	MV/Pedalcyclist, not at intersection, other or not known
9701 = 'MV PDL DRVWY STR'	MV/Pedalcyclist, at driveway, motor vehicle straight
9702 = 'MV PDL DRVWY LFT'	MV/Pedalcyclist, at driveway, motor vehicle turn left
9703 = 'MV PDL DRVWY RGT'	MV/Pedalcyclist, at driveway, motor vehicle turn right
9704 = 'MV PDL DRVWY BAK'	MV/Pedalcyclist, at driveway, motor vehicle backing
9705 = 'MV PDL DRVWY STT'	MV/Pedalcyclist, at driveway, motor vehicle starting up
9706 = 'MV PDL DRVWY ENT'	MV/Pedalcyclist, at driveway, motor entering or emerging from parking
9707 = 'MV PDL DRVWY SKD'	MV/Pedalcyclist, at driveway, motor vehicle skidding
9710 = 'MV PDL DRVWY UNK'	MV/Pedalcyclist, at driveway, other or not known

NOTE: This variable was discontinued after 1991 when the MI crash report form was modified.

CASENO **YEAR + CASE NUMBER**

NON-LABELED VARIABLE -- Combination of ACCYR and case number -- Used in linkage of Accident, Vehicle, and Occupant Subfiles.

CITY **CITY OR TOWNSHIP**

NON-LABELED VARIABLE -- City/township number assigned within county of crash occurrence.

CNST_LOC **CONSTRUCTION ACTIVITY LOCATION**

'0' = 'UNCODED & ERRORS'	Uncoded & errors
'1' = 'WORKING ON ROAD'	Activity on road
'2' = 'WORKING OFF ROAD'	Activity off road
'3' = 'NO CONSTRUCTION'	None

NOTE: New variable added in 1993.

CNST_TYP **CONSTRUCTION TYPE**

'0' = 'UNCODED & ERRORS'	Uncoded & errors
'1' = 'CONSTRUCT/MAINT'	Construction/maint.
'2' = 'UTILITY WORK'	Utility

NOTE: New variable added in 1993.

CNSTLNCL **CONSTRUCTION ZONE LANE CLOSURE**

'0' = 'UNCODED & ERRORS'	Uncoded & errors
'1' = 'LANE CLOSED'	Lane closed
'2' = 'NO LANE CLOSURE'	No lane closure

NOTE: New variable added in 1993.

CNTL_SEC **CONTROL SECTION**

NON-LABELED VARIABLE -- Linkage information (i.e., code for the portion of the trunkline system where crash occurred).

COUNTY **COUNTY NUMBER - MDOT SCHEME**

01 = 'ALCONA'
02 = 'ALGER'
03 = 'ALLEGAN'
04 = 'ALPENA'
05 = 'ANTRIM'
06 = 'ARENAC'
07 = 'BARAGA'
08 = 'BARRY'
09 = 'BAY'
10 = 'BENZIE'
11 = 'BERRIEN'
12 = 'BRANCH'
13 = 'CALHOUN'
14 = 'CASS'
15 = 'CHARLEVOIX'
16 = 'CHEBOYGAN'

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17 = 'CHIPPEWA'
18 = 'CLARE'
19 = 'CLINTON'
20 = 'CRAWFORD'
21 = 'DELTA'
22 = 'DICKINSON'
23 = 'EATON'
24 = 'EMMET'
25 = 'GENESEE'
26 = 'GLADWIN'
27 = 'GOGEBIC'
28 = 'GRAND TRAVERSE'
29 = 'GRATIOT'
30 = 'HILLSDALE'
31 = 'HOUGHTON'
32 = 'HURON'
33 = 'INGHAM'
34 = 'IONIA'
35 = 'IOSCO'
36 = 'IRON'
37 = 'ISABELLA'
38 = 'JACKSON'
39 = 'KALAMAZOO'
40 = 'KALKASKA'
41 = 'KENT'
42 = 'KEWEENAW'
43 = 'LAKE'
44 = 'LAPEER'
45 = 'LEELANAU'
46 = 'LENAWEE'
47 = 'LIVINGSTON'
48 = 'LUCE'
49 = 'MACKINAC'
50 = 'MACOMB'
51 = 'MANISTEE'
52 = 'MARQUETTE'
53 = 'MASON'
54 = 'MECOSTA'
55 = 'MENOMINEE'
56 = 'MIDLAND'
57 = 'MISSAUKEE'
58 = 'MONROE'
59 = 'MONTCALM'
60 = 'MONTMORENCY'
61 = 'MUSKEGON'
62 = 'NEWAYGO'
63 = 'OAKLAND'
64 = 'OCEANA'
65 = 'OGEMAW'
66 = 'ONTONAGON'
67 = 'OSCEOLA'
68 = 'OSCODA'

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69 = 'OTSEGO'
70 = 'OTTAWA'
71 = 'PRESQUE ISLE'
72 = 'ROSCOMMON'
73 = 'SAGINAW'
74 = 'SANILAC'
75 = 'SCHOOLCRAFT'
76 = 'SHIAWASSEE'
77 = 'ST.CLAIR'
78 = 'ST.JOSEPH'
79 = 'TUSCOLA'
80 = 'VAN BUREN'
81 = 'WASHTENAW'
82 = 'WAYNE'
83 = 'WEXFORD'
84 = 'UNCODED & ERRORS'

DAYMTH **DAY OF MONTH**

NON-LABELED VARIABLE -- Date of crash.

DISCNTL **DISTRICT + CONTROL SECTION NUMBER**

NON-LABELED VARIABLE -- District plus control section number -- Used in linking with Roadlog and other inventory files.

DISTRICT **DISTRICT**

1 = 'FIRST DISTRICT'
2 = 'SECOND DISTRICT'
3 = 'THIRD DISTRICT'
4 = 'FOURTH DISTRICT'
5 = 'FIFTH DISTRICT'
6 = 'SIXTH DISTRICT'
7 = 'SEVENTH DISTRICT'
8 = 'EIGHTH DISTRICT'
9 = 'NINTH DISTRICT'

DIV_CODE **ROAD TYPE**

1 = 'UNDIV FREE ACC'	Undivided - free access
3 = 'UNDIV C/LFT LAN'	Undivided - center left turn lane free access
4 = 'DIV -FREE ACC'	Divided - free access
6 = 'DIV LIMIT ACC'	Divided - limit access
7 = 'ONE-WAY STR SYS'	One-way street system

NOTE: This variable was discontinued after 1991

DWI **DRINKING IN ACCIDENT**

'1' = 'DRINKING IN ACC'	Drinking in accident
'2' = 'NO DRINK IN ACC'	No drinking in accident
'3' = 'NOT STATED'	Not known if drinking in accident

FRAM_NBR **FILM FRAME NUMBER**

NON-LABELED VARIABLE -- Frame number on the reel for microfilm.

HOUR **HOUR OF OCCURRENCE**

```
26,01 = 'MIDNIGHT - 1 AM'
02 = '1 AM  - 2 AM'
03 = '2 AM  - 3 AM'
04 = '3 AM  - 4 AM'
05 = '4 AM  - 5 AM'
06 = '5 AM  - 6 AM'
07 = '6 AM  - 7 AM'
08 = '7 AM  - 8 AM'
09 = '8 AM  - 9 AM'
10 = '9 AM  - 10 AM'
11 = '10 AM - 11 AM'
12 = '11 AM - NOON'
13 = 'NOON  - 1 PM'
14 = '1 PM  - 2 PM'
15 = '2 PM  - 3 PM'
16 = '3 PM  - 4 PM'
17 = '4 PM  - 5 PM'
18 = '5 PM  - 6 PM'
19 = '6 PM  - 7 PM'
20 = '7 PM  - 8 PM'
21 = '8 PM  - 9 PM'
22 = '9 PM  - 10 PM'
23 = '10 PM - 11 PM'
24 = '11 PM - MIDNIGHT'
25 = 'NOT KNOWN'
OTHER = 'ERROR/OTHER CODE'
```

HWY_CDE HIGHWAY AREA CODE

*00 = 'INTERS PROPER'	Within confines of intersection
*01 = 'INTRS+-150FT N/E'	Within 150 ft N or E of intersection
*06 = 'ACC/DECEL LANE'	On acceleration or deceleration lane
*21 = 'RAMP/RAMP RELAT'	On ramp or ramp related
*51 = 'INTRS+-150FT S/W'	Within 150 ft S or W of intersection
*56 = 'DRIVEWAY RELATED'	Driveway related
*59 = 'RR CROSSING'	At-grade railroad crossing
*71 = 'MEDIAN CRS REL'	Median crossing related
*99 = 'OTHER/UNKNOWN'	Other or not known

*New codes added in 1993.

NOTE: Non-labeled variable prior to 1993. Code labels shown above are only applicable to data from 1993 and later. This is combined with HWY_TYPE in HWY_TYCD.

HWY_TYCD HIGHWAY AREA CODE AND TYPE - COMBINED VARIABLE

Interchange

100 = 'INTCH-NO-RAMP'	No ramp or loop
101 = 'INTCH-INTERSECT'	Within confines of intersection (in interchange)
102 = 'INTCH-N/E INTRS'	Within 150 ft N or E of intersection (in interchange)
103 = 'INTCH-S/W INTRS'	Within 150 ft S or W of intersection (in interchange)
105 = 'INTCH-AC/DEC LN'	On acceleration or deceleration lane
106 = 'INTCH-DEL-LANE'	On a deceleration lane
107 = 'INTCH-ACC-LANE'	On an acceleration lane
110 = 'INTCH-EXIT-COLL'	Exit to collector distributor
115 = 'INTCH-ENTR-COLL'	Entrance from collector distributor
120 = 'INTCH-RMP/RMP RL'	On ramp or ramp related
121 = 'INTCH-OFFRMP-MAI'	Off ramps near main road
122 = 'INTCH-OFFRMP-MID'	Off ramps between roads (on the ramp)
123 = 'INTCH-OFFRMP-END'	Leave ramp or on crossroad - accident related to ramp
124 = 'INTCH-ONRMP-END'	Enter ramp from crossroad
125 = 'INTCH-ONRMP-MID'	On ramps between roads (on the ramp)
126 = 'INTCH-ONRMP-MAIN'	On ramps near main road
131 = 'INTCH-OFFLP-MAIN'	Off loop near main road
132 = 'INTCH-OFFLP-MID'	Off loop between roads (on the loop)
133 = 'INTCH-OFFLP-END'	Leave loop to crossroad
134 = 'INTCH-ONLP-END'	Enter loop from crossroad
135 = 'INTCH-ONLP-MID'	On loop between roads (on the loop)
136 = 'INTCH-ONLP-MAIN'	On loop near main road
141 = 'INTCH-EXIT-MAIN'	Exit - leave main roadway
142 = 'INTCH-EXIT-MID'	Exit - on ramp between roadways

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143 = 'INTCH-EXIT-END'	Exit - leave ramp at crossroad
144 = 'INTCH-ENTR-END'	Entrance - enter ramp from crossroad
145 = 'INTCH-ENTR-MID'	Entrance - on ramp between roadways
146 = 'INTCH-ENTR-MAIN'	Entrance - enter main road from ramp
155 = 'INTCH-DRIVEWY RL'	Driveway related in interchange
156 = 'INTCH-COMM-DRVWY'	Crossings commercial driveway
157 = 'INTCH-PRIV-DRVWY'	Crossings private driveway
158 = 'INTCH-FACT-DRVWY'	Crossings factory driveway
159 = 'INTCH-RR-CROSS'	Crossings railroad crossing (at grade)
160 = 'INTCH-SCH-DRVWY'	Crossings school or church driveway
161 = 'INTCH-PUB-DRVWY'	Crossings public driveway (roadside park, etc.)
170 = 'INTCH-MED CRS RL'	Median crossing related in interchange
171 = 'INTCH-CRSOV-ENT'	Crossings enter crossover
172 = 'INTCH-CRSOV-MID'	Crossings on the crossover
173 = 'INTCH-CRSOV-EXIT'	Crossings leave crossover
198 = 'INTCH-RAMP-INTRS'	Street or road intersection on a ramp
199 = 'INTCH-CROSS-UNKW'	Crossings other or not known

Intersection

200 = 'INTRS-PROPER'	Within confines of intersection (within crosswalk)
201 = 'INTRS+-100-FT-N'	Within 100 feet north of intersection
202 = 'INTRS+-100-FT-NE'	Within 100 feet NE of intersection
203 = 'INTRS+-100-FT-E'	Within 100 feet east of intersection
204 = 'INTRS+-100-FT-SE'	Within 100 feet SE of intersection
205 = 'INTRS+-100-FT-S'	Within 100 feet south of intersection
206 = 'INTRS+-100-FT-SW'	Within 100 feet SW of intersection
207 = 'INTRS+-100-FT-W'	Within 100 feet west of intersection
208 = 'INTRS+-100-FT-NW'	Within 100 feet NW of intersection
209 = 'INTRS+-150FT N/E'	Within 150 feet N or E of intersection
210 = 'INTRS+-150FT S/W'	Within 150 feet S or W of intersection
255 = 'INTRS-DRVWY RELT'	Driveway related near intersection
256 = 'INTRS-COMM-DRVWY'	Crossings commercial driveway
257 = 'INTRS-PRIV-DRVWY'	Crossings private driveway
258 = 'INTRS-FACT-DRVWY'	Crossings factory driveway
259 = 'INTRS-RR-CROSS'	Crossings railroad crossing (at grade)
260 = 'INTRS-SCH-DRVWY'	Crossings school or church driveway
261 = 'INTRS-PUB-DRVWY'	Crossings public driveway (roadside park, etc.)
270 = 'INTRS-MED CRS RL'	Median crossing related near intersection
271 = 'INTRS-CRSOV-ENT'	Crossings enter crossover
272 = 'INTRS-CRSOV-MID'	Crossings on the crossover
273 = 'INTRS-CRSOV-EXIT'	Crossings leave crossover
277 = 'INTRS-ACC/DEC LN'	On acceleration or deceleration lane
278 = 'INTRS-LT-FLARE'	Left turn flare (slot)
279 = 'INTRS-RT-FLARE'	Right turn flare (slot)
280 = 'INTRS-RT-DECL'	On deceleration lane (right turn cut-off)
281 = 'INTRS-CUTOFF-CRV'	On cut-off curve

(CON'T)

282 =	'INTRS-LV-CUTOFF'	Leaving cut-off lane
283 =	'INTRS-TRNCH-CRSS'	Turn channel at crossroad
284 =	'INTRS-TRNCH-MID'	Turn channel between roadways
285 =	'INTRS-TRNCH-MAIN'	Turn channel at trunkline
286 =	'INTRS-RMP/RMP RL'	On ramp or ramp-related in intersection
291 =	'INTRS-TRNLP-MAIN'	Turn loop at trunkline
292 =	'INTRS-TRNLP-MID'	Turn loop between roadways
293 =	'INTRS-TRNLP-CRSS'	Turn loop at crossroad
299 =	'INTRS-OTHER/UNKN'	Crossings other or not known

Non-Interchange or Non-Intersection (Midblock)

301 =	'MDBLK-N/E INTRS'	Midblock, within 150 feet N or E of intersection
302 =	'MDBLK-S/W INTRS'	Midblock, within 150 feet S or W of intersection
306 =	'MDBLK-ACCL/DECL'	Midblock, acceleration or deceleration lane
321 =	'MDBLK-RMP/RMP RL'	Midblock, on ramp or ramp related
347 =	'EXIT-REST-AREA'	Exit to rest area
348 =	'REST-AREA'	Within rest area
349 =	'ENTR-REST-AREA'	Entrance from rest area
350 =	'EXIT-SCALES'	Exit to scales
351 =	'SCALES-AREA'	Within scales area
352 =	'ENTRN-SCALES'	Entrance from scales
353 =	'EXIT-OTHER'	Exit to other area
354 =	'ENTR-OTHER'	Entrance from other area
355 =	'OTHER AREA'	Within other area
356 =	'COMM-DRVWY'	Crossings commercial driveway
357 =	'PRIV-DRVWY'	Crossings private driveway
358 =	'FACT-DRVWY'	Crossings factory driveway
359 =	'RR-CROSS'	Crossings railroad crossing (at grade)
360 =	'SCHL-DRVWY'	Crossings school or church driveway
361 =	'PUBL-DRVWY'	Crossings public driveway (roadside park, etc.)
362 =	'DRIVEWAY REL'	Driveway related
370 =	'MEDIAN CROSSNG'	Median crossing related
371 =	'CRSSOV-ENTR'	Crossings enter crossover
372 =	'CRSSOV-MID'	Crossings on the crossover
373 =	'CRSSOV-EXIT'	Crossings leave crossover
375 =	'ENT/EXIT-RT-SHLD'	Entering or leaving shoulder right side
376 =	'ENT/EXIT-LF-SHLD'	Entering or leaving shoulder left side
399 =	'CROSS OTH/UNKNW'	Crossings other or not known

Non-Traffic Area

419 =	'SHOP-CNTR'	Shopping center
429 =	'DRIVE-IN'	"Drive-in"
439 =	'GOVERN-PRKNG'	Government parking
449 =	'SCHOL-PRKNG'	School parking

(CON'T)

459 = 'OTHER-PRKNG'	Other parking
489 = 'OTHER/PRIV-PROP'	Other private property
499 = 'OTHER/UNKNOWN'	Other or not known

NOTE: Coding for this variable changed in 1993. There will be discrepancies between pre and post-1993 data. Since HWY_TYPE is felt to be coded much more accurately in 1993 and later years, this variable will be more accurate in the 1993 and later data.

HWY_TYPE HIGHWAY AREA TYPE

1 = 'INTRCH AREAW/RMP'	Interchange area (within ramp limits in all directions)
2 = 'INTERSECT AREA'	Intersection area (within 150 feet in any direction from the intersection, but farther if the accident is attributable to the intersection)
3 = 'MIDBLOCK'	Non-intersection/interchange area
*4 = 'N/TRAF VEH ACC'	Non-traffic motor vehicle accident

*New codes added in 1993.

NOTE: Coding for this variable changed in 1993. Based on Michigan staff inputs, it appears more accurate than in earlier years.

HWYCLS HIGHWAY CLASS SUBSCRIPT

'1' = 'INTERSTATE RTE'	Interstate route
'2' = 'NOT INTERSTATE'	Fully controlled access - non Inters.
'3' = 'OTHER US RTE'	Other US route (not full access control)
'4' = 'OTHER MICH RTE'	Other MI route (not full access control)
'5' = 'OTHER STATE TRNK'	Other State trunkline major arterial (business route)
'9' = 'SRV DRV/LOC TRFW'	Service drive/local trafficway/unknown

NOTE: This variable was discontinued after 1991. See RTE_CLS for similar information.

INT_NAME INTERSECTING STREET NAME

NON-LABELED VARIABLE -- Street name for crash site.

LIGHT **LIGHT CONDITION**

1 = 'DAYLIGHT'	Daylight
2 = 'DAWN OR DUSK'	Dawn or dusk
3 = 'DARK/STRT LGHTS'	Darkness - street lights
4 = 'DARK/NO STRT LGT'	Darkness - no street lights
5 = 'UNKNOWN'	Not known
*6 = 'OTHER LIGHT'	Other light
*7 = 'DAWN'	Dawn
*8 = 'DUSK'	Dusk

*New codes added in 1993.

NOTE: New variable added in 1991.

LOC_TYPE **AREA OF ROAD AT CRASH**

'00' = 'UNCODED & ERRORS'	Uncoded and errors
'01' = 'EXPWAY RAMP REL'	Expressway ramp related
'02' = 'EXPWAY MEDIAN'	Expressway median
'03' = 'EXPWAY TRANSITN'	Expressway transition area
'04' = 'EXP REST AREA'	Expressway rest area
'05' = 'EXP WEIGH STATN'	Expressway weight station
'06' = 'OTR FREEWAY AREA'	Other freeway area
'07' = 'WITHIN INTERSECT'	Within intersection
'08' = 'DRIVEWAY W/I 150'	Driveway-related within 150' of intersection
'09' = 'OTH INTERST REL'	Other intersection related
'10' = 'ON A TANGENT'	On a tangent
'11' = 'ON A CURVE'	On a curve
'12' = 'DRIVEWAY RELATED'	Driveway related
'13' = 'PARKING RELATED'	Parking related
'14' = 'TRANSITION AREA'	Non-expressway transition area
'15' = 'MEDIAN CROSSING'	Non-expressway median crossing
'16' = 'RAIL CROSSING'	Railroad crossing
'17' = 'REST AREA RELAT'	Non-expressway rest area related
'18' = 'WEIGH STATION'	Non-expressway weight station
'19' = 'NON-TRAFFIC AREA'	Non-traffic area
'20' = 'OTHER AREA'	Other area
'21' = 'UNKNOWN AREA'	Unknown area

NOTE: New variable added in 1993.

MILEPOST **CONTROL SECTION MILEPOINT**

NON-LABELED VARIABLE -- File linkage variables -- Mileage along the control section.

MONTH **MONTH OF ACCIDENT**

```
01 = 'JANUARY'
02 = 'FEBRUARY'
03 = 'MARCH'
04 = 'APRIL'
05 = 'MAY'
06 = 'JUNE'
07 = 'JULY'
08 = 'AUGUST'
09 = 'SEPTEMBER'
10 = 'OCTOBER'
11 = 'NOVEMBER'
12 = 'DECEMBER'
```

NBR_LANE **NUMBER OF LANES**

NON-LABELED VARIABLE -- Number of traffic lanes at crash site.

NOTE: New variable added in 1993.

NUM_OCCS **NUMBER OF OCCUPANTS**

```
00 = '0'
01 = '1'
02 = '2'
03 = '3'
04 = '4'
5-10 = '5-10'
11-20 = '11-20'
21-50 = '21-50'
51-70 = '51-70'
71-98 = '71-98'
99 = 'UNCODED & ERRORS'
```

NUMVEHS **NUMBER OF MOVING VEHICLES INVOLVED**

```
0 = '0'
1 = '1'
2 = '2'
3 = '3'
4 = '4'
5-10 = '5-10'
11-20 = '11-20'
21-98 = '21-98'
99 = 'UNCODED & ERRORS'
```

POP_GRP **POPULATION SUBSCRIPT**

1 = 'TOWNSHIP'
2 = '1,000 OR LESS'
3 = '1,000 TO 2,500'
4 = '2,500 TO 5,000'
5 = '5,000 TO 10,000'
6 = '10,000 TO 25,000'
7 = '25,000 TO 50,000'
8 = '50,000 TO 100K'
9 = '100K TO 250K'
10 = '250K OR MORE'

NOTE: This variable was discontinued after 1991.

RD_CHAR1 **ROAD ALIGNMENT**

1 = 'STRAIGHT'	Straight
2 = 'CURVE'	Curve
3 = 'TRANSITION'	Transition area (a change in the number of lanes or divided to non-divided)
4 = 'NOT KNOWN'	Not known

NOTE: This variable was discontinued after 1991. See LOC_TYPE.

RD_DEF **ROAD DEFECT**

1 = 'NONE'	None
2 = 'OBSTRUCTION'	Obstruction (tree, barricade, etc.)
3 = 'LOOSE MAT ON SUR'	Loose material on surface (oil, sand, etc.)
4 = 'HOLES,RUTS,BUMPS'	Holes, ruts, bumps
5 = 'LOW OR SOFT SHLD'	Low or soft shoulder
6 = 'DRIFTING SNOW'	Drifting snow
7 = 'FROSTY BRIDGE'	Frosty bridge
8 = 'SLIPPRY WHEN WET'	Slippery when wet
9 = 'OTHER/NOT KNOWN'	Other or not known

NOTE: This variable was discontinued after 1991.

RD_LOC **RELATIONSHIP TO ROADWAY**

'0' = 'UNCODED & ERRORS'	Uncoded & errors
'1' = 'ON THE ROAD'	On the road
'2' = 'IN THE MEDIAN'	In the median
'3' = 'ON THE SHOULDER'	On the shoulder
'4' = 'OUTSIDE CURBLINE'	Outside of the shoulder/curb-line
'5' = 'IN THE GORE'	In the gore (area between ramp and Xway convergence)
'6' = 'UNKN RELATION'	Unknown relationship

NOTE: New variable added in 1993.

RDSURF **ROAD SURFACE CONDITION**

1 = 'DRY'	Dry
2 = 'WET'	Wet
3 = 'SNOWY OR ICY'	Snowy or icy
4 = 'OTHER/NOT KNOWN'	Other or not known
*5 = 'ICY'	Icy
*6 = 'SNOWY'	Snowy
*7 = 'MUDDY'	Muddy
*8 = 'SLUSHY'	Slushy
*9 = 'DEBRIS'	Debris

*New codes added in 1993.

REEL_NBR **FILM REEL NUMBER**

NON-LABELED VARIABLE -- Internal use only.

REPORT **ACCIDENT INVESTIGATED AT SCENE**

1 = 'ACCID INVEST SCN'	Accident investigated at scene
2 = 'NO INVEST/SCENE'	Accident not investigated at scene
3 = 'UNKNOWN'	

RODWYCLS **ROADWAY CLASSIFICATION**

'01' = 'URB FRWY >= 4 LN'	Urban freeways, four or more lanes
'02' = 'URB FRWY < 4 LN'	Urban freeways, less than 4 lanes
'03' = 'URB 2-LANE ROADS'	Urban two-lane roads
'04' = 'URB ML DV N-FREE'	Urban multi-lane divided, non-freeway
'05' = 'URB ML UND N-FRE'	Urban multilane undivided, non-freeway
'06' = 'RUR FRWY >= 4 LN'	Rural freeways, four or more lanes
'07' = 'RUR FRWY < 4 LN'	Rural freeways, less than 4 lanes
'08' = 'RUR 2-LANE ROADS'	Rural two-lane roads

(CON'T)

'09' = 'RUR ML DV N-FREE'	Rural multilane divided, non-freeway
'10' = 'RUR ML UND N-FRE'	Rural Multilane undivided, non-freeway
'99' = 'OTHERS'	Others

NOTE: Created variable added to HSIS accident and roadway inventory files in all states in 1999. See Discussion.

RTE_CLS ROUTE CLASS

1 = 'INTERSTATE ROUTE'	Interstate route
2 = 'U.S. ROUTE'	U.S. route
3 = 'M ROUTE'	Michigan route
4 = 'INTER BUS LOOP '	Interstate business loop or spur
5 = 'U.S. BUS RTE'	U.S. Business route
6 = 'M BUSINESS RTE'	Michigan Business route
7 = 'CONNECTORS'	Connectors
8 = 'SERVICE DRIVE'	Service drive
9 = 'CNTY RD/CITY STR'	County road or city street or not known

RTE_NBR ROUTE NUMBER

NON-LABELED VARIABLE

SEVERITY SEVERITY OF ACCIDENT

'1' = 'FATAL'	Fatal
'2' = 'INCAPAC INJURY'	Incapacitating injury
'3' = 'NON-INCAPAC INJ'	Non-incapacitating injury
'4' = 'POSSIBLE INJ'	Possible injury
'5' = 'PROP. DAMAGE'	Property damage

SPDLMT SPEED LIMIT AT CRASH SITE

NON-LABELED VARIABLE -- Speed limit in miles/hour.

NOTE: New variable added in 1993.

SPDPOST SPEED LIMIT POSTED?

'0' = 'UNCODED & ERRORS'	Uncoded & errors
'1' = 'SPDLMT POSTED'	Speed limit posted
'2' = 'SPDLMT NOT POST'	No posted limit

NOTE: New variable added in 1993.

SPEC_TAG SPECIAL ACCIDENT TAGS

01 = 'SCHOOL BUS INVOL'	School bus involved
02 = 'SCHOOL BUS ASSOC'	School bus associated
03 = 'SCHOOL BUS OTHER'	School bus other associated
04 = 'DEER INVOLVED'	Deer involved
05 = 'DEER ASSOCIATED'	Deer associated
06 = 'EMERG OR PURSUIT'	Emergency or pursuit
07 = 'DANGEROUS CARGO'	Dangerous cargo
08 = 'CONST ZON TAG'	Construction zone tag
09 = 'TRAF ENGIN ATTEN'	Traffic engineering attention
10 = 'NONE OF THE PREC'	None of the preceding
*11 = 'NO SPEC CIRCUM'	No special circumstance
*12 = 'MOTORCYCLE INVOL'	Motorcycle involved
*13 = 'TRAIN INVOLVED'	Train involved
*14 = 'HIT AND RUN'	Hit and run
*15 = 'MULTIPLE CIRCUM'	Multiple circumstances

*New codes added in 1993.

STR_NAM ORIGINAL PRIME STREET NAME

NON-LABELED VARIABLE

TOT_INJ NUMBER OF PERSONS INJURED
TOT_KILL NUMBER OF PERSONS KILLED
TOT_NON NUMBER OF PERSONS UNINJURED

00 = '0'
01 = '1'
02 = '2'
03 = '3'
04 = '4'
5-10 = '5-10'
11-20 = '11-20'
21-50 = '21-50'
51-70 = '51-70'
71-99 = '71-99'

TOTAINJ TOTAL NUMBER OF TYPE 'A' (INCAPACITATING) INJURED PERSONS

0 = '0'
1 = '1'
2 = '2'
3 = '3'
4 = '4'
5-10 = '5-10'
11-20 = '11-20'
21-50 = '21-50'

TOTBINJ **TOTAL NUMBER OF TYPE 'B' (INCAPACITATING) INJURED PERSONS**

0 = '0'
1 = '1'
2 = '2'
3 = '3'
4 = '4'
5-10 = '5-10'
11-20 = '11-20'
21-50 = '21-50'

TOTCINJ **TOTAL NUMBER OF TYPE 'C' (POSSIBLE INJURED) PERSONS**

0 = '0'
1 = '1'
2 = '2'
3 = '3'
4 = '4'
5-10 = '5-10'
11-20 = '11-20'
21-50 = '21-50'

TRF_CNTL **TRAFFIC CONTROL**

0,01 = 'NONE'	None
02 = 'STOP SIGN'	Stop sign
03 = 'STOP/GO SIGNAL'	Stop and go signal
04 = 'TRAFFIC REGUL'	Traffic regulator (flagman, watchman, policeman)
05 = 'FLASHER'	Flasher (includes railroad flasher)
06 = 'YIELD SIGN'	Yield sign
07 = 'SCHOOL SPD ZONE'	School speed zone with light or flasher
08 = 'NO PASSING ZONE'	No passing zone
09 = 'OTH WARNING SIGN'	Other warning sign (no turn, end freeway, sharp curve, etc.)
10 = 'OTH OR NOT KNOWN'	Other of not known

NOTE: Beginning in 1993, 01 = 'NONE' is part of 10 = 'OTHER OR NOT KNOWN'.

WEATHER **WEATHER CONDITION**

1 = 'CLEAR OR CLOUDY'	Clear or cloudy
2 = 'FOG'	Fog
3 = 'RAINING'	Raining
4 = 'SNOWING'	Snowing
5 = 'NOT KNOWN'	Not known
*6 = 'SEVERE WIND'	Severe wind
*7 = 'SLEET/HAIL'	Sleet or hail
*8 = 'OTHER WEATHER'	Other weather related

*New codes added in 1993.

WEEKDAY **DAY OF WEEK**

1 = 'SUNDAY'
2 = 'MONDAY'
3 = 'TUESDAY'
4 = 'WEDNESDAY'
5 = 'THURSDAY'
6 = 'FRIDAY'
7 = 'SATURDAY

LIST OF VARIABLES FOR MICHIGAN VEHICLE SUBFILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
CASENO	YEAR + CASE NUMBER	Vehicle	CHA(11)	I-59
DAMSEV	VEHICLE DAMAGE SEVER CODE	Vehicle	NUM	I-59
DEFECT	VEHICLE DEFECT	Vehicle	NUM	I-59
DIR_TRVL	VEHICLE DIRECTION OF TRAVEL	Vehicle	NUM	I-59
DR_EJECT	DRIVER EJECTION	Vehicle	NUM	I-60
DRAIRBAG	DRIVER AIRBAG	Vehicle	NUM	I-60
DRIVABLE	VEHICLE DRIVABLE AFTER CRASH	Vehicle	NUM	I-60
DRV_AGE	AGE OF DRIVER	Vehicle	NUM	I-60
DRV_INJ	DEGREE OF INJURY TO DRIVER	Vehicle	NUM	I-60
DRV_POS	DRIVER SEATING POSITION	Vehicle	CHA(2)	I-61
DRV_REST	DRIVER RESTRAINT	Vehicle	CHA(2)	I-61
DRV_SEX	SEX OF DRIVER	Vehicle	CHA(1)	I-62
DRV_TRAP	DRIVER TRAPPED	Vehicle	NUM	I-62
EVENT1	VEHICLE HARMFUL EVENT #1	Vehicle	CHA(2)	I-62
EVENT2	VEHICLE HARMFUL EVENT #2	Vehicle	CHA(2)	I-62
EVENT3	VEHICLE HARMFUL EVENT #3	Vehicle	CHA(2)	I-62
EVENT4	VEHICLE HARMFUL EVENT #4	Vehicle	CHA(2)	I-62
FIRE	VEH FUEL LEAKS AND FIRES	Vehicle	NUM	I-63
HELMET	HELMET USE	Vehicle	CHA(1)	I-63
INTOX	DRIVER DRINKING/DRUG USE	Vehicle	NUM	I-63
MAKENAME	VEHICLE MAKE	Vehicle	NUM	I-64
MISCACT1	DRIVER/PED/OTH INTENT	Vehicle	NUM	I-65
MOSTHARM	VEHICLE MOST HARMFUL EVENT	Vehicle	CHA(2)	I-66
NUMOCC_V	TOTAL OCCUPANTS IN VEH	Vehicle	NUM	I-66
OBJECT1	OBJECT HIT	Vehicle	NUM	I-67
OP_NBR	VEHICLE OPERATOR NUMBER	Vehicle	CHA(5)	I-67
REFUSAL	DRIVER REFUSED ALC/DRUG TST	Vehicle	NUM	I-67
RESIDLOC	RESIDENCE OF DRIVER	Vehicle	NUM	I-67
SPILL	VEHICLE TRUCK CARGO SPILL	Vehicle	NUM	I-68
TESTAIR	DRIVER BREATHALYZER TEST	Vehicle	CHA(1)	I-68
TESTBLD	DRIVER BLOOD TEST	Vehicle	CHA(1)	I-68
TESTPBT	DRIVER PBT TEST	Vehicle	CHA(1)	I-68
TESTSOB	DRIVER FIELD SOBRIETY TEST	Vehicle	CHA(1)	I-68
TESTURI	DRIVER URINE TEST	Vehicle	CHA(1)	I-68
TRL_TYPE	VEHICLE TRAILER TYPE	Vehicle	NUM	I-69
V_CARGO	VEHICLE TYPE OF TRUCK CARGO	Vehicle	NUM	I-69
VEH_FAC	VEHICLE CONTRIB CIRCUM	Vehicle	NUM	I-69
VEH_IMP	VEHICLE IMPACT CODE	Vehicle	NUM	I-70
VEH_SIT	VEHICLE SITUATION	Vehicle	NUM	I-70
VEH_TYP2	VEHICLE TYPE - SPECIAL (SP)	Vehicle	NUM	I-71
VEH_USE	VEHICLE USE	Vehicle	NUM	I-71
VEHCOND1	VEHICLE CONDITION	Vehicle	NUM	I-72
VEHNO	VEHICLE NUMBER	Vehicle	NUM	I-72
VEHTYPE	VEHICLE TYPE	Vehicle	NUM	I-72
VEHYR	YEAR MANUFACTURED	Vehicle	CHA(4)	I-73

(CON'T)

LIST OF VARIABLES FOR MICHIGAN VEHICLE SUBFILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
VIN	VEHICLE IDENTIFICATION NO	Vehicle	CHA(20)	I-73
VIOL	DRIVER VIOLATIONS	Vehicle	NUM	I-73
VISION	VEHICLE VISUAL OBSTRUCTION	Vehicle	NUM	I-73

SAS FORMAT DEFINITIONS FOR VARIABLES FROM THE MICHIGAN VEHICLE SUBFILE

NOTE: (1) SAS variable names and explanatory names are shown above each listing. (See Discussion for information on SAS formats.)

(2) For consistency with other State's files and ease of handling, driver-related variables have been included in this Vehicle Subfile as well as in the Occupant Subfile.

CASENO **YEAR + CASE NUMBER**

NON-LABELED VARIABLE -- Combination of ACCYR and case number used in linkage of Accident, Vehicle, and Occupant Subfiles.

DAMSEV **VEHICLE DAMAGE SEVER CODE**

1 = 'NO DAMAGE'
2-8 = INCREASING DAMAGE CODES
9 = 'UNKNOWN'

DEFECT **VEHICLE DEFECT**

0 = 'UNCODED & ERRORS'	Uncoded & errors
1 = 'DEFECT BRAKES'	Brakes
2 = 'DEFECT LIGHTS'	Lights/reflectors
3 = 'DEFECT STEERING'	Steering
4 = 'DEFCT TIRE/WHEEL'	Tires/wheels
5 = 'DEFECT WINDOWS'	Windows
6 = 'OTHER DEFECT'	Other

NOTE: New variable added in 1993.

DIR_TRVL **VEHICLE DIRECTION OF TRAVEL**

1 = 'NORTH'
2 = 'NORTHEAST'
3 = 'EAST'
4 = 'SOUTHEAST'
5 = 'SOUTH'
6 = 'SOUTHWEST'
7 = 'WEST'
8 = 'NORTHWEST'
9 = 'NOT KNOWN'

DR_EJECT DRIVER EJECTION

```
0 = 'UNCODED & ERRORS'        Uncoded & errors
1 = 'DRIVER EJECTED'          Yes
```

NOTE: New variable added in 1993.

DRAIRBAG DRIVER AIRBAG

```
0 = 'UNCODED & ERRORS'        Uncoded & errors
1 = 'AIRBAG DEPLOYED'         Deployed
2 = 'NOT DEPLOYED'            Not deployed
3 = 'NOT AVAILABLE'           Not available
```

NOTE: New variable added in 1993.

DRIVABLE VEHICLE DRIVABLE AFTER CRASH

```
1 = 'YES'
2 = 'NO'
3 = 'NOT KNOWN'
```

DRV_AGE AGE OF DRIVER

```
00 - 01 = '0  - 01 YRS'
02 - 04 = '02 - 04 YRS'
05 - 10 = '05 - 10 YRS'
11 - 14 = '11 - 14 YRS'
15      = '     15 YRS'
16      = '     16 YRS'
17      = '     17 YRS'
18      = '     18 YRS'
19      = '     19 YRS'
20      = '     20 YRS'
21 - 25 = '21 - 25 YRS'
26 - 30 = '26 - 30 YRS'
31 - 35 = '31 - 35 YRS'
36 - 45 = '36 - 45 YRS'
46 - 55 = '46 - 55 YRS'
56 - 65 = '56 - 65 YRS'
66 - 98 = '66 +    YRS'
OTHER   = 'UNKNOWN'
```

DRV_INJ DEGREE OF INJURY TO DRIVER

```
1 = 'FATAL'                   Fatal injury
2 = 'INCAPAC INJURY'          Incapacitating injury (Type 'A')
3 = 'NON-INCAPAC INJ'         Non-incapacitating injury (Type 'B')
4 = 'POSSIBLE INJURY'         Possible injury (Type 'C')
5 = 'NO INJURY'               No injury
```

DRV_POS DRIVER SEATING POSITION

' ' =	'UNCODED & ERRORS'	
' B' =	'BICYCLIST'	Bicyclist
' E' =	'ENGINEER'	Engineer
' P' =	'PEDESTRIAN'	Pedestrian
'01' =	'DRIVER + UNCODED'	Left front, in-line vehicle driver and uncoded & errors post-1992
'02' =	'CENTER FRONT'	Center front
'03' =	'RIGHT FRONT'	Right front
'04' =	'LEFT REAR'	Left rear, in-line vehicle passenger #1
'05' =	'CENTER REAR'	Center rear
'06' =	'RIGHT REAR'	Right rear
'07' =	'LEFT - 3RD SEAT'	Left rear 3rd seat, in-line vehicle passenger #2
'08' =	'CENTER-3RD SEAT'	Center rear 3rd seat
'09' =	'RIGHT -3RD SEAT'	Right rear 3rd seat
'10' =	'IN SLEEPER'	In sleeper
'11' =	'OTHER ENCLOSED'	Other enclosed area
'12' =	'OTR UNENCLOSED'	Other unenclosed area
'13' =	'IN/ON TRAILER'	In/on trailing unit
'14' =	'ON VEH EXTERIOR'	On vehicle exterior
'15' =	'UNKNOWN'	Unknown

NOTE: New variable added in 1993.

DRV_REST DRIVER RESTRAINT

'00' =	'UNCODED & ERRORS'	Uncoded & errors
'01' =	'NO BELTS AVAIL'	No belts available
'02' =	'SHOULDER ONLY'	Shoulder only used
'03' =	'LAP BELT ONLY'	Lap only used
'04' =	'BOTH LAP+SHLD'	Both lap & shoulder used
'05' =	'NO BELTS USED'	No belts used
'06' =	'CHILD RESTRAINT'	Child restraint used
'07' =	'IMPROPER CHILD'	Child restraint not used, unavailable or improper
'08' =	'RESTRAINT FAILED'	Restraint failed
'09' =	'REST USE UNKNOWN'	Restraint use unknown
'10' =	'HELMET WORN'	Helmet worn
'11' =	'HELMET NOT WORN'	Helmet not worn
'12' =	'HELMET USE UNKN'	Helmet use unknown

NOTE: New variable added in 1993.

DRV_SEX **SEX OF DRIVER**

```
' ' = 'NOT STATED'
'M' = 'MALE'
'F' = 'FEMALE'
```

NOTE: This variable contains errors due to the fact that unknown or uncoded cases default to 'MALE'.

DRV_TRAP **DRIVER TRAPPED**

```
0 = 'UNCODED & ERRORS'        Uncoded & errors
1 = 'DRIVER TRAPPED'          Yes
```

NOTE: New variable added in 1993.

EVENT1 **VEHICLE HARMFUL EVENT #1**
EVENT2 **VEHICLE HARMFUL EVENT #2**
EVENT3 **VEHICLE HARMFUL EVENT #3**
EVENT4 **VEHICLE HARMFUL EVENT #4**

```
'00' = 'UNCODED & ERRORS'     Uncoded & errors
'01' = 'LOSS OF CONTROL'      Loss of control
'02' = 'CROSS CENTER/MED'     Cross center/median
'03' = 'RAN OFF RD-LEFT'      Ran off road left
'04' = 'RAN OFF RD-RIGHT'     Ran off road right
'05' = 'RE-ENTER ROAD'        Re-enter road
'06' = 'OVERTURN'             Overturn
'07' = 'UNITS SEPARATE'       Separation of units
'08' = 'FIRE/EXPLOSION'       Fire/explosion
'09' = 'IMMERSION'            Immersion
'10' = 'JACKKNIFE'            Jackknife
'11' = 'DOWHHILL RUNAWAY'     Downhill runaway
'12' = 'CARGO LOSS/SHIFT'     Cargo loss/shift
'13' = 'PERSON FELL OFF'      Individual fell off
'14' = 'OTR NON-COLLISN'      Other non-collision
'15' = 'HIT PEDESTRIAN'       Pedestrian
'16' = 'HIT PEDALCYCLE'       Pedalcycle
'17' = 'HIT MOTOR VEHICL'     Motor veh. in transport
'18' = 'HIT PARKED VEH'       Parked vehicle
'19' = 'HIT TRAIN'            Train
'20' = 'HIT ANIMAL'           Animal
'21' = 'HIT OTH NON-FIXD'     Other non-fixed object
'22' = 'HIT BRIDGE ABUT'      Bridge/pier/abut.
'23' = 'HIT BRIDGE END'       Bridge parapet end
'24' = 'HIT BRIDGE RAIL'      Bridge rail
'25' = 'HIT GRDRAIL FACE'     Guardrail face
'26' = 'HIT GRDRAIL END'      Guardrail end
'27' = 'HIT MEDIAN BARR'      Median barrier
'28' = 'HIT TRAFFIC SIGN'     Traffic sign post
```

(CON'T)

'29' = 'HIT SIGNAL POST'	Signal post
'30' = 'HIT LUMINAIRE'	Luminaire support
'31' = 'HIT UTILITY POLE'	Utility pole
'32' = 'HIT OTHER POLE'	Other pole
'33' = 'HIT CULVERT'	Culvert
'34' = 'HIT CURB'	Curb
'35' = 'HIT DITCH'	Ditch
'36' = 'HIT EMBANKMENT'	Embankment
'37' = 'HIT FENCE'	Fence
'38' = 'HIT MAILBOX'	Mailbox
'39' = 'HIT TREE'	Tree
'40' = 'HIT RRX SIGNAL'	Railroad crossing signal
'41' = 'HIT BUILDING'	Building
'42' = 'HIT TRAF ISLAND'	Traffic island
'43' = 'HIT FIRE HYDRANT'	Fire hydrant
'44' = 'HIT IMPACT ATTEN'	Impact attenuator
'45' = 'HIT OTR FIX OBJ'	Other fixed object

NOTE: New variable added in 1993.

FIRE **VEH FUEL LEAKS AND FIRES**

1 = 'FUEL LEAKED'	Fuel leaked from vehicle
2 = 'VEH/CARGO FIRE'	Vehicle or cargo caught fire
3 = 'FUEL LEAK FIRE'	Fuel leaked from vehicle and there was a fire
4 = 'NO FIRE'	No vehicle fuel leak or fire occurred

NOTE: This variable was discontinued after 1991.

HELMET **HELMET USE**

'1' = 'HELMET USED'
'2' = 'HELMET NOT USED'
'3' = 'NOT KNOWN'

INTOX **DRIVER DRINKING/DRUG USE**

1 = 'HAD'
2 = 'HAD NOT'
3 = 'NOT KNOWN'

MAKENAME VEHICLE MAKE

Passenger Cars

01 = 'AMERICAN MOTORS'
02 = 'BUICK'
03 = 'CADILLAC'
04 = 'CHEVROLET'
05 = 'CHRYSLER'
06 = 'DODGE'
07 = 'FORD'
08 = 'IMPERIAL'
09 = 'JEEP'
10 = 'LINCOLN'
11 = 'MERCURY'
12 = 'OLDSMOBILE'
13 = 'PLYMOUTH'
14 = 'PONTIAC'
15 = 'VOLKSWAGEN'
16 = 'GMC (1976)'
17 = 'INTERNATIONAL'
18 = 'HONDA-86+'
19 = 'OTHER FOREIGN'
20 = 'OTHER DOMESTIC'
71 = 'MAZDA-86+'
72 = 'NISSAN-86+'
73 = 'TOYOTA-86+'

Trucks

21 = 'CHEVROLET'
22 = 'DIAMOND T.'
23 = 'DODGE'
24 = 'FEDERAL'
25 = 'FORD'
26 = 'GMC'
27 = 'INTERNATIONAL'
28 = 'MACK'
29 = 'PETERBILT'
30 = 'REO'
31 = 'WHITE'
32 = 'JEEP'
33 = 'FREIGHTLINER-86+'
34 = 'HINO-86+'
35 = 'IHC(NAVISTAR)86+'
36 = 'KENWORTH-86+'
37 = 'MERCEDES-BNZ-86+'
38 = 'NISSAN-86+'
39 = 'WESTERN STAR-86+'
40 = 'OTHER TRUCK'

(CON'T)

Special Vehicles/Pedestrians

41 = 'M-CYCL/SCO/BIKE'
42 = 'SCHOOL BUS'
43 = 'COMMERCIAL BUS'
44 = 'FARM EQUIPMENT'
45 = 'RD CONSTR EQUIP'
46 = 'FIRE EQUIPMENT'
47 = 'AMBULANCE'
48 = 'POLICE EQUIPMENT'
49 = 'SNOW MOBILES'
50 = 'OTH MOTOR VEHICL'
51 = 'PED/PED CONVEYAN'
52 = 'PEDALCYCLE'
53 = 'OTH RD VEH N/PED'
54 = 'MOPED-78+'
61 = 'OFF-ROAD REC VEH'
62 = 'GO-CART'
64 = 'MOTOR HOME'

NOTE: (1) Note that the "Vehicle Make" code definitions differ somewhat after 1987. In 1988, new codes for "Mazda", "Toyota", and "Honda" were included in part of 1987 data and in all of the 1988-89 files.

(2) This variable was discontinued after 1991.

MISCACT1 DRIVER/PED/OTH INTENT

01 = 'MV GO STR AHEAD'	Going straight ahead
02 = 'OVTAK OR PASSING'	Overtaking or passing
03 = 'CHANGE LANES'	Change lanes
04 = 'MAKE RIGHT TURN'	Make right turn
05 = 'MAKE LEFT TURN'	Make left turn
06 = 'MAKE U TURN'	Make "U" turn
07 = 'SLOW/STOP ON RD'	Slowing or stopping on road
08 = 'STARTNG UP ON RD'	Starting up on road
09 = 'ENTR PRK SIDE RD'	Entering parking (side of road)
10 = 'LEAV PRK SIDE RD'	Leaving parking (side of road)
11 = 'BACKING'	Backing
12 = 'STOPPED ON ROAD'	Stopped on road
13 = 'PURSUED BY POLIC'	Pursuing or being pursued by police
14 = 'AVOID OBJECT'	Avoid object
15 = 'AVOID ANIMAL'	Avoid animal
16 = 'AVOID PEDESTRIAN'	Avoid pedestrian
17 = 'LOST LOAD FR VEH'	Lost load from vehicle
18 = 'AVD VH SM/OP DIR'	Avoid vehicle from the same or opposite direction
19 = 'AVD VEH AT ANGLE'	Avoid vehicle at an angle
20 = 'OTHER/NOT KNOWN'	Other or not known

(CON'T)

```
*21 = 'IN PRIOR CRASH'        In prior crash
*22 = 'SLOW/STOP OTHER'       Other slowing or stopping
*23 = 'STARTING UP OTH'       Other starting
*24 = 'ENTER ROAD'            Entering roadway
*25 = 'LEAVE ROAD'            Leaving roadway
*26 = 'DRIVRLESS MOVING'      Moving driverless vehicle
*27 = 'PARKED'                Parked
```

*New codes added in 1993.

NOTE: The above codes refer to drivers of motor vehicles, bicyclists, and other road users. If the "driver" is a pedestrian, different codes for pedestrian maneuvers are used for 1991 and earlier files than for the post-1991 files. In 1991 and earlier, Code 1 through 12 describes specific pedestrian action. These are codes are replaced with 28 through 40 in the post 1991 file. If the "driver" is a pedestrian (which can be determined using VEHTYPE = 09), this variable should be formatted as follows (see PEDINTF in the HSIS Format Library):

```
1,28 = 'CROSS AT INTERSE'     Cross at intersection
2,29 = 'CROSS N/INTERSE'      Cross not at intersection
3,30 = 'GET ON/OFF VEH'       Getting on or off vehicle
4,31 = 'IN RDWY WTH TRAF'     In roadway with traffic
5,32 = 'N RD AGAINST TRF'     In roadway against traffic
6,33 = 'STAND/LYING RDWY'     Standing or lying in roadway
7,34 = 'PUSH/WORK ON VEH'     Pushing or working on vehicle
8,35 = 'OTR WORK IN ROAD'     Other working in roadway
9,36 = 'PLAYING IN ROAD'      Playing in roadway
10,37 = 'OTR REASON IN RD'    In roadway, other reason
11,38 = 'PED NOT IN ROAD'     Not in roadway
39 = 'OTR PED ACTION'         Other pedestrian action (new in 1993)
12,40 = 'UNKN PED ACTION'     Not known
```

MOSTHARM VEHICLE MOST HARMFUL EVENT

See format under EVENT1.

NOTE: New variable added in 1993.

NUMOCC_V TOTAL OCCUPANTS IN VEH

NON-LABELED VARIABLE -- Total number of occupants in vehicle (Uncoded & Errors = 99).

NOTE: New variable added in 1993.

OBJECT1 **OBJECT HIT**

01 = 'NO OBJECT HIT'	No object hit
02 = 'GRDRAIL,GRD POST'	Guardrail, guard post
03 = 'HIGHWAY SIGN'	Highway sign
04 = 'STR LGH, UTIL/PL'	Street light, utility pole
05 = 'CULVERT'	Culvert
06 = 'DITCH/EMBNK/STRM'	Ditch, embankment, stream
07 = 'BRIDGE PIER'	Bridge pier or abutment
08 = 'BRIDGE RAIL/DECK'	Bridge rail or deck
09 = 'TREE'	Tree
10 = 'HWY OR RRX SIGNL'	Highway or railroad signal
11 = 'BUILDING'	Building
12 = 'MAILBOX'	Mailbox
13 = 'FENCE'	Fence
14 = 'TRAF ISL OR CRB'	Traffic island or curb
15 = 'CONC MEDIAN BAR'	Concrete median barrier
16 = 'OTH ON-TRFWY OBJ'	Other on-trafficway object
17 = 'OTH OF/TRAFWY OB'	Other off-trafficway object
18 = 'OVERHEAD FIXOBJ'	Overhead fixed object
19 = 'NOT KNOWN'	Not known or non-motor-vehicle unit (pedestrian, bicyclist, etc.)

NOTE: Because of the coding protocol, this variable denotes the first object struck in a collision sequence (not necessarily the "most harmful" object). See Discussion.

OP_NBR **VEHICLE OPERATOR NUMBER**

NON-LABELED VARIABLE -- Combination of first initial of last name and first 4 digits from operator's license numbers.

REFUSAL **DRIVER REFUSED ALC/DRUG TST**

0 = 'UNCODED & ERRORS'	Uncoded & errors
1 = 'DRV REFUSED TEST'	Driver refused test
2 = 'TEST NOT OFFERED'	Test not offered

NOTE: New variable added in 1993.

RESIDLOC **RESIDENCE OF DRIVER**

1 = 'IN COUNTY'	In county
2 = 'IN STATE'	In State
3 = 'BORDERING STATE'	Bordering State (Canada, Illinois, Indiana, Ohio, Wisconsin)
4 = 'DRVLESS MOV VEH'	Driverless moving vehicle
5 = 'OTHER OR UNKNOWN'	Other or not known

NOTE: This variable was discontinued after 1991.

SPILL **VEHICLE TRUCK CARGO SPILL**

1 = 'TRK CARGO SPIL' Truck cargo spilled
2 = 'TRK CARGO N/SPIL' Truck cargo did not spill
3 = 'SPILLAGE N/KNOWN' Spillage not known
4 = 'NOT A TRUCK' Not a truck

NOTE: This variable was discontinued after 1991.

TESTAIR **DRIVER BREATHALYZER TEST**

'0' = 'UNCODED & ERRORS'
'1' = 'BREATHALYZER TST'

NOTE: New variable added in 1993.

TESTBLD **DRIVER BLOOD TEST**

'0' = 'UNCODED & ERRORS'
'1' = 'BLOOD TESTED'

NOTE: New variable added in 1993.

TESTPBT **DRIVER PBT TEST**

'0' = 'UNCODED & ERRORS'
'1' = 'PBT TEST GIVEN'

NOTE: New variable added in 1993.

TESTSOB **DRIVER FIELD SOBRIETY TEST**

'0' = 'UNCODED & ERRORS'
'1' = 'FIELD SOBRIETY'

NOTE: New variable added in 1993.

TESTURI **DRIVER URINE TEST**

'0' = 'UNCODED & ERRORS'
'1' = 'URINE TESTED'

NOTE: New variable added in 1993.

TRL_TYPE VEHICLE TRAILER TYPE

1 = 'NONE'	None
2 = 'UTILITY TRAILER'	Utility trailer
3 = 'SINGLE B/TRK COM'	Single bottom truck combination
4 = 'DOUBLE B/TRK COM'	Double bottom truck combination
5 = 'HOUSE TRAILER'	House trailer
6 = 'OTHER/NOT KNOWN'	Other or not known or non-motor-vehicle unit (pedestrian, bicyclist, etc.)
7 = 'TOWED'	Towed vehicle
*8 = 'BOAT TRAILER'	Boat trailer
*9 = 'FARM TRAILER'	Farm trailer
*10 = 'TOWED AUTO'	Towed automobile
*11 = 'RECREATN DOUBLE'	Recreational double
*12 = 'OTHER TRAILER'	Other trailer

*New codes added in 1993.

V_CARGO VEHICLE TYPE OF TRUCK CARGO

1 = 'COMMER-NO CARGO'	Commercial - no cargo
2 = 'COMM FLAMB NO/CG'	Commercial - flammable or explosive - not cargo
3 = 'COMM FLAMB CARGO'	Commercial - flammable or explosive - with cargo
4 = 'COMM FREIG N/BLK'	Commercial - general freight - non-bulk
5 = 'COMM FREIGHT BLK'	Commercial general freight - bulk
6 = 'NON-COMMERCIAL'	Non-commercial (private use)
8 = 'UNKN/NOT STATED'	Unknown or not stated
9 = 'NOT A TRUCK'	Not a truck

NOTE: This variable was discontinued after 1991.

VEH_FAC VEHICLE CONTRIB CIRCUM

01 = 'DUI'	Driving under the influence of alcohol or drugs
02 = 'RECKLESS DRV'	Reckless or careless driving
03 = 'ILL FATIGUED'	Ill, fatigued, inattention
04 = 'N/COMPLY LIC RES'	Failed to comply with license restrictions
05 = 'OBSCURED VISION'	Obscured vision
06 = 'DEFECTIVE EQUIP'	Defective equipment (if contributing)
07 = 'LOST CONTROL'	Lost control due to shifting load, wind or vacuum

(CON'T)

```
08 = 'NONE'                    None
09 = 'SKIDDING'                Skidding
10 = 'OTHER/NOT KNOWN'         Other or not known
```

NOTE: If "Vehicle" is a pedestrian, this variable should be formatted as follows:

PEDESTRIAN CONTRIB CIRCUM

```
01 = 'DUI'                     Under influence of alcohol or drugs
02 = 'JAYWALKING'              Jaywalking or other improper crossing
03 = 'ILL FATIGUED'            Ill, fatigued, inattention
05 = 'OBSCURED VISION'         Obscured vision
06 = 'DEFECTIVE EQUIP'         Defective equipment (if contributing)
07 = 'LOST CONTROL'            Lost control due to shifting load,
                               wind or vacuum
08 = 'NONE'                    None
09 = 'SKIDDING'                Skidding
10 =  'OTHER/NOT KNOWN'        Other or not known
OTHER = 'ERROR/OTHER CODE'
```

VEH_IMP VEHICLE IMPACT CODE

```
0 = 'ROLLOVER'                 Rollover
1 = 'CENTER FRONT'             Center front
2 = 'RIGHT FRONT'              Right front
3 = 'RIGHT SIDE'               Right side
4 = 'RIGHT REAR'               Right rear
5 = 'CENTER REAR'              Center rear
6 = 'LEFT REAR'                Left rear
7 = 'LEFT SIDE'                Left side
8 = 'LEFT FRONT'               Left front
9 = 'OTHER IMPACT'             Other impact or miscellaneous
*10 = 'UNDERCARRIAGE'          Undercarriage
*11 = 'MULTIPLE AREAS'         Multiple areas of damage
*12 = 'OTHER/UNKNOWN'          Other or unknown damage
*13 = 'NO IMPACT'              No impact
*99 = 'UNCODED & ERRORS'       Uncoded and error codes
```

*New codes added in 1993.

VEH_SIT VEHICLE SITUATION

```
1 = 'REBOUND FRM GRD'          Rebound from guardrail
2 = 'WENT THRH GUARDR'         Went through guardrail
3 = 'WENT INTO MEDIAN'         Went into median
4 = 'WENT THRU MEDIAN'         Went through median
5 = 'HIT OBJ AFT COLL'         Hit object after initial collision
6 = 'RAN THRU INTER'           Ran through 'T' intersection
7 = 'NONE OF ABOVE'            None of the above or non-motor-vehicle
                               unit (pedestrian, pedalcyclist, etc.)
8 = 'HIT AND RUN'              Hit and run (for fatal and personal
                               injury accidents only)
```

VEH_TYP2 VEHICLE TYPE - SPECIAL (SP)

01 = 'UNDER 1500 LB'	Passenger car under 1500 lb
02 = '1500 TO 2499 LB'	Passenger car 1500 to 2499 lb
03 = '2500 TO 3500 LB'	Passenger car 2500 to 3500 lb
04 = ' > 3500 LB'	Passenger car more than 3500 lb
05 = 'CARRYALL'	Carryall, station wagon, etc.
06 = 'JEEP TYPE'	Jeep type
07 = 'PICKUP'	Pickup or panel truck
08 = 'STATE/DUMP/ETC'	State or dump truck, step van, motor home, etc.
09 = 'TRK TRACTOR'	Truck tractor (semi) or road tractor
10 = 'OTHER/NOT KNOWN'	Other or not known or non-motor-vehicle (pedestrian, bicyclist, etc.)
*11 = 'POLICE'	Police
*12 = 'FIRE'	Fire
*13 = 'BUS'	Bus
*14 = 'AMBULANCE'	Ambulance
*15 = 'FARM EQUIPMENT'	Farm Equipment
*16 = 'CONSTRUCTION'	Construction equipment

* New replacement codes in 1993.

NOTE: (1) Categories 01-04 have changed significantly since 1985. The categorization by weight no longer exists by 1988, and the 1986 and 1987 weight data are questionable. For analysis purposes, all four groups should be collapsed into one group of "passenger cars."

(2) In 1993 and later, only code 11-16 are used.

VEH_USE VEHICLE USE

00 = 'UNCODED & ERRORS'	Uncoded & errors
01 = 'PRIVATE USE'	Private
02 = 'COMMERCIAL USE'	Commercial
03 = 'EMERG/PURSUIT'	Pursuit/emerg. (in use)
04 = 'FARM USE'	Farm
05 = 'SCHOOL/EDUC USE'	School/education
06 = 'CLUB/CHURCH TAG'	Club/church ('Y' tag)
07 = 'MILITARY VEHICLE'	Military vehicle
08 = 'OT GOVT NON-EMER'	Other govnmt. non-emerg.
09 = 'UTILITY USE'	Utility
10 = 'RD CONSTR/MAINTA'	Road construction/maintenance
11 = 'OTHER USE'	Other

NOTE: New variable added in 1993.

VEHCOND1 VEHICLE CONDITION

1 = 'DISABLED VEHICLE'	Disabled vehicle
2 = 'BLOWOUT'	Puncture or blowout
3 = 'OTHER DEFECT'	Other defective equipment (brakes, lights, steering)
4 = 'NO DEFECT'	No defect
5 = 'NOT KNOWN'	Not known or non-motor-vehicle unit

VEHNO VEHICLE NUMBER

NON-LABELED VARIABLE -- Vehicle number use in linkage to Occupant Subfile.

VEHTYPE VEHICLE TYPE

01 = 'PASSENGER CAR'	Passenger car and station wagon
02 = 'TRUCK'	Truck
03 = 'MCYCLE, MOTR SCT'	Motorcycle, motor scooter, moped, etc.
04 = 'SCHOOL BUS'	School bus
05 = 'COMMERCIAL BUS'	Commercial bus
06 = 'FARM EQUIPMENT'	Farm equipment
07 = 'CONST EQUIPMENT'	Construction equipment
08 = 'AMB,POLICE EQUIP'	Ambulance, police equipment, snowmobile, dune buggy, go-kart, other motor vehicle or not known
09 = 'PED PED CONVEY'	Pedestrian or pedestrian conveyance
10 = 'PEDALCTCKE'	Pedalcycle
11 = 'OTHER RD VEH'	Other road vehicle except pedalcycle
*12 = 'VAN / MOTORHOME'	Van, motorhome
*13 = 'PICKUP TRUCK'	Pickup truck
*14 = 'TRUCK <10,000 LB'	Truck weighing less than 10,000 lbs
*15 = 'CYCLE'	Motorcycle or motor scooter
*16 = 'MOPED'	Moped
*17 = 'GO-CART'	Go-cart
*18 = 'SNOWMOBILE'	Snowmobile
*19 = 'ALL TERRAIN VEH'	All terrain vehicle
*20 = 'OTR NON-COMMER'	Other non-commercial vehicle
*21 = 'CDL TRUCK/SUPPL'	Truck or bus subject to Commercial Driver Licensing restrictions

*New codes added in 1993.

NOTE: See VEH_TYP2. Changes in coding in 1993 resulted in "crossover" between these two variables.

VEHYR **YEAR MANUFACTURED**

NON-LABELED VARIABLE -- year of manufacture (9999 = unknown year or non-motor vehicle).

NOTE: This variable was discontinued after 1991.

VIN **VEHICLE IDENTIFICATION NO**

NON-LABELED VARIABLE -- Vehicle Identification Number. Collection was discontinued after 1991.

VIOL **DRIVER VIOLATIONS**

01 = 'NONE'	No hazardous action
02 = 'SPEED TOO FAST'	Speed too fast (no skid or braking)
03 = 'SPEED TOO SLOW'	Speed too slow
04 = 'FAILED TO YIELD'	Failed to yield right-of-way, disregard traffic control (pre-1993)
05 = 'WRONG WAY'	Wrong way
06 = 'LEFT OF CENTER'	Drove left of center, improper over-taking or lane usage (pre-1993)
07 = 'IMPR TURN N/SGNL'	Improper turn, improper or no signal
08 = 'IMPROPER BACKING'	Improper backing, unsafe start
09 = 'FOLLOW TOO CLOSE'	Followed too close, unable to stop in assured clear distance (skid marks)
10 = 'OTHER/NOT KNOWN'	Other or not known (pre-1993)
*11 = 'TRAFFIC CONTROL'	Disregard traffic control
*12 = 'IMPROP PASSING'	Improper passing
*13 = 'IMPROP LANE USE'	Improper overtaking lane use
*14 = 'IMPROPER TURN'	Improper or illegal turn
*15 = 'IMPROP SIGNAL'	Improper or no signal
*16 = 'OTHER ACTION'	Other improper action
*17 = 'UNKNOWN'	Unknown (1993 and later)
*99 = 'UNCODED & ERRORS'	Uncoded and errors

*New codes added in 1993.

NOTE: Pedestrians, pedalcyclists, etc. codes are the same as above except 02 and 03 are not used.

VISION **VEHICLE VISUAL OBSTRUCTION**

1 = 'NO OBSTRUCTION'	No obstruction
2 = 'OBSTR IN VEH'	Obstruction within or on the vehicle
3 = 'PHYSICAL OBSTR'	Related physical obstruction at the scene
4 = 'WEATHER OBSTRU'	Weather obstruction (heavy rain or snow, fog, smoke, etc.)
5 = 'GLARE OBSTRU'	Glare obstruction (sun, headlights, other lights, etc.)
6 = 'OTHER OR NOT KNW'	Other or not known

LIST OF VARIABLES FOR MICHIGAN OCCUPANT SUBFILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
AGE	AGE OF INJURED OCCUPANT	Occupant	CHA(2)	I-77
AGE_GRP	AGE CATEGORY	Occupant	CHA(2)	I-77
AIRBAG	OCCUPANT AIRBAG	Occupant	NUM	I-78
CASENO	YEAR + CASE NUMBER	Occupant	CHA(11)	I-78
EJECT	OCCUPANT EJECTION	Occupant	NUM	I-78
INJ	OCCUPANT DEGREE OF INJURY	Occupant	CHA(1)	I-78
LOC_INJ	INJURED OCCUPANT LOCATION	Occupant	CHA(1)	I-79
REST1	OCCUPANT RESTRAINT	Occupant	CHA(2)	I-79
SEATPOS	OCCUPANT SEAT POSITION	Occupant	CHA(2)	I-79
SEX	OCCUPANT SEX	Occupant	CHA(1)	I-80
TRAPPED	OCCUPANT TRAPPED	Occupant	NUM	I-80
VEHNO	OCCUPANT TRAFFIC UNIT NUMBER	Occupant	NUM	I-80

NOTE: This file only contains data on the injured occupants in the vehicle. Thus, none of the "successes" (non-injured occupants) are included. See Discussion.

SAS FORMAT DEFINITIONS FOR VARIABLES FROM THE
MICHIGAN OCCUPANT SUBFILE

NOTE: (1) This file only contains data on the injured occupants in the vehicle for all years. Thus, none of the "successes" (non-injured occupants) are included. See Discussion.

(2) SAS variable names and explanatory names are shown above each listing. (See Discussion for information on SAS formats.)

(3) For consistency with other State's files and ease of handling, driver-related variables have been included in this Occupant Subfile as well as in the Vehicle Subfile.

AGE **AGE OF INJURED OCCUPANT**

```
'00' -  '01' = '0  - 01 YRS'
'02' -  '04' = '02 - 04 YRS'
'05' -  '10' = '05 - 10 YRS'
'11' -  '14' = '11 - 14 YRS'
'15'         = '     15 YRS'
'16'         = '     16 YRS'
'17'         = '     17 YRS'
'18'         = '     18 YRS'
'19'         = '     19 YRS'
'20'         = '     20 YRS'
'21' -  '25' = '21 - 25 YRS'
'26' -  '30' = '26 - 30 YRS'
'31' -  '35' = '31 - 35 YRS'
'36' -  '45' = '36 - 45 YRS'
'46' -  '55' = '46 - 55 YRS'
'56' -  '65' = '56 - 65 YRS'
'66' -  '98' = '66 +    YRS'
   '  ','99' = 'UNKNOWN'
```

NOTE: See AGE_GRP for alternative age categories.

AGE_GRP **AGE CATEGORY**

```
'01' = '0-4'
'02' = '5-9'
'03' = '10-14'
'04' = '15-19'
'05' = '20-24'
'06' = '25-34'
'07' = '35-44'
```

(CON'T)

```
'08' = '45-54'
'09' = '55-64'
'10' = '65-74'
'11' = '75 & OLDER'
'12' = 'UNKNOWN'
```

NOTE: This variable is formatted by Michigan. The AGE variable defined above uses the same data, but more age categories.

AIRBAG **OCCUPANT AIRBAG**

0 = 'UNCODED & ERRORS'	Uncoded & errors
1 = 'AIRBAG DEPLOYED'	Deployed
2 = 'NOT DEPLOYED'	Not deployed
3 = 'NOT AVAILABLE'	Not available

NOTE: New variable added in 1993.

CASENO **YEAR + CASE NUMBER**

NON-LABELED VARIABLE -- Combination of ACCYR and case number used in linkage of Accident, Vehicle, and Occupant Subfiles.

EJECT **OCCUPANT EJECTION**

0 = 'UNCODED & ERRORS'	Uncoded & errors
1 = 'PASS EJECTED'	Yes

NOTE: New variable added in 1993.

INJ **OCCUPANT DEGREE OF INJURY**

'1' = 'FATAL'	Fatal injury
'2' = 'INCAPAC INJURY'	Incapacitating injury
'3' = 'NON-INCAPAC INJ'	Non-incapacitating injury
'4' = 'POSSIBLE INJURY'	Possible injury

NOTE: As described earlier, this file only contains injured occupants.

LOC_INJ **INJURED OCCUPANT LOCATION**

'1' = 'DRIVER'	Driver of passenger car, truck, bus construction equipment
'2' = 'PASSENGER'	Passenger of passenger car, truck, bus, construction equipment
'3' = 'PEDESTRIAN'	Pedestrian
'4' = 'ON A PEDALCYCL'	On a pedalcycle
'5' = 'ON A MOTORCYC'	On a motorcycle or moped
'6' = 'ON FARM EQUIP'	On farm equipment
'7' = 'OTHER/UNKNOWN'	Other or not known

NOTE: This variable was discontinued after 1991. See SEATPOS.

REST1 **OCCUPANT RESTRAINT**

'00' = 'UNCODED & ERRORS'	Uncoded & errors
'01' = 'NO BELTS AVAIL'	No belts available
'02' = 'SHOULDER ONLY'	Shoulder belt only used
'03' = 'LAP BELT ONLY'	Lap belt only used
'04' = 'BOTH LAP+SHLD'	Both lap and shoulder belts used
'05' = 'NO BELTS USED'	No belts used
'06' = 'CHILD RESTRAINT'	Child restraint used
'07' = 'IMPROPER CHILD'	Improper child restraint use
'08' = 'RESTRAINT FAILED'	Restraint failed
'09' = 'REST USE UNKNOWN'	Restraint use unknown
'10' = 'HELMET WORN'	Helmet worn
'11' = 'HELMET NOT WORN'	Helmet not worn
'12' = 'HELMET USE UNKN'	Helmet use unknown

NOTE: New variable added in 1993.

SEATPOS **OCCUPANT SEAT POSITION**

'0 ' = 'DRIVER'	Driver (including motor vehicle, pedestrian, other road vehicle)
'1 ' = 'FRONT CENTER'	Front center
'2 ' = 'FRONT RIGHT'	Front right
'3 ' = 'REAR LEFT'	Front left (or motorcycle 1st passenger after 1992)
'4 ' = 'REAR CENTER'	Rear center
'5 ' = 'REAR RIGHT'	Rear right
'6 ' = 'PEDALCYCLE PASS'	Pedalcycle passenger
'7 ' = 'MOTORCYC PASSEN'	Motorcycle, motor scooter or moped passenger (pre-1992)
'8 ' = 'FARM EQUIP PASS'	Farm equipment passenger
'9 ' = 'OTHER/NOT KNWN'	Other or not known
*'10' = 'LEFT - 3RD SEAT'	Left passenger, 3rd seat (or motorcycle 2nd passenger)
*'11' = 'CENTER-3RD SEAT'	Center passenger, 3rd seat

(CON'T)

*'12' = 'RIGHT -3RD SEAT'	Right passenger, 3rd seat
*'13' = 'IN SLEEPER'	Sleeper section
*'14' = 'OTHER ENCLOSED'	Other enclosed passenger area/ cargo area
*'15' = 'OTR UNENCLOSED'	Other unenclosed passenger area/ cargo area
*'16' = 'IN/ON TRAILER'	Riding in/on trailing unit
*'17' = 'ON VEH EXTERIOR'	Riding on vehicle exterior
*'18' = 'UNKNOWN'	Unknown
*'B ' = 'BICYCLIST'	Bicyclist
*'P ' = 'PEDESTRIAN'	Pedestrian
*'E ' = 'ENGINEER'	Engineer (railroad train)

*New codes added in 1993.

SEX **OCCUPANT SEX**

' ' = 'NOT STATED'
'M' = 'MALE'
'F' = 'FEMALE'

NOTE: Although the distribution of this variable appears correct, there are some errors due to the fact that uncoded/unknown cases default to "MALE".

TRAPPED **OCCUPANT TRAPPED**

0 = 'UNCODED & ERRORS'
1 = 'PASS TRAPPED'

NOTE: New variable added in 1993.

VEHNO **OCCUPANT TRAFFIC UNIT NUMBER**

NON-LABELED VARIABLE

LIST OF VARIABLES FOR MICHIGAN ROADLOG FILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
AADT	ANNUAL AVERAGE DAILY TRAFFIC	Roadlog	NUM	I-83
BAS_LNS	NUMBER OF BASIC LANES	Roadlog	NUM	I-83
BEGMP	BEGINNING MLPNT OF SEGMENT	Roadlog	NUM	I-83
CM_NTWRK	SUF-PRIORITY COMMERCIAL NETWORK	Roadlog	NUM	I-83
CNTL_SEC	CONTROL SECTION	Roadlog	NUM	I-84
COMM_ADT	COMMERCIAL ADT	Roadlog	NUM	I-84
CURV_MIN	CURVE OR BEARING MINUTES	Roadlog	NUM	I-84
DEG_CURV	CURVE OR BEARING DEGREES	Roadlog	NUM	I-84
DIR	SUF-TRAVEL DIRECTION CODE	Roadlog	NUM	I-84
DIR_CURV	CURVE CODE OR BEARING DIRECTION	Roadlog	NUM	I-85
DISTRICT	DISTRICT	Roadlog	NUM	I-85
ENDMP	ENDING MILEPOINT OF SEGMENT	Roadlog	NUM	I-85
EXT_LNL	MISCELLANEOUS EXTRA LANES(LEFT)	Roadlog	NUM	I-85
EXT_LNR	MISCELLANEOUS EXTRA LANES(RIGHT)	Roadlog	NUM	I-86
FED_AID	SUF-FEDERAL AID SYSTEM	Roadlog	NUM	I-86
FUNC_CLS	SUF-FUNCTIONAL CLASS	Roadlog	NUM	I-86
LANEWID	AVERAGE LANE WIDTH	Roadlog	NUM	I-87
LANEWID2	AVERAGE LANE WIDTH (MINUS DIRECTION)	Roadlog	NUM	I-87
LSHL_TY2	SHOULDER/CURB TYPE (MINUS DIREC LEFT)	Roadlog	NUM	I-87
LSHL_TYP	SHOULDER/CURB TYPE (LEFT)	Roadlog	NUM	I-87
LSHL_WD2	TOTAL SHLDR WIDTH (MINUS DIREC LEFT)	Roadlog	NUM	I-87
LSHLDWID	TOTAL SHOULDER WIDTH (LEFT)	Roadlog	NUM	I-87
MED_TYPE	MEDIAN TYPE	Roadlog	NUM	I-88
MEDWID	SUF-MEDIAN WIDTH IN FEET	Roadlog	NUM	I-88
MVMT	MILLION VEHICLE MILES TRAVELED	Roadlog	NUM	I-88
NHS_CODE	SUF-NATIONAL HIGHWAY SYSTEM	Roadlog	CHA(1)	I-89
NO_LANES	NUMBER OF LANES	Roadlog	NUM	I-89
ONEWAY	ROADWAY TYPE	Roadlog	NUM	I-89
PARKING1	ON STREET PARK (LEFT)	Roadlog	NUM	I-89
PARKING2	ON STREET PARKING (RIGHT)	Roadlog	NUM	I-89
PASSING	NO PASSING ZONE CODE	Roadlog	NUM	I-89
PAV_WDL	PAVED SHOULDER WIDTH (LEFT)	Roadlog	NUM	I-90
PAV_WDML	PAVED SHLDR WIDTH (MINUS DIREC LEFT)	Roadlog	NUM	I-90
PAV_WDMR	PAVED SHLDR WIDTH (MINUS DIREC RIGHT)	Roadlog	NUM	I-90
PAV_WIDR	PAVED SHOULDER WIDTH (RIGHT)	Roadlog	NUM	I-90
POP_GRP	SUF-POPULATION GROUP	Roadlog	NUM	I-90
RD_DEVCD	ROADSIDE DEVELOPMENT CODE	Roadlog	NUM	I-90
RODWYCLS	ROADWAY CLASSIFICATION	Roadlog	CHA(2)	I-91
ROW	SUF-RIGHT OF WAY	Roadlog	NUM	I-91

(CON'T)

LIST OF VARIABLES FOR MICHIGAN ROADLOG FILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
RSHL_TY2	SHLDR OR CURB TYPE (MINUS DIREC RIGHT)	Roadlog	NUM	I-91
RSHL_TYP	SHOULDER/CURB TYPE (RIGHT)	Roadlog	NUM	I-91
RSHL_WD2	TOTAL SHLDR WIDTH (MINUS DIREC RIGHT)	Roadlog	NUM	I-92
RSHLDWID	TOTAL SHLDR WIDTH (RIGHT)	Roadlog	NUM	I-92
RTE_NBR	SUF-ROUTE NUMBER	Roadlog	NUM	I-92
RTE_TYPE	SUF-ROUTE DESIGNAT & TYPE	Roadlog	NUM	I-92
RURURB	SUF-RUR/URB DEV CODE	Roadlog	NUM	I-92
SEG_CNTL	DISTRICT + CONTROL SECTION	Roadlog	NUM	I-93
SEG_LNG	CALCULATED SECTION LENGTH	Roadlog	NUM	I-93
SIG_INT	SUF-NUM SIGNALIZED INTERSECTIONS	Roadlog	NUM	I-93
SPD_LIM2	POSTED SPEED LIMIT (MINUS DIRECTION)	Roadlog	NUM	I-93
SPD_LIMT	POSTED SPEED LIMIT	Roadlog	NUM	I-93
SURF_TYP	SUF-PREDOMINANT SURF TYPE	Roadlog	NUM	I-93
SURF_WID	SUF-PREDOMINANT SURF WIDTH	Roadlog	NUM	I-94
TERRAIN	SUF-PREDOMINANT TERRAIN TYPE	Roadlog	NUM	I-94
TRFGROW	SUF-FUTURE TRAFF EXPANSION FACTOR	Roadlog	NUM	I-94
TRK_RTE	SUF-NATIONAL TRUCK NETWORK	Roadlog	NUM	I-94
TURN_LN	SUF-TURNING LANE	Roadlog	NUM	I-95
URB_SYS	SUF-F.A. URB AREA SYS	Roadlog	NUM	I-95
YR_IMPR1	DATE OF LATEST CHANGE	Roadlog	NUM	I-95

SAS FORMAT DEFINITIONS FOR VARIABLES FROM THE MICHIGAN ROADLOG FILE

NOTE: SAS variable names and explanatory names are shown above each listing. (See Discussion for information on SAS formats.)

AADT **ANNUAL AVERAGE DAILY TRAFFIC**

```
00000       = 'N/OPEN TO TRAFF'
00001-00100 = '    1 -   100'
00101-00500 = '  101 -   500'
00501-01000 = '  501 - 1,000'
01001-02000 = '1,001 - 2,000'
02001-05000 = '2,001 - 5,000'
05001-10000 = '5,001 -10,000'
10001-15000 = '10,001-15,000'
15001-20000 = '15,001-20,000'
20001-40000 = '20,001-40,000'
40001-999999 = ' 40,001 + '
```

NOTE: (1) New variable added in 1991 for 1989 and later files.

(2) Because Michigan did not provide a 1993 or 1994 volume file, the AADT data in the 1994 Roadlog File are taken from the Sufficiency File. Thus, there may be some errors in milepost matches.

BAS_LNS **NUMBER OF BASIC LANES**

NON-LABELED VARIABLE -- Actual number of lanes excluding miscellaneous extra lanes included in EXT_LNL and EXT_LNR.

BEGMP **BEGINNING MLPNT OF SEGMENT**

NON-LABELED VARIABLE -- Beginning milepoint of segment -- Used in linkage with other files.

CM_NTWRK **SUF-PRIORITY COMMERCIAL NETWORK**

```
1 = 'ON THE NETWORK'
0 = 'OFF THE NETWORK'
```

NOTE: New variable added in 1997.

CNTL_SEC CONTROL SECTION

NON-LABELED VARIABLE -- Variable used in linkage to other files -- A code for a portion of the trunkline system.

COMM_ADT COMMERCIAL ADT

NON-LABELED VARIABLE -- Commercial vehicle ADT.

NOTE: New variable added in 1991 for 1989 and later files.

CURV_MIN CURVE OR BEARING MINUTES

NON-LABELED VARIABLE -- Curve minutes or bearing minutes for tangent (see DEG_CURV).

NOTE: (1) This is new information beginning in 1990.

(2) Information on horizontal curves can be separated from bearings (i.e., tangent sections) using DIR_CURV. However, some problems will remain. Better information on curves is found in the Horizontal Curve File for 1993 and later. See Discussion.

DEG_CURV CURVE OR BEARING DEGREES

NON-LABELED VARIABLE -- Curve degrees or bearing degrees for tangent (see CURV_MIN).

NOTE: (1) This is new information beginning in 1990.

(2) Information on horizontal curves can be separated from bearings (i.e., tangent sections) using DIR_CURV. However, some problems will remain. Better information on curves is found in the Horizontal Curve File for 1993 and later. See Discussion.

DIR SUF-TRAVEL DIRECTION CODE

0 = 'DUALS W/OTH RT'	Duals with another route
1 = 'NORTHBOUND'	Northbound
2 = 'SOUTHBOUND'	Southbound
3 = 'EASTBOUND'	Eastbound
4 = 'WESTBOUND'	Westbound
9 = 'TWO-WAY UNDIV'	Two-way (undivided)

NOTE: New variable added in 1991 for 1989 and later files.

DIR_CURV CURVE CODE OR BEARING DIRECTION

1 = 'RIGHT CURVE'	Right curve
2 = 'LEFT CURVE'	Left curve
3 = 'NORTH/EAST'	North/east
4 = 'NORTH/WEST'	North/west
5 = 'SOUTH/EAST'	South/east
6 = 'SOUTH/WEST'	South/west

NOTE: (1) This is new information beginning in 1990.

(2) Information on horizontal curves can be separated from bearings (i.e., tangent sections) using DIR_CURV. However, some problems will remain. Better information on curves is found in the Horizontal Curve File for 1993 and later. See Discussion.

DISTRICT DISTRICT

1 = 'FIRST DISTRICT'	Crystal Falls
2 = 'SECOND DISTRICT'	Newberry
3 = 'THIRD DISTRICT'	Cadillac
4 = 'FOURTH DISTRICT'	Alpena
5 = 'FIFTH DISTRICT'	Grand Rapids
6 = 'SIXTH DISTRICT'	Saginaw
7 = 'SEVENTH DISTRICT'	Kalamazoo
8 = 'EIGHTH DISTRICT'	Jackson
9 = 'NINTH DISTRICT'	Southfield (Metro)

ENDMP ENDING MILEPOINT OF SEGMENT

NON-LABELED VARIABLE -- Ending milepoint of segment -- Used in linkage with other files.

EXT_LNL MISCELLANEOUS EXTRA LANES(LEFT)

0 = 'NO AUXILIARY LNE'	No auxiliary lane
1 = 'TRUCK CLIMB LANE'	Truck climbing lane
2 = 'PASSING FLARE'	Passing flare
3 = 'EXTD R-TRN LANE'	Extended right-turn only lane
4 = 'EXTD L-TRN LANE'	Extended left-turn only lane
5 = 'MISC FREEWAY LAN'	Miscellaneous freeway lane
6 = 'OTHER'	Other

NOTE: It appears that a "blank" means the same as a 0 ('NO AUXILIARY LANE') for this variable.

EXT_LNR **MISCELLANEOUS EXTRA LANES(RIGHT)**

```
0 = 'NO AUXILIARY LNE'        No auxiliary lane
1 = 'TRUCK CLIMB LANE'        Truck climbing lane
2 = 'PASSING FLARE'           Passing flare
3 = 'EXTD R-TRN LANE'         Extended right-turn only lane
4 = 'EXTD L-TRN LANE'         Extended left-turn only lane
5 = 'MISC FREEWAY LAN'        Miscellaneous freeway lane
6 = 'OTHER'                   Other
```

NOTE: It appears that a "blank" means the same as a 0 ('NO AUXILIARY LANE') for this variable.

FED_AID **SUF-FEDERAL AID SYSTEM**

```
01 = 'INTERSTATE'
02 = 'F/A PRIMARY'
03 = 'F/A SECONDARY'
04 = 'F/A URBAN'
05 = 'NON-FEDERAL AID'
```

NOTE: New variable added in 1991 for 1989-1994 files. It was no longer coded after 1994.

FUNC_CLS **SUF-FUNCTIONAL CLASS**

```
01 = 'RUR-P/A -INTER'
02 = 'RUR-P/A -OTHER'
06 = 'RUR-MINOR ARTER'
07 = 'RUR-MAJOR COLLE'
08 = 'RUR-MINOR COLLE'
09 = 'RUR-LOCAL'
11 = 'URB-P/A -INTER'
12 = 'URB-P/A -OT/FWY'
14 = 'URB-P/A -OTHERS'
16 = 'URB-MINOR ARTER'
17 = 'URB-COLLECTOR'
19 = 'URB-LOCAL'
```

NOTE: (1) New variable added in 1991 for 1989 and later files.

(2) Between the 1989 and later files, urban interstate mileage decreased by approximately 100 miles due to redefining of 65 mph speed limit zones.

(3) There are inconsistencies between urban/rural designations between this variable and "Roadside Development." This is the better variable for use in determining urban/rural.

LANEWID **AVERAGE LANE WIDTH**
LANEWID2 **AVERAGE LANE WIDTH (MINUS DIRECTION)**

8 = '8 FEET OR LESS'
9 = '9 FEET'
10 = '10 FEET'
11 = '11 FEET'
12 = '12 FEET'
13 = '13 FEET'
14 = '14 FEET'
15 = '15 FEET + '

NOTE: (1) LANEWID2 is only coded for divided roadways. Thus, it will have large numbers of uncoded cases.

(2) Some limited field verification (i.e., actual field measurements) indicates some errors in data related to 11 and 12-ft lanes. We would expect similar errors for other lane widths. It appears that almost all of the errors are $\pm$ 1 ft from the actual values. However, it is acknowledged that 1 ft of lane width can have a significant affect on safety.

LSHL_TYP **SHOULDER/CURB TYPE (LEFT)**
LSHL_TY2 **SHOULDER/CURB TYPE (MINUS DIREC LEFT)**

1 = 'NO CURB'	No curb
2 = 'NO CURB W/CON'	No curb with continuously paved shoulder
3 = 'MOUNTABLE CURB'	Mountable curb
7 = 'BARRIER CURB'	Barrier curb
8 = 'VALLEY GUTTER'	Valley gutter
9 = 'CURB-POOR COND'	Curb in poor condition (nonfunctional)

NOTE: LSHL_TY2 is only coded for divided roadways. Thus, it will have large numbers of uncoded cases.

LSHLDWID **TOTAL SHOULDER WIDTH (LEFT)**
LSHL_WD2 **TOTAL SHLDR WIDTH (MINUS DIREC LEFT)**

NON-LABELED VARIABLE -- Actual width of shoulder in whole number of feet.

NOTE: LSHL_WD2 is only coded for divided roadways. Thus, it will have large numbers of uncoded cases.

MED_TYPE MEDIAN TYPE

0 = 'NO MEDIAN'	No median
1 = 'CONCRETE BARRIER'	Concrete barrier
2 = 'GUARDRAIL'	Guardrail
3 = 'GRADED-DITCH/SWL'	Graded with ditch or swale
4 = 'RAISED ISL W/CRB'	Raised island with curb
5 = 'FLAT PAVED/UNPAV'	Flat (paved or unpaved)
6 = 'RUMBLE STRIP'	Rumble strip
7 = 'MEDIAN FENCE'	Median fence
9 = 'OTHER OR UNKNOWN'	Other or unknown

NOTE: (1) This variable is only coded for divided roadways. Thus, it will have large numbers of uncoded cases. See 'NOTE' under MEDWID.

(2) Also note that this variable may not always logically agree with the median widths provided in MED_WID due to the fact that the two variables are from two different data collection methods (e.g., some "No Median" sections will have a median width). While MED_TYPE is coded for each homogeneous segment of pavement, MEDWID is the "predominant width" for longer segments of roadway.

MEDWID SUF-MEDIAN WIDTH IN FEET

0 = '0'
1-10 = '1 - 10'
11-20 = '11 - 20'
21-30 = '21 - 30'
31-40 = '31 - 40'
41-60 = '41 - 60'
61-90 = '61 - 90'
91-999 ='91 - 999'

NOTE: (1) New variable added in 1991 for 1989 and later files.

(2) This variable, extracted from the Sufficiency File, will show (narrow) median widths for some roadway sections where MED_TYPE (taken from the Segment File) will show "NO MEDIAN." Michigan staff do not know why this disagreement exists, but it is probably the result of the fact that this variable measures the "predominant width". See Discussion.

MVMT MILLION VEHICLE MILES TRAVELED

NON-LABELED VARIABLE -- Million Vehicle Miles Traveled on road segment.

NOTE: Created variable added in 1999 for all HSIS roadway-inventory files. See Discussion.

NHS_CODE **SUF-NATIONAL HIGHWAY SYSTEM**

'0' = 'NOT FED-AID ELIG'	Not federal-aid eligible
'1' = 'ON NAT HGHWY SYS'	On national highway system
'2' = 'FED-AID ELG/ STP'	Federal-aid eligible roads in Surface Transportation Program

NOTE: New variable added in 1996.

NO_LANES **NUMBER OF LANES**

NON-LABELED VARIABLE -- Number of basic travel lanes (excluding miscellaneous extra lanes listed under EXT_LNL and EXT_LNR).

ONEWAY **ROADWAY TYPE**

1 = 'ONE-WAY RDWAY'	One-way roadway
2 = 'TWO-WAY RDWAY'	Two-way roadway
3 = 'DIVIDED HIGHWAY'	Divided highway
4 = 'FREEWAY'	Freeway
5 = '2-WAY W/1-WY TRN'	Two-way roadway with one-way trunkline

PARKING1 **ON STREET PARK (LEFT)**
PARKING2 **ON STREET PARKING (RIGHT)**

0 = 'NO ON-STREET PRK'	No 'on-street' parking
1 = 'RESTRICTED PRKG'	Restricted parking (included in basic laneage code)
2 = 'ANGLE PARKING'	Angle parking
3 = 'EXCLUSIVE PARKG'	Exclusive parking lane (not included in basic laneage)

NOTE: It appears that a "blank" means the same as a 0 ('NO ON-STREET PARK') for this variable.

PASSING **NO PASSING ZONE CODE**

0 = 'N/PASS ALLOWED/B'	Passing allowed (both directions)
1 = 'N/PASS ZNE ASCND'	No passing zone (ascending direction)
2 = 'N/PASS ZNE DESCD'	No passing zone (descending)
3 = 'N/PASS ZONE/BOTH'	No passing zone (both directions)

NOTE: This variable is only coded for two-lane roadways. Thus, it will have significant numbers of uncoded cases.

PAV_WDL **PAVED SHOULDER WIDTH (LEFT)**
PAV_WDML **PAVED SHLDR WIDTH (MINUS DIREC LEFT)**

NON-LABELED VARIABLE -- Actual width of paved portion of shoulder in whole number of feet.

NOTE: PAV_WDML is only coded for divided roadways. Thus, it will have large numbers of uncoded cases.

PAV_WIDR **PAVED SHOULDER WIDTH (RIGHT)**
PAV_WDMR **PAVED SHLDR WIDTH (MINUS DIREC RIGHT)**

NON-LABELED VARIABLE -- Actual width of paved portion of shoulder in whole number of feet.

NOTE: (1) PAV_WDMR is only coded for divided roadways. Thus, it will have large numbers of uncoded cases.

(2) Some limited field verification (i.e., actual field measurements) indicates some fairly significant errors (e.g., up to 20% of the data do not match the field measurements) for all shoulder widths. It appears that the shoulder widths are rounded to an even value for widths greater than three feet (i.e., very few miles of 5, 7, or 9 ft widths). Most of the errors in the higher width categories (e.g., 8 or 10-ft shoulders) appear to be within $\pm$ 1 ft of the actual width, so grouping the data will be beneficial in analyses.

POP_GRP **SUF-POPULATION GROUP**

1 = '50,000 AND OVER'
2 = '40,000 TO 49,999'
3 = '25,000 TO 39,999'
4 = ' 5,000 TO 24,999'
5 = 'UNDER 5,OO0 INC'
9 = 'UNINCORPORATED'

NOTE: New variable added in 1991 for 1989 and later files.

RD_DEVCD **ROADSIDE DEVELOPMENT CODE**

1 = 'RURAL'	Rural
2 = 'STRIP-FRING'	Strip-fringe
3 = 'URBAN'	Urban

NOTE: There are inconsistencies in urban/rural designations between this variable and "Functional Class." Use "Functional Class" rather than this variable in determining urban/rural.

RODWYCLS ROADWAY CLASSIFICATION

'01' = 'URB FRWY >= 4 LN'	Urban freeways, four or more lanes
'02' = 'URB FRWY < 4 LN'	Urban freeways, less than 4 lanes
'03' = 'URB 2-LANE ROADS'	Urban two-lane roads
'04' = 'URB ML DV N-FREE'	Urban multi-lane divided, non-freeway
'05' = 'URB ML UND N-FRE'	Urban multilane undivided, non-freeway
'06' = 'RUR FRWY >= 4 LN'	Rural freeways, four or more lanes
'07' = 'RUR FRWY < 4 LN'	Rural freeways, less than 4 lanes
'08' = 'RUR 2-LANE ROADS'	Rural two-lane roads
'09' = 'RUR ML DV N-FREE'	Rural multilane divided, non-freeway
'10' = 'RUR ML UND N-FRE'	Rural Multilane undivided, non-freeway
'99' = 'OTHERS'	Others

NOTE: Created variable added to HSIS accident and roadway inventory files in all states in 1999. See Discussion.

ROW SUF-RIGHT OF WAY

NON-LABELED VARIABLE -- This item represents the predominant width of highway right of way occurring on the rating section.

NOTE: New variable added in 1991 for 1989 and later files.

RSHL_TYP SHOULDER/CURB TYPE (RIGHT)
RSHL_TY2 SHLDR OR CURB TYPE (MINUS DIREC RIGHT)

1 = 'NO CURB'	No curb
2 = 'NO CURB WITH CON'	No curb with continuously paved shoulder
3 = 'MOUNTABLE CURB'	Mountable curb
7 = 'BARRIER CURB'	Barrier curb
8 = 'VALLEY GUTTER'	Valley gutter
9 = 'CURB IN POR COND'	Curb in poor condition (nonfunctional)

NOTE: RSHL_TY2 is only coded for divided roadways. Thus, it will have large numbers of uncoded cases.

RSHLDWID **TOTAL SHLDR WIDTH (RIGHT)**
RSHL_WD2 **TOTAL SHLDR WIDTH (MINUS DIREC RIGHT)**

NON-LABELED VARIABLE -- Actual width of shoulder in feet.

NOTE: (1) RSHL_WD2 is only coded for divided roadways. Thus, it will have large numbers of uncoded cases.

(2) Some limited field verification (i.e., actual field measurements) indicates some fairly significant errors (e.g., up to 25% of the data do not match the field measurements) for zero shoulder width and 10 and 12-ft widths. We might expect the same errors for other widths. It appears that the 12-ft shoulders are almost always coded as 10-ft shoulders. It also appears that the shoulder widths are rounded to an even value for widths greater than three feet (i.e., very few miles of 5, 7, or 9 ft widths). Clearly, grouping the data will be beneficial in analyses.

RTE_NBR **SUF-ROUTE NUMBER**

NON-LABELED VARIABLE -- Three-digit code indicating route number for the inventoried route.

NOTE: New variable added in 1996 and later files.

RTE_TYPE **SUF-ROUTE DESIGNAT & TYPE**

0 = 'I=INTERSTATE'	Interstate
1 = 'US=FEDERAL'	Federal
2 = 'M=STATE'	State
3 = 'I-BL=INST B-LOP'	Interstate - Business loop
4 = 'I-BS=INST B-SPR'	Interstate - Business spur
5 = 'US-BR=FED BUS'	Federal Business
7 = 'M-BR= STATE BUS'	State Business
8 = 'CONN.=CONNECTOR'	Connector
9 = 'OLD=UNSGN TRKLNE'	Unsigned Trunkline

NOTE: New variable added in 1991 for 1989 and later files.

RURURB **SUF-RUR/URB DEV CODE**

1 = 'RURAL'
2 = 'RUR DENSE SM CTY'
3 = 'RUR SM CITY BNDY'
4 = 'URB-RUR CHARACT'
5 = 'URB RESIDENTIAL'
6 = 'URB BUS DISTRICT'
7 = 'URB FRINGE AREA'
8 = 'URB CBD'

NOTE: New variable added in 1991 for 1989 and later files.

SEG_CNTL DISTRICT + CONTROL SECTION

NON-LABELED VARIABLE -- District plus control section number -- Used in linking with Accident and other inventory files.

NOTE: New variable added in 1991 for 1989 and later files.

SEG_LNG CALCULATED SECTION LENGTH

NON-LABELED VARIABLE -- Calculated segment length based on beginning and ending mileposts.

NOTE: New variable added in 1991 for 1989 and later files.

SIG_INT SUF-NUM SIGNALIZED INTERSECTIONS

0 = 'NO SIG INTERSECT'
1 = 'ONE OR MORE SIGN'

NOTE: New variable added in 1991 for 1989 and later files.

SPD_LIMT POSTED SPEED LIMIT
SPD_LIM2 POSTED SPEED LIMIT (MINUS DIRECTION)

NON-LABELED VARIABLE -- Speed limit in miles per hour.

NOTE: (1) These variables contain more uncoded cases than other variables in the 1985-88 files. The percent uncoded decreased significantly in the 1989 and later files.

(2) SPD_LIM2 is only coded for divided roadways. Thus, it will have large numbers of uncoded cases.

SURF_TYP SUF-PREDOMINANT SURF TYPE

1 = 'SRF TRT OV BIT-F'	Surface treatment over bituminous pavement on flexible base
2 = 'SRF TRT OV BIT-R'	Surface treatment over bituminous pavement on rigid base
3 = 'SRF TRT OVR FLEX'	Surface treatment over flexible base
4 = 'BIT MAT OVR FLEX'	Bituminous material over flexible base
5 = 'BIT MAT OVR CNCT'	Bituminous mtrl over concrete or brick
6 = 'CONT REINF CNCRT'	Continuous reinforced concrete
7 = 'CONCRETE(JOINTD)'	Concrete (jointed)
8 = 'BRICK'	Brick
9 = 'FRWY BITUM CNCRT'	Freeway designed bituminous concrete on aggregate base

NOTE: New variable added in 1991 for 1989 and later files.

SURF_WID **SUF-PREDOMINANT SURF WIDTH**

```
0  = '0'
1-15 = ' 1 - 15'
16-18 = '16 - 18'
19-22 = '19 - 22'
23-25 = '23 - 25'
26-30 = '26 - 30'
31-40 = '31 - 40'
41-50 = '41 - 50'
51-60 = '51 - 60'
61-80 = '61 - 80'
81-100 = '81 - 100'
101-120 = '101 - 120'
121-high = '121 + '
```

NOTE: New variable added in 1991 for 1989 and later files.

TERRAIN **SUF-PREDOMINANT TERRAIN TYPE**

```
1 = 'LEVEL'
2 = 'ROLLING'
```

NOTE: New variable added in 1991 for 1989 and later files.

TRFGROW **SUF-FUTURE TRAFF EXPANSION FACTOR**

NON-LABELED VARIABLE -- Predicted future annual traffic growth expansion factor ('071' = 7.1%).

NOTE: New variable added in 1991 for 1989 and later files. No data were collected in 1994, and the 1997 data appear to be erroneous.

TRK_RTE **SUF-NATIONAL TRUCK NETWORK**

(This variable is related to both the National Truck Network (NTN) and spring load restrictions on route segments.)

0 = 'NOT APPLICABLE'	Not applicable
1 = 'NTN+NO SL RESTR'	On National Truck Network and not spring load restricted
2 = 'TR - NO SL RESTR'	Additional truck route (not NTN), not spring load restricted,
3 = 'NO TR - NO RESTR'	Not a special designated truck route, not spring load restricted,
4 = 'SL RESTR/RGID PV'	Spring load restricted, rigid pavement
5 = 'SL RESTR/FLEX PV'	Spring load restricted, flexible pavement

NOTE: New variable added in 1997.

TURN_LN **SUF-TURNING LANE**

0 = 'RUR/NO LNS'	Rural or no special designated turn lanes
1 = 'LFT TURN LN'	Left turn lane only (including continuous left turn lane)
2 = 'RGHT TURN LN'	Right turn lane only
3 = 'RGHT+LFT LNS'	Both right and left turn lanes on rating section

NOTE: New variable added in 1991 for 1989 and later files. No coded data in 1994.

URB_SYS **SUF-F.A. URB AREA SYS**

NON-LABELED VARIABLE -- Four-digit code indicating urban or urbanized area for this roadway segment.

NOTE: New variable added in 1991 for 1989 and later files.

YR_IMPR1 **DATE OF LATEST CHANGE**

NON-LABELED VARIABLE -- Effective date of latest change in roadway geometry or operation (MMDDYY).

LIST OF VARIABLES FOR MICHIGAN HORIZONTAL CURVE FILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
BEGMP	HORIZONTAL CURVE BEGINNING MILEPOST	Horiz Curve	NUM	I-99
DEG_CURV	HORIZONTAL CURVE DEGREE	Horiz Curve	NUM	I-99
DIR_CURV	HORIZONTAL CURVE DIRECTION	Horiz Curve	CHA(1)	I-99
DIS_CNTL	DISTRICT + CONTROL SECTION	Horiz Curve	NUM	I-99
ENDMP	HORIZONTAL CURVE ENDING MILEPOST	Horiz Curve	NUM	I-99
SEG_LNG	CALCULATED SECTION LENGTH	Horiz Curve	NUM	I-99

SAS FORMAT DEFINITIONS FOR VARIABLES FROM THE MICHIGAN HORIZONTAL CURVE FILE

NOTE: (1) This is a new file beginning in 1992. Less reliable data on Curves is available in the Roadlog File for 1990-91. See Discussion.

(2) SAS variable names and explanatory names are shown above each listing. (See Discussion for information on SAS formats.)

BEGMP **HORIZONTAL CURVE BEGINNING MILEPOST**

NON-LABELED VARIABLE -- Beginning milepost for curve.

DIS_CNTL **DISTRICT + CONTROL SECTION**

NON-LABELED VARIABLE -- Used in linkage with other files.

DEG_CURV **HORIZONTAL CURVE DEGREE**

NON-LABELED VARIABLE -- Degree of curve (xx.x).

DIR_CURV **HORIZONTAL CURVE DIRECTION**

'L' = 'LEFT'
'R' = 'RIGHT'

ENDMP **HORIZONTAL CURVE ENDING MILEPOST**

NON-LABELED VARIABLE -- Ending milepost of curve.

SEG_LNG **CALCULATED SECTION LENGTH**

NON-LABELED VARIABLE -- Calculated curve length in miles.

LIST OF VARIABLES FOR MICHIGAN INTERSECTION FILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
APP_LFTP	TRUNKLINE APPROACH LEG - LFT TURN PHASE	Intersection	NUM	I-103
APP_NOLF	TRUNKLINE APPROACH LEG - LFT TRN PROHIB	Intersection	NUM	I-103
APP_NTOR	TRUNKLINE APPROACH LEG - NO TRN ON RED	Intersection	NUM	I-104
AXLN_AL	NO. OF AUX LNS – TRNK APPROACH LEFT SIDE	Intersection	NUM	I-104
AXLN_AR	NO. OF AUX LNS - TRNK APPROACH RIGHT SIDE	Intersection	NUM	I-104
AXLN_DL	NO. OF AUX LNS - TRNK DEPARTURE LEFT SIDE	Intersection	NUM	I-104
AXLN_DR	NO. OF AUX LNS - TRNK DEPARTURE RIGHT SIDE	Intersection	NUM	I-104
CHNG_DT	DATE OF ACTUAL PHYSICAL CHANGE	Intersection	NUM	I-105
CNTL_SEC	CONTROL SECTION	Intersection	NUM	I-105
CNTL_SPT	CONTROL SECT OF INTERSEC - SPOT NBR	Intersection	NUM	I-105
CRA_LFTP	CROSSRD APPROACH LEG - LFT TURN PHASE	Intersection	NUM	I-105
CRA_NOLF	CROSSRD APPROACH LEG - LFT TURN PROHIB	Intersection	NUM	I-105
CRA_NTOR	CROSSRD APPROACH LEG - NO TURN ON RED	Intersection	NUM	I-105
CRD_LFTP	CROSSRD DEPARTURE LEG - LFT TURN PHASE	Intersection	NUM	I-105
CRD_NOLF	CROSSRD DEPARTURE LEG - LFT TRN PROHIB	Intersection	NUM	I-106
CRD_NTOR	CROSSRD DEPARTURE LEG - NO TRN ON RED	Intersection	NUM	I-106
CRX_DESC	CROSSROAD ENGLISH DESCRIPTION	Intersection	CHA(18)	I-106
DISTRICT	DISTRICT	Intersection	NUM	I-106
DPR_LFTP	TRUNKLINE DEPARTURE LEG - LFT TURN PHASE	Intersection	NUM	I-106
DPR_NOLF	TRUNKLINE DEPARTURE LEG - LFT TRN PROHIB	Intersection	NUM	I-106
DPR_NTOR	TRUNKLINE DEPARTURE LEG - NO TRN ON RED	Intersection	NUM	I-106
INT_CNTL	DISTRICT + CONTROL SECTION	Intersection	NUM	I-106
INT_FLG	TRUNKLINE INTERSECTION FLAG	Intersection	NUM	I-107
INT_SPT	INTERSECTION SPOT NUMBER	Intersection	CHA(3)	I-107
INT_TYP	INTERSECTION TYPE CODE	Intersection	NUM	I-107
LEFT_TRN	LEFT TURN PROHIBITION	Intersection	NUM	I-108
LOC_GOV	LOCAL GOVERNMENT	Intersection	CHA(12)	I-109
MILEPOST	CONTROL SECTION MILEPOINT	Intersection	NUM	I-109

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LIST OF VARIABLES FOR MICHIGAN INTERSECTION FILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
NBR_LEGS	NUMBER OF INTERSECTION LEGS	Intersection	NUM	I-109
NBR_PHS	NUMBER OF PHASES	Intersection	NUM	I-109
RED_CLR	ALL RED CLEARANCE PHASE	Intersection	NUM	I-109
RGHT_TRN	RIGHT TURN PROHIBITION	Intersection	NUM	I-110
SIG_TYP	SIGNAL CONTROL TYPE CODE	Intersection	NUM	I-110
TRK_DESC	TRUNKLINE ENGLISH DESCRIPTION	Intersection	CHA(12)	I-110
TRN_RED	NO TURN ON RED	Intersection	NUM	I-111
ZONE_BMP	BEGIN MILEPOINT OF INFLUENCE ZONE	Intersection	NUM	I-111
ZONE_EMP	END MILEPOINT OF INFLUENCE ZONE	Intersection	NUM	I-111

SAS FORMAT DEFINITIONS FOR VARIABLES FROM THE MICHIGAN INTERSECTION FILE

NOTE: SAS variable names and explanatory names are shown above each listing. (See Discussion for information on SAS formats.)

APP_LFTP TRUNKLINE APPROACH LEG - LFT TURN PHASE

0, . = 'NO LEFT TURN PHS'	No left turn phase
1 = 'EXCL LFT TRN LAG'	Exclusive left turn lag
2 = 'EXCL LFT TRN LD'	Exclusive left turn lead
3 = 'LFT TRN LAG/THRU'	Exclusive left turn lag with thru movement
4 = 'LFT TRN LD/THRU'	Exclusive left turn lead with thru movement
5 = 'LFT TRN PHS/THRU'	Left turn phase with thru movement (3 phases)
6 = 'FULL ACT W/THRU'	Fully actuated with thru movement (8 phases)
7 = 'NO LEFT TURN'	No left turn
8 = 'LFT TRN W/THRU'	Left turn with thru movement

NOTE: New variable added in 1997.

APP_NOLF TRUNKLINE APPROACH LEG - LFT TRN PROHIB

0, . = 'LFT TRN OK'	Left turn allowed from this approach
1 = 'NO LFT/SOUTH APP'	Left turn prohibited - this is a south approach
2 = 'NO LFT/SW APPR'	Left turn prohibited - this is a southwest appr
3 = 'NO LFT/WEST APP'	Left turn prohibited - this is a west approach
4 = 'NO LFT/NW APPR'	Left turn prohibited - this is a northwest appr
5 = 'NO LFT/NORTH APP'	Left turn prohibited - this is a north approach
6 = 'NO LFT/NE APPR'	Left turn prohibited - this is a northeast appr
7 = 'NO LFT/EAST APP'	Left turn prohibited - this is an east appr
8 = 'NO LFT/SE APPR'	Left turn prohibited - this is a southeast appr

NOTE: (1) This variable gives both the left-turn prohibition and the entering direction of the leg. Thus, "0" or blank implies no prohibition, and any code 1-7 indicates a prohibition for this approach.

(2) New variable added in 1997

APP_NTOR TRUNKLINE APPROACH LEG - NO TRN ON RED

0, . = 'TRN ON RED OK'	Right turn on red allowed
1 = 'NO TOR/SOUTH APP'	No turn on red - this is a south approach
2 = 'NO TOR/SW APPR'	No turn on red - this is a southwest appr
3 = 'NO TOR/WEST APP'	No turn on red - this is a west approach
4 = 'NO TOR/NW APPR'	No turn on red - this is a northwest appr
5 = 'NO TOR/NORTH APP'	No turn on red - this is a north approach
6 = 'NO TOR/NE APPR'	No turn on red - this is a northeast appr
7 = 'NO TOR/EAST APP'	No turn on red - this is an east appr
8 = 'NO TOR/SE APPR'	No turn on red - this is a southeast appr

NOTE: (1) This variable gives both the NTOR prohibition and the entering direction of the leg. Thus, "0" or blank implies no prohibition, and any code 1-7 indicates a prohibition for this approach.

(2) New variable added in 1997

AXLN_AL NO. OF AUX LNS - TRNK APPROACH LEFT SIDE

NON-LABELED VARIABLE -- Number of auxiliary lanes -- Left side of trunkline approach.

AXLN_AR NO. OF AUX LNS - TRNK APPROACH RIGHT SIDE

NON-LABELED VARIABLE -- Number of auxiliary lanes -- Right side of trunkline approach.

AXLN_DL NO. OF AUX LNS - TRNK DEPARTURE LEFT SIDE

NON-LABELED VARIABLE -- Number of auxiliary lanes -- Left side of trunkline departure.

AXLN_DR NO. OF AUX LNS - TRNK DEPARTURE RIGHT SIDE

NON-LABELED VARIABLE -- Number of auxiliary lanes -- Right side of trunkline departure.

CHNG_DT **DATE OF ACTUAL PHYSICAL CHANGE**

NON-LABELED VARIABLE -- Effective date of the latest change in the intersection geometry or operation (MMDDYY).

CNTL_SEC **CONTROL SECTION**

NON-LABELED VARIABLE -- Code that identifies the portion of the trunkline system where this intersection is located. This is used in linkage to other files. (See INT_CNTL.)

CNTL_SPT **CONTROL SECT OF INTERSEC - SPOT NBR**

NON-LABELED VARIABLE -- This is the control section for the intersection "Spot Number." It is used with INT_SPT in linkage to the Electrical Traffic Control Device Inventory (see Discussion).

CRA_LFTP **CROSSRD APPROACH LEG - LFT TURN PHASE**

See format under APP_LFTP.

NOTE: New variable added in 1997.

CRA_NOLF **CROSSRD APPROACH LEG - LFT TURN PROHIB**

See format under APP_NOLF.

NOTE: New variable added in 1997.

CRA_NTOR **CROSSRD APPROACH LEG - NO TURN ON RED**

See format under APP_NTOR.

NOTE: New variable added in 1997.

CRD_LFTP **CROSSRD DEPARTURE LEG - LFT TURN PHASE**

See format under APP_LFTP.

NOTE: New variable added in 1997.

CRD_NOLF **CROSSRD DEPARTURE LEG - LFT TRN PROHIB**

See format under APP_NOLF.

NOTE: New variable added in 1997.

CRD_NTOR **CROSSRD DEPARTURE LEG - NO TRN ON RED**

See format under APP_NTOR.

NOTE: New variable added in 1997.

CRX_DESC **CROSSROAD ENGLISH DESCRIPTION**

NON-LABELED VARIABLE -- Street name of the crossroad.

DISTRICT **DISTRICT**

NON-LABELED VARIABLE -- Districts 1-9 -- See DISTRICT in Roadlog File.

DPR_LFTP **TRUNKLINE DEPARTURE LEG - LFT TURN PHASE**

See format under APP_LFTP.

NOTE: New variable added in 1997.

DPR_NOLF **TRUNKLINE DEPARTURE LEG - LFT TRN PROHIB**

See format under APP_NOLF.

NOTE: New variable added in 1997.

DPR_NTOR **TRUNKLINE DEPARTURE LEG - NO TRN ON RED**

See format under APP_NTOR.

NOTE: New variable added in 1997.

INT_CNTL **DISTRICT + CONTROL SECTION**

NON-LABELED VARIABLE -- Combination of DISTRICT and CNTL_SEC used in linking with other files. (See Discussion.)

INT_FLG TRUNKLINE INTERSECTION FLAG

1 = 'NOT TRK/TRNK'	Not a trunkline-trunkline intersection
2 = 'MJR LEG TRK/TRNK'	Major leg -- trunkline-trunkline intersection
3 = 'MNR LEG TRK/TRNK'	Minor leg -- trunkline-trunkline intersection
4 = 'NON-PUBLIC INTER'	Intersection of non-public roads (e.g., private roads, commercial drives)

INT_SPT INTERSECTION SPOT NUMBER

NON-LABELED VARIABLE -- A reference number used with CNTL_SPT in linkage to the Electrical Traffic Control Device Inventory. (See Discussion.)

INT_TYP INTERSECTION TYPE CODE

<u>Crossroads</u>	
01 = 'CRSRD CROSS'	Cross
02 = 'CRSRD BRKN CRS'	Broken cross
03 = 'CRSRD MULTI LEG'	Multiple-leg
04 = 'CRSRD SKEW'	Skew
05 = 'CRSRD BROKEN SKEW'	Broken skew
06 = 'CRSRD OBTUSE SKW'	Obtuse skew
07 = 'CRSRD BRKN OB SK'	Broken obtuse skew
08 = 'CRSRD OFFSET L/R'	Offset crossroads, first intersecting road on left in direction of inventory
09 = 'CRSRD OFFSET R/L'	Offset crossroads, first intersecting road on right in direction of inventory
<u>Tees</u>	
10 = 'TEE LEFT'	Left
11 = 'TEE RIGHT'	Right
12 = 'TEE TERMINAL'	Terminal
13 = 'TEE BROKEN LEFT'	Broken tee left
14 = 'TEE BROKEN RIGHT'	Broken tee right
15 = 'TEE LEFT W/CRSOV'	Left with crossover
16 = 'TEE RGTH W/CRSOV'	Right with crossover
<u>WYES</u>	
20 = 'WYE OBTUSE LEFT'	Obtuse wye left
21 = 'WYE OBTUS BRK LF'	Obtuse broken wye left
22 = 'WYE ACUTE LEFT'	Acute wye left
23 = 'WYE ACUTE BRK LF'	Acute broken wye left
24 = 'WYE OBTUSE RIGHT'	Obtuse wye right
25 = 'WYE OBTUS BRK RT'	Obtuse broken wye right

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26 = 'WYE ACUTE RIGHT' Acute wye right
27 = 'WYE ACUTE BRK RT' Acute broken wye right

Merges and Diverges

30 = 'MRGE FRM LFT' Merge from left
31 = 'MRGE FRM RGT' Merge from right
32 = 'DIVERG TO LFT' Diverge to left
33 = 'DIVERT TO RGT' Diverge to right
34 = 'MRGE FRM LFT(-)' Merge from left - negative
35 = 'MRGE FRM RGT(-)' Merge from right – negative
36 = 'DIVERG TO LFT(-)' Diverge to left - negative
37 = 'DIVERG TO RGT(-)' Diverge to right - negative

Miscellaneous

40 = 'MISC D/R M/R (-)' Diverge right with merge right in negative direction
41 = 'MISC M/R D/R (-)' Merge right with diverge right in negative direction
45 = 'MISC DIR-CRS TO-' Directional crossover to negative direction
46 = 'MISC DIR-CRS FM-' Directional crossover from negative direction
48 = 'MISC 3-LG RMP TM' 3-leg ramp terminal
49 = 'MISC 4-LG RMP TM' 4-leg ramp terminal
59 = 'OTHER' Other

LEFT_TRN LEFT TURN PROHIBITION

NON-LABELED VARIABLE -- This is a 5-character variable which identifies any/all approaches for which a left turn is prohibited. Each character may take on one (or none) of the following values. The data is "right justified." Thus a combination of "135" would indicate left-turn prohibition on the south, west, and north approaches.

1 = South approach (north bound)
2 = Southwest approach (northeast bound)
3 = West approach (east bound)
4 = Northwest approach (southeast bound)
5 = North approach (south bound)
6 = Northeast approach (southwest bound)
7 = East approach (west bound)
8 = Southeast approach (northwest bound)

NOTE: Although still in the file for later years, collection of these data appears to have essentially ended after 1993.

LOC_GOV LOCAL GOVERNMENT

NON-LABELED VARIABLE -- The name of the local government.

MILEPOST CONTROL SECTION MILEPOINT

NON-LABELED VARIABLE -- Mileage along control section.

NBR_LEGS NUMBER OF INTERSECTION LEGS

NON-LABELED VARIABLE -- Number of intersection legs, up to 9.

NBR_PHS NUMBER OF PHASES

NON-LABELED VARIABLE -- Number of signal phases.

NOTE: It appears that the data are more accurate for 1990-1996, but are not accurate for 1987, 1989, or 1997.

RED_CLR ALL RED CLEARANCE PHASE

0, . = 'NO RED CLEAR PHS'	No all-red clearance phase on this approach
1 = 'RED CL/SOUTH APP'	All red clearance phase - this is a south approach
2 = 'RED CL/SW APPR'	All red clearance phase - this is a southwest appr
3 = 'RED CL/WEST APP'	All red clearance phase - this is a west approach
4 = 'RED CL/NW APPR'	All red clearance phase - this is a northwest appr
5 = 'RED CL/NORTH APP'	All red clearance phase - this is a north approach
6 = 'RED CL/NE APPR'	All red clearance phase - this is a northeast appr
7 = 'RED CL/EAST APP'	All red clearance phase - this is an east appr
8 = 'RED CL/SE APPR'	All red clearance phase - this is a southeast appr

NOTE: (1) This variable gives both presence of an all-red clearance phase and the entering direction of the leg. Thus, "0" or blank implies no all-red phase, and any code 1-7 indicates an all-red clearance phase for this approach.

(2) New variable added in 1997

RGHT_TRN RIGHT TURN PROHIBITION

NON-LABELED VARIABLE -- This is a 5-character variable which identifies any/all approaches for which a right turn on red is prohibited. Each character may take on one (or none) of the following values. The data is "right justified." Thus a combination of "135" would indicate right-turn prohibition on the south, west, and north approaches.

1 = South approach (north bound)
2 = Southwest approach (northeast bound)
3 = West approach (east bound)
4 = Northwest approach (southeast bound)
5 = North approach (south bound)
6 = Northeast approach (southwest bound)
7 = East approach (west bound)
8 = Southeast approach (northwest bound)

NOTE: Although still in the file for later years, collection of these data appears to have essentially ended after 1993.

SIG_TYP SIGNAL CONTROL TYPE CODE

0 = 'NO SIGNAL'	No signal
1 = 'FIXED TIME SIGNL'	Fixed time signal
2 = 'SEMI ACTUL SIGNL'	Semi-actuated signal
3 = 'FULLY ACTUL SIGN'	Fully-actuated signal
4 = 'FLASHER '	Flasher

NOTE: The data in this variable does not match well with the data in the variable related to "Number of Signal Phases". See Discussion.

TRK_DESC TRUNKLINE ENGLISH DESCRIPTION

NON-LABELED VARIABLE -- Local street name of the trunkline.

TRN_RED NO TURN ON RED

NON-LABELED VARIABLE -- This is a 5-character variable which identifies any/all approaches for which a turn on red is prohibited. Each character may take on one (or none) of the following values. The data is "right justified." Thus a combination of "135" would indicate right-turn-on-red prohibition on the south, west, and north approaches.

1 = South approach (north bound)
2 = Southwest approach (northeast bound)
3 = West approach (east bound)
4 = Northwest approach (southeast bound)
5 = North approach (south bound)
6 = Northeast approach (southwest bound)
7 = East approach (west bound)
8 = Southeast approach (northwest bound)

NOTE: Although still in the file for later years, collection of these data appears to have essentially ended after 1993.

ZONE_BMP BEGIN MILEPOINT OF INFLUENCE ZONE

NON-LABELED VARIABLE -- Midpoint to the previous intersection in control section.

ZONE_EMP END MILEPOINT OF INFLUENCE ZONE

NON-LABELED VARIABLE -- Midpoint to next intersection in control section.

LIST OF VARIABLES FOR MICHIGAN
ELECTRICAL TRAFFIC CONTROL DEVICE INVENTORY

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
ARR_TY1	TURNING ARROW TYPE - CONFIG 1	Signal	CHA(2)	I-119
ARR_TY2	TURNING ARROW TYPE - CONFIG 2	Signal	CHA(2)	I-119
ARR_TY3	TURNING ARROW TYPE - CONFIG 3	Signal	CHA(2)	I-119
ARR_YR1	YEAR OF INSTALL - CONFIG 1	Signal	NUM	I-119
ARR_YR2	YEAR OF INSTALL - CONFIG 2	Signal	NUM	I-119
ARR_YR3	YEAR OF INSTALL - CONFIG 3	Signal	NUM	I-119
BIL_CDE	BILLING CODE	Signal	CHA(1)	I-119
BIL_CDE1	BILLING CODE AGENCY NO. 1	Signal	CHA(1)	I-119
BIL_CDE2	BILLING CODE AGENCY NO. 2	Signal	CHA(1)	I-119
BIL_CDE3	BILLING CODE AGENCY NO. 3	Signal	CHA(1)	I-119
BIL_CDE4	BILLING CODE AGENCY NO. 4	Signal	CHA(1)	I-119
BIL_CDE5	BILLING CODE AGENCY NO. 5	Signal	CHA(1)	I-119
CAS_TYP1	CASE SIGNS TYPE - CONFIG 1	Signal	CHA(2)	I-120
CAS_TYP2	CASE SIGNS TYPE - CONFIG 2	Signal	CHA(2)	I-120
CAS_TYP3	CASE SIGNS TYPE - CONFIG 3	Signal	CHA(2)	I-120
CAS_TYP4	CASE SIGNS TYPE - CONFIG 4	Signal	CHA(2)	I-120
CIRC_ONE	FIRST CIRCUIT NUMBER	Signal	CHA(16)	I-120
CIRC_THR	THIRD CIRCUIT NUMBER	Signal	CHA(16)	I-120
CIRC_TWO	SECOND CIRCUIT NUMBER	Signal	CHA(16)	I-120
CIRCUIT	CIRCUIT USAGE CODE	Signal	CHA(3)	I-120
CMP_DTE	LIST OF PEDESTRIAN SIGNALS COMPLETE	Signal	CHA(1)	I-121
CNTL_SEC	CONTROL SECTION	Signal	NUM	I-121
CNTY_CD	COUNTY CODE	Signal	NUM	I-121
COMP_DTE	WORK ORDER COMPLETION DATE	Signal	CHA(6)	I-121
COMPLT	LIST OF SIGNAL HEAD COMPLETE	Signal	CHA(1)	I-121
CON_MDL	CONTROLLER MODEL	Signal	CHA(6)	I-121
CON_TY1	MEANS OF INTERCONNECT, TYPE NO 1	Signal	CHA(2)	I-122
CON_TY2	MEANS OF INTERCONNECT, TYPE NO 2	Signal	CHA(2)	I-122
CON_YR	CONTROLLER INSTALLATION YEAR	Signal	CHA(2)	I-122
CST_EST	FINAL TOTAL WORK ORDER COST ESTIMATE	Signal	NUM	I-122
DEV_TYP	DEVICE TYPE	Signal	NUM	I-123
DISTRICT	DISTRICT	Signal	NUM	I-123
DRW_MAT	DRAWING ON MATES	Signal	CHA(1)	I-123
INIT_RQS	INITIAL REQUEST DATE	Signal	NUM	I-123
INTCON	INTERCONNECT TYPE	Signal	CHA(1)	I-123
INV_WO_C	WORK ORDER COMPLETION DATE	Signal	NUM	I-123
LFT_TRN	LEFT TURN PROHIBITION	Signal	CHA(5)	I-124
LNS_SIZ1	PED SIG HEAD TYPE - LENS SIZE CONFIG 1	Signal	CHA(2)	I-124
LNS_SIZ2	PED SIG HEAD TYPE - LENS SIZE CONFIG 2	Signal	CHA(2)	I-124

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LIST OF VARIABLES FOR MICHIGAN
ELECTRICAL TRAFFIC CONTROL DEVICE INVENTORY

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
LNS_SIZ3	PED SIG HEAD TYPE - LENS SIZE CONFIG 3	Signal	CHA(2)	I-124
LOC_AGN1	LOCAL AGENCY NO. 1 CODE	Signal	NUM	I-124
LOC_AGN2	LOCAL AGENCY NO. 2 CODE	Signal	CHA(5)	I-124
LOC_AGN3	LOCAL AGENCY NO. 3 CODE	Signal	CHA(5)	I-124
LOC_AGN4	LOCAL AGENCY NO. 4 CODE	Signal	CHA(5)	I-124
LOC_AGN5	LOCAL AGENCY NO. 5 CODE	Signal	CHA(5)	I-124
LOC_DES	LOCATION DESCRIPTION	Signal	CHA(40)	I-125
MANUF1	MANUF OF PED SIGNAL HEAD - CONFIG 1	Signal	CHA(1)	I-125
MANUF2	MANUF OF PED SIGNAL HEAD - CONFIG 2	Signal	CHA(1)	I-125
MANUF3	MANUF OF PED SIGNAL HEAD - CONFIG 3	Signal	CHA(1)	I-125
MANUFAC1	MANUF OF SIGNAL HEAD - CONFIG 1	Signal	CHA(1)	I-125
MANUFAC2	MANUF OF SIGNAL HEAD - CONFIG 2	Signal	CHA(1)	I-125
MANUFAC3	MANUF OF SIGNAL HEAD - CONFIG 3	Signal	CHA(1)	I-125
MAT_CDE1	MATERIAL CODE - CONFIG 1	Signal	CHA(1)	I-125
MAT_CDE2	MATERIAL CODE - CONFIG 2	Signal	CHA(1)	I-125
MAT_CDE3	MATERIAL CODE - CONFIG 3	Signal	CHA(1)	I-125
MATE_CD1	PED SIGNAL MATERIAL CODE - CONFIG 1	Signal	CHA(1)	I-125
MATE_CD2	PED SIGNAL MATERIAL CODE - CONFIG 2	Signal	CHA(1)	I-125
MATE_CD3	PED SIGNAL MATERIAL CODE - CONFIG 3	Signal	CHA(1)	I-125
MET_SEV	METERED SERVICE	Signal	CHA(1)	I-125
MILEPOST	MILEPOST	Signal	NUM	I-125
MKE_CON	MAKE OF CONTROLLER	Signal	CHA(1)	I-126
MN_CDE1	MAINTENANCE CODE - AGENCY NO. 1	Signal	CHA(1)	I-126
MN_CDE2	MAINTENANCE CODE - AGENCY NO. 2	Signal	CHA(1)	I-126
MN_CDE3	MAINTENANCE CODE - AGENCY NO. 3	Signal	CHA(1)	I-126
MN_CDE4	MAINTENANCE CODE - AGENCY NO. 4	Signal	CHA(1)	I-126
MN_CDE5	MAINTENANCE CODE - AGENCY NO. 5	Signal	CHA(1)	I-126
MNT_CDE	MAINTENANCE CODE	Signal	CHA(1)	I-126
NBR_CAS1	NUMBER OF CASE SIGNS - CONFIG 1	Signal	NUM	I-126
NBR_CAS2	NUMBER OF CASE SIGNS - CONFIG 2	Signal	CHA(1)	I-126
NBR_CAS3	NUMBER OF CASE SIGNS - CONFIG 3	Signal	CHA(1)	I-126
NBR_CAS4	NUMBER OF CASE SIGNS - CONFIG 4	Signal	CHA(1)	I-126
NBR_FAC1	PED SIG HEAD TYPE - NBR FACING CONFIG 1	Signal	CHA(2)	I-127
NBR_FAC2	PED SIG HEAD TYPE - NBR FACING CONFIG 2	Signal	CHA(2)	I-127

(CON'T)

LIST OF VARIABLES FOR MICHIGAN
ELECTRICAL TRAFFIC CONTROL DEVICE INVENTORY

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
NBR_FAC3	PED SIG HEAD TYPE - NBR FACING CONFIG 3	Signal	CHA(2)	I-127
NBR_LGHT	NUMBER OF STREET LIGHTS	Signal	NUM	I-127
NBR_PHS	NUMBER OF PHASES	Signal	NUM	I-127
NO_TRN	NO TURN ON RED	Signal	CHA(5)	I-127
PED_SIG1	NUMBER OF PED SIGNAL HEAD - CONFIG 1	Signal	NUM	I-128
PED_SIG2	NUMBER OF PED SIGNAL HEAD - CONFIG 2	Signal	NUM	I-128
PED_SIG3	NUMBER OF PED SIGNAL HEAD - CONFIG 3	Signal	NUM	I-128
POWER_CO	POWER COMPANY	Signal	CHA(3)	I-128
PRT_PCN1	PARTICIPATION PERCENT - AGENCY NO. 1	Signal	NUM	I-128
PRT_PCN2	PARTICIPATION PERCENT - AGENCY NO. 2	Signal	NUM	I-128
PRT_PCN3	PARTICIPATION PERCENT - AGENCY NO. 3	Signal	NUM	I-128
PRT_PCN4	PARTICIPATION PERCENT - AGENCY NO. 4	Signal	NUM	I-128
PRT_PCN5	PARTICIPATION PERCENT - AGENCY NO. 5	Signal	NUM	I-128
PRT_PCNT	PARTICIPATION PERCENT	Signal	NUM	I-128
REMOTE	REMOTE FEATURES	Signal	CHA(3)	I-128
RF_BRDG_	REMOTE FEATURES-COMPUTER CONTROLLED	Signal	CHA(1)	I-129
RF_COMP_	REMOTE FEATURES-OPTICOM PREEMPT	Signal	CHA(1)	I-129
RF_FIRE_	REMOTE FEATURES-FIRE PREEMPT	Signal	CHA(1)	I-129
RF_MNUL_	REMOTE FEATURES-RAILROAD PREEMPT	Signal	CHA(1)	I-129
RF_OPT_P	REMOTE FEATURES-BRIDGE SIGNALS	Signal	CHA(1)	I-129
RF_RR_PR	REMOTE FEATURES-MANUAL OVERRIDE	Signal	CHA(1)	I-130
RGHT_TRN	RIGHT TURN PROHIBITION	Signal	CHA(5)	I-130
SIG_COL1	SIGNAL HEAD NBR OF COLORS - CONFIG 1	Signal	CHA(2)	I-130
SIG_COL2	SIGNAL HEAD NBR OF COLORS - CONFIG 2	Signal	CHA(2)	I-130
SIG_COL3	SIGNAL HEAD NBR OF COLORS - CONFIG 3	Signal	CHA(2)	I-130
SIG_FAC1	SIGNAL HEAD NBR OF FACING - CONFIG 1	Signal	CHA(2)	I-131
SIG_FAC2	SIGNAL HEAD NBR OF FACING - CONFIG 2	Signal	CHA(2)	I-131
SIG_FAC3	SIGNAL HEAD NBR OF FACING - CONFIG 3	Signal	CHA(2)	I-131

(CON'T)

LIST OF VARIABLES FOR MICHIGAN
ELECTRICAL TRAFFIC CONTROL DEVICE INVENTORY

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
SIG_LEN1	SIGNAL HEAD LENS SIZE - CONFIG 1	Signal	NUM	I-131
SIG_LEN2	SIGNAL HEAD LENS SIZE - CONFIG 2	Signal	NUM	I-131
SIG_LEN3	SIGNAL HEAD LENS SIZE - CONFIG 3	Signal	NUM	I-131
SIG_SUP1	SIGNAL HEAD SUPP TYPE - CONFIG 1	Signal	CHA(2)	I-132
SIG_SUP2	SIGNAL HEAD SUPP TYPE - CONFIG 2	Signal	CHA(2)	I-132
SIG_SUP3	SIGNAL HEAD SUPP TYPE - CONFIG 3	Signal	CHA(2)	I-132
SIG_TYP1	SIGNAL HEAD TYPE - CONFIG 1	Signal	CHA(8)	I-132
SIG_TYP2	SIGNAL HEAD TYPE - CONFIG 2	Signal	CHA(8)	I-132
SIG_TYP3	SIGNAL HEAD TYPE - CONFIG 3	Signal	CHA(8)	I-132
SIGN_ONE	NUMBER OF SIGNAL HEADS - CONFIG 1	Signal	NUM	I-133
SIGN_THR	NUMBER OF SIGNAL HEADS - CONFIG 3	Signal	NUM	I-133
SIGN_TWO	NUMBER OF SIGNAL HEADS - CONFIG 2	Signal	NUM	I-133
SPT_NBR	SPOT NUMBER	Signal	NUM	I-133
STATUS	STATUS	Signal	CHA(2)	I-133
STDY_WAT	STEADY WATTAGE	Signal	NUM	I-133
TELE_COM	TELEPHONE COMPANY	Signal	NUM	I-133
TRN_AR1	NUMBER OF TURNING ARROWS - CONFIG 1	Signal	NUM	I-133
TRN_AR2	NUMBER OF TURNING ARROWS - CONFIG 2	Signal	NUM	I-133
TRN_AR3	NUMBER OF TURNING ARROWS - CONFIG 3	Signal	NUM	I-133
TYP_CON	TYPE OF CONTROLLER	Signal	CHA(2)	I-133
TYPE_HD1	PED SIGNAL HEAD TYPE - CONFIG 1	Signal	CHA(4)	I-134
TYPE_HD2	PED SIGNAL HEAD TYPE - CONFIG 2	Signal	CHA(4)	I-134
TYPE_HD3	PED SIGNAL HEAD TYPE - CONFIG 3	Signal	CHA(4)	I-134
WATTAGE	CYCLIC WATTAGE	Signal	NUM	I-134
WK_CODE	WORK CODE	Signal	CHA(2)	I-134
WK_DTE	LAST WORK ORDER DATE	Signal	NUM	I-135
WK_NBR	LAST WORK ORDER NUMBER	Signal	CHA(5)	I-135
WK2_CDE1	WORK CODE AGENCY NO. 1	Signal	CHA(2)	I-135
WK2_CDE2	WORK CODE AGENCY NO. 2	Signal	CHA(2)	I-135
WK2_CDE3	WORK CODE AGENCY NO. 3	Signal	CHA(2)	I-135
WK2_CDE4	WORK CODE AGENCY NO. 4	Signal	CHA(2)	I-135
WK2_CDE5	WORK CODE AGENCY NO. 5	Signal	CHA(2)	I-135
WO_CMPT_	WORK ORDER COMPLETION STATUS INDICATOR	Signal	CHA(1)	I-135
YEAR1	YEAR OF INSTALLATION - CONFIG 1	Signal	NUM	I-135
YEAR2	YEAR OF INSTALLATION - CONFIG 2	Signal	NUM	I-135
YEAR3	YEAR OF INSTALLATION - CONFIG 3	Signal	CHA(2)	I-135

(CON'T)

LIST OF VARIABLES FOR MICHIGAN
ELECTRICAL TRAFFIC CONTROL DEVICE INVENTORY

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
YR_INS1	PED SIGNAL YEAR OF INSTALL - CONFIG 1	Signal	NUM	I-135
YR_INS2	PED SIGNAL YEAR OF INSTALL - CONFIG 2	Signal	NUM	I-135
YR_INS3	PED SIGNAL YEAR OF INSTALL - CONFIG 3	Signal	NUM	I-135

SAS FORMAT DEFINITIONS FOR VARIABLES FROM THE
MICHIGAN ELECTRICAL TRAFFIC CONTROL DEVICE INVENTORY

NOTE: SAS variable names and explanatory names are shown above each listing. (See Discussion for information on SAS formats.)

ARR_TY1 **TURNING ARROW TYPE - CONFIG 1**
ARR_TY2 **TURNING ARROW TYPE - CONFIG 2**
ARR_TY3 **TURNING ARROW TYPE - CONFIG 3**

'LG' = 'LEFT TURN GREEN'	Left turn green
'LY' = 'LEFT TURN YELLOW'	Left turn yellow
'LR' = 'LEFT TURN RED'	Left turn red
'RG' = 'RIGHT TURN GREEN'	Right turn green
'RY' = 'RIGHT TURN YELLOW'	Right turn yellow
'RR' = 'RIGHT TURN RED'	Right turn red
'TG' = 'THROUGH GREEN'	Through green
'TY' = 'THROUGH YELLOW'	Through yellow
'TR' = 'THROUGH RED'	Through red

NOTE: This variable was discontinued after 1995.

ARR_YR1 **YEAR OF INSTALL - CONFIG 1**
ARR_YR2 **YEAR OF INSTALL - CONFIG 2**
ARR_YR3 **YEAR OF INSTALL - CONFIG 3**

NON-LABELED VARIABLE -- Last two digits of year of installation of turn arrow (YY).

NOTE: This variable was discontinued after 1995.

BIL_CDE **BILLING CODE**

'T' = 'TELEPHONE'	Telephone
'E' = 'ENERGY'	Energy
'B' = 'TELE & ENERGY'	Telephone and energy
'N' = 'PRIVATE'	Private

BIL_CDE1 **BILLING CODE AGENCY NO. 1**
BIL_CDE2 **BILLING CODE AGENCY NO. 2**
BIL_CDE3 **BILLING CODE AGENCY NO. 3**
BIL_CDE4 **BILLING CODE AGENCY NO. 4**
BIL_CDE5 **BILLING CODE AGENCY NO. 5**

NON-LABELED VARIABLE

NOTE: (1) Billing code for agency or agencies responsible for signal. See format under BIL_CDE.

(2) This variable was discontinued after 1995.

CAS_TYP1 **CASE SIGNS TYPE - CONFIG 1**
CAS_TYP2 **CASE SIGNS TYPE - CONFIG 2**
CAS_TYP3 **CASE SIGNS TYPE - CONFIG 3**
CAS_TYP4 **CASE SIGNS TYPE - CONFIG 4**

'1F' = '1W CASE SIGN FLO'	One way case sign – fluorescent
'2F' = '2W CASE SIGN FLO'	Two way case sign – fluorescent
'3F' = '3W CASE SIGN FLO'	Three way case sign – fluorescent
'4F' = '4W CASE SIGN FLO'	Four way case sign – fluorescent
'1M' = '1W SIGN MERC'	One way sign - mercury vapor
'2M' = '2W C/SGN MERCU'	Two way case sign - mercury vapor
'3M' = '3W C/SGN MERCU'	Three way case sign - mercury vapor
'4M' = '4W C/SGN MERCU'	Four way case sign - mercury vapor
'DL' = 'DISAP LEGN C/SGN'	Disappearing legend case sign
'RF' = 'REFLECTORZED SGN'	Reflectorized sign
'FO' = 'FIBER OPTIC SIGN'	Fiber optic sign
'FP' = 'FOLDNG PANEL SGN'	Folding panel sign
'VD' = 'VAR MESG DSK SGN'	Variable message disk type sign
'VB' = 'VAR MESG BLK SGN'	Variable message bulk sign
'RD' = 'REVOLVNG DRM SGN'	Revolving drum sign
'NE' = 'NEON'	Neon
'FI' = 'FLOR INTERN ILLM'	Fluorescent internally illuminated
'EI' = 'EXTERN ILLUMNTED'	Externally illuminated
'BM' = 'BULB MTX DIS LGN'	Bulb matrix disappearing legend
'CS' = 'CHNG SPD LMT SGN'	Changeable speed limit sign bar matrix

NOTE: This variable was discontinued after 1995.

CIRC_ONE **FIRST CIRCUIT NUMBER**
CIRC_TWO **SECOND CIRCUIT NUMBER**
CIRC_THR **THIRD CIRCUIT NUMBER**

NON-LABELED VARIABLE

NOTE: This variable was discontinued after 1995.

CIRCUIT **CIRCUIT USAGE CODE**

'R ' = 'REGULAR'	Regular
'B ' = 'BACKUP FOR COMPU'	Backup for computer
'C ' = 'COMPUTER'	Computer
'P ' = 'PREEMPTION'	Preemption

NOTE: This variable was discontinued after 1995.

CMP_DTE **LIST OF PEDESTRIAN SIGNALS COMPLETE**

'Y' = 'YES'
'N' = 'NO'

CNTL_SEC **CONTROL SECTION**

NON-LABELED VARIABLE -- Code that identifies the portion of the trunkline system. While control section is used with MILEPOST as linkage variables in other Michigan files, the linkage here can only be make with the Intersection File, and is through this variable and spot number (SPT_NBR). See Discussion.

CNTY_CD **COUNTY CODE**

See format under COUNTY in Accident Subfile.

NOTE: New variable added in 1996.

COMP_DTE **WORK ORDER COMPLETION DATE**

NON-LABELED VARIABLE -- Completion date of last work order -- Usually format (MMDDYY).

NOTE: This variable was discontinued after 1995.

COMPLT **LIST OF SIGNAL HEAD COMPLETE**

NON-LABELED VARIABLE

NOTE: This variable denotes whether the listing of pedestrian signal heads is complete for this location.

CON_MDL **CONTROLLER MODEL**

NON-LABELED VARIABLE -- Manufacture’s controller model number.

CON_TY1 **MEANS OF INTERCONNECT, TYPE NO 1**
CON_TY2 **MEANS OF INTERCONNECT, TYPE NO 2**

'NO' = 'NOT INTERCONNECT'	Not interconnected
'OT' = 'M U/TEL LEAS LIN'	Monitrol using telephone leased lines
'OW' = 'M U/HARDWIRE'	Monitrol using hardwire
'OV' = 'M USING CABLE TV'	Monitrol using cable TV
'IT' = 'IT MINITROL TELE'	Minitrol using telephone leased lines
'IW' = 'IW MINITROL HARD'	Minitrol using hardwire
'IV' = 'MINIT U/CABLE TV'	Minitrol using cable TV
'W1' = 'CABLE W/1 CONDCT'	Cable with 1 conductor
'W2' = 'CABLE W/2 CONDCT'	Cable with 2 conductors
'W3' = 'CABLE W/3 CONDCT'	Cable with 3 conductors
'W4' = 'CABLE W/4 CONDCT'	Cable with 4 conductors
'W5' = 'CABLE W/5 CONDCT'	Cable with 5 conductors
'W6' = 'CABLE W/6 CONDCT'	Cable with 6 conductors
'W7' = 'CABLE W/7 CONDCT'	Cable with 7 conductors
'W8' = 'CABLE W/8 CONDCT'	Cable with 8 conductors
'RT' = 'RADIO TRNSMITTER'	Radio transmitter
'RR' = 'RADIO RECEIVER'	Radio receiver
'BA' = 'TBC W/ANNUAL PRG'	Time base coordinator with an annual program
'BW' = 'TBC W/WEEKLY PRG'	Time base coordinator with a weekly program
'CT' = 'CSBT U/TELE LEAS'	Central system background timer using telephone leased line
'CW' = 'CSBT U/HARD WIRE'	Central system background timer using hard wire
'CR' = 'CSBT USING RADIO'	Central system background timer using radio
'CV' = 'CSBT U/CABLE TV'	Central system background timer using cable TV
'UT' = 'CC U/TELE LEASED'	Computer control using telephone leased lines
'UR' = 'CC USING RADIO'	Computer control using radio
'UV' = 'CC USNG CABLE TV'	Computer control using cable TV
'UW' = 'CC USNG HARDWIRE'	Computer control using hardwire
'TT' = 'TONE U/TELE LEAS'	Tone using telephone leased lines
'T2' = 'TONE CBLE N/TEL'	Tone using cable other than telephone

NOTE: This variable was discontinued after 1995.

CON_YR **CONTROLLER INSTALLATION YEAR**

NON-LABELED VARIABLE -- Year of controller installation (YY).

CST_EST **FINAL TOTAL WORK ORDER COST ESTIMATE**

NON-LABELED VARIABLE

DEV_TYP **DEVICE TYPE**

00 = 'EMERGY TRAF SGNL'	Emergency traffic signal (E1)
01 = 'TRAFFIC SIGNAL'	Traffic signal
02 = 'FLASHING BEACON'	Flashing beacon
03 = 'KEEP RIGHT SIGN'	Keep right sign
04 = 'SCH SPED LMT SGN'	School speed limit sign
05 = 'SCHOOL FLASHER'	School flasher
06 = 'STREET LIGHTING'	Street lighting
07 = 'ILLUMINATED SIGN'	Illuminated sign
08 = 'FIRE DEVICE'	Fire device
09 = 'MISCELLANEOUS'	Miscellaneous

DISTRICT **DISTRICT**

See format under DISTRICT in Roadlog File.

DRW_MAT **DRAWING ON MATES**

'Y', 'X' = 'YES'	Graphics system drawing is completed
'N', ' ' = 'NO'	Not completed

INIT_RQS **INITIAL REQUEST DATE**

NON-LABELED VARIABLE -- MMDDYY.

NOTE: New variable added in 1996.

INTCON **INTERCONNECT TYPE**

'L' = 'LOCAL'	Local
'M' = 'MASTER'	Master
'N' = 'NO INTERCONNECT'	No interconnect
'O' = 'OTHER'	Other (not a stop and go signal)
'T' = 'TB CNTL TRNK SUB'	Time base controls a trunkline subsystem
'S' = 'TB CNL NTRNK SUB'	Time base controls a non-trunkline subsystem
'B' = 'TB CNL TRN/NTRNK'	Time base controls both a trunkline and a non-trunkline subsystem

INV_WO_C **WORK ORDER COMPLETION DATE**

NON-LABELED VARIABLE

NOTE: New variable added in 1996.

LFT_TRN LEFT TURN PROHIBITION

NON-LABELED VARIABLE -- This is a 5-character variable which identifies any/all approaches for which a left turn is prohibited. Each character may take on one (or none) of the following values. The data is "right justified." Thus a combination of "135" would indicate left-turn prohibition on the south, west, and north approaches.

1 = South approach (north bound)
2 = Southwest approach (northeast bound)
3 = West approach (east bound)
4 = Northwest approach (southeast bound)
5 = North approach (south bound)
6 = Northeast approach (southwest bound)
7 = East approach (west bound)
8 = Southeast approach (northwest bound)

LNS_SIZ1 PED SIG HEAD TYPE - LENS SIZE CONFIG 1
LNS_SIZ2 PED SIG HEAD TYPE - LENS SIZE CONFIG 2
LNS_SIZ3 PED SIG HEAD TYPE - LENS SIZE CONFIG 2

'01' - '02' = '1 TO 2 INCHES'
'03' - '04' = '3 TO 4 INCHES'
'05' - '06' = '5 TO 6 INCHES'
'07' - '08' = '7 TO 8 INCHES'
'09' - '10' = '9 TO 10 INCHES'
'11' - '12' = '11 TO 12 INCHES'
'13' - '99' = 'OVER 12 INCHES'

NOTE: (1) This variable is the 3rd and 4th characters of "Pedestrian Signal Head Type" (see TYPE_HD1, TYPE_HD2, and TYPE_HD3). Note that in the development of this variable, some error codes were produced due to formatting that could not be decoded. The user may wish to manually decode TYPE_HD in combination with NBR_FAC and LNS_SIZ for more accurate information.

(2) This variable was discontinued after 1995.

LOC_AGN1 LOCAL AGENCY NO. 1 CODE
LOC_AGN2 LOCAL AGENCY NO. 2 CODE
LOC_AGN3 LOCAL AGENCY NO. 3 CODE
LOC_AGN4 LOCAL AGENCY NO. 4 CODE
LOC_AGN5 LOCAL AGENCY NO. 5 CODE

NON-LABELED VARIABLE -- Michigan documentation indicates that codes 00000-00086 are county codes (see COUNTY in Accident Subfile); codes 00090-00159 indicate extra codes for private control of the signal; and codes 00160-89360 are local government FIPS codes.

LOC_DES **LOCATION DESCRIPTION**

NON-LABELED VARIABLE -- Written description of location.

MANUF1 **MANUF OF PED SIGNAL HEAD - CONFIG 1**
MANUF2 **MANUF OF PED SIGNAL HEAD - CONFIG 2**
MANUF3 **MANUF OF PED SIGNAL HEAD - CONFIG 3**

NON-LABELED VARIABLE -- Manufacturer of signal head. Contact HSIS for detailed information.

NOTE: This variable was discontinued after 1995.

MANUFAC1 **MANUF OF SIGNAL HEAD - CONFIG 1**
MANUFAC2 **MANUF OF SIGNAL HEAD - CONFIG 2**
MANUFAC3 **MANUF OF SIGNAL HEAD - CONFIG 3**

NON-LABELED VARIABLE -- Manufacturer of signal head. Contact HSIS for detailed information.

NOTE: This variable was discontinued after 1995.

MAT_CDE1 **MATERIAL CODE - CONFIG 1**
MAT_CDE2 **MATERIAL CODE - CONFIG 2**
MAT_CDE3 **MATERIAL CODE - CONFIG 3**

'A' = 'ALUMINUM'	Aluminum
'P' = 'PLASTIC'	Plastic

NOTE: This variable was discontinued after 1995.

MATE_CD1 **PED SIGNAL MATERIAL CODE - CONFIG 1**
MATE_CD2 **PED SIGNAL MATERIAL CODE - CONFIG 2**
MATE_CD3 **PED SIGNAL MATERIAL CODE - CONFIG 3**

'A' = 'ALUMINUM'	Aluminum
'P' = 'PLASTIC'	Plastic

NOTE: This variable was discontinued after 1995.

MET_SEV **METERED SERVICE**

'M', 'Y' = 'METER SERVICE'
'N', ' ' = 'NO'

MILEPOST **MILEPOST**

NON-LABELED VARIABLE -- Approximate mileage along the control section to the device.

MKE_CON **MAKE OF CONTROLLER**

'A' = 'AUTOMATIC SIGNAL'	Automatic signal
'C' = 'CROUSE HINDS'	Crouse Hinds
'E' = 'EAGLE'	Eagle
'F' = 'ECONOLITE'	Econolite
'G' = 'GENERAL ELECTRIC'	General Electric
'H' = 'HONEYWELL'	Honeywell
'K' = 'KENTRON'	Kentron
'L' = 'MARBELITE'	Marbelite
'M' = 'MULTISONICS'	Multisonics
'N' = '3M'	Minnesota Mining & Manufacturing (3M)
'R' = 'SINGER'	Singer
'S' = 'SAFETRAN'	Safetran
'T' = 'TRANSIT/SPECIAL'	Transit/special

MN_CDE1 **MAINTENANCE CODE - AGENCY NO. 1**
MN_CDE2 **MAINTENANCE CODE - AGENCY NO. 2**
MN_CDE3 **MAINTENANCE CODE - AGENCY NO. 3**
MN_CDE4 **MAINTENANCE CODE - AGENCY NO. 4**
MN_CDE5 **MAINTENANCE CODE - AGENCY NO. 5**

'A' = 'BULB CHNG/CLEAN'	Bulb change and clean
'B' = 'ROUTINE MAINTEN'	Routine maintenance
'C' = 'EVRYTHG BUT INST'	Everything but installation
'D' = 'ALL RESPONSBILTY'	All responsibility
'U' = 'UNKNOWN'	Unknown

NOTE: This variable was discontinued after 1995.

MNT_CDE **MAINTENANCE CODE**

'A' = 'BULB CHNG/CLEAN'	Bulb change and clean
'B' = 'ROUTINE MAINTEN'	Routine maintenance
'C' = 'EVRYTHG BUT INST'	Everything but installation
'D' = 'ALL RESPONSBILTY'	All responsibility
'U' = 'UNKNOWN'	Unknown

NOTE: This variable was discontinued after 1995.

NBR_CAS1 **NUMBER OF CASE SIGNS - CONFIG 1**
NBR_CAS2 **NUMBER OF CASE SIGNS - CONFIG 2**
NBR_CAS3 **NUMBER OF CASE SIGNS - CONFIG 3**
NBR_CAS4 **NUMBER OF CASE SIGNS - CONFIG 4**

NON-LABELED VARIABLE -- Number of case signs.

NOTE: This variable was discontinued after 1995.

NBR_FAC1 PED SIG HEAD TYPE - NBR FACING CONFIG 1
NBR_FAC2 PED SIG HEAD TYPE - NBR FACING CONFIG 2
NBR_FAC3 PED SIG HEAD TYPE - NBR FACING CONFIG 3

'4W' = 'FOUR-WAY'	Four way
'3W' = 'THREE-WAY'	Three way
'2W' = 'TWO-WAY'	Two way
'1W' = 'ONE-WAY'	One way

NOTE: (1) This variable is the 1st and 2nd characters of "Pedestrian Signal Head Type" (see TYPE_HD1, TYPE_HD2, and TYPE_HD3). Note that in the development of this variable, some error codes were produced due to formatting that could not be decoded. The user may wish to manually decode TYPE_HD in combination with NBR_FAC and LNS_SIZ for more accurate information.

(2) This variable was discontinued after 1995.

NBR_LGHT NUMBER OF STREET LIGHTS

NON-LABELED VARIABLE -- Number of street lights.

NBR_PHS NUMBER OF PHASES

NON-LABELED VARIABLE -- Number of phases.

NOTE: Michigan staff continue to note problems with this variable.

NO_TRN NO TURN ON RED

NON-LABELED VARIABLE -- This is a 5-character variable which identifies any/all approaches for which a turn on red is prohibited. Each character may take on one (or none) of the following values. The data is "right justified." Thus a combination of "135" would indicate right-turn-on-red prohibition on the south, west, and north approaches.

1 = South approach (north bound)
2 = Southwest approach (northeast bound)
3 = West approach (east bound)
4 = Northwest approach (southeast bound)
5 = North approach (south bound)
6 = Northeast approach (southwest bound)
7 = East approach (west bound)
8 = Southeast approach (northwest bound)

PED_SIG1 **NUMBER OF PED SIGNAL HEAD - CONFIG 1**
PED_SIG2 **NUMBER OF PED SIGNAL HEAD - CONFIG 2**
PED_SIG3 **NUMBER OF PED SIGNAL HEAD - CONFIG 3**

NON-LABELED VARIABLE -- Number of pedestrian signal heads.

NOTE: This variable was discontinued after 1995.

POWER_CO **POWER COMPANY**

NON-LABELED VARIABLE -- Power company code.

PRT_PCN1 **PARTICIPATION PERCENT - AGENCY NO. 1**
PRT_PCN2 **PARTICIPATION PERCENT - AGENCY NO. 2**
PRT_PCN3 **PARTICIPATION PERCENT - AGENCY NO. 3**
PRT_PCN4 **PARTICIPATION PERCENT - AGENCY NO. 4**
PRT_PCN5 **PARTICIPATION PERCENT - AGENCY NO. 5**

NON-LABELED VARIABLE

NOTE: This variable was discontinued after 1995.

PRT_PCNT **PARTICIPATION PERCENT**

NON-LABELED VARIABLE

NOTE: This variable was discontinued after 1995.

REMOTE **REMOTE FEATURES**

'C' = 'COMPUTER CONTROL'	Computer controlled
'O' = 'OPTICOM PREEMPT'	Opticom preempt
'F' = 'FIRE PREEMPT'	Fire preempt
'R' = 'RAILROAD PREEMPT'	Railroad preempt
'B' = 'BRIDGE SIGNALS'	Bridge signals
'M' = 'MANUAL OVERRIDE'	Manual override

NOTE: This variable provides data on different types of "remote features" through 1995. Thus, combinations of these codes can be present. After 1995, the presence of each type of remote feature was noted in a separate variable. See RF_COMP_, RF_OPT_P, RF_FIRE_, RF_RR_PR, RF_BRDG, and RF_MNUL_.

RF_BRDG_ REMOTE FEATURES-BRIDGE SIGNALS

'Y' = 'YES'
'N' = 'NO'

NOTE: (1) Beginning in 1996, this variable defines the presence of a "remote feature." See REMOTE for similar data for earlier years.

(2) New variable added in 1996.

RF_COMP_ REMOTE FEATURES-COMPUTER CONTROLLED

'Y' = 'YES'
'N' = 'NO'

NOTE: (1) Beginning in 1996, this variable defines the presence of a "remote feature." See REMOTE for similar data for earlier years.

(2) New variable added in 1996.

RF_FIRE_ REMOTE FEATURES-FIRE PREEMPT

'Y' = 'YES'
'N' = 'NO'

NOTE: (1) Beginning in 1996, this variable defines the presence of a "remote feature." See REMOTE for similar data for earlier years.

(2) New variable added in 1996.

RF_MNUL_ REMOTE FEATURES-MANUAL OVERRIDE

'Y' = 'YES'
'N' = 'NO'

NOTE: (1) Beginning in 1996, this variable defines the presence of a "remote feature." See REMOTE for similar data for earlier years.

(2) New variable added in 1996.

RF_OPT_P REMOTE FEATURES-OPTICOM PREEMPT

'Y' = 'YES'
'N' = 'NO'

NOTE: (1) Beginning in 1996, this variable defines the presence of a "remote feature." See REMOTE for similar data for earlier years.

(2) New variable added in 1996.

RF_RR_PR REMOTE FEATURES-RAILROAD PREEMPT

'Y' = 'YES'
'N' = 'NO'

NOTE: (1) Beginning in 1996, this variable defines the presence of a "remote feature." See REMOTE for similar data for earlier years.

(2) New variable added in 1996.

RGHT_TRN RIGHT TURN PROHIBITION

NON-LABELED VARIABLE -- This is a 5-character variable which identifies any/all approaches for which a right turn on red is prohibited. Each character may take on one (or none) of the following values. The data is "right justified." Thus a combination of "135" would indicate right-turn prohibition on the south, west, and north approaches.

1 = South approach (north bound)
2 = Southwest approach (northeast bound)
3 = West approach (east bound)
4 = Northwest approach (southeast bound)
5 = North approach (south bound)
6 = Northeast approach (southwest bound)
7 = East approach (west bound)
8 = Southeast approach (northwest bound)

SIG_COL1 SIGNAL HEAD NBR OF COLORS - CONFIG 1
SIG_COL2 SIGNAL HEAD NBR OF COLORS - CONFIG 2
SIG_COL3 SIGNAL HEAD NBR OF COLORS - CONFIG 3

'1C' = 'ONE-COLOR'	One color
'2C' = 'TWO-COLOR'	Two color
'3C' = 'THREE-COLOR'	Three color

NOTE: (1) This variable is the 3rd and 4th characters of "Signal Head Type" (see SIG_TYP1, SIG_TYP2, and SIG_TYP3). Note that in the development of this variable, some error codes were produced due to formatting that could not be decoded. The user may wish to manually decode SIG_TYP in combination with SIG_FAC, SIG_COL, SIG_SUP, and SIG_LEN variables for more accurate information.

(2) This variable was discontinued after 1995.

SIG_FAC1 SIGNAL HEAD NBR OF FACING - CONFIG 1
SIG_FAC2 SIGNAL HEAD NBR OF FACING - CONFIG 2
SIG_FAC3 SIGNAL HEAD NBR OF FACING - CONFIG 3

'4W' = 'FOUR-WAY'	Four way
'3W' = 'THREE-WAY'	Three way
'2W' = 'TWO-WAY'	Two way
'1W' = 'ONE-WAY'	One way

NOTE: (1) This variable is the 1st and 2nd characters of "Signal Head Type" (see SIG_TYP1, SIG_TYP2, and SIG_TYP3). Note that in the development of this variable, some error codes were produced due to formatting that could not be decoded. The user may wish to manually decode SIG_TYP in combination with SIG_FAC, SIG_COL, SIG_SUP, and SIG_LEN variables for more accurate information.

(2) This variable was discontinued after 1995.

SIG_LEN1 SIGNAL HEAD LENS SIZE - CONFIG 1
SIG_LEN2 SIGNAL HEAD LENS SIZE - CONFIG 2
SIG_LEN3 SIGNAL HEAD LENS SIZE - CONFIG 3

1 - 2 = '1 TO 2 INCHES'	
3 - 4 = '3 TO 4 INCHES'	
5 - 6 = '5 TO 6 INCHES'	
7 - 8 = '7 TO 8 INCHES'	
9 - 10 = '9 TO 10 INCHES'	
11 - 12 = '11 TO 12 INCHES'	
13 - 99 = 'OVER 12 INCHES'	

NOTE: (1) This variable is the 7th and 8th characters of "Signal Head Type" (see SIG_TYP1, SIG_TYP2, and SIG_TYP3). Note that in the development of this variable, some error codes were produced due to formatting that could not be decoded. The user may wish to manually decode SIG_TYP in combination with SIG_FAC, SIG_COL, SIG_SUP, and SIG_LEN variables for more accurate information.

(2) This variable was discontinued after 1995.

SIG_SUP1 SIGNAL HEAD SUPP TYPE - CONFIG 1
SIG_SUP2 SIGNAL HEAD SUPP TYPE - CONFIG 2
SIG_SUP3 SIGNAL HEAD SUPP TYPE - CONFIG 3

'SA' = 'SPAN ADJUSTABLE'	Span adjustable
'MA' = 'MAST ARM'	Mast arm
'BA' = 'BRACKET ADJUSTBL'	Bracket adjustable
'PA' = 'POST/PEDSTAL ADJ'	Post or pedestal adjustable
'SS' = 'SPAN SOLID '	Span solid (square section)
'SO' = 'SIGN OPTICAL'	Sign optical

NOTE: (1) This variable is the 5th and 6th characters of "Signal Head Type" (see SIG_TYP1, SIG_TYP2, and SIG_TYP3). Note that in the development of this variable, some error codes were produced due to formatting that could not be decoded. The user may wish to manually decode SIG_TYP in combination with SIG_FAC, SIG_COL, SIG_SUP, and SIG_LEN variables for more accurate information.

(2) This variable was discontinued after 1995.

SIG_TYP1 SIGNAL HEAD TYPE - CONFIG 1
SIG_TYP2 SIGNAL HEAD TYPE - CONFIG 2
SIG_TYP3 SIGNAL HEAD TYPE - CONFIG 3

NON-LABELED VARIABLE

NOTE: (1) This is the basic 8-character raw file variable related to signal head types. It describes the number of facings, the number of colors, the signal head support type, and the lens size. For ease of use, it has also been divided into four separate variables describing each of these four attributes - see SIG_FAC1, SIG_FAC2, SIG_FAC3, SIG_COL1, SIG_COL2, SIG_COL3, SIG_SUP1, SIG_SUP2, SIG_SUP3, SIG_LEN1, SIG_LEN2, and SIG_LEN3. Note that in the development of these variables, some error codes were produced due to formatting that could not be decoded. The user may wish to manually decode SIG_TYP in combination with SIG_FAC, SIG_COL, SIG_SUP, and SIG_LEN variables for more accurate information.

(2) This variable was discontinued after 1995.

SIGN_ONE **NUMBER OF SIGNAL HEADS - CONFIG 1**
SIGN_THR **NUMBER OF SIGNAL HEADS - CONFIG 3**
SIGN_TWO **NUMBER OF SIGNAL HEADS - CONFIG 2**

NON-LABELED VARIABLE

NOTE: This variable was discontinued after 1995.

SPT_NBR **SPOT NUMBER**

NON-LABELED VARIABLE -- This is the "Spot Number" within the control section. It is used with CNTL_SEC in linkage to the Intersection File (see Discussion).

STATUS **STATUS**

'T' = 'TEMPORARY'	Temporary
'TB' = 'TURNBACK'	Turnback

STDY_WAT **STEADY WATTAGE**

NON-LABELED VARIABLE -- In watts.

TELE_COM **TELEPHONE COMPANY**

NON-LABELED VARIABLE -- Telephone company code.

TRN_AR1 **NUMBER OF TURNING ARROWS - CONFIG 1**
TRN_AR2 **NUMBER OF TURNING ARROWS - CONFIG 2**
TRN_AR3 **NUMBER OF TURNING ARROWS - CONFIG 3**

NON-LABELED VARIABLE

N**OTE:** This variable was discontinued after 1995.

TYP_CON **TYPE OF CONTROLLER**

'FT' = 'FIXED TIME SIGNA'	Fixed time signal
'SA' = 'SEMI-ACUTU SIGNA'	Semi-actuated signal
'FA' = 'FULLY-ACUTU SIGN'	Fully-actuated signal
'FL' = 'FLASHER'	Flasher
'SP' = 'SPECIAL/OTHER'	Special or other
' ','00' = 'NOT STATED'	

TYPE_HD1 **PED SIGNAL HEAD TYPE - CONFIG 1**
TYPE_HD2 **PED SIGNAL HEAD TYPE - CONFIG 2**
TYPE_HD3 **PED SIGNAL HEAD TYPE - CONFIG 3**

NON-LABELED VARIABLE

NOTE: (1) This is the basic 4-character raw file variable related to pedestrian signal head types. It describes both the number of facings and the lens size. For ease of use, it has also been divided into two separate variables describing each of these two attributes - see NBR_FAC1, NBR_FAC2, NBR_FAC3, LNS_SIZ1, LNS_SIZ2, and LNS_SIZ3. Note that in the development of these two variables, some error codes were produced due to formatting that could not be decoded. The user may wish to manually decode TYPE_HD in combination with NBR_FAC and LNS_SIZ for more accurate information.

(2) This variable was discontinued after 1995.

WATTAGE **CYCLIC WATTAGE**

NON-LABELED VARIABLE -- In watts.

WK_CODE **WORK CODE**

'1 ' = 'GRENGS'	Grengs
'2 ' = 'NULF'	Nulf
'3 ' = 'COLLINES'	Collins
'4 ' = 'MCELHENNEY'	McElhenney
'5A' = 'WITTE'	Witte
'5B' = 'BENNETT'	Bennett
'6 ' = 'HOLZHEI'	Holzhei
'7A' = 'LINDSAY'	Lindsay
'7B' = 'EMENHISER'	Emenhiser
'8A' = 'ERICKSON'	Erickson
'8B' = 'EINGLE'	Eingle
'9 ' = 'AUSTIN'	Austin

NOTE: This variable was discontinued after 1995.

WK_DTE **LAST WORK ORDER DATE**

NON-LABELED VARIABLE -- MMDDYY.

WK_NBR **LAST WORK ORDER NUMBER**

NON-LABELED VARIABLE -- Last work order number.

WK2_CDE1 **WORK CODE AGENCY NO. 1**
WK2_CDE2 **WORK CODE AGENCY NO. 2**
WK2_CDE3 **WORK CODE AGENCY NO. 3**
WK2_CDE4 **WORK CODE AGENCY NO. 4**
WK2_CDE5 **WORK CODE AGENCY NO. 5**

NON-LABELED VARIABLE

NOTE: This variable was discontinued after 1995.

WO_CMPT_ **WORK ORDER COMPLETION STATUS INDICATOR**

'C' = 'CONTRACTOR'	Non-completion work order has been sent to contractor.
'E' = 'PEND'	Non-completion work order has been sent to state forces.
'P' = 'EXIST'	Signal was installed; the date of installation is unknown.

NOTE: New variable added in 1996.

YEAR1 **YEAR OF INSTALLATION - CONFIG 1**
YEAR2 **YEAR OF INSTALLATION - CONFIG 2**
YEAR3 **YEAR OF INSTALLATION - CONFIG 3**

NON-LABELED VARIABLE -- Last two digits of year of installation of signal head (YY).

NOTE: This variable was discontinued after 1995.

YR_INS1 **PED SIGNAL YEAR OF INSTALL - CONFIG 1**
YR_INS2 **PED SIGNAL YEAR OF INSTALL - CONFIG 2**
YR_INS3 **PED SIGNAL YEAR OF INSTALL - CONFIG 3**

NON-LABELED VARIABLE -- last two-digit (YY).

NOTE: This variable was discontinued after 1995.

LIST OF VARIABLES FOR MICHIGAN INTERCHANGE ELEMENT FILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
ACT_DEN	ACTIVITY DENSITY	Interchange	NUM	I-139
ANG_ACCS	SUMMARY OF ANGLE ACCS	Interchange	NUM	I-139
ANIM_ACC	SUMMARY OF ANIMAL ACCS	Interchange	NUM	I-139
BACK_ACC	SUMMARY OF BACKING ACCS	Interchange	NUM	I-139
BIK_ACCS	SUMMARY OF BICYCLE ACCS	Interchange	NUM	I-140
CNTL_SEC	CONTROL SECTION	Interchange	NUM	I-140
CNTY_NBR	COUNTY NUMBER	Interchange	NUM	I-140
DESC_	ENGLISH DESCRIPTION	Interchange	CHA(25)	I-140
DISTRICT	DISTRICT	Interchange	NUM	I-140
DRK_ACCS	SUMMARY OF DARK ACCIDENTS	Interchange	NUM	I-140
ELEM_CDE	ELEMENT CODE	Interchange	NUM	I-141
FAT_ACCS	SUMMARY OF FATAL ACCS	Interchange	NUM	I-142
FIX_ACCS	SUMMARY OF FIXED OBJ ACCS	Interchange	NUM	I-142
HDON_ACC	SUMMARY OF HEAD ON ACCS	Interchange	NUM	I-142
I_TYPE	INTERCHANGE TYPE	Interchange	NUM	I-142
ICE_ACCS	SUMMARY OF ICY ACCS	Interchange	NUM	I-143
INJ_ACCS	SUMMARY OF INJURY ACCS	Interchange	NUM	I-143
INTE_NBR	INTERCHANGE NUMBER	Interchange	CHA(7)	I-143
INTER_LT	INTERCHANGE LIGHTING	Interchange	NUM	I-143
INV_CNTL	DISTRICT + CONTROL SECTION	Interchange	NUM	I-144
JUN_TYP	JUNCTION TYPE CODE	Interchange	NUM	I-144
LANE_USE	RAMP TERMINAL LANE USAGE	Interchange	NUM	I-144
LANEAGE	LANEAGE OF ELEMENT	Interchange	NUM	I-146
LFT_ACCS	SUMMARY OF LEFT TURN ACCS	Interchange	NUM	I-146
MALI_NBR	MALI RAMP NUMBER	Interchange	CHA(4)	I-146
MILE_DIR	MILEAGE DIRECTION	Interchange	NUM	I-146
MILEPOST	MILEPOST	Interchange	NUM	I-146
MOTH_ACC	SUMMARY OF MULTI-VEH OTHER ACCIDENTS	Interchange	NUM	I-147
ONRD_ACC	SUMMARY OF ON ROAD ACCS	Interchange	NUM	I-147
OVT_ACCS	SUMMARY OF OVERTURNED ACCS	Interchange	NUM	I-147
PED_ACCS	SUMMARY OF PEDESTRIAN ACCS	Interchange	NUM	I-147
PRKN_ACC	SUMMARY OF PARKING ACCS	Interchange	NUM	I-147
PRKV_ACC	SUMMARY OF PARKED VEH ACCS	Interchange	NUM	I-148
REND_ACC	SUMMARY OF READ END ACCS	Interchange	NUM	I-148
RGH_ACCS	SUMMARY OF RIGHT TURN ACCS	Interchange	NUM	I-148
RMP_TERM	RAMP TERMINAL OR INTERSEC TRAF CNTL	Interchange	NUM	I-148
SDWP_MET	SUMMARY OF SIDESWIPE-MEET ACCIDENTS	Interchange	NUM	I-148
SDWP_PAS	SUMMARY OF SIDESWIPE-PASS ACCIDENTS	Interchange	NUM	I-149
SEQ_NBR	RAMP SEQUENCE NUMBER	Interchange	NUM	I-149
SOTH_ACC	SUMMARY OF SINGLE-VEH OTHER ACCIDENTS	Interchange	NUM	I-149

(CON'T)

LIST OF VARIABLES FOR MICHIGAN INTERCHANGE ELEMENT FILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
TOT_ACCS	TOTAL ACCIDENTS	Interchange	NUM	I-149
TRA_ACCS	SUMMARY OF TRAIN ACCS	Interchange	NUM	I-149
WET_ACCS	SUMMARY OF WET ACCS	Interchange	NUM	I-150
WRN_SPD	POSTED ADVISORY WARN SPEED	Interchange	NUM	I-150

SAS FORMAT DEFINITIONS FOR VARIABLES FROM THE MICHIGAN INTERCHANGE ELEMENT FILE

NOTE: SAS variable names and explanatory names are shown above each listing. (See Discussion for information on SAS formats.)

ACT_DEN ACTIVITY DENSITY

```
1 = 'RURAL'
2 = 'FRINGE'
3 = 'URBAN'
```

NOTE: "Fringe" is no longer coded after 1992. Most seem to be shifted to "urban" in the new coding scheme.

ANG_ACCS SUMMARY OF ANGLE ACCS

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

ANIM_ACC SUMMARY OF ANIMAL ACCS

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

BACK_ACC SUMMARY OF BACKING ACCS

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

BIK_ACCS **SUMMARY OF BICYCLE ACCS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

CNTL_SEC **CONTROL SECTION**

NON-LABELED VARIABLE -- Code that identifies the portion of the trunkline system where the interchange is located -- Used in linkage to other files. (See INV_CNTL.)

CNTY_NBR **COUNTY NUMBER - MDOT SCHEME**

See format under COUNTY in Accident Subfile.

DESC_ **ENGLISH DESCRIPTION**

NON-LABELED VARIABLE -- Written identification of the interchange.

DISTRICT **DISTRICT**

See format under DISTRICT in Roadlog File.

DRK_ACCS **SUMMARY OF DARK ACCIDENTS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

ELEM_CDE ELEMENT CODE

01 = 'NB MAINLINE'	NB Mainline
02 = 'SB MAINLINE'	SB Mainline
03 = 'EB MAINLINE'	EB Mainline
04 = 'WB MAINLINE'	WB Mainline
05 = 'NE MAINLINE'	NE Mainline
06 = 'SW MAINLINE'	SW Mainline
07 = 'NW MAINLINE'	NW Mainline
08 = 'SE MAINLINE'	SE Mainline
09 = 'CROSSROAD'	Crossroad
10 = 'SP O/RMP CRDFWY'	Spread on-ramp from crossroad to freeway
11 = 'SP OFF/RMP FWYCR'	Spread off-ramp, freeway to crossroad
12 = 'TGHT O/RMP CRDFW'	Tight on-ramp from crossroad to freeway
13 = 'TGH OF/RMP FWYCR'	Tight off-ramp from freeway to crossroad
14 = 'LOP O/RMP CRDFWY'	Loop on-ramp from crossroad to freeway
15 = 'LOP OF/RMP FWYCR'	Loop off-ramp from freeway to crossroad
16 = 'COLLECTOR/DISTRB'	Collector-Distributor (CD)
17 = 'ON RMP-SR TO FW'	On-ramp from service road to freeway
18 = 'OF RMP-FWY TO SR'	Off-ramp from freeway to service road
19 = 'SR-OF/RMP TO CRS'	Service road from off-ramp to crossroad
20 = 'SR-CRS TO ON/RMP'	Service road from crossroad to on-ramp
21 = 'ON RMP-CR TO CD'	On-ramp from crossroad to CD
22 = 'OFF RMP-CD TO CR'	Off-ramp from CD to Crossroad
23 = 'RAMP-CD TO CD'	Ramp from CD to CD
24 = 'OFF RMP-CD TO SR'	Off-ramp from CD to service road
25 = 'ON RMP-SR TO CD'	On-ramp from service road to CD
26 = 'DIRECT LOOP RAMP'	Directional loop ramp
27 = 'DIRECTIONAL RAMP'	Directional ramp
28 = 'LOP RMP-CD TO CD'	Loop ramp from CD to CD
29 = 'OF RMP-FW TO RES'	Off-ramp from freeway to rest area
30 = 'ON RMP-RES TO FW'	On-ramp from rest area to freeway
31 = 'OF RMP-FW W/STA'	Off-ramp from freeway to weigh station
32 = 'ON RMP-W/STA FWY'	On-ramp from weigh station to freeway
33 = 'LOP RMP-CD TO CR'	Loop ramp from CD to crossroad
34 = 'LOP RMP-CR TO CD'	Loop ramp from crossroad to CD
35 = 'OF RMP-FWY TO CD'	Off-ramp from freeway to CD
36 = 'ON RMP-CD TO FWY'	On-ramp from CD to freeway
37 = 'TURNING ROADWAY'	Turning roadway
38 = 'LOP RMP-FW TO CD'	Loop ramp from freeway to CD
39 = 'RMP-SR TO SR'	Ramp from service road to service road
*40 = 'LP RMP-SR TO FWY'	Loop ramp from service road to freeway
41 = 'SERVICE ROAD'	Service road
*42 = 'OTHER'	Other
*43 = 'LP RMP-CD TO FWY'	Loop ramp from CD to freeway

*New codes added in 1994

FAT_ACCS **SUMMARY OF FATAL ACCS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

FIX_ACCS **SUMMARY OF FIXED OBJ ACCS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

HDON_ACC **SUMMARY OF HEAD ON ACCS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

I_TYPE **INTERCHANGE TYPE**

01 = 'DIAMOND'	Diamond
02 = 'TIGHT DIAMOND'	Tight diamond
03 = 'MODIFIED DIAMOND'	Modified diamond
04 = 'MOD TIGHT DIAMND'	Modified tight diamond
05 = 'PARTIAL DIAMND'	Partial diamond
06 = 'PRT TIGHT DIAMND'	Partial tight diamond
07 = 'SPLIT DIAMOND'	Split diamond
08 = 'DIAM PLUS 1 LOOP'	Diamond plus one loop
09 = 'PARCLO A'	Parclo A
10 = 'PARCLO A 4 QUARD'	Parclo A 4 quad
11 = 'PARCLO B'	Parclo B
12 = 'PARCLO B 4 QUARD'	Parclo B 4 quad
13 = 'PARCLO AB'	Parclo AB
14 = 'PARCLO AB 4 QUAD'	Parclo AB 4 quad
15 = 'CLOVERLEAF'	Cloverleaf
16 = 'CLVLEAF W/CD RDS'	Cloverleaf with C-D roads
17 = 'CLVLEAF(-) 1 LOP'	Cloverleaf minus 1 loop

(CON'T)

```
18 = 'TRUMPET A'              Trumpet A
19 = 'TRUMPET B'              Trumpet B
20 = 'FULL DIRECTIONAL'       Full directional
21 = 'PART DIRECTIONAL'       Partial directional
22 = 'DIRECTIONAL Y'          Directional Y
23 = 'GEN DIRECTIONAL'        General directional
24 = 'PART DIRECT Y'          Partial directional Y
25 = 'DIRECT W/ LOOPS'        Directional with loops
26 = 'GENERAL'                General
27 = 'URBAN DIAMOND'          Urban diamond
28 = 'SRI-A'                  SRI-A
29 = 'SRI-B'                  SRI-B
30 = 'OTHER'
```

ICE_ACCS SUMMARY OF ICY ACCS

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

INJ_ACCS SUMMARY OF INJURY ACCS

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

INTE_NBR INTERCHANGE NUMBER

NON-LABELED VARIABLE -- A unique identification number for the interchange. This will allow the user to link all the intersection components together for a given interchange. It is made up of a three-digit route number (e.g., 094 for I-94) plus a three-digit exit milepost plus a letter designation if more than one interchange is located at the milepost.

INTER_LT INTERCHANGE LIGHTING

```
00 = 'NO LIGHTING'            No lighting
01 = 'LIGHTING'               Lighting
02 = 'PARTIAL LIGHTING'       Partial lighting
```

INV_CNTL **DISTRICT + CONTROL SECTION**

NON-LABELED VARIABLE -- DISTRICT + CNTL_SEC -- Used in linkage to other files.

JUN_TYP **JUNCTION TYPE CODE**

01 = 'INTERS & LOC RD'	Interstate & local road
02 = 'INTERS & M RTE'	Interstate & M route
03 = 'INTERS & US RTE'	Interstate & US route
04 = 'INTERS & INTERS'	Interstate & interstate
05 = 'US & LOCAL ROAD'	US & local road
06 = 'US & M ROUTE'	US & M route
07 = 'US & US ROUTE'	US & US route
08 = 'M & LOCAL'	M & local
09 = 'M & M ROUTE'	M & M route
10 = 'M & REST AREA'	M & rest area
11 = 'M & TRK WEGH STA'	M & truck weight station
12 = 'US & REST AREA'	US & rest area
13 = 'US & WEGH STATN'	US & weight station
14 = 'I & REST AREA'	I & rest area
15 = 'I & WEIGH STATN'	I & weight station
16 = 'I & BUSINSS LOOP'	I & business loop
17 = 'I & BUS LOP & US'	I & business loop & US
18 = 'US & BUSNSS LOOP'	US & business loop
19 = 'US & BUSINESS RT'	US & business route
20 = 'M & BUSINESS RT'	Michigan route and business route

LANE_USE **RAMP TERMINAL LANE USAGE**

01 = '1 LANE: R'	One lane - Right turn
02 = '1 LANE: L'	One lane - Left turn
03 = '1 LANE: TH'	One lane - Thru
04 = '1 LANE: LR'	One lane - Left-right turn
05 = '1 LANE: ALL'	One lane - All movements
06 = '2 LANE: R,R'	Two lane - Right turn, right turn
07 = '2 LANE: L,L'	Two lane - Left turn, left turn
08 = '2 LANE: TH,TH'	Two lane - Thru, thru
09 = '2 LANE: L, R'	Two lane - Left turn, right turn
10 = '2 LANE: LTH,R'	Two lane - Left or thru, right turn
11 = '2 LANE: L, RTH'	Two lane - Left turn, thru or right
12 = '2 LANE: LTH,RTH'	Two lane - Left or thru, thru or right
13 = '3 LANE: L,TH,R'	Three lane - Left turn, thru, right turn
14 = '3 LANE: L,R,R'	Three lane - Left turn, right turn, right turn
15 = '3 LANE: L,L,R'	Three lane - Left turn, left turn, right turn

(CON'T)

16 = '3 LANE: L,L,RTH'	Three lane - Left turn, left turn, thru or right
17 = '3 LANE: TH,TH,TH'	Three lane - Thru, thru, thru
18 = '3 LANE: L,TH,TH'	Three lane - Left turn, thru, thru
19 = '3 LANE: L,TH,RTH'	Three lane - Left turn, thru, thru or right
20 = '2 LANE: TH,R'	Two lane - Thru, right turn
21 = '3 LANE: TH,TH,R'	Three lane - Thru, thru, right turn
22 = '4 LN: L,TH,TH,R'	Four lane - Left turn, thru, thru, right turn
23 = '4 LN:LTH,TH,TH,R'	Four lane - Left or thru, thru, thru, right turn
24 = '3 LANE: LTH,TH,R'	Three lane - Left or thru, thru, right turn
25 = '2 LANE: LR,R'	Two lane - Left-right, right turn
26 = '2 LANE: L, LR'	Two lane - Left turn, left-right
27 = '1 LANE: RTH'	One lane - Thru or right
28 = '3 LN: LTH,TH,RTH'	Three lane - Left or thru, thru, thru or right
29 = '2 LANE: TH,RTH'	Two lane - Thru, thru or right
30 = '3 LANE: L,LR,R'	Three lane - Left turn, left-right, right turn
31 = '2 LANE: L,LTH'	Two lane - Left turn, left or thru
32 = '3 LANE: TH,RTH,R'	Three lane - Thru, thru or right, right turn
33 = '3 LANE: L,LTH,R'	Three lane - Left turn, left or thru, right turn
34 = '3 LANE: L,LTH,TH'	Three lane - Left turn, left or thru, thru
35 = '3 LANE:L,LTH,RTH'	Three lane - Left, left or thru, thru or right
36 = '3 LANE:LTH,RTH,R'	Three lane - Left or thru, thru or right, right turn
37 = '3 LANE: R,R,R'	Three lane - Right turn, right turn, right turn
38 = '2 LANE: L,TH'	Two lane - Left turn, thru
39 = '4 LN-L,LTH,RTH,R'	Four lane - Left turn, left or thru, thru or right, right turn
40 = '4 LN: L,L,R,R'	Four lane - Two left turns, two right turns
41 = '4 L:L,LTH,TH,R'	Four lane - Left turn, left or thru, thru, right turn
42 = '4 L:L,LTH,TH,RTH'	Four lane - Left turn, left or thru, thru, thru or right
43 = '1 LANE: LTH'	One lane - Left or thru
44 = '2 LANE: LTH,TH'	Two lane - Left or thru, thru
45 = '3 LANE:TH,TH,RTH'	Three lane - Thru, thru, thru or right
46 = 'OTHER'	Other

LANEAGE **LANEAGE OF ELEMENT**

01 = '2 LANE 2 WAY'	2 lane 2 way
02 = '3 LANE 2 WAY'	3 lane 2 way
03 = '4 LANE 2 WAY'	4 lane 2 way
04 = '5 LANE 2 WAY'	5 lane 2 way
05 = '6 LANE 2 WAY'	6 lane 2 way
06 = '7 LANE 2 WAY'	7 lane 2 way
07 = '1 LANE 1 WAY'	1 lane 1 way
08 = '2 LANE 1 WAY'	2 lane 1 way
09 = '3 LANE 1 WAY'	3 lane 1 way
10 = '4 LANE 1 WAY'	4 lane 1 way
11 = '4 LANE DIVIDED'	4 lane divided
12 = '6 LANE DIVIDED'	6 lane divided
13 = '8 LANE DIVIDED'	8 lane divided
14 = 'OTHER'	Other

LFT_ACCS **SUMMARY OF LEFT TURN ACCS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

MALI_NBR **MALI RAMP NUMBER**

NON-LABELED VARIABLE -- Four-character code identifying the ramp in an interchange.

MILE_DIR **MILEAGE DIRECTION**

0 = 'MILEAGE +WESN'	Mileage increasing from west to east or south to north
1 = 'MILEAGE +EWNS'	Mileage increasing from east to west or north to south

MILEPOST **MILEPOST**

NON-LABELED VARIABLE -- Mileage along control section to interchange. This is used with INV_CNTL to link with other files.

MOTH_ACC SUMMARY OF MULTI-VEH OTHER ACCIDENTS

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

ONRD_ACC SUMMARY OF ON ROAD ACCS

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

OVT_ACCS SUMMARY OF OVERTURNED ACCS

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

PED_ACCS SUMMARY OF PEDESTRIAN ACCS

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

PRKN_ACC SUMMARY OF PARKING ACCS

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

PRKV_ACC **SUMMARY OF PARKED VEH ACCS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

REND_ACC **SUMMARY OF READ END ACCS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

RGH_ACCS **SUMMARY OF RIGHT TURN ACCS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

RMP_TERM **RAMP TERMINAL OR INTERSEC TRAF CNTL**

```
01 = 'FREE FLOW MERGE'        Free flow merge
02 = 'FREE FLOW AD/LNE'       Free flow added lane
03 = 'STOP CONTROL'           Stop control
04 = 'SIGNALIZED'             Signalized
05 = 'YIELD'                  Yield
```

NOTE: This variable will be coded as 00 when there is no ramp "terminal" as defined by a junction. Thus, it will not be coded for normal merge or diverge points.

SDWP_MET **SUMMARY OF SIDESWIPE-MEET ACCIDENTS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

SDWP_PAS **SUMMARY OF SIDESWIPE-PASS ACCIDENTS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

SEQ_NBR **RAMP SEQUENCE NUMBER**

NON-LABELED VARIABLE

SOTH_ACC **SUMMARY OF SINGLE-VEH OTHER ACCIDENTS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

TOT_ACCS **TOTAL ACCIDENTS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

TRA_ACCS **SUMMARY OF TRAIN ACCS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

WET_ACCS **SUMMARY OF WET ACCS**

```
 1 - 5  = '1  TO 5'
 6 - 10 = '6  TO 10'
11 - 15 = '11 TO 15'
16 - 20 = '16 TO 20'
21 - 30 = '21 TO 30'
31 - 50 = '31 TO 50'
51 - 999 = ' 51 + '
```

WRN_SPD **POSTED ADVISORY WARN SPEED**

NON-LABELED VARIABLE

LIST OF VARIABLES FOR MICHIGAN GUARDRAIL INVENTORY FILE

SAS VARIABLE NAME	DESCRIPTION	FILE	SAS VARIABLE TYPE	FORMAT PAGE NO.
APPR_END	APPROACH END TYPE	Guardrail	CHA(2)	I-153
APPR_ENF	APPROACH END FLARING	Guardrail	CHA(1)	I-153
AVG_SECR	AVERAGE SECTION RATING	Guardrail	NUM	I-153
BEGMP	BEGIN MILEPOINT	Guardrail	NUM	I-154
CNTL_SEC	CONTROL SECTION	Guardrail	NUM	I-154
COUNTY	COUNTY NUMBER	Guardrail	NUM	I-154
DIREC	DIRECTION OF INVENTORY	Guardrail	CHA(1)	I-154
ENDMP	ENDING MILEPOINT	Guardrail	NUM	I-154
GRD_LNGT	GUARDRAIL RUN LENGTH	Guardrail	CHA(6)	I-154
GRD_LOC	GUARDRAIL LOCATION	Guardrail	CHA(1)	I-154
GRD_TYP	GUARDRAIL TYPE	Guardrail	CHA(2)	I-155
GRD_USE	GUARDRAIL USE	Guardrail	CHA(1)	I-155
HWY_DIST	HIGHWAY DISTRICT	Guardrail	NUM	I-155
INSP_DAT	INSPECTION DATE	Guardrail	NUM	I-155
INSP_RES	INSPECTION REASON	Guardrail	NUM	I-155
INSTAL	INSTALLATION DATE	Guardrail	NUM	I-156
LAT_DIST	LATERAL DISTANCE	Guardrail	NUM	I-156
LOC_DESC	LOCATION DESCRIPTION	Guardrail	CHA(30)	I-156
MAIN_RES	MAINTENANCE REASON	Guardrail	NUM	I-156
MAIN_RTE	MAINTENANCE ROUTE	Guardrail	CHA(5)	I-156
NBR_POST	NUMBER OF POSTS	Guardrail	NUM	I-156
POST_TRE	POST TREATMENT TYPE	Guardrail	CHA(2)	I-157
POST_TYP	POST TYPE	Guardrail	CHA(1)	I-157
PURPOSE	PURPOSE OF GUARDRAIL	Guardrail	CHA(2)	I-157
RAIL_HGT	HEIGHT OF RAIL	Guardrail	NUM	I-157
RAIL_MAT	RAIL MATERIAL	Guardrail	CHA(1)	I-157
RDWY_TYP	ROADWAY TYPE	Guardrail	CHA(1)	I-158
RTE_NBR1	ROUTE NUMBER 1	Guardrail	CHA(7)	I-158
RTE_NBR2	ROUTE NUMBER 2	Guardrail	CHA(7)	I-158
RTE_NBR3	ROUTE NUMBER 3	Guardrail	CHA(7)	I-158
RUN_NBR	RUN NUMBER	Guardrail	NUM	I-158
RUN_SUFF	RUN NUMBER SUFFIX	Guardrail	CHA(1)	I-158
SEQ_NBR	PHOTOLOG RAMP SEQ NO	Guardrail	NUM	I-158
SHLD_TYP	SHOULDER TYPE	Guardrail	CHA(1)	I-158
TRAIL_EN	TRAILING END TYPE	Guardrail	CHA(2)	I-159
TRL_ENF	TRAILING END FLARING	Guardrail	CHA(1)	I-159
TYP_WOOD	TYPE OF WOOD	Guardrail	CHA(2)	I-159
UPDATE_	UPDATED DATE	Guardrail	NUM	I-159

SAS FORMAT DEFINITIONS FOR VARIABLES FROM THE
MICHIGAN GUARDRAIL INVENTORY FILE

NOTE: SAS variable names and explanatory names are shown above each listing. (See Discussion for information on SAS formats.)

APPR_END APPROACH END TYPE

'00' = 'CABLE GR END'	Cable GR end
'01' = 'BUFF CABLE TERM'	Buffered cable terminal
'02' = 'BUFFERED'	Buffered
'03' = 'CURVED END SHOE'	Curved end shoe
'04' = 'TURNED DOWN'	Turned down
'05' = 'TEXAS TWIST'	Texas twist
'06' = 'ANCHORD TO BRIDG'	Anchored to bridge or barrier wall
'07' = 'EXPOSED ENDING'	Exposed ending
'08' = 'TRANS FRM ANOTHE'	Transition from another control section or ramp
'09' = 'INTERSCTN RADIUS'	Intersection radius
'10' = 'MINNES BULL NOSE'	Minnesota bull nose
'11' = 'ATTENUATOR'	Attenuator
'12' = 'TERMINAL'	Terminal
'13' = 'CABLE TERM'	Terminal cable terminal
'14' = 'SENTRE'	Sentre

APPR_ENF APPROACH END FLARING

'F' = 'FLARED'
'N' = 'NOT FLARED'

NOTE: "Blanks" (uncoded cases) mean the same as 'N' ('NOT FLARED').

AVG_SECR AVERAGE SECTION RATING

0-18 = '0-18'
19-25 = '19-25'
26-50 = '26-50'
51-100 = '51-100'
101-168 = '101-168'
997 = 'NON-STD WD PSTS'
999 = 'PSTS NOT TESTED'

NOTE: This is the wood (post) deterioration rating, with higher numbers meaning more deterioration. A rating between 19 and 25 results in a check for possible replacement.

BEGMP **BEGIN MILEPOINT**

NON-LABELED VARIABLE -- Beginning milepoint of guardrail run -- Used in linkage with other files.

CNTL_SEC **CONTROL SECTION**

NON-LABELED VARIABLE -- Variable used in linkage to other files -- A code for a portion of the trunkline system.

COUNTY **COUNTY NUMBER**

See format under COUNTY in Accident Subfile.

DIREC **DIRECTION OF INVENTORY**

'N' = 'NORTHBOUND'
'E' = 'EASTBOUND'
'S' = 'SOUTHBOUND'
'W' = 'WESTBOUND'

ENDMP **ENDING MILEPOINT**

NON-LABELED VARIABLE -- Ending milepoint of guardrail run -- Used in linkage with other files.

GRD_LNGT **GUARDRAIL RUN LENGTH**

(This is the total length of the guardrail run in feet, including end treatment. The format for use in tables is shown below.)

```
'000000'              = '          0'
'000001' -  '000009' = '1    -     9'
'000010' -  '000029' = '10   -    29'
'000030' -  '000099' = '30   -    99'
'000100' -  '000199' = '100  -   199'
'000200' -  '000499' = '200  -   499'
'000500' -  '000999' = '500  -   999'
'001000' -  '004999' = '1000 - 4999'
'005000' -  '999999' = '5000 +     '
```

GRD_LOC **GUARDRAIL LOCATION**

```
'R' = 'RIGHT SIDE'            Right side
'L' = 'LEFT SIDE'             Left side
'M' = 'CONTIN MEDIAN'         Continuous median
```

GRD_TYP **GUARDRAIL TYPE**

'AA' = 'W-BM/NO BLOCKOUT'	Type A - w-beam, no blockout
'AD' = '2FC W-BM/NO BLK'	Type AD - Type A rail on both faces of posts
'BB' = 'W-BM/BLOCKOUT'	Type B - w-beam with blockout
'BD' = '2FC W-BM/BLKOUT'	Type BD - Type B rail on both faces of posts
'CC' = '2RL WB/BLK-NOBLK'	Type C - two rail w-beam, top rail with blockout, lower rail without blockout
'CD' = '2FACE TYPE C/CC'	Type CD - Type C rail on both faces of posts
'CA' = 'CABLE'	Cable barrier
'TT' = 'THRIE BEAM SCTN'	Thrie beam barrier
'EE' = 'OTHER'	Other
'TD' = '2FACE THRIE BEAM'	Thrie beam on both faces of posts

GRD_USE **GUARDRAIL USE**

'4' = 'RDWAY GRDRAIL'	Roadway guardrail
'5' = 'INTERCH GRDRAL'	Interchange guardrail
'6' = 'REST AREA'	Rest area, weigh station, and scenic area guardrail

NOTE: Codes 1-3 were used in the data collection phase and no longer are present.

HWY_DIST **HIGHWAY DISTRICT**

1 = 'FIRST DISTRICT'	Crystal Falls
2 = 'SECOND DISTRICT'	Newberry
3 = 'THIRD DISTRICT'	Cadillac
4 = 'FOURTH DISTRICT'	Alpena
5 = 'FIFTH DISTRICT'	Grand Rapids
6 = 'SIXTH DISTRICT'	Saginaw
7 = 'SEVENTH DISTRICT'	Kalamazoo
8 = 'EIGHTH DISTRICT'	Jackson
9 = 'NINTH DISTRICT'	Southfield (Metro)

INSP_DAT **INSPECTION DATE**

NON-LABELED VARIABLE -- Date of last inspection (YYMMDD).

INSP_RES **INSPECTION REASON**

1 = 'INITIAL INSPEC'	Initial inspection
2 = '1ST CYCLE INSPEC'	First cyclic inspection
3 = '2ND CYCLE INSPEC'	Second cyclic inspection
4 = '3RD CYCLE INSPEC'	Third cyclic inspection

INSTAL **INSTALLATION DATE**

NON-LABELED VARIABLE -- Installation date (YYMMDD).

LAT_DIST **LATERAL DISTANCE**

(This is the lateral distance of the guardrail from the edge of the travel lane measured in feet. The format for use in tables is shown below.)

```
0 -  1 = ' 0 -  1'
2 -  4 = ' 2 -  4'
5 -  9 = ' 5 -  9'
10 - 14 = '10 - 14'
15 - 29 = '15 - 29'
30 - 99  = '30 +  '
```

LOC_DESC **LOCATION DESCRIPTION**

NON-LABELED VARIABLE -- English description of location of guardrail along a route or street.

MAIN_RES **MAINTENANCE REASON**

1 = 'NEW GUARDRAIL'	New guardrail or total replacement of posts
2 = 'ACCIDENT DAMAGE'	Accident damage
3 = 'REMOVE GUARDRAIL'	Remove guardrail
4 = 'ROUTINE MAINTEN'	Routine maintenance
5 = 'MODFY EXIST RAIL'	Modify existing rail
6 = 'VANDALISM'	Vandalism

MAIN_RTE **MAINTENANCE ROUTE**

NON-LABELED VARIABLE -- Reference system used by MDOT Maintenance Division, consisting of route class and number, filled with zero (example: US-12 is US012).

NBR_POST **NUMBER OF POSTS**

NON-LABELED VARIABLE -- Number of posts in guardrail run (xxxx).

POST_TRE POST TREATMENT TYPE

'01' = 'CRESOTE'	Creosote
'02' = 'PENTA'	Pentachlorophenol
'03' = 'CCA'	CCA
'04' = 'ACA'	ACA

NOTE: This variable contains a large number of uncoded cases and should not be used for analysis.

POST_TYP POST TYPE

'W' = 'WOOD'	Wood
'G' = 'GALVAN STEEL'	Galvanized steel
'P' = 'PAINTED STEEL'	Painted steel
'N' = 'OTHER'	Other

PURPOSE PURPOSE OF GUARDRAIL

'01' = 'PIER PROTECTION'	Pier protection (bridge over road)
'02' = 'BRIDGE PROTECT'	Bridge protection (on bridge)
'03' = 'SLOPE PROTECTN'	Slope protection
'04' = 'MEDIAN'	Median
'05' = 'SIGN ATTACHED'	Sign attached to cantilevers of truss
'06' = 'CULVERT'	Culvert
'07' = 'RR CROSS PROTEC'	Railroad crossing protection
'08' = 'TRANSVERSE(R/L)'	Transverse (right or left side)
'09' = 'ROADSIDE CONTROL'	Roadside control
'10' = 'BRIDGE/SLOPE PRT'	Bridge and slope protection
'11' = 'BRIDGE,SLOPE/SIG'	Bridge, slope, and sign
'12' = 'SLOPE AND SIGN'	Slope and sign
'13' = 'BRIDGE AND SIGN'	Bridge and sign
'14' = 'PIER PROTECTION'	Pier protection and sign
'15' = 'TRANSVER(MEDIAN)'	Transverse (median)
'16' = 'OTHER'	Other
'55' = 'RIGID SIGN SUPP'	Rigid sign support

RAIL_HGT HEIGHT OF RAIL

NON-LABELED VARIABLE -- Height of guardrail in inches.

RAIL_MAT RAIL MATERIAL

'G' = 'GALVANIZED'	Galvanized
'R' = 'RUST(A 588)'	Rusty (A 588)
'C' = 'CABLE'	Cable

RDWY_TYP **ROADWAY TYPE**

'F' = 'FREEWAY'
'N' = 'NON-FREEWAY'

NOTE: "Blanks" (uncoded cases) mean the same as 'N' ('NON-FREEWAY').

RTE_NBR1 **ROUTE NUMBER 1**
RTE_NBR2 **ROUTE NUMBER 2**
RTE_NBR3 **ROUTE NUMBER 3**

NON-LABELED VARIABLE -- Route number in English abbreviation -- Up to 3-route number allowed on a guardrail run (example: BU027, US023, US127, US027BR, M021 etc.).

RUN_NBR **RUN NUMBER**

NON-LABELED VARIABLE -- Unique number within county and maintenance route for guardrail installation.

RUN_SUFF **RUN NUMBER SUFFIX**

NON-LABELED VARIABLE -- Usually blank -- A letter added to the run number to maintain numerical order for a new guardrail installation (example, a new guardrail run between runs 120 and 121 would be numbered 121A).

SEQ_NBR **PHOTOLOG RAMP SEQ NO**

NON-LABELED VARIABLE

SHLD_TYP **SHOULDER TYPE**

'C' = 'CURB'	Curb
'S' = 'SHOULDER'	Shoulder
'B' = 'CURB AND SHLD'	Curb and shoulder
'N' = 'NO CURB/NAR SHL'	No curb and narrow shoulder

TRAIL_EN **TRAILING END TYPE**

'00' = 'CABLE GR END'	Cable GR end
'01' = 'BUFF CABLE TERM'	Buffered cable terminal
'02' = 'BUFFERED'	Buffered
'03' = 'CURVED END SHOE'	Curved end shoe
'04' = 'TURNED DOWN'	Turned down
'05' = 'TEXAS TWIST'	Texas twist
'06' = 'ANCHORD TO BRIDG'	Anchored to bridge or barrier wall
'07' = 'EXPOSED ENDING'	Exposed ending
'08' = 'TRANS FRM ANOTHE'	Transition from another control section or ramp
'09' = 'INTERSCTN RADIUS'	Intersection radius
'10' = 'MINNES BULL NOSE'	Minnesota bull nose
'11' = 'ATTENUATOR'	Attenuator
'12' = 'TERMINAL'	Terminal
'13' = 'CABLE TERM'	Terminal cable terminal
'14' = 'SENTRE'	Sentre

TRL_ENF **TRAILING END FLARING**

'F' = 'FLARED'
'N' = 'NOT FLARED'

NOTE: "Blanks" (uncoded cases) mean the same as 'N' ('NOT FLARED').

TYP_WOOD **TYPE OF WOOD**

'01' = 'RED OAK'	Red oak
'02' = 'HARD MAPLE'	Hard maple
'03' = 'WHITE ASH'	White ash
'05' = 'WHITE HEARTWOOD'	White heartwood beech
'08' = 'JACK PINE'	Jack pine
'09' = 'RED PINE '	Red pine
'10' = 'DUGLAS FIR-LARCH'	Douglas fir-larch
'11' = 'SOUTHN YELL PINE'	Southern yellow pine
'12' = 'RED MAPLE'	Red maple
'13' = 'YELLOW BIRCH'	Yellow birch
'14' = 'HICKORY'	Hickory
'15' = 'PAC CST DOUG FIR'	Pacific Coast Douglas fir
'16' = 'HARDWOOD(MH)'	Hardwood (MH)
'17' = 'JACK PINE(J)'	Jack pine (J)
'18' = 'OTHER SOFTWOOD'	Other softwoods (MS)
'19' = 'OTHER'	Other

NOTE: This variable contains a large number of uncoded cases and should not be used for analysis.

UPDATE_ **UPDATED DATE**

NON-LABELED VARIABLE -- Date of record update (YYMMDD).