

HSIS

HIGHWAY SAFETY INFORMATION SYSTEM

Guidebook for Data Files MINNESOTA

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Introduction to the Minnesota HSIS Guidebook

The Minnesota data system includes the following basic files:

- Accident data:
 - Crash File
 - Vehicle File
 - Occupant File
- Roadlog File
- Reference Post File
- Traffic File
- Intersection File
- Bridge (Structures) File

For ease of use, the three accident subfiles, the Roadlog File, and the Intersection File have been converted to SAS files. The Traffic file (volume data) and data from the Reference Post file (True Mileage) have been merged with the Roadlog file beginning with 1990 data, and no longer exist as separate files within HSIS. Raw file data are provided to the Highway Safety Research Center (HSRC) 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 are available at Federal Highway Administration (FHWA) offices.

Beginning in 2004, the HSIS system was converted from a SYBASE relational database to an ORACLE relational database for internal use. Data files for a given State are linked and manipulated by HSIS staff using SAS code and, as in the past, we have continued to produce SAS format libraries for each of the variables in each of the files. This Guidebook will concern these SAS files - their formats, completeness, and quality. However, researchers requesting data from HSIS can request the output in various formats such as SAS, Microsoft Excel® and Access®, dBase, ASCII, etc.

The accident data are in three separate subfiles, the first containing the basic accident information on a case-by-case basis, and then separate files containing information on vehicles and occupants (injured occupants in 1985-90, injured plus some uninjured occupants in 1991,

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and all occupants beginning in 1992) in each accident case. The vehicle and occupant data (which includes pedestrians and bicyclists) can be linked to the basic accident data for a specific case using the accident report number and vehicle number. The accident subfile can be linked to the other major files (e.g., Roadlog, Intersection/Interchange) using three common variables -- route-system, route-number, and reference point. Beginning in 1991 the Minnesota Department of Transportation (MnDOT) made extensive changes in their accident reporting system. These will be described in more detail in the later text.

Unlike an Accident File record which is referenced to a point on the roadway, each record on the Roadlog File contains information on a homogeneous section of roadway (i.e., a stretch of road which is consistent in terms of characteristics), with each new section being defined by a new beginning reference point. Each record on this Roadlog File contains current characteristics of the road system including surface type and width, shoulder and median information, lane information, etc.

The Reference Post ("True Mileage") File receives from MN contains "true mileage" information on some of the sections within the Roadlog File, primarily the Interstate and major arterials. Where available, this information is used in the calculation of the lengths of homogeneous sections in the Roadlog File. For sections where Reference Post File data do not exist, the section length is estimated by subtracting the beginning mile points for two consecutive sections of roadway. A 1990 HSIS staff analysis indicated that the use of these estimated section lengths based on mileposts (i.e., where "true mileage" is absent) appears sufficiently accurate for analyses conducted with HSIS data.

The Traffic File contains estimated count information (yearly AADT's) for a series of count stations located on all roadways described in the Roadlog File. It is maintained by the eight different MnDOT District Offices. This AADT information is linked to and included with the sections on the Roadlog File using the reference point. This file also contains AADT's for heavy commercial vehicles which are defined as vehicles with two axles and six tires or larger. The file is updated on a two-year cycle, and indications are that these traffic count data are excellent for the trunk line system and fairly good for the county state-aid systems. Again, please note that traffic data were merged with the Roadlog File beginning in 1987. The Traffic File also still remains a separate file on the HSIS system for years 1987 thru 1989, but is no longer available as a separate file on the HSIS system after 1989.

The Intersection/Interchange File contains information concerning intersections on major roadways that are maintained by the eight different MnDOT Districts across the state. It contains a number of different variables including approach lane information, entering AADT, intersection control type, and added details for signalized intersections. The file will contain intersections of US/US, US/state, and all interchanges.

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Due to established priorities of effort, while HSIS staff receives the Bridge File, the raw data are not converted to an HSIS file. Contact HSIS staff for more information. As is the case with most States, the Bridge File data contain information on bridge structures across the State. The data are considered quite accurate since it is based on the federal bridge inventory. It is also noted that the MnDOT Bridge Division that updates this file has a file of pictures of each bridge that is greater than 10 feet in length.

Details of the Accident, Roadlog, Intersection/Interchange files and the traffic data are presented in the following section.

DETAILS OF MAJOR FILES -

The Accident Files

Minnesota law requires that an accident report be filed by the investigating police officer whenever there is injury in the crash or property damage of greater than \$500 prior to 1994 and greater than \$1,000 in August, 1994 and later. The accident data are controlled by the Department of Public Safety (DPS), where a group of coder/editors not only keys in the data, but also locates each of the accidents based on the inputs provided on the report by the investigating officer and a series of maps showing the route identification and locations of prominent features and intersections. While incorrectly coded locations are identified by MnDOT edit programs and are passed back to the coders for possible correction, DPS staff limitations have prevented correction of all such errors. Thus, from an engineering analysis standpoint, there remain some location errors in the system. However, given the relatively small percentage of location errors identified and the fact that the main result of these errors is to reduce the sample size of available accidents (a problem partially overcome by the large samples available for most HSIS-type analyses), the location information should be of higher quality than in most States. It is also noted that accidents that occur on interchange ramps are located to the center of the interchange. Thus, in bridge-related analyses, if the major route crosses over the minor route, the ramp accidents will be (erroneously?) located to the bridge.

MnDOT send an annual accident file to HSIS each year. Currently, there are 27 years of accident data in the linkable Minnesota files obtained for the HSIS -- 1985-2010. Prior to 1991, the original data set received from Minnesota included approximately 90,000 accidents per year and approximately 170,000 vehicles per year. However, for use in the HSIS system, the "citizen reports" (i.e., code "o" under "Officer Type") have been deleted due to both missing data and inherent biases in these reports. In addition, the very limited number of crashes which cannot be linked to the roadway file have also been deleted. This process has left approximately 71,000 - 73,000 crashes and 130,000 - 137,000 vehicles in the HSIS files for 1985-

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2010.Changes in the numbers of vehicles in the HSIS Vehicle subfiles track the changes in accidents very closely- there are no “abnormal” years.

The number of total crashes in 2003 is approximately 10,000 lower than for prior or subsequent years. Conversations with MN DOT staff indicated that this was during a transition to a new crash reporting system, and that almost all of the decrease would be in non-injury (PDO) crashes. HSIS quality control runs on critical variables indicated that the 2003 distributions are similar to other years. However, the user should be aware of this bias in the data.

Major changes which affect the consistency of the crash data across years include (1) changes to both the crash report form and computer systems used in crash coding and a statewide campaign to increase reporting in 1991, and (2) a change in the crash reporting threshold from \$500 to \$1000 in late 1994.

The Vehicle and Occupant subfiles are similar in format to those in other states. The Vehicle Subfile contains variables on both the vehicle (e.g., make, model, type, direction traveling, contributing factors), and on the driver (e.g., age, sex, physical condition). The Vehicle Subfile also contains information on a four-part sequence of events for each vehicle, which provides more detail on vehicle “paths” than do most state files. The Occupant subfile contains information on such descriptors as age, injury, position in vehicle, ejection, etc. for each occupant in the vehicle, including the driver. It is again noted that the occupant records are not total occupant records for years 1985-1989, but simply consist of those occupants who are injured in the crashes. For those earlier years, there are approximately 39,000 occupants in the file each year. While coding of uninjured occupants began in 1990, it appears that complete coding on all occupants is present in 1992 and later years. There is also an increase in the number of occupant records in 1996 and later due to an internal procedure which added “placeholder” occupant records if necessary to match the “number of occupants” for that vehicle as entered by the investigating officer. The assumption was that the officer would record the “count” variable correctly, but might not include data on each uninjured occupant.

Information related to data completeness and accuracy in these three subfiles is based on three sources -- conversations with Minnesota staff who use the data, information developed through past use of the data by HSIS staff and other researchers, and a series of computerized quality control checks conducted by HSIS staff each time a new annual set of files is received from Minnesota. These checks compare the new year data to that of the preceding year and screen for changes in file frequencies (e.g., total crashes, total vehicles), percent of “unknowns” or blanks and changes in coding distributions for each variable in each subfile (e.g., changes in driver gender or crash type distributions between years). When problems are found, HSIS staff works with the State staff to correct them, and where needed,

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additional information was added under the variable listing in the later format section of this Guidebook.

In addition, when the initial data were received from Minnesota, a series of comparisons were made of variables which should have been somewhat similar on the accident file according to their definitions – e.g., urban/rural with investigating officer, interchange related with interchange element codes, accident diagram (by coders) with accident type (by investigating officer). In general, the variables were found to be internally consistent. Where issues were found, additional information was added to the formats.

In summary, analysis of the Minnesota accident files indicated that the files are, in general, quite accurate and internally quite consistent with few exceptions. The 1991 changes did result in some new codes and some inconsistency with prior years' data, particularly for the 1991 data. The 1992 and later data appear to again be consistent with fewer uncoded cases than in 1991. Where high percentages of uncoded data or possible inaccuracies/inconsistencies have been found, an "ADDITIONAL INFORMATION" has been included under the variable listing in the later format section of this Guidebook.

The Roadlog File

As noted above, the Roadlog file contains current characteristics of the road system. The 135,000-mile system contains approximately 12,000 miles of the primary "trunk" roadway, 33,000 miles of additional state-maintained county and municipal systems, and 90,000 miles of (non-state maintained) county and local roads. Table 1 provides a breakdown of the 58,000 (57,655) miles of paved, two-way roadway and 85,000 miles of "other" roadway in the state (i.e., either unpaved or county/local roads without complete inventory information).

The state maintained portion of the file is basically updated daily based on construction and maintenance plans and input from the local division engineers. Data changes are extracted from these plans and are activated in the system on the date that the project has been completed. An "effective date" is placed on the file at that time to indicate that one or more of the variables for that roadway section have been changed.

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Table 1 HSIS roadway mileage by roadway category (2012 data).

Roadway Category	Mileage
Urban freeways >= 4 Lanes	409.905
Urban freeways < 4 Lanes	2.28
Urban multilane divided non-freeways	1,012.572
Urban multilane undivided non- freeways	542.74
Urban 2 In highways	15,948.9
Rural freeways >= 4 Lanes	662.84
Rural freeways < 4 Lns	0.00
Rural multilane divided non-freeways	912.173
Rural multilane undivided non-freeways	85.447
Rural 2 In highways	39,053.78
Other	84,775.09
Total	142,977.1

Again, the DPS makes a frozen copy of the roadlog file annually for submission to HSIS. However, unlike other states, this is not done at the end of the calendar year, but at the time when the accident file is finalized for a preceding year. This is usually between March and July of the following year. The file received by HSIS from MnDOT contains approximately 303,000 records. Approximately 103,000 of these records are "false" records used to signify ends of routes, beginnings of coinciding routes, gaps in sections, and other records needed to allow analysis of the files. These "false" records are flagged by values in the "Remark" variable, and, thus, any record with blanks in this variable (approximately 220,000 "true" records) represents a section of "homogeneous" roadway where characteristics remain constant. For the 1994 and later HSIS files, all "false" records are deleted.

These 220,000 records cover approximately 135,000 miles of roadway. The HSIS system currently contains twenty-one Roadlog files, representing current characteristics in 1989-1992, 1994-1996 and 1998-2010. (The 1987 file, which was originally in the HSIS system, could not be reformatted for consistency in recent file modifications. Thus, it is no longer a part of the system. The 1993 file was omitted from the system due to missing mileage in the

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raw file. The 1997 file received could not be linked with crash data. The analyst can link the 1997 crash data with either the 1996 or 1998 files.)

Two new variables, RODWYCLS and MVMT, have been created by HSIS staff in the roadway segment file of each of the HSIS states. The RODWYCLS (Roadway Class) variable is based on the combination of rural/urban, access control, number of lanes and median type variables. This variable classifies each roadway segment into one of ten roadway types described in the later "Format" section. This variable is also included as an accident-file variable by matching each crash to its corresponding roadway segment. The MVMT variable (Million Vehicle Miles of Travel) is calculated for each segment in the roadway file by multiplying the segment length, AADT and 365 days in a year, and dividing by one million. Both these variables were created in response to inquiries from data users, whose most frequent questions have concerned either crash frequencies or rates (per MVMT) for one or more of these roadway classes.

As with the crash data, the accuracy and completeness of the file are again assessed through conversations with Minnesota staff who use the data, information developed through past use of the data by HSIS staff and other researchers, and a series of computerized quality control checks conducted by HSIS staff each time a new annual file is received from Minnesota. When problems are found, HSIS staff works with the State staff to correct them, and where needed, additional information was added below that variable in the later format sections of this Guidebook.

Minnesota staff feels that, in general, the updating system and the quality of the data are excellent on 13000 miles of the primary roadway, good on an additional 35000 miles of state-maintained systems, and adequate or "average" on an additional 94000 miles of county and local roads. The single-variable quality control checks indicate few variables with a significant percentage of missing or "unknown" codes. In addition, cross checks of the similar variables in the initial files such as shoulder width and type on different sides of the roadway, pavement type on the divided sections of highway, and others indicated quite consistent data across the variables once the uncoded values were removed. Thus, the file appears accurate, as would be expected from the continuous update procedures in place. (Note that there are some problems with the AADT variable in this file for some roadway systems. The details are presented below under "Traffic Data".)

Finally, there is the remaining issue of how to handle the linkage of accidents with divided roadways where the Roadlog information is divided into "roads 1 and 2". Unfortunately, because there is no information on the accident report related to "road 1 or 2", there is no simple way of linking a given crash with the proper piece of pavement. As part of their merging system, Minnesota has attempted to develop some logic for such an assignment

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based on the direction of travel from the crash form and the mile posting direction from the Roadlog file. However, they are not satisfied that even their best attempt at such logic is accurately assigning the accidents.

We further examined this issue by printing out 200 records related to divided highways in the 1987 file and compared the individual variables for road 1 with road 2 which are related to right shoulder width, right shoulder type, surface width, surface type, left shoulder width, left shoulder type, and the presence or absence of curbs on one or both sides of the roadway. The question being examined here was whether or not there were significant differences between, say, the right shoulder width or type on road 1 versus the same variable for road 2. If little difference is found, it would be possible to simply link any accident occurring on a divided highway section with the characteristics of road 1.

The analysis indicated very little difference between most of the variables on the two roads. Right and left shoulder type, shoulder width, and curb presence on the two roads "disagreed" in only 1 - 4 percent of the cases. The only major area of disagreement was in the variable related to "surface width" for the two roads, where differences were noted in 26 (13%) of the records. Of the 26 disagreements, three surface widths disagreed by two feet, five disagreed by 3-5 feet, 13 disagreed by 10-14 feet (an additional lane), and 5 disagreed by 15 to 20 feet.

Based on these findings, we suggest that two options exist for the analyst in future efforts. First, in all cases where the "divided and one-way code" indicates a "divided rd1 and rd2," programs could be developed to check for differences between road 1 and road 2 values for the variables in question, and records could be dropped from the analysis where differences exist. Or second, for all variables except surface width, the analyst could simply link accidents on divided roadways with "road 1" data. We feel that this second option is quite defensible given the low "disagreement rate" (which would most likely be lower than the error rate related to crash data). With respect to surface width, we suggest that the disagreeing records be dropped from the analysis since there is no good way to accurately link accidents with the appropriate surface width.

Traffic Data

The Traffic File sent by MnDOT contains information related to AADT data for all roadway sections across the state. For ease of analysis, HSIS programs link these data with the Roadlog file, producing an estimated AADT for each homogeneous section in that file. Details of this linkage process are at the end of this section.

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The traffic information is manually derived from sample and continuous counts taken at temporary and permanent count stations throughout the State. It contains total AADT's and AADT's for heavy commercial vehicles which are defined as vehicles with two axles and six tires or larger.

Like other states, Minnesota develops traffic volume estimates based on automatic traffic recorder stations (ATR's) and short-term (48-hour) "coverage" counts. There are approximately 70 ATR's which count traffic 24 hours per day, 365 days per year across the various roadway types. These are located on all classes of both rural and urban highway, with approximately 55% of the locations being on urban roadways and 45% on rural roadways.

In addition, there are approximately 32,500 coverage (temporary) count locations across the State where 48-hour counts are made. Approximately 12,000 of these locations are covered each year. For the trunk highway system (including Interstate roads), these counts are made on a two-year cycle, as are counts on roads within the Twin Cities Metro Area. For the lower-order County State- Aid Highways and the Municipal State-Aid System outside the Twin Cities Metro Area, the counts are made on a four-year cycle.

The seasonal adjustment factor for a given coverage count is based on counts made at ATR's which are similar to the coverage count location. Here, ATR's are grouped into the following classifications:

Outside (i.e. Non-Metropolitan Area)

- Rural, farm to market roads
- Rural, weekend recreational road
- Rural, summer peak recreational road
- Municipal, non-recreational road, under 5000 population
- Municipal, non-recreational road, over 5000 population
- Municipal, recreational road, under 5000 population
- Municipal, recreational road, over 5000 population

Metropolitan Area

- High commuter route
- Commuter shopper route
- Low recreational route

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Seasonal adjustment factors, based on the data for the previous three years, are developed for each classification and are applied to all coverage counts collected at locations within that classification.

For the "non-count" years, a growth factor is applied to the previous year's data based on changes in counts at the ATR stations located on the same functional class of roadway. When new data are available at the end of the next count cycle, these data for the interim, non-count years are readjusted to represent the average of prior and subsequent count years (e.g., a 1987 "non-count" year estimate based on the growth factor would be readjusted to represent the average of 1986 and 1988 counts at that location as soon as the 1988 count year is completed).

In developing AADT estimates for each section of roadway, there are sometimes road sections with no historical count data (e.g., lower order local facilities including township roadways and local streets). In these cases, an original "baseline" estimate is based on ATR counts on lowest order roadways with the lowest counted volumes. Growth factors for these uncounted sections are also based on this same ATR group.

MnDOT also collects vehicle classification counts at about 1200 sites per year. These are 48-hour tube counts and four hour (e.g., 9 AM to 1 PM) manual classification counts; both types are collected during weekdays and between the months of April and October. In addition, portable vehicle classifiers are deployed to collect 48-hour data. Currently, there is no program to seasonally adjust the classification counts. There are an additional 15 Weigh-in-Motion stations statewide that collect classification data. However, these data are used less than the manual classification counts.

The new count data are placed in the Traffic file within the first six months of the subsequent calendar year.

Prior to 2007, the traffic data received by HSIS were associated with "points" on the roadway – mile posted locations of the count stations. When linked to the Roadlog file, there would be Roadlog sections with one current count, sections with no current counts and sections with multiple counts. Thus, to determine the average AADT for a given year for a given Roadlog section, (1) the traffic section reference points was matched with the appropriate Roadlog sections by comparing the reference point with the beginning and ending milepoint on Roadlog sections (with the ending milepoint being "assigned" as being equal to the beginning milepoint on the succeeding section), (2) the appropriate yearly AADT for each contained Traffic file record was extracted, and (3) the counts were averaged for sections where multiple Traffic file records exist. If no Traffic file record existed for a given Roadlog section, then the section AADT is assumed to be equal to the AADT at the previous (upstream)

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traffic section on the same route. This “carry-forward” method is also used by Minnesota staff in their AADT estimates for non-count segments. Using this method a single “Average AADT” variable was developed for each Roadlog section on each Roadlog file. The end points of the homogeneous Roadlog sections were not changed.

For 2007 and later, the raw data are “AADT sections”, where MN has assigned an AADT to a full section with a begin and an end milepoint. For these data, the AADT sections are linked with the roadlog sections that include it. Since the AADT sections do not always match the begin and end milepoints of a Roadlog section, the homogeneous roadlog section is now split into two or more sections, making each new Roadlog section also homogeneous with respect AADT. For 2007 and later Roadlog sections that do not have a corresponding AADT section (i.e., there is a gap in the AADT sections for a given route), the same “carry-forward” method of assigning AADT is used as in the pre-2007 data. While this change in processing may result in some differences in AADT for the same section if comparing pre-2007 data to 2007 and later data, the possible errors are not felt to be significant, and the use of the newer “AADT sections” is felt to produce more accurate estimates in the 2007 and later data.

Since it is not possible to perform an independent “check” of the accuracy of the AADT information, it is assumed that the procedure in place in Minnesota to monitor count stations and update the file provides adequate information. As indicated above, these are felt to be excellent data for the trunk line system where they are updated on a two-year cycle. This would include roadway segments which have a Route System equal to 01 (Interstate Trunk Highway), 02 (US Trunk Highway) and 03 (Minnesota Trunk Highway). There is also felt to be good AADT data for the county state-aid systems (i.e., Route System 04) which are generally updated on a four-year cycle and for Route System 05 (Municipal State-Aid Highway). AADT data for segments of County (Non-State-Aid) routes are felt to be less accurate than the above noted five route systems, but the AADT data are likely sufficient for use in analyses. Discussions with the MNDOT staff indicate that segments in the Roadlog File that have a Route System of 08 (Township Road) and 10 (Municipal Street) are likely to include AADT estimates that may be default values rather than counted values, and these default values are likely to not change over time. Subsequent analysis by HSIS staff comparing 2008 with 2012 AADTs for the same segments within these two system classes supported this assessment. The analyst may wish to consider this in the choice of segments to be analyzed.

The Intersection/Interchange File

As noted above, the Interchange/Intersection File is a file of intersections on major roadways that are maintained by the eight different MnDOT Districts across the state. The file will contain intersections in which the primary route is either a US or MN Trunk Highway and

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the crossing route can be almost any route system – US, State, County State-Aid, Municipal State Aid, County (Non-State Aid), Township, and Municipal City Streets. The files currently available include years 1987 and individual files for years 1990-2012. There are approximately 2,600 interchange records (describing parts of interchanges) and records for approximately 7,200 unique intersections.

Conversations with a limited sample of current district traffic engineers and a retired State Traffic Engineer who helped design the system indicate that while the criteria for choosing the "original" intersections may have differed slightly from district-to-district (since no criteria were actually defined), the overall purpose for building the file was to allow for subsequent identification of high-accident locations. Thus, originally, all intersections which were to be examined for accident problems were included, which appears to mean all "major" intersections, regardless of past accident problems. Once on the file, an intersection has remained so that its accident frequency and rate can be examined each subsequent year. (Thus, "low accident sites" for a given year are not dropped from the file.) In summary, while not a "random" sample of major intersections, the original (or subsequent) intersection choice does not seem to greatly bias the file for analysis purposes.

There is no regular system of update, but changes are noted when they are found. One district now seems to have well updated data while the other districts may or may not have data updated on a regular basis. Using this file, accident rates for the intersections can be developed. It is noted that the file is characterized by intersections of one roadway with all of the roads that cross it. Since location information is present for all crossing routes, it is possible to link all routes with the Roadlog file information.

There was a major change in the format of the intersection/interchange files in 2001. It was not possible to convert the pre-2001 files to the later format, so two formats are described below and shown in the later variable descriptions.

For the pre-2001 files, as noted above, there are approximately 2600 interchange records within the file. Each interchange will have a primary record, and for some interchange types (primarily diamond interchanges), there will be additional supplemental records on each "intersection within interchange." There are approximately 4000 of these supplemental records in the file. These supplemental records will also contain additional information the type of interchange element (e.g., mainline between ramps, exit ramp, intersection at ramp terminal on crossing roadway, etc.) More detail on the coding is provided under ELEM_NBR in the later format section.

Each SAS intersection record in these early-year HSIS files contains three different types of "sub records": (1) a set of "general" variables describing the entire intersection (e.g.,

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intersection type), (2) a set of "reference" variables for each of six possible incoming routes, referred to as "segment" variables, and (3) a set of variables for up to two "legs" (or approaches) per route (e.g. approach AADT, speed limit).

Because of the complexity of the file, there will be times when the analyst wishes to look at routes rather than on individual intersection "legs." For this reason, HSIS staff has developed programs which will produce a modified file named the Intersection Route File. This file consists of a record for each route of the intersecting routes of an intersection. Many of the variables are still the same as in the basic Intersection File. The major difference in this file is that the variables represent descriptions for each route. The "In" and "Out" descriptors denote the incoming and outgoing routes of each leg. This file format can be produced for the user by HSIS staff on request.

Beginning in year 2001, the layout of intersection/interchange file changed. In these later-year files, each record is a component of an intersection or interchange. For example for a four-legged intersection, there are four records, one for each leg. Similarly for a diamond interchange there are 12 records, four mainline records and eight ramp records. The descriptions and coding for each of variables in these later-year files are included in a separate section later in this Guidebook. A unique id (RECORD_ID) has been created for each record which is a combination of RTSYSNBR, MPOFFSET, ELEM_NBR and LEGNBR

The completeness and accuracy of the data in these files are again assessed through the above-noted conversations with Minnesota system designers and users, examination of single-variable tabulations for key variables, HSIS analyses, and, for the initial files received, limited cross-checking of data in the files versus video logs of intersections found in the Minnesota videodisk system.

Examination of the single-variable tables indicates that while there is a higher proportion of uncoded data than in other major files, adequate coding exists for most variables. It is noted that there is a significant amount of missing AADT data (10 to 30 percent) in the "segment 2, leg 2" records -- records usually related to the second (opposing) approach of the minor crossing roadway. AADT's are usually present for both legs of the major roadway and for the first leg of the minor roadway. One solution that has been used thus far is to assume that the missing leg 2 AADT is equal to the leg 1 AADT on the same route.

More importantly, we have determined from analyses and conversations with MnDOT staff that there are two issues with the leg AADT data in the file. First, the majority of the AADT data in the Intersection/Interchange file are not current -- they do not match the year of the file. The user can determine which year the AADT was collected for each leg from the "AADT Year" variable attached to each leg. However, we have found that the "AADT Year" will

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very seldom be the current (file) year, and that the year of the AADT count can be different for different legs of the same intersection. For major routes, more recent AADT information can be extracted from the Roadlog File by linking the intersection leg with the appropriate roadway segment in that file. Unfortunately, we cannot suggest a method for "updating" the AADT data to later years for crossing roadways not found on the Roadlog file. Since multiple year data are often shown in the file, the user may be able to develop a "trend-related update", but we cannot assure that the estimates will be correct.

The second AADT issue is the one noted in the "Traffic Data" section above – AADT information for some non-trunkline crossing routes are not felt to be as accurate as for crossing routes which are more major in nature. More specifically, AADTs are felt to be accurate when the crossing route has a Route System of 02-05 (i.e., US, State, County State-Aid and Municipal State Aid). They are likely of acceptable accuracy for County (Non-State Aid) routes (i.e., Route System 07). The accuracy of AADT estimates for Township routes (Route System 08), and Municipal City Streets (Route System 10) is questionable. For better accuracy, the analyst may wish to restrict analysis to intersections where all legs have route systems 02-05 or 02-07. Of the 7,200 intersections in the file, approximately 3,000 have all legs with Route Systems of 02-05. Approximately 3,800 have all legs with Route Systems of 02-07.

With this AADT exception, the file is complete in that there are few true "missing" or miscoded values. Other variables seem to be updated in a more timely manner. There is a large number of "not applicable" codes within many of the variable, but this appears to result from the fact that some of the variables are specific to special types of intersections (e.g., intersections within interchanges, signalized intersections, and pedestrian crossings).

The preliminary HSIS analyses have indicated some additional problems with a limited number of variables. As with all files, incomplete coding or apparent inaccuracies are detailed in an "ADDITIONAL INFORMATION" under the pertinent variable in the later SAS format section.

In a final check of accuracy of the initial files received, the descriptive variables for a significant sample of the intersections on the file were manually compared to a videotaped picture of the intersection. The picture was located in the Minnesota videodisk system which covers all major Minnesota routes, and which is available at FHWA for research efforts. In general, it was found that the data on the Intersection File are accurate and reliable for interchanges, signalized intersections, and major unsignalized intersections (e.g., unsignalized intersections with turn lanes on major routes). The comparison pointed out that there are cases in which more than one intersection is located on the File at the same milepoint. The videolog indicated that this usually happens when there are intersections within an

Details of Major Files

interchange, as would be the case with diamond interchanges. This situation can be detected using the TYPE variable.

In general, while not perfect, the Intersection/Interchange File is clearly adequate for analysis purposes. The only major problem is with the timeliness of the AADT data and the accuracy of the AADT data for intersections in which the crossing route is a Township route or a Municipal City Street.

Issues Related to Merging Files

As noted above, the accident data are subdivided into three subfiles -- accident, vehicle and occupant. These subfiles can be linked together using the "case number" variable (i.e., CASENO) present in each of the three files. When linking the 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 Occupant file with the other two subfiles, first sort both the Vehicle subfile and Occupant subfile by case number and vehicle number. Next sort the Accident subfile by case number. Alternatively, the separate subfiles can be 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 using information related to route system, route number, and milepost on the route. The actual linkage variables on the Accident file which are used in the merging operation are RTSYSNBR (a combination of route system and route number) and MILEPOST. The linkage variables on the Roadlog File are BEGMP, ENDMP, and RTSYSNBR.

To prepare the Accident subfile for linking with the Roadlog File using a SAS data step process, the analyst must sort both the Accident and the Roadway File into location order by RTSYSNBR and MILEPOST on the Accident file and by RTSYSNBR 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 RTSYSNBR from both files and a range match where MILEPOST occurs between BEGMP and ENDMP

To link the Accident File with the Intersection/Interchange File requires similar logic, but somewhat more file manipulation. And the linkage is different for the two different sets of annual files.

Details of Major Files

For the 2000 and earlier files, again the basic linkage variables are route system, route number, and milepost. For the primary route within the Intersection/Interchange File (i.e., the initial reference route identified in the "general" variables), route system, and route number have already been combined into INT_SYNB and reference point information has been converted to MILEPOST. Thus, the linkage is similar to the Roadlog file linkage. However, matching crashes (or Roadlog information) to the individual segment variables which define all possible crossing routes is somewhat more complex. Here, the Intersection File does not contain the combined route/system variable (INT_SYNB), so the two individual variables (RTE_SYS, RTE_NBR) must be combined before matching. In addition, the milepost variables must be derived from the "Reference Point" variable (REF_PNT). The REF_PNT variable consists of 10 bytes (i.e., 050+00.900). The first three bytes is the "reference post" and the last three bytes is the offset from the reference post. To develop the milepost variable, bytes 5-6 will need to be removed (i.e., 50.900). Once these new variables are formed, the same linking logic described above can be used. Note that programs to carry out these conversions and file linkages have been developed by HSIS staff and can be obtained from the staff when needed.

For the post-2000 data, each leg of intersection or each component of an interchange is identified by RTESYS₂, RTENBR₂ and MPOFSET₂. However to exactly match the crashes to each component of either an intersection or interchange, MN DOT has provided a LET_TRUE_MP variable. If the user wishes to link crashes to each leg of an intersection or route element of an interchange then the records should be sorted by RTSYSNBR₂ (a combination of RTESYS₂ and RTENBR₂) and LEG_TRUE_MP.

In order to match the crashes to the ramps of an interchange, first identify all ramp accidents by searching for those in which INTERCH is non-missing. Identify all ramps by searching for those records in the intersection/interchange file in which ELEM_NBR is non-missing. The crashes should then be sorted by RTSYSNBR, INTERCH, MILEPOST and ramps should be sorted by RTSYSNBR₂, ELEM_NBR and LEG_TRUE_MP.

Finally, where appropriate and possible, a format which 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 which 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.

Composite List of Elements

SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
AADT	CALCULATED AVERAGE AADT	Roadlog	NUM	91
AADT1	YEAR 1 AADT	Intersct-chg	NUM(8)	142
AADT111	SEGMENT 1, LEG 1, YEAR 1 AADT	Intersct-chg	NUM	135
AADT112	SEGMENT 1, LEG 1, YEAR 2 AADT	Intersct-chg	NUM	135
AADT113	SEGMENT 1, LEG 1, YEAR 3 AADT	Intersct-chg	NUM	135
AADT114	SEGMENT 1, LEG 1, YEAR 4 AADT	Intersct-chg	NUM	136
AADT115	SEGMENT 1, LEG 1, YEAR 5 AADT	Intersct-chg	NUM	136
AADT2	YEAR 2 AADT	Intersct-chg	NUM(8)	142
AADT3	YEAR 3 AADT	Intersct-chg	NUM(8)	142
AADT4	YEAR 4 AADT	Intersct-chg	NUM(8)	142
AADT5	YEAR 5 AADT	Intersct-chg	NUM(8)	142
ACC_DATE	DATE ACCIDENT OCCURRED	Accident	CHA(8)	31
ACCDIGM	DIAGRAM OF ACCIDENT CODE	Accident	NUM	31
ACCESS	CONTROL OF ACCESS	Roadlog	NUM	91
ACCTYPE	TYPE OF ACCIDENT	Accident	NUM	32
ACCYR	YEAR ACCIDENT OCCURRED	Accident	CHA(4)	33
ADLN_RD1	ADDITIONAL LANES - ROAD 1	Roadlog	CHA(1)	92
ADLN_RD2	ADDITIONAL LANES - ROAD 2	Roadlog	CHA(1)	92
ADTYR1	AADT YEAR 1	Intersct-chg	NUM(8)	142
ADTYR111	SEGMENT 1, LEG 1, YEAR 1	Intersct-chg	CHA(2)	135
ADTYR112	SEGMENT 1, LEG 1, YEAR 2	Intersct-chg	CHA(2)	135
ADTYR113	SEGMENT 1, LEG 1, YEAR 3	Intersct-chg	CHA(2)	135
ADTYR114	SEGMENT 1, LEG 1, YEAR 4	Intersct-chg	NUM	136
ADTYR115	SEGMENT 1, LEG 1, YEAR 5	Intersct-chg	CHA(2)	136
ADTYR2	AADT YEAR 2	Intersct-chg	NUM(8)	142
ADTYR3	AADT YEAR 3	Intersct-chg	NUM(8)	142
ADTYR4	AADT YEAR 4	Intersct-chg	NUM(8)	142
ADTYR5	AADT YEAR 5	Intersct-chg	NUM(8)	142
AGE	AGE OF INJURED/KILLED	Occupant	NUM	75
AGENCY	REPORTING AGENCY	Accident	CHA(4)	33
AIRBAG	AIRBAG DEPLOYED	Occupant	CHA(2)	75
ALCOHOL_RESULT	BLOOD ALCOHOL TEST RESULT	Occupant	CHA(2)	76
ALCOHOL_TEST	BLOOD ALCOHOL TEST PERFORMANCE	Occupant	CHA(1)	76
AMBL_NBR	AMBULANCE NUMBER	Accident	CHA(6)	33
AP_BP_TL	APPROACH BYPASS/TURN LANES	Intersct-chg	NUM(8)	143
AP_CNTL	APPROACH TRAFFIC CONTROL	Intersct-chg	NUM(8)	143
AP_COMNT	APPROACH COMMENTS	Intersct-chg	CHA(7)	144
AP_SPD	APPROACH SPEED LIMIT	Intersct-chg	NUM(8)	145

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SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
AP_SPD11	SEGMENT 1, LEG 1, APPROACH, APPROACH, SPEED LIMIT	Intersct-chg	NUM	136
AP_TLOFF	NUMBER OF APPROACH THRU LANES DURING OFF-PEAK PERIOD	Intersct-chg	NUM(8)	145
AP_TLPEK	APPROACH BYPASS/TURN LANES DURING PEAK PERIOD	Intersct-chg	NUM(8)	145
APCNTL11	SEGMENT 1, LEG 1, APPROACH, TRAFFIC CONTROL	Intersct-chg	NUM	137
BAS_TKR1	BASE THICKNESS - ROAD 1	Roadlog	CHA(3)	92
BEGMP	CALCULATED BEGIN MILEPOST	Roadlog	NUM	93
BEGMP	CALCULATED BEGINNING MILEPOST	Intersct-chg	NUM(8)	145
BIRTH_DT	BIRTHDAY	Occupant	CHA(8)	76
BRK_CD	BREAK CODE	Roadlog	NUM	93
CASENO	ACCIDENT NUMBER	Accident	CHA(11)	33
CASENO	ACCIDENT NUMBER	Occupant	CHA(11)	77
CASENO	ACCIDENT NUMBER CODE	Vehicle	CHA(11)	55
CITY	CITY NUMBER	Accident	CHA(4)	34
CITY_NBR	CITY NUMBER	Roadlog	CHA(4)	93
CNTL_CAT	CENTRAL OFFICE CATEGORY	Intersct-chg	CHA(2)	120
CNTL_CAT	CENTRAL OFFICE CATEGORY	Intersct-chg	CHA(2)	145
COLOR	COLOR OF THE VEHICLE	Vehicle	CHA(3)	55
COMM_ADT	CALCULATED AVERAGE COMMERCIAL AADT	Roadlog	NUM	94
CONTRIB1	FIRST CONTRIBUTING FACTOR	Vehicle	NUM	55
CONTRIB2	SECOND CONTRIBUTING FACTOR	Vehicle	NUM	55
CORN_RPT	CORONER REPORT RECORD	Occupant	CHA(1)	77
COUNTY	COUNTY	Accident	NUM	34
COUNTY	COUNTY	Roadlog	NUM	94
CURB1	CURBS - ROAD 1	Roadlog	CHA(1)	94
CURB2	CURBS - ROAD 2	Roadlog	CHA(1)	94
DAMSEV	VEHICLE DAMAGE SEVERITY	Vehicle	CHA(1)	56
DESC	ROADWAY DESCRIPTION	Roadway	CHA(51)	95
DESC_	INTERSECTION DESCRIPTION	Intersct-chg	NUM	120
DESC_	INTERSECTION DESCRIPTION	Intersct-chg	NUM(8)	146
DIR	APPROACH DIRECTION	Intersct-chg	NUM(8)	146
DIR_CDE	DIRECTION CODE	Roadlog	CHA(2)	95
DIRECT11	SEGMENT 1, LEG 1 DIRECTION	Intersct-chg	NUM	137
DIST_CAT	CATEGORY ASSIGNED BY DISTRICT	Intersct-chg	CHA(2)	120

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SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
DIST_CAT	CATEGORY ASSIGNED BY DISTRICT	Intersct-chg	CHA(2)	146
DISTRICT	DISTRICT	Accident	CHA(1)	34
DISTRICT	DISTRICT	roadlog	CHA(1)	95
DIV_CODE	ROAD DESIGN	Accident	NUM	34
DL_CLASS	DRIVER LICENSE CLASS	Occupant	CHA(1)	77
DL_STATE	DRIVER LICENSE STATE	Occupant	CHA(2)	78
DL_WITHD	DRIVER LICENSE WITHDRAWAL	Occupant	CHA(1)	78
DRIV_REC	DRIVER RECOMMENDATION	Occupant	CHA(2)	78
DRUG_TEST	DRUG TEST PERFORMED	Occupant	CHA(1)	79
DRV_AGE	AGE OF DRIVER	Vehicle	NUM	57
DRV_INJ	DRIVER INJURY	Vehicle	CHA(1)	57
DRV_SEX	SEX OF DRIVER	Vehicle	CHA(1)	57
EFEC_DTE	DATE OF ACCIDENT GEOCODING	Intersct-chg	NUM	120
EFEC_DTE	DATE OF ACCIDENT GEOCODING	Intersct-chg	NUM(8)	146
EJECT	EJECTION FROM VEHICLE	Occupant	NUM	79
ELEM_NBR	INTERCHANGE ELEMENT CODE	Intersct-chg	CHA(3)	147
ELEM_NBR	INTERCHANGE ELEMENT CODE	Intersct-chg	CHA(3)	121
ENDMP	CALCULATED ENDING MILEPOST	Intersct-chg	NUM	121
ENDMP	CALCULATED ENDING MILEPOST	Roadlog	NUM	95
ENDMP	CALCULATED ENDING MILEPOST	Intersct-chg	NUM(8)	147
EQUIP_TYPE	TYPE OF SAFETY EQUIPMENT	Occupant	CHA(2)	80
EVENT1	SEQUENCE OF EVENT -1	Vehicle	CHA(2)	58
EVENT2	SEQUENCE OF EVENT -2	Vehicle	CHA(2)	58
EVENT3	SEQUENCE OF EVENT -3	Vehicle	CHA(2)	58
EVENT4	SEQUENCE OF EVENT -4	Vehicle	CHA(2)	58
FAT_NUM	FATALITY NUMBER	Occupant	CHA(4)	80
FATLDATE	FATALITY DATE	Occupant	NUM	80
FED_AID	FEDERAL AID SYSTEM	Roadlog	CHA(1)	96
FED_SYSD	FEDERAL AID SYSTEM - DESIGNATED	Roadlog	CHA(1)	96
FED_SYSR	FEDERAL AID SYSTEM - REGULAR	Roadlog	CHA(1)	96
FEDADRTE	FEDERAL AID ROUTE	Roadlog	CHA(4)	95
FIRE	FIRE IN VEHICLE	Vehicle	CHA(1)	60
FUNC_CLS	FUNCTIONAL CLASS	Roadlog	NUM	97
GEN_ENIV	GENERAL ENVIRONMENT	Intersct-chg	NUM	121
GEN_ENIV	GENERAL ENVIRONMENT	Intersct-chg	NUM(8)	147
H_COUNT	NUMBER OF COUNT STATIONS PER SECTION	Roadlog	NUM	97

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SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
HAZMAT	HAZARDOUS MATERIAL CARRIED	Accident	CHA(1)	35
HAZMTL	VEHICLE CARRYING HAZARDOUS MATERIAL	Vehicle	CHA(1)	60
HIT_RUN	HIT AND RUN	Accident	CHA(1)	35
HOSP	INJURED TAKEN TO HOSPITAL	Occupant	CHA(1)	80
HOSPTRAN	TRANSPORTED TO HOSPITAL METHOD	Occupant	CHA(1)	81
HOUR	HOUR ACCIDENT OCCURRED	Accident	NUM	35
INJ	INJURY SEVERITY	Occupant	CHA(1)	81
INT_DESC	VERBAL DESCRIPTION OF AN APPROACH OF AN INTERSECTION/INTERCHANGE	Intersct-chg	CHA(30)	147
INT_SYNB	COMBINED RTE_SYS/RTE_NBR	Intersct-chg	CHA(11)	121
INT_SYNB	COMBINED RTE_SYS/RTE_NBR	Intersct-chg	CHA(11)	148
INT_TYPE	INTERSECTION TYPE	Intersct-chg	NUM	122
INTE_CAT	INTERSECTION CATEGORY	Roadlog	NUM	98
INTERCH	INTERCHANGE ELEMENT CODE	Accident	CHA(3)	35
INTRANSPORT	WAS VEHICLE IN	Vehicle	CHA(1)	60
INV_DTE	INVENTORY DATE	Roadlog	CHA(8)	98
LANEWID	LANE WIDTH	Roadlog	NUM	99
LEG_NBR	LEG/APPROACH NUMBER	Intersct-chg	NUM(8)	148
LEG_TRUE_MP	TRUE LEG MILEPOST	Intersct-chg	NUM(8)	148
LEGNBR11	SEGMENT 1, LEG	Intersct-chg	NUM	138
LEGRNUM	LEGISLATIVE ROUTE NUMBER	Roadlog	CHA(3)	99
LICTYPE	VALID DRIVER LICENSE	Vehicle	CHA(1)	61
LIGHT	LIGHT CONDITIONS	Accident	NUM	36
LIS_RSTR	COMPLIANCE WITH LICENSE RESTRICTIONS	Occupant	CHA(1)	82
LOC_BIKE	LOCATION OF PEDESTRIAN/BIKE ACCIDENT	Accident	NUM	36
LOC_HARM	LOCATION OF FIRST HARMFUL EVENT	Accident	NUM	37
LOC_NARR	LOCATION DESCRIPTION	Accident	CHA(50)	37
LOC_TYPE	RELATION TO INTERSECTION	Accident	NUM	38
LOC_WRK_ZONE	LOCATION OF ACC IN WORKZONE	Accident	CHA(2)	39
LOCN_REL	LOCATION RELIABILITY	Accident	CHA(1)	39
LOLIMT	LOWER LIMIT	Intersct-chg	NUM(8)	148
LOLIMT1	SEGMENT 1 LOWER LIMIT	Intersct-chg	NUM	132
LSHL_TY2	LEFT SHOULDER TYPE - ROAD 2	Roadlog	CHA(2)	100
LSHL_TYP	LEFT SHOULDER TYPE - ROAD 1	Roadlog	CHA(2)	100
LSHL_WD2	LEFT SHOULDER WIDTH - ROAD 2	Roadlog	CHA(2)	101
LSHLWDWID	LEFT SHOULDER WIDTH - ROAD 1	Roadlog	CHA(2)	101

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SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
LV_TLOFF	NUMBER OF LEAVING APPROACH THRU LANES DURING OFF-PEAK PERIOD	Intersct-chg	NUM(8)	148
LV_TLPEK	NUMBER OF LEAVING APPROACH THRU LANES DURING PEAK PERIOD	Intersct-chg	NUM(8)	149
MAKE	MAKE OF VEHICLE MATERIAL	Vehicle	CHA(4)	61
MANTAREA	MAINTENANCE AREA OF THE ROADWAY	Roadlog	CHA(2)	101
MCAXLDN	MOTOR CARRIER AXLES DOWN	Vehicle	CHA(2)	61
MCAXLUUP	MOTOR CARRIER AXLES UP	Vehicle	CHA(2)	61
MCBDYTYP	MOTOR CARRIER BODY TYPE	Vehicle	CHA(2)	62
MCGVWRCD	MOTOR GROSS VEHICLE WEIGHT CODE	Vehicle	CHA(2)	62
MCHZPLAC	MOTOR HAZARDOUS MATERIAL PLACARD FLAG	Vehicle	CHA(1)	63
MCSOURCE	SOURCE OF IDENTIFICATION	Vehicle	CHA(2)	63
MCTRHTCH	MOTOR TRAILER HITCH CODE	Vehicle	CHA(2)	63
MED_TYPE	MEDIAN TYPE	Roadlog	CHA(1)	102
MEDWID	MEDIAN WIDTH (IN FEET)	Roadlog	CHA(2)	102
MILEPOST	MODIFIED REFERENCE POINT	Accident	NUM	39
MILEPOST	MODIFIED REFERENCE POINT LOCATION	Intersct-chg	NUM	122
MIN_DOLLAR	MINIMUM DOLLAR THRESHOLD	Accident	CHA(1)	40
MISCACT1	ACTION PRIOR TO ACCIDENT	Vehicle	NUM	64
MODEL	MOTOR MODEL	Vehicle	CHA(2)	65
MOST_EVENT	MOST HARMFUL EVENT	Vehicle	CHA(2)	65
MPOFFSET	INTERSECTION MILEPOST	Intersct-chg	CHA(10)	149
MPOFSET2	LEG MILEPOST	Intersct-chg	CHA(10)	149
MVCLASS	MOTOR CLASS	Vehicle	CHA(2)	67
MVMT	MILLION VEHICLE MILES TRAVELED	Roadlog	NUM	103
MVTYPE	MOTOR TYPE	Vehicle	CHA(2)	67
NBR_LEG1	NUMBER OF LEGS ON SEGMENT 1	Intersct-chg	NUM	132
NBR_LEGS	NUMBER OF LEGS INTO INTERSECTION	Intersct-chg	NUM	122
NBR_LEGS	NUMBER OF LEGS INTO	Intersct-chg	NUM(8)	149
NBR_RTES	NUMBER OF ROUTES INTO INTERSECTION	Intersct-chg	NUM	123
NBR_RTES	NUMBER OF ROUTES INTO	Intersct-chg	NUM(8)	149
NBRVOL	TOTAL NUMBER OF TRAFFIC VOLUME COUNTS	Roadlog	NUM	103
NBRVOLB	NUMBER OF BLANK TRAFFIC VOLUME COUNTS	Roadlog	NUM	103
NBRVOLF	NUMBER OF FULL TRAFFIC VOLUME COUNTS	Roadlog	NUM	103
NO_LANE1	NUMBER THROUGH LANES TOWARDS INCREASING MILEPOINTS	Roadlog	CHA(1)	104

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SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
NO_LANE2	NUMBER THROUGH LANES TOWARDS DECREASING MILEPOINTS	Roadlog	CHA(1)	104
NO_LANES	TOTAL NUMBER OF LANES	Roadlog	NUM	104
NUMOCCS	NUMBER OF OCCUPANTS	Vehicle	NUM	67
NUMVEHS	NUMBER OF VEHICLES INVOLVED	Accident	NUM	40
OBJECT1	FIXED OBJECT STRUCK	Accident	NUM	41
OFF_TYPE	TYPE OF INVESTIGATING OFFICER	Accident	NUM	42
ON_BRDG	ACCIDENT OCCURRED ON BRIDGE	Accident	CHA(1)	42
ONEWAY	DIVIDED AND ONE-WAY CODE	Roadlog	CHA(1)	105
PARKING1	PARKING ON ROAD 1	Roadlog	CHA(1)	105
PARKING2	PARKING ON ROAD 2	Roadlog	CHA(1)	105
PHOTOS	WERE PHOTOS TAKEN?	Accident	CHA(1)	42
PHYSCOND	PHYSICAL CONDITION OF DRIVER	Vehicle	NUM	68
PHYSCOND	PHYSICAL CONDITION	Occupant	NUM	83
POP_FROM_CITY	POPULATION OF CITY	Accident	NUM	43
POP_FROM_COUNTY	POPULATION OF COUNTY	Accident	NUM	43
POP_GRP	URBAN/RURAL POPULATION CODES	Accident	NUM	43
PUBDMG	PUBLIC PROPERTY DAMAGE	Accident	CHA(1)	43
RAIL_NBR	RAILROAD CROSSING NUMBER	Intersct-chg	CHA(8)	123
RAIL_NBR	RAILROAD CROSSING NUMBER	Intersct-chg	CHA(8)	149
RD_CHAR1	ROAD CHARACTERISTICS	Accident	NUM	44
RDESC	APPROACH ROAD DESCRIPTION	Intersct-chg	NUM(8)	151
RDESC1	ROAD DESCRIPTION	Intersct-chg	NUM	133
RDSURF	ROAD SURFACE CONDITIONS	Accident	NUM	44
RDWORK	ROAD WORK BEING PERFORMED	Accident	NUM	45
RDWY_LGH	ROADWAY LIGHTING	Intersct-chg	NUM	123
RDWY_LGH	ROADWAY LIGHTING	Intersct-chg	NUM(8)	151
RECORD_ID	UNIQUE IDENTIFIER FOR EACH RECORD	Intersct-chg	CHA(27)	150
REF_PNT	REFERENCE POINT	Intersct-chg	CHA(10)	123
REF_PNT	REFERENCE POINT	Intersct-chg	CHA(10)	150
REF_PST	REFERENCE POST	Roadlog	CHA(3)	105
REFPNT1	REFERENCE POINT-ROUTE 1	Intersct-chg	CHA(10)	133
REMARK	REMARKS - TYPE OF RECORD	Roadlog	CHA(2)	106
RES_CNTY	RESIDENCE COUNTY	Occupant	NUM	83
REST1	SAFETY EQUIPMENT USED	Occupant	CHA(1)	84
RODWYCLS	ROADWAY CLASSIFICATION	Accident	CHA(2)	45
RODWYCLS	ROADWAY CLASSIFICATION	Roadlog	CHA(2)	106

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SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
ROW	RIGHT OF WAY WIDTH	Roadlog	CHA(3)	106
RSHL_TY2	RIGHT SHOULDER TYPE - ROAD 2	Roadlog	CHA(2)	107
RSHL_TYP	RIGHT SHOULDER TYPE - ROAD 1	Roadlog	CHA(2)	107
RSHL_WD2	RIGHT SHOULDER WIDTH - ROAD 2	Roadlog	CHA(2)	109
RSHLDWID	RIGHT SHOULDER WIDTH - ROAD 1	Roadlog	CHA(2)	109
RTE_NBR	ROUTE NUMBER	Accident	CHA(9)	46
RTE_NBR	ROUTE NUMBER	Intersct-chg	CHA(9)	123
RTE_NBR	ROUTE NUMBER	Roadlog	CHA(9)	109
RTE_NBR	ROUTE NUMBER	Intersct-chg	CHA(9)	151
RTE_SYS	ROUTE SYSTEM	Intersct-chg	CHA(2)	124
RTE_SYS	ROUTE SYSTEM	Accident	CHA(2)	46
RTE_SYS	ROUTE SYSTEM	Roadlog	CHA(2)	110
RTE_SYS	ROUTE SYSTEM	Intersct-chg	CHA(2)	152
RTENBR1	ROUTE NUMBER - ROUTE 1	Intersct-chg	CHA(9)	133
RTENBR2	LEG ROUTE NUMBER	Intersct-chg	CHA(9)	151
RTESYS1	ROUTE SYSTEM - ROUTE 1	Intersct-chg	CHA(2)	134
RTESYS2	LEG ROUTE SYSTEM	Intersct-chg	CHA(2)	151
RTSYSNBR	COMBINED ROUTE SYSTEM/ROUTE NUMBER	Accident	CHA(11)	47
RTSYSNBR	COMBINED ROUTE SYSTEM/ROUTE NUMBER	Roadlog	CHA(11)	110
SCHLBUS	SCHOOL BUS INVOLVED ACCIDENT	Accident	CHA(1)	47
SEATPOS	POSITION IN VEHICLE	Occupant	NUM	85
SEG_LNG	CALCULATED SECTION LENGTH	Roadlog	NUM	111
SERIES	SERIES OF VEHICLE	Vehicle	CHA(3)	68
SEVERITY	ACCIDENT SEVERITY	Accident	CHA(1)	47
SEX	SEX OF INJURED/KILLED OCCUPANT	Occupant	CHA(1)	86
SFTY_CLS	SAFETY IMPROVEMENT CLASSIFICATION	Intersct-chg	CHA(2)	124
SFTY_CLS	SAFETY IMPROVEMENT CLASSIFICATION INTERSECTION	Intersct-chg	CHA(2)	152
SFTY_IMD	SAFETY IMPROVEMENT DISTRICT	Intersct-chg	CHA(1)	125
SFTY_IMD	SAFETY IMPROVEMENT DISTRICT	Intersct-chg	CHA(1)	152
SFTY_IMY	SAFETY IMPROVEMENT YEAR	Intersct-chg	CHA(2)	125
SFTY_IMY	SAFETY IMPROVEMENT YEAR	Intersct-chg	CHA(2)	153
SFTY_PRJ	SAFETY IMPROVEMENT PROJECT NUMBER	Intersct-chg	CHA(2)	125
SFTY_PRJ	SAFETY IMPROVEMENT PROJECT NUMBER	Intersct-chg	CHA(2)	153

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SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
SIDE_WLK	SIDEWALKS	Roadlog	CHA(1)	111
SIGN_CON	TRAFFIC SIGNALS CONSTRUCTION	Intersct-chg	NUM	125
SIGN_CON	TRAFFIC SIGNALS CONSTRUCTION	Intersct-chg	NUM(8)	153
SIGN_PED	TRAFFIC SIGNALS PEDESTRIAN SIGNALS	Intersct-chg	NUM	125
SIGN_PED	TRAFFIC SIGNALS PEDESTRIAN SIGNALS	Intersct-chg	NUM(8)	154
SIGN_PLA	SIGNAL HEAD PLACEMENT	Intersct-chg	NUM	126
SIGN_PLA	SIGNAL HEAD PLACEMENT	Intersct-chg	NUM(8)	153
SIGN_PRO	TRAFFIC SIGNALS PROGRESSION	Intersct-chg	NUM	126
SIGN_PRO	TRAFFIC SIGNALS PROGRESSION	Intersct-chg	NUM(8)	154
SIGN_TIM	TRAFFIC SIGNALS TIMING	Intersct-chg	NUM	126
SIGN_TIM	TRAFFIC SIGNALS TIMING	Intersct-chg	NUM(8)	154
SPEC_ENV	SPECIFIC ENVIRONMENT	Intersct-chg	NUM	127
SPEC_ENV	SPECIFIC ENVIRONMENT	Intersct-chg	NUM(8)	154
SPEED	POSTED SPEED LIMIT	Accident	CHA(2)	47
STM_SEW	STORM SEWERS	Roadlog	CHA(1)	111
SUF_TYP1	SURFACE SPECIFICATION NUMBER - ROAD 1	Roadlog	CHA(4)	112
SUF_TYP2	SURFACE SPECIFICATION NUMBER - ROAD 2	Roadlog	CHA(4)	112
SUR_TKR1	SURFACE THICKNESS – ROAD 1	Roadlog	CHA(3)	112
SUR_TKR2	SURFACE THICKNESS – ROAD 2	Roadlog	CHA(3)	112
SURF_TY2	SURFACE TYPE - ROAD 2	Roadlog	CHA(2)	113
SURF_TYP	SURFACE TYPE - ROAD 1	Roadlog	CHA(2)	113
SURF_WD2	SURFACE WIDTH - ROAD 2 (IN FEET)	Roadlog	CHA(2)	114
SURF_WID	SURFACE WIDTH - ROAD 1 (IN FEET)	Roadlog	CHA(2)	114
TOT_INJ	NUMBER OF PERSONS INJURED	Accident	NUM	48
TOT_KILL	NUMBER OF PERSONS KILLED	Accident	NUM	48
TOWAWAY	VEHICLE TOWED	Vehicle	CHA(1)	68
TOWING	TOWING FLAG	Vehicle	CHA(1)	69
TRAF_DEV	TRAFFIC CONTROL DEVICES	Intersct-chg	NUM	127
TRAF_DEV	TRAFFIC CONTROL DEVICES	Intersct-chg	NUM(8)	155
TRAF_PHS	TRAFFIC SIGNALS NUMBER OF PHASES	Intersct-chg	NUM	127
TRAF_PHS	TRAFFIC SIGNALS NUMBER OF PHASES	Intersct-chg	NUM(8)	155
TRAF_PRE	TRAFFIC SIGNALS PREEMPTION	Intersct-chg	NUM	128
TRAF_PRE	TRAFFIC SIGNALS PREEMPTION	Intersct-chg	NUM(8)	155
TRAF_TMF	FLASHING SIGNAL TIME OFF	Intersct-chg	CHA(2)	128
TRAF_TMF	FLASHING SIGNAL TIME OFF	Intersct-chg	CHA(2)	156

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SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
TRAF_TMO	FLASHING SIGNAL TIME ON	Intersct-chg	CHA(2)	128
TRAF_TMO	FLASHING SIGNAL TIME ON	Intersct-chg	CHA(2)	156
TRAF_CNTL	TRAFFIC CONTROL DEVICES	Intersct-chg	NUM	129
TRAF_CNTL	TRAFFIC CONTROL DEVICES	Intersct-chg	NUM(8)	157
TRF_CNTL	TRAFFIC CONTROL DEVICES	Accident	NUM	48
TRF_CNTL	TRAFFIC CONTROL DEVICES-REVISED	Intersct-chg	NUM	130
TRFCNTLW	TRAFFIC CONTROL WORKING	Accident	NUM	49
TRVL_DIR	TRAVEL DIRECTION	Accident	CHA(1)	49
TURN_LN	TURNING LANES TOWARD INCREASING MILEPOSTS	Roadlog	CHA(1)	114
TURN_LN2	TURNING LANES TOWARD DECREASING MILEPOSTS	Roadlog	CHA(1)	114
TOWNSHIP	TOWNSHIP NUMBER	Accident	NUM	49
TYPE	INTERSECTION TYPE	Intersct-chg	NUM(8)	158
TYPEDESC	INTERSECTION DESCRIPTION-REVISED	Intersct-chg	NUM	131
TYPEDESC	INTERSECTION DESCRIPTION-REVISED	Intersct-chg	NUM(8)	158
UPDATE_	DATE OF UPDATE	Roadlog	NUM	114
UPLIMIT	UPPER LIMIT	Intersct-chg	NUM(8)	159
UPLIMT1	SEGMENT 1 UPPER LIMIT	Intersct-chg	NUM	134
UPT_DTE	UPDATE DATE	Intersct-chg	NUM(8)	159
URB_MNC	URBAN/MUNICIPAL CODE	Roadlog	NUM	115
V_DAMAGE	VEHICLE DAMAGE AREA	Vehicle	NUM	69
VALID_LICENSE	VALID DRIVER LICENSE	Occupant	CHA(2)	86
VEH_DIR	DIRECTION VEHICLE WAS TRAVELING	Vehicle	NUM	70
VEH_MOV1	VEHICLE MOVEMENT	Accident	NUM	50
VEH_USE	SPECIAL VEHICLE USE	Vehicle	CHA(2)	70
VEHNO	RELATIVE VEHICLE NUMBER	Vehicle	NUM	71
VEHNO	VEHICLE OCCUPIED BY INJURED/KILLED	Occupant	NUM	87
VEHSTATE	STATE OF VEHICLE REGISTRATION	Vehicle	CHA(2)	71
VEHTYPE	TYPE OF VEHICLE	Vehicle	NUM	71
VEHYR	MODEL YEAR OF VEHICLE	Vehicle	CHA(4)	72
VIOLATIONS	DRIVER CITED FOR VIOLATIONS	Occupant	CHA(1)	87
VOLGRP	TRAFFIC VOLUME GROUP	Roadlog	CHA(2)	115
VOLTYP	TRAFFIC VOLUME TYPE	Roadlog	CHA(1)	116
WAIVED	COMMERCIAL VEHICLE INSPECTION WAIVED	Vehicle	CHA(1)	73
WAST_MAT	WASTE MATERIAL CARRIED	Accident	CHA(1)	51
WASTE_MT	VEHICLE CARRYING WASTE	Vehicle	CHA(1)	73
WEATHER	WEATHER CONDITIONS	Accident	NUM	51

Composite List of Elements

SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
WEATHER1	WEATHER CONDITIONS	Accident	NUM	51
WEATHER2	WEATHER CONDITIONS	Accident	NUM	51
WEEKDAY	DAY OF WEEK ACCIDENT OCCURRED	Accident	NUM	52
WORK_REL	WORK RELATED ACCIDENT	Occupant	CHA(1)	87
WORK_ZONE	WORKZONE MARKED	Accident	CHA(2)	52
WRKS_PRESENT	WORKER PRESENT	Accident	CHA(1)	52
YEAR	YEAR OF TRAFFIC	Roadlog	CHA(4)	116

List of Elements for the MN Accident Subfile

SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
ACC_DATE	DATE ACCIDENT OCCURRED	Accident	CHA(8)	31
ACCDIGM	DIAGRAM OF ACCIDENT CODE	Accident	NUM	31
ACCTYPE	TYPE OF ACCIDENT	Accident	NUM	32
ACCYR	YEAR ACCIDENT OCCURRED	Accident	CHA(4)	33
AGENCY	REPORTING AGENCY	Accident	CHA(4)	33
AMBL_NBR	AMBULANCE NUMBER	Accident	CHA(6)	33
CASENO	ACCIDENT NUMBER	Accident	CHA(11)	33
CITY	CITY NUMBER	Accident	CHA(4)	34
COUNTY	COUNTY	Accident	NUM	34
DISTRICT	DISTRICT	Accident	CHA(1)	34
DIV_CODE	ROAD DESIGN	Accident	NUM	34
HAZMAT	HAZARDOUS MATERIAL CARRIED	Accident	CHA(1)	35
HIT_RUN	HIT AND RUN	Accident	CHA(1)	35
HOUR	HOUR ACCIDENT OCCURRED	Accident	NUM	35
INTERCH	INTERCHANGE ELEMENT CODE	Accident	CHA(3)	35
LIGHT	LIGHT CONDITIONS	Accident	NUM	36
LOC_BIKE	LOCATION OF PEDESTRIAN/BIKE ACCIDENT	Accident	NUM	36
LOC_HARM	LOCATION OF FIRST HARMFUL EVENT	Accident	NUM	37
LOC_NARR	LOCATION DESCRIPTION	Accident	CHA(50)	37
LOC_TYPE	RELATION TO INTERSECTION	Accident	NUM	38
LOC_WRK_ZONE	LOCATION OF ACC IN WORKZONE	Accident	CHA(2)	39
LOCN_REL	LOCATION RELIABILITY	Accident	CHA(1)	39
MILEPOST	MODIFIED REFERENCE POINT	Accident	NUM	39
MIN_DOLLAR	MINIMUM DOLLAR THRESHOLD	Accident	CHA(1)	40
NUMVEHS	NUMBER OF VEHICLES INVOLVED	Accident	NUM	40
OBJECT1	FIXED OBJECT STRUCK	Accident	NUM	41
OFF_TYPE	TYPE OF INVESTIGATING OFFICER	Accident	NUM	42
ON_BRDG	ACCIDENT OCCURRED ON BRIDGE	Accident	CHA(1)	42
PHOTOS	WERE PHOTOS TAKEN?	Accident	CHA(1)	42
POP_FROM_CITY	POPULATION OF CITY	Accident	NUM	43
POP_FROM_COUNTY	POPULATION OF COUNTY	Accident	NUM	43
POP_GRP	URBAN/RURAL POPULATION CODES	Accident	NUM	43
PUBDMG	PUBLIC PROPERTY DAMAGE	Accident	CHA(1)	43
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RDSURF	ROAD SURFACE CONDITIONS	Accident	NUM	44
RDWORK	ROAD WORK BEING PERFORMED	Accident	NUM	45

List of Elements for the MN Accident Subfile

SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
RODWYCLS	ROADWAY CLASSIFICATION	Accident	CHA(2)	45
RTE_NBR	ROUTE NUMBER	Accident	CHA(9)	46
RTE_SYS	ROUTE SYSTEM	Accident	CHA(2)	46
RTSYSNBR	COMBINED ROUTE SYSTEM/ROUTE NUMBER	Accident	CHA(11)	47
SCHLBUS	SCHOOL BUS INVOLVED ACCIDENT	Accident	CHA(1)	47
SEVERITY	ACCIDENT SEVERITY	Accident	CHA(1)	47
SPEED	POSTED SPEED LIMIT	Accident	CHA(2)	47
TOT_INJ	NUMBER OF PERSONS INJURED	Accident	NUM	48
TOT_KILL	NUMBER OF PERSONS KILLED	Accident	NUM	48
TRF_CNTL	TRAFFIC CONTROL DEVICES	Accident	NUM	48
TRFCNTLW	TRAFFIC CONTROL WORKING	Accident	NUM	49
TRVL_DIR	TRAVEL DIRECTION	Accident	CHA(1)	49
TWNSHIP	TOWNSHIP NUMBER	Accident	NUM	49
VEH_MOV1	VEHICLE MOVEMENT	Accident	NUM	50
WAST_MAT	WASTE MATERIAL CARRIED	Accident	CHA(1)	51
WEATHER	WEATHER CONDITIONS	Accident	NUM	51
WEATHER1	WEATHER CONDITIONS	Accident	NUM	51
WEATHER2	WEATHER CONDITIONS	Accident	NUM	51
WEEKDAY	DAY OF WEEK ACCIDENT OCCURRED	Accident	NUM	52
WORK_ZONE	WORKZONE MARKED	Accident	CHA(2)	52
WRKS_PRESNT	WORKER PRESENT	Accident	CHA(1)	52

Crash File

Accident Subfile

Date Accident Occurred

SAS Name: ACC_DATE

Definition: Date when the accident occurred.

Additional Information: YYYYMMDD = Year-Month-Day accident occurred.

Diagram of Accident Code

SAS Name: ACCDIGM

Definition: Accident configuration, describing the directions and maneuvers of the vehicles involved.

Additional Information: See discussion. This element does not indicate "what" is struck, only "how" something is struck. In addition, the "head-on" and "sideswipe opposing" codes reflect the direction of the opposing vehicles immediately prior to impact rather than their initial direction.

00	Officer Left Field Blank
01	Rear End
02	Sideswipe – Passing
03	Left Turn
04	Ran Off Road Left Side
05	Right Angle
06	Right Turn
07	Ran Off Road Right Side
08	Head On
09	Sideswipe – Opposing
10	Other/Unknown
98	Not Stated/Not Applicable
99	Unknown
Other	Error/Other Code

Type of Accident**SAS Name: ACCTYPE***Definition:* Type of accident that occurred.

01	Collision with Motor Vehicle in Transport
02	Collision with Parked Motor Vehicle
03	Collision with Roadway Equipment – Snow Plow
04	Collision with Roadway Equipment – Other
05	Collision with Train
06	Collision with Pedalcycle
07	Collision with Pedestrian
08	Collision with Deer
09	Collision with Other Animal
10	Collision – Underride, Rear
11	Collision – Underride, Side
12	Collision with Non-Fixed Item of Other Type
13	Other Type of Collision
14	Collision with Non-Fixed Item of Unknown Type
21	Collision with Construction Equipment
22	Collision with Traffic Signal
23	Collision with RR Crossing Device
24	Collision with Light Pole
25	Collision with Utility Pole
26	Collision with Signal Structure or Post
27	Collision with Mailboxes and/or Posts
28	Collision with Other Poles
29	Collision with Hydrant
30	Collision with Tree/Shrubbery
31	Collision with Bridge Piers
32	Collision with Median Safety Barrier
33	Collision with Crash Cushion
34	Collision with Guardrail
35	Collision with Fence (Non-Median Barrier)
36	Collision with Culvert/Headwall
37	Collision with Embankment/Ditch/Curb
38	Collision with Building/Wall
39	Collision with Rock Outcrops
40	Collision with Parking Meter
41	Collision with Other Fixed Object

42	Collision with Unknown Type of Fixed Object
51	Overturn/Rollover
52	Submersion
53	Fire/Explosion
54	Jackknife
55	Loss/Spillage Non-Hazmat
56	Loss/Spillage Hazardous Mat
64	Non-Collision of Other Type
65	Non-Collision of Unknown Type
66	Coll Fix Obj
67	Falling Object
90	Other Type of Accident
99	Accident of Unknown Accident Type
Other	Error/Other Code

Year Accident Occurred

SAS Name: ACCYR

Definition: Year accident occurred

Additional Information: 'YYYY' = Year of Accident. Element discontinued in 2000.

Agency

SAS Name: AGENCY

Definition: Reporting Agency

Additional Information: Contact HSIS staff for formats.

Ambulance Number

SAS Name: AMBL_NBR

Definition: Number of ambulance that responded to the crash.

Additional Information: Element added in 1991.

Accident Number

SAS Name: CASENO

Definition: Case number of accident.

Additional Information: 'YYYYDDDNNNN' where YYYY = Year, DDD = Julian Day of Year, and NNNN = Unique Case Number (0000-9999).

City**SAS Name: CITY***Definition:* City where the crash occurred.

0000	Non Municipal
0001-9999	Municipality Number

Additional Information: Contact HSIS staff for formats.**County****SAS Name: COUNTY***Definition:* County where the crash occurred.*Additional Information:* 01-87 = County Number.**District****SAS Name: DISTRICT***Definition:* District where the crash occurred.*Additional Information:* This variable is determined by county number.**Road Design****SAS Name: DIV_CODE***Definition:* Design of the roadway where the crash occurred.

00	Not Specified
01	Freeway – Mainline
02	Freeway – Ramps
03	Other Divided Highway
04	One-Way Street
05	4-6 Lanes Undivided (2-3 Lanes Each Way)
06	3 Lanes Undivided
07	5 Lanes Undivided (Center Lane Turn Left)
08	2 Lanes – 1 Each Way
09	Alley/Driveway
10	Road on Private Property
90	Other
98	Not Stated
99	Unknown

Hazardous Material Carried**SAS Name: HAZMAT**

Definition: Whether or not there was hazardous material carried in the vehicle when the crash occurred.

Additional Information: Element discontinued in 1990.

N	No
Y	Yes
OTHER	Error /Other Code

Hit and Run**SAS Name: HIT_RUN**

Definition: Whether or not the crash was a hit and run.

Additional Information: Element was added in 1990.

N	No
Y	Yes
OTHER	Error/Other Code

Hour Accident Occurred**SAS Name: HOUR**

Definition: Hour at which the crash occurred.

Additional Information: Please note HHMM = Hour and minute that accident occurred (0000 - 0059 = 1200 AM – 1259 AM, ... 9800 = Left Blank, 9900 = Unknown). Values before 2003 are rounded to the nearest hour.

Interchange Element Code**SAS Name: INTERCH**

Definition: Three element code for a certain intersection element where the crash occurred.

Additional Information: The coding is either ANN or NNN, where “A” is alphabet and “N” is numeric. Three blanks indicate “not in an interchange”. Unfortunately, no other detail on the element descriptors is available.

Light Conditions**SAS Name: LIGHT***Definition:* The type/level of light that existed at the time of the crash.

01	Daylight
02	Dawn
03	Dusk
04	Dark Street Lights On
05	Dark Street Lights Off
06	Dark No Street Lights
07	Dark Unknown Lighting
90	Other
98	Not Stated
99	Unknown
Other	Error/Other Code

Location of Pedestrian/Bike Accident**SAS Name: LOC_BIKE***Definition:* Type of location for the pedestrian/bike accident.*Additional Information:* Element was discontinued in 1989.

0	Not Stated
1	School Crossing
2	Intersection
3	Not Intersection
4	Unknown
5	Not Bike/Ped
Other	Error/Other Code

Location of First Harmful Event**SAS Name: LOC_HARM**

Definition: Location where the harmful event first occurred.

00	Not Specified
01	On the Roadway (Alley, Driveway, Etc.)
02	Off the Roadway on the Shoulder
03	Off the Roadway on the Median
04	Off the Roadway on the Roadside
05	Off the Roadway on the Separator
06	Parking Lot
07	Private Property
08	Outside Right-of-Way
90	Other
99	Unknown

Location Description**SAS Name: LOC_NARR**

Definition: Location where the crash occurred.

Additional Information: This element was added in 1990. It is a location narrative and contains 50 characters of verbal description of the location. Usually provides road or route names.

Relation to Intersection

SAS Name: LOC_TYPE

Definition: Location of the crash in relation to the intersection.

00	Not Specified
01	Not at Intersection or Junction
02	T-Intersection
03	Y-Intersection
04	4-Legged Intersection
05	5-or-More-Legged Intersection
06	Traffic Circle or Roundabout
07	Intersection-Related
08	At Alley or Driveway Access
09	At School Crossing
10	At Railroad Crossing
11	At Recreational Trail Crossing
20	Interchange – On Ramp
21	Interchange – Off Ramp
22	Interchange – Other Area
23	Interchange Area
24	Intersection
25	Non-Junction
90	Other
99	Officer Reported the Intrel was Unknown
Other	Error/Other Code

Location of Accident in Work zone**SAS Name: LOC_WRK_ZNE***Definition:* Location of the accident in a work-zone.*Additional Information:* Element was added in 2003.

'00'	Not Specified
'01'	Before 1 st Warning Sign
'02'	Advance Warning Sign
'03'	Transition Area
'04'	Activity Area
'05'	Termination Area
'90'	Other
'98'	Not Applicable
'99'	Unknown

Location Reliability**SAS Name: LOCN_REL***Definition:* Whether or not there was an error in location where the crash occurred.*Additional information:* Element was added in 1990.

'1'	No Location Error Expected
'2'	Possible Location Error
'3'	Probable Location Error (or No-Geocoded)
Other	Error/Other Code

Modified Reference Point**SAS Name: MILEPOST***Definition:* Reference point where the crash occurred.*Additional Information:* This is a reformatted version of the original "Reference Point" element in the MN files. The reformatting was done to facilitate computer linkage with other files.

Minimum Dollar Threshold

SAS Name: MIN_DOLLAR

Definition: The minimum dollar threshold of the crash.

Y	Yes
N	No
X	Unknown
Z	Not Specified

Number of Vehicles Involved

SAS Name: NUMVEHS

Definition: Number of vehicles involved in the crash.

Fixed Object Struck

SAS Name: OBJECT1

Definition: Fixed object struck in crash.

Additional Information:

1. Code '00' (No Object Struck) and code '21' (Not Applicable) are equivalent.
2. In the 1991 data, the number and percent of "No Object Struck" was significantly lower and the number/percent of "Unknown" significantly higher than in other years. The percent of "Unknown" remains slightly higher (i.e., 4 percent) in later years.
3. See ACCTYPE (Accident Subfile) and EVENT (Vehicle Subfile).
4. Variable Discontinued in 2000.

00	No Object Struck
01	Construction Barricades/Equipment
02	Traffic Signal
03	Railroad Crossing Device
04	Light Pole
05	Utility Pole
06	Sign Structure or Post
07	Mailbox
08	Other Pole, Posts or Supports
09	Fire Hydrant or Parking Meter
10	Tree or Shrubbery
11	Crash Cushion
12	Median Safety Barrier
13	Bridge Piers (Includes Protection Guardrail)
14	Other Guardrail
15	Fencing Not Median Barrier
16	Culvert or Headwall
17	Embankment, Ditch or Curb
18	Building or Wall
19	Rock Outcrops
20	Unknown
21	Not Applicable
90	Other Fix Obj
Other	Error/Other Code

Type of Investigating Officer**SAS Name: OFF_TYPE**

Definition: Type of officer that investigated the crash.

Additional Information: Records coded as OFF_TYPE = "Unknown" have been removed in 1991 and later years to improve quality of data. See discussion.

0	Not Specified
1	MN State Police
2	County Sherriff
3	Local (City Police)
4	Other Investigating Officer
90	Other Officer Type
98	Not Applicable
99	Unknown

Accident Occurred on Bridge**SAS Name: ON_BRDG**

Definition: Whether or not the accident occurred on bridge.

Additional Information: Preliminary analyses have shown this element to be inaccurate. It appears that uncoded cases default to "No". In addition, not that in bridge analyses based on matching accident and bridge locations, interchange ramp accidents are located to the center of the interchange, which may be a bridge. This will erroneously increase the number of "bridge accidents" unless accounted for.

'Y'	Yes
'N'	No
'X'	Unknown
'Z'	Not Specified

Photos**SAS Name: PHOTOS**

Definition: Whether or not photos of the accident were taken.

'Y'	Yes
'N'	No
'X'	Unknown
'Z'	Not Specified

Population of City**SAS Name: POP_FROM_CITY***Definition:* The population of the city where the crash occurred.*Additional Information:* Element added in 2003.**Population of County****SAS Name: POP_FROM_COUNTY***Definition:* The population of the county where the crash occurred.*Additional Information:* Element added in 2003.**Rural/Urban Population Codes****SAS Name: POP_GRP***Definition:* The code for the rural/urban population where the crash occurred.

0	Unknown
1	Urban 250,000 and Over
2	Urban 100,000 – 249,999
3	Urban 50,000 – 99,999
4	Urban 25,000 – 49,999
5	Urban 10,000 – 24,999
6	Urban 5,000 – 9,999
7	Rural 2,500 – 4,999
8	Rural 1,000 – 2,499
9	Rural 1 – 999 or Non-Municipal

Public Property Damage**SAS Name: PUBDMG***Definition:* Whether or not public property was damaged where the crash occurred.*Additional Information:* Element added in 1991.

'Y'	Yes
'N'	No
'X'	Unknown
'Z'	Not Specified

Road Characteristics

SAS Name: RD_CHAR1

Definition: The characteristics of the road where the crash occurred.

1	Straight and Level
2	Straight and Grade
3	Straight and Hillcrest
4	Straight in Sag
5	Curve and Level
6	Curve and Grade
7	Curve at Hillcrest
8	Curve in Sag
9	Unknown Not Stated
90	Other (Includes Combination)
99	Unknown
Other	Error/Other Code

Road Surface Conditions

SAS Name: RDSURF

Definition: The condition of the road surface where the crash occurred.

00	Not Specified
01	Dry
02	Wet
03	Snow
04	Slush
05	Ice/Packed Snow
06	Water (Standing, Moving)
07	Muddy
08	Debris
09	Oily
10	Snow/Slush
90	Other
99	Unknown

Roadwork Being Performed**SAS Name: RDWORK**

Definition: Whether or not roadwork was being performed where the crash occurred.

Additional Information: Element discontinued in 2003.

01	None
02	Marked Construction Zone
03	Marked Maintenance Zone
04	Marked Utility Work Zone
05	Unmarked Construction Zone
06	Unmarked Maintenance Zone
07	Unmarked Utility Work Zone
90	Other
99	Unknown

Roadway Classification**SAS Name: RODWYCLS**

Definition: The classification of the roadway where the crash occurred.

Additional Information: Created element added to HSIS accident and roadway inventory files in all states in 1999. See discussion.

'01'	Urban Freeway >= 4 Lanes
'02'	Urban Freeway < 4 Lanes
'03'	Urban 2-Lane Roads
'04'	Urban Multilane Divided Non-Freeway
'05'	Urban Multilane Undivided Non-Freeway
'06'	Rural Freeway >= 4 Lanes
'07'	Rural Freeway < 4 Lanes
'08'	Rural 2-Lane Roads
'09'	Rural Multilane Divided Non-Freeway
'10'	Rural Multilane Undivided Non-Freeway
'99'	Others

Route Number**SAS Name: RTE_NBR**

Definition: The number of the route where the crash occurred.

Additional Information: 'NNNNNNNNX' = Route Number (N = 0-9, and X is numeric, alpha, or blank. Note that in a few cases with county/townships roads, an alpha character will appear in other columns). This element is used for file linkage. See RTSYSNBR.

Route System**SAS Name: RTE_SYS**

Definition: The route system where the crash occurred.

Additional Information: See RTSYSNBR.

'01'	Interstate – Isth
'02'	US Trunk Highway – USTH
'03'	MN Trunk Highway – MNTH
'04'	County State Aid Highway- CSAH
'05'	Municipal State Aid Highway – MSAH
'07'	County Road – CNTY
'08'	Township Road – TWNS
'09'	Unorganized Township Road – UTWN
'10'	Municipal Street – MUN
'11'	National Park Road – NATP
'12'	National Forest Road – NATF
'13'	Indian Service Road – IND
'14'	State Forest Road – SFR
'15'	State Park Road – SPRK
'16'	Military Road – MIL
'17'	National Monument Road – NATM
'18'	National Wildlife Refuge Road – NATW
'19'	Frontage Road – FRNT
'20'	State Game Reserve Road – SGAM
'21'	Private Road Open to Public
'23'	Airport Roads
'25'	Non-Traffic Ways
'30'	Alley Ways
'98'	Not Geocoded

Combined Route System/Route Number**SAS Name: RTSYSNBR**

Definition: The combined route system and route number where the crash occurred.

Additional Information: This is a combined version of the RTE_NBR and RTE_SYS elements above. This combining was done to facilitate computer linkage with other files.

School Bus Involved Accident**SAS Name: SCHLBUS**

Definition: Whether or not a school bus was involved in the accident.

Additional Information: Element added in 2000. Valid date is not available before 2003.

'00'	Not Specified
'01'	Yes, Involved Directly
'02'	Yes, Involved Indirectly
'03'	No
'99'	Unknown
Other	Error/Other Code

Accident Severity**SAS Name: SEVERITY**

Definition: The most severe injury in the crash.

' '	Not Applicable
'K'	Fatal
'A'	Incapacitating Injury
'B'	Non-Incapacitating Injury
'C'	Possible Injury
'D', 'X'	Injury Unknown
'P', 'N'	Property Damage

Posted Speed Limit**SAS Name: SPEED**

Definition: Posted speed limit where the crash occurred.

Additional Information: Posted speed limit in miles per hour. '00', '99' = Speed Limit Unknown.

Number of Persons Injured

SAS Name: TOT_INJ

Definition: Total number of persons injured in the crash.**Total Number of Persons Killed**

SAS Name: TOT_KILL

Definition: Total number of persons killed in the crash.**Traffic Control Devices**

SAS Name: TRF_CNTL

Definition: Traffic control devices where the accident occurred.

00	Not Specified
01	Traffic Signals
02	Overhead Flashers
03	Stop Sign – All Approaches
04	Stop Sign – Other
05	Yield Sign
06	Officer, Flagman, or School Patrol
07	School Bus Stop Arm
08	School Bus Stop Sign
09	No Passing Zone
10	Railroad Crossing – Gates
11	Railroad Crossing – Flashing Lights
12	Railroad Crossing – Stop Signs
13	Railroad Crossing – Overhead Flashers
14	Railroad Crossing – Overhead Flashers and Gates
15	Railroad Crossing – Crossbuck
16	RR Other
90	Other
98	Not Applicable
99	Unknown

Traffic Control Working**SAS Name: TRFCNTLW**

Definition: Whether or not the traffic control device was working where the accident occurred.

00	Not Specified
01	Signal Working Properly
02	Signal Not Working Properly
03	Signal Working Modified (Flashing)
04	Signal Obscured or Damaged
90	Other
98	Not Applicable
99	Unknown
Other	Error/Other Code

Travel Direction**SAS Name: TRVL_DIR**

Definition: Direction of the vehicle when the crash occurred.

Additional Information: Element added in 2003.

'E'	East
'N'	North
'S'	South
'W'	West
'Z'	Not Specified
Other	Error/Other Code

Township Number**SAS Name: TWNSHIP**

Definition: Number of the township where the crash occurred.

Additional Information: 000 = Unknown, 001-999 = Township Number.

Vehicle Movement

SAS Name: VEH_MOV1

Definition: Movement of the vehicle when the crash occurred.

Additional Information: Element discontinued in 1990.

01	Enter at Angle
02	Same Direc Straight
03	Sideswp Passing
04	One Turn One STR
05	One Stopped
06	Same Direc Other
07	Head on at Intec
08	Sideswipe Meetin
09	Opposite Dir
10	Opposite Other
11	Backed Into
12	N/S 2 Vehicle Intesc
21	Head On Not Ints
22	Sme Dir Not Ints
23	Sdswp Pass No Int
24	One Prk Not Ints
25	One Stp in Trf
26	One Entr Prk Pos
27	One Leav Prk Pos
28	One Entr Drvwy
29	One Leav Drvwy
30	Backed Into
31	Other
32	Not Stated
41	Ped Veh Strght
42	Ped Veh Trn Left
43	Ped Veh Trn Right
44	Ped Veh Backing
45	Ped – Other
46	Ped Not Stated
51	Inter RR or Veh
52	Inter Fix Obj
53	Inter Obj or Ani

54	Inter Overturn
55	Inter Oth Noncol
56	Not Int RR/Veh
57	Not Int Fix Obj
58	Not Int Obj/Ani
59	Not Int Overtn
60	Not Int Noncoll
61	Not Stated
Other	Error/Other Code

Waste Material Carried**SAS Name: WAST_MAT**

Definition: Whether or not there was waste material carried in the vehicle when the crash occurred.

Additional Information: Element discontinued in 1990.

'Y'	Yes
'N'	No
Other	Error/Other Code

Weather Conditions**SAS Name: WEATHER, WEATHER₁, WEATHER₂**

Definition: Weather conditions when the crash occurred.

Additional Information: Element WEATHER was replaced by WEATHER₁ and WEATHER₂ in 2003.

01	Clear
02	Cloudy
03	Rain
04	Snow
05	Sleet, Hail, or Freezing Rain
06	Fog, Smog, or Dust
07	Blowing Sand, Dust, or Snow
08	Severe Cross Winds
90	Other
98	Not Stated
99	Unknown

Day of Week Accident Occurred**SAS Name: WEEKDAY***Definition:* Day of week when the accident occurred.

1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday
Other	Error/Other Code

Workzone Marked**SAS Name: WORK_ZONE***Definition:* Type of workzone where the crash occurred.*Additional Information:* Element added in 2003.

'00'	Not Specified
'01'	Lane Closure
'02'	Lane Shift/Crossover
'03'	Work on Shoulder or Median
'04'	Intermittent or Moving Workzone
'90'	Other
'98'	No or Not Applicable
'99'	Unknown

Worker Present**SAS Name: WRKS_PRESNT***Definition:* Whether or not a worker was present where the crash occurred.*Additional Information:* Element added in 2003.

'N'	No
'X'	Unknown
'Y'	Yes
'Z'	Not Specified

List of Elements for the MN Vehicle Subfile

SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
CASENO	ACCIDENT NUMBER CODE	Vehicle	CHA(11)	55
COLOR	COLOR OF THE VEHICLE	Vehicle	CHA(3)	55
CONTRIB1	FIRST CONTRIBUTING FACTOR	Vehicle	NUM	55
CONTRIB2	SECOND CONTRIBUTING FACTOR	Vehicle	NUM	55
DAMSEV	VEHICLE DAMAGE SEVERITY	Vehicle	CHA(1)	56
DRV_AGE	AGE OF DRIVER	Vehicle	NUM	57
DRV_INJ	DRIVER INJURY	Vehicle	CHA(1)	57
DRV_SEX	SEX OF DRIVER	Vehicle	CHA(1)	57
EVENT1	SEQUENCE OF EVENT -1	Vehicle	CHA(2)	58
EVENT2	SEQUENCE OF EVENT -2	Vehicle	CHA(2)	58
EVENT3	SEQUENCE OF EVENT -3	Vehicle	CHA(2)	58
EVENT4	SEQUENCE OF EVENT -4	Vehicle	CHA(2)	58
FIRE	FIRE IN VEHICLE	Vehicle	CHA(1)	60
HAZMTL	VEHICLE CARRYING HAZARDOUS MATERIAL	Vehicle	CHA(1)	60
INTRANSPORT	WAS VEHICLE IN	Vehicle	CHA(1)	60
LICTYPE	VALID DRIVER LICENSE	Vehicle	CHA(1)	61
MAKE	MAKE OF VEHICLE MATERIAL	Vehicle	CHA(4)	61
MCAXLDN	MOTOR CARRIER AXLES DOWN	Vehicle	CHA(2)	61
MCAXLUUP	MOTOR CARRIER AXLES UP	Vehicle	CHA(2)	61
MCBDYTYP	MOTOR CARRIER BODY TYPE	Vehicle	CHA(2)	62
MCGVWRCD	MOTOR GROSS VEHICLE WEIGHT CODE	Vehicle	CHA(2)	62
MCHZPLAC	MOTOR HAZARDOUS MATERIAL PLACARD FLAG	Vehicle	CHA(1)	63
MCSOURCE	SOURCE OF IDENTIFICATION	Vehicle	CHA(2)	63
MCTRHTCH	MOTOR TRAILER HITCH CODE	Vehicle	CHA(2)	63
MISCACT1	ACTION PRIOR TO ACCIDENT	Vehicle	NUM	64
MODEL	MOTOR MODEL	Vehicle	CHA(2)	65
MOST_EVENT	MOST HARMFUL EVENT	Vehicle	CHA(2)	65
MVCLASS	MOTOR CLASS	Vehicle	CHA(2)	67
MVTYPE	MOTOR TYPE	Vehicle	CHA(2)	67
NUMOCCS	NUMBER OF OCCUPANTS	Vehicle	NUM	67
PHYSCOND	PHYSICAL CONDITION OF DRIVER	Vehicle	NUM	68
SERIES	SERIES OF VEHICLE	Vehicle	CHA(3)	68
TOWAWAY	VEHICLE TOWED	Vehicle	CHA(1)	68
TOWING	TOWING FLAG	Vehicle	CHA(1)	69
V_DAMAGE	VEHICLE DAMAGE AREA	Vehicle	NUM	69
VEH_DIR	DIRECTION VEHICLE WAS TRAVELING	Vehicle	NUM	70
VEH_USE	SPECIAL VEHICLE USE	Vehicle	CHA(2)	70

List of Elements for the MN Vehicle Subfile

SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
VEHNO	RELATIVE VEHICLE NUMBER	Vehicle	NUM	71
VEHSTATE	STATE OF VEHICLE REGISTRATION	Vehicle	CHA(2)	71
VEHTYPE	TYPE OF VEHICLE	Vehicle	NUM	71
VEHYR	MODEL YEAR OF VEHICLE	Vehicle	CHA(4)	72
WAIVED	COMMERCIAL VEHICLE INSPECTION WAIVED	Vehicle	CHA(1)	73
WASTE_MT	VEHICLE CARRYING WASTE	Vehicle	CHA(1)	73

Crash File

Vehicle Subfile

Accident Number

SAS Name: CASENO

Definition: Case number of accident.

Additional Information: 'YYYYDDDNNNN' where YYYY = Year, DDD = Julian Day of Year, and NNNN = Unique Case Number (0000-9999).

Color of the Vehicle

SAS Name: COLOR

Definition: The color of the vehicle involved in the crash.

'xxx'	The First 3 Letters of the Color of the Vehicle
'I'	Not Applicable
'Z'	Not Specified

First Contributing Factor

SAS Name: CONTRIB1

Second Contributing Factor

SAS Name: CONTRIB2

Definition: First and second contributing factor to the crash.

00	Not Specified
01	No Clear Contributing Factor
02	Failure to Yield Right of Way
03	Illegal or Unsafe Speed
04	Following too Closely
05	Disregard Traffic Control Device
06	Driving Left of Roadway Center – Not Passing
07	Improper Passing or Overtaking
08	Improper or Unsafe Lane Use
09	Improper Parking, Starting, or Stopping
10	Improper Turn
11	Unsafe Backing
12	No Signal or Improper Signal
13	Over-Correcting
14	Impeding Traffic
15	Driver Inattention or Distraction
16	River Inexperience
17	Pedestrian Violation or Error
18	Chemical impairment

19	Failure to Use Lights
20	Driver on Car Phone, CB, or Two-Way-Radio
21	Other Human Contributing Factor
31	Vision Obscured – Windshield Glass
32	Vision Obscured – Sun or Headlights
33	Vision Obscured – Other
41	Defective Brakes
42	Defective Tire or Tire Failure
43	Defective Lights
44	Inadequate Windshield Glass
45	Oversize or Overweight Vehicle
46	Skidding
50	Other Vehicle Defects or Factors
61	Weather
62	Road Defect
63	Fail Use Lights
64	Drv/Phne/CB/Rdo
65	Physical Impairment
90	Other
99	Unknown

Vehicle Damage Severity

SAS Name: DAMSEV

Definition: The severity of the damage to the vehicle from the crash.

'00'	Not Specified
'01'	None
'02'	Light
'03'	Moderate
'04'	Severe
'05'	Total
'90'	Other
'98'	Not Applicable
'99'	Unknown

Age of Driver**SAS Name: DRV_AGE**

Definition: The age of the driver of the vehicle involved in the crash.

Additional Information: 98 = '98 Years or Older', 99 = 'Unknown'. In the 1990 file, only injured driver information is available. Between 5-10 percent of the cases are uncoded after 1990.

Driver Injury**SAS Name: DRV_INJ**

Definition: Extent of injury to the driver of the vehicle involved in crash.

Additional Information:

1. This element was copied from Occupant Subfile to this Vehicle Subfile beginning in 1990. Prior driver-injury data can be extracted from the Occupant Subfile.
2. The "No Injury" code is new beginning in 1990. However, full data on all uninjured drivers is probably not available until 1991 or 1992. In addition, the "No Injury" code is not used after 1991. MN staffs indicate that a blank code also means "No Injury", as captured in the format above.

'K'	Killed
'A'	Injured – Incapacitating
'B'	Injured – Non-Incapacitating
',' , 'N'	No Injury
'X', 'U'	Injured – Severity Unknown
Other	Error/Other Code

Sex of Driver**SAS Name: DRV_SEX**

Definition: Sex of the driver of the vehicle involved in crash.

Additional Information: In 1990, only injured driver information is available. "NS/Not Applic" plus other "Error/Other Code" represent approximately 10 percent of the cases for all years.

'M'	Male
'F'	Female
'N'	NS/Not Applic
Other	Error/Other Code

Sequence of Event – 1	SAS Name: EVENT1
Sequence of Event – 2	SAS Name: EVENT2
Sequence of Event – 3	SAS Name: EVENT3
Sequence of Event – 4	SAS Name: EVENT4

Definition: Sequence of events during the crash.

Additional Information: Valid data not available for 2003. No EVENT4 available for 2004.

Collision With:

'01'	Motor Vehicle
'02'	Parked Motor Vehicle
'03'	Roadway Equipment – Snowplow
'04'	Roadway Equipment – Other
'05'	Train
'06'	Pedalcycle
'07'	Pedestrian
'08'	Deer
'09'	Other Animal
'10'	Underride – Rear
'11'	Underride – Side
'12'	Other Non-Fixed Object
'13'	Other Collision Type
'14'	Unknown Collision Type

Collision With Fixed Object:

'21'	Construction Equipment
'22'	Traffic Signal
'23'	RR Crossing Device
'24'	Light Pole
'25'	Utility Pole
'26'	Sign Structure or Post
'27'	Mailboxes and/or Posts
'28'	Other Poles
'29'	Hydrant
'30'	Tree/Shrubbery
'31'	Bridge Piers
'32'	Median Safety Barrier
'33'	Crash Cushion

'34'	Guardrail
'35'	Fence (Non Median Barrier)
'36'	Culvert/Headwall
'37'	Embankment/Ditch/Curb
'38'	Building/Wall
'39'	Rock Outcrops
'40'	Parking Meter
'41'	Other Fixed Object
'42'	Unknown Fixed Object

Non-Collision

'51'	Overturn/Rollover
'52'	Submersion
'53'	Fire/Explosion
'54'	Jackknife
'55'	Loss/Spillage Non-Haz Mat
'56'	Loss/Spillage Hazardous Mat
'57'	Ran Off Road – Right
'58'	Ran Off Road – Left
'59'	Equip Fail (Tire, Brakes, Etc.)
'60'	Separation of Units
'61'	Downhill Runaway
'62'	Cross Median/Centerline
'63'	Cargo/Equipment Shift
'64'	Non-Collision of Other Type
'65'	Non-Collision of Unknown Type
'66'	Col with Fixed Obj
'67'	Col with Fal Obj
'68'	Ran off Road

Residual Categories

'90'	Event of Other Type
'98'	Not Applicable
'99'	Unknown
'00'	Not Specified

Fire In Vehicle**SAS Name: FIRE**

Definition: Whether or not there was a fire in the vehicle that was involved in the crash.

'I'	Not Applicable
'N'	No
'X'	Unknown
'Y'	Yes
'Z'	Not Specified

Vehicle Carrying Hazardous Material**SAS Name: HAZMTL**

Definition: Whether or not the vehicle was carrying hazardous material when the crash occurred.

'I'	Not Applicable
'N'	No
'X'	Unknown
'Y'	Yes
'Z'	Not Specified

Was Vehicle in Transit**SAS Name: INTRANSPORT**

Definition: Was the vehicle in transit when the crash occurred.

Additional Information: Element added in 2003.

'I'	Not Applicable
'N'	No
'X'	Unknown
'Y'	Yes

Valid Driver License**SAS Name: LICTYPE**

Definition: Whether or not the driver of the vehicle involved in the crash had a valid driver license.

Additional Information: Element discontinued in 1990.

'Y'	Valid License
'N'	Invalid License
'X'	Unknown
'I'	Not Applicable
Other	Error/Other Code

Make of Vehicle**SAS Name: MAKE**

Definition: Make of the vehicle involved in the crash.

Additional Information: New element added in 1990. This is a four character code indicating the vehicle make. While some codes are obvious (e.g., FORD, BUIC, CHEV) others are not as obvious. Approximately 13% of the data are uncoded.

Motor Carrier Axles Down**SAS Name: MCAXLDN**

Definition: Total number of motor carrier Axels Down

Additional Information: Axles down – i.e., wheels making contact with pavement (00-99). Element discontinued in 2003.

Motor Carrier Axles Up**SAS Name: MCAXLUUP**

Definition: Number of motor carrier Axels Up

Additional Information: Number of axles on motor carrier with wheels not making contact with pavement (00-99). Element discontinued in 2003.

Motor Carrier Body Type

SAS Name: MCBDYTYP

Definition: Body type of the motor carrier involved in the crash.

'00'	Not Specified
'01'	Van
'02'	Dry Bulk Cargo Tank
'03'	Liquid Bulk Cargo Tank
'04'	Gas Bulk Cargo Tank
'05'	Flatbed or Platform
'06'	Dump
'07'	Concrete Mixer
'08'	Auto Transporter
'09'	Garbage or Refuse
'10'	Combination
'11'	Special Permit Load
'12'	Grain/Chips/Gravel
'13'	Pole
'14'	Bus
'90'	Other
'98'	Not Applicable
'99'	Unknown

Motor Gross Vehicle Weight Code

SAS Name: MCGVWRCD

Definition: The code for the motor carrier vehicle weight involved in the crash.*Additional Information:* Element discontinued in 2003.

'00'	Not Applicable
'01'	< 10,000 Lbs
'02'	10,000 to 11,999 Lbs
'03'	12,000 to 25,999 Lbs
'04'	26,000 to 56,999 Lbs
'05'	57,000 to 80,000 Lbs
'06'	80,001 to 105,000 Lbs
'07'	105,001 to 120,000 Lbs
'08'	> 120,000 Lbs
'99'	Unknown

Motor Hazardous Material Placard Card

SAS Name: MCHZPLAC

Definition: Presence of motor carrier hazardous material placard card*Additional Information:* Element discontinued in 2003.

'I'	Not Applicable
'N'	No
'X'	Unknown
'Y'	Yes
'Z'	Not Specified

Source of Identification

SAS Name: MCSOURCE

Definition: Source of motor carrier identification*Additional Information:* Variable discontinued in 2003.

'01'	Cab Board
'02'	Shipping Papers
'03'	Side of Vehicle
'04'	Driver
'90'	Other
Other	Error/Other Code

Motor Trailer Hitch Code

SAS Name: MCTRHTCH

Definition: Type of motor carrier trailer hitch.*Additional Information:* Element discontinued in 2003.

'00'	Not Applicable
'01'	Trailer with Ball Hitch
'02'	Trailer with Fifth Wheel
'03'	A-Train with 5 th Wheel
'04'	B-Train with 5 th Wheel
'05'	C-Train with 5 th Wheel
'06'	Pintle Hitch
'90'	Other (Including Combinations)
'99'	Unknown

Action Prior to Accident

SAS Name: MISCACT1

Definition: Action prior to when the crash occurred.

- 01 Vehicle – Going Straight Ahead or Following Roadway
- 02 Vehicle – Wrong Way into Opposing Traffic
- 03 Vehicle – Right Turn on Red
- 04 Vehicle – Left Turn on Red
- 05 Vehicle – Making Right Turn
- 06 Vehicle – Making Left Turn
- 07 Vehicle – Making U-Turn
- 08 Vehicle – Starting From Parked Position
- 09 Vehicle – Starting in Traffic
- 10 Vehicle – Slowing in Traffic
- 11 Vehicle – Stopped in Traffic
- 12 Vehicle – Entering Parked Position
- 13 Vehicle – Avid Unit/Object in Road
- 14 Vehicle – Changing Lanes
- 15 Vehicle – Overtaking/Passing
- 16 Vehicle – Merging
- 17 Vehicle – Backing
- 18 Vehicle – Stalled on Roadway
- 21 Parked Vehicle – Parked Legally
- 22 Parked Vehicle – Parked Illegally
- 23 Parked Vehicle – Stopped off Roadway
- 30 Vehicle Other Action
- 31 Pedestrian – Crossing with Signal
- 32 Pedestrian – Crossing Against Signal
- 33 Pedestrian – Darting Into Traffic
- 34 Pedestrian – Other Improper Crossing
- 35 Pedestrian – Crossing in a Marked Crosswalk
- 36 Pedestrian – Crossing (No Marked Signal or Crosswalk
- 37 Pedestrian – Fail to Yield R/W to Traffic
- 38 Pedestrian – Inattention/Distraction
- 39 Pedestrian – Walking/Running in Road With Traffic
- 40 Pedestrian – Walking/Running in Road Against Traffic
- 41 Pedestrian – Standing/Lying in Road
- 42 Pedestrian – Emerging from Behind Parked Vehicle
- 43 Pedestrian – Child Getting On/Off School Bus

44	Pedestrian – Person Getting On/Off Vehicle
45	Pedestrian – Pushing/Working on Vehicle
46	Pedestrian – Working in Roadway
47	Pedestrian – Playing in Roadway
48	Pedestrian – Not in Roadway
51	Bicyclist – Riding With Traffic
52	Bicyclist – Riding Against Traffic
53	Bicyclist – Making Right Turn
54	Bicyclist – Making Left Turn
55	Bicyclist – Making U-Turn
56	Bicyclist – Riding Across Road
57	Bicyclist – Slowing/Stopping/Starting
60	Ped Other Action
80	Bike Other Action
98	Not Stated
90	Other Action
99	Unknown
Other	Error/Other Code

Motor Model**SAS Name: MODEL**

Definition: Model of the motor of the vehicle involved in the crash.

Additional Information: Element discontinued in 2003.

Most Harmful Event**SAS Name: MOST_EVENT**

Definition: Most harmful event when the crash occurred.

Additional Information: New element added in 2003.

'00'	Not Specified
'01'	Motor Vehicle in Transport
'02'	Parked Motor Vehicle
'03'	Roadway Equipment – Snowplow
'04'	Roadway Equipment – Other
'05'	Train
'06'	Pedalcycle
'07'	Pedestrian
'08'	Deer

'09'	Other Animal
'10'	Underride – Rear
'11'	Underride – Side
'12'	Other Non-Fixed Obj
'13'	Other Collision Type
'14'	Unknown Collision Type
'21'	Construction Equipment
'22'	Traffic Signal
'23'	RR Crossing Device
'24'	Light Pole
'25'	Utility Pole
'26'	Sign Structure or Post
'27'	Mailboxes and/or Posts
'28'	Other Poles
'29'	Hydrant
'30'	Tree/Shrubbery
'31'	Bridge Piers
'32'	Median Safety Barrier
'33'	Crash Cushion
'34'	Guardrail
'35'	Fence (Non Median Barrier)
'36'	Culvert/Headwall
'37'	Embankment/Ditch/Curb
'38'	Building/Wall
'39'	Rock Outcrops
'40'	Parking Meter
'41'	Other Fixed Object
'42'	Unknown Fixed Object
'51'	Overturn/Rollover
'52'	Submersion
'53'	Fire/Explosion
'54'	Jackknife
'55'	Loss/Spillage Non-Hazmat
'56'	Loss/Spillage Hazardous Mat
'57'	Ran Off Road – Right
'58'	Ran Off Road – Left
'59'	Equip Fail (Tire, Brakes, Etc.)
'60'	Separation of Units

'61'	Downhill Runaway
'62'	Cross Median/Centerline
'63'	Cargo/Equipment Shift
'64'	Non Collision of Other Type
'65'	Non Collision of Unknown Type
'66'	Col with Fixed Obj
'67'	Col with Fal Obj
'68'	Ran Off Road
'90'	Event of Other Type
'98'	Not Applicable
'99'	Unknown

Motor Vehicle Class**SAS Name: MVCLASS**

Definition: Class of the vehicle that was involved in the crash.

Additional Information: Element discontinued in 2003.

Motor Vehicle Type**SAS Name: MVTYPE**

Definition: Type of motor vehicle involved in the crash.

Additional Information: Element discontinued in 2003.

Number of Occupants**SAS Name: NUMOCCS**

Definition: Number of occupants in the vehicle when the crash occurred.

Additional Information: Number of occupants in vehicle (0-99). Element added in 1991.

Physical Condition of the Driver**SAS Name: PHYSCOND***Definition:* Physical condition of the driver when the crash occurred.

00	Not Specified
01	Normal – No Drugs or Drinking
02	Under the Influence
03	Had Been Drinking
04	Commercial Driver Over .04 BAC
05	Had Been Taking Drugs
06	Aggressive
07	Asleep
08	Physical Disability
09	Ill
10	Fatigues
90	Other
98	Not Applicable
99	Unknown

Series of Vehicle**SAS Name: SERIES***Definition:* Series of Vehicle

Additional Information: This is a three-character code identifying the vehicle series (e.g., 626, 6LE, CIV) within a given vehicle make. While we do not have a listing of all possible formats, it appears that the data can be “decoded” when combined with MAKE. Approximately 20% of the data are uncoded.

Vehicle Towed**SAS Name: TOWAWAY***Definition:* Whether or not the vehicle involved in the crash was towed from the scene.

'Y'	Yes
'N'	No
Other	Error/Other Code

Towing Flag**SAS Name: TOWING**

Definition: Whether a non-motor carrier was towing a trailer.

Additional Information: Element added in 1991.

'Y'	Non-Truck Towing Trailer, Boat, Etc.
'N'	Otherwise

Vehicle Damage Area**SAS Name: V_DAMAGE**

Definition: Area where the vehicle was damaged when the crash occurred.

00	Not Specified
01	Front
02	Front Right
03	Right Side
04	Rear Right
05	Rear
06	Rear Left
07	Left Side/Center
08	Left Front
09	Top
10	Under
11	Multiple Areas
12	Front Center
13	Not Applicable
14	Unknown
Other	Error/Other Code

Direction Vehicle Was Traveling

SAS Name: VEH_DIR

Definition: Direction the vehicle was traveling when the crash occurred.*Additional Information:* Element added in 1990.

1	North
2	Northeast
3	East
4	Southeast
5	South
6	Southwest
7	West
8	Northwest
99	Unknown/Not Applicable

Special Vehicle Use

SAS Name: VEH_USE

Definition: Special Vehicle Use*Additional Information:* Element only available for 2003 and 2004.

'01'	Normal
'02'	Taxicab
'03'	School Bus
'04'	Bus (Non School)
'05'	Military Veh
'06'	Hit and Run Veh
'07'	Police No Lights/Sirens
'08'	Police With Lights/Sirens
'09'	Fire No Lights/Sirens
'10'	Fire Wit Lights/Sirens
'11'	Ambulance No Lights/Sirens
'12'	Ambulance With Lights/Sirens
'13'	Snowplow Working
'14'	Snowplow in Transit
'15'	Other Maint Veh Working
'16'	Other Maint Veh In Trans
'17'	Other Public Veh
'90'	Other Veh Use

'98'	Not Applicable
'99'	Unknown

Relative Vehicle Number**SAS Name: VEHNO**

Definition: Relative Vehicle Number

Additional Information: Number of vehicle on accident report or relative vehicle number (01-60). Used to link with occupant file.

State of Vehicle Registration**SAS Name: VEHSTATE**

Definition: State the vehicle involved in the crash is from.

Additional Information: Element added in 1997. However, all codes are currently blanks.

Type of Vehicle**SAS Name: VEHTYPE**

Definition: Type of vehicle involved in the crash.

01	Passenger Car
02	Pickup
03	Sport Utility Vehicle
04	Van or Minivan
05	Motorhome, Camper or RV
06	Limousine
07	Bus (7-15 Seats)
08	Bus (16+ Seats)
09	Snowmobile
10	ATV
11	Motorcycle
12	Motorscooter, Motorbike
13	Moped, Motorized Bicycle
14	Farm Equipment
31	2 Axle, 6 Tire 1 Unit Truck
32	3+ Axle 1 Unit Truck
33	1 Unit Truck With Trailer
34	Truck Trac. No Trailer
35	Truck Trac. Semitrailer
36	Truck Trac. 2 Trailers

37	Truck Trac. 3 Trailers
38	Heavy Truck Unknown Type
51	Pedestrian
52	Skater
53	Bicyclist
54	Other Non-Motorist
55	Auto+Trailer (<90)
56	Truck/Tractor (<90)
57	Truck/Tractor with Other
58	School Bus
59	Other Bus
60	Taxicab
61	Hit and Run Vehicle
62	Police Vehicle
63	Fire Department Vehicle
64	Ambulance
65	Military Vehicle
66	Rd Main Vehicle
67	Other Public Own Vehicle
68	Other Private Own Vehicle
69	2 Axle/Single Trk
70	3 Axle/Single Trk
71	Tractor Trailer with Trip Trail
90	Other Motor Vehicle Type
99	Unknown

Model Year of Vehicle**SAS Name: VEHYR**

Definition: Model year of the vehicle involved in the crash.

Additional Information: Model year of vehicles (NNNN). Element discontinued in 1991.

Commercial Vehicle Inspection Waived

SAS Name: WAIVED

Definition: Commercial Vehicle Inspection Waived

Additional Information: Element only available for 2003 and 2004.

'I'	Not Applicable
'N'	No
'X'	Unknown
'Y'	Yes

Vehicle Carrying Waste Material

SAS Name: WASTE_MT

Definition: Whether or not the vehicle was carrying waste material when the crash occurred.

Additional Information: Element discontinued in 1990.

'Y'	YES
'N'	NO

List of Elements for the MN Occupant Subfile

SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
AGE	AGE OF INJURED/KILLED	Occupant	NUM	75
AIRBAG	AIRBAG DEPLOYED	Occupant	CHA(2)	75
ALCOHOL_RESULT	BLOOD ALCOHOL TEST RESULT	Occupant	CHA(2)	76
ALCOHOL_TEST	BLOOD ALCOHOL TEST PERFORMANCE	Occupant	CHA(1)	76
BIRTH_DT	BIRTHDAY	Occupant	CHA(8)	76
CASENO	ACCIDENT NUMBER	Occupant	CHA(11)	77
CORN_RPT	CORONER REPORT RECORD	Occupant	CHA(1)	77
DL_CLASS	DRIVER LICENSE CLASS	Occupant	CHA(1)	77
DL_STATE	DRIVER LICENSE STATE	Occupant	CHA(2)	78
DL_WITHD	DRIVER LICENSE WITHDRAWAL	Occupant	CHA(1)	78
DRIV_REC	DRIVER RECOMMENDATION	Occupant	CHA(2)	78
DRUG_TEST	DRUG TEST PERFORMED	Occupant	CHA(1)	79
EJECT	EJECTION FROM VEHICLE	Occupant	NUM	79
EQUIP_TYPE	TYPE OF SAFETY EQUIPMENT	Occupant	CHA(2)	80
FAT_NUM	FATALITY NUMBER	Occupant	CHA(4)	80
FATLDATE	FATALITY DATE	Occupant	NUM	80
HOSP	INJURED TAKEN TO HOSPITAL	Occupant	CHA(1)	80
HOSPTRAN	TRANSPORTED TO HOSPITAL METHOD	Occupant	CHA(1)	81
INJ	INJURY SEVERITY	Occupant	CHA(1)	81
LIS_RSTR	COMPLIANCE WITH LICENSE RESTRICTIONS	Occupant	CHA(1)	82
PHYSCOND	PHYSICAL CONDITION	Occupant	NUM	83
RES_CNTY	RESIDENCE COUNTY	Occupant	NUM	83
REST1	SAFETY EQUIPMENT USED	Occupant	CHA(1)	84
SEATPOS	POSITION IN VEHICLE	Occupant	NUM	85
SEX	SEX OF INJURED/KILLED OCCUPANT	Occupant	CHA(1)	86
VALID_LICENSE	VALID DRIVER LICENSE	Occupant	CHA(2)	86
VEHNO	VEHICLE OCCUPIED BY INJURED/KILLED	Occupant	NUM	87
VIOLATIONS	DRIVER CITED FOR VIOLATIONS	Occupant	CHA(1)	87
WORK_REL	WORK RELATED ACCIDENT	Occupant	CHA(1)	87

ADDITIONAL INFORMATION: (1) SAS variable names and explanatory names are shown above each listing. (See Discussion for information on SAS formats.) This file only contains data on the injured occupants in the vehicle for 1985-1990 data. Thus, none of the "successes" (non-injured occupants) are included for these years. Beginning in 1991, this file contains data on all occupants. See discussion.

Crash File

Occupant Subfile

Age of Injured/Killed Occupant

SAS Name: AGE

Definition: Age of the injured/killed occupant that was involved in the crash.

Additional Information: 98 = 98 years or older, 99 = Unknown.

Airbag Deployed

SA Name: AIRBAG

Definition: Whether or not the airbag of the vehicle involved in the crash was deployed.

Additional Information: Element added in 2000.

'00'	Not Specified
'01'	Deployed – Front
'02'	Deployed – Side
'03'	Deployed – Front and Side
'04'	Not Deployed – Switch On? Off?
'05'	Not Deployed - Switch On
'06'	Not Deployed – Unknown if Switch On or Off
'90'	Other
'98'	Not Applicable
'99'	Unknown

Blood Alcohol Test Result

SAS Name: ALCOHOL_RESULT

Definition: Results from blood alcohol test administered to driver of the vehicle involved in the crash.

Additional Information: Element added in 2003.

'00'	Negative
'01'	Positive for Alcohol at the .01% BAC
'02'	Positive for Alcohol at the .02% BAC
'03'	Positive for Alcohol at the .03% BAC
'04'	Positive for Alcohol at the .04% BAC
'05'	Positive for Alcohol at the .05% BAC
'90'	Other
'91'	Person Was Not a Driver
'92'	Person Was a Driver but Was Not Tested
'98'	Not Applicable
'99'	Unknown

Blood Alcohol Test Performance

SAS Name: ALCOHOL_TEST

Definition: Whether a blood alcohol test was administered to driver of the vehicle involved in the crash.

Additional Information: Element added in 2003.

'I'	Not Applicable
'N'	No
'X'	Unknown
'Y'	Yes
'Z'	Not Specified

Birthday

SAS Name: BIRTH_DT

Definition: Birthday of vehicle occupant.

Additional Information: Date of Birth (YYYYMMDD). Element added in 1991.

Accident Number

SAS Name: CASENO

Definition: Number of the accident.

Additional Information: 'YYYYDDDNNNN' where YYYY = Year, DDD = Julian Day of Year, NNNN = Unique Case Number (0000-9999).

Coroner Report Record

SAS Name: CORN_RPT

Definition: Whether a coroner's report was filed

Additional Information: Element added in 1991.

'I'	Not Applicable
'N'	No
'X'	Unknown
'Y'	Yes
'Z'	Not Specified

Driver License Class

SAS Name: DL_CLASS

Definition: Class of driver license of the driver of the vehicle involved in the crash.

Additional Information: Element added in 1991.

'A'	Commercial – Any Vehicle or Combination
'B'	Commercial – Any Basic Single Unit Motor Vehicle
'C'	Commercial – Any Class D Vehicle Transporting Hazmat and For School Bus
'D'	The Normal Driver's License
'I'	ID Card Only
'M'	Moped License Only
'R'	Tracer Record
'T'	Lifetime ID Card Only
'X'	Conax Record

Driver License State**SAS Name: DL_STATE**

Definition: State of the driver license of the driver of the vehicle involved in the crash.

Additional Information: Two character state name (i.e., MN). Element added in 1991.

Driver License Withdrawal**SAS Name: DL_WITHD**

Definition: Whether or not the driver's licensed had been withdrawn at the time of the crash.

Additional Information: Element added in 1990 and discontinued in 1999.

'I'	Not Applicable
'N'	No
'X'	Unknown
'Y'	License Suspended, Revoked, Canceled or Never Licensed
'Z'	Not Specified

Driver Recommendation**SAS Name: DRIV_REC**

Definition: Driver Recommendation

Additional Information: Element added in 1990.

'0'	Not Specified
'1'	None
'2'	Physical Exam
'3'	Drivers Exam
'4'	Driver and Physical Exam
'5'	Other
'8'	Net Applicable

Drug Test Performed

SAS Name: DRUG_TEST

Definition: Whether or not a drug test was performed on the driver.

Additional Information: Element added in 2003.

'I'	Not Applicable
'N'	No
'X'	Unknown
'Y'	Yes
'Z'	Not Specified

Ejection from Vehicle

SAS Name: EJECT

Definition: Whether or not the occupant was ejected when the crash occurred.

00	Not Specified
01	Trapped, Extricated (By Mechanical Means)
02	Trapped, Freed by Non-Mechanical Means
03	Partially Ejected
04	Ejected
05	Not Ejected
90	Other
98	Not Applicable
99	Unknown

Type of Safety Equipment**SAS Name: EQUIP_TYPE***Definition:* Safety equipment in the vehicle involved in the crash.*Additional Information:* New element added in 2000.

'00'	Not Specified
'01'	Not in Place
'02'	Lap Belt
'03'	Shoulder Belt
'04'	Lap and Shoulder Belt
'05'	Child Safety Seat
'06'	Child Booster Seat
'90'	Other
'98'	Not Applicable
'99'	Unknown

Fatality Number**SAS Name: FAT_NUM***Definition:* Internal fatality number assigned by Minnesota.*Additional Information:* Not of use for analysis efforts.**Fatality Date****SAS Name: FATLDATE***Definition:* Date of occupant fatality.*Additional Information:* Date of Fatality (YYYYMMDD). Element added in 1998.**Injured Taken to Hospital****SAS Name: HOSP***Definition:* Whether or not the injured occupant was taken to the hospital as a result of the crash.

'I'	Not Applicable
'N'	No
'X'	Unknown
'Y'	Yes
'Z'	Not Specified

Transported to Hospital Method**SAS Name: HOSPTRAN**

Definition: How occupant was transported to the hospital.

Additional Information: New element added in 1991.

'A'	Ambulance
'O'	Other
'I'	Not Applicable
'X'	Unknown
'Z'	Not Specified

Injury Severity**SAS Name: INJ**

Definition: Severity of injuries sustained in the crash by occupant.

Additional Information: The “No Injury” code is new beginning in 1990, since MN did not begin coding uninjured occupants until that year. After 1991, MN staff indicate that a blank code also can mean “No Injury” as captured in the format above. However, since additional blank “place holder” occupant records are added to the Occupant File, while not likely the case, there may be some blank codes which represent other injury classes. See Discussion.

'K'	Killed
'A'	Injured – Incapacitating
'B'	Injured – Non-Incapacitating
'C'	Injured – Possible Injury
' ', 'N'	No Injury
'X', 'U'	Injured – Unknown Severity
Other	Error/Other Code

Driver License Restrictions

SAS Name: LIS_RSTR

Definition: License restrictions on driver's license

Additional Information: New element added in 1991.

'00'	Not Specified
'01'	None
'02'	Corrective Lenses
'03'	Mechanical Devices
'04'	Prosthetic Aid
'05'	Automatic Transmission
'06'	Outside Mirror
'07'	Limit to Daylight Hours
'08'	Limit to Employment Only
'09'	Limited – Other
'10'	Learners Permit
'11'	CDL – Commercial Driver License
'12'	Vehicles Without Air Brakes
'13'	Except Class A Bus
'14'	Except Class A and Class B Bus
'15'	Except Tractor Trailer
'16'	Farm Waiver
'17'	Multiple Restrictions
'90'	Other
'98'	Not Applicable
'99'	Unknown

Physical Condition

SAS Name: PYHSCOND

Definition: Physical condition of occupant involved in the crash.

Additional Information: Codes are not mutually exclusive. If more than one condition exists, officer is most likely to use alcohol-related codes.

00	Not Specified
01	Normal – No Drugs or Drinking
02	Under the Influence
03	Had Been Drinking
04	Commercial Driver Over .04 BAC
05	Had Been Taking Drugs
06	Aggressive
07	Asleep
08	Physical Disability
09	Ill
10	Fatigues
90	Other
98	Not Applicable
99	Unknown

Residence County

SAS Name: RES_CNTY

Definition: County of residence of occupant.

Additional Information: County of Residence (Same codes as COUNTY). Element added in 1991. Valid data not available for 1997.

Safety Equipment Used

SAS Name: REST1

Definition: Safety equipment used by occupant

'00'	Not Specified
'01'	Belts Not Used
'02'	Lap Belt Only Used
'03'	Shoulder Belt Only Used
'04'	Lap and Shoulder Belt Used
'05'	Child Seat Not Used
'06'	Child Seat Used Improperly
'07'	Child Seat Used Properly
'08'	Booster Seat Not Used
'09'	Booster Seat Used Improperly
'10'	Booster Seat Used Properly
'11'	Helmet Not Used
'12'	Helmet Used
'13'	Dark (Non-Light-Reflective Clothing)
'14'	Light-Reflective Clothing
'15'	No Protective (Elbow, Knee, Etc) Pads
'16'	Protective Pads
'17'	Child Restriction
'18'	Restriction Device Not Ins
'19'	Restriction Device Not Used
'20'	Restriction Device Used
'21'	Motorcycle Helmet Used
'22'	Motorcycle Helmet/Lights
'23'	Helmet Used Light/Off
'24'	Helmet Not Used
'25'	No Helmet/Light On
'26'	No Helmet/Light Off
'27'	Motorcycle Light On
'28'	Motorcycle Light Off
'29'	Seatbelt Improperly Used
'30'	Passenger Belt Ins/Use
'31'	Passenger Belt Ins Cir
'32'	Airbag + Sb Use
'33'	Airbag – No Sb Use
'34'	Crd not Install

'35'	Crd Install/No Use
'36'	Crd Install/Improper Use
'90'	Other
'98'	Not Applicable
'99'	Unknown

Position in Vehicle**SAS Name: SEATPOS**

Definition: Occupant position in vehicle when the crash occurred.

01	Driver (Include Motorcycle Operators)
02	Front Center
03	Front Right
04	Second Seat Left
05	Second Seat Center
06	Second Seat Right
07	Third Seat Left
08	Third Seat Center
09	Third Seat Right
10	Outside of Vehicle
11	Trailing Unit
12	Pickup Truck Bed
13	Truck Cab Sleeper Section
14	Passenger in Other Position (Include Motorcycle Passenger)
15	Passenger in Unknown Position
16	Front Left (Non-Driver)
19	Not Known if Person Was a Driver or a Passenger Positions (Locations) For Non-Motorists
21	Crosswalk, Marked, at Intersection
22	Crosswalk, Not Marked, at Intersection
23	Crosswalk, Not at Intersection
24	Crosswalk – At Driveway Access
25	In Roadway
26	Not in Roadway
27	Median (But Not on Shoulder)
28	Island
29	Shoulder
30	Sidewalk
31	Within 10 Feet of Roadway (But Not On Median, Shoulder, or Sidewalk)

32	Beyond 10 Feet of Roadway (But Still In Trafficway)
33	Outside Trafficway
34	Shared-Use Path or Trails
35	Other Non-Motorist Location
36	Unknown Non-Motorist Location
37	Other Passenger
38	Rder Hang On Vehicle
39	Motorcycle/Bicycle/Snowmobile Driver
40	Motorcycle/Bicycle/Snowmobile Passenger
41	Sled Hang ON

Sex of Injured/Killed Occupant**SAS Name: SEX**

Definition: Sex of injured/killed occupant involved in the crash.

'M'	Male
'F'	Female
'N'	N/NS Applicable
'X'	Unknown
'Z'	Not Specified

Valid Driver License**SAS Name: VALID_LICENSE**

Definition: Whether driver had a valid driver license.

Additional Information: Element added in 2003.

'00'	Not Specified
'01'	Valid, and Within All Restrictions
'02'	Violation – Beyond Restrictions
'03'	Violation – Not Endorsed for this Type of Vehicle
'04'	Violation – License Suspended
'05'	Violation – License Revoked
'06'	Violation – License Cancelled
'07'	Violation of Limited License Provisions
'08'	Violation – Expired License
'90'	Other
'98'	Not Applicable
'99'	Unknown

Vehicle Number**SAS Name: VEHNO**

Definition: Vehicle number for occupant's vehicle.

Additional Information: Vehicle number on accident report. Used to link with Vehicle File. Preliminary analyses indicate that pedestrians and bicyclists are often given a VEHNO = o.

Driver Cited For Violations**SAS Name: VIOLATIONS**

Definition: Whether or not the driver of the vehicle involved in the crash was cited for violations.

Additional Information: Element added in 2003.

'I'	Not Applicable
'N'	No
'X'	Unknown
'Y'	Yes
'Z'	Not Specified

Work Related Accident**SAS Name: WORK_REL**

Definition: Whether or not the accident was related to work.

Additional Information: Element added in 1990. Data appear to be consistent in 1991 and later. Element discontinued in 2003.

'Y'	Yes
'N'	No

List of Elements for the MN Roadway File

SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
AADT	CALCULATED AVERAGE AADT	Roadlog	NUM	91
ACCESS	CONTROL OF ACCESS	Roadlog	NUM	91
ADLN_RD1	ADDITIONAL LANES - ROAD 1	Roadlog	CHA(1)	92
ADLN_RD2	ADDITIONAL LANES - ROAD 2	Roadlog	CHA(1)	92
BAS_TKR1	BASE THICKNESS - ROAD 1	Roadlog	CHA(3)	92
BEGMP	CALCULATED BEGIN MILEPOST	Roadlog	NUM	93
BRK_CD	BREAK CODE	Roadlog	NUM	93
CITY_NBR	CITY NUMBER	Roadlog	CHA(4)	93
COMM_ADT	CALCULATED AVERAGE COMMERCIAL AADT	Roadlog	NUM	94
COUNTY	COUNTY	Roadlog	NUM	94
CURB1	CURBS - ROAD 1	Roadlog	CHA(1)	94
CURB2	CURBS - ROAD 2	Roadlog	CHA(1)	94
DESC	ROADWAY DESCRIPTION	Roadway	CHA(51)	95
DIR_CDE	DIRECTION CODE	Roadlog	CHA(2)	95
DISTRICT	DISTRICT	roadlog	CHA(1)	95
ENDMP	CALCULATED ENDING MILEPOST	Roadlog	NUM	95
FED_AID	FEDERAL AID SYSTEM	Roadlog	CHA(1)	96
FED_SYSD	FEDERAL AID SYSTEM - DESIGNATED	Roadlog	CHA(1)	96
FED_SYSR	FEDERAL AID SYSTEM - REGULAR	Roadlog	CHA(1)	96
FEDADRTE	FEDERAL AID ROUTE	Roadlog	CHA(4)	96
FUNC_CLS	FUNCTIONAL CLASS	Roadlog	NUM	97
H_COUNT	NUMBER OF COUNT STATIONS PER SECTION	Roadlog	NUM	97
INTE_CAT	INTERSECTION CATEGORY	Roadlog	NUM	98
INV_DTE	INVENTORY DATE	Roadlog	CHA(8)	98
LANEWID	LANE WIDTH	Roadlog	NUM	99
LEGRNUM	LEGISLATIVE ROUTE NUMBER	Roadlog	CHA(3)	99
LSHL_TY2	LEFT SHOULDER TYPE - ROAD 2	Roadlog	CHA(2)	100
LSHL_TYP	LEFT SHOULDER TYPE - ROAD 1	Roadlog	CHA(2)	100
LSHL_WD2	LEFT SHOULDER WIDTH - ROAD 2	Roadlog	CHA(2)	101
LSHL_WD1	LEFT SHOULDER WIDTH - ROAD 1	Roadlog	CHA(2)	101
MANTAREA	MAINTENANCE AREA OF THE ROADWAY	Roadlog	CHA(2)	101
MED_TYPE	MEDIAN TYPE	Roadlog	CHA(1)	102
MEDWID	MEDIAN WIDTH (IN FEET)	Roadlog	CHA(2)	102
MVMT	MILLION VEHICLE MILES TRAVELED	Roadlog	NUM	103
NBRVOL	TOTAL NUMBER OF TRAFFIC VOLUME COUNTS	Roadlog	NUM	103
NBRVOLB	NUMBER OF BLANK TRAFFIC VOLUME COUNTS	Roadlog	NUM	103

List of Elements for the MN Roadway File

SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
NBRVOLF	NUMBER OF FULL TRAFFIC VOLUME COUNTS	Roadlog	NUM	103
NO_LANE1	NUMBER THROUGH LANES TOWARDS INCREASING MILEPOINTS	Roadlog	CHA(1)	104
NO_LANE2	NUMBER THROUGH LANES TOWARDS DECREASING MILEPOINTS	Roadlog	CHA(1)	104
NO_LANES	TOTAL NUMBER OF LANES	Roadlog	NUM	104
ONEWAY	DIVIDED AND ONE-WAY CODE	Roadlog	CHA(1)	105
PARKING1	PARKING ON ROAD 1	Roadlog	CHA(1)	105
PARKING2	PARKING ON ROAD 2	Roadlog	CHA(1)	105
REF_PST	REFERENCE POST	Roadlog	CHA(3)	105
REMARK	REMARKS - TYPE OF RECORD	Roadlog	CHA(2)	106
RODWYCLS	ROADWAY CLASSIFICATION	Roadlog	CHA(2)	106
ROW	RIGHT OF WAY WIDTH	Roadlog	CHA(3)	106
RSHL_TY2	RIGHT SHOULDER TYPE - ROAD 2	Roadlog	CHA(2)	107
RSHL_TYP	RIGHT SHOULDER TYPE - ROAD 1	Roadlog	CHA(2)	107
RSHL_WD2	RIGHT SHOULDER WIDTH - ROAD 2	Roadlog	CHA(2)	109
RSHLDWID	RIGHT SHOULDER WIDTH - ROAD 1	Roadlog	CHA(2)	109
RTE_NBR	ROUTE NUMBER	Roadlog	CHA(9)	109
RTE_SYS	ROUTE SYSTEM	Roadlog	CHA(2)	110
RTSYSNBR	COMBINED ROUTE SYSTEM/ROUTE NUMBER	Roadlog	CHA(11)	110
SEG_LNG	CALCULATED SECTION LENGTH	Roadlog	NUM	111
SIDE_WLK	SIDEWALKS	Roadlog	CHA(1)	111
STM_SEW	STORM SEWERS	Roadlog	CHA(1)	111
SUF_TYP1	SURFACE SPECIFICATION NUMBER - ROAD 1	Roadlog	CHA(4)	112
SUF_TYP2	SURFACE SPECIFICATION NUMBER - ROAD 2	Roadlog	CHA(4)	112
SUR_TKR1	SURFACE THICKNESS – ROAD 1	Roadlog	CHA(3)	112
SUR_TKR2	SURFACE THICKNESS – ROAD 2	Roadlog	CHA(3)	112
SURF_TY2	SURFACE TYPE - ROAD 2	Roadlog	CHA(2)	113
SURF_TYP	SURFACE TYPE - ROAD 1	Roadlog	CHA(2)	113
SURF_WD2	SURFACE WIDTH - ROAD 2 (IN FEET)	Roadlog	CHA(2)	114
SURF_WID	SURFACE WIDTH - ROAD 1 (IN FEET)	Roadlog	CHA(2)	114
TURN_LN	TURNING LANES TOWARD INCREASING MILEPOSTS	Roadlog	CHA(1)	114
TURN_LN2	TURNING LANES TOWARD DECREASING MILEPOSTS	Roadlog	CHA(1)	114

List of Elements for the MN Roadway File

SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
UPDATE_	DATE OF UPDATE	Roadlog	NUM	114
URB_MNC	URBAN/MUNICIPAL CODE	Roadlog	NUM	115
VOLGRP	TRAFFIC VOLUME GROUP	Roadlog	CHA(2)	115
VOLTYP	TRAFFIC VOLUME TYPE	Roadlog	CHA(1)	116
YEAR	YEAR OF TRAFFIC	Roadlog	CHA(4)	116

ADDITIONAL INFORMATION: SAS variable names and explanatory names are shown above each listing. (See Discussion for information on SAS formats.) ADDITIONAL INFORMATION: Prior to 1994, approximately one-third of the records on this file are "false records" coded other than 'blank'. These must be taken into account when using this file -- see introductory discussion.

Roadlog File

Calculated Average AADT

SAS Name: AADT

Definition: Calculated average AADT

Additional Information:

1. See "Traffic Data" discussion. For pre-2007 files, this is the calculate average AADT (annual average daily traffic) assigned to this section. It is averaged over years (1985-87 in the 1987 file, 1988-89 in the 1989 file), and over counters within the section. If no counters exist, the average is brought forward from the proceeding upstream section. For 2007 and later files, AADT "sections" are provided by MNDOT and are linked to each Roadlog file segment.
2. See "Traffic Data" discussion. AADT data for Route System (see RTE_SYS) 01-05 are accurate; for Route System 07, are of acceptable accuracy; and for Route Systems 08 and 10 are of questionable accuracy.

0	0
1-100	1-100
101-500	101-500
501-1001	1001-501
1001-2000	1001-2000
2001-5000	2001-5000
5001-10000	5001-10000
10001-15000	10001-15000
15001-20000	15001-20000
20001-40000	20001-40000
40001-999999	> 40001

Control of Access

SAS Name: ACCESS

Definition: Control of access

0	Not Applicable
1	No Control of Access
2	Partial Control of Access
3	Full Control of Access
4	Not a Public Road

Additional Lanes – Road 1

SAS Name: ADLN_RD1

Additional Lanes – Road 2

SAS Name: ADLN_RD2

Definition: Additional lanes

Additional Information: Road 2 data only exist for divided roadways. In addition, since there is no accurate way of linking a given accident with the proper road, and the low number of “disagreements” between Road 1 and Road 2 data, it is suggested that accidents always be linked with Road 1 data for ease of handling (See earlier discussion).

``	Not Applicable
`0'	No Additional Lanes
`1'	Climbing Lanes on Left
`2'	Climbing Lanes on Right
`3'	Climbing Lanes on Both Sides
`4'	Escape Lane on Left
`5'	Acceleration Lanes on Left
`6'	Acceleration Lanes on Right
`7'	Acceleration Lanes on Both Sides
`8'	Escape Lanes on Right
`9'	Other Additional Lanes

Base Thickness Road 1

SAS Name: BAS_TKR1

Definition: Base thickness road 1.

Additional Information: This is the thickness of the pavement base to the nearest tenth of an inch (e.g., 094 = 9.4 inches). Over 99% of the data are coded as “Not Applicable”, which probably means that a blank code means “Not Coded”.

``	Not Applicable
`UN'	Unknown
`010-100'	1.0-10.0
`101-200'	10.1-20.0
`201-300'	20.1-30.0
`301-400'	30.1-40.0
`401-600'	40.1-60.0
`601-900'	60.1-90.0

Roadlog File

'901-999'	> 90.1
Other	Error/Other Code

Calculated Begin Milepost

SAS Name: BEGMP

Definition: Calculated begin milepost

Additional Information: Calculated beginning milepost. See Discussion.

Break Code

SAS Name: BRK_CD

Definition: Break Code

1	Roadlog Reports
2	Control Section Book
3	Logpoint Listings
4	Logpoint Listings and Control Section Book
5	Roadlog Report and Control Section Book
6	Roadlog Report and Logpoint Listings
7	Roadlog Report, Logpoint Listings and Control Section Book

City Number

SAS Name: CITY_NBR

Definition: City number

0000	Non Municipal
0001-9999	Municipality Number

Additional Information: Contact HSIS staff for formats.

Calculated Average Commercial AADT

SAS Name: COMM_ADT

Definition: Calculated Average Commercial AADT

0	0
1-100	1-100
101-500	101-500
501-1001	1001-501
1001-2000	1001-2000
2001-5000	2001-5000
5001-10000	5001-10000
10001-15000	10001-15000
15001-20000	15001-20000
20001-40000	20001-40000
40001-999999	> 40001

County

SAS Name: COUNTY

Definition: County number of the roadway segment.*Additional Information:* 01-87 = County Number.**Curbs – Road 1**

SAS Name: CURB1

Curbs – Road 2

CURB 2

Definition: Curbs

Additional Information: Road 2 data only exist for divided roadways. In addition, since there is no accurate way of linking a given accident with the proper road, and because of the low number of “disagreements” between Road 1 and Road 2 data, it is suggested that accidents always be linked with Road 1 data for ease of handling (See discussion).

``	Not Applicable
`N`	No Curbs
`L`	Curbs on Left Side
`R`	Curbs on Right Side
`B`	Curbs on Both Sides
`U`	Unknown

Roadway Description**SAS Name: DESC**

Definition: Description of the roadway segment location.

Additional Information: It is a location narrative and contains 50 characters of verbal description of the location. Usually provides road or route names.

Direction Code**SAS Name: DIR_CDE**

Definition: Predominant direction of roadway for the segment.

Additional Information: Element added in 2001.

'N'	North
'S'	South
'E'	East
'W'	West
'NE'	Northeast
'NW'	Northwest
'SE'	Southeast
'SW'	Southwest

District**SAS Name: DISTRICT**

Definition: District of roadway segment.

Additional Information: This variable is determined by county number.

Calculated Ending Milepost**SAS Name: ENDMP**

Definition: Calculated Ending Milepost

Additional Information: Calculated ending milepost. See Discussion.

Federal Aid Route**SAS Name: FEDADRTE**

Definition: Federal Aid Route

Additional Information: This indicates the route is federal aid or 'blank' if not.

Federal Aid System

SAS Name: FED_AID

Definition: Federal Aid System

''	Not Applicable
'N'	Not on Federal Aid System
'I'	Federal Aid Interstate
'P'	Federal Aid Primary
'S'	Federal Aid Secondary
'U'	Federal Aid Urban

Federal Aid System – Designated

SAS Name: FED_SYSD

Definition: Federal Aid System – Designated

''	No Travelled Way
'D'	Projected Way
'T'	Travelled Way

Federal Aid System – Regular

SAS Name: FED_SYSR

Definition: Federal Aid System – Regular

''	No Travelled Way Involved
'I'	Travelled Way of Interstate System
'P'	Travelled Way of Primary System
'S'	Travelled Way of Secondary System
'U'	Travelled Way of Urban System
'N'	Travelled Way of Non-Federal System

Functional Class

SAS Name: FUNC_CLS

Definition: Functional Class*Additional Information:* Beginning with 1990 data, codes 13 and 15 are no longer valid. Code 13 was changed to 12 and 15 was changed to 14.

00 Not

Applicable Rural

01 Rural Principal Arterial – Interstate

02 Rural Principal Arterial – Other

06 Rural Minor Arterial

07 Rural Major Collector

08 Rural Minor Collector

09 Rural Local Systems

Urban

11 Urban Principal Arterial – Interstate

12 Urban Principal Arterial – Other Freeway – Connecting

13 Urban Principal Arterial – Other Freeway – Non-Connecting

14 Urban Principal Arterial – Other Connecting Link

15 Urban Principal Arterial – Other Non-Connecting Link

16 Urban Minor Arterial

17 Urban Collector

19 Urban Local Systems

Number of Count Stations Per Section

SAS Name: H_COUNT

Definition: Number of Count Stations Per Section*Additional Information:* Number of traffic count stations per section.

Intersection Category

SAS Name: INTE_CAT

Definition: Intersection Category*Additional Information:* This is a 'point' element describing the crossing route for the intersection at the beginning of the segment.

00	No Intersection
01	ISTH – Interstate Trunk Highway
02	USTH – US Trunk Highway
03	MNTH – Minnesota Trunk Highway
04	CSAH – County State Aid Highway
05	MSAS – Municipal State Aid Street
07	CNTY – County Road
08	TWNS – Township Road
09	UTWN – Unorganized Township Road
10	MUN – City Streets
11	NATP – National Park Road
12	NFD – National Forest Development Road
13	IND – Indian Reservation Road
14	SFR – State Forest Road
15	SPRK – State Park Road
16	MIL – Military Road
17	NATM – National Monument Road
18	NATW – National Wildlife Refuge Road
19	FRNT – Frontage Road
20	SGAM – State Game Preserve Road
21	Leg
22	Ramp
23	Private Jurisdiction Road

Inventory Date

SAS Name: INV_DTE

Definition: Inventory Date*Additional Information:* YYYYMMDD = Date of Most Recent Inventory, 00000000 = Date of Inventory Unknown.

Legislative Route Number**SAS Name: LEGRTNUM**

Definition: Legislative Route Number

Additional Information: Category of this variable is 'blank' if not applicable.

Lane Width**SAS Name: LANEWID**

Definition: Calculated lane width.

Additional Information: Lane width (in feet) is not provided in the raw data file from Minnesota. Instead, this element is calculated using the following methods suggested by Minnesota staff:

1. If roadway is undivided (i.e., ONEWAY not equal to 'D'), and if a curb is not present (CURB1 = 'N'), then: $LANEWID = SURF_WID / NO_LANES$. If a curb is present (CURB1 = 'L', 'R', or 'B'), then $LANEWID = 12$.
2. If roadway is divided (i.e., ONEWAY = 'D') and if a curb is not present (CURB1 = 'N'), then $LANEWID = (SUR_WID + SURFWD2 / NO_LANES)$. If a curb is present (CURB1 = 'L', 'R', or 'B'), then $LANEWID = 12$.

Left Shoulder Type – Road 2

SAS Name: LSHL_TY2

Left Shoulder Type – Road 1

SAS Name: LSHL_TYP

Definition: Left shoulder type

Additional Information:

1. Composite shoulders (i.e., part paved, part unpaved) are coded as “Mn” or “Nn” in the format below. The “n” or numeric part of these codes defines the width of the paved part of the shoulder. The shoulder width variables (e.g., LSHLDWID, RSHLWID) will provide the total shoulder width in these composite cases.
2. Road 2 data only exist for divided roadways. In addition, since there is no accurate way of linking a given accident with the proper road, and because of the low number of “disagreements” between Road 1 and Road 2 data, is suggested that accidents always be linked with Road 1 data for ease of handling. (See earlier discussion).

``	Not Applicable
`A'	Primitive
`B'	Unimproved
`C'	Graded and Drained
`D'	Soil-Surfaced
`E'	Gravel or Stone
`F'	Bituminous Surface – Travelled
`G'	Mixed Bituminous Road – Type Unknown
`G1'	Mixed Bituminous Road – Low-Type
`G2'	Mixed Bituminous Road – High-Type
`G3'	Mixed Bituminous Surface – Resurfacing
`G4'	Mixed Bituminous Surface – New Construction
`I'	Bituminous Concrete or Asphalt Road
`I3'	Bituminous Concrete or Asphalt Resurfacing
`I4'	Bituminous Concrete or Asphalt New Construction
`J'	Portland Cement Concrete Road
`J3'	Portland Cement Concrete Resurfacing
`J4'	Portland Cement Concrete New Construction
`K'	Brick
`L'	Block
`M1'	Composite Shoulder – 1 ft Bituminous
`M2'	Composite Shoulder – 2 ft Bituminous
`M3'	Composite Shoulder – 3 ft Bituminous
`M4'	Composite Shoulder – 4 ft Bituminous

Roadlog File

'M5'	Composite Shoulder – 5 ft Bituminous
'M6'	Composite Shoulder – 6 ft Bituminous
'M7'	Composite Shoulder – 7 ft Bituminous
'M8'	Composite Shoulder – 8 ft Bituminous
'M9'	Composite Shoulder – 9 ft Bituminous
'N1'	Composite Shoulder – 1 ft Bituminous Composite Concrete
'N2'	Composite Shoulder – 2 ft Bituminous Composite Concrete
'N3'	Composite Shoulder – 3 ft Bituminous Composite Concrete
'N4'	Composite Shoulder – 4 ft Bituminous Composite Concrete
'N5'	Composite Shoulder – 5 ft Bituminous Composite Concrete
'N6'	Composite Shoulder – 6 ft Bituminous Composite Concrete
'N7'	Composite Shoulder – 7 ft Bituminous Composite Concrete
'N8'	Composite Shoulder – 8 ft Bituminous Composite Concrete
'N9'	Composite Shoulder – 9 ft Bituminous Composite Concrete
'S'	Sod Shoulder
'oo'	No Shoulder
Other	Error/Other Code

Maintenance Area of the Roadway

SAS Name: MANTAREA

Definition: Maintenance Area of the Roadway

Left Shoulder Width – Road 2

SAS Name: LSHL_WD2

Left Shoulder Width – Road 1

LSHLDWID

Definition: Left Shoulder Width

Additional Information: A blank means “not applicable”; a “UN” means “unknown”; and a “oo” means “no shoulder”.

1. Road 2 data only exist for divided roadways. In addition, since there is no accurate way of linking a given accident with the proper road, and because of the low number of “disagreements” between Road 1 and Road 2 data, it is suggested that accidents always be linked with Road 1 data for ease of handling. (See earlier discussion).

2. This is not always the treated left shoulder width in feet. When MN/DOT codes shoulder width, it is total shoulder width. For sod/gravel, it is from edge of land to ditch guardrail, or taper to ditch. When there is partial paved and partial sod/gravel, the shoulder type should be coded as “composite”. In the composite codes under shoulder type, the shoulder type codes gives the feet of paved shoulder within the measurement. The total measure for shoulder width presented here is the width of the total composite shoulder – from edge of lane to ditch.

When the shoulder is “paved”, the width is total width of the paved shoulder. There may be some cases where the coding is slightly in error. For example, a paved width may have some added sod/gravel which is unmeasured. However, if there is a wide area of sod/gravel, the shoulder type will be composite and the total width will be measured. There are also some cases where the composite shoulders may be coded in error; however, it can be assumed that the total width is for all types of shoulders.

Median Type**SAS Name: MED_TYPE**

Definition: Type of median on the roadway segment.

``	Not Applicable
`0'	Median Type Unknown
`1'	No Median Barrier, Raise Median
`2'	No Median Barrier, Depressed Median
`3'	Plate Beam Barrier
`4'	City Block (One-Way Couplet)
`6'	Concrete Barrier
`5'	Box Beam Barrier
`7'	Chain Link Barrier, Raise Median
`8'	Chain Link Barrier, Depressed Median

Median Width (In Feet)**SAS Name: MEDWID**

Definition: Median width (In feet)

``	Not Applicable
`UN'	Unknown
`VR'	Varies
'01-10'	01-10
'11-20'	11-20
'21-30'	21-30
'31-40'	31-40
'41-60'	41-60
'61-90'	61-90
'91-99'	> 99

Million Vehicle Miles Traveled**SAS Name: MVMT**

Definition: Million vehicle miles traveled on road segment.

Additional Information: Created element added in 1999 for all HSIS roadway-inventory files. See Discussion.

Total Number of Traffic Volume Counts**SAS Name: NBRVOL**

Definition: Total Number of Traffic Volume Counts

Additional Information: The number of total (full plus blank) volume fields in the record containing AADT values. Element discontinued in 1999.

Number of Blank Traffic Volume Counts**SAS Name: NBRVOLB**

Definition: Number of Blank Traffic Volume Counts

Additional Information: The number of blank (unused) volume fields in the record. Element discontinued in 1999.

Number of Full Traffic Volume Counts**SAS Name: NBRVOLF**

Definition: Number of Full Traffic Volume Counts

Additional Information: The number of volume fields in the record containing AADT. Element discontinued in 1999.

**Number Through Lanes Toward
Increasing Milepoints**
**Number Through Lanes Toward
Decreasing Milepoints**

SAS Name: NO_LANE1

NO_LANE2

Definition: Number through lanes toward increasing/ decreasing milepoints

Additional Information: This element and NO_LANE1 must be summed to obtain the total number of lanes on a section of roadway, even for 2-lane, 2-way roadways. This has been done under NO_LANES.

``	Not Applicable (No Lanes)
`1'	One Through Lane
`2'	Two Through Lanes
`3'	Three Through Lanes
`4'	Four Through Lanes
`5'	Five Through Lanes

Total Number of Lanes

SAS Name: NO_LANES

Definition: Total number of lanes of the roadway segment.

Additional Information: This is the sum of NO_LANE1 + NO_LANE2, and is the total number of lanes on a section of roadway.

.	No Lanes
1	One Lane
2	Two Lanes
3	Three Lanes
4	Four Lanes
5	Five Lanes
6	Six Lanes
7	Seven Lanes
8	Eight Lanes
9-20	> Eight Lanes

Divided and One-Way Code

SAS Name: ONEWAY

Definition: Divided and one-way code

``	Not Applicable
`D'	Divided Roadway – Road 1 and Road 2 Present
`O'	One-Way Couplet – Road 1 and Road 2 Present
`U'	Undivided 2-Way – Road 1 Present
`X'	One-Way Street Towards Decreasing Reference Posts – Road 2 Present
`Z'	One-Way Street Towards Increasing Reference Posts – Road 1 Present

Parking on Road 1

SAS Name: PARKING1

Parking on Road 2

PARKING2

Definition: Presence and type of parking on road segment

Additional Information: Road 2 data only exist for divided roadways. In addition, since there is no accurate way of linking a given accident with the proper road, and because of the low number of “disagreements” between Road 1 and Road 2 data, it is suggested that accidents always be linked with Road 1 data for ease of handling. (See earlier discussion).

``	Not Applicable
`0'	Unknown
`1'	Left – None, Right – None
`2'	Left – None, Right – Parallel
`3'	Left – None, Right – Diagonal
`4'	Left – Parallel, Right – None
`5'	Left – Parallel, Right – Parallel
`6'	Left – Parallel, Right – Diagonal
`7'	Left – Diagonal, Right – None
`8'	Left – Diagonal, Right – Parallel
`9'	Left – Diagonal, Right – Diagonal

Reference Post

SAS Name: REF_PST

Definition: Reference Post

Additional Information: Reference post number ('000'-
'999'). New element added in 1996.

Remarks – Type of Record**SAS Name: REMARK***Definition:* Remarks – Type of Record

Additional Information: Prior to 1994, approximately one-third of the records of this file are “false records” coded other than ‘blank’. These must be taken into account when using this file – see introductory discussion. These false records are deleted from the files for 1994 and later years.

``	Mileage Record – Normal Section (Roadlog File)
‘NE’	Mileage Record – Non-Existent Section (Roadlog File)
‘CO’	Descriptor Record – Coincident (Roadlog File)
‘EN’	Descriptor Record – End-of-Route Record (Roadlog File)
‘GP’	Descriptor Record – Gap (Roadlog File)
‘DS’	Descriptor Record – Intersection Description (Logpoint File)

Roadway Classification**SAS Name: RODWYCLS***Definition:* Roadway classification

Additional Information: Created element added to HSIS accident and roadway inventory files in all states in 1999. See discussion.

‘01’	Urban Freeways, Four or More Lanes
‘02’	Urban Freeways, Less Than Four Lanes
‘03’	Urban Two-Lane Roads
‘04’	Urban Multi-Lane Divided, Non-Freeway
‘05’	Urban Multi-Lane Undivided, Non-Freeway
‘06’	Rural Freeways, Four or More Lanes
‘07’	Rural Freeways, Less Than Four Lanes
‘08’	Rural Two Lane Roads
‘09’	Rural Multilane Divided, Non-Freeway
‘10’	Rural Multilane Undivided, Non-Freeway
‘99’	Others

Right of Way Width**SAS Name: ROW***Definition:* Width of the right of way.

Additional Information: Average right of way width in feet. New element added in 1994.

Right Shoulder Type – Road 2
Right Shoulder Type – Road 1

SAS Name: RSHL_TY2
RSHL_TYP

Definition: Right Shoulder Type

Additional Information:

1. Composite shoulders (i.e., part paved, part unpaved) are coded as “Mn” or “Nn” in the above format. The “n” or numeric part of these codes defines the width of the paved part of the shoulder. The shoulder width variables (e.g., LSHLDWID, RSHLWID) will provide the total shoulder width in these composite cases.
2. Road 2 data only exist for divided roadways. In addition, since there is no accurate way of linking a given accident with the proper road, and because of the low number of “disagreements” between Road 1 and Road 2 data, is suggested that accidents always be linked with Road 1 data for ease of handling. (See earlier discussion).

``	Not Applicable
`A'	Primitive
`B'	Unimproved
`C'	Graded and Drained
`D'	Soil-Surfaced
`E'	Gravel or Stone
`F'	Bituminous Surface – Travelled
`G'	Mixed Bituminous Road – Type Unknown
`G1'	Mixed Bituminous Road – Low-Type
`G2'	Mixed Bituminous Road – High-Type
`G3'	Mixed Bituminous Surface – Resurfacing
`G4'	Mixed Bituminous Surface – New Construction
`I'	Bituminous Concrete or Asphalt Road
`I3'	Bituminous Concrete or Asphalt Resurfacing
`I4'	Bituminous Concrete or Asphalt New Construction
`J'	Portland Cement Concrete Road
`J3'	Portland Cement Concrete Resurfacing
`J4'	Portland Cement Concrete New Construction
`K'	Brick
`L'	Block
`M1'	Composite Shoulder – 1 ft Bituminous
`M2'	Composite Shoulder – 2 ft Bituminous
`M3'	Composite Shoulder – 3 ft Bituminous
`M4'	Composite Shoulder – 4 ft Bituminous

Roadlog File

'M5'	Composite Shoulder – 5 ft Bituminous
'M6'	Composite Shoulder – 6 ft Bituminous
'M7'	Composite Shoulder – 7 ft Bituminous
'M8'	Composite Shoulder – 8 ft Bituminous
'M9'	Composite Shoulder – 9 ft Bituminous
'N1'	Composite Shoulder – 1 ft Bituminous Composite Concrete
'N2'	Composite Shoulder – 2 ft Bituminous Composite Concrete
'N3'	Composite Shoulder – 3 ft Bituminous Composite Concrete
'N4'	Composite Shoulder – 4 ft Bituminous Composite Concrete
'N5'	Composite Shoulder – 5 ft Bituminous Composite Concrete
'N6'	Composite Shoulder – 6 ft Bituminous Composite Concrete
'N7'	Composite Shoulder – 7 ft Bituminous Composite Concrete
'N8'	Composite Shoulder – 8 ft Bituminous Composite Concrete
'N9'	Composite Shoulder – 9 ft Bituminous Composite Concrete
'S'	Sod Shoulder
'00'	No Shoulder
Other	Error/Other Code

Right Shoulder Width – Road 2
Right Shoulder Width – Road 1SAS Name: RSHL_WD2
RSHLDWID*Definition:* Right Shoulder Width*Additional Information:* A blank means “not applicable”; a “UN’ means “unknown”; and a “oo” means “no shoulder”.

1. Road 2 data only exist for divided roadways. In addition, since there is no accurate way of linking a given accident with the proper road, and because of the low number of “disagreements” between Road 1 and Road 2 data, it is suggested that accidents always be linked with Road 1 data for ease of handling. (See earlier discussion).
2. This is not always the treated right shoulder width in feet. When MN/DOT codes shoulder width, it is total shoulder width. For sod/gravel, it is from edge of land to ditch guardrail, or taper to ditch. When there is partial paved and partial sod/gravel, the shoulder type should be coded as “composite”. In the composite codes under shoulder type, the shoulder type codes gives the feet of paved shoulder within the measurement. The total measure for shoulder width presented here is the width of the total composite shoulder – from edge of lane to ditch. When the shoulder is “paved’, the width is total width of the paved shoulder. There may be some cases where the coding is slightly in error. For example, a paved width may have some added sod/gravel which is unmeasured. However, if there is a wide area of sod/gravel, the shoulder type will be composite and the total width will be measured. There are also some cases where the composite shoulders may be coded in error; however, it can be assumed that the total width is for all types of shoulders.

Route Number

SAS Name: RTE_NBR

Definition: Route number of the roadway segment.*Additional Information:* ‘NNNNNNNNX’ = Route Number (N = 0-9, and X is numeric, alpha, or blank. Note that in a few cases with county/township roads, an alpha character will appear in other columns). This element is used for file linkage. See RTSYSNBR.

Route System

SAS Name: RTE_SYS

Definition: Route system for the segment.

Additional Information: See RTESYSNBR.

'01'	ISTH – Interstate Trunk Highway
'02'	USTH – U.S. Trunk Highway
'03'	MNTH – Minnesota Trunk Highway
'04'	CSAH – County State-Aid Highway
'05'	MSAS – Municipal State-Aid Highway
'07'	CNTY – County Road
'08'	TWNS – Township Road
'09'	UTWN – Unorganized Township Road
'10'	MUN – City Streets
'11'	NATP – National Park Road
'12'	NFD – National Forest Development Road
'13'	IND – Indian Reservation Road
'14'	SFR – State Forest Road
'15'	SPRK – State Park Road
'16'	MIL – Military Road
'17'	NATM – National Monument Road
'18'	NATW – National Wildlife Refuge Road
'19'	FRNT – Frontage Road
'20'	SGAM – State Game Preserve Road
'21'	PRV Road Public – Private Road Open to Public
'23'	Alley/Cemetery – Alleys and Cemeteries

Combined Route System/Route Number

SAS Name: RTSYSNBR

Definition: Combined Route System/Route Number

Additional Information: This is a combined version of the RTE_NBR and RTE_SYS elements above. This combining was done to facilitate computer linkage with other files.

Calculated Section Length**SAS Name: SEG_LNG**

Definition: Calculated section length

Additional Information: For 1990 and later files, the calculated section length is based on true beginning and ending mileposts where available from the Reference Post File. Prior to 1990, it was based on the difference between the standard beginning and ending mileposts. See discussion.

Sidewalks**SAS Name: SIDE_WLK**

Definition: Presence and locations of sidewalks on the segment.

``	Not Applicable
`N'	No Sidewalks
`L'	Sidewalks on the Left Side
`R'	Sidewalks on the Right Side
`B'	Sidewalks on Both Sides
`C'	Combination (Divided Roadways and One-Way Couplets Only)
`U'	Unknown

Storm Sewers**SAS Name: STM_SEW**

Definition: Presence of storm sewers on the segment.

Additional Information: High Percentage of "UNKNOWN" codes.

``	Not Applicable
`Y'	Yes – Storm Sewers Present
`N'	No – Storm Sewers Not Present
`U'	Unknown

Surface Specification Number – Road 1

SAS Name: **SUF_TYP1**

Surface Specification Number – Road 2

SUF_TYP2

Definition: Surface type specification number.

Additional Information: Road 2 data only exist for divided roadways. In addition, since there is no accurate way of linking a given accident with the proper road, and because of low number of “disagreements” between Road 1 and Road 2 data, it is suggested that accidents always be linked with Road 1 data for ease of handling. (See earlier discussion).

' '	Not Applicable or Not Stated
'0000'	Gravel (Aggregate) Surface
'2301'	Concrete Pavement
'2321'	Road-Mixed Bituminous Surface
'2331'	Plant-Mixed Bituminous Pavement
'2341'	Plant-Mixed Bituminous Surface
'2351'	Asphaltic Concrete Surface
'2361'	Asphaltic Concrete Surface (Fine Mix)

Surface Thickness – Road 1

SAS Name: **SUR_TKR1**

Surface Thickness – Road 2

SUR_TKR2

Definition: Surface thickness.

Additional Information: The element SUR_TKR1 was discontinued in 1996. The element SUR_TKR2 was only recorded for the year 1997.

' '	Not Applicable
'UN'	Unknown

Surface Type – Road 2
Surface Type – Road 1

SAS Name: SURF_TY2
SURF_TYP

Definition: Surface type.

Additional Information: Road 2 data only exist for divided roadways. In addition, since there is no accurate way of linking a given accident with the proper road, and because of low number of “disagreements” between Road 1 and Road 2 data, it is suggested that accidents always be linked with Road 1 data for ease of handling. (See earlier discussion).

``	Not Applicable
`A'	Primitive
`B'	Unimproved
`C'	Graded and Drained
`D'	Soil-Surfaced
`E'	Gravel or Stone
`F'	Bituminous Surface – Travelled
`G'	Mixed Bituminous Road – Type Unknown
`G1'	Mixed Bituminous Road – Low-Type
`G2'	Mixed Bituminous Road – High-Type
`G3'	Mixed Bituminous Surface – Resurfacing
`G4'	Mixed Bituminous Surface – New Construction
`I'	Bituminous Concrete or Asphalt Road
`I3'	Bituminous Concrete or Asphalt Resurfacing
`I4'	Bituminous Concrete or Asphalt New Construction
`J'	Portland Cement Concrete Road
`J3'	Portland Cement Concrete Resurfacing
`J4'	Portland Cement Concrete New Construction
`K'	Brick
`L'	Block

Surface Width – Road 1 (In Feet)

SAS Name: SURF_WID

Surface Width – Road 2 (In Feet)

SURF_WD2

Definition: Surface width (in feet).

Additional Information: Road 2 data only exist for divided roadways. In addition, since there is no accurate way of linking a given accident with the proper road, and because of low number of “disagreements” between Road 1 and Road 2 data, it is suggested that accidents always be linked with Road 1 data for ease of handling. (See earlier discussion).

''	Not Applicable
'UN'	Unknown
'VR'	Varies
'01-15'	01-05
'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
'81-99'	> 81

Turning Lanes toward Increasing Mileposts

SAS Name: TURN_LN

Turning Lanes toward Decreasing Mileposts

TURN_LN2

Definition: Presence and location of turning lanes toward increasing/decreasing mileposts.

''	Not Applicable
'N'	No Turning Lanes
'L'	Turning Lanes on Left Side
'R'	Turning Lanes on Right Side
'B'	Turning Lanes on Both Sides

Date of Update

SAS Name: UPDATE_

Definition: Date of most recent update.

Additional Information: Most recent date on which record was modified (YYYYMMDD). Element added in 1994.

Urban/Municipal Code

SAS Name: URB_MNC

Definition: Urban/municipal code

0	Not Applicable
1	Non-Municipal – Rural
2	Non-Municipal – Urban
3	Municipal – Rural
4	Municipal – Urban

Traffic Volume Group

SAS Name: VOLGRP

Definition: Traffic volume group.*Additional Information:* Element added in 1989.

''	Group Unknown or Unassigned
'01'	Outstate Rural – Blue (Farm to Market)
'02'	Outstate Rural – Green (Some Recreational)
'03'	Outstate Rural – Red (Moderate Recreational)
'04'	Outstate Rural – Yellow (High Recreational)
'05'	Outstate Municipal – Recreational Over 5000
'06'	Outstate Municipal – Non-Recreational Over 5000
'07'	Outstate Municipal – Recreational Under 5000
'08'	Outstate Municipal – Non-Recreational Under 5000
'09'	Metro – Urban Commuter
'10'	Metro – Urban-Suburban Mix
'11'	Metro – Suburban Commuter
'12'	Metro – Outlying Commuter
'13'	Metro – Outlying Mix
'14'	Metro – Outlying Recreational
'15'	Metro – Urban-Suburban Shopping
'16'	Metro – Urban Mix
'17'	Metro – Suburban Mix
Other	Error/Other Code

Traffic Volume Type

SAS Name: VOLTYP

Definition: Traffic volume type

'A'	Actual
'C'	Computer Generated
'E'	Estimated

Year of Traffic

SAS Name: YEAR

Definition: Year of traffic volume count.

List of Elements for the MN Intersection/Interchange File (year 2000 and earlier)

SAS VARIABLE NAME	DESCRIPTION	SAS VARIABLE FILE	FORMAT TYPE	PAGE NO.
CNTL_CAT	CENTRAL OFFICE CATEGORY	Intersct-chg	CHA(2)	120
DESC_	INTERSECTION DESCRIPTION	Intersct-chg	NUM	120
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ESEC_DTE	DATE OF ACCIDENT GEOCODING	Intersct-chg	NUM	120
ELEM_NBR	INTERCHANGE ELEMENT CODE	Intersct-chg	CHA(3)	121
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MILEPOST	MODIFIED REFERENCE POINT LOCATION	Intersct-chg	NUM	122
NBR_LEGS	NUMBER OF LEGS INTO INTERSECTION	Intersct-chg	NUM	122
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RDWY_LGH	ROADWAY LIGHTING	Intersct-chg	NUM	123
REF_PNT	REFERENCE POINT	Intersct-chg	CHA(10)	123
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SFTY_CLS	SAFETY IMPROVEMENT CLASSIFICATION	Intersct-chg	CHA(2)	124
SFTY_IMD	SAFETY IMPROVEMENT DISTRICT	Intersct-chg	CHA(1)	125
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SIGN_PED	TRAFFIC SIGNALS PEDESTRIAN SIGNALS	Intersct-chg	NUM	125
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SIGN_PRO	TRAFFIC SIGNALS PROGRESSION	Intersct-chg	NUM	126
SIGN_TIM	TRAFFIC SIGNALS TIMING	Intersct-chg	NUM	126
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TRAF_DEV	TRAFFIC CONTROL DEVICES	Intersct-chg	NUM	127
TRAF_PHS	TRAFFIC SIGNALS NUMBER OF PHASES	Intersct-chg	NUM	127
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NBR_LEG1	NUMBER OF LEGS ON SEGMENT 1	Intersct-chg	NUM	132
RDESC1	ROAD DESCRIPTION	Intersct-chg	NUM	132
REFPNT1	REFERENCE POINT-ROUTE1	Intersct-chg	CHA(10)	133
RTENBR1	ROUTE NUMBER- ROUTE 1	Intersct-chg	CHA(9)	133
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AADT112	SEGMENT 1, LEG 1, YEAR 2 AADT	Intersct-chg	NUM	135
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ADDITIONAL INFORMATION: The pre-2001 Intersection File consists of variable length records ranging from 228-1204 bytes each, depending on the number of intersecting routes and legs. Each record consists of a fixed-length "general" portion with variables describing the entire intersection (e.g., "General Environment", "Traffic Control Device"), and a variable length portion which describes up to six segments (routes), and up to two legs (approaches) for each segment. Variables for segments include such variables as "Route Number" and "Number of Legs", and variables for each leg include multiple years of AADT information and "Number of Approach Thru Lanes." This variable-length record has been converted into a SAS-formatted, fixed length record for ease of use. In this conversion, each variable for every possible leg on each route had to be given a separate SAS variable name. The listing below includes the SAS names for all "general" variables and example names for the route-specific and leg-specific variables. Unlike the other file descriptions, for clarity, the variables are primarily listed in raw-file order rather than alphabetical order. Variables for Segments 2-6

List of Elements for the MN Intersection/Interchange File (year 2000 and earlier)

would be identical, with last character denoting the Segment number (e.g., RTESYS₂, RTESYS₃, etc.).

ADDITIONAL INFORMATION regarding LEG (APPROACH) SPECIFIC VARIABLES: Variables for all other Legs would be identical. The first numerical character at the end of each variable denotes the segment number, the second numerical character denotes the leg number, and the third numerical character (if present) denotes the year of the data. For example, DIRECT₂₁ would denote the direction variable for segment 2, leg 1. In like fashion, AADT₂₂₃ would denote the AADT for segment 2, leg 2, year 3.

Central Office Category

SAS Name: CNTL_CAT

Definition: Central Office category

Additional Information: '' = No category assigned by central office. '01-99' = Category assigned by central office.

Intersection Description

SAS Name: DESC_

Definition: Intersection description

Additional Information:

1. Due to its complexity in the Minnesota raw files, this element was reformatted into TYPEDESC (see below).
2. Element discontinued in 2001.

Category Assigned by District

SAS Name: DIST_CAT

Definition: Category assigned by district

Additional Information: Intersection/interchange category assigned by individual districts, only limited use, and no format available.

Date of Accident Geocoding

SAS Name: EFEC_DTE

Definition: Date of accident geocoding

Additional Information: 0 = Accident data coded since system startup, YYYYMMDD = Date from which accident data are geocoded to intersection.

Interchange Element Code**SAS Name: ELEM_NBR***Definition:* Interchange element code

Additional Information: The reader should first see the Additional Information under INT_TYPE below. ELEM_NBR is a three-character variable giving the code for interchange elements (e.g., mainline between ramps, exit ramp, intersection at ramp terminal on crossing roadway, etc.) These codes are only present for a subset of interchanges in the file – primarily diamond interchanges – and denote that this record is a supplemental record this interchange. They are retained in the file to assist linking accidents to specific interchange elements within these diamond interchanges – the same code is found in the Accident File. The coding is either “ANN” or “NNN”, where “A” is alpha and “N” is numeric. The formats for the possible codes (i.e., possible interchange element types) is very complex. It is not presented here, but can be obtained from HSIS staff.

Calculated Ending Milepost**SAS Name: ENDMP***Definition:* Calculated ending milepost

Additional Information: The calculated ending milepost. See discussion. Element discontinued in 2001.

General Environment**SAS Name: GEN_ENIV***Definition:* General environment

- | | |
|---|-------------|
| 1 | Urban |
| 2 | Suburban |
| 3 | City Bypass |
| 4 | Rural |

Combined RTE_SYS/RTE_NBR**SAS Name: INT_SYNB***Definition:* Combined RTE_SYS/RTE_NBR

Additional Information: This is a combined version of the RTE_NBR and RTE_SYS elements above. This combining was done to facilitate computer linkage with other files.

Intersection Type**SAS Name: INT_TYPE***Definition:* Intersection Type*Additional Information:*

1. As detailed in the earlier Discussion, basic intersections (i.e., those not part of an interchange) are coded as "3". Each interchange will have a record in the file coded as INT_TYPE = "1". In addition, some interchanges (primarily diamond interchanges) will have supplemental records in the file which will have the same milepost as the type "1" record (and the same general descriptors), but which will be coded as type "2" - intersections within an interchange. These type "2" supplemental records will also have an Interchange Element Code as a further identifier. See ELEM_NBR above.
2. AADT data for "Type 2 = Intersection within interchange" are not updated on a regular basis. Contact HSIS staff for more information.

1	Interchange
2	Intersection within Interchange
3	Intersection
4	Mid-Block Pedestrian Crossing
5	Railroad Crossing
6	Recreational Crossing

Modified Reference Point Location**SAS Name: MILEPOST***Definition:* Modified Reference Point location*Additional Information:*

1. This is a reformatted version of the original "Reference Point" element in the MN files. The reformatting was done to facilitate computer linkage with other files.
2. Element discontinued in 2001.

Number of Legs into Intersection**SAS Name: NBR_LEGS***Definition:* Number of legs into intersection*Additional Information:* 1-9 = Number of legs involved.

Number of Routes into Intersection

SAS Name: NBR_RTES

Definition: Number of routes into intersection

Additional Information: 1-9 = Number of routes involved.

Railroad Crossing Number

SAS Name: RAIL_NBR

Definition: Railroad crossing number

Additional Information:

1. '' = Not Stated, 'NNNNNNNA' = Railroad Crossing Number.
2. No data available since 1997.

Roadway Lighting

SAS Name: RDWY_LGH

Definition: Lighting on the primary route segment where intersection/interchange is located.

0	None
1	Partial
2	Full
3	Continuous
4	Partial (Energy Conservation Program)
5	Full (Energy Conservation Program)
6	Continuous (Energy Conservation Program)
7	Point Lighting

Reference Point

SAS Name: REF_PNT

Definition: Reference Point

Additional Information: Reference Point Location – reformatted to MILEPOST for linkage.

Route Number

SAS Name: RTE_NBR

Definition: Route number for the major route.

Additional Information: 'NNNNNNNNX' = Route Number (N = 0-9, and X is numeric, alpha, or blank. Note that in a few cases with county/township roads, an alpha character will appear in other columns). This element is used for file linkage. See INT_SYNB.

Route System

SAS Name: RTE_SYS

Definition: Route system for the primary route

'01'	ISTH – Interstate Trunk Highway
'02'	USTH – U.S. Trunk Highway
'03'	MNTH – Minnesota Trunk Highway
'04'	CSAH – County State-Aid Highway
'05'	MSAS – Municipal State-Aid Highway
'07'	CNTY – County Road
'08'	TWNS – Township Road
'09'	UTWN – Unorganized Township Road
'10'	MUN – City Streets
'11'	NATP – National Park Road
'12'	NFD – National Forest Development Road
'13'	IND – Indian Reservation Road
'14'	SFR – State Forest Road
'15'	SPRK – State Park Road
'16'	MIL – Military Road
'17'	NATM – National Monument Road
'18'	NATW – National Wildlife Refuge Road
'19'	FRNT – Frontage Road
'20'	SGAM – State Game Preserve Road
'21'	PRV Road Public – Private Road Open to Public
'23'	Alley/Cemetery – Alleys and Cemeteries

Safety Improvement Classification

SAS Name: SFTY_CLS

Definition: Safety Improvement classification*Additional Information:* '' = No safety improvement, '01-99' = Safety improvement code.

Safety Improvement District

SAS Name: SFTY_IMD

Definition: Safety Improvement District

Additional Information: '' = No safety improvement, '1-9' = District responsible for improvement.

Safety Improvement Year

SAS Name: SFTY_IMY

Definition: Safety improvement year

Additional Information: Safety improvement year where '' = No safety improvement. '70-XX' = Year of Improvement.

Safety Improvement Project Number

SAS Name: SFTY_PRJ

Definition: Safety improvement project number

Additional Information: '' = No safety improvement, '01-99' = Project number assigned.

Traffic Signals Construction

SAS Name: SIGN_CON

Definition: Traffic signals construction

- 0 Not Applicable
- 1 Temporary (Includes Wood Poles)
- 2 Permanent

Traffic Signals Pedestrian Signals

SAS Name: SIGN_PED

Definition: Traffic signals pedestrian signals

- 0 Not Applicable
- 1 No Pedestrian Signals
- 2 Pedestrian Signals – Not Pedestrian Actuated
- 3 Pedestrian Signals – Pedestrian Actuated – Walk with Green
- 4 Pedestrian Signals – Pedestrian Actuated – Scramble System

Signal Head Placement

SAS Name: SIGN_PLA

Definition: Signal head placement

- 0 Not Applicable
- 1 Pedestrian Mount Only
- 2 Overhead

Traffic Signal Progression

SAS Name: SIGN_PRO

Definition: Traffic signal progression

- 0 Not Applicable
- 1 Not In Progression System
- 2 In Progression System

Traffic Signals Timing

SAS Name: SIGN_TIM

Definition: Traffic signals timing

- 0 Not Applicable
- 1 Fixed Time
- 2 Actuated

Specific Environment

SAS Name: SPEC_ENIV

Definition: Specific environment

01	Central Business District
02	Strip Commercial Area
03	Shopping Center
04	Industrial Area
05	Residential Area
06	School or School Crossing
07	Agriculture and Isolated Business/School
08	Agriculture
09	Emergency Service (Hospital, Fire Station, or Police)
10	Forest
11	Park or Campground
12	Other Recreational Area (e.g., Gold Course)
13	Elderly or Handicapped
14	Other

Traffic Control Devices

SAS Name: TRAF_DEV

Definition: Traffic control devices*Additional Information:* Due to its complexity in the Minnesota raw files, this element was reformatted into TRF_CNTL (see below).**Traffic Signals Number of Phases**

SAS Name: TRAF_PHS

Definition: Traffic signals number of phases

0	Not Applicable
2	Two Phases
3	Three Phases
4	Four Phases
5	Five Phases
6	Six Phases
7	Seven Phases
8	Eight Phases

Traffic Signals Preemption

SAS Name: TRAF_PRE

Definition: Traffic signals preemption

0	Not Applicable
1	No Preemption
2	Railroad Only
3	Emergency Vehicle Only – Vehicle Actuated
4	Emergency Vehicle Only – Hard Wire
5	Bus Only
6	Railroad and Emergency Vehicle
7	Railroad and Bus
8	Emergency Vehicle and Bus
9	Railroad, Emergency Vehicle and Bus

Flashing Signal Time Off

SAS Name: TRAF_TMF

Definition: Flashing signal time off

``	Not Applicable
'00'	Not on Part-Time Flash System
'01-24'	Time Part-Time Flash System Terminates

Flashing Signal Time On

SAS Name: TRAF_TMO

Definition: Flashing signal time on

``	Not Applicable
'00'	Not on Part-Time Flash System
'01-24'	Time Part-Time Flash System Begins

Traffic Control Devices

SAS Name: TRAFCTL

Definition: General type of traffic control for the intersection/interchange.

Additional Information: Element added in 2001.

10	Not Applicable
11	Unsignalized Ramp Term
12	Signalized Ramp Term
21	No control Interchange
22	Thru Yield Interchange
23	Thru Stop Interchange
24	All Stop Interchange
25	Flashing Amber/Red Interchange
26	Flashing Red/Red Interchange
27	Signalized Interchange
28	Other Interchange
31	No control Intersection
32	Thru Yield Intersection
33	Thru Stop Intersection
34	All Stop Intersection
35	Flashing Amber/Red Intersection
36	Flashing Red/Red Intersection
37	Signals Intersection
38	Other Intersection
41	MDBK Ped-Mrk/Sign
42	MDBK Ped-Pst/Flashers
43	MDBK Ped-Ovh/Flashers
44	MDBK Ped-Signal
51	RR XBuck + RRX
52	RR XBuck + RXR + WRN
53	RR XBuck + Stop Sign
54	RR Sign Only PDST
55	RR Sign Only CANT
56	RR Sign/Gate PDST
57	RR Sign/Gate CANT
58	RR Other/None
60	Recreational Crossing Not Applicable

Traffic Control Devices - Revised

SAS Name: TRF_CNTL

Definition: Traffic control devices - revised*Additional Information:* Element discontinued in 2001.

10	Not Applicable
11	Unsignalized Ramp Terminals
12	Signalized Ramp Terminals
21	No control Interchange
22	Thru/Yield Interchange
23	Thru/Stop Interchange
24	All Stop Interchange
25	Flashers Amber/Red Interchange
26	Flashers Red/Red Interchange
27	Signalized Interchange
28	Other Interchange
31	No control Intersection
32	Thru/Yield Intersection
33	Thru/Stop Intersection
34	All Stop Intersection
35	Flashers Amber/Red Intersection
36	Flashers Red/Red Intersection
37	Signalized Intersection
38	Other Intersection
41	Mid-Block Pedestrian Crossing – Pavement Marking and Signing
42	Mid-Block Pedestrian Crossing – Flasher – Pedestal Mount
43	Mid-Block Pedestrian Crossing – Flasher – Overhead
44	Mid-Block Pedestrian Crossing – Signal
51	Crossbuck Plus RXR
52	Crossbuck Plus RXR Plus Other Warning Signs
53	Crossbuck Plus Stop Sign
54	Railroad Crossing Signal w/o Gates – Pedestal Mount
55	Railroad Crossing Signal w/o Gates – Cantilever
56	Railroad Crossing Signal w/ Gates – Pedestal Mount
57	Railroad Crossing Signal w/ Gates – Cantilever
58	Other or None
60	Recreational Crossing Not Applicable

Intersection Description Revised

SAS Name: TYPEDESC

Definition: Intersection Description Revised*Additional Information:* In some cases, intersection types denoted by codes 20-34 will not match exactly with information on number of legs in the NBR_LEGS variable.

10	Other Interchange
11	Diamond Interchange
12	Half Diamond Interchange
13	Folded Diamond Interchange
14	Other Diamond Interchange
15	Trumpet Interchange
16	Cloverleaf Interchange
17	Partial Directional Interchange
18	Full Directional Interchange
19	Complex Interchange
20	Other Intersection
21	Diamond Intersection
22	Half Diamond Intersection
23	Folded Diamond Intersection
24	Other Diamond Intersection
25	Trumpet Intersection
26	Cloverleaf Intersection
27	Partial Directional Intersection
28	Full Directional Intersection
29	Complex Intersection
31	Tee Intersection
32	Wye Intersection
33	Crossing at Right Angles Intersection
34	Crossing Skewed Intersection
35	Greater than Four Leg Intersection
41	School or Pedestrian Crossing
42	Central Business District Crossing
43	Other Crossing
51	Single Track, Right Angle Railroad Crossing
52	Single Track, Skewed Railroad Crossing
53	Multi-Track, Right Angle Railroad Crossing
54	Multi-Track Skewed Railroad Crossing

Segment 1 Lower Limit**SAS Name: LOLIMT1**

Definition: Segment 1 lower limit

Additional Information: Lower reference point limit: 0000-9999 = Distance in feet from intersection towards beginning of route used as lower search limit for accident occurrences.

Number of Legs on Segment 1**SAS Name: NBR_LEG1**

Definition: Number of legs on segment 1

Additional Information: Number of legs described in this record: 1-2 = Number of legs.

Road Description**SAS Name: RDESC1**

Definition: Road description

Additional Information: Coding for this variable is somewhat questionable since two identical intersections may be coded into different categories. Specifically, it appears that the number of lanes shown at the first of each category (e.g., "3/5" or "4/6") could be interpreted by the district coders as either the total number of lanes. The main problem appears to be in categories "2" and "4". Here, for example, an undivided four-lane roadway with opposing left-turn lanes at the intersection might be coded as a category "2" or a category "4". It also appears that category "6" is a rather broad category. Here, all divided roadway with a median continuing through the intersection proper which have four or more through lanes and either single or double left-turn lanes would be coded as a "6".

Reference Point – Route 1**SAS Name: REFPNT1**

Definition: Reference Point – Route 1

Additional Information:

1. Reference point location on Route Number 1. In over 97% of the cases, Route 1 is usually the “primary” route used for general intersection location. Thus, RTESYS1 and RTENBR1 is usually the same as RTE_SYS and RTE_NBR, and REFPNT1 is the same as REF_PNT. For the crossing roads, RTESYS2, RTENBR2 and REFPNT2 will be used for the first crossing route, RTESYS3, etc. for the second crossing route, etc. While the original REF PNT was converted to MILEPOST for ease of computer linkage, REFPNT1-X has not been converted. However, HSIS staff has developed a computer program to allow linkage of these crossing routes with other files. The user can request the program or elements from the linked file from our staff.

Route Number – Route 1**SAS Name: RTENBR1**

Definition: Route Number – Route 1

Additional Information: ‘NNNNNNNNX’ = Route Number (N = 0-9, and X is numeric, alpha, or blank. Note that in a few cases with county/township roads, an alpha character will appear in other columns). This element is used for file linkage. See REFPNT1.

Route System – Route 1**SAS Name: RTESYS1***Definition:* Route System – Route 1*Additional Information:* This element is used in linkage to other files. See additional information under REFPNT1 below.

'01'	ISTH – Interstate Trunk Highway
'02'	USTH – U.S. Trunk Highway
'03'	MNTH – Minnesota Trunk Highway
'04'	CSAH – County State-Aid Highway
'05'	MSAS – Municipal State-Aid Highway
'07'	CNTY – County Road
'08'	TWNS – Township Road
'09'	UTWN – Unorganized Township Road
'10'	MUN – City Streets
'11'	NATP – National Park Road
'12'	NFD – National Forest Development Road
'13'	IND – Indian Reservation Road
'14'	SFR – State Forest Road
'15'	SPRK – State Park Road
'16'	MIL – Military Road
'17'	NATM – National Monument Road
'18'	NATW – National Wildlife Refuge Road
'19'	FRNT – Frontage Road
'20'	SGAM – State Game Preserve Road
'21'	PRV Road Public – Private Road Open to Public
'23'	Alley/Cemetery – Alleys and Cemeteries

Segment 1 Upper Limit**SAS Name: UPLIMIT1***Definition:* Segment 1 upper limit*Additional Information:* Upper reference point limit: 0000-9999 = Distance in feet from intersection towards end of route used as upper search limit for accident occurrences.

Segment 1, Leg 1, Year 1 AADT**SAS Name: AADT111***Definition:* Segment 1, Leg 1, Year 1 AADT*Additional Information:*

1. 000000 = Not applicable or no traffic, 000001 – 999999 = 2-way volume on leg, most recent available year.
2. Most AADT's are probably not current. The user can determine which year the AADT was collected for each leg from the "AADT Year" element attached to each leg. However, we have found that "AADT Year" will seldom be the current (file) year, and that the year of the AADT count can be different for different legs of the same intersection. While AADT's can be extracted from the Roadlog file for "mainline" legs, we cannot suggest a method for "updating" the AADT data for the "crossroad" legs. Since multiple years' data are often shown in the file, the user may be able to develop a "trend-related update", but we cannot assure that the estimates will be correct.
3. See discussion. AADTs are felt to be accurate for a crossing route which has a Route System of 02-05 (i.e., US, State, County State-Aid and Municipal State Aid); are of acceptable accuracy for a crossing route which has a Route System of 07 (i.e., County (Non-State-Aid)); and are of questionable accuracy for a crossing route which has a Route System of 08 (i.e., Township routes) or 10 (i.e., Municipal City Streets).

Segment 1, Leg 1, Year 1**SAS Name: ADTYR111***Definition:* Segment 1, Leg 1, Year 1

Additional Information: Year AADT111 was collected: 'YY' or YY = Last two digits of the year, '\', 'o', 'oo', o, or blank = No AADT available. This element can either be a numeric or a character element.

Segment 1, Leg 1, Year 2 AADT**SAS Name: AADT112***Definition:* Segment 1, Leg 1, Year 2 AADT*Additional Information:* See AADT111 above.**Segment 1, Leg 1, Year 2****SAS Name: ADTYR112***Definition:* Segment 1, Leg 1, Year 2*Additional Information:* See AADT111 above.

Segment 1, Leg 1, Year 3 AADT

SAS Name: AADT113

Definition: Segment 1, Leg 1, Year 3 AADT

Additional Information: See AADT111 above.

Segment 1, Leg 1, Year 3

SAS Name: ADTYR113

Definition: Segment 1, Leg 1, Year 3

Additional Information: See AADT111 above.

Segment 1, Leg 1, Year 4 AADT

SAS Name: AADT114

Definition: Segment 1, Leg 1, Year 4 AADT

Additional Information: See AADT111 above.

Segment 1, Leg 1, Year 4

SAS Name: ADTYR114

Definition: Segment 1, Leg 1, Year 4

Additional Information: See AADT111 above.

Segment 1, Leg 1, Year 5 AADT

SAS Name: AADT115

Definition: Segment 1, Leg 1, Year 5 AADT

Additional Information: See AADT111 above.

Segment 1, Leg 1, Year 5

SAS Name: ADTYR115

Definition: Segment 1, Leg 1, Year 5

Additional Information: See AADT111 above.

Segment 1, Leg 1, Approach Speed Limit

SAS Name: AP_SPD11

Definition: Segment 1, Leg 1, approach speed limit

Additional Information: 00 = Unknown, 0-70 = Approach speed in MPH.

Segment 1, Leg 1, Approach Traffic Control**SAS Name: APCNTL11***Definition:* Segment 1, Leg 1, approach traffic control

If INT_TYPE (intersection type) is anything except a Railroad grade crossing (i.e., INT TYPE ne 5):

0	Not Applicable
1	Through or One-Way Leaving Intersection
2	Yield Sign
3	Stop Sign
4	Flasher – Amber
5	Flasher – Red
6	Signal

If INT_TYPE is railroad grade crossing (i.e., INT_TYPE = 5):

0	RR Not Applicable
1	Crossbuck Plus RXR Sign
2	Crossbuck Plus RXR Plus Other Warning Sign
3	Crossbuck Plus Stop Sign
4	Crossing Signal w/o Gates – Pedestal Mount
5	Crossing Signal w/o Gates – Cantilever
6	Railroad Crossing Signal w/ Gates – Pedestal Mount
7	Railroad Crossing Signal w/ Gates – Cantilever
8	Railroad Crossing Other or No Protection

Segment 1, Leg Number 1 DIRECTION**SAS Name: DIRECT11***Definition:* Direction of Segment 1, Leg Number 1.

0	'Not Applicable'
1	'North'
2	'Northeast'
3	'East'
4	'Southeast'
5	'South'
6	'Southwest'
7	'West'
8	'Northwest'

Segment 1, Leg Number 1

SAS Name: LEGNBR11

Definition: Segment 1, Leg Number 1 – leg number of first leg.

Additional Information: 0 = Not Applicable, 1-12 = Number assigned.

List of Elements for the MN Intersection/Interchange File (For the Year 2001 and later)

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ADDITIONAL INFORMATION: From year 2001 onwards the format of this file changed. Instead of separate linkable records related to General variables, Segment variables and Leg variables for up to six routes coming into an intersection/interchange, each record now provides all of these types of variables for each approach of an intersection/interchange. Thus, there are multiple records (approaches) for each intersection. In addition, if there are coinciding routes on a given approach, there will be multiple records for that approach. The listing below includes the SAS names for all the variables on each record.

Year 1 AADT	SAS Name: AADT1
Year 2 AADT	SAS Name: AADT2
Year 3 AADT	SAS Name: AADT3
Year 4 AADT	SAS Name: AADT4
Year 5 AADT	SAS Name: AADT5

Definition: Approach AADT

Additional Information:

1. AADT from multiple years, with YEAR 1 AADT being the latest AADT collected. Most AADT's are probably not current. The user can determine which year the AADT was collected for each component from the "AADT Year" element. We have found that the "AADT Year" will seldom be the current (file) year, and that the year of the AADT count can be different for different components of the same intersection/interchange. While current AADT's can be extracted from the Roadlog file for "mainline" legs, we cannot suggest a method for "updating" the AADT date for crossing legs which are not on State routes. Since multiple-year data are often shown in the file, the user may be able to develop a "trend-related update", but we cannot assure that the estimates will be correct.
2. See discussion. AADTs are felt to be accurate for a crossing route which has a Route System of 02-05 (i.e., US, State, County State-Aid and Municipal State Aid); are of acceptable accuracy for a crossing route which has a Route System of 07 (i.e., County (Non-State-Aid)); and are of questionable accuracy for a crossing route which has a Route System of 08 (i.e., Township routes) or 10 (i.e., Municipal City Streets).

AADT Year 1	SAS Name: ADTYR1
AADT Year 2	ADTYR2
AADT Year 3	ADTYR3
AADT Year 4	ADTYR4
AADT Year 5	ADTYR5

Definition: AADT Year

Additional Information: ADTYR1 indicates when the latest year AADT was collected.

Approach Bypass/Turn Lanes

SAS Name: AP_BP_TL

Definition: Approach bypass/turn lanes

- 1 Bypass Lane
- 2 Free Right Turn Lanes Only
- 3 Right Turn Lane Only
- 4 Left Turn Lane Only
- 5 Left and Right Turn Lanes
- 6 Left and Free Right Turn Lanes
- 7 Truck Stop/Start Lane
- 8 None

Approach Traffic Control

SAS Name: AP_CNTL

Definition: Approach traffic control

- 0 Not Applicable
- 1 Through or One-Way Leaving Intersection
- 2 Yield Sign
- 3 Stop Sign
- 4 Flasher – Amber
- 5 Flasher – Red
- 6 Signal

Approach Comments

SAS Name: AP_COMNT

Definition: Approach comments

Additional Information: Up to 7 of the following codes can be assigned.

'A'	Rumble Strips
'B'	Limited Visibility
'C'	Tangent
'D'	Curve Left
'E'	Curve Right
'F'	Steep Downgrade
'G'	Raised Median Channelization
'H'	Painted Median Channelization
'I'	Depressed Median Channelization
'J'	Raised Islands (Non-Median)
'K'	Painted Islands (Non-Median)
'L'	Depressed Islands (Non-Median)
'M'	Bus Stop – Near Side
'N'	Bus Stop – Far Side
'O'	One-Way Entering
'P'	One-Way Leaving
'Q'	Braided Ramp and Frontage Road
'R'	Combined Ramp and Frontage Road
'S'	Frontage Road or Driveway Closed to Intersection
'T'	Skewed
'U'	No Passing Zone
'V'	Span Wire Pole with 30 Feet Setback
'W'	Elderly Pedestrian Activity
'X'	No Right Turn on Red
'Y'	Reserved for Future Use
'Z'	Reserved for Future Use

Approach Speed Limit

SAS Name: AP_SPD

Definition: Approach speed limit

- 00 Unknown
- 01-70 Approach Speed in MPH

Number of Approaching Thru Lanes During Off-Peak Period

SAS Name: AP_TLOFF

Definition: Number of thru lanes entering the intersection on this approach during the off-peak period (also see LV_TLOFF).

- 0-8 Number of Lanes

Number of Approaching Thru Lanes During Peak Period

SAS Name: AP_TLPEK

Definition: Number of thru lanes entering the intersection on this approach during the peak period (see also LV_TLPEK).

- 0-8 Number of Lanes

Calculated Beginning Milepost

SAS Name: BEGMP

Definition: Calculated beginning milepost

Additional Information:

Central Office Category

SAS Name: CNTL_CAT

Definition: Central Office category

- '' No Category Assigned by Central Office
- '01-99' Category Assigned by Central Office

Intersection Description

SAS Name: DESC_

Definition: Intersection description

- '' No category assigned by central office
- '01-99' Category assigned by central office

Additional Information:

1. Due to its complexity in the Minnesota raw files., this variable was reformatted into TYPEDESC (see below).
2. Variable discontinued in 2001.

Approach Direction

SAS Name: DIR

Definition: Direction of approach.

- 0 Not Applicable
- 1 North
- 2 Northeast
- 3 East
- 4 Southeast
- 5 South
- 6 Southwest
- 7 West
- 8 Northwest

Category Assigned by District

SAS Name: DIST_CAT

Definition: Category assigned by district

Additional Information: Intersection/interchange category assigned by individual districts, only limited use, and no format available.

Date of Approach Geocoding

SAS Name: EFEC_DTE

Definition: Date of approach geocoding

Additional Information: 0 = Approach information coded since system startup, YYYYMMDD = Date approach data are geocoded to intersection.

Interchange Element Code**SAS Name: ELEM_NBR**

Definition: Interchange element code

Additional Information: The reader should first see the Additional Information under INT_TYPE. ELEM_NBR is a three-character variable giving the code for interchange elements (e.g., mainline between ramps, exit ramp, intersection at ramp terminal on crossing roadway, etc.). These codes are only present for a subset of interchanges in the file – primarily diamond interchanges – and denote that this record is a supplemental record for this interchange. They are retained in the file to assist in linking accidents to specific interchange elements within these diamond interchanges – the same code is found in the Accident File. The coding is either “ANN” or “NNN”, where “A” is alpha and “N” is numeric. The formats for the possible codes (i.e., possible interchange element types) is very complex. It is not presented here, but can be obtained from HSIS staff.

Calculated Ending Milepost**SAS Name: ENDMP**

Definition: Calculated ending milepost for the approach.

General Environment**SAS Name: GEN_ENIV**

Definition: General environment of the approach roadway segment.

- | | |
|---|-------------|
| 1 | Urban |
| 2 | Suburban |
| 3 | City Bypass |
| 4 | Rural |

Verbal Description of an Approach or an Intersection/Interchange**SAS Name: INT_DESC**

Definition: Verbal description of the approach.

Additional Information: This is a 30 character element describing the approach.

Intersection ID**SAS Name: INT_ID**

Definition: Unique intersection ID.

Additional Information: Created element added to HSIS intersection files for 2001 and later.

Combined RTE_SYS/RTE_NBR

SAS Name: INT_SYNB

Definition: Combined version of the RTE_SYS and RTE_NBR elements.

Additional Information: This combining was done to facilitate computer linkage with other files.

Leg/Approach Number

SAS Name: LEG_NBR

Definition: Leg/approach number

- o Not Applicable
- 1-9 Number Assigned

True Leg Milepost

SAS Name: LEG_TRUE_MP

Definition: True leg milepost

Additional Information: Use this element to match intersections with crashes and roadway segments.

Lower Limit

SAS Name: LOLIMIT

Definition: Lower limit

Additional Information: MDOT use only. Lower reference point limit: 0000-9999 = Distance in feet from intersection towards beginning of route used as lower search limit for accident occurrences.

**Number of Leaving Approach Thru Lanes
During Off-Peak Period**

SAS Name: LV_TLOFF

Definition: Number of thru lanes leaving the intersection on this approach during the off-peak period.

- o-8 Number of Lanes

Number of Leaving Approach Thru Lanes During Peak Period

SAS Name: LV_TLPEK

Definition: Number of thru lanes leaving the intersection on this approach during the peak period.

0-8 Number of Lanes

Intersection Milepost

SAS Name: MPOFFSET

Definition: Intersection milepost on the primary route.

Leg Milepost

SAS Name: MPOFFSET2

Definition: Leg Milepost

Additional Information: To match crashes and roadway segments with each intersection/interchange component use LEG_TRUE_MP element.

Number Legs Into Intersection

SAS Name: NBR_LEGS

Definition: Total number legs into the intersection

1-9 Number of Legs

Number of Routes Into Intersection

SAS Name: NBR_RTES

Definition: Number of routes into intersection. (See earlier discussion on coinciding routes.)

1-9 Number of Routes in Involved

Railroad Crossing Number

SAS Name: RAIL_NBR

Definition: Railroad Crossing Number

Additional Information:

- 1. '' = Not stated, 'NNNNNNNA' = Railroad crossing number
- 2. No data available since 1997.

Unique Identifier for Each Record

SAS Name: RECORD_ID

Definition: Unique identifier for each approach record

Additional Information: It is a combination of RTE_SYS + RTE_NBR + MPOFFSET + ELEM_NBR + LEG_NBR

Reference Point

SAS Name: REF_PNT

Definition: Reference Point

Approach Road Description

SAS Name: RDESC

Definition: Approach road description

Additional Information: Coding for this variable is somewhat questionable since two identical intersections may be coded into different categories. Specifically, it appears that the number of lanes shown at the first of each category (e.g., "3/5", or "4/6") could be interpreted by the district coders as either that total number of lanes (counting left-turn lanes) or the total number of through lanes. The main problem appears to be in categories "2" and "4". Here, for example, an undivided four-lane roadway with opposing left-turn lanes at the intersection might be coded as a category "2" or a category "4". It also appears that category "^" is a rather broad category. Here, all divided roadway with a median continuing up to the intersection proper which have four or more through lanes and either single or double left-turn lanes would be coded as a "6".

- 1 '2 lanes 2-way'
- 2 '3/5 lanes undivided (2-way with left turn lane)'
- 3 '4/6 lanes undivided (no left turn lanes)'
- 4 '4/6 lanes undivided (with left turn lanes)'
- 5 '4/6 lanes divided (no left turn lanes)'
- 6 '4/6 lanes divided (with left turn lanes)'
- 7 'One-way'
- 8 'Freeway'
- 9 'Other'

Roadway Lighting

SAS Name: RDWY_LGH

Definition: Lighting on the intersection/interchange.

- 1 None
- 2 Partial
- 3 Full
- 4 Continuous
- 5 Partial (Energy Conservation Program)
- 6 Full (Energy Conservation Program)
- 7 Continuous (Energy Conservation Program)
- 8 Point Lighting

Route Number

SAS Name: RTE_NBR

Definition: Route number

Additional Information: 'NNNNNNNNX' = Route Number (N = 0-9, and X is numeric, alpha, or blank. Note that in a few cases with county/township roads, an alpha character will appear in other columns). This element is used for file linkage. See INT_SYNB.

Leg Route Number

SAS Name: RTENBR2

Definition: Leg route number

Leg Route System

SAS Name: RTESYS2

Definition: Leg route system

Route System

SAS Name: RTE_SYS

Definition: Route System

'01'	ISTH – Interstate Trunk Highway
'02'	USTH – U.S. Trunk Highway
'03'	MNTH – Minnesota Trunk Highway
'04'	CSAH – County State-Aid Highway
'05'	MSAS – Municipal State-Aid Highway
'07'	CNTY – County Road
'08'	TWNS – Township Road
'09'	UTWN – Unorganized Township Road
'10'	MUN – City Streets
'11'	NATP – National Park Road
'12'	NFD – National Forest Development Road
'13'	IND – Indian Reservation Road
'14'	SFR – State Forest Road
'15'	SPRK – State Park Road
'16'	MIL – Military Road
'17'	NATM – National Monument Road
'18'	NATW – National Wildlife Refuge Road
'19'	FRNT – Frontage Road
'20'	SGAM – State Game Preserve Road
'21'	PRV Road Public – Private Road Open to Public
'23'	Alley/Cemetery – Alleys and Cemeteries

Safety Improvement Classification

SAS Name: SFTY_CLS

Definition: Safety improvement classification

''	No Safety Improvement
'01-99'	Safety Improvement Code

Safety Improvement District

SAS Name: SFTY_IMD

Definition: Safety improvement district

''	No Improvement
'1-9'	District Responsible for Improvement

Safety Improvement Year**SAS Name: SFTY_IMY***Definition:* Safety improvement year*Additional Information:* Safety improvement year where '' = No safety improvement, '70-XX' = Year of improvement.**Safety Improvement Project Number****SAS Name: SFTY_PRJ***Definition:* Safety improvement project number*Additional Information:* '' = No safety improvement, '09-99' = Project number assigned.**Traffic Signals Construction****SAS Name: SIGN_CON***Definition:* Traffic signals construction

0	Not Applicable
1	Temporary (Includes Wood Poles)
2	Permanent

Intersection Pedestrian Signals**SAS Name: SIGN_PED***Definition:* Intersection pedestrian signals

0	Not Applicable
1	No Pedestrian Signals
2	Pedestrian Signals – Not Pedestrian Actuated
3	Pedestrian Signals – Pedestrian Actuated – Walk with Green
4	Pedestrian Signals – Pedestrian Actuated – Scramble System

Intersection Signal Head Placement**SAS Name: SIGN_PLA***Definition:* Intersection signal head placement

0	Not Applicable
1	Pedestrian Mount Only
2	Overhead

Traffic Signals Progression (ASK)**SAS Name: SIGN_PRO***Definition:* Traffic signals progression (ASK)

0	Not Applicable
1	Not In Progressions System
2	In Progression System

Traffic Signals Timing**SAS Name: SIGN_TIM***Definition:* Traffic signals timing

1	Not Applicable
2	Fixed Time
3	Actuated

Specific Environment**SAS Name: SPEC_ENV***Definition:* Specific environment

01	Central Business District
02	Strip Commercial Area
03	Shopping Center
04	Industrial Area
05	Residential Area
06	School or School Crossing
07	Agriculture and Isolated Business/School
08	Agriculture
09	Emergency Service (Hospital, Fire Station, or Police)
10	Forest
11	Park or Campground
12	Other Recreational Area (e.g., Golf Course)
13	Elderly or Handicapped
14	Other

Traffic Control Devices**SAS Name: TRAF_DEV**

Definition: Traffic control devices

Additional Information: Due to its complexity in the Minnesota raw files, this element was reformatted into TRF_CNTL (see below).

Traffic Signals Number of Phases**SAS Name: TRAF_PHS**

Definition: Traffic signals number of phases

0	Not Applicable
2	Two Phases
3	Three Phases
4	Four Phases
5	Five Phases
6	Six Phases
7	Seven Phases
8	Eight Phases

Traffic Signals Preemption**SAS Name: TRAF_PRE**

Definition: Traffic signals preemption

0	Not Applicable
1	No Preemption
2	Railroad Only
3	Emergency Vehicle Only – Vehicle Actuated
4	Emergency Vehicle Only – Hard Wire
5	Bus Only
6	Railroad and Emergency Vehicle
7	Railroad and Bus
8	Emergency Vehicle and Bus
9	Railroad, Emergency Vehicle and Bus

Flashing Signal Time Off

SAS Name: TRAF_TMF

Definition: Time (24-hour clock) that flashing signal is converted to regular mode.

''	Not Applicable
'00'	Not on Part-Time Flash System
'01-24'	Time Part-Time Flash System Terminates

Flashing Signal Time On

SAS Name: TRAF_TMO

Definition: Time (24-hour clock) that signal is converted to flashing mode.

''	Not Applicable
'00'	Not on Part-Time Flash System
'01-24'	Time Part-Time Flash System Begins

Traffic Control Devices

SAS Name: TRAFCTL

Definition: General type of traffic control for the intersection/interchange.

10	Not Applicable
11	Signalized Ramp Terminals
12	Unsignalized Ramp Terminals
21	No Interchange
22	Thru/Yield Interchange
23	Thru/Stop Interchange
24	All Stop Interchange
25	Flashers – Amber/Red Interchange
26	Flashers – Red/Red Interchange
27	Signalized Interchange
28	Other Interchange
31	No Intersection
32	Thru/Yield Intersection
33	Thru/Stop Intersection
34	All Stop Intersection
35	Flashers – Amber/Red Intersection
36	Flashers – Red/Red Intersection
37	Signalized Intersection
38	Other Intersection
41	Mid-Block Pedestrian Crossing – Pavement Marking and Signing
42	Mid-Block Pedestrian Crossing – Flasher – Pedestal Mount
43	Mid-Block Pedestrian Crossing – Flasher – Overhead
44	Mid-Block Pedestrian Crossing – Signal
51	Crossbuck Plus RXR
52	Crossbuck Plus RXR Plus Other Warning Signs
53	Crossbuck Plus Stop Sign
54	Railroad Crossing Signal w/o Gates – Pedestal Mount
55	Railroad Crossing Signal w/o Gates – Cantilever
56	Railroad Crossing Signal w/ Gates – Pedestal Mount
57	Railroad Crossing Signal w/ Gates – Cantilever
58	Other or None
60	Recreational Crossing Not Applicable

Intersection Type

SAS Name: TYPE

Definition: Intersection type

Additional Information: As detailed in the earlier Discussion, basic intersections (i.e., those not part of an interchange) are coded as "3". Each interchange will have a record in the file coded as INT_TYPE = "1". In addition, some interchanges (primarily diamond interchanges) will have supplemental records in the file which will have the same milepost as the type "1" record (and the same general descriptors), but which will be coded as type "2" -- intersections within an interchange. These type "2" supplemental records will also have an Interchange Element Code as a further identifier. See ELEM_NBR above.

- 1 Interchange
- 2 Intersection within Interchange
- 3 Intersection
- 4 Mid-Block Pedestrian Crossing
- 6 Recreational Crossing

Intersection Description Revised

SAS Name: TYPEDESC

Definition: Intersection description revised

Additional Information: In some cases, intersection types denoted by codes 20-34 will not match exactly with information on number of legs in the NBR_LEGS variable.

- 10 Other Interchange
- 11 Diamond Interchange
- 12 Half Diamond Interchange
- 13 Folded Diamond Interchange
- 14 Other Diamond Interchange
- 15 Trumpet Interchange
- 16 Cloverleaf Interchange
- 17 Partial Directional Interchange
- 18 Full Directional Interchange
- 19 Complex Interchange
- 20 Other Intersection
- 21 Diamond Intersection
- 22 Half Diamond Intersection
- 23 Folded Diamond Intersection
- 24 Other Diamond Intersection

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25	Trumpet Intersection
26	Cloverleaf Intersection
27	Partial Directional Intersection
28	Full Directional Intersection
29	Complex Intersection
31	Tee Intersection
32	Wye Intersection
33	Crossing at Right Angles Intersection
34	Crossing Skewed Intersection
35	Greater than Four Leg Intersection
41	School or Pedestrian Crossing
42	Central Business District Crossing
43	Other Crossing
51	Single Track, Right Angle Railroad Crossing
52	Single Track, Skewed Railroad Crossing
53	Multi-Track, Right Angle Railroad Crossing
54	Multi-Track Skewed Railroad Crossing
60	Recreational Crossing – Not Applicable

Segment Upper Limit

SAS Name: UPLIMIT

Definition: Segment upper limit

Additional Information: MNDOT use only. Upper reference point limit: 0000-9999 = Distance in feet from intersection towards end of route used as upper search limit for accident occurrences.

Update Date

SAS Name: UPT_DTE

Definition: Date of latest update to intersection/interchange data.