SYSTEMATIC EVALUATION OF RUN OFF ROAD CRASH LOCATIONS IN WISCONSIN

FINAL REPORT

DECEMBER 2004

DISCLAIMER

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16. Abstract

In 2000 the Wisconsin Department of Transportation put forth a Strategic Highway Safety Plan, aligned with AASHTO-recommended safety actions aiming to reduce nation-wide fatalities by 5-7 thousand per year. The present effort was conceived within a state-wide action plan to keep vehicles on the roadway and minimize the consequences of leaving the roadway; it also aimed to improve state-wide data and decision support systems. A method to systematically identify crashes on undivided State Trunk Highways (STH) was developed; crash rates, crash densities (crashes/mile) and other safety statistics were developed; a floating highway segment algorithm (**PRÈCIS**) that can identify crash rates at any given point along any undivided STH was also developed. Statistics were produced for two- three- and four-lane urban and rural STH, with an emphasis on two-lane two-way rural undivided highways. 335,666 non-deer crashes were reported in the state of Wisconsin between 1998 and 2000. 143,117 of those crashes occurred on STH, 60,345 of which occurred on 9,474 miles of undivided STH. Most of this mileage is rural (8900 miles), with the majority being two-lane highways (8820 miles). Crash rates, crash densities and other statistics were developed for the undivided parts of each STH, and each number of lanes/population density (urban or rural) cohort. State-wide statistics were developed as well. Crash rates and crash densities were developed for all, non-intersection, and Run-off-Road crashes. Similar crash statistics for Run-off-Road crashes were calculated for injury & fatal, wet & snow, darkness, horizontal or vertical curve and fixed object crashes. For Run-off-Road crashes on two-lane rural STH, statistics were developed for overturn, fixed object, ditch, tree, guardrail, utility pole embankment and sign post crashes. Results of the floating highway segment algorithm **PRÈCIS** were plotted on a GIS-based map; color-coded continuous lines parallel to a given STH alignment indicated crash the crash rate at any given point along the STH; colored line charts accompanying the GIS map indicated crash rates at any mile point. The ability to produce special tables listing highway features and crash information (Interleaf tables) sorted by mile point was also provided. Two strategies for the identification of highway segments in need of safety improvements were provided.

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EXECUTIVE SUMMARY

The project focused on developing a methodology to identify Run-off-Road (ROR), non-intersection crashes that occurred on the two-lane undivided portions of State Trunk Highways (STH) in the State of Wisconsin. The objectives of this project were to calculate crash statistics and identify locations requiring safety improvements using a state-wide systematic methodology.

The project addressed two of the seven action plans listed in the 2000 Wisconsin Department of Transportation (WisDOT) Strategic Highway Safety Plan, namely:

- Improve data and decision support systems; and
- Keep vehicles on the roadway/minimize the consequences of leaving the roadway.

Project objectives were met by developing state-wide and highway-specific statistics (crash rates, crash densities and other statistics) for a variety of Run-off-Road crash characteristics, and proposing strategies to evaluate the safety performance of all STH based on these statistics.

Two strategies for the systematic identification, stratification and analysis of crash locations were proposed. The first strategy required two sequential steps:

1. Multiple rankings of all State Trunk Highways based on selected crash characteristics are used to select a limited number of STH for examination.
2. Particular segments of the selected highways that require further examination for potential treatment are determined with the help of the "floating highway segment" algorithm **PRÈCIS**. (Details in **Appendix I**.)

The second strategy required processing all undivided STH through the **PRÈCIS** algorithm and selecting segments with high crash rates for treatment.

In meeting project objectives major emphasis was placed on producing a user-friendly methodology, using existing databases in an automated manner. The proposed strategies were based on a simple tabular format, using a locational reference in wide use within WisDOT. GIS-based maps presenting **PRÈCIS** results provided simple locational references, and crash rates at any point along a STH were presented by color-coded continuous lines parallel to the centerline with additional line charts providing more detailed crash rates at any mile point. The three databases used in the project (crash, Metamanager, and State Trunk Highway Log) preexisted and were consistently updated each year. The developed methodology to produce tabular state-wide statistics is automated to a great extent, requiring minimal labor for annual table updates. With some additional work on automating the state-wide application of **PRÈCIS** tables and the GIS maps displaying the information they contain, a set of maps could be created annually with minimal labor expenditure.

A wide array of crash statistics were produced for Run-off-Road crashes on the 9,471 miles of undivided STH in the state of Wisconsin. A quick reference to appropriate tables is provided in **Table 4.**

Between 1998 and 2000 a total of 60,345 crashes occurred on the 9,471 miles of undivided STH. Most (34,604) took place on rural highways (8,901 miles), where most crashes (21,947) occurred at non-intersection locations. Among those, 11,803 were Run-off-Road crashes including 207 fatal and 4,972 injury crashes.

Relationships between two-lane rural highway Run-off-Road crash characteristics and severity were examined in detail in **Appendix H**. A high percentage of fatal crashes (62.2%) occurred during nighttime—only 44% of all ROR crashes occurred during nighttime. Most fatal crashes (74.8%) occurred on dry pavements with a relatively small percentage (9.4%) occurring on pavements covered with snow, slush or ice. Statistics for all ROR crashes were 53.8% and 33.3% respectively. A large percentage of fatal crashes involved overturning vehicles (40.5%)-the overall percentage was 26.4% for ROR crashes. A disproportionate number of crashes involving motorcyclists were fatal (6.5% of all fatal crashes) given that motorcyclists were involved in 1.9% of all crashes.

The state-wide crash rate for undivided STH was 144 crashes/ 100MVM; the rate was 99 crashes/100MVM for rural highways and 368 crashes/100MVM for urban highways. Two-lane rural highways had a rate of 96 crashes/100MVM; the non-intersection rate was 62 crashes/100MVM and the ROR rate was 34 crashes/100MVM.

The state-wide crash density for undivided STH was 2 crashes/mile/year (crashes/mi/yr); urban density was 15 crashes/mi/yr; rural was 1.3 crashes/mi/yr. Two-lane rural was 1.2 crashes/mi/yr. On the same highways, the non-intersection crash density was 0.8 crashes/mi/yr and ROR density was 0.4 crashes/mi/yr.

It is recommended to include additional years of crash experience in ROR crash statistics calculations. A systematic review of results produced in the course of the present effort would be desirable; highway segments selected for safety upgrades should be documented and available through a WisDOT safety clearinghouse. It is recommended to generate a set of maps, one for each STH, to display crash rates generated through the **PRÈCIS** algorithm, and make them available through the safety clearinghouse.

INTRODUCTION

The project focused on developing a methodology to identify Run-off-Road (ROR), non-intersection crashes that occurred on the two-lane undivided portions of State Trunk Highways (STH) in the State of Wisconsin. The objectives of this project were to calculate crash statistics and identify locations requiring safety improvements using a state-wide systematic methodology.

The objectives were met by developing state-wide statistics (crash rates and crash densities) for a variety of Run-off-Road crash characteristics, at three levels of aggregation:

i. State-wide
ii. Each highway (e.g., STH 014)
iii. Specific highway segments (between mile point A and mile point B)

Two strategies for the systematic identification, stratification and analysis of crash locations are proposed, based on the above-mentioned statistics. The first strategy is based on two sequential steps:

1. Multiple rankings of all State Trunk Highways based on selected crash characteristics are used to select a limited number of highways for examination.
2. Particular segments of the selected highways that require further examination for potential treatment are determined with the help of the "floating highway segment" algorithm **PRÈCIS**.

The second strategy relied solely on a "floating highway segment" algorithm (**PRÈCIS),** developed to produce crash rates at each point of each State Trunk Highway (STH): after all State Trunk Highways have been processed through **PRÈCIS**, locations with particularly high crash rates are identified for closer examination and potential treatment.

The initial scope of this project was limited to two-lane undivided rural highways with two-way traffic, but this scope was expanded where possible to include three- and four-lane undivided highways both in the urban and the rural environment. Collisions with deer were excluded from the analysis.

Crash characteristics for which statistics were developed were chosen based on two criteria: prominent crash characteristics that emerged through an analysis of three years (1998-2000) of state-wide ROR, non-intersection crashes on undivided STH, and crash characteristics for which corrective treatment is readily available (e.g., unusually high proportion of nighttime crashes for which corrective treatment includes reflectors, reflective lane and edge of pavement lines, chevron signs on curves etc.)

Statistics for each STH are presented in lists, organized by STH number, or rank-ordered according to a specific statistic. Crash rates, calculated using the floating segment algorithm **PRÈCIS** are presented in maps (one map per highway), and special tables. **PRÈCIS** maps include color-coded lines parallel to the highway centerline, indicating crash rate ranges. Line charts at the bottom of each map indicate the crash rate at each

mile point along the highway. All major and many minor intersecting facilities are plotted and identified by name on each map. Special Interleaf tables present information about each crash and descriptions of features along a given highway, organized by increasing mile point. Crash and highway features are positioned at exact mile points.

The developed products and proposed strategies for their use provide systematic ways to examine all STH and identify a set of highway segments which may be in the greatest need of safety improvements. Safety Engineers are expected to examine each identified segment in much finer detail, using as-built plans, photolog records, individual crash report hard copies and field visits; this finer detail examination is beyond the scope of the current project.

REPORT ORGANIZATION

The body of the report provides a description of the ***Project Motivation***, the ***Project Objectives*** and a brief description of the main ***Challenges*** that had to be overcome. The ***Methodology*** section provides a brief overview of crash and Metamanager data validations performed at the outset of the project, and a summary of the produced types of statistics.

The ***Products and their Uses*** section describes the four types of produced tabular products and the GIS maps produced using the **PRÈCIS** algorithm. A table use example is provided as well as suggestions for the use of the GIS maps. Extensive tables are provided in **Appendices A through G**. More details about the GIS maps and **PRÈCIS** output are presented in **Appendix I**. Two product use strategies are described.

The ***Crash Statistics*** section provides general state-wide statistics. The analysis focus progressively narrows down from state-wide frequencies, to Run-off-Road crashes on two-lane rural undivided STH, that are supported by **Appendix H**. Crash rates and densities are presented next. **Table 4** provides a quick reference to aggregate statistics (**Tables 5-9**) and disaggregate statistics (**Appendices A through E**).

The ***Conclusions*** section describes the accomplishments of this effort.

The difficulty of addressing the widely scattered ROR crashes is addressed in the brief ***Discussion*** section.

Five ***Recommendations*** conclude the body of the report.

PROJECT MOTIVATION

In 1999, the Wisconsin Department of Transportation (WisDOT) identified safety as a priority area for the agency. The next year, representatives from WisDOT, AAA, Academia, NHTSA, FHWA, AARP, the courts, the media and the legislature, reviewed a list of 22 AASHTO-recommended safety actions that could save 5,000-7,000 lives nationwide each year and arrived at seven action plans to improve traffic safety. These action plans, found in the WisDOT Strategic Highway Safety Plan were:

1. Institute Graduated Driver Licensing.
2. Improve the design and operation of intersections.
3. Increase seat belt use.
4. Increase driver safety awareness.
5. Improve data and decision support systems.
6. Keep vehicles on the roadway/minimize the consequences of leaving the roadway.
7. Reduce impaired driving.

The first part of this research effort (systematic evaluation of intersection crashes) addressed action plan number 2; the present part of the effort (systematic evaluation of run-off-road crashes) addressed action plan number 6; both parts addressed action plan number 5.

PROJECT OBJECTIVES

It was desired to develop a state-wide methodology to evaluate ROR crashes on undivided two-lane two-way rural STH. The methodology was to be developed within a tight time frame; had to be simple, not requiring special skills to use it; had to require minimal maintenance labor. To achieve the short development time frame, the methodology would have to rely on existing databases as much as possible. An automated procedure would be desirable in order to save future maintenance labor costs.

Because non-intersection run-off-road crashes were expected to be scattered along highways, it was necessary to develop a sense of "crash density" (crashes per mile), in order to identify highway segments with particularly high crash densities. Although crash rates for some Run-off-Road crashes had already been identified by WisDOT, these rates were based on *sequential* highway segments *of widely unequal lengths*.

A crash analysis using sequential highway segments may miss crash concentrations, if such concentrations happen to be split across two consecutive segments (crash rates for each segment will be based on a fraction of the crash concentration). The presence of short highway sections can lead to wide crash rate fluctuations, since relatively little travel will occur on short segments, thus even a few crashes will lead to high crash rates. Longer highway segments would be desired to provide crash rate stability, and ideally, all segments should be of equal length, if crash rate comparisons are to be performed between different parts of a highway.

The floating highway segment algorithm (**PRÈCIS**), adopted in the present effort successfully addressed the problems associated with the use of sequential and unequal length segments mentioned above. **PRÈCIS** uses a standard length of highway--e.g., a one-mile segment; calculates a crash rate, then the segment moves downstream by a small distance--e.g., $1/100^{th}$ of a mile—and a new crash rate is calculated, and so-on-and-so-forth, until the entire length of a highway is examined. This method guarantees that no crash concentration is missed along the entire length of the highway. Furthermore, use of a uniform segment length allows fair comparisons between any parts of the analyzed highway.

CHALLENGES

Calculation of crash densities and the application of the floating highway segment method required that:

1. Crashes along an entire highway could be identified.
2. Distances between crashes could be readily determined, along the entire length of a highway.
3. Findings could be reported based on a linear referencing system that WisDOT Engineers were familiar with.

As simple as these three requirements appear to be, no single database existed that could satisfy all three.

The first item presented a challenge because many highway segments are concurrent between different routes. For example, STH 014 is concurrent with STH 012 between mile point 122.55 and mile point 132.23. Selecting crashes along the entire 200-mile length of STH 014 required manual intervention to properly identify crashes along the concurrent segment. Given that there are approximately 300 STH, and many concurrent segments, identification of all crashes along all STH would require a significant amount of labor, unless the process of matching crashes to highways (including all concurrent segments) was automated.

The second item presented a challenge because the crash location referencing system used by WisDOT is based on "Reference Points," that is, the distance of a crash from a highway feature. Because highway features are not evenly spaced, and because each crash is referenced only to the closest upstream highway feature, calculating distances between crashes is not a straight-forward task.

The third item presented a challenge because, even if distances between crashes could be calculated, what would be important to the Engineer reviewing the safety of a given highway would be the location of a crash on a commonly used continuous linear mile point referencing system. In other words, it would not be enough to be able to identify crash concentrations, but the limits of these concentrations would have to be identified precisely on a highway log that could be related to the locations of highway features in the field, as-built plans, new construction plans, and/or photolog records.

METHODOLOGY

Development of crash rates and crash densities (crashes per mile) for two-lane rural highways required the identification of the subset of crashes of interest; travel information (ADT and the length of highway on which this travel was observed) was also necessary. Crash records could not readily be associated with travel, number of lanes, urban/rural, divided/undivided etc. information which would have allowed the selection of crashes of interest. This critical information was extracted from the Metamanager WisDOT database, validated, and merged with crash records for the purposes of this project.

Travel information from the Metamanager database was validated against published WisDOT travel statistics. State-wide STH crash data were validated against annual Bureau of Traffic Safety (BOTS) statistics in order to establish the reliability of the analyzed database.

Metamanager and crash data were merged; non-deer crashes on undivided STH were selected; definitions of non-intersection and run-off-road crashes were applied. Crash locations were categorized into rural and urban and further classified into two- three- and four-lane highways; crash rates and crash densities were calculated; crash statistics tabulations and maps were produced.

Database validation

Travel information from the Metamanager database was validated against published WisDOT travel statistics. **Table 1** presents comparisons between the two sources of information. Highway length information matched to within 3% for the 11, 753 miles of the STH system; travel information matched to within 5%. Metamanager information reflected 2002 statistics; published WisDOT statistics were for 2000. The higher travel figures in Metamanager were reasonable, given the increasing travel trends in Wisconsin.

Categories "Other Rural STH" and "Other Urban STH" were subdivided into statistics for Divided, Undivided and One-Way highways in the Metamanager database (**Table 2**).

Fixed object collision information presented in the "2000 Wisconsin Traffic Crash Facts[1]" publication (**Table 3**) was validated against the state-wide year 2000 crash database used in this project; statistics were exactly matched for each type of fixed object; however, urban/rural definitions used by BOTS differed from those used in Metamanager. The BOTS table[2] presents each object hit in a crash; multiple entries are counted when multiple objects were hit (e.g., one crash involved nine objects: 3 mailboxes, 4 sign posts, 1 tree, 1 "other" object).

Table 1. Highway Miles and Travel Comparisons: Metamanager and BHO Statistics.

	Miles			**Travel (100 MVM)**		
	Meta (2002)	BHO (2000)	% Diff	Meta (2002)	BHO (2000)	% Diff
Rural Interstate	585	580	-1	67.81	64.41	-5
Urban Interstate	158	163	3	39.86	38.05	-5
Other Rural STH	9732	9729	0	157.18	157.38	0
Other Urban STH	1260	1281	2	91.62	86.73	-5
Total STH	11735	11753	0	356.47	346.57	-3

[1] WisDOT, Bureau of Traffic Safety (BOTS)

[2] Table "2000 Fixed Objects Struck by Crash Severity and Urban/Rural Location" p. 34 *Wisconsin Traffic Crash Facts*, WisDOT, BOTS, 2000.

Table 2. Metamanager Highway Miles and Travel Data for Other Rural and Urban STH.

Other Rural STH	**Miles**	**100 MVM**
Undivided	8904	116.27
Divided	819	40.66
One-way	9	0.25
Subtotal	**9732**	**157.18**
Other Urban STH	**Miles**	**100 MVM**
Undivided	570	23.31
Divided	644	66.71
One-way	46	1.6
Subtotal	**1260**	**91.62**

Calculated crash statistics

Once crash and Metamanager records were merged, it was possible to identify crashes of interest (run-off-road, non-intersection) on highways with specific characteristics (number of lanes, urban or rural, undivided).

State-wide statistics (crash rates and crash densities) were developed for a variety of crash characteristics (listed below), at three levels of aggregation:

i. State-wide
ii. Each highway (e.g., STH 014)
iii. Specific highway segments (between mile point A and mile point B)

The following statistics were calculated for the Undivided parts of each STH, and aggregated at the state-wide level by number of lanes and by urban or rural locations:

- Analyzed Length,
- Annual Travel (100 MVM),
- **Number of Crashes in three years**
- **Crash Densities** (Crashes per Mile per Year), **and**
- **Crash Rates** (Crashes per 100 MVM) **for**:
    - All Crashes
    - Non-Intersection Crashes
    - Run-off-Road Crashes

Table 3. 2000 Fixed Objects Struck by Crash Severity and Urban/Rural Location

	Fatal			Injury			Property Damage			TOTAL		
Type of Fixed Object	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total	Rural	Urban	Total
Tree	60	13	73	1,463	628	2,091	2,072	874	2,946	3,595	1,515	5,110
Ditch	30	0	30	1,749	111	1,860	2,221	187	2,408	4,000	298	4,298
Utility pole	25	7	32	669	444	1,113	983	799	1,782	1,677	1,250	2,927
Traffic sign post	13	9	22	449	266	715	1,249	851	2,100	1,711	1,126	2,837
Fence	15	4	19	419	134	553	893	371	1,264	1,327	509	1,836
Guardrail face	13	3	16	360	137	497	956	358	1,314	1,329	498	1,827
Median barrier	0	2	2	134	457	591	278	668	946	412	1,127	1,539
Mailbox	9	4	13	301	84	385	884	227	1,111	1,194	315	1,509
Traffic signal	1	4	5	38	248	286	191	838	1,029	230	1,090	1,320
Embankment	20	0	20	542	26	568	509	61	570	1,071	87	1,158
Other post	7	2	9	229	85	314	563	234	797	799	321	1,120
Lum. light support	2	0	2	42	257	299	103	617	720	147	874	1,021
Curb	4	7	11	48	224	272	116	482	598	168	713	881
Culvert	18	0	18	333	24	357	282	32	314	633	56	689
Guardrail end	4	0	4	108	26	134	169	49	218	281	75	356
Bridge rail	2	0	2	77	29	106	148	99	247	227	128	355
Bridge/pier/abut	2	0	2	63	30	93	135	94	229	200	124	324
Bridge parapet end	1	0	1	22	6	28	28	21	49	51	27	78
Impact attenuator	0	0	0	12	5	17	11	31	42	23	36	59
Overhead sign post	0	1	1	9	3	12	11	9	20	20	13	33
Other fixed object	18	5	23	487	577	1,064	853	1,233	2,086	1,358	1,815	3,173
Other object (not fixed)	5	1	6	162	106	268	611	310	921	778	417	1,195
Unknown	1	0	1	39	24	63	95	54	149	135	78	213
TOTAL	250	62	312	7,755	3,931	11,686	13,361	8,499	21,860	21,366	12,492	33,858

Source: WisDOT, Bureau of Traffic Safety, "2000 Wisconsin Traffic Crash Facts," p. 34, October 2001.

In addition, the following ratios were calculated:

- Non-Intersection to Total crashes
- Run-off-Road to Non-Intersection crashes
- Run-off-Road to Total crashes

A closer examination of Run-off-Road crashes on two-lane undivided STH was based on the:

- ***Total Number of Crashes in three years***
- ***Crash Rate***
- ***Crash Density,*** for crashes involving:
    - Run-off-Road
    - Overturned Vehicles
    - Fixed Objects
    - Ditches
    - Trees
    - Guardrails
    - Utility Poles
    - Embankments
    - Sign Posts

The following ratios, focusing on Run-off-Road crashes were calculated:

- Injury + Fatal to Run-off-Road
- Wet + Snow pavement to Run-off-Road
- Dark to Run-off-Road
- Horizontal or Vertical Curve to Run-off-Road
- Fixed Object to Run-off-Road

In addition to the above statistics, an algorithm (**PRÈCIS**) was developed to produce crash rates at each point along an analyzed STH. **PRÈCIS** produced results based on the floating segment method (described in the previous section). A one-mile floating segment, progressing along a highway at 1/10 mile increments was used to produce crash rates for all and Run-off-Road crashes along the entire length of two-lane, non-divided sections of STH 014. **PRÈCIS**'s flexible architecture allows any floating segment length and any amount of downstream increment that a user may desire.

PRÈCIS is capable of producing crash rates (e.g., crash rate for total and run-off-road crashes) and number of crashes at each point along the entire length of a highway.

PRODUCTS and their USES

Introduction

Emphasis was placed from the outset on creating an effective user interface for result dissemination. It was envisioned that the developed methodology would produce highway segments in need of safety enhancements; Engineers would need to precisely identify the termini of these segments on a map or an engineering drawing. Results would be presented in tabular form; wherever location references were necessary, it was

desired to use a system in broad use within WisDOT, such as the Reference Point system, or the cumulative mile point system used in the *State Trunk Highway Log* (STHL) listings.

Because of the need to refer to a STLH printout in order to determine the cumulative mile points of locations identified by Reference Point and their offsets from those Reference Points, using the cumulative mile point directly was the preferred result presentation method.

PRÈCIS results were best presented in a graphic form: crash rate ranges were identified by the color of continuous strips placed parallel to the highway alignment; crash rates along a highway were presented in continuous line graphs providing crash rates at any mile point.

Tabular products
Four types of tables were produced for undivided parts of STH; their contents are briefly described in items 1.- 4. below. Table listings are presented in **Appendices A-G**.

1. Crash rates and crash densities for all, non-intersection and ROR crashes.

2. Crash rates and crash densities for ROR crashes: with serious outcomes (injury and fatal); on wet pavement; under darkness conditions; on horizontal or vertical curves; or involving fixed objects.

3. Crash rates and crash densities for ROR crash subcategories: involving overturned vehicles, fixed objects, ditches, trees, guardrails, utility poles, embankments, and sign posts.

4. Interleaved STH Log and crash record listing for the entire length of 198.43 miles of STH 014 including the concurrency with STH 12 between mile points 122.55 and 132.23.

Table types 1.- 3. present statistics for each undivided STH, as well as cumulative statistics for each number of lanes/population density cohort, individual population density categories and state-wide statistics. Records were sorted by STH number within each analyzed cohort. Table type 4. summarized one STH at a time. Records were sorted by the cumulative mile listed in the STH Log.

A number of derivative tables, based on the first two table types were produced. Selected variables from the original tables were listed and additional statistics were calculated (for example the ratio of non-intersection to total crashes, the ratio of ROR to non-intersection crashes, or the ratio of ROR to total crashes). Derivative tables were sorted by a crash rate, a crash density, a particular ratio, or a sum of ratios. One-page sample pages of derivative tables are presented in **Appendix G.** A summary of the variables included in each table, the undivided STH categories included in each table and the variable used for sorting each table is presented in introduction of **Appendix G**.

Table use

Crash rate/ crash density tables: Rank-ordered derivative tables provide Safety Engineers with the necessary tools to choose STH with poor safety performance for treatment. It is proposed that a number of STH tables rank-ordered by crash rate or other safety statistics are consulted simultaneously. For example **Tables G1**, **G3** and **G7** could be used to select a small number of STH that have the highest crash rates for total, non-intersection and run-off-road crashes.

The Safety Engineer will consult **Table G1** to identify STH with high crash rates, making sure that there is a large enough set of crashes to be treated. **Table G3** will then be consulted to identify which of these highways are also at the top of the injury and fatal crash rate listing. Identified STH will then be checked to see if they are also high-ranking in **Tables G7** indicating high crash rates for fixed-object crashes. STH found to be near the top positions of all three tables would be chosen for closer examination through **PRÈCIS** maps and sources of information outside the scope of this project (photolog pictures, crash record hard copies, field visits etc.)

Example

STH 171 has the highest ROR crash rate (rank #1 **Table G1**). Its undivided length is 33.25 miles with 42 crashes in three years. Given the substantial analysis length and number of crashes, the investigation proceeds with the examination of **Table G3** (injury + fatal crash rate) in which STH 171 also ranks near the top (#2). Thus **Table G7** (fixed object crash rate) is consulted. Again, STH 171 is at the top of the list (#1). (In fact, STH 171 ranks high in terms of all crash rates presented in **Appendix G** tables). Thus, STH 171 is a good candidate for further analysis using the **PRÈCIS** algorithm, the STH Log Interleaf table and additional sources of information, outside the scope of this project.

A safety review of undivided STH could be broadened by including an examination of crash rates for all crashes, all non-intersection crashes (statistics provided in **Appendix A**) etc., depending on the issue at hand. Ratios of ROR to non-intersection, ROR to all crashes etc. can also be included in the calculated statistics, in order to identify locations with particularly pronounced ROR crash problems.

Interleaved STH Log and crash record tables: Provide State Trunk Highway Log (STH Log) information (county, reference point number, cumulative mile point and associated highway feature), and crash information along a selected STH. Records are listed by increasing cumulative mile point. The Safety Engineer can readily identify crash locations and associate various crash characteristics (e.g., object hit, pavement condition) with crash patterns at these locations. Identified crash patterns, together with information from other sources (photolog pictures, as-built plans, field visits) will lead to specific safety countermeasures.

PRÈCIS Maps

Crash rates produced with the **PRÈCIS** algorithm are presented in maps similar to the one in **Figure 1**. The map is created using the existing WisDOT Metamanager database, on which additional information, the **PRÈCIS** output, is displayed in color-coded graphical form. **Figure 1** presents the entire length of STH 014 (198.43 miles) from the Minnesota border to the Illinois border (the location of STH 014 in Wisconsin is demonstrated on the small insert map near the bottom left of **Figure 1**).

Locations of all intersecting streets are shown on the map (**Figure 2**); the names of all major intersecting streets are printed, along with many names of minor intersecting streets. Cities, Towns and Villages can be identified visually. Crash rates for non-intersection and run-off-road crashes are presented with lines parallel to the alignment of STH 014; the thin line represents crash rate range for non-intersection crashes; the thick line represents ROR crash rate; color meaning is indicated on the map legend.

The line graph at the bottom of **Figure 1** presents crash rates along the entire length of STH 014. Crash rates (in crashes per 100 MVM) are measured along the y-axis. The horizontal axis presents cumulative mile point (from the STH Log) along STH 014. The crash rate for non-intersection crashes at any point along the highway is presented in a blue line. The green line presents the crash rate for ROR crashes.

Only non-intersection crashes on two-lane undivided sections of STH 014 are presented, thus no crashes are shown on divided sections. Detailed information about **PRÈCIS** and the underlying database are presented in **Appendix I**.

PRÈCIS Map use

Produced graphics provide Safety Engineers with the ability to quickly identify high crash rate locations within a given highway. The map indicates whether a high-crash location is on a tangent segment or a segment containing curves, whether the segment is close or away from city/town/village limits, whether there are many or few cross-streets.

Names of intersecting streets provide a good general orientation. Additional information overlaid with the map, such as aerial photos and land use maps can provide supporting information (such information is routinely integrated with WisDOT GIS maps).

The line graph at the bottom of the figure can be used in a variety of ways: parts of the graph that exceed the average crash rate for the entire STH (information available from tabular listings) can be targeted for a closer safety scrutiny; the ratio of run-off-road crashes to non-intersection crashes can be used to identify highway segments that would benefit from ROR-focused safety treatments. Because the horizontal axis is the cumulative mile point used in the STH Log, segments can be identified precisely. It should be noted here that the user should consult the number of crashes in order to decide whether a high crash rate is based on an adequate number of crashes, or not.

Figure 1. Sample **PRÈCIS** map: STH 14 Minnesota Border to Illinois Border (198.43 miles)

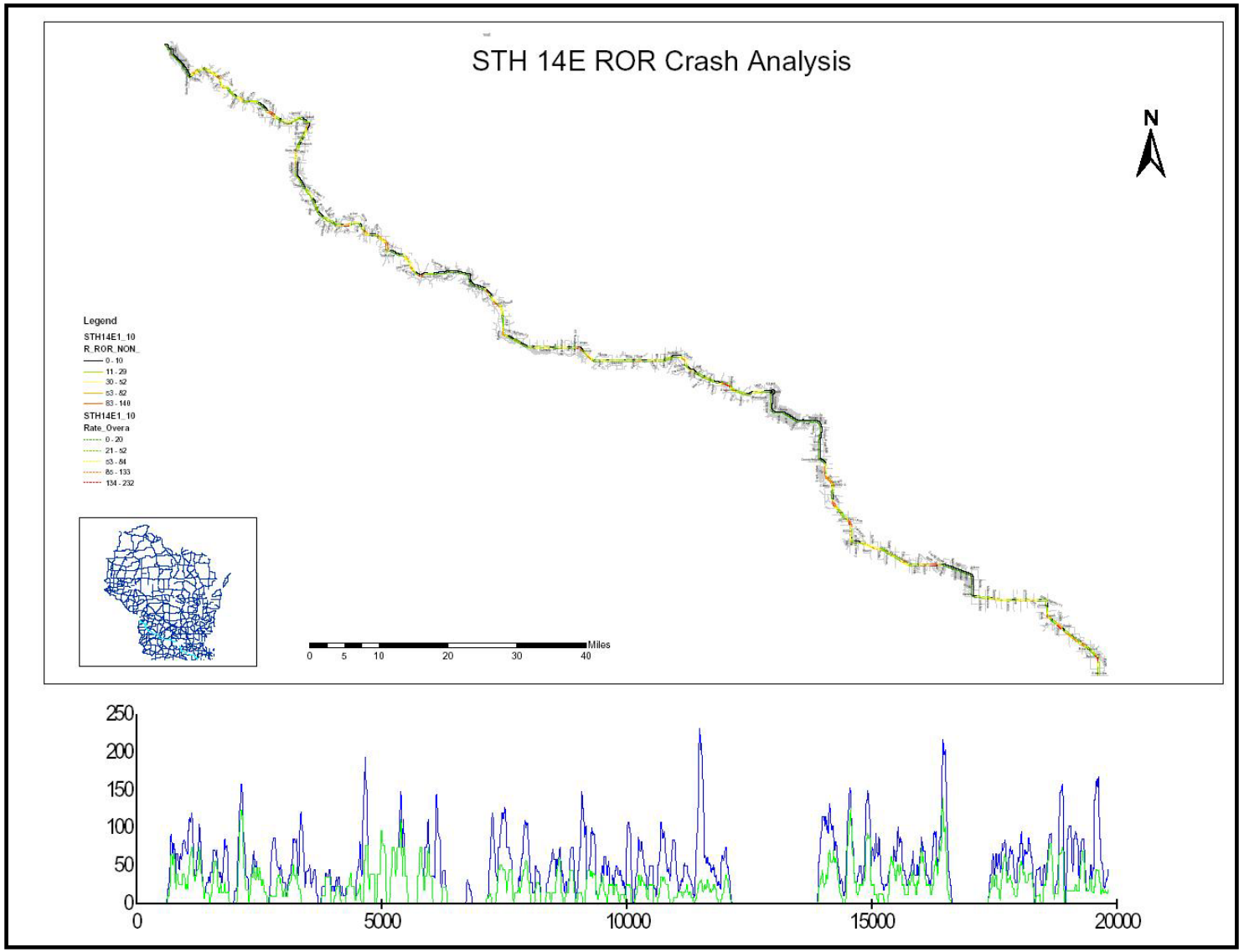
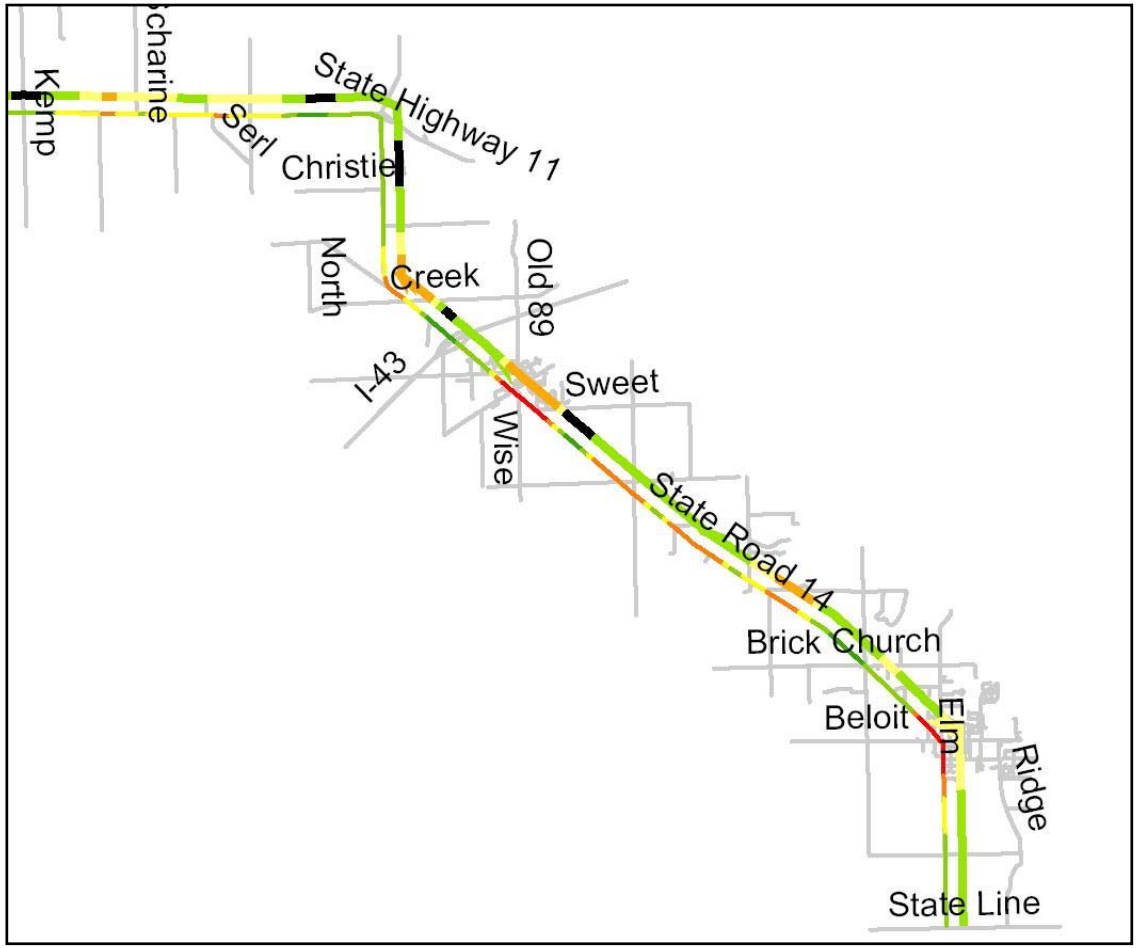


Figure 2. Detail of **Figure 1 PRÈCIS** map.



Map information can be correlated with the STH Log Interleaf tabular information for segments where closer scrutiny is desired: the STH Log will provide the exact locations of driveways, cross-streets, bridges, and other roadway features; because the Interleaf table can include any information from the Metamanager database, ADT, number of lanes, roadway width, shoulder width, pavement construction dates and a whole host of additional information can be reviewed for targeted segments. Similarly, any crash record information can be included in the Interleaf table, creating a very powerful tool applicable to a wide variety of applications.

Thus **PRÈCIS**-basedmaps provide a tool to quickly identify the precise limits of highway segments in need of treatment, and an interface with a variety of databases. Interfaces with other databases can help address a wide range of traffic safety issues and link these issues with traffic safety and highway planning/design project development. Within the narrow scope of the present project, targeted highway segments can include those with high crash rates in collisions with utility and sign posts, those with high ROR crash rates on narrow lanes etc.

Proposed product use strategies
Two strategies for using the produced databases to sort through state-wide crash data and identify highway segments in need of safety improvements are proposed here:

1. Until all STH are processed through **PRÈCIS**, the already available tabular listings of all STH can be used to select a number of STH, those with the highest crash rates for closer examination. **PRÈCIS** maps will then be created for the selected STH, and segments within those STH will be chosen for treatment.

2. When all STH have been processed through **PRÈCIS**, it will be possible to select the highway segments with the highest crash rates state-wide, without the need to identify a specific STH first.

The first strategy is a short-term strategy with the benefit that highway-specific crash statistics have already been produced in an automated way. STH have been rank-ordered based on these statistics. Choosing a limited number of STH for treatment can be accomplished with minimal labor expenditure, in the manner described in a previous section.

The more labor-intensive **PRÈCIS** map production part will be limited to the chosen highways. A **PRÈCIS** map will be produced for each, and segments with high crash rates will be chosen for treatment.

The disadvantage of this strategy is that it is based on average crash statistics for the entire undivided length of each STH. Thus, segments with particularly high crash rates will be "masked" among the average values of the STH being analyzed. However, the strategy is valid in that run-off-road crashes are not expected to be related so much to

spot locations, but more likely to highway segment characteristics (lane width, shoulder width, poor delineation etc.)

The preferable strategy to identify state-wide high crash rate locations would be to have a listing of ***floating segment[3]-based*** crash rates recorded at evenly-spaced locations (every 1/10th of a mile, for example) covering the entire length of each STH. Highway segments exceeding average (80th , ***85th*** or other practical ***percentile***, or other statistic of choice based for example on the classic statistical, ***the rate quality control***, or the Bayesian method) state-wide crash rates would then be chosen for treatment. This method would avoid the pitfall of missing isolated high crash rate segments within STH with otherwise average crash rates. The ***total*** state-wide highway ***lengths chosen for treatment*** can be fine-tuned by judicious use of the crash rate cutoff percentile (a 95th cutoff percentile crash rate value will identify fewer/shorter highway segments for treatment than an 85th percentile value would).

This strategy requires considerable labor and computer time to run **PRÈCIS** on each STH and considerable computer memory space to store the state-wide crash rate database (a crash rate value each for 1/10 of a mile along each STH).

Additional software will then need to be developed to allow Safety Engineers to sort through the developed database, and identify a cutoff crash rate percentile in order to create a listing of all highway segments in need of treatment.

In summary
The first strategy assumes that the STH with the highest overall crash rates is the one where the most hazardous segments are located; the "worst" segments within this highway are identified for treatment. The strategy is currently ready for application requiring minimal labor.

The second strategy identifies and ranks all highway segments, regardless of which highway they belong to. It is perfectly possible that the highest ranking segment will belong to highway A, the next highest to highway B, the third highest to highway A again and so on and so forth. It is also possible that highway A is not the one with the highest overall crash rate among all STH. This strategy can identify the "absolutely worst" highway segments in the entire STH system; however, compiling the necessary database requires significant labor, computer time, computer storage space and some additional database sorting software. Thus this strategy should be deferred to a point in time when the necessary resources will be available.

Both strategies use a floating highway segment algorithm which is a significant improvement over methods using consecutive highway segments. Both strategies rely on already existing databases that are maintained on a continuous basis (crash database, Metamanager, and State Trunk Highway Log), using developed automated processes that minimize labor expenditures. Highway segments selected for safety improvements can

[3] A mile-long floating segment was used in processing STH 14.

be readily identified by their termini cumulative mile points on maps, engineering plans and/or the State Trunk Highway Log.

CRASH STATISTICS

This section of the report contains crash frequencies for all crashes reported in the state of Wisconsin between 1998 and 2000. The analysis focus progressively narrows down from state-wide frequencies, to the State Trunk Highway (STH) System, the undivided part of the STH System, rural undivided STH, and finally the Run-off-Road crashes on these highways. Separate statistics are presented for non-intersection crashes. Frequencies for Run-off-Road crashes on two-lane undivided rural STH, the focus of the present effort are provided in **Appendix H**; a summary of findings is presented here.

State-wide crash rates for highway jurisdictional classifications, produced by WisDOT are presented in **Table 10**; crash rates for two- three- and four-lane urban and rural undivided STH produced as a part of the present effort are presented in **Tables 5-9**.

Crash frequencies and crash rates for individual STH are presented in **Appendices A, B, C, D and E**.

CRASH FREQUENCIES

The analyzed crash database consisted of state-wide reported crashes between 1998 and 2000. There were a total of 396,290 crashes, 60,624 of which (15.3%) involved deer.

Among the 335,666 non-deer crashes:

There were a total of 2,013 fatal crashes (0.6%), in which 2,249 people died. A total of 124,307 injury crashes occurred (37.0%), in which 185,667 people were injured. Most crashes occurred on dry pavement (64.3%); 15.1% occurred on wet pavement, 11.7% on pavement covered with snow or slush, and 4.6% on ice-covered pavement.

The majority of the crashes occurred in daylight (66.6%); 12.9% occurred under dark conditions, and 15.3% occurred under lighted conditions during nighttime. Crashes during dusk and dawn accounted for 4.2% of all crashes.

The majority of crashes (57.6%) occurred at **non-intersection** locations. Among crashes at non-intersection locations, almost half (48.8%) involved collisions with another motor vehicle in operation, and 8.2% involved parked vehicles. Overturning vehicles accounted for 7.6% of the crashes, vehicles hitting trees for 5.5%, vehicles in ditches for 4.1%, utility poles for 2.6%, guardrails for 2.2%, and other fixed objects for 1.9%.

STH Crash Statistics

All STH crashes: During the period from 1998 to 2000, there were a total of 174,613 STH crashes, 30,496 of which (17.5%) involved collisions with deer.

Among the 143,117 non-deer crashes (42.6% of state-wide non-deer crashes):

There were a total of 1,039 fatal crashes (0.7%) in which 1,184 people died. A total of 54,885 injury crashes (38.1%) resulted in 84,912 persons being injured. The majority of the crashes (63.5%) occurred on dry pavement, 16.6% occurred on wet pavement, 11.0% on pavement covered with snow or slush, and 5.6% on ice-covered pavement.

Most crashes occurred during daylight hours (69.2%), with 12.1% occurring under dark conditions and 14.0% occurring under lighted conditions during nighttime hours. Dawn and dusk crashes accounted for 4.2% of all crashes.

Most crashes (57.0%) occurred at **non-intersection** locations. Among those crashes, 737 (0.9%) were fatal with 849 fatalities , and 29,318 (35.7%) caused injuries to 43,779 persons. Most crashes involved collisions with another motor vehicle (56.7%). Fatalities were mostly caused by collisions with other motor vehicles (46.7%), overturning vehicles (19.1%), collisions involving pedestrians (6.5%), trees (5.3%), ditches (3.0%), embankments and guardrails (2.6% each). Collisions with median barriers were involved in 0.7% of fatal, and 3.2% of injury crashes. The above-listed types of crashes were also responsible for most injuries and were, in general, the most frequent types of crashes.

Undivided STH: There were a total of 81,103 crashes on undivided STH, 20,757 of which (25.6%) involved collisions with deer.

Among the 60,345 non-deer crashes (42% of STH non-deer crashes):

A total of 689 fatal crashes (1.1%) resulted in 780 fatalities, and 24,101 injury crashes (39.9%) resulted in injuries to 37,862 persons. The majority of the crashes (64.3%) were on dry pavement, 15.5% occurred on wet pavement, 11.5% on pavement covered with snow or slush, and 4.5% on ice-covered pavement.

The majority of crashes occurred during daylight hours (68.9%); 14.3% occurred under dark conditions, 11.8% under lighted conditions during nighttime and 4.2% during dawn or dusk.

There were 31,980 **non-intersection** crashes (53.0%) among which were 508 fatal crashes with 511 fatalities (1.6%), and 12,443 injury crashes (38.9%) with 18,667 injuries. Most crashes involved collisions with other motor vehicles (51.1%). Fatalities were mostly caused by collisions with other motor vehicles (50.1%), overturning vehicles (17.2%), collisions with trees (6.7%), collisions involving pedestrians (6.5%), ditches and embankments (3.1% each). The same types of crashes were also responsible for most injuries and were, in general the most frequent types of crashes.

Rural Undivided STH: A total of 54,474 crashes occurred on undivided rural STH, 19,870 of which (36.5%) involved deer.

Among the 34,604 non-deer crashes (24.2% of non-deer STH crashes):

There were 615 fatal (1.8%) and 14,248 injury (41.2%) crashes, resulting in 703 fatalities and 23,284 injuries, respectively. The majority of the crashes (62.2%) occurred on dry pavement, 13.2% occurred on wet pavement, 13.1% on pavement covered with snow or slush, and 6.4% on pavement covered with ice.

Most crashes (65.3%) occurred during daylight; 23.0% occurred under dark conditions, 6.2% occurred in lighted areas during nighttime, and 4.7% occurred during dawn or dusk.

There were 21,947 ***non-intersection*** crashes (63.4%) among which were 468 fatal crashes (2.1%) resulting in 538 fatalities and 8,905 injury crashes (40.6%) resulting in 13,598 injuries. Fatalities were mostly caused by collisions with other vehicles (40.6%), overturning vehicles (18.2%), collisions with trees (6.4%), pedestrians (5.3%), ditches and embankments (3.4% each), culverts (2.4%) and guardrails (2.0%). The same types of crashes were also responsible for most injuries and were, in general, the most frequent types of crashes.

The majority of the crashes (58.0%) were on dry pavements, 12.0% were on wet pavements, 15.9% were on pavements covered by snow or slush, and 8.6% were on ice-covered pavements.

Most crashes occurred during daytime hours (59.3%), 29.9% occurred under darkness conditions, 4.8% occurred in illuminated areas during nighttime, 5.0% occurred during dawn or dusk.

A total of 11,803 ***run-off-road*** crashes accounted 53.8 % of all non-intersection crashes.

There were 207 fatal (1.8%) and 4,972 injury (42.1%) crashes, resulting in 228 fatalities and 6,450 injuries. The most common type of fatal crash involved an overturning vehicle (40.1%), a vehicle hitting a tree (14.0%), an embankment (7.7%), a ditch (7.2%), a culvert (5.3%), a guardrail or a utility pole (4.3% each). The same types of crashes were also responsible for most injuries and were, in general, the most frequent types of crashes.

Most crashes (51.2%) occurred on dry pavement; 11.2% occurred on wet pavement, 19.6% occurred on pavement covered with snow or slush, and 12.3% occurred when ice was present on the pavement.

Almost half of the crashes occurred during daylight hours (48.8%), 40.8% occurred in darkness, 3.7% in lighted areas during nighttime, and 5.6% occurred during dawn or dusk.

Run-off-Road Crashes on Two-Lane Rural STH

The focus of the present effort was Run-off-Road crashes on two-lane rural STH. Detailed statistics about these crashes are presented in **Appendix H**, where crash severity relationships with other crash characteristics are presented, given the emphasis of the current project on identifying ways to minimize the consequences of vehicles leaving the roadway. The following presentation focuses on the most pronounced characteristics of fatal ROR crashes. Unless otherwise stated, this section refers to the universe of ROR crashes on targeted highways. Special emphasis is placed on fatal crash characteristics.

Almost the entirety of undivided STH mileage (8819.81 out of a total of 8900.85 miles) is two-lane highways, where 98.6% of all crashes on undivided STH occurred.

It is interesting to note that 62.6% of all fatal crashes occurred during nighttime; this is a distinct characteristic, given that, overall, only 44.8% of ROR crashes occurred during nighttime. This percentage of nighttime crashes was higher than the average 35% of nighttime crashes on undivided STH.

Another distinct characteristic for ROR crashes is that most fatal crashes (74.8%) occurred on dry pavements with a relatively small percentage (9.4%) occurring on pavements covered with snow, slush or ice. Statistics for all ROR crashes were 53.9% and 33.3%, respectively.

ROR crashes on curves were 35.4% of the total, but 45.9% of fatal crashes occurred on curves.

It is important to note that ROR crashes involving overturning vehicles were 26.4% of the total, but 40.5% of fatal ROR crashes. Collisions with trees were 9.8% of the total, but accounted for 13.7% of fatal crashes.

Although the highest monthly crash totals occurred in the months of December and January (13.4% each month), the highest numbers of fatal crashes occurred in July and September (12.6% and 12.1%, respectively).

Crashes were quite evenly spread throughout the days of the week with a peak on Sundays (15.7% of all crashes). Most fatal crashes occurred on Saturdays (19.9%) followed by Thursdays (18.0%).

There was an even distribution of crashes throughout the hours of the day, with non-pronounced peaking between 7:00 and 9:00 hrs (avg. 5.5%) and 15:00 and 17:00 hrs (5.3%); however, fatal crashes picked up at 21:00 hrs (6.3%), peaked at 23:00 hrs (9.2%) and remained high between 1:00 and 4:00 hrs (avg. 6.8%).

A disproportionate number of crashes involving motorcyclists were fatal (6.5% of all fatal crashes) given that motorcyclists were involved in 1.9% of all crashes.

A disproportionate number of drivers involved in fatal crashes had been consuming alcohol (52.9%) compared to 16.7% of all drivers involved in crashes.

CRASH RATES AND CRASH DENSITIES

Crash rates (in crashes per 100 Million Vehicle Miles of travel – 100MVM) and crash densities (in crashes per mile) were developed for undivided STH highways, for a number of crash types. Aggregate statistics are presented in **Tables 5-9**. Disaggregate and aggregate statistics for each STH are presented in **Appendices A, B, C, D, and E**. **Table 4** provides a quick location reference to aggregate and disaggregate statistics.

Table 4. Quick reference to Aggregate (column **Tbl**) and Disaggregate (column **Appx**) Statistics.

Tbl	Refers to	Statistics	Crash Types	Appx
5	Undivided 2- 3- 4-lane Urban & Rural STH	Hwy miles, No crashes, Travel, **Crash density, Crash rate**	All, Non-Intersection, ROR	**A**
6	Undivided 2- 3- 4-lane Urban & Rural STH	Hwy miles, No crashes, Travel, **Crash Rate**	ROR, Inj+K, Wet+Snow, Dark, Hz or Vt Curve, Fixed obj.	**B**
7	Undivided 2- 3- 4-lane Urban & Rural STH	Hwy miles, No crashes, Travel, **Crash Density**	ROR, Inj+K, Wet+Snow, Dark, Hz or Vt Curve, Fixed obj.	**C**
8	Undivided 2-lane, Rural STH	Hwy miles, No crashes, Travel, **Crash Rate**	ROR, Overturn, Fixed Object, Ditch, Tree, Guardrail, Utility Pole, Embankment, Sign Post	**D**
9	Undivided 2-lane, Rural STH	Hwy miles, No crashes, Travel, **Crash Density**	ROR, Overturn, Fixed Object, Ditch, Tree, Guardrail, Utility Pole, Embankment, Sign Post	**E**

Appendices mentioned in **Table 4** are organized by STH number. Derivatives of these tables, rank-ordered by crash rate, crash density or other provided statistics are proposed in the Methodology section as useful tools in targeting specific STH for thorough safety audits, with the use of **PRÈCIS** and associated graphs and GIS maps.

One-page samples of rank-ordered tables are demonstrated in **Appendix G**. These samples are enhanced with additional statistics (for example the ratio of ROR to non-intersection crashes) for each highway, in order to facilitate the identification of "problem" STH for treatment.

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Table 5. Undivided STH state-wide statistics: All, Non-Intersection, Run-off-Road Crashes.

Population Density	No of Lanes	Miles	No of Crashes (3 Yrs)	Annual Travel 100MVM	Crashes per mile per year	Crashes per 100MVM	Non-inters Crashes (3 Yrs)	Crashes per mile per year	Non-inters Crashes per 100MVM	ROR Crashes (3 Yrs)	Crashes per mile per year	ROR Crashes per 100MVM
Rural	2	8819.81	32519.00	113.38	1.23	95.61	20925.00	.79	61.52	11629.00	.44	34.19
	3	15.76	162.00	.43	3.43	126.42	99.00	2.09	77.26	45.00	.95	35.12
	4	65.28	1890.00	2.43	9.65	259.40	913.00	4.66	125.31	122.00	.62	16.74
Overall		8900.85	34571.00	116.23	1.29	99.14	21937.00	.82	62.91	11796.00	.44	33.83
Urban	2	402.72	13332.00	13.74	11.03	323.46	5371.00	4.45	130.31	1036.00	.86	25.14
	3	12.53	975.00	.65	25.94	499.79	340.00	9.04	174.29	60.00	1.60	30.76
	4	154.69	11432.00	8.92	24.63	427.26	4320.00	9.31	161.45	569.00	1.23	21.27
Overall		569.94	25739.00	23.31	15.05	368.10	10031.00	5.87	143.46	1665.00	.97	23.81
All Undivided		9470.79	60310.00	139.54	2.12	144.07	31968.00	1.13	76.36	13461.00	.47	32.16

Notes:

- 100MVM = 100 Million Vehicle Miles of travel
- ROR = Run-off-Road

Table 6. Undivided STH State-Wide Crash Rates for Select Run-off-Road Crash Categories.

Population Density	No of Lanes	Miles	Annual Travel 100MVM	ROR Crashes (3 Yrs)	ROR Crash per 100MVM	Inj+K Crash (3 Yr)	Inj+K Crash per 100MVM	Wet+Snow Crashes (3 Yrs)	Wet+Sn Crash per 100MVM	Dark Crash (3 Yr)	Dark Crash per 100MVM	Hz or Vt Curve Crash (3 Yr)	Hz or Vt Curve Crash/ 100MVM	Fixed obj Crash (3 Yr)	Fixed obj Crash/ 100MVM
Rural	2	8819.81	113.38	11629	34.19	5117	15.04	4997	14.69	5839	17.17	1571	4.62	7195	21.15
	3	15.76	.43	45	35.12	12	9.36	28	21.85	29	22.63	3	2.34	28	21.85
	4	65.28	2.43	122	16.74	48	6.59	58	7.96	54	7.41	12	1.65	86	11.80
Overall		8900.85	116.23	11796	33.83	5177	14.85	5083	14.58	5922	16.98	1586	4.55	7309	20.96
Urban	2	402.72	13.74	1036	25.14	379	9.20	405	9.83	510	12.37	74	1.80	805	19.53
	3	12.53	.65	60	30.76	14	7.18	25	12.82	30	15.38	2	1.03	52	26.66
	4	154.69	8.92	569	21.27	206	7.70	226	8.45	296	11.06	35	1.31	448	16.74
Overall		569.94	23.31	1665	23.81	599	8.57	656	9.38	836	11.96	111	1.59	1305	18.66
All Undivided		9470.79	139.54	13461	32.16	5776	13.80	5739	13.71	6758	16.14	1697	4.05	8614	20.58

Notes:

- 100MVM = 100 Million Vehicle Miles of travel
- ROR = Run-off-Road
- Inj+K = Injury plus Fatal
- Wet+Sn = Wet pavement and Snow on pavement
- Dark = Dark or Illuminated during nighttime lighting conditions
- Hz or Vt = Horizontal or Vertical Curve
- Fixed obj = Fixed object

Table 7. Undivided STH State-Wide Crash Densities for Select Run-off-Road Crash Categories.

Population Density	No of Lanes	Miles	Annual Travel 100MVM	ROR Crashes (3 Yrs)	ROR Crashes per mile per year	Inj+K Crash (3 Yr)	Inj+K Crash/ mile/ year	Wet+Snow Crashes (3 Yrs)	Wet+Snow Crash/ mile/ year	Dark Crash (3 Yr)	Dark Crash/ mile/ year	Hz or Vt Curve Crashes (3 Yrs)	Hz or Vt Curve Crash/ mile/ year	Fixed obj Crash (3 Yr)	Fixed obj Crash/ mile/ year
Rural	2	8819.8	113.38	11629	.44	5117	.19	4997	.19	5839	.22	1571	.06	7195	.27
	3	15.76	.43	45	.95	12	.25	28	.59	29	.61	3	.06	28	.59
	4	65.28	2.43	122	.62	48	.25	58	.30	54	.28	12	.06	86	.44
Overall		8900.8	116.23	11796	.44	5177	.19	5083	.19	5922	.22	1586	.06	7309	.27
Urban	2	402.72	13.74	1036	.86	379	.31	405	.34	510	.42	74	.06	805	.67
	3	12.53	.65	60	1.60	14	.37	25	.67	30	.80	2	.05	52	1.38
	4	154.69	8.92	569	1.23	206	.44	226	.49	296	.64	35	.08	448	.97
Overall		569.94	23.31	1665	.97	599	.35	656	.38	836	.49	111	.06	1305	.76
All Undivided		9470.8	139.54	13461	.47	5776	.20	5739	.20	6758	.24	1697	.06	8614	.30

Notes:

- 100MVM = 100 Million Vehicle Miles of travel
- Crash/mile/year = Crashes per Mile per Year
- ROR = Run-off-Road
- Inj+K = Injury plus Fatal
- Wet+Sn = Wet pavement and Snow on pavement
- Dark = Dark or Illuminated during nighttime lighting conditions
- Hz or Vt = Horizontal or Vertical Curve
- Fixed obj = Fixed object

Table 8. Two-lane Rural STH Crash Rates for Select Run-off-Road Crash Categories.

Miles	Annual Travel 100MVM	ROR Crashes (3 Yrs)	ROR Crash/ mile/ year	ROR Crash/ 100MVM	O/T 3 Yr	O/T per 100MVM	F/O Crsh 3 Yr	F/O Crsh/ per 100MVM	Ditch Crash 3 Yr	Ditch Crsh/ per 100MVM	Tree Crash 3 Yr	Tree Crsh/ per 100MVM	G/R Crash 3 Yr	G/R Crsh/ per 100MVM	Util pole Crash 3 Yr	Util Pole Crsh/ per 100MVM	Embnk Crash 3 Yr	Embnk Crsh/ per 100MVM	Sign Post Crash 3 Yr	Sign Post Crsh/ per 100MVM
8819.81	113.38	11629	.44	34.19	3060	9.00	7195	21.15	1593	4.68	1133	3.33	802	2.36	661	1.94	613	1.80	453	1.33

Table 9. Two-lane Rural STH Crash Densities for Select Run-off-Road Crash Categories.

Miles	Annual Travel 100MVM	ROR Crashes (3 Yrs)	ROR Crash/ mile/ year	ROR Crash/ 100MVM	O/T 3 Yr	O/T mile/ year	F/O Crsh 3 Yr	F/O Crsh/ mile/ year	Ditch Crash 3 Yr	Ditch Crsh/ mile/ year	Tree Crash 3 Yr	Tree Crsh/ mile/ year	G/R Crash 3 Yr	G/R Crsh/ mile/ year	Util pole Crash 3 Yr	Util Pole Crsh/ mile/ year	Embnk Crash 3 Yr	Embnk Crsh/ mile/ year	Sign Post Crash 3 Yr	Sign Post Crsh/ mile/ year
8819.81	113.38	11629	.44	34.19	3060	.12	7195	.27	1593	.06	1133	.04	802	.03	661	.02	613	.02	453	.02

Notes:

- 100MVM = 100 Million Vehicle Miles of travel
- 3 Yr = Total Number of Crashes in three years (1998-2000)
- Crash/mile/year = Crashes per Mile per Year
- ROR = Run-off-Road
- O/T = Overturned Vehicle
- F/O = Fixed Object
- G/R = Guardrail Face or Guardrail End
- Util Pole = Utility Pole
- Embnk = Embankment

Table 10 provides state-wide crash rates for highways classified by jurisdictional classification, and provides crash rate benchmarks for various STH categories.

Table 10. BHO State-wide Average Crash Rates-Deer Crashes Excluded.

Facilities	1998	1999	2000
Rural Interstate	51	52	62
Urban Interstate	98	112	124
Rural STH	111	114	118
Urban Streets	288	289	316
County Trunks	193	152	171

Source: State-wide Crash Rates BHO, WisDOT.
Note: Category Urban Streets includes Urban STH and City Streets.

CONCLUSIONS

The present effort accomplished to produce state-wide statistics for each two-lane two-way undivided rural STH based on existing databases that have been maintained by WisDOT continuously for a number of years. Exceeding the original scope of the project, ***statistics were produced for two- three- and four-lane undivided urban and rural STH.*** These statistics are based on automated procedures, requiring minimal labor effort to update annually.

A sophisticated algorithm, **PRÈCIS**, that calculates crash rates at each point along each STH was developed. **PRÈCIS** uses a floating highway segment technique that produces reliable crash rates. **PRÈCIS** output is used to identify high crash rate locations using line graphs and color-coded lines running parallel to a selected STH alignment on a GIS map.

In addition, **Interleaf tables**, presenting highway features and crashes ordered by their precise cumulative mile points along a given STH were produced. ***The developed database structure allows any crash, Metamanager, or State Trunk Highway Log information to be presented on Interleaf tables, depending on user needs***.

All identified STH high crash rate ***segments are defined using the cumulative mile point of the State Trunk Highway Log WisDOT publication***, thus providing a very simple method to correlate crash locational information with maps, engineering plans, photolog records and other materials in wide use at WisDOT.

Two methods to identify highway segments with unusually high crash statistics have been identified. The first one can be applied immediately and with minimal labor costs, based on products developed during this effort. It is based on a two-step process whereby:

i. A limited number of STH with unusually high crash statistics are selected for further review; and
ii. Segments of these STH with unusually high crash rates are identified for further scrutiny.

The second, more comprehensive method will require state-wide **PRÈCIS** and Interleaf table production runs and some limited additional software development is recommended for a time when the required resources are available.

Tables and maps developed herein are simple to use and do not require specialized technical (computer) skills. The user should be familiar with the use of the STH Log, the meaning of information contained in crash records and general safety problem countermeasures; no specialized knowledge about **PRÈCIS** or other parts of the developed methodology is needed.

New runs matching the necessary data will be required every year, as new crash data become available and Metamanager and STH Log files are updated, in order to keep the database current.

DISCUSSION

Given the wide scatter of ROR crashes and especially those with serious outcomes (injury and fatal crashes), it does not seem reasonable to anticipate that treating particular highway segments will have an immediate impact in significantly reducing state-wide numbers of injury and fatal crashes. Crash reductions will, in all likelihood, be gradual as more and more highway segments are upgraded piecemeal. However, the provided methodology allows WisDOT to identify corridors in need of certain upgrades (for example corridors with unusually high numbers of crashes with utility poles can be identified). This information, maintained in a universally accessible database, can be consulted by Districts and used in program and project development, safety grant proposal preparation, or in conjunction with reconstruction projects etc.

RECOMMENDATIONS

Based on the information contained in this report, the following recommendations are made:

1. Additional years of crash experience are desired; ROR crashes are widely scattered along the 9,470 miles of undivided STH. With an average of 0.47 crashes per mile of highway per year, it is difficult to identify highway segments with meaningful high crash concentrations and/or high crash rates using only 3 years of crash data.

2. A systematic review of the provided information is recommended in order to prioritize highway segments in need of safety improvements. A list of identified segments can be kept in a central information clearing house (for example the WisDOT FTP site), available to Engineers state-wide. Consulting this list could be made part of the WisDOT Facilities Development Manual procedures, in order to make sure that no opportunity to upgrade such locations will be missed during any comprehensive transportation plan, construction, reconstruction or 3R project. Such a procedure will have the added benefits of:
    a. Minimizing WisDOT liability exposure.
    b. Facilitating state-wide traffic safety improvement funding proposals to FHWA.
    c. Systematically improving traffic safety along undivided STH.

3. The preponderance of nighttime ROR fatal crashes (62.6% of fatal ROR crashes) can become a WisDOT priority. Hard copies of the 206 crashes can be reviewed in order to choose the most meaningful among an array of relatively inexpensive countermeasures, such as highly retroreflective median and roadway edge pavement markings, curve chevron signs etc. **All** undivided STH should be treated, if the goal is to reduce the number of ROR fatalities, since fatalities are widely scattered and typically do not occur repeatedly at the same locations. The above-mentioned countermeasures, because of their relatively low cost are prime candidates for a state-wide, federally supported safety improvement program.

4. A set of **PRÈCIS** maps, one for each STH should be produced and be available in electronic form through the proposed WisDOT electronic clearing house for review by Engineers state-wide; Interleaf tables should also be available to accompany **PRÈCIS** maps. Engineers would thus be able to review detailed information about any undivided STH, and identify which segments present safety problems. Using GIS software any part of a map displaying **PRÈCIS** crash rates and/or its supporting tables can be printed for a detailed review of any highway segment of interest. **PRÈCIS** production runs and **Interleaf** tables covering the entire 9,470 miles of undivided STH can be produced with minimal expenditure ($35,000-$50,000 depending on whether WisDOT desires any additions or changes to the produced sample map) in a relatively short period of time (4-5 months for the first time around, shorter in subsequent years).

5. If the necessary resources are in place, an assigned Safety Engineer should review the entire set of undivided STH maps and tables (see 4. above), prioritize highway segments for treatment, maintain a list of prioritized locations stored on the electronic clearing house, and produce guidelines for undivided STH safety audits, to be adhered to in program and project planning, and highway upgrade projects. These tasks will ensure that the developed tools are used in a systematic and consistent manner.

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APPENDIX A

CRASH RATES AND CRASH DENSITIES
FOR
2- 3- and 4-LANE
URBAN AND RURAL
UNDIVIDED
STATE TRUNK HIGHWAYS

Popul. Density	No of Lanes	STH Route	Miles	No of Crashes (3 Yrs)	Annual Travel 100MVM	Crash per mile/ year	Crash per 100MVM	Non-int Crashes (3 Yrs)	Non-int Crash per mile/ year	Non-int Crash per 100MVM	ROR Crash (3 Yrs)	ROR Crash per mile/ year	ROR Crash per 100MVM
Rural	2	002	96.05	321	1.98	1.11	54.06	245	.85	41.26	129	.45	21.72
		008	243.10	805	3.81	1.10	70.45	511	.70	44.72	278	.38	24.33
		010	240.98	1200	4.81	1.66	83.21	640	.89	44.38	332	.46	23.02
		011	113.97	543	2.35	1.59	76.98	359	1.05	50.90	185	.54	26.23
		012	238.43	1426	4.03	1.99	117.95	872	1.22	72.13	463	.65	38.30
		013	299.53	997	4.31	1.11	77.03	682	.76	52.69	349	.39	26.97
		014	158.02	1177	4.17	2.48	94.15	749	1.58	59.91	347	.73	27.76
		015	1.60	31	.07	6.46	138.34	20	4.17	89.25	5	1.04	22.31
		016	95.56	432	1.73	1.51	83.26	267	.93	51.46	144	.50	27.75
		017	73.70	175	.98	.79	59.49	139	.63	47.25	97	.44	32.98
		018	89.60	521	1.73	1.94	100.66	300	1.12	57.96	142	.53	27.44
		019	46.73	351	.89	2.50	130.99	195	1.39	72.77	94	.67	35.08
		020	29.60	217	.49	2.44	147.76	114	1.28	77.63	66	.74	44.94
		021	111.56	507	2.58	1.51	65.45	321	.96	41.44	161	.48	20.78
		022	149.63	578	2.10	1.29	91.81	343	.76	54.48	191	.43	30.34
		023	164.65	822	2.96	1.66	92.71	508	1.03	57.30	240	.49	27.07
		025	79.18	194	.88	.82	73.70	135	.57	51.29	90	.38	34.19
		026	70.94	478	2.05	2.25	77.89	289	1.36	47.09	139	.65	22.65
		027	242.23	525	2.17	.72	80.53	374	.51	57.37	234	.32	35.89
		028	49.88	241	.63	1.61	128.42	136	.91	72.47	70	.47	37.30
		029	73.45	251	.76	1.14	110.67	153	.69	67.46	77	.35	33.95
		031	4.35	134	.28	10.27	161.06	60	4.60	72.12	16	1.23	19.23
		032	171.75	683	2.36	1.33	96.33	410	.80	57.83	202	.39	28.49
		033	162.71	829	2.67	1.70	103.66	531	1.09	66.40	258	.53	32.26
		034	22.93	53	.30	.77	59.68	37	.54	41.66	24	.35	27.02
		035	308.00	1057	4.17	1.14	84.49	720	.78	57.55	350	.38	27.98
		036	6.57	25	.10	1.27	84.35	18	.91	60.73	10	.51	33.74
		037	40.17	97	.41	.80	78.84	83	.69	67.46	55	.46	44.70
		038	5.03	74	.12	4.90	214.25	35	2.32	101.33	21	1.39	60.80
		039	40.84	99	.14	.81	239.68	72	.59	174.32	56	.46	135.58
		040	79.42	163	.32	.68	169.29	118	.50	122.55	79	.33	82.05
		041	15.19	118	.61	2.59	64.50	78	1.71	42.64	34	.75	18.59
		042	110.43	537	1.57	1.62	114.10	313	.94	66.51	139	.42	29.54
		044	55.65	132	.60	.79	73.59	90	.54	50.18	55	.33	30.66
		045	196.43	1077	3.78	1.83	94.85	635	1.08	55.92	296	.50	26.07
		046	27.93	65	.38	.78	57.23	44	.53	38.74	22	.26	19.37

Popul. Density	No of Lanes	STH Route	Miles	No of Crashes (3 Yrs)	Annual Travel 100MVM	Crash per mile/ year	Crash per 100MVM	Non-int Crashes (3 Yrs)	Non-int Crash per mile/ year	Non-int Crash per 100MVM	ROR Crash (3 Yrs)	ROR Crash per mile/ year	ROR Crash per 100MVM
Rural	2	047	116.65	418	1.81	1.19	77.08	287	.82	52.92	154	.44	28.40
		048	88.15	171	.76	.65	74.92	110	.42	48.20	70	.26	30.67
		049	93.53	258	.89	.92	96.42	184	.66	68.76	107	.38	39.99
		050	5.64	100	.21	5.91	160.32	52	3.07	83.37	21	1.24	33.67
		051	109.67	535	2.29	1.63	77.88	374	1.14	54.44	211	.64	30.72
		052	57.60	104	.24	.60	143.67	80	.46	110.52	58	.34	80.13
		053	65.51	213	.98	1.08	72.18	162	.82	54.89	99	.50	33.55
		054	172.71	554	2.13	1.07	86.76	344	.66	53.87	193	.37	30.23
		055	134.99	273	.79	.67	115.69	165	.41	69.92	107	.26	45.34
		056	50.56	129	.22	.85	191.20	104	.69	154.15	84	.55	124.50
		057	71.65	331	1.70	1.54	65.03	225	1.05	44.21	116	.54	22.79
		058	52.84	161	.35	1.02	152.09	116	.73	109.58	58	.37	54.79
		059	85.54	408	1.26	1.59	108.18	236	.92	62.58	129	.50	34.20
		060	130.58	558	1.48	1.42	125.63	391	1.00	88.03	213	.54	47.96
		061	65.19	291	.95	1.49	102.09	164	.84	57.54	73	.37	25.61
		063	171.64	611	2.71	1.19	75.23	361	.70	44.45	192	.37	23.64
		064	234.17	477	1.69	.68	94.29	316	.45	62.47	193	.27	38.15
		065	43.50	137	.60	1.05	75.96	91	.70	50.46	67	.51	37.15
		066	14.66	81	.20	1.84	131.77	53	1.21	86.22	36	.82	58.56
		067	125.86	589	1.51	1.56	129.77	371	.98	81.74	214	.57	47.15
		068	8.49	42	.08	1.65	169.53	31	1.22	125.13	23	.90	92.84
		069	36.47	181	.76	1.65	79.23	131	1.20	57.34	78	.71	34.14
		070	213.06	345	1.86	.54	61.76	245	.38	43.86	142	.22	25.42
		071	42.62	120	.31	.94	127.62	98	.77	104.23	64	.50	68.07
		072	27.70	44	.12	.53	119.93	35	.42	95.40	28	.34	76.32
		073	214.85	548	1.95	.85	93.87	326	.51	55.84	187	.29	32.03
		075	12.10	83	.14	2.29	194.71	44	1.21	103.22	32	.88	75.07
		076	24.92	91	.16	1.22	189.34	61	.82	126.92	43	.58	89.47
		077	116.72	114	.48	.33	79.63	88	.25	61.47	70	.20	48.89
		078	85.19	245	.54	.96	149.94	174	.68	106.49	127	.50	77.72
		079	17.63	32	.10	.61	108.99	21	.40	71.52	14	.26	47.68
		080	142.60	380	1.33	.89	94.92	270	.63	67.45	178	.42	44.46
		081	85.38	179	.70	.70	85.69	137	.53	65.58	97	.38	46.44
		082	84.05	181	.69	.72	87.72	130	.52	63.00	84	.33	40.71
		083	50.01	705	1.21	4.70	194.11	378	2.52	104.08	168	1.12	46.26
		085	23.46	61	.23	.87	88.22	50	.71	72.31	33	.47	47.73

Popul. Density	No of Lanes	STH Route	Miles	No of Crashes (3 Yrs)	Annual Travel 100MVM	Crash per mile/ year	Crash per 100MVM	Non-int Crashes (3 Yrs)	Non-int Crash per mile/ year	Non-int Crash per 100MVM	ROR Crash (3 Yrs)	ROR Crash per mile/ year	ROR Crash per 100MVM
Rural	2	086	31.63	56	.12	.59	150.36	23	.24	61.75	11	.12	29.53
		087	22.26	59	.18	.88	109.34	37	.55	68.57	18	.27	33.36
		088	29.75	39	.06	.44	211.44	35	.39	189.75	28	.31	151.80
		089	44.33	176	.54	1.32	109.19	108	.81	67.01	58	.44	35.98
		091	16.50	70	.26	1.41	91.24	53	1.07	69.08	42	.85	54.74
		092	27.12	69	.13	.85	176.97	49	.60	125.68	38	.47	97.46
		093	51.89	166	.75	1.07	73.85	114	.73	50.72	56	.36	24.91
		095	71.49	156	.38	.73	138.11	119	.55	105.35	71	.33	62.86
		096	27.04	172	.33	2.12	172.16	76	.94	76.07	30	.37	30.03
		097	33.87	102	.42	1.00	80.10	65	.64	51.05	28	.28	21.99
		098	16.20	38	.17	.78	74.34	16	.33	31.30	6	.12	11.74
		101	21.12	10	.06	.16	53.78	8	.13	43.02	8	.13	43.02
		102	18.25	26	.06	.47	148.92	17	.31	97.37	13	.24	74.46
		104	14.34	40	.11	.93	121.83	35	.81	106.60	28	.65	85.28
		105	2.75	5	.02	.61	80.48	4	.48	64.38	2	.24	32.19
		106	27.39	110	.21	1.34	178.18	70	.85	113.39	52	.63	84.23
		107	44.19	96	.22	.72	145.04	69	.52	104.25	46	.35	69.50
		108	17.89	41	.05	.76	252.82	35	.65	215.82	25	.47	154.16
		110	41.26	249	.69	2.01	120.07	141	1.14	67.99	79	.64	38.09
		111	10.61	8	.05	.25	52.56	8	.25	52.56	8	.25	52.56
		112	10.17	8	.05	.26	49.63	3	.10	18.61	3	.10	18.61
		113	26.28	157	.31	1.99	170.01	105	1.33	113.70	68	.86	73.64
		114	8.88	38	.18	1.43	71.54	19	.71	35.77	13	.49	24.47
		115	5.94	20	.02	1.12	322.02	11	.62	177.11	10	.56	161.01
		116	13.78	68	.16	1.64	141.48	47	1.14	97.79	16	.39	33.29
		117	5.13	25	.08	1.62	107.66	16	1.04	68.90	6	.39	25.84
		118	6.86	5	.02	.24	86.22	5	.24	86.22	5	.24	86.22
		120	15.44	76	.28	1.64	91.78	63	1.36	76.08	35	.76	42.27
		121	34.75	59	.17	.57	116.97	46	.44	91.19	29	.28	57.49
		122	14.69	5	.01	.11	146.57	4	.09	117.25	4	.09	117.25
		123	1.10	9	.01	2.73	276.74	6	1.82	184.49	3	.91	92.25
		124	10.63	45	.12	1.41	122.31	13	.41	35.34	8	.25	21.74
		126	4.81	7	.02	.49	108.87	5	.35	77.77	4	.28	62.21
		127	12.75	17	.04	.44	134.54	12	.31	94.97	9	.24	71.23
		128	27.04	59	.15	.73	129.62	40	.49	87.88	30	.37	65.91
		129	2.69	10	.03	1.24	101.92	1	.12	10.19	0	.00	.00

Popul. Density	No of Lanes	STH Route	Miles	No of Crashes (3 Yrs)	Annual Travel 100MVM	Crash per mile/ year	Crash per 100MVM	Non-int Crashes (3 Yrs)	Non-int Crash per mile/ year	Non-int Crash per 100MVM	ROR Crash (3 Yrs)	ROR Crash per mile/ year	ROR Crash per 100MVM
Rural	2	130	30.73	42	.09	.46	163.97	35	.38	136.64	28	.30	109.31
		131	70.19	127	.34	.60	126.13	99	.47	98.32	70	.33	69.52
		133	72.01	156	.35	.72	149.56	126	.58	120.80	94	.44	90.12
		134	2.85	12	.01	1.40	428.20	10	1.17	356.83	10	1.17	356.83
		136	12.53	45	.11	1.20	135.91	38	1.01	114.77	28	.74	84.57
		137	3.74	.	.	.	.	.	.	.	.	.	.
		138	11.66	48	.21	1.37	75.20	35	1.00	54.83	21	.60	32.90
		139	22.01	13	.08	.20	54.50	11	.17	46.12	9	.14	37.73
		140	11.25	66	.14	1.96	162.24	47	1.39	115.54	33	.98	81.12
		141	61.92	357	1.61	1.92	73.91	253	1.36	52.38	107	.58	22.15
		142	16.31	55	.18	1.12	99.75	38	.78	68.92	26	.53	47.16
		144	19.45	120	.25	2.06	162.88	80	1.37	108.59	48	.82	65.15
		145	.41	3	.01	2.44	179.15	3	2.44	179.15	3	2.44	179.15
		146	13.22	11	.04	.28	92.35	8	.20	67.16	7	.18	58.77
		147	12.65	53	.13	1.40	140.86	35	.92	93.02	21	.55	55.81
		149	24.15	75	.12	1.04	213.19	50	.69	142.13	32	.44	90.96
		150	6.65	25	.12	1.25	68.36	20	1.00	54.69	9	.45	24.61
		151	91.26	593	2.05	2.17	96.31	426	1.56	69.19	221	.81	35.89
		152	7.22	6	.02	.28	90.34	4	.18	60.23	3	.14	45.17
		153	60.24	194	.57	1.07	114.06	106	.59	62.32	60	.33	35.28
		154	19.00	37	.08	.65	156.77	24	.42	101.69	20	.35	84.74
		155	6.94	17	.06	.82	89.75	8	.38	42.23	7	.34	36.96
		156	26.23	36	.15	.46	80.17	26	.33	57.90	21	.27	46.77
		159	1.29	1	.01	.26	35.40	1	.26	35.40	1	.26	35.40
		160	3.22	8	.03	.83	78.94	4	.41	39.47	1	.10	9.87
		161	21.58	50	.11	.77	151.80	36	.56	109.30	26	.40	78.94
		162	40.88	95	.14	.77	231.69	80	.65	195.11	65	.53	158.53
		164	25.65	265	.82	3.44	107.45	114	1.48	46.22	46	.60	18.65
		165	.78	.	.03	.	.	.	.	.	.	.	.
		167	9.41	65	.14	2.30	159.24	43	1.52	105.35	27	.96	66.15
		168	5.93	6	.02	.34	126.23	5	.28	105.19	3	.17	63.12
		169	17.36	2	.03	.04	24.97	2	.04	24.97	2	.04	24.97
		170	23.90	55	.14	.77	131.98	45	.63	107.98	34	.47	81.58
		171	33.25	57	.08	.57	235.11	53	.53	218.61	42	.42	173.24
		172	1.40	10	.05	2.38	69.80	7	1.67	48.86	0	.00	.00
		173	33.55	39	.23	.39	56.85	36	.36	52.48	29	.29	42.27

Popul. Density	No of Lanes	STH Route	Miles	No of Crashes (3 Yrs)	Annual Travel 100MVM	Crash per mile/ year	Crash per 100MVM	Non-int Crashes (3 Yrs)	Non-int Crash per mile/ year	Non-int Crash per 100MVM	ROR Crash (3 Yrs)	ROR Crash per mile/ year	ROR Crash per 100MVM
Rural	2	175	46.56	289	.49	2.07	197.65	188	1.35	128.58	123	.88	84.12
		178	20.09	81	.19	1.34	144.31	55	.91	97.99	43	.71	76.61
		179	8.80	10	.02	.38	172.67	8	.30	138.14	7	.27	120.87
		180	29.94	66	.24	.73	93.40	58	.65	82.08	37	.41	52.36
		182	29.65	20	.10	.22	66.98	14	.16	46.89	10	.11	33.49
		186	15.01	22	.11	.49	65.09	13	.29	38.46	9	.20	26.63
		187	13.87	22	.02	.53	342.83	21	.50	327.25	16	.38	249.33
		188	10.55	23	.04	.73	175.41	19	.60	144.90	14	.44	106.77
		191	13.04	23	.04	.59	199.18	22	.56	190.52	17	.43	147.22
		193	1.42	1	.01	.23	42.88	0	.00	.00	0	.00	.00
		194	11.32	12	.03	.35	140.30	10	.29	116.92	10	.29	116.92
		213	19.33	97	.17	1.67	189.64	71	1.22	138.81	55	.95	107.53
		243	.30	1	.01	1.11	60.40	1	1.11	60.40	1	1.11	60.40
		253	7.61	2	.03	.09	24.98	2	.09	24.98	2	.09	24.98
		310	6.69	72	.13	3.59	190.56	32	1.59	84.70	13	.65	34.41
		351	2.31	53	.08	7.65	232.17	24	3.46	105.13	15	2.16	65.71
	Overall		8819.81	32519	113.38	1.23	95.61	20925	.79	61.52	11629	.44	34.19

Popul. Density	No of Lanes	STH Route	Miles	No of Crashes (3 Yrs)	Annual Travel 100MVM	Crash per mile/ year	Crash per 100MVM	Non-int Crashes (3 Yrs)	Non-int Crash per mile/ year	Non-int Crash per 100MVM	ROR Crash (3 Yrs)	ROR Crash per mile/ year	ROR Crash per 100MVM
Rural	3	010	.35	8	.01	7.62	363.60	6	5.71	272.70	2	1.90	90.90
		012	2.00	8	.05	1.33	55.01	5	.83	34.38	4	.67	27.51
		013	2.46	23	.06	3.12	120.89	12	1.63	63.07	6	.81	31.54
		014	.26	15	.01	19.23	469.87	7	8.97	219.27	2	2.56	62.65
		023	1.00	11	.02	3.67	151.73	6	2.00	82.76	3	1.00	41.38
		033	5.58	41	.15	2.45	94.16	26	1.55	59.71	12	.72	27.56
		035	1.03	21	.04	6.80	159.28	16	5.18	121.36	10	3.24	75.85
		045	.22	2	.00	3.03	220.22	2	3.03	220.22	1	1.52	110.11
		051	.32	2	.01	2.08	53.17	2	2.08	53.17	0	.00	.00
		054	.12	2	.00	5.56	221.07	0	.00	.00	0	.00	.00
		057	.14	3	.00	7.14	238.07	2	4.76	158.71	1	2.38	79.36
		061	.62	11	.03	5.91	135.59	8	4.30	98.61	2	1.08	24.65
		078	.17	.	.00	.	.	.	.	.	.	.	.
		080	.41	7	.01	5.69	269.99	3	2.44	115.71	1	.81	38.57
		110	.33	.	.00	.	.	.	.	.	.	.	.
		113	.13	.	.00	.	.	.	.	.	.	.	.
		141	.62	8	.02	4.30	126.10	4	2.15	63.05	1	.54	15.76
	Overall		15.76	162	.43	3.43	126.42	99	2.09	77.26	45	.95	35.12

Popul. Density	No of Lanes	STH Route	Miles	No of Crashes (3 Yrs)	Annual Travel 100MVM	Crash per mile/ year	Crash per 100MVM	Non-int Crashes (3 Yrs)	Non-int Crash per mile/ year	Non-int Crash per 100MVM	ROR Crash (3 Yrs)	ROR Crash per mile/ year	ROR Crash per 100MVM
Rural	4	008	3.68	196	.16	17.75	396.87	59	5.34	119.47	3	.27	6.07
		010	1.78	29	.06	5.43	154.21	15	2.81	79.76	8	1.50	42.54
		012	3.15	238	.23	25.19	348.96	174	18.41	255.12	10	1.06	14.66
		013	6.83	262	.30	12.79	296.00	135	6.59	152.52	13	.63	14.69
		014	1.62	50	.08	10.29	211.56	22	4.53	93.09	3	.62	12.69
		017	1.97	13	.03	2.20	150.57	8	1.35	92.66	2	.34	23.16
		019	.28	16	.01	19.05	844.42	3	3.57	158.33	0	.00	.00
		020	.42	15	.01	11.90	401.79	5	3.97	133.93	0	.00	.00
		021	1.09	41	.04	12.54	331.89	11	3.36	89.04	0	.00	.00
		023	.37	16	.00	14.41	1347.8	1	.90	84.24	0	.00	.00
		027	.19	17	.01	29.82	620.20	9	15.79	328.34	0	.00	.00
		033	.11	7	.01	21.21	306.34	1	3.03	43.76	0	.00	.00
		041	2.92	84	.14	9.59	200.21	32	3.65	76.27	9	1.03	21.45
		045	9.23	283	.38	10.22	247.03	142	5.13	123.95	16	.58	13.97
		046	1.82	48	.05	8.79	292.73	18	3.30	109.77	2	.37	12.20
		047	.61	1	.01	.55	22.74	0	.00	.00	0	.00	.00
		048	.31	.	.00	.	.	.	.	.	.	.	.
		051	15.83	285	.64	6.00	149.02	158	3.33	82.62	42	.88	21.96
		054	.27	11	.01	13.58	462.28	6	7.41	252.15	1	1.23	42.03
		063	1.88	94	.05	16.67	640.79	32	5.67	218.14	2	.35	13.63
		064	2.92	6	.02	.68	100.65	5	.57	83.88	2	.23	33.55
		070	2.10	49	.04	7.78	459.15	22	3.49	206.15	2	.32	18.74
		082	.32	24	.01	25.00	573.34	15	15.63	358.34	0	.00	.00
		086	.36	7	.02	6.48	128.40	3	2.78	55.03	1	.93	18.34
		089	.09	.	.00	.	.	.	.	.	.	.	.
		093	.50	19	.01	12.67	1099.9	3	2.00	173.68	1	.67	57.89
		095	.32	2	.00	2.08	267.34	2	2.08	267.34	0	.00	.00
		107	.43	.	.01	.	.	.	.	.	.	.	.
		110	.93	1	.01	.36	47.37	1	.36	47.37	1	.36	47.37
		113	.12	2	.00	5.56	860.41	2	5.56	860.41	1	2.78	430.21
		141	1.46	53	.04	12.10	424.75	23	5.25	184.32	2	.46	16.03
		151	1.37	21	.04	5.11	160.14	6	1.46	45.76	1	.24	7.63
	Overall		65.28	1890	2.43	9.65	259.40	913	4.66	125.31	122	.62	16.74
Overall			8900.85	34571	116.23	1.29	99.14	21937	.82	62.91	11796	.44	33.83

Popul. Density	No of Lanes	STH Route	Miles	No of Crashes (3 Yrs)	Annual Travel 100MVM	Crash per mile/ year	Crash per 100MVM	Non-int Crashes (3 Yrs)	Non-int Crash per mile/ year	Non-int Crash per 100MVM	ROR Crash (3 Yrs)	ROR Crash per mile/ year	ROR Crash per 100MVM
Urban	2	002	.49	1	.01	.68	33.10	1	.68	33.10	0	.00	.00
		010	1.64	12	.03	2.44	118.91	9	1.83	89.18	4	.81	39.64
		011	11.89	363	.31	10.18	386.96	140	3.92	149.24	32	.90	34.11
		012	7.62	271	.26	11.85	343.73	109	4.77	138.25	18	.79	22.83
		013	4.31	85	.11	6.57	255.11	26	2.01	78.03	7	.54	21.01
		014	5.35	142	.25	8.85	190.42	48	2.99	64.37	8	.50	10.73
		016	11.00	433	.37	13.12	390.24	145	4.39	130.68	24	.73	21.63
		017	3.84	120	.14	10.42	296.27	49	4.25	120.98	11	.95	27.16
		018	6.95	368	.26	17.65	478.96	117	5.61	152.28	13	.62	16.92
		019	6.75	428	.31	21.14	459.88	170	8.40	182.66	10	.49	10.74
		020	.61	107	.04	58.47	1017.8	43	23.50	409.01	6	3.28	57.07
		021	2.97	101	.10	11.34	335.98	39	4.38	129.74	5	.56	16.63
		022	6.13	99	.15	5.38	226.48	26	1.41	59.48	5	.27	11.44
		023	4.36	261	.17	19.95	502.21	102	7.80	196.27	21	1.61	40.41
		025	2.10	116	.08	18.41	500.74	46	7.30	198.57	6	.95	25.90
		026	6.41	226	.27	11.75	283.86	87	4.52	109.27	9	.47	11.30
		027	2.84	143	.10	16.78	462.43	59	6.92	190.79	12	1.41	38.81
		028	4.18	34	.12	2.71	94.57	10	.80	27.82	5	.40	13.91
		029	8.57	223	.36	8.67	207.57	80	3.11	74.47	28	1.09	26.06
		031	4.00	95	.18	7.92	171.98	37	3.08	66.98	13	1.08	23.53
		032	38.37	1680	1.61	14.59	348.18	724	6.29	150.05	142	1.23	29.43
		033	11.32	425	.39	12.51	363.89	160	4.71	136.99	35	1.03	29.97
		034	.06	.	.00	.	.	.	.	.	.	.	.
		035	10.31	454	.45	14.68	336.27	195	6.30	144.43	26	.84	19.26
		036	2.65	215	.11	27.04	665.08	93	11.70	287.69	7	.88	21.65
		038	5.84	222	.20	12.67	375.59	88	5.02	148.88	28	1.60	47.37
		042	2.16	50	.07	7.72	237.56	20	3.09	95.03	4	.62	19.01
		044	2.40	89	.07	12.36	403.57	46	6.39	208.59	3	.42	13.60
		045	13.06	309	.32	7.89	325.03	108	2.76	113.60	41	1.05	43.13
		047	3.31	112	.11	11.28	326.31	29	2.92	84.49	7	.70	20.39
		048	1.06	54	.01	16.98	1221.1	19	5.97	429.64	4	1.26	90.45
		049	6.50	282	.20	14.46	459.89	135	6.92	220.16	10	.51	16.31
		050	4.47	552	.23	41.16	807.09	227	16.93	331.90	19	1.42	27.78
		051	10.16	442	.44	14.50	335.29	187	6.14	141.85	36	1.18	27.31
		052	4.12	69	.06	5.58	357.54	25	2.02	129.54	3	.24	15.55
		054	9.58	130	.28	4.52	157.41	63	2.19	76.28	16	.56	19.37

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Urban	2	055	1.45	52	.05	11.95	373.87	14	3.22	100.66	2	.46	14.38
		057	7.02	219	.33	10.40	220.66	74	3.51	74.56	12	.57	12.09
		059	9.26	575	.44	20.70	435.80	216	7.78	163.71	44	1.58	33.35
		060	3.67	133	.17	12.08	260.74	32	2.91	62.73	3	.27	5.88
		064	8.58	189	.28	7.34	223.34	81	3.15	95.72	10	.39	11.82
		065	5.62	35	.17	2.08	68.68	22	1.30	43.17	9	.53	17.66
		066	2.26	35	.06	5.16	186.75	19	2.80	101.38	5	.74	26.68
		067	5.35	135	.13	8.41	334.05	66	4.11	163.31	11	.69	27.22
		068	1.02	9	.01	2.94	279.84	3	.98	93.28	1	.33	31.09
		069	.04	.	.00	.	.	.	.	.	.	.	.
		071	.11	.	.00	.	.	.	.	.	.	.	.
		073	.93	5	.02	1.79	86.98	5	1.79	86.98	2	.72	34.79
		074	5.40	184	.22	11.36	279.95	58	3.58	88.25	11	.68	16.74
		077	4.34	37	.07	2.84	182.75	19	1.46	93.84	7	.54	34.57
		080	5.88	79	.06	4.48	412.16	28	1.59	146.08	13	.74	67.82
		081	4.35	249	.14	19.08	578.98	83	6.36	192.99	17	1.30	39.53
		083	8.15	202	.25	8.26	267.26	96	3.93	127.02	28	1.15	37.05
		089	1.28	23	.03	5.99	274.39	14	3.65	167.02	3	.78	35.79
		091	1.21	17	.03	4.68	215.21	6	1.65	75.96	4	1.10	50.64
		093	.52	45	.04	28.85	421.50	8	5.13	74.93	4	2.56	37.47
		096	5.31	233	.24	14.63	329.86	82	5.15	116.09	14	.88	19.82
		100	7.36	146	.35	6.61	141.00	64	2.90	61.81	17	.77	16.42
		105	1.76	2	.01	.38	51.35	1	.19	25.67	1	.19	25.67
		106	1.83	19	.04	3.46	180.04	14	2.55	132.66	1	.18	9.48
		107	2.70	25	.02	3.09	349.13	15	1.85	209.48	4	.49	55.86
		110	2.14	35	.08	5.45	138.23	25	3.89	98.73	9	1.40	35.54
		112	2.41	6	.02	.83	120.36	5	.69	100.30	1	.14	20.06
		113	2.38	56	.05	7.84	407.09	27	3.78	196.28	5	.70	36.35
		114	2.30	71	.09	10.29	266.10	23	3.33	86.20	1	.14	3.75
		120	3.50	135	.11	12.86	394.39	69	6.57	201.58	18	1.71	52.59
		123	1.71	50	.05	9.75	345.29	24	4.68	165.74	4	.78	27.62
		124	1.89	30	.04	5.29	267.42	18	3.17	160.45	11	1.94	98.05
		127	1.41	3	.01	.71	99.70	3	.71	99.70	2	.47	66.46
		131	.95	8	.03	2.81	86.90	6	2.11	65.17	1	.35	10.86
		136	.51	5	.01	3.27	229.57	4	2.61	183.66	0	.00	.00
		137	2.51	.	.	.	.	.	.	.	.	.	.

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Urban	2	138	.32	3	.00	3.13	235.53	0	.00	.00	0	.00	.00
		141	2.27	31	.07	4.55	145.33	6	.88	28.13	2	.29	9.38
		142	.91	7	.01	2.56	194.70	2	.73	55.63	0	.00	.00
		144	.82	55	.03	22.36	575.50	28	11.38	292.98	2	.81	20.93
		145	8.60	84	.17	3.26	168.52	22	.85	44.14	10	.39	20.06
		147	2.06	56	.07	9.06	282.32	23	3.72	115.95	2	.32	10.08
		151	7.01	267	.30	12.70	294.67	125	5.94	137.95	24	1.14	26.49
		157	1.29	114	.04	29.46	914.40	20	5.17	160.42	3	.78	24.06
		158	2.31	65	.11	9.38	194.65	21	3.03	62.89	7	1.01	20.96
		164	1.70	15	.08	2.94	65.46	5	.98	21.82	0	.00	.00
		165	3.45	39	.04	3.77	322.61	22	2.13	181.99	10	.97	82.72
		167	3.72	33	.18	2.96	61.42	13	1.16	24.20	4	.36	7.44
		172	.94	8	.03	2.84	85.69	4	1.42	42.85	4	1.42	42.85
		173	1.89	49	.04	8.64	398.58	26	4.59	211.49	1	.18	8.13
		175	6.18	326	.27	17.58	397.12	181	9.76	220.49	27	1.46	32.89
		178	2.13	45	.06	7.04	248.92	15	2.35	82.97	3	.47	16.59
		180	.48	2	.01	1.39	74.47	2	1.39	74.47	1	.69	37.23
		181	8.47	277	.34	10.90	274.47	122	4.80	120.89	33	1.30	32.70
		190	.42	22	.01	17.46	532.22	9	7.14	217.73	0	.00	.00
		213	1.94	42	.03	7.22	420.10	22	3.78	220.05	8	1.37	80.02
		310	1.32	32	.03	8.08	352.07	17	4.29	187.04	2	.51	22.00
	Overall		402.72	13332	13.74	11.03	323.46	5371	4.45	130.31	1036	.86	25.14

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Urban	3	012	1.59	125	.12	26.21	350.01	41	8.60	114.80	7	1.47	19.60
		013	.40	4	.02	3.33	85.27	4	3.33	85.27	2	1.67	42.64
		020	1.60	232	.11	48.33	693.84	97	20.21	290.10	13	2.71	38.88
		021	.36	16	.01	14.81	398.90	2	1.85	49.86	0	.00	.00
		022	.76	5	.03	2.19	64.47	3	1.32	38.68	1	.44	12.89
		026	.06	5	.00	27.78	352.33	3	16.67	211.40	0	.00	.00
		029	.08	48	.00	200.0	4663.4	8	33.33	777.23	2	8.33	194.31
		032	.37	51	.02	45.95	964.25	9	8.11	170.16	3	2.70	56.72
		035	.36	33	.02	30.56	513.99	8	7.41	124.60	1	.93	15.58
		038	.83	66	.03	26.51	684.72	23	9.24	238.62	8	3.21	83.00
		041	.87	46	.09	17.62	178.00	17	6.51	65.78	2	.77	7.74
		044	.68	82	.03	40.20	811.67	18	8.82	178.17	5	2.45	49.49
		054	.96	7	.03	2.43	77.66	3	1.04	33.28	2	.69	22.19
		057	.25	26	.01	34.67	598.09	11	14.67	253.04	1	1.33	23.00
		059	.53	124	.03	77.99	1403.8	57	35.85	645.31	3	1.89	33.96
		073	1.17	13	.02	3.70	182.27	10	2.85	140.21	6	1.71	84.13
		074	.43	16	.02	12.40	336.43	4	3.10	84.11	1	.78	21.03
		114	.27	27	.02	33.33	492.39	7	8.64	127.66	1	1.23	18.24
		144	.20	7	.01	11.67	387.44	1	1.67	55.35	0	.00	.00
		181	.51	11	.01	7.19	287.43	7	4.58	182.91	1	.65	26.13
		190	.25	31	.02	41.33	684.24	7	9.33	154.51	1	1.33	22.07
	Overall		12.53	975	.65	25.94	499.79	340	9.04	174.29	60	1.60	30.76

Popul. Density	No of Lanes	STH Route	Miles	No of Crashes (3 Yrs)	Annual Travel 100MVM	Crash per mile/ year	Crash per 100MVM	Non-int Crashes (3 Yrs)	Non-int Crash per mile/ year	Non-int Crash per 100MVM	ROR Crash (3 Yrs)	ROR Crash per mile/ year	ROR Crash per 100MVM
Urban	4	002	4.98	268	.27	17.94	331.83	97	6.49	120.10	10	.67	12.38
		010	1.85	67	.10	12.07	233.26	17	3.06	59.19	2	.36	6.96
		011	4.96	516	.37	34.68	465.76	234	15.73	211.22	21	1.41	18.96
		012	4.43	393	.30	29.57	442.66	194	14.60	218.51	18	1.35	20.27
		013	3.64	245	.19	22.44	437.07	91	8.33	162.34	14	1.28	24.98
		014	2.41	98	.18	13.55	177.86	19	2.63	34.48	1	.14	1.81
		016	3.11	358	.20	38.37	593.12	127	13.61	210.41	15	1.61	24.85
		017	1.75	24	.07	4.57	110.10	10	1.90	45.87	1	.19	4.59
		018	4.70	319	.32	22.62	332.31	105	7.45	109.38	5	.35	5.21
		019	.18	5	.01	9.26	292.59	2	3.70	117.04	1	1.85	58.52
		020	.74	122	.04	54.95	923.84	41	18.47	310.47	3	1.35	22.72
		021	1.94	227	.14	39.00	527.03	75	12.89	174.13	9	1.55	20.90
		022	3.89	256	.16	21.94	547.61	84	7.20	179.68	9	.77	19.25
		023	2.43	274	.14	37.59	672.49	134	18.38	328.88	17	2.33	41.72
		025	.25	29	.01	38.67	752.39	12	16.00	311.33	0	.00	.00
		026	2.19	199	.15	30.29	434.33	96	14.61	209.52	19	2.89	41.47
		028	2.42	193	.15	26.58	421.59	81	11.16	176.93	7	.96	15.29
		029	2.56	321	.16	41.80	672.49	76	9.90	159.22	11	1.43	23.04
		032	14.47	756	.71	17.42	356.93	359	8.27	169.49	81	1.87	38.24
		033	5.70	415	.30	24.27	461.20	117	6.84	130.02	15	.88	16.67
		035	5.26	515	.32	32.64	542.43	148	9.38	155.88	10	.63	10.53
		038	.19	25	.01	43.86	835.05	8	14.04	267.22	2	3.51	66.80
		041	2.93	284	.21	32.31	443.18	81	9.22	126.40	5	.57	7.80
		042	2.03	264	.09	43.35	962.84	89	14.61	324.59	6	.99	21.88
		044	1.64	126	.08	25.61	513.47	32	6.50	130.40	2	.41	8.15
		045	8.48	586	.41	23.03	476.89	216	8.49	175.78	27	1.06	21.97
		047	4.55	393	.28	28.79	472.43	164	12.01	197.15	8	.59	9.62
		048	.85	25	.02	9.80	345.91	6	2.35	83.02	1	.39	13.84
		049	.32	14	.01	14.58	316.85	6	6.25	135.79	1	1.04	22.63
		050	.89	97	.05	36.33	653.94	51	19.10	343.82	4	1.50	26.97
		051	18.17	1438	1.15	26.38	417.58	625	11.47	181.49	114	2.09	33.10
		054	2.59	227	.17	29.21	447.26	73	9.40	143.83	11	1.42	21.67
		055	2.18	161	.12	24.62	461.67	47	7.19	134.77	3	.46	8.60
		057	5.04	235	.37	15.54	210.58	100	6.61	89.61	16	1.06	14.34
		059	2.40	165	.16	22.92	350.56	62	8.61	131.73	7	.97	14.87
		060	.90	131	.06	48.52	681.21	38	14.07	197.60	6	2.22	31.20

Popul. Density	No of Lanes	STH Route	Miles	No of Crashes (3 Yrs)	Annual Travel 100MVM	Crash per mile/ year	Crash per 100MVM	Non-int Crashes (3 Yrs)	Non-int Crash per mile/ year	Non-int Crash per 100MVM	ROR Crash (3 Yrs)	ROR Crash per mile/ year	ROR Crash per 100MVM
Urban	4	064	2.50	167	.13	22.27	419.62	66	8.80	165.84	11	1.47	27.64
		065	.15	22	.01	48.89	640.87	3	6.67	87.39	0	.00	.00
		066	1.12	61	.04	18.15	574.76	11	3.27	103.65	3	.89	28.27
		074	1.46	37	.07	8.45	187.41	18	4.11	91.17	2	.46	10.13
		096	4.23	148	.17	11.66	283.92	74	5.83	141.96	15	1.18	28.78
		105	.21	.	.00	.	.	.	.	.	.	.	.
		113	.19	17	.01	29.82	433.48	8	14.04	203.99	0	.00	.00
		114	2.48	278	.13	37.37	698.18	81	10.89	203.43	13	1.75	32.65
		120	.55	23	.03	13.94	277.75	11	6.67	132.84	1	.61	12.08
		125	.90	183	.09	67.78	713.10	79	29.26	307.84	4	1.48	15.59
		141	2.86	218	.19	25.41	381.10	95	11.07	166.08	21	2.45	36.71
		145	2.30	216	.16	31.30	460.24	64	9.28	136.37	7	1.01	14.92
		151	1.09	12	.06	3.67	70.09	6	1.83	35.05	0	.00	.00
		167	1.01	41	.05	13.53	281.06	13	4.29	89.12	1	.33	6.86
		175	2.14	36	.08	5.61	145.51	12	1.87	48.50	1	.16	4.04
		181	1.08	115	.07	35.49	534.51	37	11.42	171.97	3	.93	13.94
		213	1.42	65	.04	15.26	594.70	17	3.99	155.54	5	1.17	45.75
		794	1.98	22	.12	3.70	61.89	8	1.35	22.51	0	.00	.00
	Overall		154.69	11432	8.92	24.63	427.26	4320	9.31	161.45	569	1.23	21.27
Overall			569.94	25739	23.31	15.05	368.10	10031	5.87	143.46	1665	.97	23.81

Popul. Density	No of Lanes	STH Route	Miles	No of Crashes (3 Yrs)	Annual Travel 100MVM	Crash per mile/ year	Crash per 100MVM	Non-int Crashes (3 Yrs)	Non-int Crash per mile/ year	Non-int Crash per 100MVM	ROR Crash (3 Yrs)	ROR Crash per mile/ year	ROR Crash per 100MVM
All Undivided			9470.79	60310	139.54	2.12	144.07	31968	1.13	76.36	13461	.47	32.16

APPENDIX B

RUN-OFF-ROAD CRASH RATES FOR
SERIOUS OUTCOME
SLIPPERY PAVEMENT
DARK CONDITIONS
HORIZONTAL OR VERTICAL CURVE, AND
FIXED OBJECT
CRASHES ON
2- 3- and 4-LANE
URBAN AND RURAL
UNDIVIDED
STATE TRUNK HIGHWAYS

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Rural	2	002	96.05	1.98	129	21.72	46	7.75	65	10.95	67	11.28	16	2.69	72	12.13
		008	243.10	3.81	278	24.33	124	10.85	124	10.85	148	12.95	16	1.40	147	12.86
		010	240.98	4.81	332	23.02	141	9.78	152	10.54	159	11.02	50	3.47	211	14.63
		011	113.97	2.35	185	26.23	87	12.33	77	10.92	87	12.33	25	3.54	135	19.14
		012	238.43	4.03	463	38.30	207	17.12	179	14.81	210	17.37	89	7.36	296	24.48
		013	299.53	4.31	349	26.97	149	11.51	144	11.13	160	12.36	21	1.62	196	15.14
		014	158.02	4.17	347	27.76	142	11.36	158	12.64	175	14.00	27	2.16	225	18.00
		015	1.60	.07	5	22.31	2	8.93	3	13.39	2	8.93	0	.00	4	17.85
		016	95.56	1.73	144	27.75	60	11.56	61	11.76	70	13.49	15	2.89	90	17.34
		017	73.70	.98	97	32.98	44	14.96	48	16.32	39	13.26	10	3.40	60	20.40
		018	89.60	1.73	142	27.44	62	11.98	67	12.95	73	14.10	5	.97	99	19.13
		019	46.73	.89	94	35.08	41	15.30	39	14.55	40	14.93	18	6.72	58	21.65
		020	29.60	.49	66	44.94	25	17.02	33	22.47	32	21.79	17	11.58	48	32.69
		021	111.56	2.58	161	20.78	77	9.94	70	9.04	79	10.20	7	.90	87	11.23
		022	149.63	2.10	191	30.34	91	14.45	73	11.60	98	15.57	18	2.86	129	20.49
		023	164.65	2.96	240	27.07	96	10.83	105	11.84	98	11.05	28	3.16	142	16.02
		025	79.18	.88	90	34.19	39	14.82	41	15.58	46	17.48	13	4.94	50	19.00
		026	70.94	2.05	139	22.65	59	9.61	72	11.73	70	11.41	14	2.28	94	15.32
		027	242.23	2.17	234	35.89	127	19.48	83	12.73	106	16.26	29	4.45	125	19.17
		028	49.88	.63	70	37.30	24	12.79	36	19.18	39	20.78	10	5.33	48	25.58
		029	73.45	.76	77	33.95	26	11.46	28	12.35	39	17.20	8	3.53	46	20.28
		031	4.35	.28	16	19.23	5	6.01	5	6.01	9	10.82	3	3.61	11	13.22
		032	171.75	2.36	202	28.49	90	12.69	91	12.84	116	16.36	19	2.68	117	16.50
		033	162.71	2.67	258	32.26	117	14.63	108	13.50	137	17.13	36	4.50	146	18.26
		034	22.93	.30	24	27.02	11	12.39	10	11.26	14	15.76	1	1.13	11	12.39
		035	308.00	4.17	350	27.98	161	12.87	140	11.19	209	16.71	47	3.76	218	17.43
		036	6.57	.10	10	33.74	2	6.75	2	6.75	4	13.50	4	13.50	8	26.99
		037	40.17	.41	55	44.70	27	21.95	26	21.13	21	17.07	3	2.44	35	28.45
		038	5.03	.12	21	60.80	8	23.16	7	20.27	13	37.64	6	17.37	17	49.22
		039	40.84	.14	56	135.58	32	77.47	20	48.42	33	79.89	18	43.58	34	82.32
		040	79.42	.32	79	82.05	32	33.24	30	31.16	40	41.54	14	14.54	39	40.51
		041	15.19	.61	34	18.59	16	8.75	11	6.01	13	7.11	2	1.09	20	10.93
		042	110.43	1.57	139	29.54	56	11.90	73	15.51	62	13.17	13	2.76	94	19.97
		044	55.65	.60	55	30.66	22	12.27	21	11.71	27	15.05	4	2.23	34	18.96
		045	196.43	3.78	296	26.07	124	10.92	122	10.74	153	13.47	21	1.85	200	17.61
		046	27.93	.38	22	19.37	9	7.92	10	8.80	14	12.33	2	1.76	17	14.97
		047	116.65	1.81	154	28.40	68	12.54	69	12.72	85	15.67	14	2.58	84	15.49
		048	88.15	.76	70	30.67	36	15.77	30	13.14	32	14.02	9	3.94	37	16.21
		049	93.53	.89	107	39.99	47	17.56	42	15.70	57	21.30	13	4.86	75	28.03

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Rural	2	050	5.64	.21	21	33.67	9	14.43	7	11.22	14	22.44	2	3.21	12	19.24
		051	109.67	2.29	211	30.72	89	12.96	93	13.54	93	13.54	18	2.62	106	15.43
		052	57.60	.24	58	80.13	27	37.30	29	40.06	26	35.92	4	5.53	30	41.44
		053	65.51	.98	99	33.55	33	11.18	40	13.55	53	17.96	18	6.10	72	24.40
		054	172.71	2.13	193	30.23	94	14.72	80	12.53	97	15.19	20	3.13	126	19.73
		055	134.99	.79	107	45.34	55	23.31	40	16.95	51	21.61	19	8.05	66	27.97
		056	50.56	.22	84	124.50	41	60.77	37	54.84	41	60.77	29	42.98	57	84.48
		057	71.65	1.70	116	22.79	49	9.63	48	9.43	59	11.59	14	2.75	64	12.57
		058	52.84	.35	58	54.79	30	28.34	24	22.67	32	30.23	10	9.45	32	30.23
		059	85.54	1.26	129	34.20	64	16.97	58	15.38	63	16.70	16	4.24	92	24.39
		060	130.58	1.48	213	47.96	93	20.94	100	22.51	92	20.71	27	6.08	128	28.82
		061	65.19	.95	73	25.61	25	8.77	26	9.12	33	11.58	9	3.16	56	19.65
		063	171.64	2.71	192	23.64	93	11.45	79	9.73	95	11.70	8	.98	97	11.94
		064	234.17	1.69	193	38.15	82	16.21	84	16.60	94	18.58	16	3.16	109	21.55
		065	43.50	.60	67	37.15	26	14.42	34	18.85	35	19.41	10	5.54	41	22.73
		066	14.66	.20	36	58.56	15	24.40	14	22.77	19	30.91	9	14.64	23	37.42
		067	125.86	1.51	214	47.15	86	18.95	105	23.13	115	25.34	32	7.05	154	33.93
		068	8.49	.08	23	92.84	8	32.29	19	76.69	10	40.36	1	4.04	13	52.47
		069	36.47	.76	78	34.14	37	16.20	38	16.63	38	16.63	4	1.75	49	21.45
		070	213.06	1.86	142	25.42	71	12.71	61	10.92	82	14.68	14	2.51	78	13.96
		071	42.62	.31	64	68.07	33	35.10	24	25.52	40	42.54	20	21.27	39	41.48
		072	27.70	.12	28	76.32	11	29.98	15	40.89	16	43.61	12	32.71	20	54.52
		073	214.85	1.95	187	32.03	81	13.87	74	12.68	92	15.76	17	2.91	104	17.81
		075	12.10	.14	32	75.07	13	30.50	10	23.46	16	37.53	0	.00	23	53.96
		076	24.92	.16	43	89.47	19	39.53	14	29.13	30	62.42	5	10.40	27	56.18
		077	116.72	.48	70	48.89	34	23.75	21	14.67	33	23.05	13	9.08	41	28.64
		078	85.19	.54	127	77.72	65	39.78	50	30.60	54	33.05	49	29.99	74	45.29
		079	17.63	.10	14	47.68	7	23.84	5	17.03	5	17.03	1	3.41	10	34.06
		080	142.60	1.33	178	44.46	85	21.23	67	16.74	94	23.48	27	6.74	108	26.98
		081	85.38	.70	97	46.44	44	21.06	37	17.71	44	21.06	30	14.36	66	31.59
		082	84.05	.69	84	40.71	45	21.81	39	18.90	55	26.65	18	8.72	53	25.68
		083	50.01	1.21	168	46.26	70	19.27	84	23.13	85	23.40	28	7.71	126	34.69
		085	23.46	.23	33	47.73	16	23.14	20	28.92	15	21.69	10	14.46	25	36.16
		086	31.63	.12	11	29.53	4	10.74	2	5.37	8	21.48	0	.00	7	18.79
		087	22.26	.18	18	33.36	8	14.83	9	16.68	8	14.83	1	1.85	6	11.12
		088	29.75	.06	28	151.80	15	81.32	7	37.95	11	59.64	11	59.64	11	59.64
		089	44.33	.54	58	35.98	26	16.13	26	16.13	31	19.23	9	5.58	33	20.47
		091	16.50	.26	42	54.74	25	32.58	24	31.28	20	26.07	1	1.30	34	44.32
		092	27.12	.13	38	97.46	15	38.47	18	46.17	16	41.04	7	17.95	21	53.86

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Rural	2	093	51.89	.75	56	24.91	24	10.68	26	11.57	35	15.57	3	1.33	34	15.13
		095	71.49	.38	71	62.86	27	23.90	22	19.48	38	33.64	21	18.59	50	44.27
		096	27.04	.33	30	30.03	14	14.01	17	17.02	14	14.01	1	1.00	22	22.02
		097	33.87	.42	28	21.99	12	9.42	20	15.71	16	12.56	0	.00	18	14.14
		098	16.20	.17	6	11.74	4	7.82	4	7.82	2	3.91	1	1.96	2	3.91
		101	21.12	.06	8	43.02	5	26.89	4	21.51	4	21.51	1	5.38	2	10.76
		102	18.25	.06	13	74.46	7	40.09	7	40.09	8	45.82	4	22.91	7	40.09
		104	14.34	.11	28	85.28	16	48.73	6	18.27	16	48.73	3	9.14	15	45.69
		105	2.75	.02	2	32.19	1	16.10	2	32.19	1	16.10	0	.00	1	16.10
		106	27.39	.21	52	84.23	22	35.64	25	40.50	35	56.69	10	16.20	35	56.69
		107	44.19	.22	46	69.50	21	31.73	19	28.71	26	39.28	6	9.07	25	37.77
		108	17.89	.05	25	154.16	8	49.33	10	61.66	12	74.00	11	67.83	20	123.33
		110	41.26	.69	79	38.09	30	14.47	42	20.25	42	20.25	5	2.41	58	27.97
		111	10.61	.05	8	52.56	5	32.85	5	32.85	1	6.57	0	.00	4	26.28
		112	10.17	.05	3	18.61	0	.00	2	12.41	2	12.41	1	6.20	1	6.20
		113	26.28	.31	68	73.64	22	23.82	32	34.65	32	34.65	7	7.58	34	36.82
		114	8.88	.18	13	24.47	5	9.41	7	13.18	5	9.41	0	.00	11	20.71
		115	5.94	.02	10	161.01	6	96.61	3	48.30	6	96.61	1	16.10	6	96.61
		116	13.78	.16	16	33.29	5	10.40	7	14.56	6	12.48	0	.00	10	20.81
		117	5.13	.08	6	25.84	4	17.23	1	4.31	2	8.61	0	.00	2	8.61
		118	6.86	.02	5	86.22	2	34.49	2	34.49	2	34.49	0	.00	3	51.73
		120	15.44	.28	35	42.27	17	20.53	16	19.32	20	24.15	2	2.42	21	25.36
		121	34.75	.17	29	57.49	14	27.75	10	19.82	17	33.70	0	.00	17	33.70
		122	14.69	.01	4	117.25	1	29.31	3	87.94	3	87.94	1	29.31	1	29.31
		123	1.10	.01	3	92.25	2	61.50	0	.00	2	61.50	0	.00	2	61.50
		124	10.63	.12	8	21.74	3	8.15	0	.00	2	5.44	1	2.72	4	10.87
		126	4.81	.02	4	62.21	1	15.55	3	46.66	2	31.11	1	15.55	3	46.66
		127	12.75	.04	9	71.23	5	39.57	1	7.91	5	39.57	1	7.91	7	55.40
		128	27.04	.15	30	65.91	14	30.76	14	30.76	16	35.15	7	15.38	22	48.33
		129	2.69	.03	.	.	.	.	.	.	.	.	.	.	.	.
		130	30.73	.09	28	109.31	14	54.66	8	31.23	13	50.75	10	39.04	19	74.18
		131	70.19	.34	70	69.52	34	33.77	24	23.83	40	39.72	22	21.85	38	37.74
		133	72.01	.35	94	90.12	32	30.68	46	44.10	44	42.18	18	17.26	58	55.61
		134	2.85	.01	10	356.83	8	285.47	3	107.05	6	214.10	3	107.05	6	214.10
		136	12.53	.11	28	84.57	9	27.18	9	27.18	13	39.26	7	21.14	14	42.28
		137	3.74	.	.	.	.	.	.	.	.	.	.	.	.	.
		138	11.66	.21	21	32.90	7	10.97	6	9.40	11	17.23	2	3.13	15	23.50
		139	22.01	.08	9	37.73	5	20.96	4	16.77	5	20.96	3	12.58	3	12.58
		140	11.25	.14	33	81.12	14	34.42	24	59.00	16	39.33	10	24.58	16	39.33

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Rural	2	141	61.92	1.61	107	22.15	40	8.28	37	7.66	55	11.39	15	3.11	66	13.66
		142	16.31	.18	26	47.16	12	21.76	9	16.32	13	23.58	1	1.81	16	29.02
		144	19.45	.25	48	65.15	21	28.50	17	23.08	24	32.58	13	17.65	33	44.79
		145	.41	.01	3	179.15	2	119.43	0	.00	2	119.43	2	119.43	3	179.15
		146	13.22	.04	7	58.77	3	25.19	3	25.19	4	33.58	3	25.19	3	25.19
		147	12.65	.13	21	55.81	12	31.89	9	23.92	9	23.92	1	2.66	12	31.89
		149	24.15	.12	32	90.96	8	22.74	16	45.48	12	34.11	12	34.11	24	68.22
		150	6.65	.12	9	24.61	1	2.73	8	21.87	7	19.14	0	.00	5	13.67
		151	91.26	2.05	221	35.89	103	16.73	110	17.87	97	15.75	29	4.71	127	20.63
		152	7.22	.02	3	45.17	1	15.06	1	15.06	2	30.11	1	15.06	2	30.11
		153	60.24	.57	60	35.28	18	10.58	28	16.46	27	15.87	2	1.18	48	28.22
		154	19.00	.08	20	84.74	8	33.90	5	21.18	10	42.37	8	33.90	14	59.32
		155	6.94	.06	7	36.96	2	10.56	3	15.84	4	21.12	1	5.28	3	15.84
		156	26.23	.15	21	46.77	10	22.27	7	15.59	11	24.50	0	.00	13	28.95
		159	1.29	.01	1	35.40	0	.00	1	35.40	0	.00	0	.00	1	35.40
		160	3.22	.03	1	9.87	0	.00	0	.00	1	9.87	0	.00	0	.00
		161	21.58	.11	26	78.94	9	27.32	11	33.40	13	39.47	1	3.04	18	54.65
		162	40.88	.14	65	158.53	32	78.04	27	65.85	42	102.43	21	51.22	33	80.48
		164	25.65	.82	46	18.65	16	6.49	21	8.51	24	9.73	1	.41	28	11.35
		165	.78	.03	.	.	.	.	.	.	.	.	.	.	.	.
		167	9.41	.14	27	66.15	6	14.70	10	24.50	16	39.20	15	36.75	22	53.90
		168	5.93	.02	3	63.12	1	21.04	0	.00	1	21.04	0	.00	3	63.12
		169	17.36	.03	2	24.97	0	.00	1	12.49	1	12.49	0	.00	2	24.97
		170	23.90	.14	34	81.58	17	40.79	11	26.40	20	47.99	4	9.60	20	47.99
		171	33.25	.08	42	173.24	19	78.37	17	70.12	18	74.24	18	74.24	31	127.87
		172	1.40	.05	.	.	.	.	.	.	.	.	.	.	.	.
		173	33.55	.23	29	42.27	13	18.95	13	18.95	16	23.32	2	2.92	19	27.70
		175	46.56	.49	123	84.12	48	32.83	50	34.20	64	43.77	9	6.16	91	62.24
		178	20.09	.19	43	76.61	22	39.20	20	35.63	24	42.76	8	14.25	30	53.45
		179	8.80	.02	7	120.87	5	86.34	3	51.80	5	86.34	3	51.80	4	69.07
		180	29.94	.24	37	52.36	14	19.81	13	18.40	22	31.13	5	7.08	27	38.21
		182	29.65	.10	10	33.49	6	20.09	5	16.75	6	20.09	0	.00	7	23.44
		186	15.01	.11	9	26.63	4	11.84	3	8.88	6	17.75	0	.00	6	17.75
		187	13.87	.02	16	249.33	10	155.83	2	31.17	12	187.00	1	15.58	12	187.00
		188	10.55	.04	14	106.77	7	53.39	4	30.51	7	53.39	3	22.88	8	61.01
		191	13.04	.04	17	147.22	6	51.96	8	69.28	8	69.28	5	43.30	10	86.60
		193	1.42	.01	.	.	.	.	.	.	.	.	.	.	.	.
		194	11.32	.03	10	116.92	8	93.54	1	11.69	6	70.15	1	11.69	3	35.08
		213	19.33	.17	55	107.53	27	52.79	30	58.65	26	50.83	19	37.15	34	66.47

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Rural	2	243	.30	.01	1	60.40	1	60.40	0	.00	0	.00	0	.00	1	60.40
		253	7.61	.03	2	24.98	1	12.49	1	12.49	0	.00	0	.00	1	12.49
		310	6.69	.13	13	34.41	6	15.88	7	18.53	6	15.88	0	.00	5	13.23
		351	2.31	.08	15	65.71	3	13.14	14	61.33	7	30.66	0	.00	12	52.57
	Overall		8819.81	113.38	11629	34.19	5117	15.04	4997	14.69	5839	17.17	1571	4.62	7195	21.15

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Rural	3	010	.35	.01	2	90.90	1	45.45	1	45.45	1	45.45	1	45.45	2	90.90
		012	2.00	.05	4	27.51	2	13.75	3	20.63	2	13.75	0	.00	1	6.88
		013	2.46	.06	6	31.54	1	5.26	5	26.28	4	21.02	0	.00	3	15.77
		014	.26	.01	2	62.65	0	.00	1	31.32	2	62.65	1	31.32	2	62.65
		023	1.00	.02	3	41.38	1	13.79	2	27.59	2	27.59	0	.00	3	41.38
		033	5.58	.15	12	27.56	5	11.48	8	18.37	8	18.37	1	2.30	8	18.37
		035	1.03	.04	10	75.85	1	7.58	7	53.09	6	45.51	0	.00	6	45.51
		045	.22	.00	1	110.11	1	110.11	0	.00	1	110.11	0	.00	0	.00
		051	.32	.01	.	.	.	.	.	.	.	.	.	.	.	.
		054	.12	.00	.	.	.	.	.	.	.	.	.	.	.	.
		057	.14	.00	1	79.36	0	.00	0	.00	1	79.36	0	.00	1	79.36
		061	.62	.03	2	24.65	0	.00	1	12.33	1	12.33	0	.00	1	12.33
		078	.17	.00	.	.	.	.	.	.	.	.	.	.	.	.
		080	.41	.01	1	38.57	0	.00	0	.00	1	38.57	0	.00	1	38.57
		110	.33	.00	.	.	.	.	.	.	.	.	.	.	.	.
		113	.13	.00	.	.	.	.	.	.	.	.	.	.	.	.
		141	.62	.02	1	15.76	0	.00	0	.00	0	.00	0	.00	0	.00
	Overall		15.76	.43	45	35.12	12	9.36	28	21.85	29	22.63	3	2.34	28	21.85

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Rural	4	008	3.68	.16	3	6.07	2	4.05	2	4.05	2	4.05	0	.00	1	2.02
		010	1.78	.06	8	42.54	5	26.59	6	31.90	4	21.27	6	31.90	5	26.59
		012	3.15	.23	10	14.66	7	10.26	2	2.93	3	4.40	1	1.47	6	8.80
		013	6.83	.30	13	14.69	2	2.26	9	10.17	6	6.78	0	.00	9	10.17
		014	1.62	.08	3	12.69	0	.00	1	4.23	1	4.23	0	.00	3	12.69
		017	1.97	.03	2	23.16	1	11.58	1	11.58	1	11.58	0	.00	2	23.16
		019	.28	.01	.	.	.	.	.	.	.	.	.	.	.	.
		020	.42	.01	.	.	.	.	.	.	.	.	.	.	.	.
		021	1.09	.04	.	.	.	.	.	.	.	.	.	.	.	.
		023	.37	.00	.	.	.	.	.	.	.	.	.	.	.	.
		027	.19	.01	.	.	.	.	.	.	.	.	.	.	.	.
		033	.11	.01	.	.	.	.	.	.	.	.	.	.	.	.
		041	2.92	.14	9	21.45	5	11.92	5	11.92	3	7.15	0	.00	7	16.68
		045	9.23	.38	16	13.97	5	4.36	5	4.36	8	6.98	1	.87	11	9.60
		046	1.82	.05	2	12.20	1	6.10	1	6.10	0	.00	0	.00	2	12.20
		047	.61	.01	.	.	.	.	.	.	.	.	.	.	.	.
		048	.31	.00	.	.	.	.	.	.	.	.	.	.	.	.
		051	15.83	.64	42	21.96	16	8.37	19	9.93	19	9.93	3	1.57	29	15.16
		054	.27	.01	1	42.03	1	42.03	0	.00	0	.00	0	.00	0	.00
		063	1.88	.05	2	13.63	1	6.82	2	13.63	1	6.82	0	.00	2	13.63
		064	2.92	.02	2	33.55	1	16.78	1	16.78	1	16.78	1	16.78	2	33.55
		070	2.10	.04	2	18.74	0	.00	2	18.74	1	9.37	0	.00	2	18.74
		082	.32	.01	.	.	.	.	.	.	.	.	.	.	.	.
		086	.36	.02	1	18.34	0	.00	0	.00	0	.00	0	.00	0	.00
		089	.09	.00	.	.	.	.	.	.	.	.	.	.	.	.
		093	.50	.01	1	57.89	1	57.89	0	.00	1	57.89	0	.00	1	57.89
		095	.32	.00	.	.	.	.	.	.	.	.	.	.	.	.
		107	.43	.01	.	.	.	.	.	.	.	.	.	.	.	.
		110	.93	.01	1	47.37	0	.00	1	47.37	1	47.37	0	.00	1	47.37
		113	.12	.00	1	430.21	0	.00	0	.00	0	.00	0	.00	0	.00
		141	1.46	.04	2	16.03	0	.00	0	.00	2	16.03	0	.00	2	16.03
		151	1.37	.04	1	7.63	0	.00	1	7.63	0	.00	0	.00	1	7.63
	Overall		65.28	2.43	122	16.74	48	6.59	58	7.96	54	7.41	12	1.65	86	11.80
Overall			8900.85	116.23	11796	33.83	5177	14.85	5083	14.58	5922	16.98	1586	4.55	7309	20.96

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Urban	2	002	.49	.01	.	.	.	.	.	.	.	.	.	.	.	.
		010	1.64	.03	4	39.64	1	9.91	2	19.82	2	19.82	0	.00	4	39.64
		011	11.89	.31	32	34.11	11	11.73	9	9.59	10	10.66	3	3.20	26	27.72
		012	7.62	.26	18	22.83	7	8.88	9	11.42	5	6.34	1	1.27	13	16.49
		013	4.31	.11	7	21.01	3	9.00	2	6.00	3	9.00	0	.00	3	9.00
		014	5.35	.25	8	10.73	2	2.68	4	5.36	2	2.68	0	.00	7	9.39
		016	11.00	.37	24	21.63	8	7.21	8	7.21	15	13.52	0	.00	16	14.42
		017	3.84	.14	11	27.16	4	9.88	4	9.88	6	14.81	2	4.94	7	17.28
		018	6.95	.26	13	16.92	3	3.90	6	7.81	7	9.11	2	2.60	11	14.32
		019	6.75	.31	10	10.74	3	3.22	4	4.30	5	5.37	1	1.07	9	9.67
		020	.61	.04	6	57.07	2	19.02	3	28.54	3	28.54	2	19.02	6	57.07
		021	2.97	.10	5	16.63	3	9.98	1	3.33	2	6.65	0	.00	2	6.65
		022	6.13	.15	5	11.44	1	2.29	1	2.29	2	4.58	0	.00	3	6.86
		023	4.36	.17	21	40.41	8	15.39	11	21.17	11	21.17	0	.00	19	36.56
		025	2.10	.08	6	25.90	3	12.95	3	12.95	2	8.63	1	4.32	4	17.27
		026	6.41	.27	9	11.30	2	2.51	4	5.02	6	7.54	0	.00	6	7.54
		027	2.84	.10	12	38.81	4	12.94	8	25.87	8	25.87	0	.00	10	32.34
		028	4.18	.12	5	13.91	1	2.78	2	5.56	3	8.34	1	2.78	3	8.34
		029	8.57	.36	28	26.06	10	9.31	19	17.69	10	9.31	3	2.79	18	16.75
		031	4.00	.18	13	23.53	9	16.29	2	3.62	5	9.05	0	.00	10	18.10
		032	38.37	1.61	142	29.43	61	12.64	51	10.57	71	14.71	4	.83	116	24.04
		033	11.32	.39	35	29.97	14	11.99	13	11.13	20	17.12	3	2.57	25	21.41
		034	.06	.00	.	.	.	.	.	.	.	.	.	.	.	.
		035	10.31	.45	26	19.26	7	5.18	8	5.93	17	12.59	1	.74	19	14.07
		036	2.65	.11	7	21.65	2	6.19	3	9.28	4	12.37	0	.00	7	21.65
		038	5.84	.20	28	47.37	15	25.38	10	16.92	12	20.30	2	3.38	21	35.53
		042	2.16	.07	4	19.01	2	9.50	3	14.25	0	.00	0	.00	4	19.01
		044	2.40	.07	3	13.60	0	.00	1	4.53	0	.00	0	.00	3	13.60
		045	13.06	.32	41	43.13	18	18.93	15	15.78	20	21.04	1	1.05	33	34.71
		047	3.31	.11	7	20.39	2	5.83	2	5.83	4	11.65	0	.00	6	17.48
		048	1.06	.01	4	90.45	0	.00	1	22.61	4	90.45	0	.00	4	90.45
		049	6.50	.20	10	16.31	3	4.89	5	8.15	6	9.78	0	.00	10	16.31
		050	4.47	.23	19	27.78	7	10.23	4	5.85	12	17.55	3	4.39	15	21.93
		051	10.16	.44	36	27.31	11	8.34	19	14.41	14	10.62	5	3.79	30	22.76
		052	4.12	.06	3	15.55	1	5.18	3	15.55	1	5.18	0	.00	3	15.55
		054	9.58	.28	16	19.37	6	7.27	11	13.32	13	15.74	0	.00	13	15.74
		055	1.45	.05	2	14.38	0	.00	1	7.19	1	7.19	0	.00	1	7.19
		057	7.02	.33	12	12.09	3	3.02	5	5.04	3	3.02	0	.00	11	11.08
		059	9.26	.44	44	33.35	12	9.09	17	12.88	29	21.98	0	.00	33	25.01

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Urban	2	060	3.67	.17	3	5.88	1	1.96	2	3.92	0	.00	1	1.96	1	1.96
		064	8.58	.28	10	11.82	2	2.36	3	3.55	5	5.91	0	.00	8	9.45
		065	5.62	.17	9	17.66	5	9.81	1	1.96	4	7.85	0	.00	7	13.74
		066	2.26	.06	5	26.68	2	10.67	4	21.34	3	16.01	0	.00	3	16.01
		067	5.35	.13	11	27.22	3	7.42	2	4.95	4	9.90	0	.00	5	12.37
		068	1.02	.01	1	31.09	0	.00	1	31.09	1	31.09	0	.00	1	31.09
		069	.04	.00	.	.	.	.	.	.	.	.	.	.	.	.
		071	.11	.00	.	.	.	.	.	.	.	.	.	.	.	.
		073	.93	.02	2	34.79	2	34.79	0	.00	1	17.40	0	.00	2	34.79
		074	5.40	.22	11	16.74	1	1.52	7	10.65	6	9.13	1	1.52	8	12.17
		077	4.34	.07	7	34.57	0	.00	1	4.94	6	29.63	1	4.94	4	19.76
		080	5.88	.06	13	67.82	5	26.09	1	5.22	6	31.30	1	5.22	9	46.96
		081	4.35	.14	17	39.53	6	13.95	2	4.65	10	23.25	1	2.33	11	25.58
		083	8.15	.25	28	37.05	15	19.85	9	11.91	12	15.88	2	2.65	17	22.49
		089	1.28	.03	3	35.79	0	.00	0	.00	0	.00	0	.00	3	35.79
		091	1.21	.03	4	50.64	0	.00	1	12.66	1	12.66	0	.00	3	37.98
		093	.52	.04	4	37.47	0	.00	4	37.47	4	37.47	2	18.73	3	28.10
		096	5.31	.24	14	19.82	8	11.33	3	4.25	5	7.08	0	.00	12	16.99
		100	7.36	.35	17	16.42	9	8.69	5	4.83	14	13.52	1	.97	12	11.59
		105	1.76	.01	1	25.67	1	25.67	0	.00	1	25.67	1	25.67	0	.00
		106	1.83	.04	1	9.48	0	.00	0	.00	0	.00	0	.00	1	9.48
		107	2.70	.02	4	55.86	1	13.97	1	13.97	2	27.93	0	.00	3	41.90
		110	2.14	.08	9	35.54	2	7.90	4	15.80	5	19.75	0	.00	7	27.65
		112	2.41	.02	1	20.06	1	20.06	0	.00	1	20.06	0	.00	1	20.06
		113	2.38	.05	5	36.35	1	7.27	3	21.81	2	14.54	3	21.81	5	36.35
		114	2.30	.09	1	3.75	0	.00	1	3.75	1	3.75	0	.00	0	.00
		120	3.50	.11	18	52.59	10	29.21	8	23.37	5	14.61	1	2.92	15	43.82
		123	1.71	.05	4	27.62	1	6.91	1	6.91	3	20.72	0	.00	4	27.62
		124	1.89	.04	11	98.05	4	35.66	4	35.66	5	44.57	5	44.57	11	98.05
		127	1.41	.01	2	66.46	1	33.23	2	66.46	1	33.23	1	33.23	2	66.46
		131	.95	.03	1	10.86	0	.00	1	10.86	1	10.86	0	.00	1	10.86
		136	.51	.01	.	.	.	.	.	.	.	.	.	.	.	.
		137	2.51	.	.	.	.	.	.	.	.	.	.	.	.	.
		138	.32	.00	.	.	.	.	.	.	.	.	.	.	.	.
		141	2.27	.07	2	9.38	0	.00	1	4.69	1	4.69	0	.00	2	9.38
		142	.91	.01	.	.	.	.	.	.	.	.	.	.	.	.
		144	.82	.03	2	20.93	1	10.46	0	.00	0	.00	0	.00	2	20.93
		145	8.60	.17	10	20.06	7	14.04	4	8.02	5	10.03	2	4.01	10	20.06
		147	2.06	.07	2	10.08	2	10.08	1	5.04	1	5.04	0	.00	2	10.08

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Urban	2	151	7.01	.30	24	26.49	7	7.73	11	12.14	11	12.14	1	1.10	18	19.87
		157	1.29	.04	3	24.06	0	.00	0	.00	0	.00	0	.00	3	24.06
		158	2.31	.11	7	20.96	1	2.99	3	8.98	5	14.97	1	2.99	4	11.98
		164	1.70	.08	.	.	.	.	.	.	.	.	.	.	.	.
		165	3.45	.04	10	82.72	6	49.63	4	33.09	5	41.36	0	.00	8	66.18
		167	3.72	.18	4	7.44	1	1.86	2	3.72	0	.00	0	.00	2	3.72
		172	.94	.03	4	42.85	2	21.42	1	10.71	2	21.42	0	.00	3	32.13
		173	1.89	.04	1	8.13	1	8.13	0	.00	0	.00	0	.00	1	8.13
		175	6.18	.27	27	32.89	6	7.31	10	12.18	13	15.84	6	7.31	24	29.24
		178	2.13	.06	3	16.59	0	.00	2	11.06	1	5.53	1	5.53	3	16.59
		180	.48	.01	1	37.23	1	37.23	0	.00	1	37.23	0	.00	1	37.23
		181	8.47	.34	33	32.70	8	7.93	19	18.83	16	15.85	6	5.95	28	27.74
		190	.42	.01	.	.	.	.	.	.	.	.	.	.	.	.
		213	1.94	.03	8	80.02	5	50.01	1	10.00	1	10.00	0	.00	4	40.01
		310	1.32	.03	2	22.00	1	11.00	1	11.00	1	11.00	1	11.00	0	.00
	Overall		402.72	13.74	1036	25.14	379	9.20	405	9.83	510	12.37	74	1.80	805	19.53

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Urban	3	012	1.59	.12	7	19.60	0	.00	4	11.20	3	8.40	0	.00	7	19.60
		013	.40	.02	2	42.64	0	.00	1	21.32	0	.00	0	.00	1	21.32
		020	1.60	.11	13	38.88	5	14.95	6	17.94	8	23.93	0	.00	11	32.90
		021	.36	.01	.	.	.	.	.	.	.	.	.	.	.	.
		022	.76	.03	1	12.89	0	.00	0	.00	1	12.89	0	.00	1	12.89
		026	.06	.00	.	.	.	.	.	.	.	.	.	.	.	.
		029	.08	.00	2	194.31	0	.00	1	97.15	0	.00	1	97.15	2	194.31
		032	.37	.02	3	56.72	1	18.91	1	18.91	2	37.81	0	.00	2	37.81
		035	.36	.02	1	15.58	1	15.58	0	.00	1	15.58	0	.00	1	15.58
		038	.83	.03	8	83.00	2	20.75	3	31.12	4	41.50	0	.00	6	62.25
		041	.87	.09	2	7.74	0	.00	1	3.87	1	3.87	0	.00	2	7.74
		044	.68	.03	5	49.49	3	29.70	1	9.90	2	19.80	0	.00	4	39.59
		054	.96	.03	2	22.19	1	11.09	1	11.09	2	22.19	0	.00	2	22.19
		057	.25	.01	1	23.00	0	.00	1	23.00	0	.00	0	.00	1	23.00
		059	.53	.03	3	33.96	0	.00	2	22.64	2	22.64	0	.00	3	33.96
		073	1.17	.02	6	84.13	1	14.02	2	28.04	4	56.08	1	14.02	6	84.13
		074	.43	.02	1	21.03	0	.00	0	.00	0	.00	0	.00	1	21.03
		114	.27	.02	1	18.24	0	.00	0	.00	0	.00	0	.00	1	18.24
		144	.20	.01	.	.	.	.	.	.	.	.	.	.	.	.
		181	.51	.01	1	26.13	0	.00	1	26.13	0	.00	0	.00	0	.00
		190	.25	.02	1	22.07	0	.00	0	.00	0	.00	0	.00	1	22.07
	Overall		12.53	.65	60	30.76	14	7.18	25	12.82	30	15.38	2	1.03	52	26.66

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Urban	4	002	4.98	.27	10	12.38	2	2.48	5	6.19	7	8.67	0	.00	9	11.14
		010	1.85	.10	2	6.96	0	.00	1	3.48	2	6.96	0	.00	0	.00
		011	4.96	.37	21	18.96	10	9.03	5	4.51	6	5.42	0	.00	12	10.83
		012	4.43	.30	18	20.27	3	3.38	11	12.39	7	7.88	0	.00	15	16.90
		013	3.64	.19	14	24.98	4	7.14	3	5.35	6	10.70	2	3.57	12	21.41
		014	2.41	.18	1	1.81	0	.00	1	1.81	0	.00	1	1.81	1	1.81
		016	3.11	.20	15	24.85	2	3.31	5	8.28	7	11.60	1	1.66	12	19.88
		017	1.75	.07	1	4.59	1	4.59	1	4.59	1	4.59	0	.00	1	4.59
		018	4.70	.32	5	5.21	4	4.17	1	1.04	1	1.04	0	.00	3	3.13
		019	.18	.01	1	58.52	0	.00	0	.00	0	.00	0	.00	1	58.52
		020	.74	.04	3	22.72	0	.00	1	7.57	3	22.72	0	.00	3	22.72
		021	1.94	.14	9	20.90	4	9.29	5	11.61	3	6.97	0	.00	9	20.90
		022	3.89	.16	9	19.25	5	10.70	4	8.56	5	10.70	0	.00	4	8.56
		023	2.43	.14	17	41.72	4	9.82	9	22.09	5	12.27	0	.00	15	36.82
		025	.25	.01	.	.	.	.	.	.	.	.	.	.	.	.
		026	2.19	.15	19	41.47	9	19.64	12	26.19	8	17.46	2	4.37	16	34.92
		028	2.42	.15	7	15.29	1	2.18	4	8.74	4	8.74	0	.00	6	13.11
		029	2.56	.16	11	23.04	3	6.28	3	6.28	5	10.47	0	.00	9	18.85
		032	14.47	.71	81	38.24	38	17.94	30	14.16	52	24.55	3	1.42	64	30.22
		033	5.70	.30	15	16.67	6	6.67	7	7.78	11	12.22	0	.00	12	13.34
		035	5.26	.32	10	10.53	1	1.05	5	5.27	5	5.27	0	.00	7	7.37
		038	.19	.01	2	66.80	0	.00	1	33.40	1	33.40	0	.00	2	66.80
		041	2.93	.21	5	7.80	4	6.24	1	1.56	3	4.68	0	.00	4	6.24
		042	2.03	.09	6	21.88	0	.00	1	3.65	5	18.24	0	.00	5	18.24
		044	1.64	.08	2	8.15	1	4.08	0	.00	1	4.08	0	.00	2	8.15
		045	8.48	.41	27	21.97	12	9.77	4	3.26	13	10.58	0	.00	23	18.72
		047	4.55	.28	8	9.62	4	4.81	3	3.61	5	6.01	0	.00	8	9.62
		048	.85	.02	1	13.84	0	.00	1	13.84	0	.00	1	13.84	1	13.84
		049	.32	.01	1	22.63	0	.00	0	.00	0	.00	0	.00	0	.00
		050	.89	.05	4	26.97	0	.00	2	13.48	3	20.22	0	.00	4	26.97
		051	18.17	1.15	114	33.10	45	13.07	51	14.81	56	16.26	16	4.65	85	24.68
		054	2.59	.17	11	21.67	6	11.82	2	3.94	8	15.76	2	3.94	9	17.73
		055	2.18	.12	3	8.60	0	.00	0	.00	0	.00	1	2.87	2	5.73
		057	5.04	.37	16	14.34	1	.90	6	5.38	7	6.27	3	2.69	12	10.75
		059	2.40	.16	7	14.87	2	4.25	2	4.25	4	8.50	0	.00	7	14.87
		060	.90	.06	6	31.20	1	5.20	2	10.40	2	10.40	0	.00	4	20.80
		064	2.50	.13	11	27.64	3	7.54	5	12.56	1	2.51	0	.00	8	20.10
		065	.15	.01	.	.	.	.	.	.	.	.	.	.	.	.
		066	1.12	.04	3	28.27	0	.00	2	18.84	3	28.27	0	.00	3	28.27

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
Urban	4	074	1.46	.07	2	10.13	0	.00	1	5.07	1	5.07	0	.00	2	10.13
		096	4.23	.17	15	28.78	6	11.51	8	15.35	7	13.43	0	.00	13	24.94
		105	.21	.00	.	.	.	.	.	.	.	.	.	.	.	.
		113	.19	.01	.	.	.	.	.	.	.	.	.	.	.	.
		114	2.48	.13	13	32.65	7	17.58	5	12.56	8	20.09	0	.00	12	30.14
		120	.55	.03	1	12.08	0	.00	0	.00	1	12.08	0	.00	1	12.08
		125	.90	.09	4	15.59	1	3.90	2	7.79	3	11.69	0	.00	4	15.59
		141	2.86	.19	21	36.71	9	15.73	10	17.48	20	34.96	2	3.50	15	26.22
		145	2.30	.16	7	14.92	4	8.52	0	.00	2	4.26	0	.00	3	6.39
		151	1.09	.06	.	.	.	.	.	.	.	.	.	.	.	.
		167	1.01	.05	1	6.86	1	6.86	0	.00	0	.00	0	.00	0	.00
		175	2.14	.08	1	4.04	1	4.04	0	.00	0	.00	0	.00	1	4.04
		181	1.08	.07	3	13.94	0	.00	2	9.30	0	.00	0	.00	2	9.30
		213	1.42	.04	5	45.75	1	9.15	2	18.30	4	36.60	1	9.15	5	45.75
		794	1.98	.12	.	.	.	.	.	.	.	.	.	.	.	.
	Overall		154.69	8.92	569	21.27	206	7.70	226	8.45	296	11.06	35	1.31	448	16.74
Overall			569.94	23.31	1665	23.81	599	8.57	656	9.38	836	11.96	111	1.59	1305	18.66

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per 100MVM	Inj+K Crash (3_Yrs)	Inj+K Crash per 100MVM	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per 100MVM	Dark Crashes (3_Yrs)	Dark Crash per 100MVM	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per 100MVM	Fixed obj Crash (3_Yrs)	Fixed obj Crash per 100MVM
All Undivided			9470.79	139.54	13461	32.16	5776	13.80	5739	13.71	6758	16.14	1697	4.05	8614	20.58

APPENDIX C

RUN-OFF-ROAD CRASH DENSITIES FOR
SERIOUS OUTCOME
SLIPPERY PAVEMENT
DARK CONDITIONS
HORIZONTAL OR VERTICAL CURVE, AND
FIXED OBJECT
CRASHES ON
2- 3- and 4-LANE
URBAN AND RURAL
UNDIVIDED
STATE TRUNK HIGHWAYS

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Rural	2	002	96.05	1.98	129	.45	46	.16	65	.23	67	.23	16	.06	72	.25
		008	243.10	3.81	278	.38	124	.17	124	.17	148	.20	16	.02	147	.20
		010	240.98	4.81	332	.46	141	.20	152	.21	159	.22	50	.07	211	.29
		011	113.97	2.35	185	.54	87	.25	77	.23	87	.25	25	.07	135	.39
		012	238.43	4.03	463	.65	207	.29	179	.25	210	.29	89	.12	296	.41
		013	299.53	4.31	349	.39	149	.17	144	.16	160	.18	21	.02	196	.22
		014	158.02	4.17	347	.73	142	.30	158	.33	175	.37	27	.06	225	.47
		015	1.60	.07	5	1.04	2	.42	3	.63	2	.42	0	.00	4	.83
		016	95.56	1.73	144	.50	60	.21	61	.21	70	.24	15	.05	90	.31
		017	73.70	.98	97	.44	44	.20	48	.22	39	.18	10	.05	60	.27
		018	89.60	1.73	142	.53	62	.23	67	.25	73	.27	5	.02	99	.37
		019	46.73	.89	94	.67	41	.29	39	.28	40	.29	18	.13	58	.41
		020	29.60	.49	66	.74	25	.28	33	.37	32	.36	17	.19	48	.54
		021	111.56	2.58	161	.48	77	.23	70	.21	79	.24	7	.02	87	.26
		022	149.63	2.10	191	.43	91	.20	73	.16	98	.22	18	.04	129	.29
		023	164.65	2.96	240	.49	96	.19	105	.21	98	.20	28	.06	142	.29
		025	79.18	.88	90	.38	39	.16	41	.17	46	.19	13	.05	50	.21
		026	70.94	2.05	139	.65	59	.28	72	.34	70	.33	14	.07	94	.44
		027	242.23	2.17	234	.32	127	.17	83	.11	106	.15	29	.04	125	.17
		028	49.88	.63	70	.47	24	.16	36	.24	39	.26	10	.07	48	.32
		029	73.45	.76	77	.35	26	.12	28	.13	39	.18	8	.04	46	.21
		031	4.35	.28	16	1.23	5	.38	5	.38	9	.69	3	.23	11	.84
		032	171.75	2.36	202	.39	90	.17	91	.18	116	.23	19	.04	117	.23
		033	162.71	2.67	258	.53	117	.24	108	.22	137	.28	36	.07	146	.30
		034	22.93	.30	24	.35	11	.16	10	.15	14	.20	1	.01	11	.16
		035	308.00	4.17	350	.38	161	.17	140	.15	209	.23	47	.05	218	.24
		036	6.57	.10	10	.51	2	.10	2	.10	4	.20	4	.20	8	.41
		037	40.17	.41	55	.46	27	.22	26	.22	21	.17	3	.02	35	.29
		038	5.03	.12	21	1.39	8	.53	7	.46	13	.86	6	.40	17	1.13
		039	40.84	.14	56	.46	32	.26	20	.16	33	.27	18	.15	34	.28
		040	79.42	.32	79	.33	32	.13	30	.13	40	.17	14	.06	39	.16
		041	15.19	.61	34	.75	16	.35	11	.24	13	.29	2	.04	20	.44
		042	110.43	1.57	139	.42	56	.17	73	.22	62	.19	13	.04	94	.28
		044	55.65	.60	55	.33	22	.13	21	.13	27	.16	4	.02	34	.20
		045	196.43	3.78	296	.50	124	.21	122	.21	153	.26	21	.04	200	.34
		046	27.93	.38	22	.26	9	.11	10	.12	14	.17	2	.02	17	.20
		047	116.65	1.81	154	.44	68	.19	69	.20	85	.24	14	.04	84	.24
		048	88.15	.76	70	.26	36	.14	30	.11	32	.12	9	.03	37	.14
		049	93.53	.89	107	.38	47	.17	42	.15	57	.20	13	.05	75	.27

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Rural	2	050	5.64	.21	21	1.24	9	.53	7	.41	14	.83	2	.12	12	.71
		051	109.67	2.29	211	.64	89	.27	93	.28	93	.28	18	.05	106	.32
		052	57.60	.24	58	.34	27	.16	29	.17	26	.15	4	.02	30	.17
		053	65.51	.98	99	.50	33	.17	40	.20	53	.27	18	.09	72	.37
		054	172.71	2.13	193	.37	94	.18	80	.15	97	.19	20	.04	126	.24
		055	134.99	.79	107	.26	55	.14	40	.10	51	.13	19	.05	66	.16
		056	50.56	.22	84	.55	41	.27	37	.24	41	.27	29	.19	57	.38
		057	71.65	1.70	116	.54	49	.23	48	.22	59	.27	14	.07	64	.30
		058	52.84	.35	58	.37	30	.19	24	.15	32	.20	10	.06	32	.20
		059	85.54	1.26	129	.50	64	.25	58	.23	63	.25	16	.06	92	.36
		060	130.58	1.48	213	.54	93	.24	100	.26	92	.23	27	.07	128	.33
		061	65.19	.95	73	.37	25	.13	26	.13	33	.17	9	.05	56	.29
		063	171.64	2.71	192	.37	93	.18	79	.15	95	.18	8	.02	97	.19
		064	234.17	1.69	193	.27	82	.12	84	.12	94	.13	16	.02	109	.16
		065	43.50	.60	67	.51	26	.20	34	.26	35	.27	10	.08	41	.31
		066	14.66	.20	36	.82	15	.34	14	.32	19	.43	9	.20	23	.52
		067	125.86	1.51	214	.57	86	.23	105	.28	115	.30	32	.08	154	.41
		068	8.49	.08	23	.90	8	.31	19	.75	10	.39	1	.04	13	.51
		069	36.47	.76	78	.71	37	.34	38	.35	38	.35	4	.04	49	.45
		070	213.06	1.86	142	.22	71	.11	61	.10	82	.13	14	.02	78	.12
		071	42.62	.31	64	.50	33	.26	24	.19	40	.31	20	.16	39	.31
		072	27.70	.12	28	.34	11	.13	15	.18	16	.19	12	.14	20	.24
		073	214.85	1.95	187	.29	81	.13	74	.11	92	.14	17	.03	104	.16
		075	12.10	.14	32	.88	13	.36	10	.28	16	.44	0	.00	23	.63
		076	24.92	.16	43	.58	19	.25	14	.19	30	.40	5	.07	27	.36
		077	116.72	.48	70	.20	34	.10	21	.06	33	.09	13	.04	41	.12
		078	85.19	.54	127	.50	65	.25	50	.20	54	.21	49	.19	74	.29
		079	17.63	.10	14	.26	7	.13	5	.09	5	.09	1	.02	10	.19
		080	142.60	1.33	178	.42	85	.20	67	.16	94	.22	27	.06	108	.25
		081	85.38	.70	97	.38	44	.17	37	.14	44	.17	30	.12	66	.26
		082	84.05	.69	84	.33	45	.18	39	.15	55	.22	18	.07	53	.21
		083	50.01	1.21	168	1.12	70	.47	84	.56	85	.57	28	.19	126	.84
		085	23.46	.23	33	.47	16	.23	20	.28	15	.21	10	.14	25	.36
		086	31.63	.12	11	.12	4	.04	2	.02	8	.08	0	.00	7	.07
		087	22.26	.18	18	.27	8	.12	9	.13	8	.12	1	.01	6	.09
		088	29.75	.06	28	.31	15	.17	7	.08	11	.12	11	.12	11	.12
		089	44.33	.54	58	.44	26	.20	26	.20	31	.23	9	.07	33	.25
		091	16.50	.26	42	.85	25	.51	24	.48	20	.40	1	.02	34	.69
		092	27.12	.13	38	.47	15	.18	18	.22	16	.20	7	.09	21	.26

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Rural	2	093	51.89	.75	56	.36	24	.15	26	.17	35	.22	3	.02	34	.22
		095	71.49	.38	71	.33	27	.13	22	.10	38	.18	21	.10	50	.23
		096	27.04	.33	30	.37	14	.17	17	.21	14	.17	1	.01	22	.27
		097	33.87	.42	28	.28	12	.12	20	.20	16	.16	0	.00	18	.18
		098	16.20	.17	6	.12	4	.08	4	.08	2	.04	1	.02	2	.04
		101	21.12	.06	8	.13	5	.08	4	.06	4	.06	1	.02	2	.03
		102	18.25	.06	13	.24	7	.13	7	.13	8	.15	4	.07	7	.13
		104	14.34	.11	28	.65	16	.37	6	.14	16	.37	3	.07	15	.35
		105	2.75	.02	2	.24	1	.12	2	.24	1	.12	0	.00	1	.12
		106	27.39	.21	52	.63	22	.27	25	.30	35	.43	10	.12	35	.43
		107	44.19	.22	46	.35	21	.16	19	.14	26	.20	6	.05	25	.19
		108	17.89	.05	25	.47	8	.15	10	.19	12	.22	11	.20	20	.37
		110	41.26	.69	79	.64	30	.24	42	.34	42	.34	5	.04	58	.47
		111	10.61	.05	8	.25	5	.16	5	.16	1	.03	0	.00	4	.13
		112	10.17	.05	3	.10	0	.00	2	.07	2	.07	1	.03	1	.03
		113	26.28	.31	68	.86	22	.28	32	.41	32	.41	7	.09	34	.43
		114	8.88	.18	13	.49	5	.19	7	.26	5	.19	0	.00	11	.41
		115	5.94	.02	10	.56	6	.34	3	.17	6	.34	1	.06	6	.34
		116	13.78	.16	16	.39	5	.12	7	.17	6	.15	0	.00	10	.24
		117	5.13	.08	6	.39	4	.26	1	.06	2	.13	0	.00	2	.13
		118	6.86	.02	5	.24	2	.10	2	.10	2	.10	0	.00	3	.15
		120	15.44	.28	35	.76	17	.37	16	.35	20	.43	2	.04	21	.45
		121	34.75	.17	29	.28	14	.13	10	.10	17	.16	0	.00	17	.16
		122	14.69	.01	4	.09	1	.02	3	.07	3	.07	1	.02	1	.02
		123	1.10	.01	3	.91	2	.61	0	.00	2	.61	0	.00	2	.61
		124	10.63	.12	8	.25	3	.09	0	.00	2	.06	1	.03	4	.13
		126	4.81	.02	4	.28	1	.07	3	.21	2	.14	1	.07	3	.21
		127	12.75	.04	9	.24	5	.13	1	.03	5	.13	1	.03	7	.18
		128	27.04	.15	30	.37	14	.17	14	.17	16	.20	7	.09	22	.27
		129	2.69	.03	.	.	.	.	.	.	.	.	.	.	.	.
		130	30.73	.09	28	.30	14	.15	8	.09	13	.14	10	.11	19	.21
		131	70.19	.34	70	.33	34	.16	24	.11	40	.19	22	.10	38	.18
		133	72.01	.35	94	.44	32	.15	46	.21	44	.20	18	.08	58	.27
		134	2.85	.01	10	1.17	8	.94	3	.35	6	.70	3	.35	6	.70
		136	12.53	.11	28	.74	9	.24	9	.24	13	.35	7	.19	14	.37
		137	3.74	.	.	.	.	.	.	.	.	.	.	.	.	.
		138	11.66	.21	21	.60	7	.20	6	.17	11	.31	2	.06	15	.43
		139	22.01	.08	9	.14	5	.08	4	.06	5	.08	3	.05	3	.05
		140	11.25	.14	33	.98	14	.41	24	.71	16	.47	10	.30	16	.47

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Rural	2	141	61.92	1.61	107	.58	40	.22	37	.20	55	.30	15	.08	66	.36
		142	16.31	.18	26	.53	12	.25	9	.18	13	.27	1	.02	16	.33
		144	19.45	.25	48	.82	21	.36	17	.29	24	.41	13	.22	33	.57
		145	.41	.01	3	2.44	2	1.63	0	.00	2	1.63	2	1.63	3	2.44
		146	13.22	.04	7	.18	3	.08	3	.08	4	.10	3	.08	3	.08
		147	12.65	.13	21	.55	12	.32	9	.24	9	.24	1	.03	12	.32
		149	24.15	.12	32	.44	8	.11	16	.22	12	.17	12	.17	24	.33
		150	6.65	.12	9	.45	1	.05	8	.40	7	.35	0	.00	5	.25
		151	91.26	2.05	221	.81	103	.38	110	.40	97	.35	29	.11	127	.46
		152	7.22	.02	3	.14	1	.05	1	.05	2	.09	1	.05	2	.09
		153	60.24	.57	60	.33	18	.10	28	.15	27	.15	2	.01	48	.27
		154	19.00	.08	20	.35	8	.14	5	.09	10	.18	8	.14	14	.25
		155	6.94	.06	7	.34	2	.10	3	.14	4	.19	1	.05	3	.14
		156	26.23	.15	21	.27	10	.13	7	.09	11	.14	0	.00	13	.17
		159	1.29	.01	1	.26	0	.00	1	.26	0	.00	0	.00	1	.26
		160	3.22	.03	1	.10	0	.00	0	.00	1	.10	0	.00	0	.00
		161	21.58	.11	26	.40	9	.14	11	.17	13	.20	1	.02	18	.28
		162	40.88	.14	65	.53	32	.26	27	.22	42	.34	21	.17	33	.27
		164	25.65	.82	46	.60	16	.21	21	.27	24	.31	1	.01	28	.36
		165	.78	.03	.	.	.	.	.	.	.	.	.	.	.	.
		167	9.41	.14	27	.96	6	.21	10	.35	16	.57	15	.53	22	.78
		168	5.93	.02	3	.17	1	.06	0	.00	1	.06	0	.00	3	.17
		169	17.36	.03	2	.04	0	.00	1	.02	1	.02	0	.00	2	.04
		170	23.90	.14	34	.47	17	.24	11	.15	20	.28	4	.06	20	.28
		171	33.25	.08	42	.42	19	.19	17	.17	18	.18	18	.18	31	.31
		172	1.40	.05	.	.	.	.	.	.	.	.	.	.	.	.
		173	33.55	.23	29	.29	13	.13	13	.13	16	.16	2	.02	19	.19
		175	46.56	.49	123	.88	48	.34	50	.36	64	.46	9	.06	91	.65
		178	20.09	.19	43	.71	22	.37	20	.33	24	.40	8	.13	30	.50
		179	8.80	.02	7	.27	5	.19	3	.11	5	.19	3	.11	4	.15
		180	29.94	.24	37	.41	14	.16	13	.14	22	.24	5	.06	27	.30
		182	29.65	.10	10	.11	6	.07	5	.06	6	.07	0	.00	7	.08
		186	15.01	.11	9	.20	4	.09	3	.07	6	.13	0	.00	6	.13
		187	13.87	.02	16	.38	10	.24	2	.05	12	.29	1	.02	12	.29
		188	10.55	.04	14	.44	7	.22	4	.13	7	.22	3	.09	8	.25
		191	13.04	.04	17	.43	6	.15	8	.20	8	.20	5	.13	10	.26
		193	1.42	.01	.	.	.	.	.	.	.	.	.	.	.	.
		194	11.32	.03	10	.29	8	.24	1	.03	6	.18	1	.03	3	.09
		213	19.33	.17	55	.95	27	.47	30	.52	26	.45	19	.33	34	.59

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Rural	2	243	.30	.01	1	1.11	1	1.11	0	.00	0	.00	0	.00	1	1.11
		253	7.61	.03	2	.09	1	.04	1	.04	0	.00	0	.00	1	.04
		310	6.69	.13	13	.65	6	.30	7	.35	6	.30	0	.00	5	.25
		351	2.31	.08	15	2.16	3	.43	14	2.02	7	1.01	0	.00	12	1.73
	Overall		8819.8	113.38	11629	.44	5117	.19	4997	.19	5839	.22	1571	.06	7195	.27

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Rural	3	010	.35	.01	2	1.90	1	.95	1	.95	1	.95	1	.95	2	1.90
		012	2.00	.05	4	.67	2	.33	3	.50	2	.33	0	.00	1	.17
		013	2.46	.06	6	.81	1	.14	5	.68	4	.54	0	.00	3	.41
		014	.26	.01	2	2.56	0	.00	1	1.28	2	2.56	1	1.28	2	2.56
		023	1.00	.02	3	1.00	1	.33	2	.67	2	.67	0	.00	3	1.00
		033	5.58	.15	12	.72	5	.30	8	.48	8	.48	1	.06	8	.48
		035	1.03	.04	10	3.24	1	.32	7	2.27	6	1.94	0	.00	6	1.94
		045	.22	.00	1	1.52	1	1.52	0	.00	1	1.52	0	.00	0	.00
		051	.32	.01	.	.	.	.	.	.	.	.	.	.	.	.
		054	.12	.00	.	.	.	.	.	.	.	.	.	.	.	.
		057	.14	.00	1	2.38	0	.00	0	.00	1	2.38	0	.00	1	2.38
		061	.62	.03	2	1.08	0	.00	1	.54	1	.54	0	.00	1	.54
		078	.17	.00	.	.	.	.	.	.	.	.	.	.	.	.
		080	.41	.01	1	.81	0	.00	0	.00	1	.81	0	.00	1	.81
		110	.33	.00	.	.	.	.	.	.	.	.	.	.	.	.
		113	.13	.00	.	.	.	.	.	.	.	.	.	.	.	.
		141	.62	.02	1	.54	0	.00	0	.00	0	.00	0	.00	0	.00
	Overall		15.76	.43	45	.95	12	.25	28	.59	29	.61	3	.06	28	.59

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Rural	4	008	3.68	.16	3	.27	2	.18	2	.18	2	.18	0	.00	1	.09
		010	1.78	.06	8	1.50	5	.94	6	1.12	4	.75	6	1.12	5	.94
		012	3.15	.23	10	1.06	7	.74	2	.21	3	.32	1	.11	6	.63
		013	6.83	.30	13	.63	2	.10	9	.44	6	.29	0	.00	9	.44
		014	1.62	.08	3	.62	0	.00	1	.21	1	.21	0	.00	3	.62
		017	1.97	.03	2	.34	1	.17	1	.17	1	.17	0	.00	2	.34
		019	.28	.01	.	.	.	.	.	.	.	.	.	.	.	.
		020	.42	.01	.	.	.	.	.	.	.	.	.	.	.	.
		021	1.09	.04	.	.	.	.	.	.	.	.	.	.	.	.
		023	.37	.00	.	.	.	.	.	.	.	.	.	.	.	.
		027	.19	.01	.	.	.	.	.	.	.	.	.	.	.	.
		033	.11	.01	.	.	.	.	.	.	.	.	.	.	.	.
		041	2.92	.14	9	1.03	5	.57	5	.57	3	.34	0	.00	7	.80
		045	9.23	.38	16	.58	5	.18	5	.18	8	.29	1	.04	11	.40
		046	1.82	.05	2	.37	1	.18	1	.18	0	.00	0	.00	2	.37
		047	.61	.01	.	.	.	.	.	.	.	.	.	.	.	.
		048	.31	.00	.	.	.	.	.	.	.	.	.	.	.	.
		051	15.83	.64	42	.88	16	.34	19	.40	19	.40	3	.06	29	.61
		054	.27	.01	1	1.23	1	1.23	0	.00	0	.00	0	.00	0	.00
		063	1.88	.05	2	.35	1	.18	2	.35	1	.18	0	.00	2	.35
		064	2.92	.02	2	.23	1	.11	1	.11	1	.11	1	.11	2	.23
		070	2.10	.04	2	.32	0	.00	2	.32	1	.16	0	.00	2	.32
		082	.32	.01	.	.	.	.	.	.	.	.	.	.	.	.
		086	.36	.02	1	.93	0	.00	0	.00	0	.00	0	.00	0	.00
		089	.09	.00	.	.	.	.	.	.	.	.	.	.	.	.
		093	.50	.01	1	.67	1	.67	0	.00	1	.67	0	.00	1	.67
		095	.32	.00	.	.	.	.	.	.	.	.	.	.	.	.
		107	.43	.01	.	.	.	.	.	.	.	.	.	.	.	.
		110	.93	.01	1	.36	0	.00	1	.36	1	.36	0	.00	1	.36
		113	.12	.00	1	2.78	0	.00	0	.00	0	.00	0	.00	0	.00
		141	1.46	.04	2	.46	0	.00	0	.00	2	.46	0	.00	2	.46
		151	1.37	.04	1	.24	0	.00	1	.24	0	.00	0	.00	1	.24
	Overall		65.28	2.43	122	.62	48	.25	58	.30	54	.28	12	.06	86	.44
Overall			8900.8	116.23	11796	.44	5177	.19	5083	.19	5922	.22	1586	.06	7309	.27

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Urban	2	002	.49	.01	.	.	.	.	.	.	.	.	.	.	.	.
		010	1.64	.03	4	.81	1	.20	2	.41	2	.41	0	.00	4	.81
		011	11.89	.31	32	.90	11	.31	9	.25	10	.28	3	.08	26	.73
		012	7.62	.26	18	.79	7	.31	9	.39	5	.22	1	.04	13	.57
		013	4.31	.11	7	.54	3	.23	2	.15	3	.23	0	.00	3	.23
		014	5.35	.25	8	.50	2	.12	4	.25	2	.12	0	.00	7	.44
		016	11.00	.37	24	.73	8	.24	8	.24	15	.45	0	.00	16	.48
		017	3.84	.14	11	.95	4	.35	4	.35	6	.52	2	.17	7	.61
		018	6.95	.26	13	.62	3	.14	6	.29	7	.34	2	.10	11	.53
		019	6.75	.31	10	.49	3	.15	4	.20	5	.25	1	.05	9	.44
		020	.61	.04	6	3.28	2	1.09	3	1.64	3	1.64	2	1.09	6	3.28
		021	2.97	.10	5	.56	3	.34	1	.11	2	.22	0	.00	2	.22
		022	6.13	.15	5	.27	1	.05	1	.05	2	.11	0	.00	3	.16
		023	4.36	.17	21	1.61	8	.61	11	.84	11	.84	0	.00	19	1.45
		025	2.10	.08	6	.95	3	.48	3	.48	2	.32	1	.16	4	.63
		026	6.41	.27	9	.47	2	.10	4	.21	6	.31	0	.00	6	.31
		027	2.84	.10	12	1.41	4	.47	8	.94	8	.94	0	.00	10	1.17
		028	4.18	.12	5	.40	1	.08	2	.16	3	.24	1	.08	3	.24
		029	8.57	.36	28	1.09	10	.39	19	.74	10	.39	3	.12	18	.70
		031	4.00	.18	13	1.08	9	.75	2	.17	5	.42	0	.00	10	.83
		032	38.37	1.61	142	1.23	61	.53	51	.44	71	.62	4	.03	116	1.01
		033	11.32	.39	35	1.03	14	.41	13	.38	20	.59	3	.09	25	.74
		034	.06	.00	.	.	.	.	.	.	.	.	.	.	.	.
		035	10.31	.45	26	.84	7	.23	8	.26	17	.55	1	.03	19	.61
		036	2.65	.11	7	.88	2	.25	3	.38	4	.50	0	.00	7	.88
		038	5.84	.20	28	1.60	15	.86	10	.57	12	.68	2	.11	21	1.20
		042	2.16	.07	4	.62	2	.31	3	.46	0	.00	0	.00	4	.62
		044	2.40	.07	3	.42	0	.00	1	.14	0	.00	0	.00	3	.42
		045	13.06	.32	41	1.05	18	.46	15	.38	20	.51	1	.03	33	.84
		047	3.31	.11	7	.70	2	.20	2	.20	4	.40	0	.00	6	.60
		048	1.06	.01	4	1.26	0	.00	1	.31	4	1.26	0	.00	4	1.26
		049	6.50	.20	10	.51	3	.15	5	.26	6	.31	0	.00	10	.51
		050	4.47	.23	19	1.42	7	.52	4	.30	12	.89	3	.22	15	1.12
		051	10.16	.44	36	1.18	11	.36	19	.62	14	.46	5	.16	30	.98
		052	4.12	.06	3	.24	1	.08	3	.24	1	.08	0	.00	3	.24
		054	9.58	.28	16	.56	6	.21	11	.38	13	.45	0	.00	13	.45
		055	1.45	.05	2	.46	0	.00	1	.23	1	.23	0	.00	1	.23
		057	7.02	.33	12	.57	3	.14	5	.24	3	.14	0	.00	11	.52
		059	9.26	.44	44	1.58	12	.43	17	.61	29	1.04	0	.00	33	1.19

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Urban	2	060	3.67	.17	3	.27	1	.09	2	.18	0	.00	1	.09	1	.09
		064	8.58	.28	10	.39	2	.08	3	.12	5	.19	0	.00	8	.31
		065	5.62	.17	9	.53	5	.30	1	.06	4	.24	0	.00	7	.42
		066	2.26	.06	5	.74	2	.29	4	.59	3	.44	0	.00	3	.44
		067	5.35	.13	11	.69	3	.19	2	.12	4	.25	0	.00	5	.31
		068	1.02	.01	1	.33	0	.00	1	.33	1	.33	0	.00	1	.33
		069	.04	.00	.	.	.	.	.	.	.	.	.	.	.	.
		071	.11	.00	.	.	.	.	.	.	.	.	.	.	.	.
		073	.93	.02	2	.72	2	.72	0	.00	1	.36	0	.00	2	.72
		074	5.40	.22	11	.68	1	.06	7	.43	6	.37	1	.06	8	.49
		077	4.34	.07	7	.54	0	.00	1	.08	6	.46	1	.08	4	.31
		080	5.88	.06	13	.74	5	.28	1	.06	6	.34	1	.06	9	.51
		081	4.35	.14	17	1.30	6	.46	2	.15	10	.77	1	.08	11	.84
		083	8.15	.25	28	1.15	15	.61	9	.37	12	.49	2	.08	17	.70
		089	1.28	.03	3	.78	0	.00	0	.00	0	.00	0	.00	3	.78
		091	1.21	.03	4	1.10	0	.00	1	.28	1	.28	0	.00	3	.83
		093	.52	.04	4	2.56	0	.00	4	2.56	4	2.56	2	1.28	3	1.92
		096	5.31	.24	14	.88	8	.50	3	.19	5	.31	0	.00	12	.75
		100	7.36	.35	17	.77	9	.41	5	.23	14	.63	1	.05	12	.54
		105	1.76	.01	1	.19	1	.19	0	.00	1	.19	1	.19	0	.00
		106	1.83	.04	1	.18	0	.00	0	.00	0	.00	0	.00	1	.18
		107	2.70	.02	4	.49	1	.12	1	.12	2	.25	0	.00	3	.37
		110	2.14	.08	9	1.40	2	.31	4	.62	5	.78	0	.00	7	1.09
		112	2.41	.02	1	.14	1	.14	0	.00	1	.14	0	.00	1	.14
		113	2.38	.05	5	.70	1	.14	3	.42	2	.28	3	.42	5	.70
		114	2.30	.09	1	.14	0	.00	1	.14	1	.14	0	.00	0	.00
		120	3.50	.11	18	1.71	10	.95	8	.76	5	.48	1	.10	15	1.43
		123	1.71	.05	4	.78	1	.19	1	.19	3	.58	0	.00	4	.78
		124	1.89	.04	11	1.94	4	.71	4	.71	5	.88	5	.88	11	1.94
		127	1.41	.01	2	.47	1	.24	2	.47	1	.24	1	.24	2	.47
		131	.95	.03	1	.35	0	.00	1	.35	1	.35	0	.00	1	.35
		136	.51	.01	.	.	.	.	.	.	.	.	.	.	.	.
		137	2.51	.	.	.	.	.	.	.	.	.	.	.	.	.
		138	.32	.00	.	.	.	.	.	.	.	.	.	.	.	.
		141	2.27	.07	2	.29	0	.00	1	.15	1	.15	0	.00	2	.29
		142	.91	.01	.	.	.	.	.	.	.	.	.	.	.	.
		144	.82	.03	2	.81	1	.41	0	.00	0	.00	0	.00	2	.81
		145	8.60	.17	10	.39	7	.27	4	.16	5	.19	2	.08	10	.39
		147	2.06	.07	2	.32	2	.32	1	.16	1	.16	0	.00	2	.32

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Urban	2	151	7.01	.30	24	1.14	7	.33	11	.52	11	.52	1	.05	18	.86
		157	1.29	.04	3	.78	0	.00	0	.00	0	.00	0	.00	3	.78
		158	2.31	.11	7	1.01	1	.14	3	.43	5	.72	1	.14	4	.58
		164	1.70	.08	.	.	.	.	.	.	.	.	.	.	.	.
		165	3.45	.04	10	.97	6	.58	4	.39	5	.48	0	.00	8	.77
		167	3.72	.18	4	.36	1	.09	2	.18	0	.00	0	.00	2	.18
		172	.94	.03	4	1.42	2	.71	1	.35	2	.71	0	.00	3	1.06
		173	1.89	.04	1	.18	1	.18	0	.00	0	.00	0	.00	1	.18
		175	6.18	.27	27	1.46	6	.32	10	.54	13	.70	6	.32	24	1.29
		178	2.13	.06	3	.47	0	.00	2	.31	1	.16	1	.16	3	.47
		180	.48	.01	1	.69	1	.69	0	.00	1	.69	0	.00	1	.69
		181	8.47	.34	33	1.30	8	.31	19	.75	16	.63	6	.24	28	1.10
		190	.42	.01	.	.	.	.	.	.	.	.	.	.	.	.
		213	1.94	.03	8	1.37	5	.86	1	.17	1	.17	0	.00	4	.69
		310	1.32	.03	2	.51	1	.25	1	.25	1	.25	1	.25	0	.00
	Overall		402.72	13.74	1036	.86	379	.31	405	.34	510	.42	74	.06	805	.67

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Urban	3	012	1.59	.12	7	1.47	0	.00	4	.84	3	.63	0	.00	7	1.47
		013	.40	.02	2	1.67	0	.00	1	.83	0	.00	0	.00	1	.83
		020	1.60	.11	13	2.71	5	1.04	6	1.25	8	1.67	0	.00	11	2.29
		021	.36	.01	.	.	.	.	.	.	.	.	.	.	.	.
		022	.76	.03	1	.44	0	.00	0	.00	1	.44	0	.00	1	.44
		026	.06	.00	.	.	.	.	.	.	.	.	.	.	.	.
		029	.08	.00	2	8.33	0	.00	1	4.17	0	.00	1	4.17	2	8.33
		032	.37	.02	3	2.70	1	.90	1	.90	2	1.80	0	.00	2	1.80
		035	.36	.02	1	.93	1	.93	0	.00	1	.93	0	.00	1	.93
		038	.83	.03	8	3.21	2	.80	3	1.20	4	1.61	0	.00	6	2.41
		041	.87	.09	2	.77	0	.00	1	.38	1	.38	0	.00	2	.77
		044	.68	.03	5	2.45	3	1.47	1	.49	2	.98	0	.00	4	1.96
		054	.96	.03	2	.69	1	.35	1	.35	2	.69	0	.00	2	.69
		057	.25	.01	1	1.33	0	.00	1	1.33	0	.00	0	.00	1	1.33
		059	.53	.03	3	1.89	0	.00	2	1.26	2	1.26	0	.00	3	1.89
		073	1.17	.02	6	1.71	1	.28	2	.57	4	1.14	1	.28	6	1.71
		074	.43	.02	1	.78	0	.00	0	.00	0	.00	0	.00	1	.78
		114	.27	.02	1	1.23	0	.00	0	.00	0	.00	0	.00	1	1.23
		144	.20	.01	.	.	.	.	.	.	.	.	.	.	.	.
		181	.51	.01	1	.65	0	.00	1	.65	0	.00	0	.00	0	.00
		190	.25	.02	1	1.33	0	.00	0	.00	0	.00	0	.00	1	1.33
	Overall		12.53	.65	60	1.60	14	.37	25	.67	30	.80	2	.05	52	1.38

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Urban	4	002	4.98	.27	10	.67	2	.13	5	.33	7	.47	0	.00	9	.60
		010	1.85	.10	2	.36	0	.00	1	.18	2	.36	0	.00	0	.00
		011	4.96	.37	21	1.41	10	.67	5	.34	6	.40	0	.00	12	.81
		012	4.43	.30	18	1.35	3	.23	11	.83	7	.53	0	.00	15	1.13
		013	3.64	.19	14	1.28	4	.37	3	.27	6	.55	2	.18	12	1.10
		014	2.41	.18	1	.14	0	.00	1	.14	0	.00	1	.14	1	.14
		016	3.11	.20	15	1.61	2	.21	5	.54	7	.75	1	.11	12	1.29
		017	1.75	.07	1	.19	1	.19	1	.19	1	.19	0	.00	1	.19
		018	4.70	.32	5	.35	4	.28	1	.07	1	.07	0	.00	3	.21
		019	.18	.01	1	1.85	0	.00	0	.00	0	.00	0	.00	1	1.85
		020	.74	.04	3	1.35	0	.00	1	.45	3	1.35	0	.00	3	1.35
		021	1.94	.14	9	1.55	4	.69	5	.86	3	.52	0	.00	9	1.55
		022	3.89	.16	9	.77	5	.43	4	.34	5	.43	0	.00	4	.34
		023	2.43	.14	17	2.33	4	.55	9	1.23	5	.69	0	.00	15	2.06
		025	.25	.01	.	.	.	.	.	.	.	.	.	.	.	.
		026	2.19	.15	19	2.89	9	1.37	12	1.83	8	1.22	2	.30	16	2.44
		028	2.42	.15	7	.96	1	.14	4	.55	4	.55	0	.00	6	.83
		029	2.56	.16	11	1.43	3	.39	3	.39	5	.65	0	.00	9	1.17
		032	14.47	.71	81	1.87	38	.88	30	.69	52	1.20	3	.07	64	1.47
		033	5.70	.30	15	.88	6	.35	7	.41	11	.64	0	.00	12	.70
		035	5.26	.32	10	.63	1	.06	5	.32	5	.32	0	.00	7	.44
		038	.19	.01	2	3.51	0	.00	1	1.75	1	1.75	0	.00	2	3.51
		041	2.93	.21	5	.57	4	.46	1	.11	3	.34	0	.00	4	.46
		042	2.03	.09	6	.99	0	.00	1	.16	5	.82	0	.00	5	.82
		044	1.64	.08	2	.41	1	.20	0	.00	1	.20	0	.00	2	.41
		045	8.48	.41	27	1.06	12	.47	4	.16	13	.51	0	.00	23	.90
		047	4.55	.28	8	.59	4	.29	3	.22	5	.37	0	.00	8	.59
		048	.85	.02	1	.39	0	.00	1	.39	0	.00	1	.39	1	.39
		049	.32	.01	1	1.04	0	.00	0	.00	0	.00	0	.00	0	.00
		050	.89	.05	4	1.50	0	.00	2	.75	3	1.12	0	.00	4	1.50
		051	18.17	1.15	114	2.09	45	.83	51	.94	56	1.03	16	.29	85	1.56
		054	2.59	.17	11	1.42	6	.77	2	.26	8	1.03	2	.26	9	1.16
		055	2.18	.12	3	.46	0	.00	0	.00	0	.00	1	.15	2	.31
		057	5.04	.37	16	1.06	1	.07	6	.40	7	.46	3	.20	12	.79
		059	2.40	.16	7	.97	2	.28	2	.28	4	.56	0	.00	7	.97
		060	.90	.06	6	2.22	1	.37	2	.74	2	.74	0	.00	4	1.48
		064	2.50	.13	11	1.47	3	.40	5	.67	1	.13	0	.00	8	1.07
		065	.15	.01	.	.	.	.	.	.	.	.	.	.	.	.
		066	1.12	.04	3	.89	0	.00	2	.60	3	.89	0	.00	3	.89

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
Urban	4	074	1.46	.07	2	.46	0	.00	1	.23	1	.23	0	.00	2	.46
		096	4.23	.17	15	1.18	6	.47	8	.63	7	.55	0	.00	13	1.02
		105	.21	.00	.	.	.	.	.	.	.	.	.	.	.	.
		113	.19	.01	.	.	.	.	.	.	.	.	.	.	.	.
		114	2.48	.13	13	1.75	7	.94	5	.67	8	1.08	0	.00	12	1.61
		120	.55	.03	1	.61	0	.00	0	.00	1	.61	0	.00	1	.61
		125	.90	.09	4	1.48	1	.37	2	.74	3	1.11	0	.00	4	1.48
		141	2.86	.19	21	2.45	9	1.05	10	1.17	20	2.33	2	.23	15	1.75
		145	2.30	.16	7	1.01	4	.58	0	.00	2	.29	0	.00	3	.43
		151	1.09	.06	.	.	.	.	.	.	.	.	.	.	.	.
		167	1.01	.05	1	.33	1	.33	0	.00	0	.00	0	.00	0	.00
		175	2.14	.08	1	.16	1	.16	0	.00	0	.00	0	.00	1	.16
		181	1.08	.07	3	.93	0	.00	2	.62	0	.00	0	.00	2	.62
		213	1.42	.04	5	1.17	1	.23	2	.47	4	.94	1	.23	5	1.17
		794	1.98	.12	.	.	.	.	.	.	.	.	.	.	.	.
	Overall		154.69	8.92	569	1.23	206	.44	226	.49	296	.64	35	.08	448	.97
Overall			569.94	23.31	1665	.97	599	.35	656	.38	836	.49	111	.06	1305	.76

Popul Dens.	No Lan	STH Route	Miles	Annual Travel 100MVM	ROR Crashes (3_Yrs)	ROR Crash per mile per year	Inj+K Crash (3_Yrs)	Inj+K Crash/ mile/ year	Wet+Snow Crash (3_Yrs)	Wet+Snow Crash per mile per year	Dark Crashes (3_Yrs)	Dark Crash per mile per year	Hz/Vt curve Crash (3_Yrs)	Hz/Vt Curve Crash per mile per year	Fixed obj Crash (3_Yrs)	Fixed obj Crash/ mile/ year
All	Undivided		9470.8	139.54	13461	.47	5776	.20	5739	.20	6758	.24	1697	.06	8614	.30

APPENDIX D

RUN-OFF-ROAD CRASH RATES FOR
OVERTURN
FIXED OBJECT
DITCH
TREE
GUARDRAIL
UTILITY POLE
EMBANKMENT AND
SIGN POST
CRASHES ON
TWO-LANE
RURAL UNDIVIDED
STATE TRUNK HIGHWAYS

STH Route	Miles	Annual Travel 100MVM	ROR Crash 3_Yr	ROR Crash/ mile/ year	ROR Crash per 100MVM	O/T 3_Yr	O/T per 100MVM	F/O Crash 3_Yr	F/O Crash per 100MVM	Ditch Crash 3_Yr	Ditch Crash per 100MVM	Tree Crash 3_Yr	Tree Crash per 100MVM	G/R Crash 3_Yr	G/R Crash per 100MVM	Util pole Crash 3_Yr	Util pole Crash per 100MVM	Embnk Crash 3_Yr	Embnk Crash per 100MVM	Sign Crash 3_Yr	Sign Crash per 100MVM
002	96.05	1.98	129	.45	21.72	43	7.24	72	12.13	13	2.19	24	4.04	6	1.01	7	1.18	2	.34	5	.84
008	243.10	3.81	278	.38	24.33	91	7.96	147	12.86	37	3.24	42	3.68	14	1.23	5	.44	6	.53	14	1.23
010	240.98	4.81	332	.46	23.02	88	6.10	211	14.63	41	2.84	23	1.59	37	2.57	25	1.73	18	1.25	20	1.39
011	113.97	2.35	185	.54	26.23	29	4.11	135	19.14	16	2.27	17	2.41	18	2.55	20	2.84	11	1.56	8	1.13
012	238.43	4.03	463	.65	38.30	111	9.18	296	24.48	67	5.54	42	3.47	29	2.40	24	1.99	31	2.56	20	1.65
013	299.53	4.31	349	.39	26.97	96	7.42	196	15.14	35	2.70	43	3.32	19	1.47	12	.93	9	.70	14	1.08
014	158.02	4.17	347	.73	27.76	81	6.48	225	18.00	29	2.32	28	2.24	39	3.12	28	2.24	21	1.68	15	1.20
015	1.60	.07	5	1.04	22.31	0	.00	4	17.85	3	13.39	0	.00	1	4.46	0	.00	0	.00	0	.00
016	95.56	1.73	144	.50	27.75	39	7.52	90	17.34	18	3.47	10	1.93	14	2.70	6	1.16	10	1.93	6	1.16
017	73.70	.98	97	.44	32.98	30	10.20	60	20.40	14	4.76	18	6.12	3	1.02	2	.68	6	2.04	1	.34
018	89.60	1.73	142	.53	27.44	27	5.22	99	19.13	16	3.09	10	1.93	9	1.74	9	1.74	9	1.74	6	1.16
019	46.73	.89	94	.67	35.08	27	10.08	58	21.65	14	5.22	9	3.36	0	.00	9	3.36	4	1.49	6	2.24
020	29.60	.49	66	.74	44.94	10	6.81	48	32.69	4	2.72	13	8.85	7	4.77	5	3.40	2	1.36	7	4.77
021	111.56	2.58	161	.48	20.78	50	6.45	87	11.23	20	2.58	18	2.32	5	.65	4	.52	4	.52	9	1.16
022	149.63	2.10	191	.43	30.34	43	6.83	129	20.49	36	5.72	17	2.70	13	2.06	6	.95	10	1.59	7	1.11
023	164.65	2.96	240	.49	27.07	66	7.44	142	16.02	26	2.93	20	2.26	18	2.03	12	1.35	13	1.47	13	1.47
025	79.18	.88	90	.38	34.19	31	11.78	50	19.00	6	2.28	5	1.90	11	4.18	5	1.90	5	1.90	4	1.52
026	70.94	2.05	139	.65	22.65	28	4.56	94	15.32	20	3.26	11	1.79	12	1.96	15	2.44	6	.98	9	1.47
027	242.23	2.17	234	.32	35.89	81	12.42	125	19.17	24	3.68	23	3.53	22	3.37	7	1.07	17	2.61	7	1.07
028	49.88	.63	70	.47	37.30	13	6.93	48	25.58	10	5.33	4	2.13	10	5.33	3	1.60	3	1.60	2	1.07
029	73.45	.76	77	.35	33.95	20	8.82	46	20.28	10	4.41	4	1.76	8	3.53	2	.88	4	1.76	4	1.76
031	4.35	.28	16	1.23	19.23	1	1.20	11	13.22	3	3.61	4	4.81	0	.00	1	1.20	0	.00	1	1.20
032	171.75	2.36	202	.39	28.49	59	8.32	117	16.50	30	4.23	12	1.69	8	1.13	16	2.26	4	.56	8	1.13
033	162.71	2.67	258	.53	32.26	82	10.25	146	18.26	33	4.13	15	1.88	23	2.88	11	1.38	13	1.63	9	1.13
034	22.93	.30	24	.35	27.02	11	12.39	11	12.39	4	4.50	1	1.13	1	1.13	0	.00	0	.00	0	.00
035	308.00	4.17	350	.38	27.98	84	6.71	218	17.43	40	3.20	31	2.48	47	3.76	11	.88	22	1.76	7	.56
036	6.57	.10	10	.51	33.74	1	3.37	8	26.99	4	13.50	0	.00	0	.00	0	.00	0	.00	0	.00
037	40.17	.41	55	.46	44.70	12	9.75	35	28.45	4	3.25	3	2.44	8	6.50	3	2.44	7	5.69	2	1.63
038	5.03	.12	21	1.39	60.80	3	8.69	17	49.22	3	8.69	0	.00	1	2.90	2	5.79	1	2.90	2	5.79
039	40.84	.14	56	.46	135.58	16	38.74	34	82.32	10	24.21	4	9.68	2	4.84	3	7.26	5	12.11	1	2.42
040	79.42	.32	79	.33	82.05	30	31.16	39	40.51	10	10.39	12	12.46	5	5.19	2	2.08	1	1.04	1	1.04
041	15.19	.61	34	.75	18.59	7	3.83	20	10.93	4	2.19	2	1.09	0	.00	0	.00	3	1.64	2	1.09
042	110.43	1.57	139	.42	29.54	25	5.31	94	19.97	12	2.55	15	3.19	10	2.12	21	4.46	8	1.70	4	.85
044	55.65	.60	55	.33	30.66	13	7.25	34	18.96	10	5.58	2	1.12	0	.00	3	1.67	1	.56	2	1.12
045	196.43	3.78	296	.50	26.07	62	5.46	200	17.61	51	4.49	31	2.73	13	1.14	20	1.76	5	.44	12	1.06
046	27.93	.38	22	.26	19.37	3	2.64	17	14.97	3	2.64	3	2.64	2	1.76	1	.88	0	.00	2	1.76
047	116.65	1.81	154	.44	28.40	42	7.74	84	15.49	19	3.50	12	2.21	6	1.11	11	2.03	6	1.11	5	.92
048	88.15	.76	70	.26	30.67	21	9.20	37	16.21	11	4.82	13	5.70	4	1.75	3	1.31	2	.88	0	.00
049	93.53	.89	107	.38	39.99	19	7.10	75	28.03	21	7.85	17	6.35	4	1.49	8	2.99	5	1.87	1	.37
050	5.64	.21	21	1.24	33.67	6	9.62	12	19.24	0	.00	7	11.22	0	.00	1	1.60	1	1.60	0	.00
051	109.67	2.29	211	.64	30.72	63	9.17	106	15.43	31	4.51	21	3.06	11	1.60	7	1.02	4	.58	7	1.02
052	57.60	.24	58	.34	80.13	23	31.77	30	41.44	12	16.58	3	4.14	0	.00	1	1.38	2	2.76	2	2.76
053	65.51	.98	99	.50	33.55	14	4.74	72	24.40	13	4.41	6	2.03	24	8.13	4	1.36	6	2.03	2	.68
054	172.71	2.13	193	.37	30.23	48	7.52	126	19.73	39	6.11	15	2.35	16	2.51	9	1.41	16	2.51	8	1.25
055	134.99	.79	107	.26	45.34	23	9.75	66	27.97	20	8.48	17	7.20	3	1.27	2	.85	5	2.12	2	.85
056	50.56	.22	84	.55	124.50	26	38.54	57	84.48	7	10.38	8	11.86	8	11.86	7	10.38	11	16.30	4	5.93

STH Route	Miles	Annual Travel 100MVM	ROR Crash 3_Yr	ROR Crash/ mile/ year	ROR Crash per 100MVM	O/T 3_Yr	O/T per 100MVM	F/O Crash 3_Yr	F/O Crash per 100MVM	Ditch Crash 3_Yr	Ditch Crash per 100MVM	Tree Crash 3_Yr	Tree Crash per 100MVM	G/R Crash 3_Yr	G/R Crash per 100MVM	Util pole Crash 3_Yr	Util pole Crash per 100MVM	Embnk Crash 3_Yr	Embnk Crash per 100MVM	Sign Crash 3_Yr	Sign Crash per 100MVM
057	71.65	1.70	116	.54	22.79	30	5.89	64	12.57	10	1.96	19	3.73	4	.79	7	1.38	1	.20	7	1.38
058	52.84	.35	58	.37	54.79	19	17.95	32	30.23	5	4.72	4	3.78	5	4.72	7	6.61	3	2.83	2	1.89
059	85.54	1.26	129	.50	34.20	26	6.89	92	24.39	24	6.36	8	2.12	2	.53	16	4.24	9	2.39	7	1.86
060	130.58	1.48	213	.54	47.96	60	13.51	128	28.82	31	6.98	11	2.48	15	3.38	4	.90	16	3.60	9	2.03
061	65.19	.95	73	.37	25.61	11	3.86	56	19.65	12	4.21	2	.70	14	4.91	2	.70	11	3.86	3	1.05
063	171.64	2.71	192	.37	23.64	74	9.11	97	11.94	17	2.09	26	3.20	8	.98	3	.37	9	1.11	5	.62
064	234.17	1.69	193	.27	38.15	66	13.05	109	21.55	29	5.73	22	4.35	16	3.16	3	.59	3	.59	4	.79
065	43.50	.60	67	.51	37.15	23	12.75	41	22.73	11	6.10	5	2.77	3	1.66	3	1.66	8	4.44	4	2.22
066	14.66	.20	36	.82	58.56	10	16.27	23	37.42	7	11.39	5	8.13	2	3.25	0	.00	1	1.63	3	4.88
067	125.86	1.51	214	.57	47.15	35	7.71	154	33.93	25	5.51	38	8.37	20	4.41	14	3.08	10	2.20	7	1.54
068	8.49	.08	23	.90	92.84	10	40.36	13	52.47	5	20.18	1	4.04	0	.00	2	8.07	3	12.11	0	.00
069	36.47	.76	78	.71	34.14	21	9.19	49	21.45	20	8.75	3	1.31	9	3.94	5	2.19	5	2.19	2	.88
070	213.06	1.86	142	.22	25.42	46	8.23	78	13.96	14	2.51	33	5.91	4	.72	4	.72	7	1.25	4	.72
071	42.62	.31	64	.50	68.07	23	24.46	39	41.48	6	6.38	4	4.25	8	8.51	1	1.06	9	9.57	0	.00
072	27.70	.12	28	.34	76.32	4	10.90	20	54.52	3	8.18	4	10.90	6	16.35	3	8.18	2	5.45	0	.00
073	214.85	1.95	187	.29	32.03	59	10.11	104	17.81	29	4.97	7	1.20	9	1.54	8	1.37	10	1.71	8	1.37
075	12.10	.14	32	.88	75.07	5	11.73	23	53.96	6	14.08	6	14.08	1	2.35	3	7.04	0	.00	2	4.69
076	24.92	.16	43	.58	89.47	12	24.97	27	56.18	9	18.73	3	6.24	1	2.08	6	12.48	0	.00	1	2.08
077	116.72	.48	70	.20	48.89	19	13.27	41	28.64	7	4.89	18	12.57	1	.70	2	1.40	3	2.10	1	.70
078	85.19	.54	127	.50	77.72	37	22.64	74	45.29	16	9.79	8	4.90	2	1.22	5	3.06	15	9.18	0	.00
079	17.63	.10	14	.26	47.68	3	10.22	10	34.06	5	17.03	0	.00	0	.00	2	6.81	2	6.81	0	.00
080	142.60	1.33	178	.42	44.46	55	13.74	108	26.98	31	7.74	16	4.00	9	2.25	7	1.75	9	2.25	10	2.50
081	85.38	.70	97	.38	46.44	27	12.93	66	31.59	11	5.27	4	1.91	11	5.27	3	1.44	13	6.22	2	.96
082	84.05	.69	84	.33	40.71	27	13.08	53	25.68	12	5.82	8	3.88	5	2.42	2	.97	5	2.42	1	.48
083	50.01	1.21	168	1.12	46.26	23	6.33	126	34.69	21	5.78	28	7.71	16	4.41	21	5.78	4	1.10	5	1.38
085	23.46	.23	33	.47	47.73	6	8.68	25	36.16	7	10.12	3	4.34	5	7.23	1	1.45	2	2.89	1	1.45
086	31.63	.12	11	.12	29.53	4	10.74	7	18.79	3	8.05	2	5.37	0	.00	1	2.68	0	.00	0	.00
087	22.26	.18	18	.27	33.36	10	18.53	6	11.12	2	3.71	1	1.85	1	1.85	0	.00	2	3.71	0	.00
088	29.75	.06	28	.31	151.80	14	75.90	11	59.64	2	10.84	3	16.26	0	.00	0	.00	3	16.26	1	5.42
089	44.33	.54	58	.44	35.98	16	9.93	33	20.47	7	4.34	7	4.34	2	1.24	6	3.72	4	2.48	1	.62
091	16.50	.26	42	.85	54.74	5	6.52	34	44.32	16	20.85	6	7.82	1	1.30	2	2.61	3	3.91	2	2.61
092	27.12	.13	38	.47	97.46	15	38.47	21	53.86	4	10.26	5	12.82	0	.00	2	5.13	2	5.13	4	10.26
093	51.89	.75	56	.36	24.91	16	7.12	34	15.13	7	3.11	5	2.22	5	2.22	3	1.33	7	3.11	0	.00
095	71.49	.38	71	.33	62.86	15	13.28	50	44.27	15	13.28	2	1.77	13	11.51	3	2.66	4	3.54	2	1.77
096	27.04	.33	30	.37	30.03	6	6.01	22	22.02	5	5.00	2	2.00	0	.00	2	2.00	3	3.00	1	1.00
097	33.87	.42	28	.28	21.99	10	7.85	18	14.14	4	3.14	3	2.36	0	.00	0	.00	2	1.57	4	3.14
098	16.20	.17	6	.12	11.74	4	7.82	2	3.91	0	.00	1	1.96	0	.00	0	.00	0	.00	0	.00
101	21.12	.06	8	.13	43.02	3	16.13	2	10.76	0	.00	1	5.38	0	.00	1	5.38	0	.00	0	.00
102	18.25	.06	13	.24	74.46	5	28.64	7	40.09	3	17.18	2	11.46	0	.00	0	.00	0	.00	1	5.73
104	14.34	.11	28	.65	85.28	12	36.55	15	45.69	7	21.32	4	12.18	1	3.05	0	.00	2	6.09	0	.00
105	2.75	.02	2	.24	32.19	1	16.10	1	16.10	0	.00	0	.00	0	.00	1	16.10	0	.00	0	.00
106	27.39	.21	52	.63	84.23	11	17.82	35	56.69	6	9.72	7	11.34	1	1.62	9	14.58	1	1.62	2	3.24
107	44.19	.22	46	.35	69.50	15	22.66	25	37.77	7	10.58	6	9.07	2	3.02	1	1.51	1	1.51	2	3.02
108	17.89	.05	25	.47	154.16	4	24.67	20	123.33	3	18.50	0	.00	9	55.50	1	6.17	2	12.33	1	6.17
110	41.26	.69	79	.64	38.09	14	6.75	58	27.97	19	9.16	7	3.38	2	.96	9	4.34	2	.96	4	1.93
111	10.61	.05	8	.25	52.56	4	26.28	4	26.28	1	6.57	2	13.14	0	.00	0	.00	1	6.57	0	.00

STH Route	Miles	Annual Travel 100MVM	ROR Crash 3_Yr	ROR Crash/ mile/ year	ROR Crash per 100MVM	O/T 3_Yr	O/T per 100MVM	F/O Crash 3_Yr	F/O Crash per 100MVM	Ditch Crash 3_Yr	Ditch Crash per 100MVM	Tree Crash 3_Yr	Tree Crash per 100MVM	G/R Crash 3_Yr	G/R Crash per 100MVM	Util pole Crash 3_Yr	Util pole Crash per 100MVM	Embnk Crash 3_Yr	Embnk Crash per 100MVM	Sign Crash 3_Yr	Sign Crash per 100MVM
112	10.17	.05	3	.10	18.61	1	6.20	1	6.20	0	.00	0	.00	1	6.20	0	.00	0	.00	0	.00
113	26.28	.31	68	.86	73.64	24	25.99	34	36.82	10	10.83	4	4.33	2	2.17	5	5.41	2	2.17	1	1.08
114	8.88	.18	13	.49	24.47	1	1.88	11	20.71	1	1.88	0	.00	2	3.77	1	1.88	0	.00	3	5.65
115	5.94	.02	10	.56	161.01	4	64.40	6	96.61	3	48.30	0	.00	0	.00	1	16.10	0	.00	0	.00
116	13.78	.16	16	.39	33.29	3	6.24	10	20.81	1	2.08	1	2.08	0	.00	4	8.32	1	2.08	0	.00
117	5.13	.08	6	.39	25.84	3	12.92	2	8.61	0	.00	0	.00	0	.00	0	.00	0	.00	2	8.61
118	6.86	.02	5	.24	86.22	2	34.49	3	51.73	2	34.49	1	17.24	0	.00	0	.00	0	.00	0	.00
120	15.44	.28	35	.76	42.27	6	7.25	21	25.36	6	7.25	5	6.04	1	1.21	2	2.42	0	.00	0	.00
121	34.75	.17	29	.28	57.49	9	17.84	17	33.70	4	7.93	1	1.98	2	3.96	2	3.96	1	1.98	1	1.98
122	14.69	.01	4	.09	117.25	1	29.31	1	29.31	0	.00	1	29.31	0	.00	0	.00	0	.00	0	.00
123	1.10	.01	3	.91	92.25	0	.00	2	61.50	0	.00	0	.00	0	.00	0	.00	1	30.75	0	.00
124	10.63	.12	8	.25	21.74	3	8.15	4	10.87	1	2.72	0	.00	1	2.72	1	2.72	0	.00	0	.00
126	4.81	.02	4	.28	62.21	0	.00	3	46.66	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00
127	12.75	.04	9	.24	71.23	0	.00	7	55.40	1	7.91	3	23.74	0	.00	0	.00	0	.00	0	.00
128	27.04	.15	30	.37	65.91	5	10.98	22	48.33	7	15.38	4	8.79	2	4.39	1	2.20	1	2.20	1	2.20
129	2.69	.03	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
130	30.73	.09	28	.30	109.31	7	27.33	19	74.18	2	7.81	6	23.42	0	.00	1	3.90	1	3.90	0	.00
131	70.19	.34	70	.33	69.52	25	24.83	38	37.74	10	9.93	3	2.98	7	6.95	2	1.99	8	7.94	0	.00
133	72.01	.35	94	.44	90.12	24	23.01	58	55.61	11	10.55	9	8.63	9	8.63	2	1.92	8	7.67	3	2.88
134	2.85	.01	10	1.17	356.83	2	71.37	6	214.10	3	107.05	0	.00	0	.00	1	35.68	0	.00	0	.00
136	12.53	.11	28	.74	84.57	8	24.16	14	42.28	0	.00	5	15.10	3	9.06	2	6.04	2	6.04	0	.00
137	3.74	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
138	11.66	.21	21	.60	32.90	3	4.70	15	23.50	4	6.27	2	3.13	0	.00	3	4.70	1	1.57	3	4.70
139	22.01	.08	9	.14	37.73	4	16.77	3	12.58	0	.00	1	4.19	0	.00	0	.00	1	4.19	0	.00
140	11.25	.14	33	.98	81.12	13	31.96	16	39.33	3	7.37	4	9.83	1	2.46	1	2.46	2	4.92	3	7.37
141	61.92	1.61	107	.58	22.15	33	6.83	66	13.66	20	4.14	6	1.24	6	1.24	6	1.24	2	.41	7	1.45
142	16.31	.18	26	.53	47.16	6	10.88	16	29.02	2	3.63	3	5.44	3	5.44	4	7.25	0	.00	0	.00
144	19.45	.25	48	.82	65.15	9	12.22	33	44.79	4	5.43	6	8.14	2	2.71	7	9.50	5	6.79	6	8.14
145	.41	.01	3	2.44	179.15	0	.00	3	179.15	0	.00	0	.00	2	119.43	1	59.72	0	.00	0	.00
146	13.22	.04	7	.18	58.77	3	25.19	3	25.19	1	8.40	0	.00	0	.00	1	8.40	0	.00	0	.00
147	12.65	.13	21	.55	55.81	5	13.29	12	31.89	2	5.32	2	5.32	1	2.66	2	5.32	1	2.66	1	2.66
149	24.15	.12	32	.44	90.96	6	17.06	24	68.22	4	11.37	3	8.53	0	.00	8	22.74	1	2.84	4	11.37
150	6.65	.12	9	.45	24.61	4	10.94	5	13.67	0	.00	2	5.47	0	.00	1	2.73	0	.00	0	.00
151	91.26	2.05	221	.81	35.89	56	9.10	127	20.63	29	4.71	3	.49	10	1.62	20	3.25	14	2.27	14	2.27
152	7.22	.02	3	.14	45.17	1	15.06	2	30.11	2	30.11	0	.00	0	.00	0	.00	0	.00	0	.00
153	60.24	.57	60	.33	35.28	8	4.70	48	28.22	15	8.82	5	2.94	2	1.18	3	1.76	5	2.94	2	1.18
154	19.00	.08	20	.35	84.74	4	16.95	14	59.32	0	.00	1	4.24	2	8.47	4	16.95	0	.00	2	8.47
155	6.94	.06	7	.34	36.96	3	15.84	3	15.84	1	5.28	1	5.28	0	.00	1	5.28	0	.00	0	.00
156	26.23	.15	21	.27	46.77	5	11.14	13	28.95	5	11.14	2	4.45	2	4.45	1	2.23	0	.00	0	.00
159	1.29	.01	1	.26	35.40	0	.00	1	35.40	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00
160	3.22	.03	1	.10	9.87	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00
161	21.58	.11	26	.40	78.94	6	18.22	18	54.65	8	24.29	2	6.07	3	9.11	1	3.04	1	3.04	2	6.07
162	40.88	.14	65	.53	158.53	26	63.41	33	80.48	4	9.76	2	4.88	6	14.63	3	7.32	11	26.83	1	2.44
164	25.65	.82	46	.60	18.65	5	2.03	28	11.35	5	2.03	4	1.62	0	.00	2	.81	2	.81	2	.81
165	.78	.03	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
167	9.41	.14	27	.96	66.15	4	9.80	22	53.90	3	7.35	3	7.35	5	12.25	2	4.90	0	.00	4	9.80

STH Route	Miles	Annual Travel 100MVM	ROR Crash 3_Yr	ROR Crash/ mile/ year	ROR Crash per 100MVM	O/T 3_Yr	O/T per 100MVM	F/O Crash 3_Yr	F/O Crash per 100MVM	Ditch Crash 3_Yr	Ditch Crash per 100MVM	Tree Crash 3_Yr	Tree Crash per 100MVM	G/R Crash 3_Yr	G/R Crash per 100MVM	Util pole Crash 3_Yr	Util pole Crash per 100MVM	Embnk Crash 3_Yr	Embnk Crash per 100MVM	Sign Crash 3_Yr	Sign Crash per 100MVM
168	5.93	.02	3	.17	63.12	0	.00	3	63.12	0	.00	1	21.04	1	21.04	1	21.04	0	.00	0	.00
169	17.36	.03	2	.04	24.97	0	.00	2	24.97	2	24.97	0	.00	0	.00	0	.00	0	.00	0	.00
170	23.90	.14	34	.47	81.58	14	33.59	20	47.99	9	21.60	0	.00	1	2.40	1	2.40	2	4.80	3	7.20
171	33.25	.08	42	.42	173.24	9	37.12	31	127.87	3	12.37	3	12.37	3	12.37	5	20.62	6	24.75	0	.00
172	1.40	.05	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
173	33.55	.23	29	.29	42.27	9	13.12	19	27.70	8	11.66	4	5.83	0	.00	0	.00	1	1.46	1	1.46
175	46.56	.49	123	.88	84.12	19	12.99	91	62.24	20	13.68	13	8.89	6	4.10	16	10.94	3	2.05	8	5.47
178	20.09	.19	43	.71	76.61	10	17.82	30	53.45	7	12.47	8	14.25	4	7.13	1	1.78	3	5.34	1	1.78
179	8.80	.02	7	.27	120.87	2	34.53	4	69.07	0	.00	0	.00	1	17.27	0	.00	2	34.53	0	.00
180	29.94	.24	37	.41	52.36	6	8.49	27	38.21	7	9.91	6	8.49	1	1.42	1	1.42	0	.00	0	.00
182	29.65	.10	10	.11	33.49	3	10.05	7	23.44	2	6.70	3	10.05	0	.00	0	.00	0	.00	0	.00
186	15.01	.11	9	.20	26.63	3	8.88	6	17.75	1	2.96	0	.00	0	.00	0	.00	1	2.96	1	2.96
187	13.87	.02	16	.38	249.33	3	46.75	12	187.00	4	62.33	0	.00	0	.00	4	62.33	1	15.58	0	.00
188	10.55	.04	14	.44	106.77	5	38.13	8	61.01	0	.00	1	7.63	0	.00	2	15.25	1	7.63	2	15.25
191	13.04	.04	17	.43	147.22	3	25.98	10	86.60	2	17.32	0	.00	0	.00	1	8.66	1	8.66	0	.00
193	1.42	.01	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
194	11.32	.03	10	.29	116.92	4	46.77	3	35.08	0	.00	3	35.08	0	.00	0	.00	0	.00	0	.00
213	19.33	.17	55	.95	107.53	19	37.15	34	66.47	17	33.24	7	13.69	1	1.96	3	5.87	2	3.91	1	1.96
243	.30	.01	1	1.11	60.40	0	.00	1	60.40	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00
253	7.61	.03	2	.09	24.98	1	12.49	1	12.49	0	.00	1	12.49	0	.00	0	.00	0	.00	0	.00
310	6.69	.13	13	.65	34.41	5	13.23	5	13.23	0	.00	1	2.65	0	.00	1	2.65	1	2.65	0	.00
351	2.31	.08	15	2.16	65.71	0	.00	12	52.57	0	.00	0	.00	5	21.90	1	4.38	0	.00	0	.00
Overall																					
	8819.81	113.38	11629	.44	34.19	3060	9.00	7195	21.15	1593	4.68	1133	3.33	802	2.36	661	1.94	613	1.80	453	1.33

APPENDIX E

RUN-OFF-ROAD CRASH DENSITIES FOR
OVERTURN
FIXED OBJECT
DITCH
TREE
GUARDRAIL
UTILITY POLE
EMBANKMENT AND
SIGN POST
CRASHES ON
TWO-LANE
RURAL UNDIVIDED
STATE TRUNK HIGHWAYS

STH Route	Miles	Annual Travel 100MVM	ROR Crash 3_Yr	ROR Crash/ mile/ year	ROR Crash per 100MVM	O/T 3_Yr	O/T per mile/ year	F/O Crash 3_Yr	F/O Crash/ mile/ year	Ditch Crash 3_Yr	Ditch Crash/ mile/ year	Tree Crash 3_Yr	Tree Crash/ mile/ year	G/R Crash 3_Yr	G/R Crash/ mile/ year	Util pole Crash 3_Yr	Util pole Crash/ mile/ year	Embnk Crash 3_Yr	Embnk Crash/ mile/ year	Sign Crash 3_Yr	Sign Crash/ mile/ year
002	96.05	1.98	129	.45	21.72	43	.15	72	.25	13	.05	24	.08	6	.02	7	.02	2	.01	5	.02
008	243.10	3.81	278	.38	24.33	91	.12	147	.20	37	.05	42	.06	14	.02	5	.01	6	.01	14	.02
010	240.98	4.81	332	.46	23.02	88	.12	211	.29	41	.06	23	.03	37	.05	25	.03	18	.02	20	.03
011	113.97	2.35	185	.54	26.23	29	.08	135	.39	16	.05	17	.05	18	.05	20	.06	11	.03	8	.02
012	238.43	4.03	463	.65	38.30	111	.16	296	.41	67	.09	42	.06	29	.04	24	.03	31	.04	20	.03
013	299.53	4.31	349	.39	26.97	96	.11	196	.22	35	.04	43	.05	19	.02	12	.01	9	.01	14	.02
014	158.02	4.17	347	.73	27.76	81	.17	225	.47	29	.06	28	.06	39	.08	28	.06	21	.04	15	.03
015	1.60	.07	5	1.04	22.31	0	.00	4	.83	3	.63	0	.00	1	.21	0	.00	0	.00	0	.00
016	95.56	1.73	144	.50	27.75	39	.14	90	.31	18	.06	10	.03	14	.05	6	.02	10	.03	6	.02
017	73.70	.98	97	.44	32.98	30	.14	60	.27	14	.06	18	.08	3	.01	2	.01	6	.03	1	.00
018	89.60	1.73	142	.53	27.44	27	.10	99	.37	16	.06	10	.04	9	.03	9	.03	9	.03	6	.02
019	46.73	.89	94	.67	35.08	27	.19	58	.41	14	.10	9	.06	0	.00	9	.06	4	.03	6	.04
020	29.60	.49	66	.74	44.94	10	.11	48	.54	4	.05	13	.15	7	.08	5	.06	2	.02	7	.08
021	111.56	2.58	161	.48	20.78	50	.15	87	.26	20	.06	18	.05	5	.01	4	.01	4	.01	9	.03
022	149.63	2.10	191	.43	30.34	43	.10	129	.29	36	.08	17	.04	13	.03	6	.01	10	.02	7	.02
023	164.65	2.96	240	.49	27.07	66	.13	142	.29	26	.05	20	.04	18	.04	12	.02	13	.03	13	.03
025	79.18	.88	90	.38	34.19	31	.13	50	.21	6	.03	5	.02	11	.05	5	.02	5	.02	4	.02
026	70.94	2.05	139	.65	22.65	28	.13	94	.44	20	.09	11	.05	12	.06	15	.07	6	.03	9	.04
027	242.23	2.17	234	.32	35.89	81	.11	125	.17	24	.03	23	.03	22	.03	7	.01	17	.02	7	.01
028	49.88	.63	70	.47	37.30	13	.09	48	.32	10	.07	4	.03	10	.07	3	.02	3	.02	2	.01
029	73.45	.76	77	.35	33.95	20	.09	46	.21	10	.05	4	.02	8	.04	2	.01	4	.02	4	.02
031	4.35	.28	16	1.23	19.23	1	.08	11	.84	3	.23	4	.31	0	.00	1	.08	0	.00	1	.08
032	171.75	2.36	202	.39	28.49	59	.11	117	.23	30	.06	12	.02	8	.02	16	.03	4	.01	8	.02
033	162.71	2.67	258	.53	32.26	82	.17	146	.30	33	.07	15	.03	23	.05	11	.02	13	.03	9	.02
034	22.93	.30	24	.35	27.02	11	.16	11	.16	4	.06	1	.01	1	.01	0	.00	0	.00	0	.00
035	308.00	4.17	350	.38	27.98	84	.09	218	.24	40	.04	31	.03	47	.05	11	.01	22	.02	7	.01
036	6.57	.10	10	.51	33.74	1	.05	8	.41	4	.20	0	.00	0	.00	0	.00	0	.00	0	.00
037	40.17	.41	55	.46	44.70	12	.10	35	.29	4	.03	3	.02	8	.07	3	.02	7	.06	2	.02
038	5.03	.12	21	1.39	60.80	3	.20	17	1.13	3	.20	0	.00	1	.07	2	.13	1	.07	2	.13
039	40.84	.14	56	.46	135.58	16	.13	34	.28	10	.08	4	.03	2	.02	3	.02	5	.04	1	.01
040	79.42	.32	79	.33	82.05	30	.13	39	.16	10	.04	12	.05	5	.02	2	.01	1	.00	1	.00
041	15.19	.61	34	.75	18.59	7	.15	20	.44	4	.09	2	.04	0	.00	0	.00	3	.07	2	.04
042	110.43	1.57	139	.42	29.54	25	.08	94	.28	12	.04	15	.05	10	.03	21	.06	8	.02	4	.01
044	55.65	.60	55	.33	30.66	13	.08	34	.20	10	.06	2	.01	0	.00	3	.02	1	.01	2	.01
045	196.43	3.78	296	.50	26.07	62	.11	200	.34	51	.09	31	.05	13	.02	20	.03	5	.01	12	.02
046	27.93	.38	22	.26	19.37	3	.04	17	.20	3	.04	3	.04	2	.02	1	.01	0	.00	2	.02
047	116.65	1.81	154	.44	28.40	42	.12	84	.24	19	.05	12	.03	6	.02	11	.03	6	.02	5	.01
048	88.15	.76	70	.26	30.67	21	.08	37	.14	11	.04	13	.05	4	.02	3	.01	2	.01	0	.00
049	93.53	.89	107	.38	39.99	19	.07	75	.27	21	.07	17	.06	4	.01	8	.03	5	.02	1	.00
050	5.64	.21	21	1.24	33.67	6	.35	12	.71	0	.00	7	.41	0	.00	1	.06	1	.06	0	.00
051	109.67	2.29	211	.64	30.72	63	.19	106	.32	31	.09	21	.06	11	.03	7	.02	4	.01	7	.02
052	57.60	.24	58	.34	80.13	23	.13	30	.17	12	.07	3	.02	0	.00	1	.01	2	.01	2	.01
053	65.51	.98	99	.50	33.55	14	.07	72	.37	13	.07	6	.03	24	.12	4	.02	6	.03	2	.01
054	172.71	2.13	193	.37	30.23	48	.09	126	.24	39	.08	15	.03	16	.03	9	.02	16	.03	8	.02
055	134.99	.79	107	.26	45.34	23	.06	66	.16	20	.05	17	.04	3	.01	2	.00	5	.01	2	.00
056	50.56	.22	84	.55	124.50	26	.17	57	.38	7	.05	8	.05	8	.05	7	.05	11	.07	4	.03

STH Route	Miles	Annual Travel 100MVM	ROR Crash 3_Yr	ROR Crash/ mile/ year	ROR Crash per 100MVM	O/T 3_Yr	O/T per mile/ year	F/O Crash 3_Yr	F/O Crash/ mile/ year	Ditch Crash 3_Yr	Ditch Crash/ mile/ year	Tree Crash 3_Yr	Tree Crash/ mile/ year	G/R Crash 3_Yr	G/R Crash/ mile/ year	Util pole Crash 3_Yr	Util pole Crash/ mile/ year	Embnk Crash 3_Yr	Embnk Crash/ mile/ year	Sign Crash 3_Yr	Sign Crash/ mile/ year
057	71.65	1.70	116	.54	22.79	30	.14	64	.30	10	.05	19	.09	4	.02	7	.03	1	.00	7	.03
058	52.84	.35	58	.37	54.79	19	.12	32	.20	5	.03	4	.03	5	.03	7	.04	3	.02	2	.01
059	85.54	1.26	129	.50	34.20	26	.10	92	.36	24	.09	8	.03	2	.01	16	.06	9	.04	7	.03
060	130.58	1.48	213	.54	47.96	60	.15	128	.33	31	.08	11	.03	15	.04	4	.01	16	.04	9	.02
061	65.19	.95	73	.37	25.61	11	.06	56	.29	12	.06	2	.01	14	.07	2	.01	11	.06	3	.02
063	171.64	2.71	192	.37	23.64	74	.14	97	.19	17	.03	26	.05	8	.02	3	.01	9	.02	5	.01
064	234.17	1.69	193	.27	38.15	66	.09	109	.16	29	.04	22	.03	16	.02	3	.00	3	.00	4	.01
065	43.50	.60	67	.51	37.15	23	.18	41	.31	11	.08	5	.04	3	.02	3	.02	8	.06	4	.03
066	14.66	.20	36	.82	58.56	10	.23	23	.52	7	.16	5	.11	2	.05	0	.00	1	.02	3	.07
067	125.86	1.51	214	.57	47.15	35	.09	154	.41	25	.07	38	.10	20	.05	14	.04	10	.03	7	.02
068	8.49	.08	23	.90	92.84	10	.39	13	.51	5	.20	1	.04	0	.00	2	.08	3	.12	0	.00
069	36.47	.76	78	.71	34.14	21	.19	49	.45	20	.18	3	.03	9	.08	5	.05	5	.05	2	.02
070	213.06	1.86	142	.22	25.42	46	.07	78	.12	14	.02	33	.05	4	.01	4	.01	7	.01	4	.01
071	42.62	.31	64	.50	68.07	23	.18	39	.31	6	.05	4	.03	8	.06	1	.01	9	.07	0	.00
072	27.70	.12	28	.34	76.32	4	.05	20	.24	3	.04	4	.05	6	.07	3	.04	2	.02	0	.00
073	214.85	1.95	187	.29	32.03	59	.09	104	.16	29	.04	7	.01	9	.01	8	.01	10	.02	8	.01
075	12.10	.14	32	.88	75.07	5	.14	23	.63	6	.17	6	.17	1	.03	3	.08	0	.00	2	.06
076	24.92	.16	43	.58	89.47	12	.16	27	.36	9	.12	3	.04	1	.01	6	.08	0	.00	1	.01
077	116.72	.48	70	.20	48.89	19	.05	41	.12	7	.02	18	.05	1	.00	2	.01	3	.01	1	.00
078	85.19	.54	127	.50	77.72	37	.14	74	.29	16	.06	8	.03	2	.01	5	.02	15	.06	0	.00
079	17.63	.10	14	.26	47.68	3	.06	10	.19	5	.09	0	.00	0	.00	2	.04	2	.04	0	.00
080	142.60	1.33	178	.42	44.46	55	.13	108	.25	31	.07	16	.04	9	.02	7	.02	9	.02	10	.02
081	85.38	.70	97	.38	46.44	27	.11	66	.26	11	.04	4	.02	11	.04	3	.01	13	.05	2	.01
082	84.05	.69	84	.33	40.71	27	.11	53	.21	12	.05	8	.03	5	.02	2	.01	5	.02	1	.00
083	50.01	1.21	168	1.12	46.26	23	.15	126	.84	21	.14	28	.19	16	.11	21	.14	4	.03	5	.03
085	23.46	.23	33	.47	47.73	6	.09	25	.36	7	.10	3	.04	5	.07	1	.01	2	.03	1	.01
086	31.63	.12	11	.12	29.53	4	.04	7	.07	3	.03	2	.02	0	.00	1	.01	0	.00	0	.00
087	22.26	.18	18	.27	33.36	10	.15	6	.09	2	.03	1	.01	1	.01	0	.00	2	.03	0	.00
088	29.75	.06	28	.31	151.80	14	.16	11	.12	2	.02	3	.03	0	.00	0	.00	3	.03	1	.01
089	44.33	.54	58	.44	35.98	16	.12	33	.25	7	.05	7	.05	2	.02	6	.05	4	.03	1	.01
091	16.50	.26	42	.85	54.74	5	.10	34	.69	16	.32	6	.12	1	.02	2	.04	3	.06	2	.04
092	27.12	.13	38	.47	97.46	15	.18	21	.26	4	.05	5	.06	0	.00	2	.02	2	.02	4	.05
093	51.89	.75	56	.36	24.91	16	.10	34	.22	7	.04	5	.03	5	.03	3	.02	7	.04	0	.00
095	71.49	.38	71	.33	62.86	15	.07	50	.23	15	.07	2	.01	13	.06	3	.01	4	.02	2	.01
096	27.04	.33	30	.37	30.03	6	.07	22	.27	5	.06	2	.02	0	.00	2	.02	3	.04	1	.01
097	33.87	.42	28	.28	21.99	10	.10	18	.18	4	.04	3	.03	0	.00	0	.00	2	.02	4	.04
098	16.20	.17	6	.12	11.74	4	.08	2	.04	0	.00	1	.02	0	.00	0	.00	0	.00	0	.00
101	21.12	.06	8	.13	43.02	3	.05	2	.03	0	.00	1	.02	0	.00	1	.02	0	.00	0	.00
102	18.25	.06	13	.24	74.46	5	.09	7	.13	3	.05	2	.04	0	.00	0	.00	0	.00	1	.02
104	14.34	.11	28	.65	85.28	12	.28	15	.35	7	.16	4	.09	1	.02	0	.00	2	.05	0	.00
105	2.75	.02	2	.24	32.19	1	.12	1	.12	0	.00	0	.00	0	.00	1	.12	0	.00	0	.00
106	27.39	.21	52	.63	84.23	11	.13	35	.43	6	.07	7	.09	1	.01	9	.11	1	.01	2	.02
107	44.19	.22	46	.35	69.50	15	.11	25	.19	7	.05	6	.05	2	.02	1	.01	1	.01	2	.02
108	17.89	.05	25	.47	154.16	4	.07	20	.37	3	.06	0	.00	9	.17	1	.02	2	.04	1	.02
110	41.26	.69	79	.64	38.09	14	.11	58	.47	19	.15	7	.06	2	.02	9	.07	2	.02	4	.03
111	10.61	.05	8	.25	52.56	4	.13	4	.13	1	.03	2	.06	0	.00	0	.00	1	.03	0	.00

STH Route	Miles	Annual Travel 100MVM	ROR Crash 3_Yr	ROR Crash/ mile/ year	ROR Crash per 100MVM	O/T 3_Yr	O/T per mile/ year	F/O Crash 3_Yr	F/O Crash/ mile/ year	Ditch Crash 3_Yr	Ditch Crash/ mile/ year	Tree Crash 3_Yr	Tree Crash/ mile/ year	G/R Crash 3_Yr	G/R Crash/ mile/ year	Util pole Crash 3_Yr	Util pole Crash/ mile/ year	Embnk Crash 3_Yr	Embnk Crash/ mile/ year	Sign Crash 3_Yr	Sign Crash/ mile/ year
112	10.17	.05	3	.10	18.61	1	.03	1	.03	0	.00	0	.00	1	.03	0	.00	0	.00	0	.00
113	26.28	.31	68	.86	73.64	24	.30	34	.43	10	.13	4	.05	2	.03	5	.06	2	.03	1	.01
114	8.88	.18	13	.49	24.47	1	.04	11	.41	1	.04	0	.00	2	.08	1	.04	0	.00	3	.11
115	5.94	.02	10	.56	161.01	4	.22	6	.34	3	.17	0	.00	0	.00	1	.06	0	.00	0	.00
116	13.78	.16	16	.39	33.29	3	.07	10	.24	1	.02	1	.02	0	.00	4	.10	1	.02	0	.00
117	5.13	.08	6	.39	25.84	3	.19	2	.13	0	.00	0	.00	0	.00	0	.00	0	.00	2	.13
118	6.86	.02	5	.24	86.22	2	.10	3	.15	2	.10	1	.05	0	.00	0	.00	0	.00	0	.00
120	15.44	.28	35	.76	42.27	6	.13	21	.45	6	.13	5	.11	1	.02	2	.04	0	.00	0	.00
121	34.75	.17	29	.28	57.49	9	.09	17	.16	4	.04	1	.01	2	.02	2	.02	1	.01	1	.01
122	14.69	.01	4	.09	117.25	1	.02	1	.02	0	.00	1	.02	0	.00	0	.00	0	.00	0	.00
123	1.10	.01	3	.91	92.25	0	.00	2	.61	0	.00	0	.00	0	.00	0	.00	1	.30	0	.00
124	10.63	.12	8	.25	21.74	3	.09	4	.13	1	.03	0	.00	1	.03	1	.03	0	.00	0	.00
126	4.81	.02	4	.28	62.21	0	.00	3	.21	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00
127	12.75	.04	9	.24	71.23	0	.00	7	.18	1	.03	3	.08	0	.00	0	.00	0	.00	0	.00
128	27.04	.15	30	.37	65.91	5	.06	22	.27	7	.09	4	.05	2	.02	1	.01	1	.01	1	.01
129	2.69	.03	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
130	30.73	.09	28	.30	109.31	7	.08	19	.21	2	.02	6	.07	0	.00	1	.01	1	.01	0	.00
131	70.19	.34	70	.33	69.52	25	.12	38	.18	10	.05	3	.01	7	.03	2	.01	8	.04	0	.00
133	72.01	.35	94	.44	90.12	24	.11	58	.27	11	.05	9	.04	9	.04	2	.01	8	.04	3	.01
134	2.85	.01	10	1.17	356.83	2	.23	6	.70	3	.35	0	.00	0	.00	1	.12	0	.00	0	.00
136	12.53	.11	28	.74	84.57	8	.21	14	.37	0	.00	5	.13	3	.08	2	.05	2	.05	0	.00
137	3.74	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
138	11.66	.21	21	.60	32.90	3	.09	15	.43	4	.11	2	.06	0	.00	3	.09	1	.03	3	.09
139	22.01	.08	9	.14	37.73	4	.06	3	.05	0	.00	1	.02	0	.00	0	.00	1	.02	0	.00
140	11.25	.14	33	.98	81.12	13	.39	16	.47	3	.09	4	.12	1	.03	1	.03	2	.06	3	.09
141	61.92	1.61	107	.58	22.15	33	.18	66	.36	20	.11	6	.03	6	.03	6	.03	2	.01	7	.04
142	16.31	.18	26	.53	47.16	6	.12	16	.33	2	.04	3	.06	3	.06	4	.08	0	.00	0	.00
144	19.45	.25	48	.82	65.15	9	.15	33	.57	4	.07	6	.10	2	.03	7	.12	5	.09	6	.10
145	.41	.01	3	2.44	179.15	0	.00	3	2.44	0	.00	0	.00	2	1.63	1	.81	0	.00	0	.00
146	13.22	.04	7	.18	58.77	3	.08	3	.08	1	.03	0	.00	0	.00	1	.03	0	.00	0	.00
147	12.65	.13	21	.55	55.81	5	.13	12	.32	2	.05	2	.05	1	.03	2	.05	1	.03	1	.03
149	24.15	.12	32	.44	90.96	6	.08	24	.33	4	.06	3	.04	0	.00	8	.11	1	.01	4	.06
150	6.65	.12	9	.45	24.61	4	.20	5	.25	0	.00	2	.10	0	.00	1	.05	0	.00	0	.00
151	91.26	2.05	221	.81	35.89	56	.20	127	.46	29	.11	3	.01	10	.04	20	.07	14	.05	14	.05
152	7.22	.02	3	.14	45.17	1	.05	2	.09	2	.09	0	.00	0	.00	0	.00	0	.00	0	.00
153	60.24	.57	60	.33	35.28	8	.04	48	.27	15	.08	5	.03	2	.01	3	.02	5	.03	2	.01
154	19.00	.08	20	.35	84.74	4	.07	14	.25	0	.00	1	.02	2	.04	4	.07	0	.00	2	.04
155	6.94	.06	7	.34	36.96	3	.14	3	.14	1	.05	1	.05	0	.00	1	.05	0	.00	0	.00
156	26.23	.15	21	.27	46.77	5	.06	13	.17	5	.06	2	.03	2	.03	1	.01	0	.00	0	.00
159	1.29	.01	1	.26	35.40	0	.00	1	.26	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00
160	3.22	.03	1	.10	9.87	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00
161	21.58	.11	26	.40	78.94	6	.09	18	.28	8	.12	2	.03	3	.05	1	.02	1	.02	2	.03
162	40.88	.14	65	.53	158.53	26	.21	33	.27	4	.03	2	.02	6	.05	3	.02	11	.09	1	.01
164	25.65	.82	46	.60	18.65	5	.06	28	.36	5	.06	4	.05	0	.00	2	.03	2	.03	2	.03
165	.78	.03	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
167	9.41	.14	27	.96	66.15	4	.14	22	.78	3	.11	3	.11	5	.18	2	.07	0	.00	4	.14

STH Route	Miles	Annual Travel 100MVM	ROR Crash 3_Yr	ROR Crash/ mile/ year	ROR Crash per 100MVM	O/T 3_Yr	O/T per mile/ year	F/O Crash 3_Yr	F/O Crash/ mile/ year	Ditch Crash 3_Yr	Ditch Crash/ mile/ year	Tree Crash 3_Yr	Tree Crash/ mile/ year	G/R Crash 3_Yr	G/R Crash/ mile/ year	Util pole Crash 3_Yr	Util pole Crash/ mile/ year	Embnk Crash 3_Yr	Embnk Crash/ mile/ year	Sign Crash 3_Yr	Sign Crash/ mile/ year
168	5.93	.02	3	.17	63.12	0	.00	3	.17	0	.00	1	.06	1	.06	1	.06	0	.00	0	.00
169	17.36	.03	2	.04	24.97	0	.00	2	.04	2	.04	0	.00	0	.00	0	.00	0	.00	0	.00
170	23.90	.14	34	.47	81.58	14	.20	20	.28	9	.13	0	.00	1	.01	1	.01	2	.03	3	.04
171	33.25	.08	42	.42	173.24	9	.09	31	.31	3	.03	3	.03	3	.03	5	.05	6	.06	0	.00
172	1.40	.05	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
173	33.55	.23	29	.29	42.27	9	.09	19	.19	8	.08	4	.04	0	.00	0	.00	1	.01	1	.01
175	46.56	.49	123	.88	84.12	19	.14	91	.65	20	.14	13	.09	6	.04	16	.11	3	.02	8	.06
178	20.09	.19	43	.71	76.61	10	.17	30	.50	7	.12	8	.13	4	.07	1	.02	3	.05	1	.02
179	8.80	.02	7	.27	120.87	2	.08	4	.15	0	.00	0	.00	1	.04	0	.00	2	.08	0	.00
180	29.94	.24	37	.41	52.36	6	.07	27	.30	7	.08	6	.07	1	.01	1	.01	0	.00	0	.00
182	29.65	.10	10	.11	33.49	3	.03	7	.08	2	.02	3	.03	0	.00	0	.00	0	.00	0	.00
186	15.01	.11	9	.20	26.63	3	.07	6	.13	1	.02	0	.00	0	.00	0	.00	1	.02	1	.02
187	13.87	.02	16	.38	249.33	3	.07	12	.29	4	.10	0	.00	0	.00	4	.10	1	.02	0	.00
188	10.55	.04	14	.44	106.77	5	.16	8	.25	0	.00	1	.03	0	.00	2	.06	1	.03	2	.06
191	13.04	.04	17	.43	147.22	3	.08	10	.26	2	.05	0	.00	0	.00	1	.03	1	.03	0	.00
193	1.42	.01	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
194	11.32	.03	10	.29	116.92	4	.12	3	.09	0	.00	3	.09	0	.00	0	.00	0	.00	0	.00
213	19.33	.17	55	.95	107.53	19	.33	34	.59	17	.29	7	.12	1	.02	3	.05	2	.03	1	.02
243	.30	.01	1	1.11	60.40	0	.00	1	1.11	0	.00	0	.00	0	.00	0	.00	0	.00	0	.00
253	7.61	.03	2	.09	24.98	1	.04	1	.04	0	.00	1	.04	0	.00	0	.00	0	.00	0	.00
310	6.69	.13	13	.65	34.41	5	.25	5	.25	0	.00	1	.05	0	.00	1	.05	1	.05	0	.00
351	2.31	.08	15	2.16	65.71	0	.00	12	1.73	0	.00	0	.00	5	.72	1	.14	0	.00	0	.00
Overall																					
	8819.81	113.38	11629	.44	34.19	3060	.12	7195	.27	1593	.06	1133	.04	802	.03	661	.02	613	.02	453	.02

APPENDIX F

RUN-OFF-ROAD
CRASH/STATE TRUNK HIGHWAY LOG
INTERLEAF TABLE
FOR STH 14

COUNTY	HWY	REFPT	CUM_MP	FEATURE	AADT	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Most Harmful Event
LACR	014E	001	.00	>> C OF LA CROSSE	. .		.		.	.	.	.
LACR	014E	004D	.82	B-32-0300 BRIDGE	. .		.		.	.	.	.
LACR	014E	005	1.34	USH 14 WB	. .		.		.	.	.	.
LACR	014E	007	1.83	STH 33 EB	. .		.		.	.	.	.
LACR	014E	008	2.05		. .		.		.	.	.	.
LACR	014E	010	2.88	STH 35 NB	. .		.		.	.	.	.
LACR	014E	011A	3.60	EAST AVE	. .		.		.	.	.	.
LACR	014E	011T	4.31	LOSEY BLVD	. .		.		.	.	.	.
LACR	014E	014B	6.10	USH 61 SB	. .		.		.	.	.	.
LACR	014E	014G	6.19	USH 61 SB	. .		.		.	.	.	.
LACR	014E	014K	6.20	USH 61 NB	. .		.		.	.	.	.
			6.86		6980	On Roadway	22	10/23/99	DRY	DARK	Inj	GUARDRAIL FACE
LACR	014E	016	7.22	CTH MM	. .		.		.	.	.	.
			7.32		6980	Outside Should. Left	6	01/06/99	SNOW/SLUSH	DAWN	PDO	GUARDRAIL FACE
			7.42		6980	Outside Should. Right	12	01/06/99	SNOW/SLUSH	DAYLIGHT	PDO	GUARDRAIL FACE
			7.47		6980	Shoulder	19	03/26/99	DRY	DARK	PDO	GUARDRAIL FACE
LACR	014E	017M	7.51	JUSTIN RD	. .		.		.	.	.	.
			7.52		6980	Shoulder	16	06/10/98	DRY	DAYLIGHT	PDO	GUARDRAIL END
			8.05		6980	Outside Should. Right	8	01/21/98	ICE	DAYLIGHT	PDO	DITCH
			8.60		6980	On Roadway	14	06/08/99	WET	DAYLIGHT	PDO	GUARDRAIL FACE
LACR	014E	018	8.60	HELKE RD	. .		.		.	.	.	.
			8.60		6980	Outside Should. Left	4	05/10/2000	DRY	DARK	PDO	DITCH
			8.60		6980	Outside Should. Right	13	01/05/99	SNOW/SLUSH	DAYLIGHT	PDO	GUARDRAIL FACE
			9.58		6980	On Roadway	11	10/18/98	DRY	DAYLIGHT	PDO	BRIDGE RAIL
			9.58		6980	On Roadway	3	06/27/99	DRY	DARK	Inj	GUARDRAIL FACE
LACR	014E	022	9.69	BREIDEL COULEE RD	. .		.		.	.	.	.
			9.99		6980	On Roadway	19	07/26/99	DRY	DAYLIGHT	Inj	64
LACR	014E	025	10.32	>> T OF SHELBY	. .		.		.	.	.	.
			10.62		6980	Outside Should. Right	16	06/01/2000	WET	DAYLIGHT	PDO	EMBANKMENT
LACR	014E	026	11.05	CTH M	. .		.		.	.	.	.
			11.05		6120	Outside Should. Right	20	11/20/2000	0	DARK LIGHTED	Inj	GUARDRAIL END
			11.15		6120	Outside Should. Left	2	11/24/2000	ICE	DARK	PDO	OVERTURN
			11.35		6120	Outside Should. Left	16	02/17/2000	SNOW/SLUSH	DAYLIGHT	Inj	DITCH
			11.55		6120	Shoulder	7	12/08/99	ICE	DAWN	Inj	OVERTURN
			11.75		6120	On Roadway	15	04/29/2000	DRY	DAYLIGHT	PDO	OTHER NON-FIXED OBJECT
LACR	014E	027	12.17	CTH MM	. .		.		.	.	.	.
			12.58		6120	Outside Should. Right	12	12/09/99	DRY	DAYLIGHT	PDO	OVERTURN
			12.67		6120	Outside Should. Right	17	04/01/98	DRY	DAYLIGHT	PDO	GUARDRAIL FACE
			12.88		6120	On Roadway	11	02/20/2000	DRY	DAYLIGHT	PDO	OTHER NON-FIXED OBJECT
LACR	014E	029	13.28	BARTSCH RD	. .		.		.	.	.	.
			13.28		6120	Outside Should. Right	4	01/30/99	DRY	DARK	PDO	DITCH
			13.38		6120	Outside Should. Right	14	02/12/2000	SNOW/SLUSH	DAYLIGHT	Inj	EMBANKMENT
VERN	014E	032	14.43	CTH N	. .		.		.	.	.	.
			14.43		6440	Outside Should. Right	14	12/16/2000	SNOW/SLUSH	DAYLIGHT	PDO	TRAFFIC SIGN POST
VERN	014E	034	15.30	HOHLFELD RD	. .		.		.	.	.	.
			15.75		6440	Outside Should. Left	8	12/07/99	ICE	DAYLIGHT	PDO	GUARDRAIL FACE
			16.05		6440	Outside Should. Left	21	11/26/99	ICE	DARK	Inj	GUARDRAIL END
			16.15		6440	Outside Should. Left	18	12/28/2000	SNOW/SLUSH	DARK	Inj	EMBANKMENT
			16.30		6440	Outside Should. Right	0	12/25/98	DRY	DARK	PDO	EMBANKMENT
VERN	014E	035	16.45	DAHLEN LA	. .		.		.	.	.	.

COUNTY	HWY	REFPT	CUM_MP	FEATURE	AADT	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Most Harmful Event
VERN	014E	036	16.82	STH 162 NB	.	.	.	.	.	.	.	.
			16.83		6440	Outside Should. Left	7	03/05/2000	DRY	DAYLIGHT	Inj	OVERTURN
VERN	014E	038	17.67	STH 162 NB	.	.	.	.	.	.	.	.
			17.68		6440	Outside Should. Right	13	07/18/98	DRY	DARK	PDO	TRAFFIC SIGN POST
			18.48		6430	Outside Should. Right	23	12/03/99	WET	DARK LIGHTED	PDO	TREE
VERN	014E	040	18.50	CTH P	.	.	.	.	.	.	.	.
VERN	014E	041T	19.21	CTH B	.	.	.	.	.	.	.	.
VERN	014E	043K	19.92	CORNELL LA	.	.	.	.	.	.	.	.
			21.11		5200	Outside Should. Right	3	11/20/98	DRY	DARK	PDO	GUARDRAIL FACE
			21.21		5200	Outside Should. Right	14	11/26/99	WET	DAYLIGHT	Inj	OVERTURN
			21.31		5200	Outside Should. Right	17	03/09/99	ICE	DAYLIGHT	Inj	OVERTURN
			21.41		5200	Shoulder	0	12/23/2000	SNOW/SLUSH	DARK	PDO	TRAFFIC SIGN POST
			21.41		5200	Outside Should. Right	0	03/25/98	WET	DARK	PDO	GUARDRAIL FACE
			21.51		5200	On Roadway	16	03/08/99	SNOW/SLUSH	DAYLIGHT	PDO	GUARDRAIL FACE
VERN	014E	045	21.61	CTH GG	.	.	.	.	.	.	.	.
			21.87		5200	Outside Should. Right	12	10/10/2000	DRY	DAYLIGHT	PDO	TRAFFIC SIGN POST
VERN	014E	047	22.26	VANG ST	.	.	.	.	.	.	.	.
			22.46		5080	On Roadway	7	09/12/2000	DRY	DAYLIGHT	Inj	VEHICLE IN OPERATION
VERN	014E	049	23.38	VOLDEN RD	.	.	.	.	.	.	.	.
			23.69		5080	Outside Should. Right	11	02/15/2000	SNOW/SLUSH	DAYLIGHT	PDO	OVERTURN
			23.89		5080	Outside Should. Left	11	04/10/98	DRY	DAYLIGHT	PDO	EMBANKMENT
			24.34		5724	Outside Should. Left	3	07/17/99	DRY	DARK	Inj	OVERTURN
VERN	014E	051	24.45	>> T OF COON	.	.	.	.	.	.	.	.
			24.84		5724	Outside Should. Right	11	05/28/2000	WET	DAYLIGHT	PDO	OVERTURN
			25.02		5724	Outside Should. Right	16	12/15/99	SNOW/SLUSH	DUSK	Inj	OVERTURN
			25.56		5724	Outside Should. Right	18	11/06/2000	WET	DARK	PDO	TRAFFIC SIGN POST
VERN	014E	052	25.62	HEGGE RD	.	.	.	.	.	.	.	.
			26.15		5724	Outside Should. Left	3	10/10/99	DRY	DARK	Inj	UTILITY POLE
VERN	014E	055A	26.71	SAUGSTAD RD	.	.	.	.	.	.	.	.
VERN	014E	056G	27.55	STH 27 NB	.	.	.	.	.	.	.	.
			27.78		9520	Outside Should. Right	1	01/31/2000	DRY	DARK LIGHTED	Inj	UTILITY POLE
VERN	014E	057	28.23	MAPLE ST	.	.	.	.	.	.	.	.
			28.72		9592	Outside Should. Left	1	09/24/2000	DRY	DARK LIGHTED	PDO	MAILBOX
VERN	014E	058	29.07	>> C OF WESTBY	.	.	.	.	.	.	.	.
			29.08		9592	Shoulder	5	12/03/98	DRY	DARK	PDO	GUARDRAIL FACE
			29.17		9592	Outside Should. Left	1	12/29/98	SNOW/SLUSH	DARK	PDO	GUARDRAIL FACE
			29.32		9592	Shoulder	13	12/04/2000	DRY	DAYLIGHT	PDO	GUARDRAIL END
			29.93		9592	Outside Should. Right	23	12/19/98	DRY	DARK	PDO	DITCH
VERN	014E	060	30.13	SMITH RD	.	.	.	.	.	.	.	.
			30.68		9592	Shoulder	0	03/05/98	SNOW/SLUSH	DARK	PDO	GUARDRAIL FACE
VERN	014E	061	31.23	THREE CHIMNEY RD	.	.	.	.	.	.	.	.
			31.33		9592	Outside Should. Left	13	07/01/2000	DRY	DAYLIGHT	Inj	TREE
			31.65		9592	Outside Should. Right	20	04/30/2000	DRY	DARK LIGHTED	Inj	CULVERT
			31.66		9592	Outside Should. Right	16	05/21/99	DRY	DAYLIGHT	Inj	GUARDRAIL END
			32.05		9592	Outside Should. Left	13	07/05/99	DRY	DAYLIGHT	Inj	FIRE/EXPLOSION
VERN	014E	062	32.25	CTH Y	.	.	.	.	.	.	.	.
			32.35		9592	Outside Should. Right	12	02/22/99	DRY	DAYLIGHT	PDO	GUARDRAIL END
			32.45		9592	Outside Should. Right	6	06/09/99	DRY	DAYLIGHT	PDO	GUARDRAIL FACE
			32.55		9592	On Roadway	18	05/13/2000	DRY	DUSK	PDO	GUARDRAIL FACE
VERN	014E	063	33.08	SPRINGFIELD RD	.	.	.	.	.	.	.	.

COUNTY	HWY	REFPT	CUM_MP	FEATURE	AADT	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Most Harmful Event
			33.15		9592	Outside Should. Left	8	02/02/98	ICE	DAYLIGHT	K	OVERTURN
			33.18		9592	Shoulder	18	11/10/98	SNOW/SLUSH	DARK	PDO	GUARDRAIL FACE
VERN	014E	064	33.75	>> T OF VIROQUA	.	.	.	.	.	.	.	.
VERN	014E	066	34.98	STH 56 EB	.	.	.	.	.	.	.	.
VERN	014E	067	35.62	WILLOW ST	.	.	.	.	.	.	.	.
VERN	014E	069	36.54	CTH J	.	.	.	.	.	.	.	.
VERN	014E	070	36.75	CTH SS	.	.	.	.	.	.	.	.
VERN	014E	072	37.77	STH 27 SB	.	.	.	.	.	.	.	.
			38.37		7900	Outside Should. Right	9	07/02/2000	WET	DAYLIGHT	Inj	CULVERT
VERN	014E	073	38.93	BROOKVILLE RD	.	.	.	.	.	.	.	.
			39.13		7900	Outside Should. Right	15	08/10/2000	DRY	DAYLIGHT	Inj	EMBANKMENT
			39.13		7900	On Roadway	9	07/20/98	DRY	DAYLIGHT	PDO	OTHER NON-FIXED OBJECT
			39.33		7900	Outside Should. Left	14	11/11/98	DRY	DAYLIGHT	Inj	EMBANKMENT
VERN	014E	074	40.19	OFFERDAHL RD	.	.	.	.	.	.	.	.
VERN	014E	075	40.48	GREEN ACRES RD	.	.	.	.	.	.	.	.
			40.98		7900	Outside Should. Left	9	02/14/98	ICE	DARK	Inj	OVERTURN
			41.29		7900	Outside Should. Right	22	12/19/99	SNOW/SLUSH	DARK	Inj	UTILITY POLE
VERN	014E	077	41.48	>> T OF FRANKLIN	.	.	.	.	.	.	.	.
VERN	014E	079	43.14	RILEY RD	.	.	.	.	.	.	.	.
			43.34		7900	Outside Should. Left	6	01/11/2000	SNOW/SLUSH	DAWN	PDO	EMBANKMENT
			43.45		7900	Outside Should. Left	4	12/19/98	DRY	DARK	Inj	DITCH
			44.01		7900	Outside Should. Left	16	01/04/98	ICE	DAYLIGHT	PDO	EMBANKMENT
VERN	014E	081	44.21	CTH T	.	.	.	.	.	.	.	.
			44.22		7900	On Roadway	5	07/12/2000	DRY	DAWN	PDO	GUARDRAIL FACE
VERN	014E	082	44.84	CTH M	.	.	.	.	.	.	.	.
			45.39		7900	On Roadway	17	10/27/99	DRY	DAYLIGHT	PDO	VEHICLE IN OPERATION
VERN	014E	082M	45.42	RESID DRWY	.	.	.	.	.	.	.	.
VERN	014E	083	45.44	USH 61 NB	.	.	.	.	.	.	.	.
VERN	014E	083M	45.45	CONNECTOR FROM USH 61 NB	.	.	.	.	.	.	.	.
VERN	014E	084	45.80	STH 131 NB	.	.	.	.	.	.	.	.
VERN	014E	085	46.60	SUGAR GROVE RD	.	.	.	.	.	.	.	.
			46.90		2361	On Roadway	17	11/14/98	DRY	DARK	Inj	OVERTURN
			47.10		2361	Outside Should. Right	20	10/31/99	DRY	DARK	Inj	OVERTURN
VERN	014E	086	47.54	HOLCOMB RD	.	.	.	.	.	.	.	.
VERN	014E	087	47.84	ESPE RD	.	.	.	.	.	.	.	.
			48.14		2361	Shoulder	0	10/22/2000	DRY	DARK	PDO	GUARDRAIL FACE
VERN	014E	088	49.00	MOORE RD	.	.	.	.	.	.	.	.
			49.61		2361	On Roadway	6	02/08/99	ICE	DAWN	Inj	GUARDRAIL FACE
VERN	014E	089	50.06	SCHOOL RD	.	.	.	.	.	.	.	.
			50.37		2361	Outside Should. Right	21	01/31/2000	DRY	DARK	PDO	GUARDRAIL FACE
VERN	014E	091	50.57	CTH X	.	.	.	.	.	.	.	.
			50.59		2361	Outside Should. Left	3	10/02/99	WET	DARK	Inj	OVERTURN
			52.34		2467	On Roadway	6	07/05/99	DRY	DARK	Inj	TREE
RICH	014E	096	52.40	CTH E	.	.	.	.	.	.	.	.
RICH	014E	097	52.51	CTH U	.	.	.	.	.	.	.	.
			52.71		2467	Shoulder	7	04/04/99	WET	DARK	Inj	DITCH
			53.63		2467	Outside Should. Left	7	11/15/2000	DRY	DAYLIGHT	Inj	TREE
RICH	014E	098	53.78	CTH EE	.	.	.	.	.	.	.	.
			53.78		2467	Outside Should. Right	7	10/29/99	DRY	DARK	Inj	GUARDRAIL FACE

COUNTY	HWY	REFPT	CUM_MP	FEATURE	AADT	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Most Harmful Event
			54.35		2467	On Roadway	13	05/14/98	DRY	DAYLIGHT	PDO	OTHER ANIMAL
RICH	014E	101	54.65	COOK WOODS RD	.	.	.	.	.	.	.	.
			54.90		2467	On Roadway	14	06/17/98	DRY	DAYLIGHT	Inj	EMBANKMENT
RICH	014E	103	55.70	CTH G	.	.	.	.	.	.	.	.
RICH	014E	105	56.24	PRESTON RD	.	.	.	.	.	.	.	.
RICH	014E	106	57.11	HILLTOP VALLEY RD	.	.	.	.	.	.	.	.
			57.88		2467	Outside Should. Right	6	11/09/2000	SNOW/SLUSH	DAYLIGHT	PDO	EMBANKMENT
			58.28		2467	Outside Should. Right	15	10/17/2000	DRY	DAYLIGHT	Inj	OVERTURN
RICH	014E	108	58.38	ORCHARD RD	.	.	.	.	.	.	.	.
RICH	014E	109	59.02	CTH KK	.	.	.	.	.	.	.	.
			59.32		2467	Outside Should. Right	11	06/14/99	DRY	DAYLIGHT	PDO	EMBANKMENT
			59.92		2467	Outside Should. Right	1	12/15/99	0	DARK	PDO	OVERTURN
RICH	014E	112	61.48	STH 171 EB	.	.	.	.	.	.	.	.
RICH	014E	113	61.98	CTH Z	.	.	.	.	.	.	.	.
			62.98		4140	Outside Should. Left	14	08/02/98	UNKNOWN	UNKNOWN	PDO	UNKNOWN
RICH	014E	116	64.48	CTH ZZ	.	.	.	.	.	.	.	.
RICH	014E	117	65.43	TUCKAWAY VALLEY RD	.	.	.	.	.	.	.	.
			65.45		5500	Outside Should. Left	8	06/09/98	WET	DAYLIGHT	PDO	FENCE
RICH	014E	122	67.24	COVERED BRIDGE RD	.	.	.	.	.	.	.	.
RICH	014E	123	68.17	WESTSIDE DR	.	.	.	.	.	.	.	.
RICH	014E	124H	68.58	W 6TH ST	.	.	.	.	.	.	.	.
RICH	014E	124P	69.14	W SEMINARY ST	.	.	.	.	.	.	.	.
RICH	014E	125J	69.54	STH 80S	.	.	.	.	.	.	.	.
RICH	014E	125M	69.55		.	.	.	.	.	.	.	.
RICH	014E	127T	70.65	FOUNDRY DR	.	.	.	.	.	.	.	.
RICH	014E	128G	71.21	STARLITE DR	.	.	.	.	.	.	.	.
RICH	014E	129D	71.74	CTH O	.	.	.	.	.	.	.	.
			71.94		13560	Outside Should. Right	1	06/04/2000	WET	DARK	PDO	DITCH
			72.13		6117	Shoulder	11	10/14/98	DRY	DAYLIGHT	Inj	VEHICLE IN OPERATION
RICH	014E	130	72.34	SUNNY LA	.	.	.	.	.	.	.	.
RICH	014E	131M	73.43	STH 58	.	.	.	.	.	.	.	.
RICH	014E	132	73.87	>> T OF RICHLAND	.	.	.	.	.	.	.	.
			73.97		6117	Outside Should. Right	2	02/10/2000	DRY	DARK	Inj	FENCE
			74.12		6117	Outside Should. Right	8	08/17/98	WET	DAYLIGHT	PDO	TRAFFIC SIGN POST
			74.37		6117	On Roadway	1	11/07/99	DRY	DARK	Inj	UTILITY POLE
			74.83		6117	On Roadway	14	10/17/2000	DRY	DAYLIGHT	Inj	OVERTURN
			75.08		6117	Outside Should. Right	11	09/05/98	DRY	DAYLIGHT	Inj	64
RICH	014E	135B	75.33	CTH B	.	.	.	.	.	.	.	.
			75.33		6117	Shoulder	4	04/16/99	WET	DARK	PDO	FENCE
			76.26		6117	Shoulder	15	02/11/99	WET	DAYLIGHT	PDO	VEHICLE IN OPERATION
			76.36		6117	Outside Should. Right	9	01/14/98	SNOW/SLUSH	DAYLIGHT	PDO	CULVERT
			76.45		6117	On Roadway	20	12/28/98	SNOW/SLUSH	DARK	PDO	TREE
			76.75		6117	Outside Should. Right	16	03/04/99	DRY	DAYLIGHT	Inj	OVERTURN
			75.34		6117	Outside Should. Left	23	07/15/2000	DRY	DARK	PDO	OVERTURN
			75.53		6117	On Roadway	6	04/16/98	SNOW/SLUSH	DAYLIGHT	PDO	DITCH
			75.53		6117	Outside Should. Left	19	07/16/99	WET	DAYLIGHT	PDO	EMBANKMENT
RICH	014E	136M	76.67	OLD SEXTONVILLE RD	.	.	.	.	.	.	.	.
RICH	014E	137	77.47	ROHN HOLLOW RD	.	.	.	.	.	.	.	.
			77.62		6117	Outside Should. Right	2	03/30/2000	DRY	DARK	Inj	DITCH
RICH	014E	139	78.20	FAIRVIEW RD	.	.	.	.	.	.	.	.

COUNTY	HWY	REFPT	CUM_MP	FEATURE	AADT	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Most Harmful Event
			78.50		6117	On Roadway	15	11/08/2000	DRY	DAYLIGHT	PDO	OTHER NON-COLLISION
			79.01		6117	Shoulder	0	09/09/2000	DRY	DARK LIGHTED	Inj	DITCH
RICH	014E	140	79.31	STH 60 EB	.	.	.	.	.	.	.	.
			79.31		6425	On Roadway	19	10/14/2000	DRY	DARK LIGHTED	PDO	TRAFFIC SIGN POST
			79.41		6425	Outside Should. Left	15	01/03/2000	SNOW/SLUSH	DAYLIGHT	PDO	GUARDRAIL FACE
			79.81		6425	Outside Should. Left	9	03/08/98	SNOW/SLUSH	DAYLIGHT	Inj	OVERTURN
			80.00		6425	Outside Should. Right	23	05/20/2000	DRY	DARK	PDO	OVERTURN
RICH	014E	141	80.14	COFFENBERRY RD	.	.	.	.	.	.	.	.
RICH	014E	143	81.82	MOORE RD	.	.	.	.	.	.	.	.
			81.82		6425	On Roadway	5	02/09/99	ICE	DARK	Inj	CURB
			82.02		6425	Outside Should. Right	19	11/16/2000	ICE	DARK	PDO	OVERTURN
RICH	014E	145	82.96	OLD MILL RD	.	.	.	.	.	.	.	.
RICH	014E	146	84.04	STH 130 NB	.	.	.	.	.	.	.	.
			84.09		6425	On Roadway	15	04/06/98	DRY	DAYLIGHT	Inj	OVERTURN
RICH	014E	147	84.71	>> T OF BUENA VISTA	.	.	.	.	.	.	.	.
RICH	014E	148	85.04	>> T OF BUENA VISTA	.	.	.	.	.	.	.	.
			85.24		6155	Outside Should. Left	13	12/24/2000	SNOW/SLUSH	DAYLIGHT	PDO	OVERTURN
RICH	014E	149	86.03	PORTER RD	.	.	.	.	.	.	.	.
			86.13		6155	Shoulder	20	11/16/2000	ICE	DARK	PDO	OVERTURN
			86.23		6155	Outside Should. Right	6	03/10/2000	ICE	DAWN	PDO	OVERTURN
			86.23		6155	Outside Should. Left	4	11/29/2000	ICE	DARK	PDO	OVERTURN
			86.53		6155	Shoulder	18	03/27/99	DRY	DARK	PDO	OVERTURN
RICH	014E	151	88.04	DYKE RD	.	.	.	.	.	.	.	.
			88.04		6155	Outside Should. Right	15	06/21/2000	0	DAYLIGHT	Inj	VEHICLE IN OPERATION
			88.74		6155	Shoulder	12	06/15/2000	DRY	DAYLIGHT	PDO	OVERTURN
			88.84		6155	Outside Should. Left	13	01/19/2000	SNOW/SLUSH	DAYLIGHT	Inj	UTILITY POLE
SAUK	014E	152	89.04	BIG HOLLOW RD	.	.	.	.	.	.	.	.
			89.04		6155	On Roadway	12	06/16/99	DRY	DAYLIGHT	PDO	UNKNOWN
SAUK	014E	153	90.03	PEARL RD	.	.	.	.	.	.	.	.
			90.54		6155	Shoulder	17	08/12/98	DRY	DAYLIGHT	PDO	DITCH
SAUK	014E	154	91.04	STH 23 EB	.	.	.	.	.	.	.	.
SAUK	014E	154B	91.25	STH 60 EB	.	.	.	.	.	.	.	.
			91.61		6155	Shoulder	1	08/29/98	DRY	DARK	PDO	UTILITY POLE
SAUK	014E	154M	91.51	STH 23 WB	.	.	.	.	.	.	.	.
SAUK	014E	155B	91.63	STH 23 EB	.	.	.	.	.	.	.	.
			92.13		6155	Outside Should. Left	5	02/06/99	ICE	DARK	Inj	EMBANKMENT
SAUK	014E	156	92.22	RAINBOW RD	.	.	.	.	.	.	.	.
			92.23		6155	On Roadway	12	08/11/98	DRY	DAYLIGHT	PDO	OTHER NON-FIXED OBJECT
			92.52		6155	On Roadway	15	01/08/99	SNOW/SLUSH	DAYLIGHT	PDO	GUARDRAIL FACE
SAUK	014E	157	92.66	B-56-0117 BRIDGE	.	.	.	.	.	.	.	.
			93.22		7239	On Roadway	6	04/11/2000	ICE	DAYLIGHT	PDO	BRIDGE RAIL
			93.22		7239	Outside Should. Right	0	01/24/98	SNOW/SLUSH	DARK	Inj	TREE
			93.61		7239	Outside Should. Right	14	07/03/99	DRY	DAYLIGHT	PDO	OVERTURN
SAUK	014E	161	94.31	CTH C	.	.	.	.	.	.	.	.
IOWA	014E	162	94.73	CTH C	.	.	.	.	.	.	.	.
			94.74		7239	Outside Should. Right	2	03/08/98	DRY	DARK	Inj	OVERTURN
			95.03		7239	Outside Should. Left	21	03/09/98	ICE	DARK	Inj	OVERTURN
			95.50		7239	Outside Should. Left	17	04/28/98	DRY	DAYLIGHT	PDO	VEHICLE IN OPERATION
IOWA	014E	164	96.00	COON ROCK RD	.	.	.	.	.	.	.	.
			96.73		7239	Shoulder	9	10/11/99	DRY	DAYLIGHT	PDO	UNKNOWN

COUNTY	HWY	REFPT	CUM_MP	FEATURE		AADT	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Most Harmful Event
IOWA	014E	165	96.75	HAYWARD CROSSING RD		.	.	.	.	.	.	.	.
			96.85			7239	Outside Should. Right	13	01/08/98	SNOW/SLUSH	DAYLIGHT	PDO	OVERTURN
			97.61			7239	0	18	03/15/98	ICE	DARK	PDO	DITCH
			98.01			7239	Outside Should. Right	7	12/08/99	ICE	DAYLIGHT	PDO	OVERTURN
IOWA	014E	167	98.21	CTH H		.	.	.	.	.	.	.	.
			99.25			7239	Shoulder	17	01/22/98	SNOW/SLUSH	DARK	PDO	MAILBOX
IOWA	014E	169	99.68	WEST ST		.	.	.	.	.	.	.	.
			100.41			7239	Outside Should. Left	6	03/05/99	0	DAWN	PDO	UTILITY POLE
IOWA	014E	170	100.45	>> V OF ARENA		.	.	.	.	.	.	.	.
			100.45			7239	Shoulder	13	06/16/98	WET	DAYLIGHT	PDO	VEHICLE IN OPERATION
			102.21			7239	Outside Should. Right	2	09/09/2000	DRY	DARK	Inj	EMBANKMENT
IOWA	014E	173	102.46	BLYNN RD		.	.	.	.	.	.	.	.
			102.76			7239	Outside Should. Right	10	12/24/2000	ICE	DAYLIGHT	PDO	TREE
			102.92			7239	Outside Should. Left	5	07/23/99	DRY	DARK	PDO	TREE
IOWA	014E	174	103.22	CTH K		.	.	.	.	.	.	.	.
			103.51			7239	Outside Should. Right	12	10/17/98	DRY	DAYLIGHT	PDO	OTHER FIXED OBJECT
			103.82			7239	On Roadway	19	05/17/99	DRY	DAYLIGHT	PDO	VEHICLE IN OPERATION
IOWA	014E	177	104.75	MAHOCKER RD		.	.	.	.	.	.	.	.
			104.95			7239	Outside Should. Right	8	03/19/2000	SNOW/SLUSH	DAYLIGHT	Inj	OVERTURN
			105.05			7239	On Roadway	13	01/27/2000	DRY	DAYLIGHT	PDO	OTHER NON-FIXED OBJECT
IOWA	014E	178	105.35	EMILY RD		.	.	.	.	.	.	.	.
DANE	014E	179	106.07	CTH Y		.	.	.	.	.	.	.	.
DANE	014E	180	106.33	CTH KP		.	.	.	.	.	.	.	.
			106.97			10534	Shoulder	7	01/07/2000	DRY	DAYLIGHT	Inj	PARKED MV
			107.27			10534	Outside Should. Right	17	02/17/2000	SNOW/SLUSH	DUSK	PDO	MAILBOX
DANE	014E	181	107.37	STH 19 EB		.	.	.	.	.	.	.	.
			107.40			10534	On Roadway	2	02/20/99	DRY	DARK	Inj	OVERTURN
			107.47			10534	Outside Should. Right	22	10/02/2000	DRY	DARK	PDO	DITCH
			108.07			10534	Outside Should. Right	6	09/09/2000	DRY	DAWN	Inj	DITCH
			108.27			10534	Shoulder	3	12/09/99	DRY	DARK	Inj	DITCH
			108.30			10534	Outside Should. Right	8	03/19/2000	SNOW/SLUSH	DAYLIGHT	PDO	OVERTURN
DANE	014E	183	108.61	FARM RD		.	.	.	.	.	.	.	.
DANE	014E	184	109.58	STH 78 NB		.	.	.	.	.	.	.	.
DANE	014E	184D	109.82	B-13-0003	BRIDGE	.	.	.	.	.	.	.	.
DANE	014E	184K	109.91	CTH F		.	.	.	.	.	.	.	.
			110.11			10930	Outside Should. Right	13	05/10/99	DRY	DAYLIGHT	PDO	JACKKNIFE
DANE	014E	185	110.57	KAHL RD		.	.	.	.	.	.	.	.
			110.99			10930	Shoulder	18	03/09/98	ICE	DUSK	PDO	PARKED MV
			111.19			10930	Outside Should. Left	6	02/20/98	DRY	DARK	PDO	TREE
			112.10			10930	Outside Should. Right	6	03/10/2000	ICE	DAYLIGHT	PDO	UTILITY POLE
			112.17			10930	On Roadway	3	05/10/98	DRY	DARK	Inj	OVERTURN
DANE	014E	188	112.41	LEE RD		.	.	.	.	.	.	.	.
			112.75			10930	Shoulder	0	03/15/2000	DRY	DARK	Inj	CULVERT
			113.27			10930	Outside Should. Right	14	11/10/99	WET	DAYLIGHT	PDO	OVERTURN
DANE	014E	190	114.00	CTH KP		.	.	.	.	.	.	.	.
DANE	014E	191	114.52	CTH KP		.	.	.	.	.	.	.	.
			114.56			13950	Shoulder	1	10/23/2000	DRY	DARK LIGHTED	PDO	OTHER FIXED OBJECT
			114.92			13950	On Roadway	13	04/07/2000	WET	DAYLIGHT	PDO	VEHICLE IN OPERATION
			115.02			13950	On Roadway	8	07/26/99	WET	DAYLIGHT	PDO	OTHER FIXED OBJECT
			115.20			13950	Outside Should. Right	14	01/23/99	SNOW/SLUSH	DAYLIGHT	PDO	OTHER FIXED OBJECT

COUNTY	HWY	REFPT	CUM_MP	FEATURE		AADT	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Most Harmful Event
DANE	014E	192	115.31	CTH P		.	.	.	.	.	.	.	.
			115.41			13950	On Roadway	10	12/18/2000	WET	UNKNOWN	PDO	OTHER POST
			115.66			14260	Outside Should. Right	8	01/08/98	ICE	DAYLIGHT	Inj	UTILITY POLE
			116.28			14260	Outside Should. Right	7	12/29/2000	SNOW/SLUSH	DAYLIGHT	PDO	OTHER POST
			116.48			14260	Outside Should. Right	9	02/18/2000	SNOW/SLUSH	DAYLIGHT	PDO	TRAFFIC SIGN POST
			116.48			14260	Outside Should. Right	14	12/16/2000	DRY	DAYLIGHT	PDO	DITCH
			116.88			14260	Shoulder	14	10/29/98	DRY	DAYLIGHT	PDO	VEHICLE IN OPERATION
DANE	014E	194	116.98	STAGE COACH RD		.	.	.	.	.	.	.	.
			116.98			14260	Shoulder	1	12/03/99	WET	DARK	PDO	OTHER FIXED OBJECT
			117.55			14260	Shoulder	8	12/19/2000	SNOW/SLUSH	DAYLIGHT	Inj	VEHICLE IN OPERATION
			117.97			14260	On Roadway	14	08/25/98	DRY	DAYLIGHT	Inj	OVERTURN
			117.97			14260	Shoulder	21	09/24/99	DRY	DARK	PDO	GUARDRAIL FACE
			118.27			14260	Outside Should. Right	5	02/03/98	ICE	DARK	PDO	GUARDRAIL FACE
DANE	014E	197	119.15	TWIN VALLEY RD		.	.	.	.	.	.	.	.
DANE	014E	198	119.83	WAYSIDE RD		.	.	.	.	.	.	.	.
			119.93			14260	Outside Should. Right	14	08/15/2000	DRY	DAYLIGHT	PDO	CULVERT
			119.93			14260	Outside Should. Right	12	06/01/99	DRY	DAYLIGHT	Inj	VEHICLE IN OPERATION
DANE	014E	199	120.34	WAYSIDE RD		.	.	.	.	.	.	.	.
			120.34			14260	Outside Should. Right	5	04/26/98	WET	DAWN	PDO	DITCH
			120.44			14260	Shoulder	15	12/11/98	DRY	DAYLIGHT	PDO	VEHICLE IN OPERATION
			120.64			14260	Outside Should. Right	0	06/28/98	DRY	DAYLIGHT	PDO	TRAFFIC SIGN POST
			120.83			14260	On Roadway	4	05/05/98	DRY	DARK	PDO	OTHER NON-FIXED OBJECT
			120.84			14260	Outside Should. Right	12	01/06/98	DRY	DAYLIGHT	Inj	UNKNOWN
DANE	014E	200	121.43	PLEASANT VIEW RD		.	.	.	.	.	.	.	.
DANE	014E	200T	122.30	USH 14 WB		.	.	.	.	.	.	.	.
DANE	014E	201D	122.55			.	.	.	.	.	.	.	.
DANE	012E	333K	122.55	USH 14		.	.	.	.	.	.	.	.
DANE	012E	334D	123.14	B-13-0229	BRIDGE	.	.	.	.	.	.	.	.
DANE	012E	335K	124.21	B-13-0226	BRIDGE	.	.	.	.	.	.	.	.
DANE	012E	336	125.20	B-13-0221	BRIDGE	.	.	.	.	.	.	.	.
DANE	012E	337	125.66	B-13-0223	BRIDGE	.	.	.	.	.	.	.	.
DANE	012E	338	126.42	B-13-0219	BRIDGE	.	.	.	.	.	.	.	.
DANE	012E	340	128.04	B-13-0213	BRIDGE	.	.	.	.	.	.	.	.
DANE	012E	342	129.47	USH 12		.	.	.	.	.	.	.	.
DANE	012E	343	129.80	>> C OF MADISON		.	.	.	.	.	.	.	.
DANE	012E	344	130.85	B-13-0263	BRIDGE	.	.	.	.	.	.	.	.
DANE	012E	345	131.22	WIS.& SOUTHERN RR		.	.	.	.	.	.	.	.
DANE	012E	346	131.68	B-13-0083	BRIDGE	.	.	.	.	.	.	.	.
DANE	012E	347	132.23			.	.	.	.	.	.	.	.
DANE	014E	203A	132.23	USH 12 EB		.	.	.	.	.	.	.	.
DANE	014E	206F	133.41	B-13-0252	BRIDGE	.	.	.	.	.	.	.	.
DANE	014E	207V	134.95	B-13-0250	BRIDGE	.	.	.	.	.	.	.	.
DANE	014E	208Q	135.97	B-13-0249	BRIDGE	.	.	.	.	.	.	.	.
DANE	014E	210M	137.02	B-13-0247	BRIDGE	.	.	.	.	.	.	.	.
DANE	014E	211B	138.57	B-13-0245	BRIDGE	.	.	.	.	.	.	.	.
			139.67			15620	Shoulder	10	12/19/2000	SNOW/SLUSH	DAYLIGHT	PDO	OVERTURN
			139.76			15620	On Roadway	5	03/04/2000	DRY	DARK	PDO	OTHER NON-FIXED OBJECT
DANE	014E	214B	139.86	B-13-0243	BRIDGE	.	.	.	.	.	.	.	.
			140.06			15620	On Roadway	20	12/01/2000	DRY	DARK	Inj	OVERTURN
			140.36			15620	Shoulder	3	03/11/99	DRY	DARK	Inj	OVERTURN

COUNTY	HWY	REFPT	CUM_MP	FEATURE	AADT	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Most Harmful Event
DANE	014E	215B	140.91	STH 138 NB	.	.	.	.	.	.	.	.
			140.91		15620	On Ramp	20	10/14/98	DRY	DARK	Inj	TRAFFIC SIGN POST
DANE	014E	216F	141.11	B-13-0241 BRIDGE	.	.	.	.	.	.	.	.
			141.19		8375	On Roadway	11	06/04/99	WET	DAYLIGHT	Inj	VEHICLE IN OPERATION
			141.21		8375	On Roadway	23	09/01/2000	DRY	DARK	PDO	GUARDRAIL FACE
			141.57		8375	Outside Should. Left	6	01/20/99	ICE	DARK	Inj	OTHER NON-FIXED OBJECT
DANE	014E	217B	141.77	HILL RD	.	.	.	.	.	.	.	.
			141.79		8375	Outside Should. Right	7	12/14/99	ICE	DAYLIGHT	K	FIRE/EXPLOSION
			141.87		8375	On Roadway	9	04/08/2000	SNOW/SLUSH	DAYLIGHT	PDO	OVERTURN
			141.87		8375	Outside Should. Right	2	07/14/2000	DRY	DARK	Inj	DITCH
			142.24		8375	Outside Should. Left	0	04/10/2000	DRY	DARK	Inj	OVERTURN
DANE	014E	218	142.44	OAK HILL RD	.	.	.	.	.	.	.	.
			142.56		8375	Outside Should. Right	3	10/11/98	DRY	DARK	PDO	TREE
			142.66		8375	On Roadway	2	08/27/98	DRY	DARK	Inj	OVERTURN
			142.76		8375	Outside Should. Right	21	04/16/99	DRY	DARK	Inj	TREE
			142.76		8375	Outside Should. Left	18	04/15/99	WET	DAYLIGHT	PDO	FENCE
DANE	014E	219	142.96	CTH A	.	.	.	.	.	.	.	.
			143.16		8375	Off Roadway-Unknown	8	03/08/98	SNOW/SLUSH	DAYLIGHT	PDO	FENCE
			143.66		8375	Outside Should. Left	0	04/15/2000	DRY	DARK	Inj	TREE
DANE	014E	221	143.99	ROME CORNERS RD	.	.	.	.	.	.	.	.
DANE	014E	223	145.35	W RUTLAND RD	.	.	.	.	.	.	.	.
			145.35		8375	Shoulder	9	09/13/2000	0	DAYLIGHT	Inj	DITCH
			145.36		8375	Outside Should. Left	18	04/07/2000	SNOW/SLUSH	DARK	PDO	TREE
			145.45		8375	Outside Should. Left	14	02/18/2000	SNOW/SLUSH	DAYLIGHT	Inj	OVERTURN
			145.45		8375	Shoulder	18	11/13/2000	ICE	DARK	Inj	EMBANKMENT
			145.55		8375	Outside Should. Right	17	04/07/2000	SNOW/SLUSH	DAYLIGHT	Inj	VEHICLE IN OPERATION
			145.55		8375	Outside Should. Right	16	12/09/2000	SNOW/SLUSH	DUSK	PDO	DITCH
			145.55		8375	Outside Should. Right	11	03/22/99	DRY	DAYLIGHT	PDO	TREE
			145.65		8375	Outside Should. Left	7	08/24/99	DRY	DAYLIGHT	Inj	CULVERT
			145.90		8375	Outside Should. Left	6	02/24/2000	WET	DARK	PDO	UTILITY POLE
			145.90		8375	Outside Should. Left	16	09/22/2000	WET	DAYLIGHT	Inj	OVERTURN
DANE	014E	224	146.10	STH 92 WB	.	.	.	.	.	.	.	.
			146.10		8375	Outside Should. Right	7	01/20/99	WET	DAWN	PDO	TREE
			146.20		8375	Outside Should. Left	8	03/19/2000	SNOW/SLUSH	DAYLIGHT	PDO	UTILITY POLE
			146.40		8375	Outside Should. Left	8	01/17/99	ICE	DARK	Inj	OVERTURN
			146.60		8375	Outside Should. Left	0	01/28/99	DRY	DARK	PDO	EMBANKMENT
			147.25		7360	On Roadway	2	06/20/98	DRY	DARK	Inj	OTHER ANIMAL
DANE	014E	226	147.45	HOLT RD	.	.	.	.	.	.	.	.
			147.99		7360	Outside Should. Right	16	04/07/2000	SNOW/SLUSH	DAYLIGHT	PDO	UTILITY POLE
DANE	014E	227	148.01	STEWART RD	.	.	.	.	.	.	.	.
			148.21		7360	Outside Should. Left	14	11/17/98	DRY	DAYLIGHT	Inj	OTHER FIXED OBJECT
DANE	014E	228	148.81	STH 59 EB	.	.	.	.	.	.	.	.
			148.83		7360	Outside Should. Left	6	09/13/98	0	DAWN	Inj	TREE
			149.04		7360	Outside Should. Left	18	12/28/98	DRY	DARK	PDO	TRAFFIC SIGN POST
			149.37		7360	On Roadway	17	05/11/98	DRY	DAYLIGHT	Inj	OTHER NON-COLLISION
			149.37		7360	Outside Should. Right	22	12/31/98	DRY	DARK	PDO	DITCH
			149.37		7360	Outside Should. Right	18	04/02/99	DRY	DUSK	Inj	DITCH
			149.37		7360	Outside Should. Right	6	08/28/99	DRY	DAYLIGHT	Inj	OVERTURN
DANE	014E	229	149.47	BUTTS CORNERS RD	.	.	.	.	.	.	.	.
			149.48		7360	Outside Should. Left	2	05/24/98	WET	DARK	Inj	OVERTURN

COUNTY	HWY	REFPT	CUM_MP	FEATURE	AADT	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Most Harmful Event
			149.77		7360	Outside Should. Left	18	10/17/2000	DRY	DUSK	PDO	DITCH
DANE	014E	230	149.97	BULLARD RD	.	.	.	.	.	.	.	.
			150.07		7360	On Roadway	10	06/27/98	WET	DARK	PDO	TREE
			150.73		7360	Shoulder	17	04/07/2000	SNOW/SLUSH	DAYLIGHT	PDO	VEHICLE IN OPERATION
DANE	014E	231	150.75	ELMER RD	.	.	.	.	.	.	.	.
ROCK	014E	232D	151.67	STH 59 EB	.	.	.	.	.	.	.	.
ROCK	014E	232K	152.07	E MAIN ST	.	.	.	.	.	.	.	.
			152.07		7500	Shoulder	19	03/03/98	WET	DARK LIGHTED	Inj	TREE
ROCK	014E	233	153.11	CTH M	.	.	.	.	.	.	.	.
			153.80		7225	Outside Should. Right	7	01/20/99	ICE	DAYLIGHT	Inj	FENCE
ROCK	014E	234	153.90	WEARY RD	.	.	.	.	.	.	.	.
			154.16		7225	Outside Should. Right	18	12/28/2000	SNOW/SLUSH	DARK LIGHTED	PDO	FENCE
			154.16		7225	Outside Should. Left	18	02/24/99	SNOW/SLUSH	DARK	PDO	TRAFFIC SIGN POST
			154.18		7225	Outside Should. Right	23	02/19/2000	ICE	DARK LIGHTED	PDO	OVERTURN
			154.41		7225	Outside Should. Right	21	12/29/99	DRY	DARK	Inj	OTHER FIXED OBJECT
ROCK	014E	236	155.04	TOLLES RD	.	.	.	.	.	.	.	.
			155.04		7225	Outside Should. Left	10	06/25/98	UNKNOWN	DAYLIGHT	PDO	OTHER POST
			155.14		7225	Outside Should. Left	0	12/05/99	WET	DARK	Inj	UTILITY POLE
			155.51		7225	Outside Should. Left	22	03/26/2000	DRY	DARK	K	UTILITY POLE
			155.71		7225	Outside Should. Right	22	10/30/98	DRY	DARK	Inj	OVERTURN
ROCK	014E	237	156.01	TUTTLE RD	.	.	.	.	.	.	.	.
			156.13		7225	Outside Should. Right	17	01/03/2000	SNOW/SLUSH	DARK	PDO	OVERTURN
			156.33		7225	Outside Should. Left	18	01/03/2000	SNOW/SLUSH	DARK	PDO	FENCE
			157.29		7225	Outside Should. Left	23	07/07/99	DRY	DARK	Inj	TREE
ROCK	014E	240	157.95	CASSIDY RD	.	.	.	.	.	.	.	.
			158.05		7225	Outside Should. Right	18	01/03/2000	SNOW/SLUSH	DARK	Inj	TREE
			158.15		7225	Shoulder	4	01/06/2000	SNOW/SLUSH	DARK	PDO	GUARDRAIL FACE
			158.51		7225	Outside Should. Left	3	07/25/99	DRY	DARK	PDO	CULVERT
ROCK	014E	241	158.85	ROHERTY RD	.	.	.	.	.	.	.	.
			158.95		7225	Outside Should. Left	18	11/18/99	DRY	DARK	Inj	OVERTURN
			159.81		7225	Outside Should. Left	10	05/31/2000	WET	DAYLIGHT	Inj	OVERTURN
			159.81		7225	Outside Should. Right	7	06/14/2000	DRY	DAYLIGHT	PDO	UTILITY POLE
ROCK	014E	242	160.01	FOX RD	.	.	.	.	.	.	.	.
			160.11		7225	Outside Should. Right	1	01/23/99	WET	DARK	PDO	UTILITY POLE
			160.31		7225	Outside Should. Left	21	10/03/98	DRY	DARK	Inj	UTILITY POLE
			160.51		7225	Shoulder	17	08/27/98	DRY	DAYLIGHT	PDO	FIRE/EXPLOSION
			160.69		7225	Outside Should. Left	12	03/06/99	SNOW/SLUSH	DAYLIGHT	Inj	OVERTURN
			160.99		7225	Outside Should. Right	19	10/17/2000	DRY	DARK	PDO	MAILBOX
ROCK	014E	243	161.19	>> T OF CENTER	.	.	.	.	.	.	.	.
			161.56		7225	Outside Should. Left	22	11/12/2000	DRY	DARK	Inj	UTILITY POLE
			161.96		7225	Outside Should. Right	15	05/03/99	DRY	DAYLIGHT	PDO	UTILITY POLE
ROCK	014E	244	162.15	CONNOR RD	.	.	.	.	.	.	.	.
			162.90		7225	On Roadway	13	09/30/99	DRY	DAYLIGHT	PDO	MAILBOX
			162.99		7225	Shoulder	12	03/08/98	SNOW/SLUSH	DAYLIGHT	PDO	TRAFFIC SIGN POST
ROCK	014E	245	163.17	BURDICK RD	.	.	.	.	.	.	.	.
			163.27		7225	Outside Should. Left	21	05/23/99	DRY	DARK	Inj	UTILITY POLE
			163.37		7225	On Roadway	13	01/25/99	DRY	DAYLIGHT	PDO	MAILBOX
			163.61		7225	Outside Should. Left	20	03/07/2000	DRY	DARK	Inj	UTILITY POLE
			164.10		7225	Outside Should. Right	16	01/26/99	DRY	DAYLIGHT	Inj	TREE
			164.15		7225	On Roadway	14	09/08/98	DRY	DAYLIGHT	PDO	OTHER FIXED OBJECT

COUNTY	HWY	REFPT	CUM_MP	FEATURE	AADT	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Most Harmful Event
			164.30		7225	Outside Should. Left	15	05/24/2000	DRY	DAYLIGHT	K	CULVERT
			164.30		7225	Outside Should. Right	12	03/08/98	SNOW/SLUSH	DAYLIGHT	PDO	UTILITY POLE
ROCK	014E	246K	164.40	CTH E CONN.	.	.	.	.	.	.	.	.
			164.40		7225	0	1	09/06/99	DRY	DARK	PDO	TRAFFIC SIGN POST
ROCK	014E	246M	164.44	CTH E	.	.	.	.	.	.	.	.
			164.70		7225	Shoulder	2	12/16/99	ICE	DARK	Inj	BRIDGE/PIER/ABUTMENT
			164.80		7225	Outside Should. Left	5	01/20/99	ICE	DAWN	PDO	OVERTURN
			164.87		7225	On Roadway	6	03/06/98	ICE	DAWN	PDO	GUARDRAIL FACE
			164.87		7225	On Roadway	6	03/06/98	WET	DAWN	PDO	GUARDRAIL FACE
			164.95		7225	On Roadway	9	11/04/2000	DRY	DAYLIGHT	PDO	VEHICLE IN OPERATION
			164.95		7225	On Roadway	15	12/20/98	ICE	DAYLIGHT	PDO	OVERTURN
ROCK	014E	247	164.97	N RIVER RD	.	.	.	.	.	.	.	.
			165.07		7225	Outside Should. Right	15	06/01/98	DRY	DAYLIGHT	PDO	TREE
			165.42		7225	Outside Should. Right	2	12/31/99	DRY	DARK LIGHTED	Inj	OTHER NON-COLLISION
ROCK	014E	248	165.67	CTH F	.	.	.	.	.	.	.	.
			165.87		7225	On Roadway	17	12/08/2000	DRY	DARK	PDO	OTHER NON-COLLISION
ROCK	014E	249D	166.16	USH 51 SB	.	.	.	.	.	.	.	.
ROCK	014E	249G	166.17	USH 51 NB	.	.	.	.	.	.	.	.
ROCK	014E	250M	167.24	>> T OF JANESVILLE	.	.	.	.	.	.	.	.
ROCK	014E	251	168.13	STH 26 SB	.	.	.	.	.	.	.	.
ROCK	014E	251D	168.14	STH 26 NB	.	.	.	.	.	.	.	.
ROCK	014E	252	168.80	B-53-0065 BRIDGE	.	.	.	.	.	.	.	.
ROCK	014E	254	170.51	TOWN HALL RD	.	.	.	.	.	.	.	.
ROCK	014E	255	170.97	CTH A	.	.	.	.	.	.	.	.
ROCK	014E	257	172.34	CTH MM	.	.	.	.	.	.	.	.
			172.34		10810	On Roadway	5	05/21/2000	DRY	DAWN	Inj	GUARDRAIL FACE
			172.63		9700	Outside Should. Left	16	04/27/99	WET	DAYLIGHT	Inj	TREE
ROCK	014E	258M	172.97	>> T OF HARMONY	.	.	.	.	.	.	.	.
ROCK	014E	258T	173.06	STH 11 E	.	.	.	.	.	.	.	.
			173.12		9700	Outside Should. Right	23	07/20/99	DRY	DARK	Inj	UNKNOWN
			173.16		9700	Outside Should. Right	15	05/09/2000	WET	DAYLIGHT	Inj	TREE
			173.26		9700	Shoulder	16	06/29/98	WET	DAYLIGHT	PDO	DITCH
			173.56		9700	Outside Should. Right	8	12/30/2000	SNOW/SLUSH	DAYLIGHT	PDO	OVERTURN
			173.56		9700	Outside Should. Left	4	03/04/98	ICE	DARK	Inj	OVERTURN
			173.58		9700	Outside Should. Right	2	02/28/98	DRY	DARK	Inj	OVERTURN
			173.88		9700	Outside Should. Left	4	03/04/98	ICE	DARK	PDO	OVERTURN
ROCK	014E	259M	173.48	CTH O	.	.	.	.	.	.	.	.
ROCK	014E	260	174.41	VAN ALLEN RD	.	.	.	.	.	.	.	.
			174.41		9700	On Roadway	13	12/04/98	DRY	DAYLIGHT	PDO	VEHICLE IN OPERATION
			174.62		9700	Outside Should. Left	6	03/04/98	UNKNOWN	UNKNOWN	PDO	UTILITY POLE
			175.12		9700	Outside Should. Left	17	03/05/99	ICE	DAYLIGHT	PDO	OVERTURN
			175.12		9700	Outside Should. Left	6	12/14/99	ICE	DARK	Inj	OVERTURN
ROCK	014E	261	175.42	S HENKE RD	.	.	.	.	.	.	.	.
			175.72		9700	Outside Should. Right	19	02/11/98	SNOW/SLUSH	DARK	Inj	CULVERT
			175.72		9700	Outside Should. Left	4	12/14/99	ICE	DARK	PDO	MAILBOX
ROCK	014E	262	176.42	>> T OF LA PRAIRIE	.	.	.	.	.	.	.	.
			176.84		9700	Outside Should. Right	9	04/22/98	DRY	DAYLIGHT	PDO	OVERTURN
			176.91		9700	Outside Should. Left	0	09/28/99	DRY	DARK	Inj	DITCH
			176.93		9700	On Roadway	5	07/03/99	WET	DAWN	PDO	OTHER NON-FIXED OBJECT
			177.11		9700	Outside Should. Right	1	05/12/99	WET	DARK	Inj	EMBANKMENT

COUNTY	HWY	REFPT	CUM_MP	FEATURE	AADT	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Most Harmful Event
			177.11		9700	On Roadway	5	07/03/99	WET	DAWN	PDO	OTHER NON-FIXED OBJECT
ROCK	014E	263	177.14	EMERALD GROVE RD	.	.	.	.	.	.	.	.
			177.41		9700	Outside Should. Right	21	01/05/2000	SNOW/SLUSH	DARK	PDO	DITCH
			177.61		9700	Shoulder	7	07/08/98	DRY	DAYLIGHT	PDO	OVERTURN
ROCK	014E	264	177.71	STH 140 NB	.	.	.	.	.	.	.	.
			177.96		9700	Outside Should. Right	20	06/06/99	DRY	DAYLIGHT	Inj	CULVERT
			178.37		9700	Outside Should. Left	21	02/13/2000	ICE	DARK	PDO	OVERTURN
ROCK	014E	265	178.46	AVALON RD	.	.	.	.	.	.	.	.
			178.56		9700	Outside Should. Right	8	12/30/2000	0	DAYLIGHT	PDO	EMBANKMENT
			178.76		9700	Shoulder	17	05/13/98	DRY	DAYLIGHT	PDO	MAILBOX
ROCK	014E	266	179.46	KEMP RD	.	.	.	.	.	.	.	.
			179.56		9700	Outside Should. Left	11	11/05/99	DRY	DAYLIGHT	Inj	UTILITY POLE
			180.21		9700	Outside Should. Left	5	02/03/98	WET	DARK	PDO	OTHER FIXED OBJECT
			180.41		9700	Outside Should. Right	18	06/09/2000	DRY	DAYLIGHT	PDO	DITCH
ROCK	014E	267	180.47	CARVERS ROCK RD	.	.	.	.	.	.	.	.
			180.50		9700	Outside Should. Left	9	01/01/98	SNOW/SLUSH	DAYLIGHT	PDO	OVERTURN
			180.77		9700	On Roadway	15	09/30/98	DRY	DAYLIGHT	PDO	OTHER NON-FIXED OBJECT
			180.77		9700	Outside Should. Left	4	12/21/98	ICE	DARK	Inj	OVERTURN
			180.93		9700	Outside Should. Right	0	07/30/99	DRY	DARK	Inj	CULVERT
			181.37		9700	On Roadway	0	02/19/2000	SNOW/SLUSH	DARK	Inj	OVERTURN
ROCK	014E	269	181.47	TRESCHER RD	.	.	.	.	.	.	.	.
			181.67		9700	Outside Should. Right	5	12/21/98	ICE	DARK	PDO	TRAFFIC SIGN POST
			181.77		9700	Outside Should. Left	11	02/04/2000	SNOW/SLUSH	DAYLIGHT	PDO	OVERTURN
			182.37		9700	Outside Should. Left	5	07/10/98	DRY	DAWN	PDO	UTILITY POLE
ROCK	014E	270	182.47	>> T OF BRADFORD	.	.	.	.	.	.	.	.
			182.47		8380	Outside Should. Right	19	02/23/98	WET	DARK	Inj	DITCH
			182.67		8380	Shoulder	16	06/27/98	DRY	DAYLIGHT	Inj	VEHICLE IN OPERATION
			182.77		8380	On Roadway	10	03/19/2000	SNOW/SLUSH	DAYLIGHT	PDO	OVERTURN
			184.09		8380	Outside Should. Right	14	02/15/2000	SNOW/SLUSH	DAYLIGHT	PDO	OTHER POST
ROCK	014E	272	184.19	STH 11 EB	.	.	.	.	.	.	.	.
ROCK	014E	273	185.12	CHRISTIE RD	.	.	.	.	.	.	.	.
			185.59		7160	Shoulder	16	05/03/98	DRY	DAYLIGHT	PDO	GUARDRAIL FACE
ROCK	014E	274	185.61	SCHOOL SECTION RD	.	.	.	.	.	.	.	.
			185.61		7160	Parking Lot/Private	19	05/23/99	DRY	DUSK	Inj	TREE
			186.25		7160	On Roadway	17	04/01/99	DRY	DUSK	PDO	OVERTURN
			186.43		7160	Outside Should. Left	7	04/17/99	DRY	DARK	PDO	UNKNOWN
WALW	014E	275	186.45	CTH C	.	.	.	.	.	.	.	.
			186.55		7160	Shoulder	15	04/04/98	DRY	DAYLIGHT	Inj	OVERTURN
			186.55		7160	Outside Should. Left	15	02/24/99	SNOW/SLUSH	DAYLIGHT	PDO	OTHER POST
			186.70		7160	Outside Should. Right	10	08/02/98	DRY	DAYLIGHT	PDO	OVERTURN
			186.75		7160	On Roadway	1	05/02/2000	DRY	DARK	Inj	EMBANKMENT
			187.85		7160	On Roadway	20	11/09/99	DRY	DARK	PDO	CURB
WALW	014E	278	188.59	CTH X	.	.	.	.	.	.	.	.
			188.71		6850	On Roadway	1	02/09/99	WET	DARK LIGHTED	PDO	CURB
			188.72		6850	Shoulder	6	01/20/2000	SNOW/SLUSH	DARK LIGHTED	PDO	UTILITY POLE
			188.79		6850	Outside Should. Left	15	03/08/99	ICE	DAYLIGHT	Inj	TREE
			188.79		6850	Outside Should. Left	16	03/08/99	0	DAYLIGHT	Inj	OVERTURN
			188.89		6850	Outside Should. Left	5	10/31/99	DRY	DARK	Inj	TREE
			190.26		5340	Outside Should. Right	13	01/22/2000	SNOW/SLUSH	DAYLIGHT	PDO	UTILITY POLE
WALW	014E	281	190.46	>> T OF DARIEN	.	.	.	.	.	.	.	.

COUNTY	HWY	REFPT	CUM_MP	FEATURE	AADT	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Most Harmful Event
WALW	014E	282	190.71	CTH K	.	.	.	.	.	.	.	.
			191.21		5340	Outside Should. Right	21	12/30/98	DRY	DARK	PDO	OVERTURN
			192.11		5340	Outside Should. Left	2	07/22/2000	DRY	DARK	PDO	MAILBOX
WALW	014E	284	192.61	CTH O	.	.	.	.	.	.	.	.
WALW	014E	285	192.87	WILLOW BEND RD	.	.	.	.	.	.	.	.
			192.93		5340	Parking Lot/Private	15	06/26/98	DRY	DAYLIGHT	Inj	UTILITY POLE
			193.03		5340	Outside Should. Right	19	03/05/99	SNOW/SLUSH	DARK	PDO	OVERTURN
			193.13		5340	On Roadway	15	05/31/99	WET	DAYLIGHT	Inj	OVERTURN
			193.43		5340	On Roadway	19	02/28/99	DRY	DARK	PDO	UNKNOWN
			194.42		5340	Outside Should. Right	15	02/24/99	SNOW/SLUSH	DAYLIGHT	PDO	OTHER FIXED OBJECT
WALW	014E	287	194.52	BRICK CHURCH RD	.	.	.	.	.	.	.	.
			195.02		5340	On Roadway	16	06/05/2000	DRY	DAYLIGHT	Inj	OTHER POST
WALW	014E	289	195.88	USH 14 WB	.	.	.	.	.	.	.	.
WALW	014E	289K	195.95	USH 14 WB	.	.	.	.	.	.	.	.
			195.95		6115	On Roadway	18	10/28/98	DRY	DAYLIGHT	Inj	UNKNOWN
			196.15		6115	Outside Should. Left	16	03/08/99	ICE	DAYLIGHT	PDO	MAILBOX
			196.20		6115	Outside Should. Left	11	02/08/99	DRY	DAYLIGHT	PDO	OTHER POST
WALW	014E	290	196.44	KNOLL RD	.	.	.	.	.	.	.	.
			197.04		6600	Outside Should. Right	8	05/10/99	DRY	DAYLIGHT	PDO	MAILBOX
WALW	014E	291	197.46	STH 67 NB	.	.	.	.	.	.	.	.
			197.56		6600	Outside Should. Right	11	11/12/99	DRY	DAYLIGHT	K	TREE
			198.06		6600	0	5	01/30/2000	SNOW/SLUSH	DARK	Inj	EMBANKMENT
			198.13		6600	Outside Should. Right	17	10/09/2000	DRY	DAYLIGHT	Inj	CULVERT
WALW	014E	292	198.43	STATE LINE RD	.	.	.	.	.	.	.	.

APPENDIX G

TWO-LANE
RURAL
UNDIVIDED
STATE TRUNK HIGHWAYS
RANK-ORDERED BY
VARIOUS CRASH RATES
CRASH DENSITIES
&
RATIOS OF SELECT CRASH TYPES

INTRODUCTION

The present Appendix provides one-page samples of Run-off-Road (ROR) crash statistics for undivided two-lane two-way rural Wisconsin State Trunk Highways (STH). STH have been rank-ordered by a specific Crash Rate, Crash Density, or Crash Ratio of interest to the Safety Engineer. An example of table use is provided in the body of the report in the "**Table Use**" part of the "**PRODUCTS and their USES**" section.

As noted at the bottom of each sample page, only segments of three or more miles that had 20 or more Run-off-Road crashes in three years are included in the tables.

All tables provide the following information:

- STH Rank
- Route Number
- Length of undivided highway
- ROR crash total in 3 years (1998-2000)

In addition, the following **ratios of special crash categories to all ROR crashes** are provided:

- Injury + Fatal
- Wet + Snow
- Dark
- Curve (horizontal or vertical)
- Fixed Object

Table G0 below indicates the variable by which STH are ranked in each of **Tables G1-G8**.

Table G0. Appendix G Table Index.

Table	Ranked by
G1	ROR crash rate
G2	ROR crash density
G3	Injury + Fatal crash rate
G4	Wet + Snow crash rate
G5	Dark crash rate
G6	Horizontal or Vertical curve crash rate
G7	Fixed Object crash rate
G8	Sum or ratios Injury+Fatal, Wet + Snow, Dark, Curve, and Fixed Object to all ROR crashes

Table G1._ Undivided segments of STH rank-ordered by ROR crash rate.

Population Density	No of Lanes	RANK	ROUTE	Miles	ROR Crashes (3 Yrs)	Annual Travel 100MVM	ROR Crashes per 100MVM	Inj+Fat To ROR Crash Ratio	Wet+Snow To ROR Crash Ratio	Dark To ROR Crash Ratio	Curve To ROR Crash Ratio	Fixed obj to ROR Crash Ratio
Rural	2.00	1	171	33.25	42	.08	173.24	.45	.40	.43	.43	.74
		2	162	40.88	65	.14	158.53	.49	.42	.65	.32	.51
		3	108	17.89	25	.05	154.16	.32	.40	.48	.44	.80
		4	88	29.75	28	.06	151.80	.54	.25	.39	.39	.39
		5	39	40.84	56	.14	135.58	.57	.36	.59	.32	.61
		6	56	50.56	84	.22	124.50	.49	.44	.49	.35	.68
		7	130	30.73	28	.09	109.31	.50	.29	.46	.36	.68
		8	213	19.33	55	.17	107.53	.49	.55	.47	.35	.62
		9	92	27.12	38	.13	97.46	.39	.47	.42	.18	.55
		10	68	8.49	23	.08	92.84	.35	.83	.43	.04	.57
		11	149	24.15	32	.12	90.96	.25	.50	.38	.38	.75
		12	133	72.01	94	.35	90.12	.34	.49	.47	.19	.62
		13	76	24.92	43	.16	89.47	.44	.33	.70	.12	.63
		14	104	14.34	28	.11	85.28	.57	.21	.57	.11	.54
		15	154	19.00	20	.08	84.74	.40	.25	.50	.40	.70
		16	136	12.53	28	.11	84.57	.32	.32	.46	.25	.50
		17	106	27.39	52	.21	84.23	.42	.48	.67	.19	.67
		18	175	46.56	123	.49	84.12	.39	.41	.52	.07	.74
		19	40	79.42	79	.32	82.05	.41	.38	.51	.18	.49
		20	170	23.90	34	.14	81.58	.50	.32	.59	.12	.59
		21	140	11.25	33	.14	81.12	.42	.73	.48	.30	.48
		22	52	57.60	58	.24	80.13	.47	.50	.45	.07	.52
		23	161	21.58	26	.11	78.94	.35	.42	.50	.04	.69
		24	78	85.19	127	.54	77.72	.51	.39	.43	.39	.58
		25	178	20.09	43	.19	76.61	.51	.47	.56	.19	.70
		26	72	27.70	28	.12	76.32	.39	.54	.57	.43	.71
		27	75	12.10	32	.14	75.07	.41	.31	.50	.00	.72
		28	113	26.28	68	.31	73.64	.32	.47	.47	.10	.50
		29	131	70.19	70	.34	69.52	.49	.34	.57	.31	.54
		30	107	44.19	46	.22	69.50	.46	.41	.57	.13	.54
		31	71	42.62	64	.31	68.07	.52	.38	.63	.31	.61
		32	167	9.41	27	.14	66.15	.22	.37	.59	.56	.81

Only segments of 3 or more miles and 20 or more ROR crashes in 3 years

Table G2. Undivided segments of STH rank-ordered by ROR crashes per mile

Population Density	No of Lanes	RANK	ROUTE	Miles	ROR Crashes (3 Yrs)	Annual Travel 100MVM	ROR Crashes per mile per year	Inj+Fat To ROR Crash Ratio	Wet+Snow To ROR Crash Ratio	Dark To ROR Crash Ratio	Curve To ROR Crash Ratio	Fixed obj to ROR Crash Ratio
Rural	2.00	1	38	5.03	21	.12	1.39	.38	.33	.62	.29	.81
		2	50	5.64	21	.21	1.24	.43	.33	.67	.10	.57
		3	83	50.01	168	1.21	1.12	.42	.50	.51	.17	.75
		4	140	11.25	33	.14	.98	.42	.73	.48	.30	.48
		5	167	9.41	27	.14	.96	.22	.37	.59	.56	.81
		6	213	19.33	55	.17	.95	.49	.55	.47	.35	.62
		7	68	8.49	23	.08	.90	.35	.83	.43	.04	.57
		8	75	12.10	32	.14	.88	.41	.31	.50	.00	.72
		9	175	46.56	123	.49	.88	.39	.41	.52	.07	.74
		10	113	26.28	68	.31	.86	.32	.47	.47	.10	.50
		11	91	16.50	42	.26	.85	.60	.57	.48	.02	.81
		12	66	14.66	36	.20	.82	.42	.39	.53	.25	.64
		13	144	19.45	48	.25	.82	.44	.35	.50	.27	.69
		14	151	91.26	221	2.05	.81	.47	.50	.44	.13	.57
		15	120	15.44	35	.28	.76	.49	.46	.57	.06	.60
		16	41	15.19	34	.61	.75	.47	.32	.38	.06	.59
		17	20	29.60	66	.49	.74	.38	.50	.48	.26	.73
		18	136	12.53	28	.11	.74	.32	.32	.46	.25	.50
		19	14	158.02	347	4.17	.73	.41	.46	.50	.08	.65
		20	69	36.47	78	.76	.71	.47	.49	.49	.05	.63
		21	178	20.09	43	.19	.71	.51	.47	.56	.19	.70
		22	19	46.73	94	.89	.67	.44	.41	.43	.19	.62
		23	12	238.43	463	4.03	.65	.45	.39	.45	.19	.64
		24	26	70.94	139	2.05	.65	.42	.52	.50	.10	.68
		25	104	14.34	28	.11	.65	.57	.21	.57	.11	.54
		26	51	109.67	211	2.29	.64	.42	.44	.44	.09	.50
		27	110	41.26	79	.69	.64	.38	.53	.53	.06	.73
		28	106	27.39	52	.21	.63	.42	.48	.67	.19	.67
		29	138	11.66	21	.21	.60	.33	.29	.52	.10	.71
		30	164	25.65	46	.82	.60	.35	.46	.52	.02	.61

Only segments of 3 or more miles and 20 or more ROR crashes in 3 years

Table G3. Undivided segments of STH rank-ordered by Injury + Fatal ROR crash rate

Population Density	No of Lanes	RANK	ROUTE	Miles	ROR Crashes (3 Yrs)	Annual Travel 100MVM	Inj+Fat Crashes per 100MVM	Inj+Fat To ROR Crash Ratio	Wet+Snow To ROR Crash Ratio	Dark To ROR Crash Ratio	Curve To ROR Crash Ratio	Fixed obj to ROR Crash Ratio
Rural	2.00	1	88	29.75	28	.06	81.32	.54	.25	.39	.39	.39
		2	171	33.25	42	.08	78.37	.45	.40	.43	.43	.74
		3	162	40.88	65	.14	78.04	.49	.42	.65	.32	.51
		4	39	40.84	56	.14	77.47	.57	.36	.59	.32	.61
		5	56	50.56	84	.22	60.77	.49	.44	.49	.35	.68
		6	130	30.73	28	.09	54.66	.50	.29	.46	.36	.68
		7	213	19.33	55	.17	52.79	.49	.55	.47	.35	.62
		8	108	17.89	25	.05	49.33	.32	.40	.48	.44	.80
		9	104	14.34	28	.11	48.73	.57	.21	.57	.11	.54
		10	170	23.90	34	.14	40.79	.50	.32	.59	.12	.59
		11	78	85.19	127	.54	39.78	.51	.39	.43	.39	.58
		12	76	24.92	43	.16	39.53	.44	.33	.70	.12	.63
		13	178	20.09	43	.19	39.20	.51	.47	.56	.19	.70
		14	92	27.12	38	.13	38.47	.39	.47	.42	.18	.55
		15	52	57.60	58	.24	37.30	.47	.50	.45	.07	.52
		16	106	27.39	52	.21	35.64	.42	.48	.67	.19	.67
		17	71	42.62	64	.31	35.10	.52	.38	.63	.31	.61
		18	140	11.25	33	.14	34.42	.42	.73	.48	.30	.48
		19	154	19.00	20	.08	33.90	.40	.25	.50	.40	.70
		20	131	70.19	70	.34	33.77	.49	.34	.57	.31	.54
		21	40	79.42	79	.32	33.24	.41	.38	.51	.18	.49
		22	175	46.56	123	.49	32.83	.39	.41	.52	.07	.74
		23	91	16.50	42	.26	32.58	.60	.57	.48	.02	.81
		24	68	8.49	23	.08	32.29	.35	.83	.43	.04	.57
		25	147	12.65	21	.13	31.89	.57	.43	.43	.05	.57
		26	107	44.19	46	.22	31.73	.46	.41	.57	.13	.54
		27	128	27.04	30	.15	30.76	.47	.47	.53	.23	.73
		28	133	72.01	94	.35	30.68	.34	.49	.47	.19	.62
		29	75	12.10	32	.14	30.50	.41	.31	.50	.00	.72
		30	72	27.70	28	.12	29.98	.39	.54	.57	.43	.71
		31	144	19.45	48	.25	28.50	.44	.35	.50	.27	.69
		32	58	52.84	58	.35	28.34	.52	.41	.55	.17	.55

Only segments of 3 or more miles and 20 or more ROR crashes in 3 years

Table G4. Undivided segments of STH rank-ordered by Wet + Snow ROR crash rate

Population Density	No of Lanes	RANK	ROUTE	Miles	ROR Crashes (3 Yrs)	Annual Travel 100MVM	Wet+Snow Crashes per 100MVM	Inj+Fat To ROR Crash Ratio	Wet+Snow To ROR Crash Ratio	Dark To ROR Crash Ratio	Curve To ROR Crash Ratio	Fixed obj to ROR Crash Ratio
Rural	2.00	1	68	8.49	23	.08	76.69	.35	.83	.43	.04	.57
		2	171	33.25	42	.08	70.12	.45	.40	.43	.43	.74
		3	162	40.88	65	.14	65.85	.49	.42	.65	.32	.51
		4	108	17.89	25	.05	61.66	.32	.40	.48	.44	.80
		5	140	11.25	33	.14	59.00	.42	.73	.48	.30	.48
		6	213	19.33	55	.17	58.65	.49	.55	.47	.35	.62
		7	56	50.56	84	.22	54.84	.49	.44	.49	.35	.68
		8	39	40.84	56	.14	48.42	.57	.36	.59	.32	.61
		9	92	27.12	38	.13	46.17	.39	.47	.42	.18	.55
		10	149	24.15	32	.12	45.48	.25	.50	.38	.38	.75
		11	133	72.01	94	.35	44.10	.34	.49	.47	.19	.62
		12	72	27.70	28	.12	40.89	.39	.54	.57	.43	.71
		13	106	27.39	52	.21	40.50	.42	.48	.67	.19	.67
		14	52	57.60	58	.24	40.06	.47	.50	.45	.07	.52
		15	88	29.75	28	.06	37.95	.54	.25	.39	.39	.39
		16	178	20.09	43	.19	35.63	.51	.47	.56	.19	.70
		17	113	26.28	68	.31	34.65	.32	.47	.47	.10	.50
		18	175	46.56	123	.49	34.20	.39	.41	.52	.07	.74
		19	161	21.58	26	.11	33.40	.35	.42	.50	.04	.69
		20	91	16.50	42	.26	31.28	.60	.57	.48	.02	.81
		21	130	30.73	28	.09	31.23	.50	.29	.46	.36	.68
		22	40	79.42	79	.32	31.16	.41	.38	.51	.18	.49
		23	128	27.04	30	.15	30.76	.47	.47	.53	.23	.73
		24	78	85.19	127	.54	30.60	.51	.39	.43	.39	.58
		25	76	24.92	43	.16	29.13	.44	.33	.70	.12	.63
		26	85	23.46	33	.23	28.92	.48	.61	.45	.30	.76
		27	107	44.19	46	.22	28.71	.46	.41	.57	.13	.54
		28	136	12.53	28	.11	27.18	.32	.32	.46	.25	.50
		29	170	23.90	34	.14	26.40	.50	.32	.59	.12	.59
		30	71	42.62	64	.31	25.52	.52	.38	.63	.31	.61
		31	167	9.41	27	.14	24.50	.22	.37	.59	.56	.81
		32	147	12.65	21	.13	23.92	.57	.43	.43	.05	.57

Only segments of 3 or more miles and 20 or more ROR crashes in 3 years

Table G5. Undivided segments of STH rank-ordered by Dark ROR crash rate

Population Density	No of Lanes	RANK	ROUTE	Miles	ROR Crashes (3 Yrs)	Annual Travel 100MVM	Dark Crashes per 100MVM	Inj+Fat To ROR Crash Ratio	Wet+Snow To ROR Crash Ratio	Dark To ROR Crash Ratio	Curve To ROR Crash Ratio	Fixed obj to ROR Crash Ratio
Rural	2.00	1	162	40.88	65	.14	102.43	.49	.42	.65	.32	.51
		2	39	40.84	56	.14	79.89	.57	.36	.59	.32	.61
		3	171	33.25	42	.08	74.24	.45	.40	.43	.43	.74
		4	108	17.89	25	.05	74.00	.32	.40	.48	.44	.80
		5	76	24.92	43	.16	62.42	.44	.33	.70	.12	.63
		6	56	50.56	84	.22	60.77	.49	.44	.49	.35	.68
		7	88	29.75	28	.06	59.64	.54	.25	.39	.39	.39
		8	106	27.39	52	.21	56.69	.42	.48	.67	.19	.67
		9	213	19.33	55	.17	50.83	.49	.55	.47	.35	.62
		10	130	30.73	28	.09	50.75	.50	.29	.46	.36	.68
		11	104	14.34	28	.11	48.73	.57	.21	.57	.11	.54
		12	170	23.90	34	.14	47.99	.50	.32	.59	.12	.59
		13	175	46.56	123	.49	43.77	.39	.41	.52	.07	.74
		14	72	27.70	28	.12	43.61	.39	.54	.57	.43	.71
		15	178	20.09	43	.19	42.76	.51	.47	.56	.19	.70
		16	71	42.62	64	.31	42.54	.52	.38	.63	.31	.61
		17	154	19.00	20	.08	42.37	.40	.25	.50	.40	.70
		18	133	72.01	94	.35	42.18	.34	.49	.47	.19	.62
		19	40	79.42	79	.32	41.54	.41	.38	.51	.18	.49
		20	92	27.12	38	.13	41.04	.39	.47	.42	.18	.55
		21	68	8.49	23	.08	40.36	.35	.83	.43	.04	.57
		22	131	70.19	70	.34	39.72	.49	.34	.57	.31	.54
		23	161	21.58	26	.11	39.47	.35	.42	.50	.04	.69
		24	140	11.25	33	.14	39.33	.42	.73	.48	.30	.48
		25	107	44.19	46	.22	39.28	.46	.41	.57	.13	.54
		26	136	12.53	28	.11	39.26	.32	.32	.46	.25	.50
		27	167	9.41	27	.14	39.20	.22	.37	.59	.56	.81
		28	38	5.03	21	.12	37.64	.38	.33	.62	.29	.81
		29	75	12.10	32	.14	37.53	.41	.31	.50	.00	.72
		30	52	57.60	58	.24	35.92	.47	.50	.45	.07	.52
		31	128	27.04	30	.15	35.15	.47	.47	.53	.23	.73
		32	113	26.28	68	.31	34.65	.32	.47	.47	.10	.50

Only segments of 3 or more miles and 20 or more ROR crashes in 3 years

Table G6. Undivided segments of STH rank-ordered by Hz or Vt Curve ROR crash rate

Population Density	No of Lanes	RANK	ROUTE	Miles	ROR Crashes (3 Yrs)	Annual Travel 100MVM	Hz or Vt Curve Crashes per 100MVM	Inj+Fat To ROR Crash Ratio	Wet+Snow To ROR Crash Ratio	Dark To ROR Crash Ratio	Curve To ROR Crash Ratio	Fixed obj to ROR Crash Ratio
Rural	2.00	1	171	33.25	42	.08	74.24	.45	.40	.43	.43	.74
		2	108	17.89	25	.05	67.83	.32	.40	.48	.44	.80
		3	88	29.75	28	.06	59.64	.54	.25	.39	.39	.39
		4	162	40.88	65	.14	51.22	.49	.42	.65	.32	.51
		5	39	40.84	56	.14	43.58	.57	.36	.59	.32	.61
		6	56	50.56	84	.22	42.98	.49	.44	.49	.35	.68
		7	130	30.73	28	.09	39.04	.50	.29	.46	.36	.68
		8	213	19.33	55	.17	37.15	.49	.55	.47	.35	.62
		9	167	9.41	27	.14	36.75	.22	.37	.59	.56	.81
		10	149	24.15	32	.12	34.11	.25	.50	.38	.38	.75
		11	154	19.00	20	.08	33.90	.40	.25	.50	.40	.70
		12	72	27.70	28	.12	32.71	.39	.54	.57	.43	.71
		13	78	85.19	127	.54	29.99	.51	.39	.43	.39	.58
		14	140	11.25	33	.14	24.58	.42	.73	.48	.30	.48
		15	131	70.19	70	.34	21.85	.49	.34	.57	.31	.54
		16	71	42.62	64	.31	21.27	.52	.38	.63	.31	.61
		17	136	12.53	28	.11	21.14	.32	.32	.46	.25	.50
		18	95	71.49	71	.38	18.59	.38	.31	.54	.30	.70
		19	92	27.12	38	.13	17.95	.39	.47	.42	.18	.55
		20	144	19.45	48	.25	17.65	.44	.35	.50	.27	.69
		21	38	5.03	21	.12	17.37	.38	.33	.62	.29	.81
		22	133	72.01	94	.35	17.26	.34	.49	.47	.19	.62
		23	106	27.39	52	.21	16.20	.42	.48	.67	.19	.67
		24	128	27.04	30	.15	15.38	.47	.47	.53	.23	.73
		25	66	14.66	36	.20	14.64	.42	.39	.53	.25	.64
		26	40	79.42	79	.32	14.54	.41	.38	.51	.18	.49
		27	85	23.46	33	.23	14.46	.48	.61	.45	.30	.76
		28	81	85.38	97	.70	14.36	.45	.38	.45	.31	.68
		29	178	20.09	43	.19	14.25	.51	.47	.56	.19	.70
		30	20	29.60	66	.49	11.58	.38	.50	.48	.26	.73
		31	76	24.92	43	.16	10.40	.44	.33	.70	.12	.63

Only segments of 3 or more miles and 20 or more ROR crashes in 3 years

Table G7. Undivided segments of STH rank-ordered by Fixed Object ROR crash rate

Population Density	No of Lanes	RANK	ROUTE	Miles	ROR Crashes (3 Yrs)	Annual Travel 100MVM	Fixed obj Crashes per 100MVM	Inj+Fat To ROR Crash Ratio	Wet+Snow To ROR Crash Ratio	Dark To ROR Crash Ratio	Curve To ROR Crash Ratio	Fixed obj to ROR Crash Ratio
Rural	2.00	1	171	33.25	42	.08	127.87	.45	.40	.43	.43	.74
		2	108	17.89	25	.05	123.33	.32	.40	.48	.44	.80
		3	56	50.56	84	.22	84.48	.49	.44	.49	.35	.68
		4	39	40.84	56	.14	82.32	.57	.36	.59	.32	.61
		5	162	40.88	65	.14	80.48	.49	.42	.65	.32	.51
		6	130	30.73	28	.09	74.18	.50	.29	.46	.36	.68
		7	149	24.15	32	.12	68.22	.25	.50	.38	.38	.75
		8	213	19.33	55	.17	66.47	.49	.55	.47	.35	.62
		9	175	46.56	123	.49	62.24	.39	.41	.52	.07	.74
		10	88	29.75	28	.06	59.64	.54	.25	.39	.39	.39
		11	154	19.00	20	.08	59.32	.40	.25	.50	.40	.70
		12	106	27.39	52	.21	56.69	.42	.48	.67	.19	.67
		13	76	24.92	43	.16	56.18	.44	.33	.70	.12	.63
		14	133	72.01	94	.35	55.61	.34	.49	.47	.19	.62
		15	161	21.58	26	.11	54.65	.35	.42	.50	.04	.69
		16	72	27.70	28	.12	54.52	.39	.54	.57	.43	.71
		17	75	12.10	32	.14	53.96	.41	.31	.50	.00	.72
		18	167	9.41	27	.14	53.90	.22	.37	.59	.56	.81
		19	92	27.12	38	.13	53.86	.39	.47	.42	.18	.55
		20	178	20.09	43	.19	53.45	.51	.47	.56	.19	.70
		21	68	8.49	23	.08	52.47	.35	.83	.43	.04	.57
		22	38	5.03	21	.12	49.22	.38	.33	.62	.29	.81
		23	128	27.04	30	.15	48.33	.47	.47	.53	.23	.73
		24	170	23.90	34	.14	47.99	.50	.32	.59	.12	.59
		25	104	14.34	28	.11	45.69	.57	.21	.57	.11	.54
		26	78	85.19	127	.54	45.29	.51	.39	.43	.39	.58
		27	144	19.45	48	.25	44.79	.44	.35	.50	.27	.69
		28	91	16.50	42	.26	44.32	.60	.57	.48	.02	.81
		29	95	71.49	71	.38	44.27	.38	.31	.54	.30	.70
		30	136	12.53	28	.11	42.28	.32	.32	.46	.25	.50
		31	71	42.62	64	.31	41.48	.52	.38	.63	.31	.61

Only segments of 3 or more miles and 20 or more ROR crashes in 3 years

Table G8. Undivided segments of STH rank-ordered by high percentage of special ROR crashes

Population Density	No of Lanes	RANK	ROUTE	Miles	ROR Crashes (3 Yrs)	Annual Travel 100MVM	ROR Crashes per 100MVM	Inj+Fat To ROR Crash Ratio	Wet+Snow To ROR Crash Ratio	Dark To ROR Crash Ratio	Curve To ROR Crash Ratio	Fixed obj to ROR Crash Ratio
Rural	2.00	1	72	27.70	28	.12	76.32	.39	.54	.57	.43	.71
		2	85	23.46	33	.23	47.73	.48	.61	.45	.30	.76
		3	167	9.41	27	.14	66.15	.22	.37	.59	.56	.81
		4	82	84.05	84	.69	40.71	.54	.46	.65	.21	.63
		5	91	16.50	42	.26	54.74	.60	.57	.48	.02	.81
		6	213	19.33	55	.17	107.53	.49	.55	.47	.35	.62
		7	171	33.25	42	.08	173.24	.45	.40	.43	.43	.74
		8	39	40.84	56	.14	135.58	.57	.36	.59	.32	.61
		9	106	27.39	52	.21	84.23	.42	.48	.67	.19	.67
		10	56	50.56	84	.22	124.50	.49	.44	.49	.35	.68
		11	108	17.89	25	.05	154.16	.32	.40	.48	.44	.80
		12	71	42.62	64	.31	68.07	.52	.38	.63	.31	.61
		13	128	27.04	30	.15	65.91	.47	.47	.53	.23	.73
		14	38	5.03	21	.12	60.80	.38	.33	.62	.29	.81
		15	140	11.25	33	.14	81.12	.42	.73	.48	.30	.48
		16	178	20.09	43	.19	76.61	.51	.47	.56	.19	.70
		17	162	40.88	65	.14	158.53	.49	.42	.65	.32	.51
		18	46	27.93	22	.38	19.37	.41	.45	.64	.09	.77
		19	97	33.87	28	.42	21.99	.43	.71	.57	.00	.64
		20	20	29.60	66	.49	44.94	.38	.50	.48	.26	.73
		21	83	50.01	168	1.21	46.26	.42	.50	.51	.17	.75
		22	78	85.19	127	.54	77.72	.51	.39	.43	.39	.58
		23	67	125.86	214	1.51	47.15	.40	.49	.54	.15	.72
		24	130	30.73	28	.09	109.31	.50	.29	.46	.36	.68
		25	81	85.38	97	.70	46.44	.45	.38	.45	.31	.68
		26	59	85.54	129	1.26	34.20	.50	.45	.49	.12	.71
		27	96	27.04	30	.33	30.03	.47	.57	.47	.03	.73
		28	131	70.19	70	.34	69.52	.49	.34	.57	.31	.54
		29	144	19.45	48	.25	65.15	.44	.35	.50	.27	.69
		30	149	24.15	32	.12	90.96	.25	.50	.38	.38	.75
		31	154	19.00	20	.08	84.74	.40	.25	.50	.40	.70
		32	28	49.88	70	.63	37.30	.34	.51	.56	.14	.69

Only segments of 3 or more miles and 20 or more ROR crashes in 3 years

APPENDIX H

RUN-OFF-ROAD CRASH STATISTICS FOR RURAL UNDIVIDED TWO-LANE TWO-WAY STATE TRUNK HIGHWAYS

Crash Severity

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FATAL	206	1.8	1.8	1.8
	INJURY	4911	42.2	42.2	44.0
	PROPERTY DAMAGE	6512	56.0	56.0	100.0
	Total	11629	100.0	100.0	

TOTAL # OF PERSONS KILLED

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	11596	98.2	98.2	98.2
	1	189	1.6	1.6	99.8
	2	15	.1	.1	100.0
	3	3	.0	.0	100.0
	Total	11803	100.0	100.0	

TOTAL # OF PERSONS INJURED

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	6756	57.2	57.2	57.2
	1	4054	34.3	34.3	91.6
	2	718	6.1	6.1	97.7
	3	183	1.6	1.6	99.2
	4	67	.6	.6	99.8
	5	18	.2	.2	99.9
	6	3	.0	.0	100.0
	7	1	.0	.0	100.0
	8	1	.0	.0	100.0
	9	1	.0	.0	100.0
	11	1	.0	.0	100.0
	Total	11803	100.0	100.0	

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Light Condition at Time of Crash	DAYLIGHT	66	32.0%	2420	49.4%	3194	49.4%	5680	49.1%
	DARK	125	60.7%	2054	41.9%	2586	40.0%	4765	41.2%
	DARK LIGHTED	4	1.9%	131	2.7%	280	4.3%	415	3.6%
	DAWN	4	1.9%	168	3.4%	226	3.5%	398	3.4%
	DUSK	6	2.9%	119	2.4%	136	2.1%	261	2.3%
	UNKNOWN	1	.5%	7	.1%	49	.8%	57	.5%
	Total	206	100.0%	4899	100.0%	6471	100.0%	11576	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Pavement Condition at Time of Crash	DRY	151	74.8%	3015	64.2%	2805	45.3%	5971	53.9%
	WET	27	13.4%	524	11.2%	750	12.1%	1301	11.7%
	SNOW/SLUSH	7	3.5%	602	12.8%	1665	26.9%	2274	20.5%
	ICE	12	5.9%	518	11.0%	892	14.4%	1422	12.8%
	SAND/MUD/DIRT/OIL	0	.0%	11	.2%	8	.1%	19	.2%
	OTHER	1	.5%	15	.3%	12	.2%	28	.3%
	UNKNOWN	4	2.0%	10	.2%	57	.9%	71	.6%
	Total	202	100.0%	4695	100.0%	6189	100.0%	11086	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Relation to Roadway	ON ROADWAY	28	13.8%	898	18.5%	1395	21.7%	2321	20.2%
	SHOULDER	20	9.9%	551	11.4%	896	13.9%	1467	12.8%
	OUTSIDE SHOULD. LEFT	67	33.0%	1478	30.5%	1598	24.8%	3143	27.3%
	OUTSIDE SHOULD. RIGHT	84	41.4%	1856	38.2%	2469	38.3%	4409	38.3%
	OFF ROADWAY-UNKNOWN	4	2.0%	68	1.4%	85	1.3%	157	1.4%
	UNKNOWN	0	.0%	2	.0%	0	.0%	2	.0%
	Total	203	100.0%	4853	100.0%	6443	100.0%	11499	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Horizontal Alignment	STRAIGHT	111	54.1%	2937	60.3%	4281	66.4%	7329	63.6%
	CURVE	94	45.9%	1933	39.7%	2171	33.6%	4198	36.4%
	Total	205	100.0%	4870	100.0%	6452	100.0%	11527	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Vertical Alignment	LEVEL/FLAT	140	71.1%	3459	74.0%	4395	71.2%	7994	72.4%
	HILL	57	28.9%	1218	26.0%	1774	28.8%	3049	27.6%
	Total	197	100.0%	4677	100.0%	6169	100.0%	11043	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Most Harmful Event	UNKNOWN	4	2.0%	178	3.7%	265	4.1%	447	3.9%
	VEHICLE IN OPERATION	12	5.9%	154	3.2%	249	3.8%	415	3.6%
	PARKED MV	0	.0%	23	.5%	89	1.4%	112	1.0%
	PEDALCYCLE	1	.5%	2	.0%	0	.0%	3	.0%
	PEDESTRIAN	1	.5%	16	.3%	0	.0%	17	.1%
	TRAIN	0	.0%	0	.0%	1	.0%	1	.0%
	OTHER ANIMAL	0	.0%	7	.1%	22	.3%	29	.3%
	MV IN OTHER ROADWAY	2	1.0%	12	.2%	24	.4%	38	.3%
	OTHER NON-FIXED OBJECT	2	1.0%	49	1.0%	241	3.7%	292	2.5%
	TRAFFIC SIGN POST	0	.0%	65	1.3%	388	6.0%	453	3.9%
	TRAFFIC SIGNAL	0	.0%	1	.0%	10	.2%	11	.1%
	UTILITY POLE	9	4.4%	294	6.0%	358	5.5%	661	5.7%
	LUMINAIRE LIGHT SUPPORT	0	.0%	7	.1%	33	.5%	40	.3%
	OTHER POST	2	1.0%	32	.7%	142	2.2%	176	1.5%
	TREE	28	13.7%	508	10.4%	597	9.2%	1133	9.8%
	MAILBOX	1	.5%	64	1.3%	262	4.0%	327	2.8%
	GUARDRAIL FACE	5	2.4%	128	2.6%	510	7.8%	643	5.5%
	GUARDRAIL END	4	2.0%	63	1.3%	92	1.4%	159	1.4%
	MEDIAN BARRIER	0	.0%	1	.0%	1	.0%	2	.0%
	BRIDGE PARAPET END	1	.5%	0	.0%	4	.1%	5	.0%
	BRIDGE/PIER/ABUTMENT	1	.5%	13	.3%	39	.6%	53	.5%
	IMPACT ATTENUATOR	0	.0%	2	.0%	1	.0%	3	.0%
	OVERHEAD SIGN POST	0	.0%	1	.0%	2	.0%	3	.0%
	BRIDGE RAIL	1	.5%	29	.6%	43	.7%	73	.6%
	CULVERT	11	5.4%	207	4.2%	122	1.9%	340	2.9%
	DITCH	15	7.3%	676	13.9%	902	13.9%	1593	13.7%
	CURB	0	.0%	10	.2%	28	.4%	38	.3%
	EMBANKMENT	16	7.8%	330	6.8%	267	4.1%	613	5.3%
	FENCE	2	1.0%	41	.8%	185	2.8%	228	2.0%
	OTHER FIXED OBJECT	1	.5%	97	2.0%	213	3.3%	311	2.7%
	UNKNOWN	0	.0%	1	.0%	3	.0%	4	.0%
	OVERTURN	83	40.5%	1770	36.3%	1207	18.5%	3060	26.4%
	FIRE/EXPLOSION	2	1.0%	5	.1%	66	1.0%	73	.6%
	IMMERSION	0	.0%	4	.1%	15	.2%	19	.2%
	JACKKNIFE	0	.0%	13	.3%	32	.5%	45	.4%
	OTHER NON-COLLISION	1	.5%	69	1.4%	97	1.5%	167	1.4%
	Total	205	100.0%	4872	100.0%	6510	100.0%	11587	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Month	JAN	10	4.9%	455	9.3%	1096	16.8%	1561	13.4%
	FEB	12	5.8%	377	7.7%	642	9.9%	1031	8.9%
	MAR	15	7.3%	390	7.9%	631	9.7%	1036	8.9%
	APR	12	5.8%	359	7.3%	371	5.7%	742	6.4%
	MAY	17	8.3%	375	7.6%	344	5.3%	736	6.3%
	JUN	16	7.8%	406	8.3%	366	5.6%	788	6.8%
	JUL	26	12.6%	426	8.7%	385	5.9%	837	7.2%
	AUG	10	4.9%	375	7.6%	347	5.3%	732	6.3%
	SEP	25	12.1%	389	7.9%	354	5.4%	768	6.6%
	OCT	22	10.7%	395	8.0%	397	6.1%	814	7.0%
	NOV	22	10.7%	413	8.4%	588	9.0%	1023	8.8%
	DEC	19	9.2%	550	11.2%	991	15.2%	1560	13.4%
	Total	206	100.0%	4910	100.0%	6512	100.0%	11628	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Day of Week	SUNDAY	34	16.5%	780	15.9%	1006	15.4%	1820	15.7%
	MONDAY	16	7.8%	624	12.7%	897	13.8%	1537	13.2%
	TUESDAY	22	10.7%	649	13.2%	864	13.3%	1535	13.2%
	WEDNESDAY	33	16.0%	728	14.8%	947	14.5%	1708	14.7%
	THURSDAY	37	18.0%	677	13.8%	945	14.5%	1659	14.3%
	FRIDAY	23	11.2%	698	14.2%	1003	15.4%	1724	14.8%
	SATURDAY	41	19.9%	754	15.4%	850	13.1%	1645	14.1%
	Total	206	100.0%	4910	100.0%	6512	100.0%	11628	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Hour	0	9	4.4%	238	4.8%	248	3.8%	495	4.3%
	1	15	7.3%	212	4.3%	194	3.0%	421	3.6%
	2	13	6.3%	243	4.9%	258	4.0%	514	4.4%
	3	14	6.8%	189	3.8%	182	2.8%	385	3.3%
	4	7	3.4%	130	2.6%	158	2.4%	295	2.5%
	5	6	2.9%	179	3.6%	244	3.7%	429	3.7%
	6	8	3.9%	233	4.7%	334	5.1%	575	4.9%
	7	8	3.9%	268	5.5%	404	6.2%	680	5.8%
	8	9	4.4%	202	4.1%	392	6.0%	603	5.2%
	9	6	2.9%	200	4.1%	295	4.5%	501	4.3%
	10	2	1.0%	159	3.2%	266	4.1%	427	3.7%
	11	9	4.4%	187	3.8%	256	3.9%	452	3.9%
	12	2	1.0%	186	3.8%	263	4.0%	451	3.9%
	13	8	3.9%	202	4.1%	248	3.8%	458	3.9%
	14	4	1.9%	225	4.6%	297	4.6%	526	4.5%
	15	8	3.9%	247	5.0%	367	5.6%	622	5.3%
	16	10	4.9%	263	5.4%	344	5.3%	617	5.3%
	17	4	1.9%	235	4.8%	335	5.1%	574	4.9%
	18	9	4.4%	218	4.4%	274	4.2%	501	4.3%
	19	3	1.5%	176	3.6%	245	3.8%	424	3.6%
	20	9	4.4%	154	3.1%	222	3.4%	385	3.3%
	21	13	6.3%	167	3.4%	245	3.8%	425	3.7%
	22	11	5.3%	195	4.0%	234	3.6%	440	3.8%
	23	19	9.2%	202	4.1%	207	3.2%	428	3.7%
	Total	206	100.0%	4910	100.0%	6512	100.0%	11628	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Driver Action at Time of Collision	UNKNOWN	0	.0%	34	.7%	77	1.2%	111	1.0%
	GOING STRAIGHT	129	62.6%	3110	63.3%	4322	66.4%	7561	65.0%
	LEFT TURN	0	.0%	52	1.1%	80	1.2%	132	1.1%
	RIGHT TURN	0	.0%	21	.4%	71	1.1%	92	.8%
	SLOW/STOPPING	0	.0%	55	1.1%	137	2.1%	192	1.7%
	STOP IN TRAFFIC	0	.0%	2	.0%	8	.1%	10	.1%
	LEGALLY PARKED	0	.0%	12	.2%	37	.6%	49	.4%
	VIOL. NO PASSING	2	1.0%	15	.3%	4	.1%	21	.2%
	ILLEGALLY PARKED	0	.0%	0	.0%	3	.0%	3	.0%
	PARK MANEUVER	0	.0%	4	.1%	11	.2%	15	.1%
	BACKING	1	.5%	7	.1%	53	.8%	61	.5%
	CHANGING LANES	1	.5%	15	.3%	16	.2%	32	.3%
	OVERTAKE LEFT	7	3.4%	113	2.3%	97	1.5%	217	1.9%
	OVERTAKE RIGHT	1	.5%	20	.4%	25	.4%	46	.4%
	U TURN	0	.0%	5	.1%	6	.1%	11	.1%
	MERGING	0	.0%	1	.0%	11	.2%	12	.1%
	NEGOTIATING CURVE	64	31.1%	1375	28.0%	1448	22.2%	2887	24.8%
	OTHER	1	.5%	70	1.4%	106	1.6%	177	1.5%
	Total	206	100.0%	4911	100.0%	6512	100.0%	11629	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Possible Contributing Circumstances	EXCEEDING SPEED LIMIT	32	16.8%	231	5.5%	147	3.1%	410	4.4%
	TOO FAST/COND	32	16.8%	1145	27.2%	1812	37.6%	2989	32.4%
	FAIL TO YIELD	0	.0%	24	.6%	23	.5%	47	.5%
	INATTENTIVE DRV	41	21.5%	1110	26.3%	976	20.3%	2127	23.1%
	FOLLOW TOO CLOSE	0	.0%	10	.2%	21	.4%	31	.3%
	IMPROPER TURN	0	.0%	9	.2%	16	.3%	25	.3%
	LEFT OF CENTER	10	5.2%	59	1.4%	62	1.3%	131	1.4%
	DSGRD SIGNAL	0	.0%	3	.1%	7	.1%	10	.1%
	DSGRD STOP SGN	2	1.0%	28	.7%	24	.5%	54	.6%
	IMPROPER OVERTAKE	1	.5%	2	.0%	34	.7%	37	.4%
	UNSAFE BACKING	42	22.0%	1116	26.5%	1330	27.6%	2488	27.0%
	FAIL TO CONTROL	28	14.7%	400	9.5%	253	5.3%	681	7.4%
	DRV CONDITION	0	.0%	10	.2%	5	.1%	15	.2%
	OTHER	3	1.6%	70	1.7%	103	2.1%	176	1.9%
	Total	191	100.0%	4217	100.0%	4813	100.0%	9221	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Manner of Collision	NO COLL W/MV IN TRANSPORT	186	92.5%	4562	96.3%	5939	95.1%	10687	95.5%
	REAR END	2	1.0%	46	1.0%	87	1.4%	135	1.2%
	HEAD ON	4	2.0%	19	.4%	10	.2%	33	.3%
	REAR TO REAR	0	.0%	2	.0%	5	.1%	7	.1%
	ANGLE	7	3.5%	47	1.0%	79	1.3%	133	1.2%
	SIDE SWIPE SAME	0	.0%	35	.7%	79	1.3%	114	1.0%
	SIDE SWIPE OPPOSITE	2	1.0%	26	.5%	36	.6%	64	.6%
	UNKNOWN	0	.0%	2	.0%	11	.2%	13	.1%
	Total	201	100.0%	4739	100.0%	6246	100.0%	11186	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Posted Speed Limit	25	3	1.5%	80	1.7%	191	3.0%	274	2.4%
	30	0	.0%	41	.9%	87	1.4%	128	1.1%
	35	4	2.0%	111	2.3%	215	3.4%	330	2.9%
	40	1	.5%	50	1.1%	69	1.1%	120	1.1%
	45	12	6.0%	154	3.2%	324	5.2%	490	4.4%
	50	1	.5%	13	.3%	21	.3%	35	.3%
	55	178	89.4%	4300	90.4%	5356	85.3%	9834	87.6%
	65	0	.0%	6	.1%	13	.2%	19	.2%
	Total	199	100.0%	4755	100.0%	6276	100.0%	11230	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Operator Role	BLANK	1	.5%	38	.8%	45	.7%	84	.7%
	BICYCLIST	0	.0%	0	.0%	1	.0%	1	.0%
	DRIVER	185	93.0%	4528	95.2%	6218	99.1%	10931	97.3%
	MOTORCYCLIST	13	6.5%	186	3.9%	12	.2%	211	1.9%
	MOPED USER	0	.0%	3	.1%	0	.0%	3	.0%
	Total	199	100.0%	4755	100.0%	6276	100.0%	11230	100.0%

		Crash Severity							
		FATAL		INJURY		PROPERTY DAMAGE		Total	
		Count	Column %	Count	Column %	Count	Column %	Count	Column %
Person Drinking Alcohol	NO	97	47.1%	3775	76.9%	5812	89.3%	9684	83.3%
	YES	109	52.9%	1135	23.1%	700	10.7%	1944	16.7%
	Total	206	100.0%	4910	100.0%	6512	100.0%	11628	100.0%

APPENDIX I

PRÈCIS

INTELLIGENT MAP-BASED HIGHWAY-WIDE
SAFETY REVIEW TOOL
DESCRIPTION

Introduction

This Appendix provides a detailed overview of the intelligent GIS map-based product **PRÈCIS**[1] that was conceived as part of the "Systematic Evaluation of Run-off-Road Crash Locations" project.

The focus of this project was Run-off-Road (ROR) crashes on two-lane rural highways. This document focuses on a map of STH 14. The **PRÈCIS** map was created in a 36" x 48" format and is also available in pdf format.

The document presents:

- The general location of STH 14 within the State of Wisconsin (p. I 2)
- The meaning of color-coded information (p. I 3)
    - on the map and
    - in line graphs
- The underlying databases created by **PRÈCIS** (pp. I 4-I 5)
    - Mile point
    - crash frequency and
    - crash rate
- The relationship of map-displayed information with the Crash/State Trunk Highway Log (STH Log) Interleaf product created during the present effort (pp. I 6-I 7).

[1] Etymology: French, from *précis* precise**:** a concise summary of essential points, statements, or facts
Source: Merriam-Webster Online Dictionary; http://webster.com/ accessed 1/6/2005

STH 14

STH 14 is a 200-mile route that runs in a North-West to South-East direction in the state of Wisconsin. Most of its length (160 miles) is a rural two-lane two-way highway. **Figure I 1** shows STH 14 in light blue; the red arrow points at the section that is presented in more detail in the rest of this document.

Figure I 1 - STH 14

Data displayed on the STH 14 PRÈCIS map

Figure I 2 displays the entire STH 14 alignment. Two color-coded lines, parallel to the STH 14 alignment are used to display crash rates: a thin line representing overall crash rate and a thick line representing ROR crash rate (see square insert--crash rate ranges explained in the legend).

The map is enhanced with the names of all major and many minor intersecting highways. The line graphs at the bottom of the figure indicate crash rate (y-axis, in crashes/100 MVM) at any given mile point[2] along STH 14.

Details about the underlying database, created by **PRÈCIS**, are presented in the next two pages.

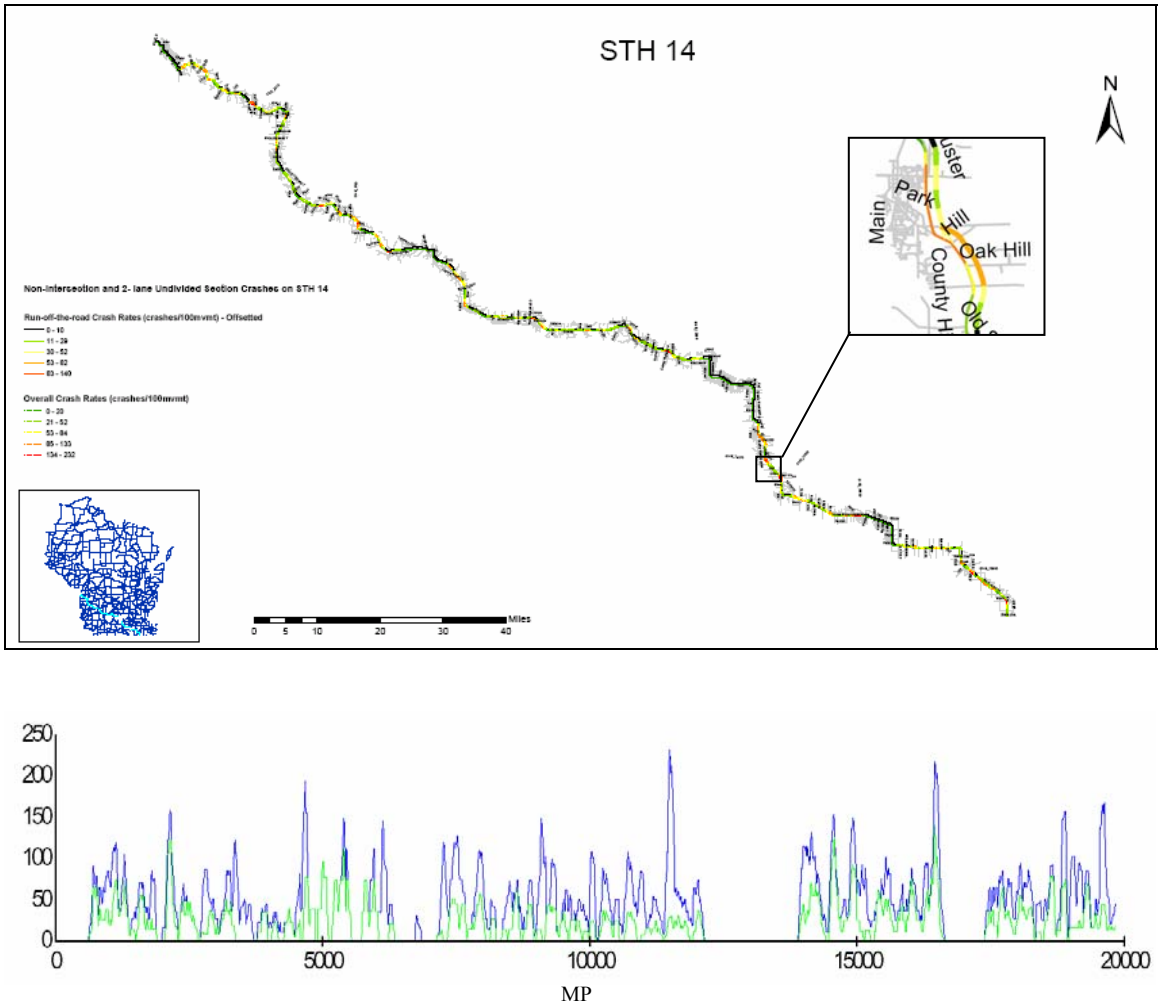

Figure I 2 - STH 14 ROR and Overall Crash Rates

[2] This is the cumulative mile point used in the WisDOT State Trunk Highway Log publication.

PRÈCIS crash frequency database

Table I 1 presents a sample of the crash frequency database used to produce color-coded statistics for **Figure I 2**. Each record contains the number of crashes along the $1/10^{th}$ of a mile, which starts at the indicated mile point. The meaning of each table column is explained below the table. For example, four ROR crashes were reported at mile point 188.70 (crashes between MP 188.70 and 188.79); there were 2 non-intersection, non-ROR crashes on dry pavement, and 1 non-intersection crash on wet pavement; this was a ROR crash.

Each record also stored travel data (not shown in Table I 1).

Table I 1- STH 14 Non-Intersection[3] Crash Frequency Database Sample

MP	RP	C_ROR_NON_	C_DRY_NON_	C_DRY_ROR_	C_WET_NON_	C_WET_ROR_
014E_18820	014E275 175	0	0	0	0	0
014E_18830	014E275 185	0	0	0	0	0
014E_18840	014E275 195	0	0	0	0	0
014E_18850	014E275 205	0	1	0	0	0
014E_18860	014E278 001	0	0	0	0	0
014E_18870	014E278 011	4	2	0	1	1
014E_18880	014E278 021	1	1	1	0	0
014E_18890	014E278 031	0	1	0	0	0
014E_18900	014E278 041	0	1	0	0	0
014E_18910	014E278 051	0	0	0	0	0
014E_18920	014E278 061	0	0	0	0	0

MP STL cumulative mile point (014E_18820 is cumulative mile point 188.20 along STH 14 as listed in the STL)

RP Reference point (014E275 175 represents a location 175 ft downstream from Reference Point number 275 along STH 14 when traveled in the eastbound direction)

C_ROR_NON_ Number of ROR crashes (1998-2000)

C_DRY_NON_ Number of non-intersection crashes on dry pavement (1998-2000)

C_DRY_ROR_ Number of ROR crashes on dry pavement (1998-2000)

C_WET_NON_ Number of non-intersection crashes on wet pavement (1998-2000)

C_WET_ROR_ Number of ROR crashes on wet pavement (1998-2000)

[3] ROR crashes were a subset of non-intersection crashes.

PRÈCIS crash rate database

Crash rates were calculated using a floating 1-mile segment. The floating segment moved 0.1 mile at a time (step = 0.1 mile), until the entire highway length was processed.[4]

Table I 2, shows ROR crash rates (see R_ROR_NON_ column) calculated at each 1/10th of a mile, for mile points 188.20 through 189.20. Note that the crash rate shown at mile point 188.20 relied on the number of crashes and ADT information at mile points 187.6 through 188.7 (a one-mile section).

Table I 2 –STH 14 Crash Rate Database Sample

MP	RP	R_ROR_NON_
014E_18820	014E275 175	40
014E_18830	014E275 185	67
014E_18840	014E275 195	67
014E_18850	014E275 205	67
014E_18860	014E278 001	67
014E_18870	014E278 011	68
014E_18880	014E278 021	70
014E_18890	014E278 031	71
014E_18900	014E278 041	73
014E_18910	014E278 051	75
014E_18920	014E278 061	46

[4] Floating segment and step lengths are adjustable to suit the user's needs.

Locating PRÈCIS information on the STH Log

A commonly used WisDOT locational reference is the annually published State Trunk Highway Log, a 4,160-page reference volume containing detailed descriptions of roadside and roadway cross-section features along each STH (see **Table I 3** below).

Because location information on a PRÈCIS map is based on the same cumulative mile point used in the State Trunk Highway Log book, Safety Engineers can quickly relate information between these two sources. Using the cumulative mile point eliminates the need to use the more complex and labor-intensive Reference Point system.

Table I 3. Sample STH Log for STH 14 (mile points 188.09 through 190.46)[5] abbreviated.

RP	PLUS	CUM MILES	FEATURE	
	1.64	188.09	BELLA VISTA DR	
	1.79	188.24	MADISON ST	
	1.79	188.24	USH 14 WB	
	2.01	188.46	B-64-0659	BRIDGE
	2.01	188.46	CMSTPP RR OVER	
	2.09	188.54	W FREMONT ST	
278	0.00	188.59	CTH X	
	0.00	188.59	BELOIT ST	
	0.12	188.71	PARK ST	
	0.13	188.72	SHARON ST	
	0.40	188.99	SWEET RD	
	0.58	189.17	>> V OF DARIEN	
	0.58	189.17	>> T OF DARIEN	
281	0.00	190.46	>> T OF DARIEN	

Notes: RP = Reference Point Number; PLUS = Distance from upstream RP; CUM MILES = Cumulative miles; FEATURE = Roadside feature.

A quick reference summary, incorporating STH log and crash data was developed for this project, the "**Crash/State Trunk Highway Log Interleaf**" printout, consisting of crash and STH Log records sorted by cumulative mile point (see **Table I 4** next page).

Information on the map shown in **Figure I 1** can be readily related to the STH Log interleaf printout, using cumulative mile point and/or intersecting street name.

[5] Data current as of 06-09-2004.

Table I 4- Interleaved Run-off-Road Crash and State Trunk Highway Log Data

COUNTY	HWY	REFPT	CUM_MP	FEATURE	DIV UND	(AADT)	Hwy Functional Class	Relation to Roadway	HR	DATE	Rd Cond	Lgt Cond	Sev	Crash Type	No veh	Spd limit	Microfilm
			185.59			7160	PRINC ART Rural	Shoulder	16	05/03/98	DRY	DAYLIGHT	PDO	GUARDRAIL FACE	1	55	98161380095
ROCK	014E	274	185.61	SCHOOL SECTION RD		.	.	.	.	.	.	.	.	.	.	.	.
			185.61			7160	PRINC ART Rural	Parking Lot/Private	19	05/23/99	DRY	DUSK	Inj	DITCH	1	55	99211610962
			186.25			7160	PRINC ART Rural	On Roadway	17	04/01/99	DRY	DUSK	PDO	OVERTURN	1	55	99151101143
			186.43			7160	PRINC ART Rural	Outside Should. Left	7	04/17/99	DRY	DARK	PDO	FENCE	1	55	99161200417
WALW	014E	275	186.45	CTH C	U	.	.	.	.	.	.	.	.	.	.	.	.
			186.55			7160	PRINC ART Rural	Shoulder	15	04/04/98	DRY	DAYLIGHT	Inj	OVERTURN	1	55	98121050459
			186.55			7160	PRINC ART Rural	Outside Should. Left	15	02/24/99	SNOW/SLUSH	DAYLIGHT	PDO	OTHER POST	1	55	99100690690
			186.70			7160	PRINC ART Rural	Outside Should. Right	10	08/02/98	DRY	DAYLIGHT	PDO	OVERTURN	1	55	98272241013
			186.75			7160	PRINC ART Rural	On Roadway	1	05/02/2000	DRY	DARK	Inj	EMBANKMENT	1	55	211370726
			187.85			7160	MINOR ART Rural	On Roadway	20	11/09/99	DRY	DARK	PDO	CURB	1	45	99413201327
WALW	014E	278	188.59	CTH X	U	.	.	.	.	.	.	.	.	.	.	.	.
			188.71			6850	MINOR ART Rural	On Roadway	1	02/09/99	WET	DARK LIGHTED	PDO	CURB	1	25	99080500620
			188.72			6850	MINOR ART Rural	Shoulder	6	01/20/2000	SNOW/SLUSH	DARK LIGHTED	PDO	UTILITY POLE	1	35	50251538
			188.79			6850	MINOR ART Rural	Outside Should. Left	15	03/08/99	ICE	DAYLIGHT	Inj	TREE	1	55	99120820805
			188.79			6850	MINOR ART Rural	Outside Should. Left	16	03/08/99	0	DAYLIGHT	Inj	OVERTURN	1	55	99120820807
			188.89			6850	MINOR ART Rural	Outside Should. Left	5	10/31/99	DRY	DARK	Inj	TREE	1	45	99423230666
			190.26			5340	MINOR ART Rural	Outside Should. Right	13	01/22/2000	SNOW/SLUSH	DAYLIGHT	PDO	UTILITY POLE	1	55	70420427
WALW	014E	281	190.46	>> T OF DARIEN		.	.	.	.		.	.	.	.	.	.	.
WALW	014E	282	190.71	CTH K	U	.	.	.	.	.	.	.	.	.	.	.	.
			191.21			5340	MINOR ART Rural	Outside Should. Right	21	12/30/98	DRY	DARK	PDO	OVERTURN	1	55	99030140297
			192.11			5340	MINOR ART Rural	Outside Should. Left	2	07/22/2000	DRY	DARK	PDO	MAILBOX	1	55	332220631
WALW	014E	284	192.61	CTH O		.	.	.	.		.	.	.	.	.	.	.
WALW	014E	285	192.87	WILLOW BEND RD		.	.	.	.		.	.	.	.	.	.	.
			192.93			5340	MINOR ART Rural	Parking Lot/Private	15	06/26/98	DRY	DAYLIGHT	Inj	DITCH	1	55	98231940219
			193.03			5340	MINOR ART Rural	Outside Should. Right	19	03/05/99	SNOW/SLUSH	DARK	PDO	OVERTURN	1	0	99120820817
			193.13			5340	MINOR ART Rural	On Roadway	15	05/31/99	WET	DAYLIGHT	Inj	TRAFFIC SIGN POST	1	55	99221660660
			193.43			5340	MINOR ART Rural	On Roadway	19	02/28/99	DRY	DARK	PDO	OTHER NON-FIXED OBJECT	2	55	99100690678
			194.42			5340	MINOR ART Rural	Outside Should. Right	15	02/24/99	SNOW/SLUSH	DAYLIGHT	PDO	FENCE	1	55	99100690716
WALW	014E	287	194.52	BRICK CHURCH RD	U	.	.	.	.		.	.	.	.	.	.	.
			195.02			5340	MINOR ART Rural	On Roadway	16	06/05/2000	DRY	DAYLIGHT	Inj	OTHER POST	2	45	251710982
WALW	014E	289	195.88	USH 14 WB	1	.	.	.	.		.	.	.	.	.	.	.
WALW	014E	289K	195.95	USH 14 WB	U	.	.	.	.		.	.	.	.	.	.	.
			195.95			6115	MINOR ART Rural	On Roadway	18	10/28/98	DRY	DAYLIGHT	Inj	UTILITY POLE	1	30	98373100735
			196.15			6115	MINOR ART Rural	Outside Should. Left	16	03/08/99	ICE	DAYLIGHT	PDO	MAILBOX	1	55	99120820809
			196.20			6115	MINOR ART Rural	Outside Should. Left	11	02/08/99	DRY	DAYLIGHT	PDO	OTHER POST	1	55	99090560398
WALW	014E	290	196.44	KNOLL RD	U	.	.	.	.		.	.	.	.	.	.	.
			197.04			6600	MINOR ART Rural	Outside Should. Right	8	05/10/99	DRY	DAYLIGHT	PDO	MAILBOX	1	55	99191451987
WALW	014E	291	197.46	STH 67 NB	U	.	.	.	.		.	.	.	.	.	.	.
			197.56			6600	MINOR ART Rural	Outside Should. Right	11	11/12/99	DRY	DAYLIGHT	K	TREE	1	55	99433280034
			198.06			6600	MINOR ART Rural	0	5	01/30/2000	SNOW/SLUSH	DARK	Inj	EMBANKMENT	3	55	70450696
			198.13			6600	MINOR ART Rural	Outside Should. Right	17	10/09/2000	DRY	DAYLIGHT	Inj	OTHER NON-COLLISION	1	55	443010445
WALW	014E	292	198.43	STATE LINE RD		.	.	.	.		.	.	.	.	.	.	.