

1. Report No. FHWA/TX-88/399-1F, Vol. II	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Accident Analysis for Urban Freeways Volume II. Maap User Manual		5. Report Date May 1988	
7. Author(s) Rebecca Yette, Don Young and David Provines		6. Performing Organization Code	
9. Performing Organization Name and Address Texas Transportation Institute The Texas A&M University System College Station, Texas 77843-3135		8. Performing Organization Report No. Research Report 399-1F, Vol. II	
12. Sponsoring Agency Name and Address Texas State Department of Highways and Public Transportation; Transportation Planning Division P. O. Box 5051 Austin, Texas 78763		10. Work Unit No.	
15. Supplementary Notes Research performed in cooperation with DOT, FHWA. Research Study Title: Analysis of Accident Rates Along Urban Freeways To Determine Where and When Added Enforcement or Other Remedial Measures Are Required.		11. Contract or Grant No. Study No. 2-18-84-399	
16. Abstract This volume of the final report represents the computer software documentation of the Microcomputer Accident Analysis Program. This report describes in detail the actions to be taken by the analyst and the results the analyst can expect as the computer program is executed. An overview of the process used to create the analysis data is included to provide the analyst with the necessary information to interpret the computer-generated reports. This report is designed to be used by traffic engineers and highway safety analysts in the District offices throughout Texas.		13. Type of Report and Period Covered Final - September 1983 May 1988	
17. Key Words Microcomputer; Accident Analysis; High Accident Location; Highway Safety		14. Sponsoring Agency Code	
19. Security Classif. (of this report) Unclassified		18. Distribution Statement No restriction. This document is available to the public through the National Technical Information Service 5285 Port Royal Road Springfield, Virginia 22161	
20. Security Classif. (of this page) Unclassified		21. No. of Pages 96	22. Price



ACCIDENT ANALYSIS FOR URBAN FREEWAYS

VOLUME II. MAAP USER MANUAL

By

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David Provines

Research Report
399-1F Volume II

on

Research Study Number 2-18-84-399
Analysis of Accident Rates Along Urban Freeways
To Determine Where and When Added Enforcement
or Other Remedial Measures Are Required

Sponsored By

Texas State Department of
Highways and Public Transportation

In Cooperation With

Federal Highway Administration
U. S. Department of Transportation

May 1988

Texas Transportation Institute
The Texas A&M University System
College Station, Texas 77843



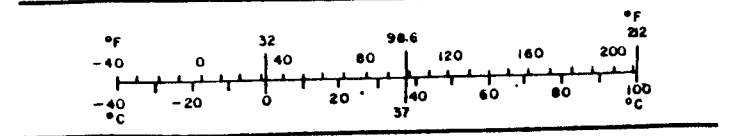
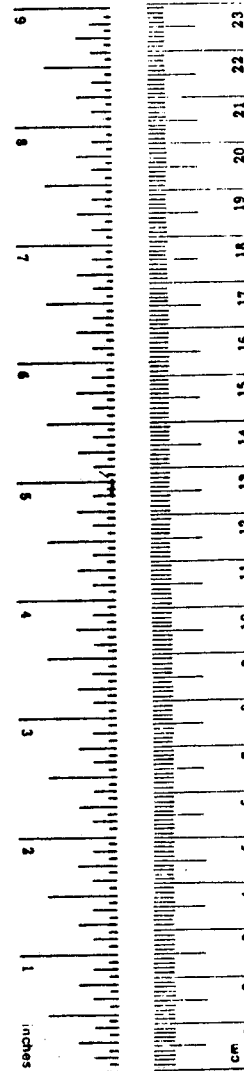
METRIC CONVERSION FACTORS

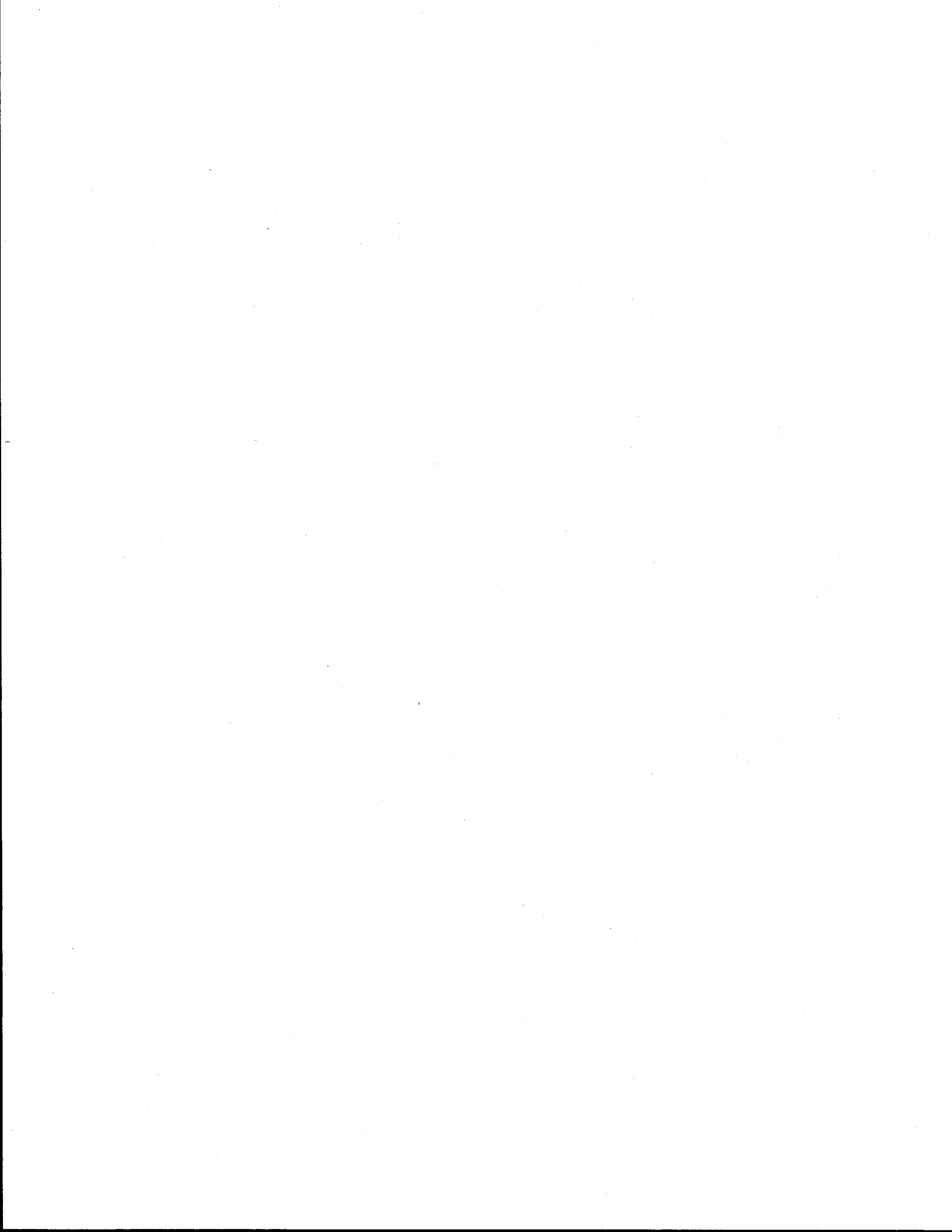
Approximate Conversions to Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (2000 lb)	0.9	tonnes	t
VOLUME				
tsp	teaspoons	5	milliliters	ml
Tbsp	tablespoons	15	milliliters	ml
fl oz	fluid ounces	30	milliliters	ml
c	cups	0.24	liters	l
pt	pints	0.47	liters	l
qt	quarts	0.95	liters	l
gal	gallons	3.8	liters	l
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	millimeters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10,000 m ²)	2.5	acres	
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	tonnes (1000 kg)	1.1	short tons	
VOLUME				
ml	milliliters	0.03	fluid ounces	fl oz
l	liters	2.1	pints	pt
l	liters	1.06	quarts	qt
l	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F





DISCLAIMER

The statements and claims expressed in this document are statements and claims of the authors, and do not necessarily represent the official position of the State of Texas, the State Department of Highways and Public Transportation, or any political subdivision of the State or Federal government regarding the subject matter.

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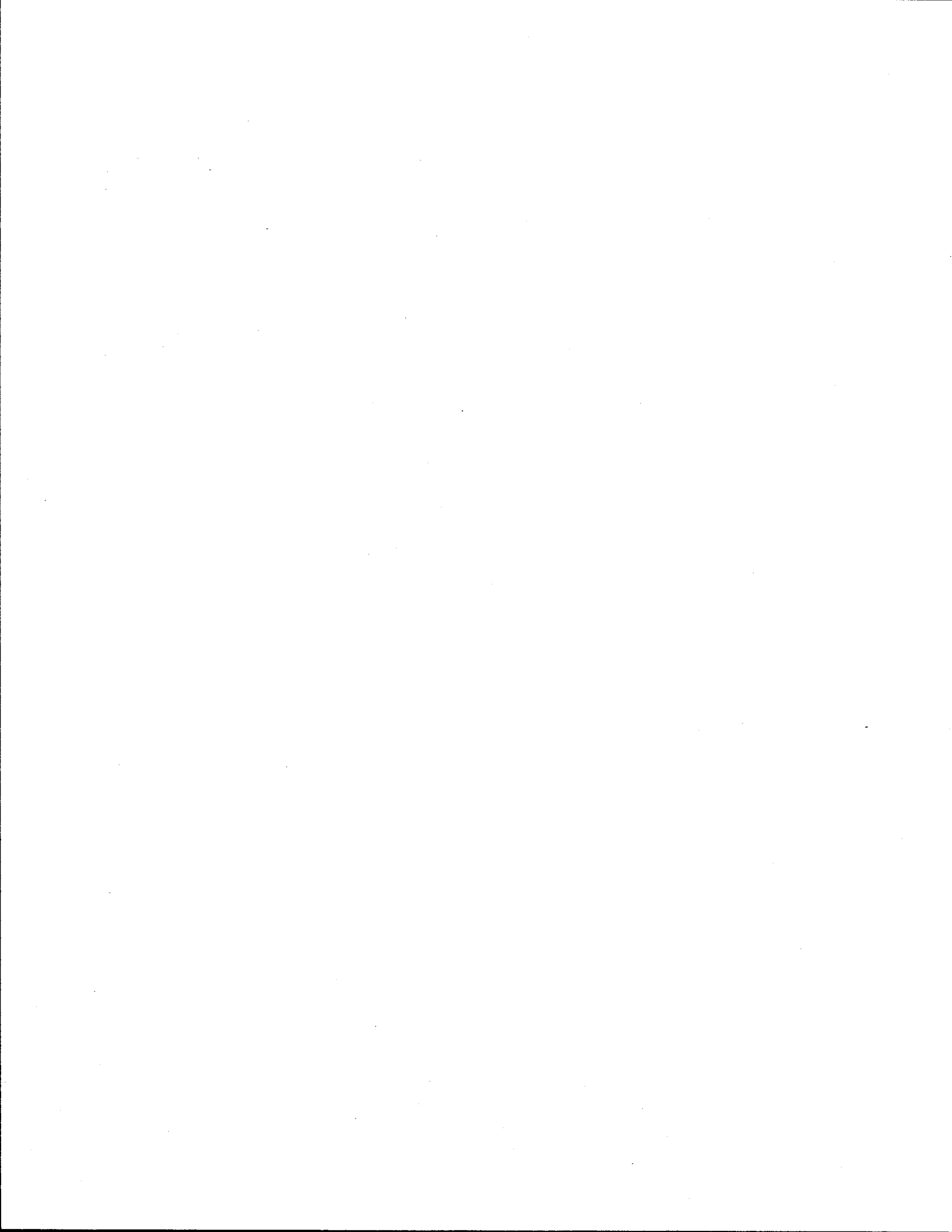
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INTRODUCTION

The Microcomputer Accident Analysis Program (MAAP) is designed specifically for use with urban Interstate highways and urban non-Interstate freeways. The data analyzed and reported by the MAAP System originate with the merged accident/roadway data file. For a detailed description of these data, refer to the Roadway Information System User Manual¹. The major components of the system are as follows:

1. WINDOW Ranking Program - identifies and ranks high accident locations.
2. WINDOW Recode Program - combines variables for analysis purposes and creates the analysis file.
3. Analysis Program - Analyzes accident data at selected high accident sites in order to identify causative factors and suggest appropriate remedial measures.
4. Supplemental Reporting Program -provides descriptive statistics for user-defined subsets of the analysis file.

Figure 1 is a schematic representation of the overall MAAP process. After a short explanation of each major component, the specific instructions for running the microcomputer part of the MAAP procedure are given. Instructions for requesting the WINDOW run and the MAAP county analysis data file are provided in the WINDOW explanation. Instructions for copying the MAAP county accident tape file (created on the mainframe) onto a diskette to be sent to the District are provided in the WINDOW Users Manual available at D-18STO. Appendix A lists the minimum requirements for running the microcomputer portion of the MAAP System.

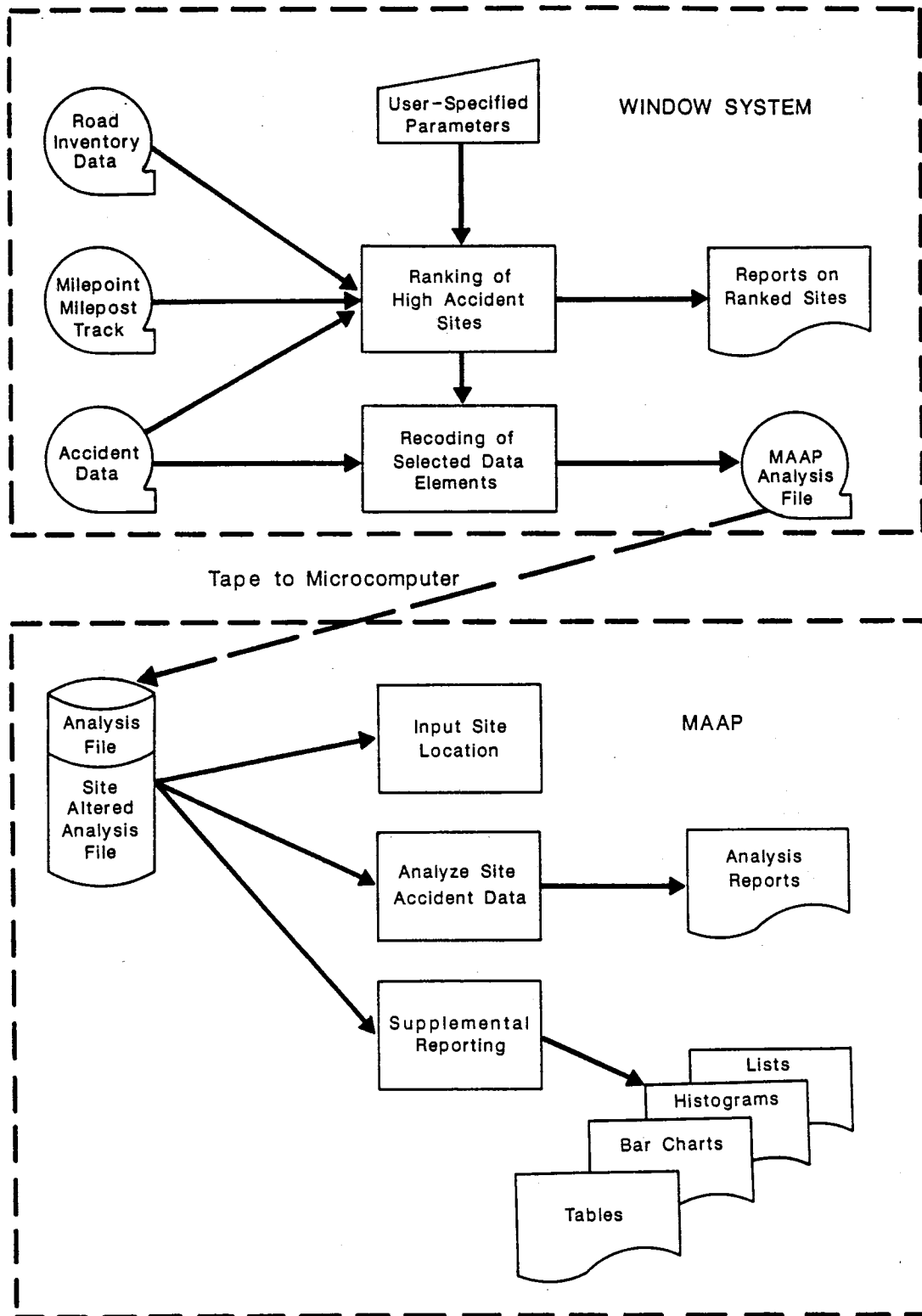


Figure 1. Schematic of the Overall MAAP Process

WINDOW

The methodology used to identify and rank high accident locations is based on an existing mainframe computer program known as the "WINDOW" program.

The WINDOW program is designed with numerous built-in options to accommodate the specific user needs. When a run of the MAAP WINDOW is requested from D-18STO, the following criteria are specified:

- a) Report to rank segments by accidents per 100 million vehicle miles of travel
- b) 3 consecutive years of accident data
- c) A 2-mile long window (segment)
- d) A minimum of 30 accidents to be considered for ranking
- e) Urban Interstate or urban non-Interstate freeways
- f) 1 county only
- g) Main lanes only
- h) Property damage only accidents excluded
- i) Construction zone accidents excluded

Two reports produced by the WINDOW program can be used to select specific segments of high accident locations for evaluation. Example reports are shown in Exhibit 1. One report is sorted by rank (the relative accident rate) and the other is sorted by segment within each highway. At the microcomputer level, minor changes in the beginning and ending milepoints of the locations can be made to coincide with identifiable landmarks such as interchanges and bridge structures for field evaluation purposes. (*See option A on the Analysis Menu.*)

RECODE which is automatically run with the MAAP version of WINDOW creates a county accident analysis data file that includes the rank numbers assigned by the WINDOW program. This county data file includes all accidents within the county that meet the subsetting criteria used with the WINDOW ranking program, plus the property damage only accidents which were not included during the ranking process. The county data file contains the ranking for the site, primary analysis variables, secondary analysis variables, additional report variables, and the control section and milepoint for the accident. Refer to Section 4.3 Microcomputer Accident Analysis Program in Volume I of this report for additional information about the analysis variables. Table 1 lists the county data analysis file record layout. The analysis variables are created by recoding and combining several variables. With the exception of the variables contributing factors 1 and 2, the report variables retain the same value as on the original merged accident/roadway data file. The source of each variable is detailed in Appendix B.

Once the county analysis file is created, it is forwarded to

SECTION 01

1984-1986 HARRIS COUNTY INTERSTATE MAINLANE ACCIDENTS
EXCLUDING PDO AND CONSTRUCTION ZONE ACCIDENTS

SEGMENTS SORTED BY RANK FOR RATE

RANK	HWY DIST	HIGHWAY	BEGINNING MILEPOINT			ENDING MILEPOINT			ACCS	RATE (ACCS/ 100 MVM)	FATAL ACCS	FATAL- ITIES	INJ ACCS	INJ- URIES	PDO ACCS
			COUNTY	CONTROL- SECTION	MPT	COUNTY	CONTROL- SECTION	MPT							
1	12	IH 0610	HARRIS	0271-17	33.1	HARRIS	0271-17	35.1	403	270.55	2	2	401	596	0
2	12	IH 0610	HARRIS	0271-15	5.9	HARRIS	0271-16	21.0	209	250.48	3	3	206	299	0
3	12	IH 0045	HARRIS	0500-03	15.4	HARRIS	0500-03	17.4	310	237.44	2	2	308	496	0
4	12	IH 0010	HARRIS	0271-07	28.0	HARRIS	0508-01	1.9	147	200.97	4	4	143	201	0
5	12	IH 0610	HARRIS	0271-14	5.6	HARRIS	0271-14	7.6	143	192.24	0	0	143	211	0
6	12	IH 0610	HARRIS	0271-15	3.3	HARRIS	0271-15	5.3	136	189.91	4	5	132	208	0
7	12	IH 0045	HARRIS	0500-03	20.6	HARRIS	0500-03	22.6	250	182.89	3	3	247	367	0
8	12	IH 0610	HARRIS	0271-16	9.6	HARRIS	0271-17	31.5	163	151.90	2	2	161	237	0
9	12	IH 0610	HARRIS	0271-16	6.5	HARRIS	0271-16	8.5	173	146.29	0	0	173	280	0
10	12	IH 0010	HARRIS	0508-01	34.4	HARRIS	0508-01	36.4	131	143.16	6	8	125	188	0
11	12	IH 0010	HARRIS	0271-07	25.9	HARRIS	0271-07	27.9	124	142.62	5	5	119	165	0
12	12	IH 0610	HARRIS	0271-14	10.6	HARRIS	0271-14	12.6	88	140.83	1	1	87	116	0
13	12	IH 0045	HARRIS	0500-03	11.5	HARRIS	0500-03	13.5	139	140.58	1	1	138	212	0
14	12	IH 0610	HARRIS	0271-17	36.9	HARRIS	0271-14	0.9	223	132.76	1	1	222	324	0
15	12	IH 0010	HARRIS	0508-01	2.3	HARRIS	0508-01	32.3	102	131.75	3	5	99	134	0
16	12	IH 0610	HARRIS	0271-16	21.1	HARRIS	0271-16	23.1	107	125.76	2	2	105	149	0
17	12	IH 0610	HARRIS	0271-14	1.0	HARRIS	0271-14	3.0	150	108.75	1	2	149	201	0
18	12	IH 0610	HARRIS	0271-14	8.4	HARRIS	0271-14	10.4	65	106.96	1	1	64	96	0
19	12	IH 0610	HARRIS	0271-16	24.1	HARRIS	0271-16	26.1	105	105.34	0	0	105	169	0

1984-1986 HARRIS COUNTY INTERSTATE MAINLANE ACCIDENTS
EXCLUDING PDO AND CONSTRUCTION ZONE ACCIDENTS

SEGMENTS SORTED WITHIN HIGHWAY

RANK	HWY DIST	HIGHWAY	BEGINNING MILEPOINT			ENDING MILEPOINT			ACCS	RATE (ACCS/ 100 MVM)	FATAL ACCS	FATAL- ITIES	INJ ACCS	INJ- URIES	PDO ACCS
			COUNTY	CONTROL- SECTION	MPT	COUNTY	CONTROL- SECTION	MPT							
38	12	IH 0010	HARRIS	0271-06	0.3	HARRIS	0271-06	2.3	27	81.65	1	1	26	43	0
49	12	IH 0010	HARRIS	0271-06	2.8	HARRIS	0271-06	4.8	16	27.83	0	0	16	19	0
47	12	IH 0010	HARRIS	0271-06	5.7	HARRIS	0271-06	7.7	31	44.94	2	2	29	36	0
35	12	IH 0010	HARRIS	0271-06	9.7	HARRIS	0271-07	11.7	68	85.54	6	9	62	83	0
34	12	IH 0010	HARRIS	0271-07	13.3	HARRIS	0271-07	15.3	102	88.97	2	2	100	143	0
25	12	IH 0010	HARRIS	0271-07	16.1	HARRIS	0271-07	18.1	128	97.66	1	1	127	171	0
22	12	IH 0010	HARRIS	0271-07	20.2	HARRIS	0271-07	22.2	140	103.16	3	3	137	188	0
30	12	IH 0010	HARRIS	0271-07	22.7	HARRIS	0271-07	24.7	99	90.96	3	3	96	135	0
11	12	IH 0010	HARRIS	0271-07	25.9	HARRIS	0271-07	27.9	124	142.62	5	5	119	165	0
4	12	IH 0010	HARRIS	0271-07	28.0	HARRIS	0508-01	1.9	147	200.97	4	4	143	201	0
15	12	IH 0010	HARRIS	0508-01	2.3	HARRIS	0508-01	32.3	102	131.75	3	5	99	134	0
10	12	IH 0010	HARRIS	0508-01	34.4	HARRIS	0508-01	36.4	131	143.16	6	8	125	188	0
39	12	IH 0010	HARRIS	0508-01	36.6	HARRIS	0508-01	38.6	59	80.54	0	0	59	84	0
42	12	IH 0010	HARRIS	0508-01	38.7	HARRIS	0508-01	40.7	41	66.04	5	5	36	59	0
43	12	IH 0010	HARRIS	0508-01	41.9	HARRIS	0508-01	43.9	33	65.61	2	2	31	55	0
33	12	IH 0010	HARRIS	0508-01	45.1	HARRIS	0508-01	47.1	38	89.90	2	3	36	59	0
24	12	IH 0010	HARRIS	0508-01	47.4	HARRIS	0508-01	49.4	30	102.61	1	1	29	49	0
45	12	IH 0010	HARRIS	0508-01	50.0	HARRIS	0508-01	52.0	15	50.18	1	1	14	22	0
40	12	IH 0010	HARRIS	0508-01	52.3	HARRIS	0508-01	54.3	19	77.46	0	0	19	36	0

Exhibit 1. Example WINDOW Reports (Continued)

Table 1. MAAP County Analysis Data File Record Layout

<u>Column</u>	<u>Variable</u>			
01-02	rank (site)			
03	accident time	Primary	Analysis Variables	
04	accident type			
05	weather - surface condition			
06	degree of curvature			
07	vehicle type			
08	accident severity	Secondary		
09	DWI or DW drugs			
10	speeding			
11	prioritized driver age			
12	prioritized driver license status			
13-14	other factor			Other Accident Variables
15	first harmful event			
16	weather			
17-18	object struck			
19-20	time			
21-22	manner of collision			
23	recoded position at point of impact			
24	surface condition			
25-26	position at point of impact			
27	day			
28	severity			
29-34	control section 1	Location Variables		
35-37	milepoint (no decimal)			
38	prioritized contributing factor 1			
39	prioritized contributing factor 2			
40-41	vehicle 1 style			
42-43	vehicle 2 style			
44-45	driver 1 age			
46-47	driver 2 age			
48-49	driver 1 license status			
50-51	driver 2 license status			

the district office on a diskette to be copied to a microcomputer hard disk. The analysis file is named according to the following specifications:

- a) Prefix of "I" or "N" for Interstate or non-Interstate respectively
- b) The first 7 characters of the unabbreviated county name
- c) Suffix of .DAT.

ex: The analysis data file for Interstate highways in Harris county is named **IHARRIS.DAT**.

To obtain the WINDOW reports and the county accident analysis data file, call D-18STO and request a MAAP WINDOW run for the desired county. If subsetting criteria other than those previously listed are warranted, the new criteria should be specified at the time of the request.

ANALYSIS OF ACCIDENT SITES

The Analysis procedure of MAAP is designed to automatically analyze the accident characteristics of a given site and to provide the users with a list of accident factors and their interactions that are significantly overrepresented at the location under consideration in comparison to the countywide average. The accident analysis algorithm was developed specifically for this application and is based on a statistical (*discrete multivariate*) approach. A description of the algorithm is provided in Appendix B of Volume I. The user will be provided with a list of overrepresented accident conditions and suggested items for field observation and potential improvements for that site at the end of the program.

Exhibit 2 illustrates a typical output from the MAAP program. The overrepresented conditions are reported in tabular format for ease of use. The table heading identifies the county, highway type, location, and accident frequency and rank of the site being evaluated. Significant variables and levels of these variables are shown as rows and columns of the table.

Entries are shown only for those cells, i.e., combinations of levels of variables, that are significantly overrepresented. Each entry shows both the expected and the observed number of accidents. The expected number of accidents is based on the countywide average. In other words, this is the number of accidents expected for that specific combination of factors if the site is an average site. The observed number of accidents is the actual number of accidents for that specific combination of factors found at the high accident location.

The program output also provides a list of suggested items for field observation and improvements based on the overrepresented conditions. A list of the overrepresented conditions and the corresponding suggested items for field observation and improvements is shown in Appendix C. This is a very crude attempt to provide the users with some suggestions on what to look for in the field inspection and some potential remedial measures. Each suggestion corresponds to only one variable and one level of that variable at a time. The suggestions do not take interactions or combinations of factors into account.

Tarrant County, Interstate Freeway. On site accidents were 717 of a County Total of 9538

Rank 01 - Control Section 0014-16 Milepoint 6.5 to 8.5

ACCIDENT TYPE	ACCIDENT TIME	VEHICLE TYPE	
		TRUCK OR BUS	VAN OR PICKUP
M/V SIDESWIPE	WEEKDAY RUSH HOUR	EXPECTED	9.4
		ACTUAL	19
	WEEKDAY NON-RUSH HOUR	EXPECTED	8.7
		ACTUAL	19
		EXPECTED	27.6
		ACTUAL	40
M/V ANGLE OPPOSITE	WEEKDAY NON-RUSH HOUR	EXPECTED	1.0
		ACTUAL	6
		EXPECTED	2.1
		ACTUAL	6
	EVENING OR NIGHT	EXPECTED	0.9
		ACTUAL	5

Exhibit 2. Typical MAAP Output

OVERREPRESENTED CONDITIONS AND CORRESPONDING SUGGESTIONS
FOR FIELD OPERSERVATION AND IMPROVEMENTS

Accident Type = Multi-vehicle, Sideswipe

The proportion of sideswipe accidents are overrepresented. Check merging and weaving areas for potential improvements, e.g., increase the length of merging and weaving areas, ramp metering or other control.

Accident Type = Multi-vehicle, Head-on/Angle

The proportion of head-on or angle accidents are overrepresented. Check to make sure that this roadway section is correctly identified as freeway. The number of head-on or angle accidents is probably too high for freeway conditions. If the problem is with median crossovers, assess the possibility of closing off these crossovers.

Accident Time = Weekday, Rush Hour

The proportion of accidents during weekday rush hours is higher than average. This suggests a problem with over-capacity during rush hours which is generally not affected by safety-related improvements. Check for potential means of increasing capacity and improving traffic flow.

Accident Time = Weekday, Non-Rush Hours or Weekend, Daytime

The proportion of accidents during weekday non-rush hours and/or weekend daytime hours is higher than average. Check if the traffic volume is already approaching capacity at these time periods while traffic speeds are relative high. If such is the case, safety-related improvements will generally not be effective. Check for potential means of increasing capacity and improving traffic flow.

Accident Time = Evening/Night

The proportion of accidents during the evening and nights is higher than average. Check lighting conditions and night visibility for potential improvements, such as increasing lighting level, improving delineation, raised pavement markers, etc.

Exhibit 2. Typical MAAP Output (Continued)

SUPPLEMENTAL REPORTING

The Supplemental Reporting procedure of MAAP allows the user to examine accident data on the microcomputer through use of subsetting and reporting functions. This procedure is useful in examining particular variables that are overrepresented. The user performs two steps to produce a report.

First, the user must decide what values of particular variables in the data represent the subset of data of interest. This is a multistep task in MAAP that also includes deciding on a report title, report format, and the variables to be shown in the report. This step need only be done once for each different set of subset requirements because this "subset definition" will be saved in MAAP for later retrieval.

Second, the user runs the subsetting process to produce the report. This step produces a printed report and must be run for each report that is requested.

There are four formats available to view the subset reports. The List Format, illustrated in Exhibit 3, provides a list of the data in each accident that is identified as part of the subset. One page per accident is printed; hence, it is suggested that the List Format be reserved for small subsets of accidents.

The second report, illustrated in Exhibit 4, is in a Histogram Format. This is a frequency line chart which shows each of a particular variable's values vertically down the page. The length of the horizontal line indicates the percentage the value represented in the total subset. This report represents one variable and its values.

The third report, illustrated in Exhibit 5, is in a Bar Chart Format. This is the Histogram Format (see previous description) rotated ninety degrees so that the variable's values appear horizontally on the page. This report represents one variable and its values.

The fourth report, illustrated in Exhibit 6, is in a Table Format. This format shows the subset of data with one or two variables' values shown on the page. One variable is shown on the vertical axis while the second is on the horizontal axis. The values are shown in "cells" on the paper with the values in the cells representing the number of times that the combination of values on the axis occurred within the subset of the data. Therefore, this report allows viewing of one or two variables and their values in relation to each other for the subset in a cross-tabular format.

Please note that all the numbers shown in these reports for each possible value of the variables represent the "number of accidents" in the subset having those values.

M A A P
SDHPT DISTRICT 2
List of Fatal Accidents

SITE	16
ACCIDENT TIME	WEEKDAY RUSH HOUR
ACCIDENT TYPE	SINGLE VEHICLE
ACC SEVERITY	FATAL/INJURY
WEATHER/SURFACE	NO ADVERSE
DEGREE OF CURVE	STRAIGHT
VEHICLE TYPE	VAN OR PICKUP
SPEEDING	SPEEDING
DWI	DWI OR DW DRUGS
DRIVER AGE	21 TO 55
DRIVER STATUS	IN STATE
DAY	WEDNESDAY
TIME	5-5:59 PM
FIRST HARMFUL SEVERITY	FIXED OBJECT
WEATHER	FATAL
SURFACE	CLEAR (CLOUDY)
MANNER/COLLISION	DRY
OBJECT STRUCK	SINGLE VEHICLE GOING STRAIGHT
OTHER FACTOR	MEDIAN BARRIER DIVIDER
LOC OF IMPACT	NO CODE APPLICABLE
POINT OF IMPACT	MEDIAN
VEHICLE 1 STYLE	AREA BETWEEN MAIN LANES
VEHICLE 2 STYLE	PICKUP TRUCK
CONTRIB FACTOR 1	NO SECOND VEHICLE
CONTRIB FACTOR 2	AT LEAST ONE SPEEDING-UNSAFE
DRIVER 1 AGE	AT LEAST ONE DWI OR DW DRUGS
DRIVER 2 AGE	AGE 41
DRIVER 1 STATUS	NO SECOND VEHICLE
DRIVER 2 STATUS	TEXAS
Control Section	NO SECOND VEHICLE
MILEPOINT	0271-16
	22.5

SDHPT DISTRICT 2
Fatal Accidents Due to DWI

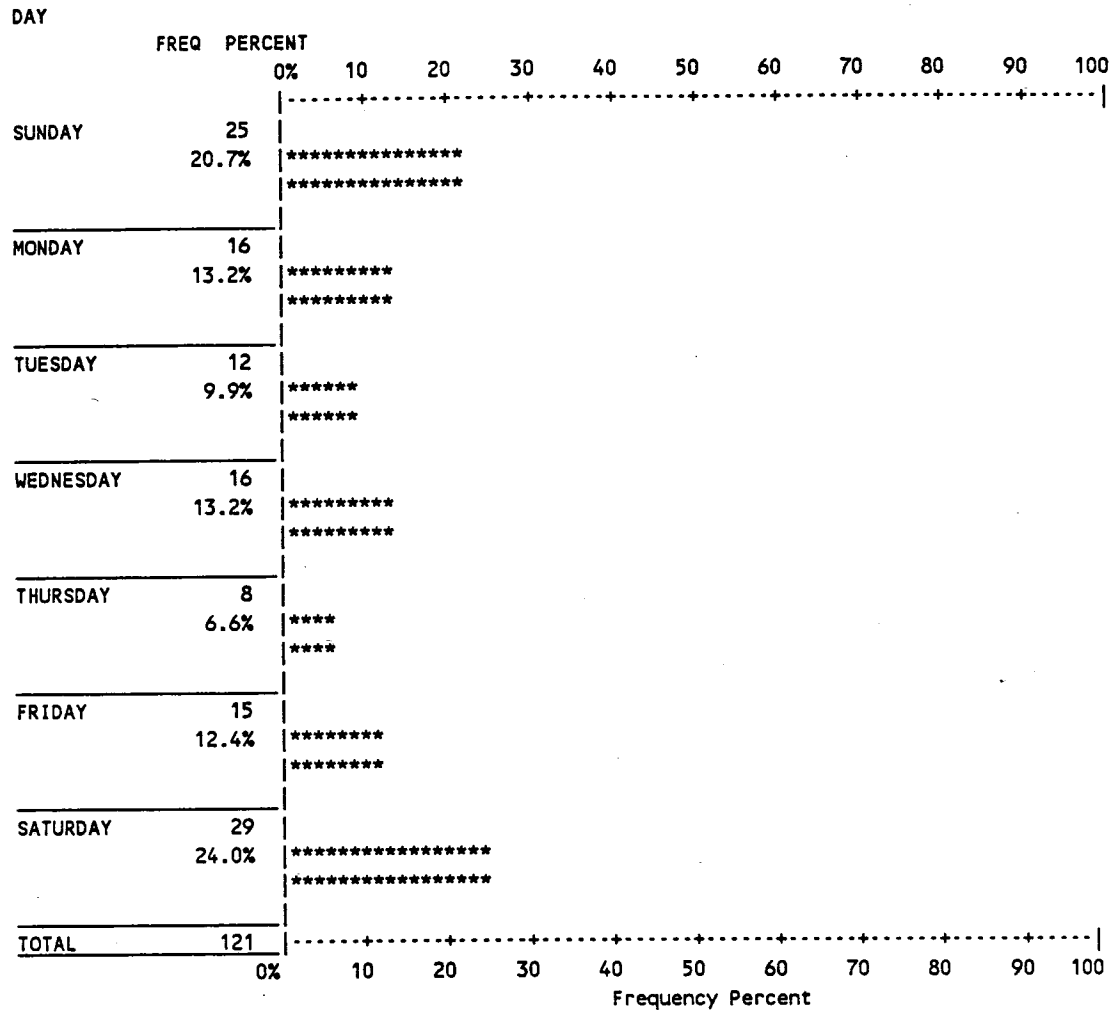


Exhibit 4. Example Histogram Format

SDHPT DISTRICT 2
 Barchart of Accidents Involving Drivers Under 21

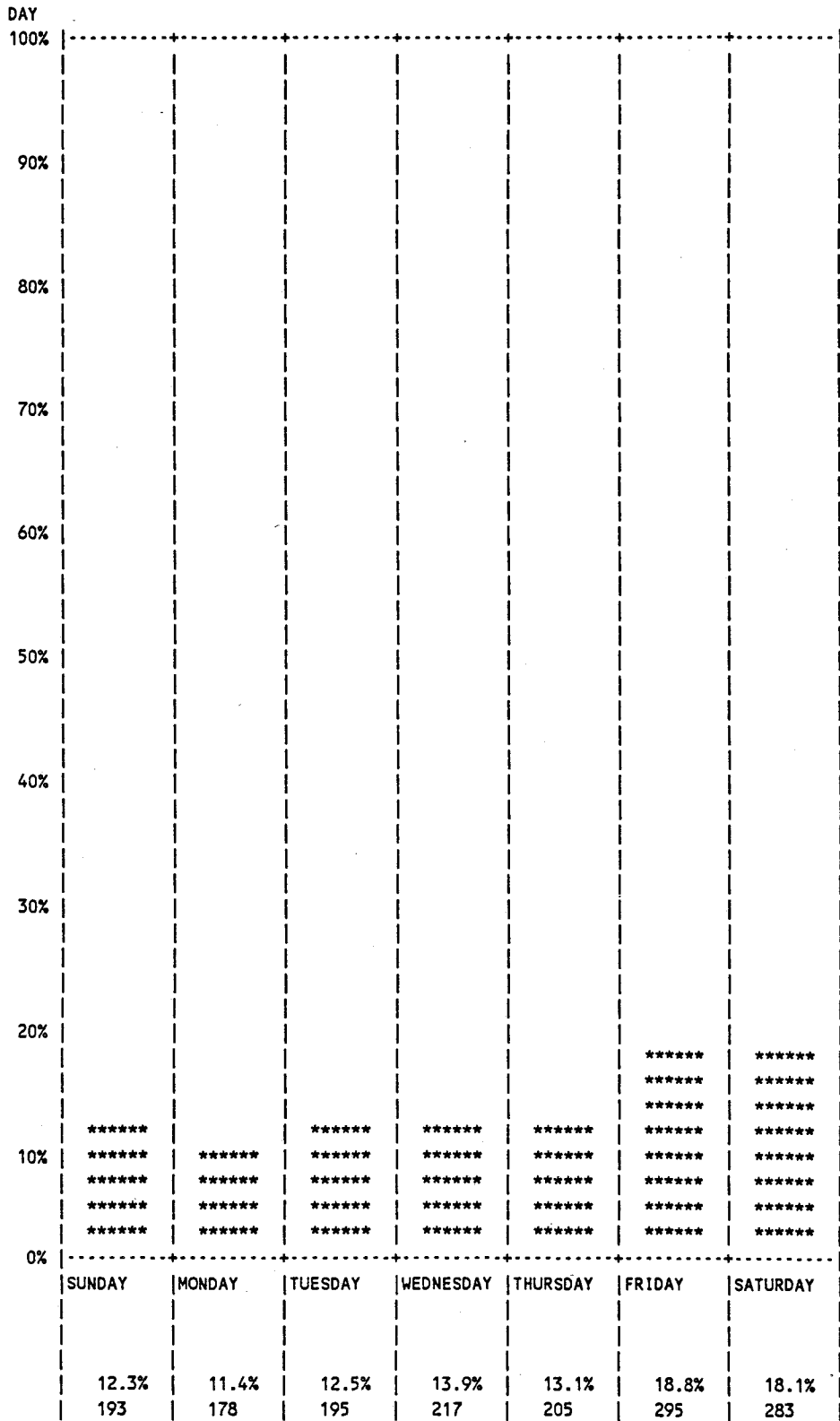


Exhibit 5. Example Bar Chart Format

SDHPT DISTRICT 2
DRIVER AGE TABLE YOUNG DRIVERS BY DWI

DRIVER AGE by DWI

Total Row % Column % Total %	UNKNOWN	DWI OR DW DRUGS	NO DWI/DW DRUGS	TOTAL
UNKNOWN	0 0.0 undefined 0.0	0 0.0 0.0 0.0	7 100.0 2.5 2.4	7
OVER 55	0 0.0 undefined 0.0	1 2.9 10.0 0.3	34 97.1 12.2 11.8	35
UNDER 21	0 0.0 undefined 0.0	1 2.4 10.0 0.3	40 97.6 14.3 13.8	41
21 TO 55	0 0.0 undefined 0.0	8 3.9 80.0 2.8	198 96.1 71.0 68.5	206
TOTAL	0	10	279	289

Exhibit 6. Example Table Format

Run Instructions

This manual follows the menu driven format of the MAAP System. Figure 2 shows the structure of MAAP and the flow of this manual. When in MAAP, 3 menus can be accessed from the main menu: 1) Analysis of Accident Sites, 2) Supplemental Reporting, and 3) Installation. Likewise, the run instructions are divided into four (4) sections; 1) Master Menu, 2) Analysis of Accident Sites 3) Supplemental Reporting, and 4) Installation. Beginning each section is a reproduction of the Master Menu which highlights the menu being explained. Prior to running MAAP, the MAAP System and data received from D-18STO must be loaded into the computer. Refer to Appendix D for instructions on "How to Get Started".

After the program and data have been loaded on the hard disk (C:) the program may be executed by typing the following commands:

- a. "CD \MAAP <CR>"
- b. "MAAP <CR>"

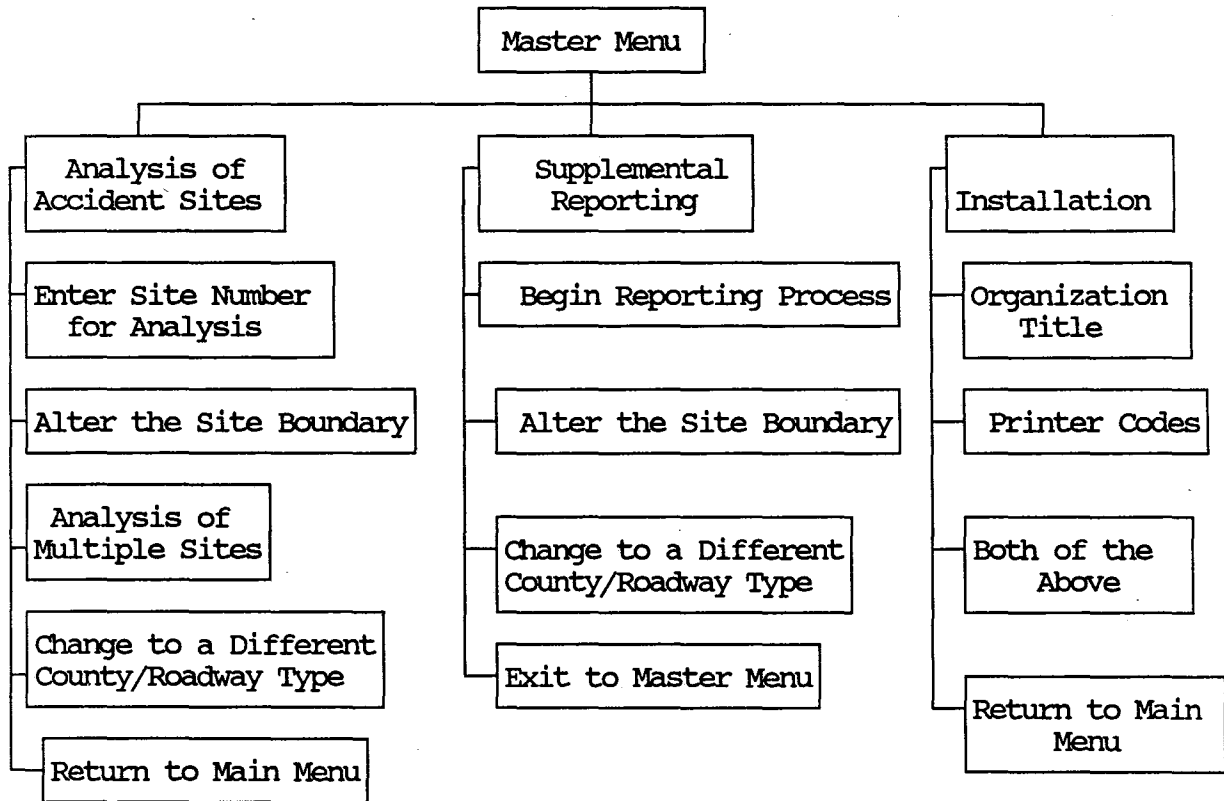


Figure 2. Overview of MAAP

SECTION 1
Master Menu

M A A P
SDHPT DISTRICT 12 (HARRIS COUNTY)
MASTER MENU

- 1 ANALYSIS OF ACCIDENT SITES
- 2 SUPPLEMENTAL REPORTING
- 3 INSTALLATION
- X EXIT from MAAP

Enter Choice:

Screen 1

Master Menu

Provides access to:

1. Analysis of Accident Sites
2. Supplemental Reporting
3. Installation
- X. Exit from MAAP

If Analysis of Accident Sites (option 1 of screen 1) or Supplemental Reporting is chosen (option 2 of screen 1), you are first prompted for the following:

M A A P
SDHPT DISTRICT 2
MASTER MENU

Evaluating of Overrepresented Conditions

Enter the County Name-----
Is the Roadway an Interstate (Y/N)-----

Is the data above correct (Y/N)

Screen 2

The format for the data file name on the computer is as follows:

- a) Character 1 will be 'I' for Interstate and 'N' for Non-Interstate.
- b) The next 1-7 characters will be the first letters (up to 7) of the county name.
- c) The extension '.DAT' will be added to the file name.

Ex.: Harris County Interstate data file is named IHARRIS.DAT.

If the data file is not available, this message will be displayed:

IYOURFIL.DAT is NOT a Valid Data File Name

Screen 3

Master Menu

The user will be returned to *screen 1*.

Verify that the correct county name has been entered and that the county data file has been loaded onto the microcomputer.

After successfully entering the county name, the menu corresponding to the option chosen, either Analysis of Accident Sites or Supplemental Reporting, will be displayed. These are explained in Section 2 and Section 3 respectively in this manual.

If the Installation option is chosen, the Installation menu will appear without prompting for the county name. Refer to Section 4 in this manual for an explanation of the Installation menu. The Installation only needs to be run when the MAAP System is initially loaded onto the microcomputer, when a title change is desired, or when the printer used by MAAP is changed.

SECTION 2
Analysis of Accident Sites

M A A P
SDHPT DISTRICT 12 (HARRIS COUNTY)
MASTER MENU

- 1 ANALYSIS OF ACCIDENT SITES**
- 2 SUPPLEMENTAL REPORTING**
- 3 INSTALLATION**
- X EXIT from MAAP**

Enter Choice: 1

Screen 4

Analysis of Accident Sites

After entering the data on screen 2 (see screen 2), the Analysis of Accident Sites menu is displayed with the following options:

```

                                M A A P
                                SDHPT DISTRICT 12 (HARRIS COUNTY)
                                ANALYSIS OF ACCIDENT SITE

Data File .....  IHARRIS.DAT
County Name.....  HARRIS
Roadway Type ..... INTERSTATE

      ##  ENTER SITE NUMBER FOR ANALYSIS
      A   ALTER THE SITE BOUNDARY
      M   ANALYSIS OF MULTIPLE SITES
      D   CHANGE TO A DIFFERENT COUNTY/ROADWAY TYPE
      Q   RETURN TO MAIN MENU

Enter CHOICE :
```

Screen 5

1. (##) Enter Site Number for Analysis (option (##) on screen 5)

Enter the site number to be evaluated. This is the only option which will produce the analysis reports. The screen displayed will resemble the following example taken from site 1 of the Tarrant County Interstate data. (screen 6)

The other three options (A,M,D) can be run in any order before the site number is entered. These three options are optional features that add flexibility to the system.

Analysis of Accident Sites

M A A P
SDHPT DISTRICT 2
OVERREPRESENTATION FOR SELECTED SITES

Data File being used = ITARRANT.DAT
Evaluating Site Num 1 of 1
Current Site = 01
TOTAL Record count is 9538 ON-SITE = 717
Selecting the Primary Condition
Selecting the Other Primaries Phase 1
Selecting the Secondaries Phase 1
Secondary Selection of Sparse Phase 1
PROGRAM WILL NOT CONTINUE UNLESS PRINTER IS READY
Fill Contingency Table 1 of 1
Tarrant County, Interstate Freeway.
On site accidents were 717 of a County Total of 9538
Rank 01 - Control Section 0014-16 Milepoint 6.5 to 8.5

Hit any KEY to Continue

Screen 6

An example of the report generated by this option is provided in Exhibit 2.

2. (A) Alter the Site Boundary (option A on screen 5)

Enter "A" on screen 5.

The screen below, (screen 7), represents the screen display after all inputs have been entered for the Alter the Site Boundary option.

M A A P
SDHPT DISTRICT 15
Site Boundary Alteration

Which Site 5
How Many Control Sections 1
Control Section # 1 .[NNNNNN].. 001709
Beginning MilePoint ..[NN.N].. 11.0
Ending MilePoint[NN.N].. 14.0
MilePoints 110 - 140

Is the data above CORRECT [Y/N]
Alter operation has been performed on the current data file

Screen 7

Analysis of Accident Sites

Acceptable input values for the Alter the Site Boundary option prompts are as follows:

- | | |
|-------------------------------|--|
| a. Site | 2 digit # (1-70) |
| b. # of Control Sections | 1 digit # (1-3) |
| c. Control Section | 6 digit # (All digits) |
| d. Beginning/Ending Milepoint | 3 digit # with decimal.
Will not accept a whole # unless followed by a decimal point and a '0'. |

The number of digits are given above. Note that the last line in Screen 7 was not input. The Milepoints are calculated by MAAP using the data input as Beginning and Ending Milepoint and will be displayed automatically.

During each run of MAAP the data file can be 'altered' only once. If the file has been altered the system will not allow another alter. To circumvent this message, acutate "Change to a Different County/Roadway Type" even though it may in fact be the same file and then that file can be altered. Once the file has been altered (either from the Analysis Menu or Supplemental Reporting Menu), the altered file will be available to both options.

If you decide not to alter a site once you have begun this option or make a mistake and wish to start over, press Enter only at the next input prompt.

Example 1: You are editing site 5, control section 001709. You made a mistake in the beginning milepoint. Press Enter at the prompt for the ending milepoint. This will place the cursor back to the "Control Section #" prompt. You may then either retype your entry or press Enter to return to the Analysis of Accident Sites Menu.

Example 2: You have finished entering 2 of 3 control sections and you have decided you really do not wish to change this site. Press Enter at the Control Section prompt on the third entry. This will return you to the Analysis of Accident Sites Menu without altering the site.

Analysis of Accident Sites

Rules of Alter Operation:

- a) If the record is within the range and a part of the original site, the site # remains the same.
- b) If the accident is within the range it will be changed to the new site #.
- c) If the accident is outside the range and does not have the site #, it retains its original site number.
- d) If the accident is outside the range and has the site #, the site will be changed to '00'.

3. (M) Analysis of Multiple Sites (option M on screen 5)

If multiple sites are to be evaluated, this option prompts for all sites and then proceeds to evaluate each site consecutively. Screen 8 will be displayed. This option is identical to 'Enter Site Number for Analysis' but allows a minimum of 1 site and a maximum of 70 sites to be evaluated. If evaluating a large number of sites, it is recommended that the program be set up to run overnight.

```

M A A P
SDHPT DISTRICT 2
OVERREPRESENTATION FOR SELECTED SITES

Data File being used = ITARRANT.TMP
How Many Sites ?2
Site # 1 ? 5
Site # 2 ? 3
```

Screen 8

4. (D) Change to a Different County/Roadway Type (option D on screen 5)

This option allows one to change to a different data file. The current data file is displayed and the user is then prompted for a different county name. See screen 9.

Analysis of Accident Sites

M A A P
SDHPT DISTRICT 2
OVERREPRESENTATION FOR SELECTED SITES

Data File being used = ITARRANT.DAT

Enter the County Name -----Bexar
Is the Roadway an Interstate (Y/N) -----Interstate

Is the data above correct (Y/N)

Screen 9

As before, the data file to be analyzed must be loaded on the microcomputer.

5. (Q) Return to Main Menu (option Q on screen 5)

This option allows the user to exit the Analysis of Accident Sites Menu and return to the main menu.

**SECTION 3
SUPPLEMENTAL REPORTING**

**M A A P
SDHPT DISTRICT 12 (HARRIS COUNTY)
MASTER MENU**

- 1 ANALYSIS OF ACCIDENT SITES**
- 2 SUPPLEMENTAL REPORTING**
- 3 INSTALLATION**
- X EXIT from MAAP**

Enter Choice: 2

Screen 10

SUPPLEMENTAL REPORTING

There are two distinct and different functions performed by the Supplemental Reporting option.

The first function is to process all the data records (accidents) and select those records that qualify based on the "if statement" contained in the subset definition. The last portion of the definition process (screen 18 and screen 23) will determine which records are selected for inclusion in the report.

The second function is to analyze those records that were selected by the subsetting process and produce the requested report. The report type is defined during the first portion of the definition process (screen 14 to 17).

Both the format of the report and the subsetting conditions are stored in the subset definition. Each time a subset is selected for execution (screen 12) the subsetting function is applied to the data file to select the records that will be contained within the report.

If a different report is to be produced from the same subset, an additional subset must be defined. This may be accomplished by editing the report features of an existing subset or copying the subset and then modifying the report feature.

Option 2 (Supplemental Reporting) on Screen 10 lets the user produce reports on any given subset of data that is available. Subsets defined by the user will be saved for use again without regenerating the subset requirements. MAAP allows the user to produce reports on the data four different ways:

- List format - print all data per accident - one page per accident. See Exhibit 3.
- Bar Chart format. See Exhibit 5.
- Table format - print all data in the format of frequencies and cell percents in a one or two-way table. See Exhibit 6.
- Histogram format. See Exhibit 4.

After identifying the data file, (see screen 2), the Supplemental Report Menu is displayed with the following options:

SUPPLEMENTAL REPORTING

**M A A P
SDHPT DISTRICT 12 (HARRIS COUNTY)
SUPPLEMENTAL REPORTING MENU**

Data File IHARRIS.DAT
County Name ... HARRIS
Roadway Type .. INTERSTATE

B BEGIN REPORTING PROCESS
A ALTER THE SITE BOUNDARY
D CHANGE TO A DIFFERENT COUNTY/ROADWAY TYPE
Q EXIT TO MASTER MENU

Enter CHOICE:

Screen 11

1. (B) Begin Reporting Process (*option B on screen 11*)

Using this option, it is possible to define and produce lists, bar charts, tables, and histograms. All Supplemental Reporting screens follow from option B. This is the only option which will produce the reports.

2. (A) Alter the Site Boundary: (*option A on screen 11*)

See Analysis of Accident Sites Menu Option 'A' on screen 5 and the screen 7 explanation.

3. (D) Change to A Different County/Roadway Type (*option D from screen 11*).

See Analysis of Accident Sites Menu Option 'D' on screen 5 and the screen 9 explanation.

4. (Q) Exit to Master Menu (*option X from screen 11*).

Exit from the Supplemental Report Menu to the Master Menu.

When the user chooses option B on screen 11, MAAP displays the following screen. This screen lists current subset definitions according to the user defined titles. Up to 120 subset definitions can be saved in MAAP.

SUPPLEMENTAL REPORTING

```
M A A P
SDHPT DISTRICT 2
S u b s e t t i n g
1 First Harmful Event for Sites 1-3
2
3
...
15

<Enter Subset NUMBER to Run> [+ or -] = Scroll [Q]uit
[A]dd [E]dit [D]elete [C]opy [P]rint Subset
```

Screen 12

The above screen has one user created subset definition.

From this menu, (screen 12) the options available are listed at the bottom of the screen. They are summarized below for quick reference and explained in greater detail later in this section:

Enter Subset NUMBER to Run - The user can enter a subset number and MAAP will generate the predefined subset and report.

- Add - The user can add ("A") a new subset definition to the list of saved subset definitions.
- Edit - The user can edit ("E") an existing subset from the list of saved subsets.
- Delete - The user can delete ("D") a subset from the list of saved subsets.
- Copy - The user can copy ("C") an existing subset to the next empty slot and then that subset is available for editing.
- Quit - The user can exit ("Q") from the process by entering "Q".
- Print - The user can generate a printout of one of the saved subset definitions by entering "P".
- + or - Scroll - The user can scroll to the next screen ("+") or the previous screen ("-") of predefined subsets. The system will not 'scroll' past the last defined subset screen.

SUPPLEMENTAL REPORTING

Each screen contains 15 definitions. The system allows a maximum of 120 subsets to be defined. (i.e. 8 screens of 15 subset definitions each.)

1. Enter Subset Number to Run (*option from screen 12*)

Run a particular subset from the subset menu. To the left of each subset definition is a number. Enter this number to run the corresponding subset. A prompt will then appear asking if the requested subset is the correct subset. Refer to Screen 13. Enter 'Y' if the subset file is correct and the run will proceed. Enter 'N' if the subset file is incorrect and the subset menu will return.

```

                M A A P
                SDHPT DISTRICT 2
                S u b s e t t i n g
1 First Harmful Event for Sites 1-3

Is Subset F1.001 the correct subset (Y/N)

<Enter Subset NUMBER to Run>  [+ or -] = Scroll  [Q]uit
[A]dd [E]dit [D]elete [C]opy [P]rint  Subset
```

Screen 13

2. (A) Add (*option A from screen 11*)

Add a new subset.

This option allows for the addition of new subsets.

The first screen to appear after choosing option A is shown below (*screen 14*). Enter a descriptive title of the new subset as it will be referenced in the subset menu (*screen 12*). After entering the subset title, use <CR> to continue. The editing keystrokes (e.g. '^S', '^D', etc.) are explained under the 'edit' option. See screen 21.

SUPPLEMENTAL REPORTING

ADD Subset # 10

M A A P

Row:

Enter the Title for the Subset (A maximum of 80 characters are allowed)

Char Left ^S Prev Scrn ^E Ins ^V Enter ^M Erase ^W
Char Right ^D Next Scrn ^X Del ^G Abort ESC

Screen 14

After the subset title screen, the screen shown below (screen 15) is displayed. Choose the type of chart from the list that the subset will include in its definition. See Exhibits 3,4,5, and 6 for examples of each type of chart.

ADD Subset # 10

M A A P

Row:

Enter the type of Chart

- 1 - List
- 2 - Bar Chart
- 3 - Table
- 4 - Histogram

Enter 1 through 4 (Esc to Exit) 3

Screen 15

Bar Chart and Histogram formats are 1-way frequencies. Table must be selected for 2-way frequencies. The table report produces cell, row, column, and total frequencies as well as row, column, and total percentages per cell. The following screen (screen 16) gives the user the option to select 1-way or 2-way table. This screen is only displayed when option '3' ('Table') is selected on screen 15. The 2-way table has one variable and its values across the top of the page(s) (COLUMN VARIABLE) with a second variable and its values down the left side of the page(s) (ROW VARIABLE). The 1-way table has only one variable and its values that appear down the left side of the page(s).

NOTE: The variables and their values printed on the page have NOTHING to do with what variable values the user will use to subset the data.

SUPPLEMENTAL REPORTING

ADD Subset # 10

M A A P

Definition of Subset # 1

Enter the Frequency Type

1 - 1 Way

2 - 2 Way

Enter 1 or 2 (Esc To exit) 1

Screen 16

When the table option is selected the user will be prompted for the row variable (screen 17). The user scrolls through the screens to view the variables available. Select the row variable by entering the corresponding variable number.

ADD Subset # 10
Accident Variables
Screen 2 of 2

M A A P
Row:

- 16 WEATHER
- 17 SURFACE
- 18 MANNER/COLLISION
- 19 OBJECT STRUCK
- 20 OTHER FACTOR
- 21 LOC OF IMPACT
- 22 POINT OF IMPACT
- 23 VEHICLE 1 STYLE
- 24 VEHICLE 2 STYLE
- 25 CONTRIB FACTOR 1
- 26 CONTRIB FACTOR 2
- 27 DRIVER 1 AGE
- 28 DRIVER 2 AGE
- 29 DRIVER 1 STATUS
- 30 DRIVER 2 STATUS

Which variable will be the Row Variable 16

Screen 17

SUPPLEMENTAL REPORTING

Screen 17 is also displayed when the 'Bar Chart' or 'Histogram' option is selected on screen 15.

If a 2-way table was selected on screen 16, the user is prompted for the column variable after the row variable has been selected. The same procedure is followed to select a column variable as was used to select the row variable. The user is not prompted for a column variable unless the 2-way table option was selected on screen 16.

The next screen displayed, (screen 18), describes the subset definition. This is where the "IF Statement" conditions are generated. If desired, the subset definition may be printed using option "P" on screen 12. The variable names are shown in the column at the left of the screen. The variables are chosen by entering the corresponding variable number.

<Control>-A will display a screen similar to screen 23 which will allow one to view the subset definition that has already been entered.

ADD Subset # 10	M A A P			
Accident Variables	Row: WEATHER			
Screen 1 of 2				
1 SITE				
2 ACCIDENT TIME				
3 ACCIDENT TYPE				
4 ACC SEVERITY				
5 WEATHER/SURFACE				
6 DEGREE OF CURVE				
7 VEHICLE TYPE				
8 SPEEDING				
9 DWI				
10 DRIVER AGE				
11 DRIVER STATUS				
12 DAY				
13 TIME				
14 FIRST HARMFUL				
15 SEVERITY				
Select the variables that define the Subset <u>14</u>				
Subset Complete ^Q	Char Left ^S	Insert ^V	Enter ^M	
View Subset ^A	Char Right ^D	Delete ^G	Erase ^W	Abort ESC

Screen 18

SUPPLEMENTAL REPORTING

It is recommended that the subset definition be printed immediately prior to any report run to avoid later confusion about the data printed on the report.

After a variable is chosen (screen 18), a range can be specified for that variable (screen 19). The range is displayed on the right side of the screen surrounded by a double line. In screen 19 the variable is **FIRST HARMFUL** and its range is from 0- to 09. To choose all of the variables within the range simply enter "0-" for the Beg Value and "09" for the End Value. If only part of the range is desired, either enter the corresponding Beg Value and End Value or use the And/Or to choose specific values. Other variables to be used in the subsetting can be selected by entering 'and' or 'or' in the and/or field. MAAP processes the list of conditions in order and performs the "and/or" comparison as it encounters them. (See Screen 23.) When finished, press <control>-Q and the user will return to screen 18. ESC will also bring back screen 18. Pressing ESC or ^Q on screen 18 will return the user to screen 12.

<p>ADD Subset # 10 Accident Variables Screen 1 of 2</p> <p>1 SITE 2 ACCIDENT TIME 3 ACCIDENT TYPE 4 ACC SEVERITY 5 WEATHER/SURFACE 6 DEGREE OF CURVE 7 VEHICLE TYPE 8 SPEEDING 9 DWI 10 DRIVER AGE 11 DRIVER STATUS 12 DAY 13 TIME 14 FIRST HARMFUL ←----- 15 SEVERITY</p>	<p>M A A P Row: WEATHER</p>	<p>0- OTHER NON-COL 00 OVERTURNED 01 PEDESTRIAN 02 ANOTHER VEHICLE IN T 03 RAILROAD TRAIN 04 PARKED CAR 05 PEDALCYCLIST 06 ANIMAL 07 FIXED OBJECT 08 OTHER OBJECT 09 MOTOR VEHICLE ON OTH</p>												
<table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Beg Value</th> <th style="text-align: left;">End Value</th> <th style="text-align: left;">And/Or</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">---</td> <td></td> <td></td> </tr> <tr> <td>Insert ^V</td> <td>Enter ^M</td> <td>Finish ^Q</td> </tr> <tr> <td>Delete ^G</td> <td>Erase ^W</td> <td>Abort ESC</td> </tr> </tbody> </table>			Beg Value	End Value	And/Or	---			Insert ^V	Enter ^M	Finish ^Q	Delete ^G	Erase ^W	Abort ESC
Beg Value	End Value	And/Or												

Insert ^V	Enter ^M	Finish ^Q												
Delete ^G	Erase ^W	Abort ESC												

Screen 19

SUPPLEMENTAL REPORTING

3. (E) Edit (option E from screen 12)

Edit a subset. This option will retrieve an existing subset definition and allow it to be modified. After entering 'E' on the subsetting option screen (screen 12), the following message will appear at the bottom of the screen:

Enter the Subset Number to be Edited : [1 - 15] ("ESC" - Abort) 1

Screen 20

The editing procedure almost mirrors the (A) ADD option of screen 12. When the value displayed is the value to be used then <CR>. The existing value is retained and the next screen is displayed. First, the title can be edited. (screen 21)

M A A P
EDIT Subset # 1
Enter the Title for the Subset (A maximum of 80 characters are allowed)
First Harmful Event for Sites 1-3 _____
Char Left ^S Prev Scrn ^E Ins ^V Enter ^M Erase ^W
Char Right ^D Next Scrn ^X Del ^G Abort ESC

Screen 21

An explanation of the keystrokes follows:

control-S	Moves one character to the left
control-D	Moves one character to the right
control-E	Returns to the previous screen after saving any changes to the title
control-X	Continues to the next screen after saving any changes to the title
control-V	Allows insertion of characters
control-G	Deletes the character at which the cursor is positioned
control-M	Saves any changes and continues to the next screen
control-W	Erases the title
ESC	Returns to the previous screen without saving any changes

SUPPLEMENTAL REPORTING

Following the title, the previously defined report is displayed on the screen (screen 22). To retain the existing value, press the enter key; otherwise enter the corresponding number of another chart.

EDIT Subset # 1	M A A P
Enter the type of Chart	
1 - List	
2 - Bar Chart	
3 - Table	
4 - Histogram	
Enter 1 through 4 (Esc to Exit) 1	

Screen 22

After the chart type, a screen similar to the one below (screen 23) appears. Here it is possible to redefine the variables of the subset. (Screen 23 defines a subset of wet pavement fatal accidents.) Enter: a) the line number <CR> to change the range of the variable (see screen 19 and accompanying text)

- b) <control>-X for the subsetting screen (see screen 18 and accompanying text)
- c) <control>-R to delete a line. After <control>-R, enter the line number to be deleted.
- d) ←Enter to continue. The user will return to screen 18.

SUPPLEMENTAL REPORTING

Num	Variable Name	Beginning Range	Ending Range	And /Or
1	SEVERITY	03	03	And
2	SURFACE	02	05	
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				

Enter the Line Number, ^X For The Subsetting Screen, or Enter to Continue
Press ^R To Delete A Line

Screen 23

4. (D) Delete (option D from screen 12)

Delete a subset.

M A A P	
SDHPT DISTRICT 15	
Subsetting	
1	List of Accidents in Bexar County
2	
...	
15	
Enter the Subset Number to be Deleted: [1 - 15] ("ESC" - Abort) <u>1</u>	

Screen 24

After the number has been entered the following screen (Screen 25) will appear.

SUPPLEMENTAL REPORTING

M A A P
SDHPT DISTRICT 15
Subsetting

1 List of Accidents in Bexar County

Is Above Subset Correct Choice for DELETION (Y/N) -

Screen 25

5. (C) Copy (option C from screen 12)

Copy a subset definition.

M A A P
SDHPT DISTRICT 15
Subsetting

1 List of Accidents in Bexar County

2

...

15

Enter the Subset Number to be Copied: [1 - 15] ("ESC" - Abort) ____

Screen 26

Enter the number of the subset to be copied.

This is useful when changing a few variables in a complex definition. The new copy will have the same name as the old. It is recommended that immediately after copying the subset, edit the title of the new copy to avoid confusion.

6. (X) Exit (option X from screen 12)

Exit from this menu.

7. (P) Print (option P from screen 12)

Print the subset's definition.

SUPPLEMENTAL REPORTING

M A A P
SDHPT DISTRICT 15
Subsetting

1 List of Accidents in Bexar County

2

...

15

Enter the Subset Number to be Printed: [1 - 15] ("ESC" - Abort) ____

Screen 27

Enter the corresponding subset number that is to be printed.
(screen 27)

An example of the report produced by option P is shown in Appendix E.

8. (+ or -) Scroll (options + and - from screen 12)

Entering a '+' will scroll to the next screen of predefined subsets. Entering a '-' will scroll to the previous screen of predefined subsets. The system will not scroll past the last defined subset screen.

**SECTION 4
INSTALLATION MENU**

**M A A P
SDHPT DISTRICT 12 (HARRIS COUNTY)
MASTER MENU**

- 1 ANALYSIS OF ACCIDENT SITES**
- 2 SUPPLEMENTAL REPORTING**
- 3 INSTALLATION**
- X EXIT from MAAP**

Enter Choice: 3

Screen 28

Installation Menu

M A A P

SYSTEM INSTALLATION

INSTALLATION MENU

1...Organization Title

2...Printer Codes

3...Both of the Above

Q...Return to Main Menu

CHOICE?

Screen 29

Provides access to :

1. Organization Title
2. Printer Codes
3. Both of the Above
- Q. Return to main menu

Installation Menu

```

M A A P
SYSTEM INSTALLATION
INSTALLATION MENU
1...Organization Title
2...Printer Codes
3...Both of the Above
Q...Return to Main Menu
CHOICE? 1

```

Screen 30

Option 1 on screen 30 allows the user to change the organization title that is displayed on the top of the screen and on any output generated by MAAP. When entering a new title, any part of the old title that is not deleted either by being typed over, using **control-G**, or the **<-** key, will remain in the new title. Pressing the Del key will exit this option leaving the title unchanged. Pressing any key on the keypad other than **^S**, **^D**, **^V**, **^G**, or **^Q** will abort the screen as will the "ESC" key.

```

M A A P
SDHPT DISTRICT 2
SYSTEM INSTALLATION
SET ORGANIZATION TITLE

Organization Title ?
SDHPT DISTRICT 2 _____

char left ^S   insert ^V   finish ^Q
char right ^D  delete ^G   abort ESC

```

Screen 31

Installation Menu

```
      M A A P

      SYSTEM INSTALLATION

      INSTALLATION MENU

      1...Organization Title

      2...Printer Codes

      3...Both of the Above

      Q...Return to Main Menu

      CHOICE? 2
```

Screen 32

Option 2 on Screen 32 allows the user to enter the code sequences for compressed and normal print modes (number of characters per line and lines per page) along with the number of lines per page available for each print mode. MAAP uses these codes to convert the printer to the necessary mode dependent on the type of report being generated. The first menu that the user will see is the following:

```
      M A A P

      SDHPT DISTRICT 2

      SYSTEM INSTALLATION

      PRINTER CODE MENU

      1 ... Set Normal Print

      2 ... Set Condensed Print

      Q.... Return to Install

      CHOICE ?
```

Screen 33

The user selects the printer mode that he wishes to install (NOTE: The user must install both types of print so that MAAP can print the various reports correctly). To return to the Installation menu, the user can type "Q" at this menu prompt.

Installation Menu

For setting Normal Print, MAAP displays the following:

```
M A A P
SDHPT DISTRICT 2
SYSTEM INSTALLATION

Set Characters per Line for NORMAL WIDTH Printing

Printer Codes = 18

Enter New Codes : __/__/__/__/__/__/__/__/__/__/__

To leave the codes Unchanged, press the abort character
To Clear a code, type "000"

Char left  ^S      Char left  ^S      Insert  ^V      Finish  ^Q
Char right ^D      Delete   ^G      Abort   ESC
```

Screen 34

MAAP displays the current printer codes that the user has previously entered, if any. The user enters decimal codes representing the values necessary for the printer to print in the normal non-compressed printing mode. The user can enter up to ten codes for the normal print code sequence. These codes will be sent to the printer each time MAAP prints a report requiring the normal print mode. To clear a code, the user must type three consecutive zeroes ("000") in the code location he wishes to clear. By striking ESC during the edit process, MAAP goes to the next screen without changing the codes that were originally in the file. Upon completing the code entry, the user can type ^Q and the codes will be saved and MAAP will continue with the next screen.

When the user has finished with this screen, MAAP requests the lines per page available in the Normal Print mode by displaying the following screen:

Installation Menu

```
                M A A P
                SDHPT DISTRICT 2
                SYSTEM INSTALLATION

                Number of Lines per Page for NORMAL WIDTH Printing

                Lines per page = 66
                Enter New Page Length : ____

                To leave the lines/page unchanged, press the abort character
                To Clear a code, type "000"

                Char left   ^S      Insert   ^V      Finish   ^Q
                Char right ^D      Delete   ^G      Abort   ESC
```

Screen 35

The user enters the decimal number of lines that the printer has available in Normal Print mode. To clear the page length, the user must type three consecutive zeroes ("000"). By striking ESC during the edit process, MAAP returns to the Printer Code menu without changing the page length value that was originally in the file. (The default value for first time installation is 66 lines per page). Upon completing the entry, the user can type ^Q and the value will be saved and MAAP will return to the Printer Code menu.

For setting Compressed Print (option 2 or Screen 33), MAAP displays the following two screens:

```
                M A A P
                SDHPT DISTRICT 2
                SYSTEM INSTALLATION

                Set Characters per Line for CONDENSED Printing

                Printer Codes = 15

                Enter New Codes : ____'____'____'____'____'____'____'____'____'____'____

                To leave the codes Unchanged, press the abort character
                To Clear a code, type "000"

                prev fld ^A char left ^S insert ^V finish ^Q
                next fld ^F char right ^D delete ^G abort ESC
```

Screen 36

Installation Menu

M A A P
SDHPT DISTRICT 2
SYSTEM INSTALLATION

Number of Lines per Page for CONDENSED Printing

Lines per page = 66
Enter New Page Length : ____

To leave the lines/page unchanged, press the abort character
To Clear a code, type "000"

char left ^S	insert ^V	finish ^Q
char right ^D	delete ^G	abort ESC

Screen 37

The procedure for the above screens is the same as used to set Normal Print in screens 34 and 35.

M A A P
SYSTEM INSTALLATION
INSTALLATION MENU
1...Organization Title
2...Printer Codes
3...Both of the Above
Q...Return to Main Menu
CHOICE? 3

Screen 38

Option 3 on screen 38 will first bring up the organization title set-up screen (screen 31) and then pass into the printer code set-up screen (screen 33) without re-displaying the Installation menu.

Installation Menu

M A A P
SYSTEM INSTALLATION
INSTALLATION MENU
1...Organization Title
2...Printer Codes
3...Both of the Above
Q...Return to Main Menu
CHOICE? Q

Screen 39

Select "Q" to return to the main menu.

REFERENCES

1. "Roadway Information System User Manual", Transportation Planning Division, Texas State Department of Highways and Public Transportation, Austin, Texas 1986.

APPENDICES

APPENDIX A

Minimum Microcomputer Configuration

Minimum Microcomputer Configuration

MAAP is written in Turbo-Pascal for an IBM PC-XT or compatible microcomputer using MS-DOS version 2.1 or above. A minimum configuration of 512K memory, a floppy diskette drive, a hard disk drive, a monochrome display monitor, and a printer which allows condensed print is required to use the program. A full memory of 640K is recommended to increase the efficiency of the program and to reduce the processing time. Processing time might be reduced further by compiling the source code using Turbo-87 PASCAL which utilizes a math co-processor. This would require the microcomputer to have a math co-processor in order to run MAAP.

APPENDIX B

Recoding Methodology and Formats
for the
MAAP County Accident Analysis File Variables

MAAP ANALYSIS FILE VARIABLES PRIMARY VARIABLES	ACCIDENT FILE VARIABLES	
ACCIDENT TYPE ACC_TYPE	FIRST HARMFUL EVENT _1STHARM	MANNER OF COLLISION COLISION
1 SINGLE VEHICLE	<ul style="list-style-type: none"> - OTHER NON-COLLISION 0 OVERTURNED 1 PEDESTRIAN 3 RAILROAD TRAIN 4 PARKED CAR 5 PEDALCYCLIST 6 ANIMAL 7 FIXED OBJECT 8 OTHER OBJECT <p>FOR ACCIDENT TYPES 2,3, AND 4: _1STHARM = 2 OR 9</p>	<p style="text-align: center;">A N D</p> <p>TWO MOTOR VEHICLES - GOING SAME DIRECTION</p>
2 MULTIPLE VEHICLE READ END	2 OTHER MOTOR VEHICLE IN TRANSIT 9 MOTOR VEHICLE IN OTHER ROAD	20 BOTH GOING STRAIGHT - REAR END
3 MULTIPLE VEHICLE SIDE SWIPE	2 OTHER MOTOR VEHICLE IN TRANSIT 9 MOTOR VEHICLE IN OTHER ROAD	<p>21 BOTH GOING STRAIGHT - SIDESWIPE</p> <p>22 #1 STRAIGHT - #2 STOPPED</p> <p>23 #1 STRAIGHT - #2 RIGHT TURN</p> <p>24 #1 STRAIGHT - #2 LEFT TURN</p> <p>25 BOTH RIGHT TURN</p> <p>26 #1 RIGHT TURN - #2 LEFT TURN</p> <p>27 #1 RIGHT TURN - #2 STOPPED</p> <p>28 BOTH LEFT TURN</p> <p>29 #1 LEFT TURN - #2 STOPPED</p> <p>TWO MOTOR VEHICLES - GOING OPPOSITE DIRECTIONS</p> <p>31 #1 STRAIGHT - #2 BACKING</p> <p>35 #1 BACKING - #2 STOPPED</p> <p>MOVEMENT OF VEHICLE IN OTHER THAN MOTOR WITH MOTOR ACCIDENTS</p> <p>*1 VEHICLE GOING STRAIGHT *ASSUMED THAT FIRST HARMFUL EVENT IS MORE ACCURATELY CODED THAN MANNER OF COLLISION</p> <p>*2 VEHICLE TURNING RIGHT</p> <p>*3 VEHICLE TURNING LEFT</p> <p>*4 VEHICLE BACKING</p> <p>*5 OTHER</p> <p>TWO MOTOR VEHICLES APPROACHING AT AN ANGLE</p> <p>10 BOTH GOING STRAIGHT</p> <p>11 #1 STRAIGHT - #2 BACKING</p> <p>12 #1 STRAIGHT - #2 STOPPED</p> <p>13 #1 STRAIGHT - #2 RIGHT TURN</p> <p>14 #1 STRAIGHT - #2 LEFT TURN</p> <p>15 BOTH RIGHT TURN</p> <p>16 #1 RIGHT TURN - #2 LEFT TURN</p> <p>17 #1 RIGHT TURN - #2 STOPPED</p> <p>18 BOTH LEFT TURN</p> <p>19 #1 LEFT - #2 STOPPED</p> <p>TWO MOTOR VEHICLES - GOING OPPOSITE DIRECTIONS</p>
4 MULTIPLE VEHICLE HEADON/ANGLE	2 OTHER MOTOR VEHICLE IN TRANSIT 9 MOTOR VEHICLE IN OTHER ROAD	<p>30 BOTH GOING STRAIGHT</p> <p>32 #1 STRAIGHT - #2 STOPPED</p> <p>33 #1 STRAIGHT - #2 RIGHT TURN</p> <p>34 #1 STRAIGHT - #2 LEFT TURN</p> <p>36 #1 RIGHT TURN - #2 LEFT TURN</p> <p>37 #1 RIGHT TURN - #2 STOPPED</p> <p>38 BOTH LEFT TURN</p> <p>39 #1 LEFT TURN - #2 STOPPED</p>

(cont.)

MAAP ANALYSIS FILE VARIABLES PRIMARY VARIABLES	ACCIDENT FILE VARIABLES	
ACCIDENT TYPE ACC_TYPE (cont.) MULTIPLE VEHICLE HEADON/ANGLE (cont.) 0 UNKNOWN	FIRST HARMFUL EVENT _1STHARM (cont.) 2 OTHER MOTOR VEHICLE IN TRANSIT 9 MOTOR VEHICLE IN OTHER ROAD MISCODED	MANNER OF COLLISION COLISION (cont.) TWO MOTOR VEHICLES - OTHER A 40 #1 STRAIGHT - #2 ENTERING OR LEAVING PARKING SPACE N 41 #1 RIGHT TURN - #2 ENTERING OR LEAVING PARKING SPACE 42 #1 LEFT TURN - #2 ENTERING OR LEAVING PARKING SPACE D 43 #1 ENTERING OR LEAVING PARKING SPACE - #2 STOPPED 44 BOTH ENTERING OR LEAVING PARKING SPACE 45 BOTH VEHICLES BACKING 46 ALL OTHERS
DEGREE OF CURVE DEG_CUR 1 STRAIGHT 2 < 4.0 3 ≥ 4.0 0 UNKNOWN	DEGREE OF CURVE CURVE 0 NO CURVE 1 0.1 - 1.9 2 2.0 - 3.9 - 18.0&OVER 5 8.0 - 9.9 8 14.0-15.9 3 4.0-5.9 6 10.0-11.9 9 16.0-17.9 4 6.0-7.9 7 12.0-13.9 + UNKNOWN MISCODES	
ACCIDENT TIME ACC_TIME 1 WEEKDAY RUSH HOUR 2 WEEKDAY NON-RUSH HOUR 3 WEEKEND DAYTIME 4 EVENING OR NIGHT 0 UNKNOWN	DAY DAY 2-6 MONDAY-FRIDAY 2-6 MONDAY-FRIDAY 1,7 SUNDAY AND SATURDAY 1-7 SUNDAY-SATURDAY MISCODES	TIME TIME 7-8 7AM-8:59AM 16-17 4PM-5:59PM A 9-15 9AM-3:59PM N 7-17 7AM-5:59PM D 18-23 6PM-11:59PM 0-6 12MIDNIGHT-6:59AM MISCODES
WEATHER/SURFACE-CONDITION WEA_SUR 1 NO ADVERSE 2 ADVERSE 2 ADVERSE 0 UNKNOWN	WEATHER WEATHER 1 CLEAR (CLOUDY) 2 RAINING 5 BLOWING DUST 3 SNOWING 6 SMOKE 4 FOG 7 OTHER 8 SLEETING + UNKNOWN MISCODES	SURFACE CONDITION SURF_CON 1 DRY 1 DRY N 2 WET D 3 MUDDY 4 SNOWY 5 ICY + UNKNOWN MISCODES

MAAP ANALYSIS FILE VARIABLES PRIMARY VARIABLES	ACCIDENT FILE VARIABLES	
VEHICLE TYPE VEHTYPE	VEHICLE TYPE VEH1STYL/VEH2STYL*	* VALUES LISTED IN PRIORITY ORDER. HIGHEST PRIORITY VEHICLE WILL SET VEHTYPE
1 TRUCK/BUS	20 BEVERAGE 21 BOB-TAIL 22 DUMP 24 FLATBED, LOWBOY, PLATFORM, FLOAT, STAKE 25 LIVESTOCK (INCLUDES 2-STORY) 26 GARBAGE 27 MIXER (CONCRETE) 28 MOTOR HOME OR MOTOR CAMPER 31 POLE (LOG) 32 REFRIGERATOR 33 CEMENT (USUALLY DRY AS OPPOSED TO MIXER) 34 TANK (OIL, GAS, CHEMICALS, MILK) 35 TRAVELALL/CARRYALL 36 VAN (LARGE, FURNITURE, ETC.) 37 WRECKER 39 OILFIELD EQUIPMENT (USUALLY SPECIAL DESIGN) 40 ALL OTHERS	
2 PICKUP TRUCK/VAN	29 PANEL (SMALL VAN) (GOOD TIME, ETC.) 30 PICKUP 38 PICKUP WITH CAMPER	
3 PASSENGER CAR	01 COACH (2 DOOR CONVENTIONAL) 02 2 DOOR HARDTOP 03 2 DOOR COUPE 04 4 DOOR SEDAN 05 4 DOOR HARDTOP 06 STATION WAGON 07 CONVERTIBLE 08 MINIBUS 10 HEARSE 11 LIMOUSINE 12 HATCHBACK/LIFTBACK (3 OR 5 DOOR)	
0 IGNORED	++ UNKNOWN 00 BODY STYLE SHOWN UNDER VEHICLE TYPE (BUS, MOTORCYCLE, ETC.) 09 AMBULANCE 13 POLICE VEHICLE 14 FIRE VEHICLE (OTHER THAN FIRE TRUCK) 23 FIRETRUCK MISCODES	

MAAP ANALYSIS FILE VARIABLES SECONDARY VARIABLES	ACCIDENT FILE VARIABLES	
<p>CONTRIBUTING FACTOR 1 CONFACT1</p> <p>1 SPEEDING</p> <p>2 NOT SPEEDING</p> <p>0 UNKNOWN</p>	<p>CONTRIBUTING FACTOR 1 D1CONT1/D2CONT1*</p> <p>1 SPEEDING - LIMIT 2 SPEEDING - UNSAFE</p> <p>0 NO FACTOR APPLIES - WRONG SIDE, NOT PASSING + WRONG WAY ON 1 WAY ROAD 3 FAILED TO YIELD RIGHT OF WAY 4 DISREGARD STOP SIGN OR LIGHT 5 DISREGARD STOP AND GO SIGNAL 6 DISREGARD FLASHING YELLOW SIGNAL 7 IMPROPER TURN, WIDE RIGHT 8 IMPROPER TURN, CUT CORNER ON LEFT 9 IMPROPER TURN, WRONG LANE</p> <p>MISCODES</p>	<p>* VALUES LISTED IN PRIORITY ORDER. IF DRIVER1 OR DRIVER2 WAS SPEEDING, CONFACT1 WILL EQUAL 1 FOR SPEEDING</p>
<p>CONTRIBUTING FACTOR 2 CONFACT2</p> <p>1 DWI OR DW DRUGS</p> <p>2 NO DWI OR DW DRUGS</p> <p>0 UNKNOWN</p>	<p>CONTRIBUTING FACTOR2 D1CONT2/D2CONT2*</p> <p>9 UNDER THE INFLUENCE OF ALCOHOL - UNDER THE INFLUENCE OF DRUGS</p> <p>0 NO FACTOR APPLIES 1 FOLLOWING TOO CLOSELY 2 OVERTAKE & PASS, INSUFFICIENT CLEARANCE 3 PASSING IN NO PASSING ZONE 4 OTHER ILLEGAL PASSING 5 NO SIGNAL OR WRONG SIGNAL OF INTENT 6 IMPROPER START FROM PARKED POSITION 7 FAIL TO YIELD RIGHT-OF-WAY TO PEDESTRIAN 8 IMPROPER PARKING + OTHER FACTOR</p> <p>MISCODES</p>	<p>* VALUES LISTED IN PRIORITY ORDER. IF DRIVER1 OR DRIVER2 WAS UNDER THE INFLUENCE OF DRUGS OR ALCOHOL. CONFACT2 WILL EQUAL 1 FOR DWI OR DW DRUGS.</p>
<p>ACCIDENT SEVERITY ACC_TSEV</p> <p>1 FATAL/INJURY</p> <p>2 PDO</p> <p>0 UNKNOWN</p>	<p>SEVERITY TSEV2</p> <p>2 INJURY 3 FATAL</p> <p>1 NON-INJURY</p> <p>MISCODES</p>	
<p>DRIVER AGE DRV_AGE</p> <p>1 OVER 55</p> <p>2 UNDER 21</p> <p>3 21 TO 55</p>	<p>DRIVER AGE DRV1AGE/DRV2AGE*</p> <p>(DRIVER'S AGE) > 55</p> <p>0 < (DRIVER'S AGE) < 21</p> <p>21 ≤ (DRIVER'S AGE) ≤ 55</p>	<p>* VALUES LISTED IN PRIORITY ORDER. DRIVER WITH HIGHEST PRIORITY SETS DRV_AGE</p>

MAAP ANALYSIS FILE VARIABLES
SECONDARY VARIABLES

ACCIDENT FILE VARIABLES

DRIVER LICENSE STATUS
DRV_LIC

DRIVER LICENSE STATUS
LICENSE1/LICENSE2

1 OUT OF STATE

AL ALABAMA
AK ALASKA
AZ ARIZONA
CA CALIFORNIA
CD CANADA
CO COLORADO
CT CONNECTICUT
DE DELAWARE
DC DISTRICT OF COLUMBIA
FL FLORIDA
GA GEORGIA
HI HAWAII
ID IDAHO
IL ILLINOIS
IN INDIANA
IA IOWA
KS KANSAS
KY KENTUCKY
LA LOUISIANA
ME MAINE
MD MARYLAND
MA MASSACHUSETTS
MM MEXICO
MI MICHIGAN
MN MINNESOTA
MS MISSISSIPPI
MO MISSOURI
MT MONTANA
NB NEBRASKA
NV NEVADA
NH NEW HAMPSHIRE
NJ NEW JERSEY
NM NEW MEXICO
NY NEW YORK
NC NORTH CAROLINA
ND NORTH DAKOTA
OH OHIO
OK OKLAHOMA
OR OREGON
PA PENNSYLVANIA
RI RHODE ISLAND
SC SOUTH CAROLINA
SD SOUTH DAKOTA
TN TENNESSEE
UT UTAH
VT VERMONT
VA VIRGINIA
WA WASHINGTON
WV WEST VIRGINIA
WI WISCONSIN
WY WYOMING
ZZ NON-RESIDENT OF TEXAS - NOT LICENSED
WW NON-RESIDENT OF TEXAS - LICENSE UNKNOWN
KK RESIDENT NOT LISTED ABOVE BUT LICENSED

2 IN STATE

TX TEXAS
XX RESIDENT OF TEXAS - NOT LICENSED
YY RESIDENT OF TEXAS - LICENSED

0 UNKNOWN

++ RESIDENCE AND LICENSE UNKNOWN
MISCODES

MAAP ANALYSIS FILE VARIABLES REPORT VARIABLES	ACCIDENT FILE VARIABLES	
<p>CONTRIBUTING FACTOR 1 CONFA1_R</p> <p>1 AT LEAST ONE SPEEDING-LIMIT</p> <p>2 AT LEAST ONE SPEEDING-UNSAFE</p> <p>3 DISREGARD TRAFFIC SIGNAL</p> <p>4 OTHER</p> <p>0 UNKNOWN</p>	<p>CONTRIBUTING FACTOR 1 D1CONT1/D2CONT2*</p> <p>1 SPEEDING - LIMIT</p> <p>2 SPEEDING - UNSAFE</p> <p>3 FAILED TO YIELD RIGHT OF WAY</p> <p>4 DISREGARD STOP SIGN OR LIGHT</p> <p>5 DISREGARD STOP AND GO SIGNAL</p> <p>6 DISREGARD FLASHING YELLOW SIGNAL</p> <p>- WRONG SIDE, NOT PASSING</p> <p>+ WRNG WAY ON 1-WAY ROAD</p> <p>7 IMPROPER TURN, WIDE RIGHT</p> <p>8 IMPROPER TURN, CUT CORNER ON LEFT</p> <p>9 IMPROPER TURN, WRONG LANE</p> <p>0 NONE APPLIES</p> <p>MISCODES</p>	<p>* VALUES LISTED IN PRIORITY ORDER. THE DRIVER WITH THE HIGHEST PRIORITY SETS CONFA1_R</p>
<p>CONTRIBUTING FACTOR 2 CONFA2_R</p> <p>1 AT LEAST 1 DWI OR DW DRUGS</p> <p>2 IMPROPER PASSING ILLEGAL/OVERTAKE</p> <p>3 OTHER</p> <p>0 UNKNOWN</p>	<p>CONTRIBUTING FACTOR 2 D1CONT2/D2CONT2*</p> <p>9 DWI</p> <p>- DW DRUGS</p> <p>1 FOLLOWING TOO CLOSELY</p> <p>2 OVERTAKE & PASS, INSUFFICIENT CLEARANCE</p> <p>3 PASSING IN NO PASSING ZONE</p> <p>4 OTHER ILLEGAL PASSING</p> <p>0 NONE APPLIES</p> <p>5 NO SIGNAL OR WRONG SIGNAL OF INTENT</p> <p>6 IMPROPER START FROM PARKED POSITION</p> <p>7 FAIL TO YIELD RIGHT-OF-WAY TO PEDESTRIAN</p> <p>8 IMPROPER PARKING</p> <p>+ OTHER FACTOR</p> <p>MISCODES</p>	<p>* VALUES LISTED IN PRIORITY ORDER. THE DRIVER WITH THE HIGHEST PRIORITY SETS CONFA2_R</p>

MAAP ANALYSIS FILE VARIABLES
REPORT VARIABLES

ACCIDENT FILE VARIABLES

POSITION OF POINT OF IMPACT
POSIMPAC

POSITION OF POINT OF IMPACT
POSIMPCT

1 LEFT OF MILEPOINT

- 1 OUTER SHOULDER OR PARKING LANE ON MILEPOINT LEFT FRONTAGE
- 2 INNER SHOULDER OR PARKING LANE ON MILEPOINT LEFT FRONTAGE
- 3 OUTER SHOULDER OR PARKING LANE ON MILEPOINT LEFT MAIN LANES
- 4 INNER SHOULDER OR PARKING LANE ON MILEPOINT LEFT MAIN LANES
- 10 3RD OR MORE MAIN LANE ON MILEPOINT LEFT
- 11 2ND MAIN LANE ON MILEPOINT LEFT
- 12 1ST MAIN LANE ON MILEPOINT LEFT
- 20 OUTER DRIVING LANE ON MILEPOINT LEFT FRONTAGE ROAD
- 21 CENTER DRIVING LANE ON MILEPOINT LEFT FRONTAGE ROAD
- 22 INNER DRIVING LANE ON MILEPOINT LEFT FRONTAGE ROAD
- 23 CENTER STRIPE ON MILEPOINT LEFT FRONTAGE ROAD
- 30 RIGHT TURN SLOT OR RAMP TO LEFT MAIN LANE
- 31 RIGHT TURN SLOT OR RAMP FROM LEFT MAIN LANE
- 33 LEFT TURN SLOT OR RAMP FOR TRAFFIC MOVING OPPOSITE TO MILEPOINT
- 34 RIGHT TURN SLOT OR RAMP TO LEFT FRONTAGE ROAD
- 35 RIGHT TURN SLOT OR RAMP FROM LEFT FRONTAGE ROAD
- 40 ON RAMP TO LEFT MAIN LANE - REGARDLESS OF LENGTH OR ORIGIN
- 41 OFF RAMP FROM LEFT MAIN LANE - REGARDLESS OF LENGTH OR TERMINATION
- 50 CHANNELIZING ISLAND FOR 30 ABOVE
- 51 CHANNELIZING ISLAND FOR 31 ABOVE
- 52 CHANNELIZING ISLAND IN LEFT FRONTAGE ROAD
- 54 CHANNELIZING ISLAND FOR 34 ABOVE
- 55 CHANNELIZING ISLAND FOR 35 ABOVE
- 61 AREA TO LEFT OF LEFT FRONTAGE ROAD
- 62 AREA TO LEFT OF MAIN LANES

2 RIGHT OF MILEPOINT

- 5 INNER SHOULDER OR PARKING LANE ON MILEPOINT RIGHT MAIN LANES
- 6 OUTER SHOULDER OR PARKING LANE ON MILEPOINT RIGHT MAIN LANES
- 7 INNER SHOULDER OR PARKING LANE ON MILEPOINT RIGHT FRONTAGE ROAD
- 8 OUTER SHOULDER OR PARKING LANE ON MILEPOINT RIGHT FRONTAGE ROAD
- 13 CENTER STRIPE FOR MAIN LANE
- 14 CENTER MAIN LANE OF THREE LANE ROAD
- 16 1ST MAIN LANE ON MILEPOINT RIGHT
- 17 2ND MAIN LANE ON MILEPOINT RIGHT
- 18 3RD OR MORE MAIN LANE ON MILEPOINT RIGHT
- 26 INNER DRIVING LANE ON MILEPOINT RIGHT FRONTAGE ROAD
- 27 CENTER DRIVING LANE ON MILEPOINT RIGHT FRONTAGE ROAD
- 28 OUTER DRIVING LANE ON MILEPOINT RIGHT FRONTAGE ROAD
- 29 CENTER STRIPE ON MILEPOINT RIGHT FRONTAGE ROAD
- 36 RIGHT TURN SLOT OR RAMP TO RIGHT MAIN LANES
- 37 RIGHT TURN SLOT OR RAMP FROM RIGHT MAIN LANES
- 39 LEFT TURN SLOT OR RAMP FROM TRAFFIC MOVING WITH MILEPOINT
- 46 ON RAMP TO RIGHT MAIN LANE - REGARDLESS OF LENGTH OR TERMINATION
- 47 OFF RAMP FROM RIGHT MAIN LANE - REGARDLESS OF LENGTH OR ORIGIN
- 56 CHANNELIZING ISLAND FOR 36 ABOVE
- 57 CHANNELIZING ISLAND FOR 37 ABOVE
- 58 CHANNELIZING ISLAND IN RIGHT FRONTAGE ROAD
- 64 AREA TO RIGHT OF MAIN LANES
- 65 AREA TO RIGHT OF RIGHT FRONTAGE ROAD
- 66 ATTENUATION DEVICE (NORMALLY BETWEEN RIGHT MAIN LANES AND OFF RAMP)
- 3- RIGHT TURN SLOT OR RAMP TO RIGHT FRONTAGE ROAD
- 3+ RIGHT TURN SLOT OR RAMP FROM RIGHT FRONTAGE ROAD
- 5- CHANNELIZING ISLAND FOR 3- ABOVE
- 5+ CHANNELIZING ISLAND FOR 3+ ABOVE

3 MEDIAN

- 9 CENTER PARKING AREA
- 42 OPENING IN MEDIAN BETWEEN LEFT MAIN LANES AND FRONTAGE ROAD
- 43 OPENING IN MEDIAN BETWEEN MAIN LANES
- 48 OPENING IN MEDIAN BETWEEN RIGHT MAIN LANE AND FRONTAGE ROAD
- 53 CHANNELIZING ISLAND IN 43 ABOVE
- 63 AREA BETWEEN MAIN LANES
- 70 LOCATION SHOWN IN PHYSICAL FEATURE A
- 71 LOCATION SHOWN IN PHYSICAL FEATURE B

0 UNKNOWN

MISCODES

MAAP ANALYSIS FILE REPORT VARIABLES WHICH USE ACCIDENT FILE ORIGINAL VALUE AND VARIABLE NAME

OTHER FACTOR
OTHERFAC

THE FACTOR FOR EITHER VEHICLE THAT IS PERTINENT TO THE ACCIDENT IS USED

- 00 NO CODE SHOWN IS APPLICABLE
- 01 LOST CONTROL OR SKIDDED (ICY OR SLICK ROAD, ETC.)
- 02 PASSENGER INTERFERED WITH DRIVER
- 03 ATTENTION DIVERETED FROM DRIVING
(DELAYED PERCEPTION OR LACK OF ALERTNESS)
- 04 OPEN DOOR OR OBJECT PROJECTING FROM VEHICLE
- 05 FOOT SLIPPED OFF CLUTCH OR BRAKE
- 06 GUSTY WINDS
- 10 VEHICLE PASSING OR ATTEMPTING TO PASS ON LEFT
- 11 VEHICLE PASSING OR ATTEMPTING TO PASS ON RIGHT
- 12 VEHICLE CHANGING LANES
- 13 ONE VEHICLE PARKED IMPROPER LOCATION
- 14 ONE VEHICLE FORWARD FROM PARKING
- 15 ONE VEHICLE BACKWARD FROM PARKING
- 16 ONE VEHICLE ENTERING DRIVEWAY
- 17 ONE VEHICLE LEAVING DRIVEWAY

VISION OBSTRUCTED BY:

- 21 STANDING OR PARKED VEHICLE
- 22 MOVING VEHICLE
- 23 EMBANKMENT OR LEDGE
- 24 COMMERCIAL SIGN
- 25 HIGHWAY SIGN
- 26 HEADLIGHT OR SUN GLARE
- 27 HILLCREST
- 28 TREES, SHRUBS, WEEDS, ETC
- 29 OTHER VISUAL OBSTRUCTIONS

VEHICLE SWERVED OR VEERED FROM INTENDED COURSE:

- 30 REASON NOT SPECIFIED
- 31 FOR SURFACE OR VISIBILITY
- 32 FOR OFFICER, WATCHMEN, FLAGMAN, OR TRAFFIC CONTROL DEVICE (UNABLE TO STOP, ETC.)
- 33 AVOIDING PEDESTRIAN, PEDALCYCLIST, ETC., IN ROAD
- 34 AVOIDING ANIMAL IN ROAD
- 35 AVOIDING OBJECT IN ROAD
- 36 AVOIDING VEHICLE STOPPED OR MOVING SLOWLY IN TRAFFIC LANE
- 37 AVOIDING VEHICLE ENTERING ROAD
- 38 AVOIDING VEHICLE FROM OPPOSITE DIRECTION IN WRONG LANE
- 39 AVOIDING PREVIOUS ACCIDENT
- 3- AVOIDING VEHICLE PASSING, CHANGING LANES

VEHICLE SLOWING, STOPPING OR STOPPED ON ROAD:

- 40 REASON NOT SPECIFIED
- 41 BECAUSE OF SURFACE OR VISIBILITY
- 42 FOR OFFICER, WATCHMAN, FLAGMAN OR TRAFFIC CONTROL DEVICE
- 43 FOR PEDESTRIAN, PEDALCYCLIST, ETC., IN ROAD
- 44 FOR ANIMAL IN ROAD
- 45 FOR OBJECT IN ROAD
- 46 AVOIDING ANOTHER VEHICLE STOPPED OR MOVING SLOWLY IN TRAFFIC
- 47 TO AVOID VEHICLE ENTERING ROAD
- 48 TO AVOID VEHICLE FROM OPPOSITE DIRECTION IN WRONG LANE
- 49 TO AVOID PREVIOUS ACCIDENT
- 50 TO MAKE RIGHT TURN
- 51 TO MAKE LEFT TURN

OTHER FACTOR
OTHERFAC (cont.)

SCHOOL BUS RELATED ACCIDENT:

60 USED ANYTIME A SCHOOL BUS IS INVOLVED IN THE ACCIDENT, EITHER AS PARTICIPANT OR NONCONTACT VEHICLE. ALSO INCLUDES ACCIDENTS INVOLVING PEDESTRIANS STRUCK WHILE ALIGHTING, BOARDING OR CROSSING ROAD TO/FROM SCHOOL BUS OR ACCIDENTS BETWEEN OTHER VEHICLE RELATED TO THE PRESENCE OF A SCHOOL BUS.

CONSTRUCTION RELATED:

- 70 IN HIGHWAY CONSTRUCTION AREA - NOT CONSTRUCTION RELATED
- 71 IN HIGHWAY CONSTRUCTION AREA - CONSTRUCTION RELATED
- 72 IN OTHER CONSTRUCTION AREA - NOT CONSTRUCTION RELATED
- 73 IN OTHER CONSTRUCTION AREA - CONSTRUCTION RELATED

BEACH RELATED:

- 80 ACCIDENT HAPPENED ON A BEACH

MAAP ANALYSIS FILE REPORT VARIABLES WHICH USE ACCIDENT FILE ORIGINAL VALUE AND VARIABLE NAME

OBJECT STRUCK
OBJECT

- 00 NO CODE SHOWN IS APPLICABLE
- 01 VEHICLE OVERTURNED
- 02 VEHICLE HIT HOLE IN ROAD
- 03 VEHICLE JACK-KNIFED
- 04 PERSON FELL OR JUMPED FROM VEHICLE
- 09 VEHICLE HIT TRAIN ON TRACKS PARALLEL TO ROAD - NO CROSSING
- 10 VEHICLE HIT TRAIN MOVING FORWARD
- 11 VEHICLE HIT TRAIN BACKING
- 12 VEHICLE HIT TRAIN STANDING STILL
- 13 VEHICLE HIT TRAIN - ACTION UNKNOWN
- 20 VEHICLE HIT HIGHWAY SIGN
- 21 VEHICLE HIT CURB
- 22 VEHICLE HIT CULVERT - HEADWALL OR MARKER POST
- 23 VEHICLE HIT GUARD POST, GUARD RAIL OR DELINEATOR
- 24 VEHICLE HIT RAILROAD SIGNAL POLE OR POST
- 25 VEHICLE HIT RAILROAD CROSSING GATES
- 26 VEHICLE HIT TRAFFIC SIGNAL POLE OR POST
- 27 VEHICLE HIT OVERHEAD OBSTRUCTION (SIGNAL LIGHT, WIRES, ETC.)
- 28 VEHICLE HIT CONSTRUCTION BARRICADE, CONES, WARNINGS SIGNS, OR MATERIAL
- 29 VEHICLE LUMINAIRE POLE
- 30 VEHICLE HIT UTILITY POLE
- 31 VEHICLE HIT MAIL BOX
- 32 VEHICLE HIT TREE OR SHRUB
- 33 VEHICLE HIT FENCE
- 34 VEHICLE HIT HOUSE, BUILDING OR BUILDING FIXTURE
- 35 VEHICLE HIT COMMERCIAL SIGN
- 36 VEHICLE HIT OTHER FIXED OBJECT
- 37 VEHICLE HIT MAINTENANCE BARRICADE, CONES, OR MATERIALS
- 38 VEHICLE HIT MAINTENANCE MACHINERY
- 39 VEHICLE HIT MEDIAN BARRIER (DIVIDER)
- 40 VEHICLE HIT END OF BRIDGE (ABUTMENT OR RAIL END)
- 41 VEHICLE HIT SIDE OF BRIDGE (BRIDGE RAIL)
- 42 VEHICLE HIT PIER OF SUPPORT AT UNDERPASS OR TUNNEL
- 43 VEHICLE HIT TOP OF UNDERPASS OR TUNNEL
- 44 VEHICLE HIT BRIDGE CROSSING GATE
- 45 VEHICLE HIT ATTENUATION DEVICE
- 49 VEHICLE HIT BY FALLING/BLOWING ROCKS FROM A TRUCK
- 50 VEHICLE HIT FALLEN TREES OR DEBRIS ON ROAD
- 51 VEHICLE HIT OBJECT FROM ANOTHER VEHICLE IN ROAD
- 52 VEHICLE HIT PREVIOUSLY WRECKED VEHICLE
- 53 VEHICLE HIT CONSTRUCTION OR MAINTENANCE MACHINERY
- 54 VEHICLE HIT OTHER MACHINERY
- 55 VEHICLE HIT OTHER OBJECT

MAAP ANALYSIS FILE REPORT VARIABLES WHICH USE ACCIDENT FILE ORIGINAL VALUE AND VARIABLE NAME

MANNER OF COLLISION
COLISION

MOVEMENT OF VEHICLE IN OTHER THAN MOTOR WITH MOTOR ACCIDENTS

- 01 VEHICLE GOING STRAIGHT
- 02 VEHICLE TURNING RIGHT
- 03 VEHICLE TURNING LEFT
- 04 VEHICLE BACKING
- 05 OTHER

TWO MOTOR VEHICLES APPROACHING AT AN ANGLE

- 10 BOTH GOING STRAIGHT
- 11 #1 STRAIGHT - #2 BACKING
- 12 #1 STRAIGHT - #2 STOPPED
- 13 #1 STRAIGHT - #2 RIGHT TURN
- 14 #1 STRAIGHT - #2 LEFT TURN
- 15 BOTH RIGHT TURN
- 16 #1 RIGHT TURN - #2 LEFT TURN
- 17 #1 RIGHT TURN - #2 STOPPED
- 18 BOTH LEFT TURN
- 19 #1 LEFT - #2 STOPPED

TWO MOTOR VEHICLES - GOING SAME DIRECTION

- 20 BOTH GOING STRAIGHT - REAR END
- 21 BOTH GOING STRAIGHT - SIDESWIPE
- 22 #1 STRAIGHT - #2 STOPPED
- 23 #1 STRAIGHT - #2 RIGHT TURN
- 24 #1 STRAIGHT - #2 LEFT TURN
- 25 BOTH RIGHT TURN
- 26 #1 RIGHT TURN - #2 LEFT TURN
- 27 #1 RIGHT TURN - #2 STOPPED
- 28 BOTH LEFT TURN
- 29 #1 LEFT TURN - #2 STOPPED

TWO MOTOR VEHICLES - GOING OPPOSITE DIRECTIONS

- 30 BOTH GOING STRAIGHT
- 31 #1 STRAIGHT - #2 BACKING
- 32 #1 STRAIGHT - #2 STOPPED
- 33 #1 STRAIGHT - #2 RIGHT TURN
- 34 #1 STRAIGHT - #2 LEFT TURN
- 35 #1 BACKING - #2 STOPPED
- 36 #1 RIGHT TURN - #2 LEFT TURN
- 37 #1 RIGHT TURN - #2 STOPPED
- 38 BOTH LEFT TURN
- 39 #1 LEFT TURN - #2 STOPPED

TWO MOTOR VEHICLES - OTHER

- 40 #1 STRAIGHT - # 2 ENTERING OR LEAVING PARKING SPACE
- 41 #1 RIGHT TURN - #2 ENTERING OR LEAVING PARKING SPACE
- 42 #1 LEFT TURN - #2 ENTERING OR LEAVING PARKING SPACE
- 43 #1 ENTERING OR LEAVING PARKING SPACE - #2 STOPPED
- 44 BOTH ENTERING OR LEAVING PARKING SPACE - #2 STOPPED
- 45 BOTH VEHICLES BACKING
- 46 ALL OTHERS

MAAP ANALYSIS FILE REPORT VARIABLES WHICH USE ACCIDENT FILE ORIGINAL VALUE AND VARIABLE NAME

POSITION OF POINT OF IMPACT
POSIMPCT

SHOULDERS & PARKING LANES

- 01 OUTER SHOULDER OR PARKING LANE ON MILEPOINT LEFT FRONTAGE
- 02 INNER SHOULDER OR PARKING LANE ON MILEPOINT LEFT FRONTAGE
- 03 OUTER SHOULDER OR PARKING LANE ON MILEPOINT LEFT MAIN LANES
- 04 INNER SHOULDER OR PARKING LANE ON MILEPOINT LEFT MAIN LANES
- 05 INNER SHOULDER OR PARKING LANE ON MILEPOINT RIGHT MAIN LANES
- 06 OUTER SHOULDER OR PARKING LANE ON MILEPOINT RIGHT MAIN LANES
- 07 INNER SHOULDER OR PARKING LANE ON MILEPOINT RIGHT FRONTAGE ROAD
- 08 OUTER SHOULDER OR PARKING LANE ON MILEPOINT RIGHT FRONTAGE ROAD
- 09 CENTER PARKING AREA

MAIN DRIVING LANES

- 10 3RD OR MORE LANE ON MILEPOINT LEFT
- 11 2ND LANE ON MILEPOINT LEFT
- 12 1ST LANE ON MILEPOINT LEFT
- 13 CENTER STRIPE
- 14 CENTER LANE OF THREE LANE ROAD
- 16 1ST LANE ON MILEPOINT RIGHT
- 17 2ND LANE ON MILEPOINT RIGHT
- 18 3RD OR MORE LANE ON MILEPOINT RIGHT

FRONTAGE ROAD DRIVING LANES

- 20 OUTER DRIVING LANE ON MILEPOINT LEFT FRONTAGE ROAD
- 21 CENTER DRIVING LANE ON MILEPOINT LEFT FRONTAGE ROAD
- 22 INNER DRIVING LANE ON MILEPOINT LEFT FRONTAGE ROAD
- 23 CENTER STRIPE ON MILEPOINT LEFT FRONTAGE ROAD
- 26 INNER DRIVING LANE ON MILEPOINT RIGHT FRONTAGE ROAD
- 27 CENTER DRIVING LANE ON MILEPOINT RIGHT FRONTAGE ROAD
- 28 OUTER DRIVING LANE ON MILEPOINT RIGHT FRONTAGE ROAD
- 29 CENTER STRIPE ON MILEPOINT RIGHT FRONTAGE ROAD

TURN SLOTS / RAMPS

- 30 RIGHT TURN SLOT OR RAMP TO LEFT MAIN LANE
- 31 RIGHT TURN SLOT OR RAMP FROM LEFT MAIN LANE
- 33 LEFT TURN SLOT OR RAMP FOR TRAFFIC MOVING OPPOSITE TO MILEPOINT
- 34 RIGHT TURN SLOT OR RAMP TO LEFT FRONTAGE ROAD
- 35 RIGHT TURN SLOT OR RAMP FROM LEFT FRONTAGE ROAD
- 36 RIGHT TURN SLOT OR RAMP TO RIGHT MAIN LANES
- 37 RIGHT TURN SLOT OR RAMP FROM RIGHT MAIN LANES
- 39 LEFT TURN SLOT OR RAMP FROM TRAFFIC MOVING WITH MILEPOINT
- 3- RIGHT TURN SLOT OR RAMP TO RIGHT FRONTAGE ROAD
- 3+ RIGHT TURN SLOT OR RAMP FROM RIGHT FRONTAGE ROAD

RAMPS AND OPENINGS IN MEDIANS

- 40 ON RAMP TO LEFT MAIN LANE - REGARDLESS OF LENGTH OR ORIGIN
- 41 OFF RAMP FROM LEFT MAIN LANE - REGARDLESS OF LENGTH OR TERMINATION
- 42 OPENING IN MEDIAN BETWEEN LEFT MAIN LANES AND FRONTAGE ROAD
- 43 OPENING IN MEDIAN BETWEEN MAIN LANES
- 46 ON RAMP TO RIGHT MAIN LANE - REGARDLESS OF LENGTH OR ORIGIN

POSITION OF POINT OF IMPACT
POSIMPCT (cont.)

- 47 OFF RAMP FROM RIGHT MAIN LANE - REGARDLESS OF LENGTH OR TERMINATION
- 48 OPENING IN MEDIAN BETWEEN RIGHT MAIN LANE AND FRONTAGE ROAD

CHANNELIZING ISLANDS

- 50 CHANNELIZING ISLAND FOR 30 ABOVE
- 51 CHANNELIZING ISLAND FOR 31 ABOVE
- 52 CHANNELIZING ISLAND IN LEFT FRONTAGE ROAD
- 53 CHANNELIZING ISLAND IN 43 ABOVE
- 54 CHANNELIZING ISLAND FOR 34 ABOVE
- 55 CHANNELIZING ISLAND FOR 35 ABOVE
- 56 CHANNELIZING ISLAND FOR 36 ABOVE
- 57 CHANNELIZING ISLAND FOR 37 ABOVE
- 58 CHANNELIZING ISLAND IN RIGHT FRONTAGE ROAD
- 5- CHANNELIZING ISLAND FOR 3- ABOVE
- 5+ CHANNELIZING ISLAND IN 3+ ABOVE

AREAS TO LEFT AND RIGHT

- 61 AREA TO LEFT OF LEFT FRONTAGE ROAD
- 62 AREA TO LEFT OF MAIN LANES
- 63 AREA BETWEEN MAIN LANES
- 64 AREA TO RIGHT OF MAIN LANES
- 65 AREA TO RIGHT OF RIGHT FRONTAGE ROAD
- 66 ATTENUATION DEVICE (NORMALLY BETWEEN RIGHT MAIN LANES AND OFF RAMP)

OTHER

- 70 LOCATION SHOWN IN PHYSICAL FEATURE A
- 71 LOCATION SHOWN IN PHYSICAL FEATURE B

MAAP ANALYSIS FILE REPORT VARIABLES WHICH USE ACCIDENT FILE ORIGINAL VALUE AND VARIABLE NAME

WEATHER
WEATHER

01 CLEAR (CLOUDY)
02 RAINING
03 SNOW
04 FOG
05 BLOWING DUST
06 SMOKE
07 OTHER
08 SLEETING
+ UNKNOWN

SEVERITY
TSEV2

01 NON INJURY
02 INJURY
03 FATAL

SURFACE CONDITITON
SURF_CON

01 DRY
02 WET
03 MUDDY
04 SNOW
05 ICY
+ UNKNOWN

DAY
DAY

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

DRV1AGE/DRV2AGE

00-99 This value is the actual driver's age.
φ. MISCODES (φ represents a blank, a '.' must be in the second column.

MAAP ANALYSIS FILE REPORT VARIABLES WHICH USE ACCIDENT FILE ORIGINAL VALUE AND VARIABLE NAME

LICENSE1/LICENSE2	VEH1STYL/VEH2STYL
AL ALABAMA	00 BODY STYLE SHOWN UNDER VEHICLE TYPE (BUS, MOTOTCYCLE, ETC.)
AK ALASKA	++ UNKNOWN
AZ ARIZONA	01 COACH (2 DOOR CONVENTIONAL)
AR ARKANSAS	02 2 DOOR HARD TOP
CA CALIFORNIA	03 2 DOOR COUPE
CD CANADA	04 4 DOOR SEDAN
CO COLORADO	05 4 DOOR HARDTOP
CT CONNECTICUT	06 STATION WAGON
DE DELAWARE	07 CONVERTIBLE
DC DISTRICT OF COLUMBIA	08 MINIBUS
FL FLORIDA	09 AMBULANCE
GA GEORGIA	10 HEARSE
HI HAWAII	11 LIMOUSINE
ID IDAHO	12 HATCHBACK/LIFTBACK (3 OR 5 DOOR)
IL ILLINOIS	13 POLICE VEHICLE
IN INDIANA	14 FIRE VEHICLE (OTHER THAN FIRE TRUCK)
IA IOWA	
KS KANSAS	TRUCK
KY KENTUCKY	20 BEVERAGE
LA LOUISIANA	21 BOB-TAIL
ME MAINE	22 DUMP
MD MARYLAND	23 FIRE TRUCK
MA MASSACHUSETTS	24 FLATBED, LOWBOY, PLATFORM, FLOAT, STAKE
MM MEXICO	25 LIVESTOCK (INCLUDES 2-STORY)
MI MICHIGAN	26 GARBAGE
MN MINNESOTA	27 MIXER (CONCRETE)
MS MISSISSIPPI	28 MOTOR HOME OR MOTOR CAMPER
MO MISSOURI	29 PANEL (SMALL VAN)
MT MONTANA	30 PICKUP
NB NEBRASKA	31 POLE (LOG)
NV NEVADA	32 REFRIGERATOR
NH NEW HAMPSHIRE	33 CEMENT (USUALLY DRY AS OPPOSED TO MIXER)
NJ NEW JERSEY	34 TANK (OIL, GAS, CHEMICALS, MILK)
NM NEW MEXICO	35 TRAVELALL/CARRYALL
NY NEW YORK	36 VAN (LARGE, FURNITURE, ETC.)
NC NORTH CAROLINA	37 WRECKER
ND NORTH DAKOTA	38 PICKUP W/CAMPER
OH OHIO	39 OILFIELD EQUIPMENT (USUALLY SPECIAL DESIGN)
OK OKLAHOMA	40 ALL OTHER STYLES NOT LISTED ABOVE
OR OREGON	
PA PENNSYLVANIA	
RI RHODE ISLAND	
SC SOUTH CAROLINA	
SD SOUTH DAKOTA	
TN TENNESSEE	
TX TEXAS	
UT UTAH	
VT VERMONT	
VA VIRGINIA	
WA WASHINGTON	
WV WEST VIRGINIA	
WI WISCONSIN	
WY WYOMING	
XX RESIDENT OF TEXAS - NOT LICENSED	
YY RESIDENT OF TEXAS - LICENSE UNKNOWN	
ZZ NON-RESIDENT OF TEXAS - NOT LICENSED	
WW NON-RESIDENT OF TEXAS - LICENSED UNKNOWN	
KK RESIDENCE NOT LISTED ABOVE BUT LICENSED	
++ RESIDENT AND LICENSE UNKNOWN	

APPENDIX C

Overrepresented Conditions and Corresponding Suggestions
for Field Observation and Improvements

Overrepresented Conditions and Corresponding Suggestions
For Field Observation and Improvements

<u>Overrepresented Condition</u>	<u>Suggested Items for Field Observations and Improvements</u>
1. Accident Type = Single Vehicle, Fixed Object or Other	1. The proportion of single vehicle accidents are overrepresented. Check roadside conditions for possible clearing of roadside objects, shielding of hazardous objects with guardrails, or increasing the clear recovery area.
2. Accident Type = Multi-Vehicle, Rear-End	2. The proportion of rear-end accidents are overrepresented. Check the roadway section for conditions leading to sudden stops and rear-end accidents, such as traffic backup on main lanes, poor sight distance, frequent entrance and exit of slow-moving vehicles, etc.
3. Accident Type = Multi-Vehicle, Sideswipe	3. The proportion of sideswipe accidents are overrepresented. Check merging or weaving areas for potential improvements, e.g., increase the length of merging and weaving areas, ramp metering or other control.
4. Accident Type = Multi-Vehicle, Head-On/Angle	4. The proportion of head-on or angle accidents are overrepresented. Check to make sure that this roadway section is correctly identified as freeway. The number of head-on or angle accidents is probably too high for freeway conditions. If the problem is with median cross-overs, assess the possibility of closing off these crossovers.
5. Accident Time = Weekday, Rush Hour	5. The proportion of accidents during weekday rush hours is higher than average. This suggests a problem with over-capacity during rush hours which is generally not affected by safety-related improvements. Check for potential means of increasing capacity and improved traffic flow.
6. Accident Time = Weekday, Non-Rush Hours or Weekend, Daytime	6. The proportion of accidents during weekday non-rush hours and/or weekend daytime hours is higher than average. Check if the traffic volume is already approaching capacity at these time periods while traffic speeds are relatively high. If such is the case, safety-related improvements will generally not be effective. Check for potential means of increasing capacity and improved traffic flow.

Overrepresented Conditions and Corresponding Suggestions
For Field Observation and Improvements (Continued)

<u>Overrepresented Condition</u>	<u>Suggested Items for Field Observations and Improvements</u>
7. Accident Time = Evening/Night	7. The proportion of accidents during evenings and nights is higher than average. Check lighting conditions and night visibility for potential improvements, such as increased lighting level, improved delineation, raised pavement markers, etc.
8. Weather/Surface Condition = Adverse	8. Accidents under adverse weather or surface condition are overrepresented. Check pavement condition for low skid resistance and/or poor drainage.
9. Degree of Curve = Less than 4 Degrees	9. Accidents on curve sites are overrepresented. Look for any unusual situation with the curves that may contribute to accidents occurring at these curves. Check if the roadway geometrics and cross-sectional design elements, such as superelevation, at the curves can be improved. Also, check if any warning or advance warning signs are warranted for the curve sites.
10. Degree of Curve = 4 Degrees or More	10. Accidents on curve sites with high degree of curvature are overrepresented. Identify the sharp curve sites within the roadway section and look for any unusual situation with the curves that may contribute to accidents occurring at these curves. Check if the roadway geometrics and cross-sectional design elements, such as superelevation, at the curves can be improved. Also, check if any warning or advance warning signs are warranted for the curve sites.
11. Vehicle Type = Pickup Truck/Van	11. Accidents involving pickup trucks or vans are overrepresented. Check if the overrepresentation is simply a reflection of the exposure (i.e., higher than average percentage of pickup trucks or vans in the traffic mix) or there are specific factors causing their over-involvement.
12. Vehicle Type = Truck/Bus	12. Accidents involving trucks or buses are overrepresented. Check if the overrepresentation is simply a reflection of the exposure (i.e., higher than average percentage of trucks or buses in the traffic mix) or there are specific factors causing their over-involvement.

Overrepresented Conditions and Corresponding Suggestions
For Field Observation and Improvements (Continued)

<u>Overrepresented Condition</u>	<u>Suggested Items for Field Observations and Improvements</u>
13. Accident Severity = Fatal or Injury	13. The proportion of fatal or injury accidents is higher than average for this roadway section. Check for possible causes of such overrepresentation of fatal or injury accidents. Examples of such possible causes are work zones, excessive speeding, limited sight distance, hazardous roadside conditions, etc. Identify appropriate countermeasures once the possible causes are determined.
14. Driver Age = Under 21	14. Younger drivers under 21 years of age are over-involved in accidents. Check for conditions, e.g., poor signing and delineation, that may contribute to this over-involvement of younger inexperienced drivers.
15. Driver Age = Over 55	15. Older drivers over 55 years of age are over-involved in accidents. Check for conditions, e.g., poor signing and delineation, inadequate merging or weaving areas, poor lighting condition, etc., that may contribute to this over-involvement of older drivers.
16. Speeding = Yes	16. The proportion of accidents involving excessive speeding is higher than average. Check if traffic speed is excessive during time periods shown to be overrepresented. Speed control measures, such as increased level of law enforcement, may be considered if excessive speeding is found to be a problem.
17. DWI or DW Drugs = Yes	17. The proportion of accidents involving driving under the influence of alcohol or drugs is higher than average. Check the roadway section for potential sources of alcohol or drugs. Increased level of law enforcement, such as a STEP program, may be considered. Also, check the signing and delineation for possible assistance to the impaired drivers.
18. Driver License Status = Out-of-State	18. The proportion of accidents involving out-of-State drivers is higher than average. Check the signing and delineation for possible confusion and miscues to unfamiliar drivers.

APPENDIX D
How to Get Started

How to Get Started

The following instructions are to be done only if MAAP does not already exist on your computer system. When updates of MAAP are received, specific instructions will be included with the update for its particular installation requirements. MAAP is provided to you on floppy diskettes. First, ensure that the diskettes are available and labeled as follows:

```
MAAP
VERSION X.X
DATE
DISK      1 of Z
```

STEPS to Follow for Installing MAAP on the Computer system for the FIRST TIME:

(NOTE: For clarity, the following discussion assumes that Drive A is a diskette drive and Drive C is a hard disk (20 MB minimum).)

1. Set the default drive of the computer to Drive C (the hard disk) by typing:

```
C:
```

2. Create the subdirectory (MAAP) that will contain the MAAP database programs by typing:

```
MD C:\MAAP
```

3. Put "MAAP PROGRAM" diskette (1 of 2) into Drive A.
4. Log onto the subdirectory created in Step 2 by typing:

```
CD C:\MAAP
```

5. Load MAAP to the hard disk by typing:

```
A:LOAD
```

6. Follow the instructions on the screen. When all the programs have been loaded, you will be asked to remove disk 1 and insert disk 2. Place the "MAAP DATA" diskettes (2 of 2) in Drive A and strike the "Enter" key.
7. PLEASE STORE the working diskettes AWAY FROM THE COMPUTER in a safe place in case they are needed again.

APPENDIX E

Example Subset Definition Printout

Subset Definition

Organization Title: SDHPT DISTRICT 2
Report Title: Driver Age Table -- Young Drivers by Alcohol Involvement

Type of Chart.....Table
Type of Frequency.....2 WAY FREQUENCY
Row Variable.....DRIVER AGE
Column Variable.....DWI

Num	Variable Name	Beginning Range	Ending Range	And /Or
1	SITE	05	08	

