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16. Abstract The objectives and scope of this research are to establish an effective methodology for wet weather accident analysis and to develop a database management system to facilitate information processing and storage for the accident analysis process, skid resistance testing, and other related tasks. The methodology employed consists of four phases: review and documentation of current LDOTD and LTRC procedures, engineering and statistical review of literature and procedures in the area of accident analysis, identification and recommendation of improvements which may facilitate data management and recovery, and design and development of a new computer information system based on recommendations defined in the third task. An effective wet weather accident analysis, testing, and database management system that allows only needed locations to be identified, tested, and reported is implemented. Volume II of this report consists of the data base management systems Users manual. Volume III of this report consists of data base management systems Reference manual.					
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WET WEATHER HIGHWAY ACCIDENT ANALYSIS AND
SKID RESISTANCE DATA MANAGEMENT SYSTEM
(Volume III: Reference Manual)

by

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MAY 1992

WET WEATHER HIGHWAY ACCIDENT

ANALYSIS AND SKID RESISTANCE

DATABASE MANAGEMENT SYSTEM

REFERENCE MANUAL

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1. INTRODUCTION

The purpose of this document is to give the DBA (Database Administrator) the flexibility of further customizing the Wet Weather Accident Analysis and Skid Resistance Database Management System to suit the end-user requirements any time in the future. This system has been implemented on an IBM 3090 machine at Louisiana State University System Network Computer Center. The environment is TSO/SPF. To get the system working, it is necessary to have the following packages installed on the computer system.

- 1) SAS/BASE Version 5.18 or above
- 2) SAS/SQL Version 5.18 or above
- 3) SAS/AF Version 6.06 or above

It is recommended that before getting started on the system, the DBA should have a manual of each of the packages mentioned above. For any further questions or clarifications regarding the database system, the following persons could be contacted.

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2. THE WET WEATHER ACCIDENT ANALYSIS AND SKID RESISTANCE MANAGEMENT SYSTEM

The overall picture of the entire system has been given in figure 1. The information flow goes on as follows:

- (1) The input to the system is the yearly accident data stored in the DOTACC tapes. These tapes contain the accident data in an ASCII format and can be obtained from the Department of Transportation and Development, Louisiana.
- (2) A set of SAS programs transform the data in these tapes into a relational database. This database contains 5 Relational tables, namely - Accident, Section, Skid, Driver and Vehicle.
- (3) The data from these tables is an input to the Wet Weather Analysis programs.
- (4) PGM1 AND PGM2 take the hourly data and the hourly precipitation data as an input and calculate the mean proportion of wet time for all the existing highways in the state of Louisiana. PGM3, PGM4 and PGM5 take the above and the accident data from the relational tables as an input and identify the Wet Hazardous Locations on Louisiana highways.
- (5) The outputs of the analysis programs are the big outputs, one for the Hazardous sections and intersections, one for Hazardous clusters and one for Hazardous spots. These outputs are accessed by some SAS/SQL views. These views are created by the end-user as he proceeds along the menus. The menus, at each stage/level, dynamically add conditions to create SQL

statement. Further, it's possible to run the analysis programs in the background.

- (6) The Maintenance and Archives functions of the database management system creates a huge view to browse and edit the relational tables. These views are different from SAS/SQL views, since it's possible to modify these views from SAS/AF.

LEGEND

1: DOTDACC TAPES

2: SAS PROGRAMS TO TRANSFORM THE DATA INTO RELATIONAL TABLES

PROJECT => IEKLEE

GROUP => LTRC

TYPE => FINAL

MEMBER => ACC16 <SECTION/SKID/DRIVER/VEHICLE>

3: RELATIONAL TABLES

Can be seen by getting into the DISPLAY MANAGER SYSTEM (DMS) of SAS606. Program TEST (present in SASUSER.PROFILE) can be copied into the DMS and submitted. To see the contents of the relational tables, a PROC CONTENTS of Library NEWLIB and NEWLIB1 can be performed. The tables have been named as:

ACC188

DRVR88

VHCL88

SECTN88

SKID

The physical existence of these tables is in:

IEKLEE.NEW2.SASDATA and IEKLEE.NEW6.SASDATA

4: INFILE statements in programs PGM3, PGM4, and PGM5.

5: Analysis programs PGM3, PGM4, and PGM5 stored in the following dataset:

PROJECT => IEKLEE

GROUP => LTRC

TYPE => FINAL

MEMBER => PGM3 <PGM4/PGM5>

6: OUT statements in programs PGM3, PGM4, and PGM5.

- 7: Outputs of PGM3, PGM4 and PGM5:
 - SNSI88 stored in NEWLIB for sections/intersections of 1988.
 - SNCLS88 stored in NEWLIB for clusters of 1988.
 - SNSPT88 stored in NEWLIB for spots of 1988.
- 8: FSVIEW statements in the menu programs (see the very last program of any chain in Figure 2).
- 9: Embedded SAS/SQL statements in the menu programs.
- 10: SCREEN CONTROL LANGUAGE (SCL) statements in the menu programs to trigger SAS/SQL statements.
- 11: MENU PROGRAMS stored in NEWLIB as a catalog called LTRC.
- 12: TSO Submit statements to submit programs PGM3, PGM4, and PGM5.
- 13: FSVIEW statements of SCL in Browse mode for viewing tables.

3. ANALYSIS PROGRAMS

3.1 INSTRUCTIONS FOR RUNNING THE WET WEATHER HIGHWAY ACCIDENT ANALYSIS PROGRAMS

The Wet Weather Highway Accident Analysis algorithms have been implemented in SAS-Statistics using the TSO environment. To run the programs, the user will have to get into the TSO operating system and logon to the project account. The following steps explain the procedure.

- 1) The user has to key in 't' next to the SELECT prompt in the main menu.
- 2) The system requests the user to key in the LOGON ID. Enter IEKLEE.
- 3) Now, the system requests the user to enter the password. The user has to enter the password to gain access to the package.
- 4) Three asterisk symbols, ***, appear on the screen. The user has to repeatedly hit the 'ENTER' key till the READY prompt appears on the screen.
- 5) At the READY prompt, type 'spf' i.e Screen Productivity Facility to get into the ISPF/PDF primary option menu.
- 6) A list of options appears on the menu. Key in the required option next to the OPTION prompt on the upper-left corner on the screen. To run the Wet Weather Highway Accident Analysis programs, key in option 2 i.e EDIT.
- 7) The user reaches an EDIT-ENTRY PANEL on selecting the EDIT option.

Four prompts, PROJECT, GROUP, TYPE and MEMBER appear on the screen, under the heading ISPF LIBRARY. To run the analysis programs (pgm1, pgm2, pgm3, pgm4, pgm5), enter, next to the prompts, the following commands.

<u>PROMPT</u>		<u>COMMAND</u>
PROJECT	====>	IEKLEE
GROUP	====>	LTRC
TYPE	====>	FINAL
MEMBER	====>	PGM1 (to run program 1)

The user is taken to the SAS source code. At this juncture the user can operate on pgm1 and run it, if needed.

PROGRAM 1

What does this program do?

This program takes as input, the hourly rainfall data from the precipitation files. It calculates the total wet hours of rainfall based on the WETTIME model for a station with universal rain gage. It does not distinguish between frozen and non-frozen precipitation.

How to run the program for 1989 & 1990 ?

- 1) Collect precipitation data for 1989 & 1990 and name it P8089._____ (NOR for New Orleans)
- 2) Make sure that the format is the same as in previous years. Compare with file P6660.HUF
- 3) Change the JCL (Job Control List) statement having FILE REF UNI to DD SDN = IEKLEE.P8089.HUF

- 4) Get the hourly surface observation data for 1989 and name it
HSNO.HLY
- 5) Make sure that the data is in the same format as in
HOURLY.DATA (New Orleans)
- 6) Change the JCL statement having FILE REF.HLY to DD SDN =
IEKLEE.HOURLY.DATA (New Orleans)
- 7) Run the program for one year at a time. To do this, go to line
002430 of pgm1 and key in between the inverted commas, the
year for which the analysis is required.
- 8) Next, go to line 004910 and key in the same year, next to
IF YR= without disturbing the ';'. Enter only the last two
digits of the year to be analyzed.

FOR RUNNING PROGRAM FOR YEARS PRIOR TO 1989:

- 1) Read INFILE UNI P6660.HUF for New Orleans.
- 2) Read INFILE UNI P0549.HUF for Baton Rouge.
- 3) Read INFILE UNI P5078.HUF for Lake Charles.
- 4) Read INFILE UNI P8440.HUF for Shreveport.

After making the required changes, key in 'sub' next to the
COMMAND prompt to run the program.

A message 'JOB LTRC (Job No) SUBMITTED' appears on the
screen.

PROGRAM 2

What does this program do?

It calculates the distance between a first order and second order station and lists the nearest and second nearest first order station to each second order station distance in arc distance.

It conducts an empirical Bayesian analysis of the proportion wet time based on WETTIME calculations, for every triangle formed in the mesh of weather stations.

How to run the program ?

1) To run program 2, the user has to once again get back to the EDIT-ENTRY PANEL by entering '=2' next to the COMMAND prompt.

2) As explained before, four prompts PROJECT, GROUP, TYPE and MEMBER appear on the screen under the heading ISPF LIBRARY.

Retain the same commands for the first three prompts. Key in 'pgm2' next to the MEMBER prompt.

3) There is no need to change any statement as this program automatically reads the output from program 1.

4) Key in 'sub' next to the COMMAND prompt to run the program.

A message 'JOB LTRC (Job No) SUBMITTED' appears on the screen.

PROGRAM 3

What does this program do?

This program flags clusters by the wet accident criterions developed for accident data in Louisiana by the Rate Quality Control method and the second Bayesian criterion on the basis of simulation runs conducted before.

PROGRAM 4

What does this program do?

This program flags intersections and sections for the Bayesian criterions developed for accident data in Louisiana.

PROGRAM 5

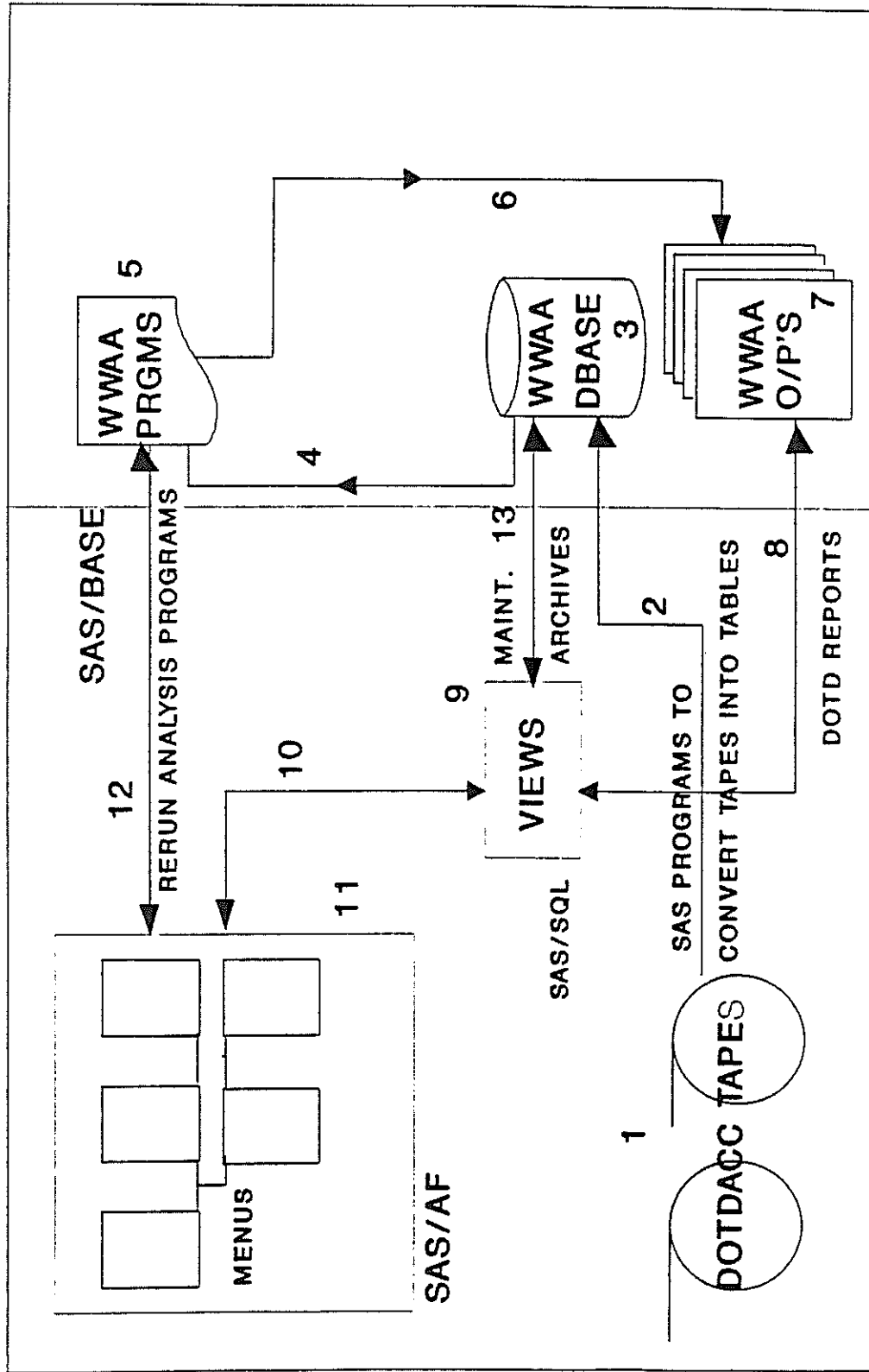
What does this program do?

This program flags spots by the wet accident criterion developed for accident data in Louisiana.

How to run programs 3, 4 and 5 for 1989 and 1990 ?

- 1) As explained before, the user has to get back to the EDIT-ENTRY PANEL and key in 'pgm3' or 'pgm4' or 'pgm5' depending on which program is to be run.
- 2) To run programs 3, 4 and 5 for 1989 and 1990 change the JCL ACCI statement to ACC.MASTER 89 AND ACC.MASTER 90, respectively.
- 3) After making the changes to the code, key in 'sub' next to the COMMAND prompt to run the program.

WET WEATHER ACCIDENT ANALYSIS AND SKID RESISTANCE DATABASE MANAGEMENT SYSTEM



INFORMATION FLOW

Figure 1.

3.2 ANALYSIS PROGRAM LISTING


```

//LTRC JOB (1318,05886,0030,9999),'SRIKANTH',NOTIFY=IEKLEE,
//      MSGCLASS=S
/*JOBPARM SHIFT=H
//STEP1 EXEC SAS,TIME=30
//UNI DD DSN=IEKLEE.P8440.HUF,DISP=SHR
//HLY DD DSN=IEKLEE.SHRVPT.HLY,DISP=SHR
//TEMP DD DSN=IEKLEE.HOURLY.NAT,DISP=SHR
//OUT DD DSN=IEKLEE.WETHOURS.SHV,DISP=MOD
//SYSIN DD *
00010099
00020099
00040099
00041099
00050099
00060099
00070099
00071099
00080099
00090099
00090199
00090299
00090399
00090499
00090599
00090699
00090799
00090899
00090999
00091099
00091199
00091299
00091399
00091499
00091599
00091699
00091799
00091899
00091999
00092099
00092199
00092299
00092399
00092499
00092599
00092699
00092799
00092899
00092999
00093099
00093199
00093299
00094099
00094199
00094299
00094399
00095099
00096099
00097099
00097199
00098099
00099099
00099199
00099299
00099399
00099499
00100099
00110099
* THIS PROGRAM CALCULATES THE TOTAL WET HOURS OF RAINFALL BASED *;
* ON THE WETTIME MODEL FOR A STATION WITH UNIVERSAL RAIN GANGE *;

```

```

* IT DOES NOT DISTINGUISH BETWEEN FROZEN AND NONFROZEN PRECIPITATION *; 00131099
*****; 00140099
DATA ONE; 00150099
  INFILE UNI; 00160099
  INPUT (DATE AR1 AR2-AR24) ($9. $5. 23*$5.); 00170099
YEAR=SUBSTR(DATE,1,4); 00180099
MONTH=SUBSTR(DATE,5,2); 00190099
DAY=SUBSTR(DATE,7,2); 00200099
DATE=MDY(MONTH,DAY,YEAR); 00210099
DATE=COMPRESS(DATE); 00220099
00230099
*CHANGE YEAR HERE; 00242099
IF YEAR='1959'; 00242199
00243099
00250099
ARRAY AOUR{24} $ AR1-AR24; 00260099
ARRAY HUR{24} HR1-HR24; 00270099
ARRAY MISSING{24} $ MISS1-MISS24; 00280099
* EXTRACT MISSING INFORMATION; 00290099
DO J=1 TO 24; 00300099
A=AOUR{J}; 00310099
B='A'; C='D'; D='M'; 00320099
IF INDEX(A,B) ^= 0 OR INDEX(A,C) ^= 0 OR INDEX(A,D) ^= 0 THEN DO; 00330099
MISSING{J}=1; AOUR{J}='0'; 00340099
END; 00350099
ELSE MISSING{J}=0; 00360099
STR= ' '; AOUR{J}= STR || AOUR{J}; AOUR{J}=TRIM(AOUR{J}); 00370099
HUR{J}=(AOUR{J}+0)/100; 00380099
END; 00390099
00400099
DROP AR1-AR24 B C D A STR; 00410099
00420099
PROC SORT; BY DATE; 00430099
00440099
DATA I; 00450099
INFILE HLY; 00460099
INPUT YR 6-7 MONTH $ 8-9 DAY $ 10-11 HUR 12-13 FROZEN1 27 FROZEN2 28 00470099
FROZEN3 29 FOG 30 DEWPT 36-38 WIND 41-42 TEMP 47-49 RH 53-55 CC $ 56; 00480099
00481099
* CHANGE YEAR HERE; 00482099
* EXAMPLE (FOR MULTIPLE YEARS) IF YR>=85 AND YR<=89; 00490099
IF YR=59; 00491099
HUR=HUR+1; 00500099
YR1=1900+YR; 00510099
A=' '; 00520099
YEAR= A || YR1; 00530099
YEAR=TRIM(YEAR); 00540099
DATE=MDY(MONTH,DAY,YEAR); 00550099
DATE=COMPRESS(DATE); 00560099
* CONVERSION OF KNOT WIND SPEEDS TO MILES PER HOUR; 00570099
WIND = WIND*1.15; 00580099
00590099
* EDITING OF FROZEN PRECIPITATION DATA; 00600099
FRZN=SUM(FROZEN1,FROZEN2); 00610099
FRZN=FRZN+SUM(FROZEN2,FROZEN3); 00611099
00620099
* FOR MISSING VALUES; 00621099
IF RH=. THEN RH=60; 00622099
IF WIND=. THEN WIND=2; 00623099
IF TEMP=. THEN TEMP=70; 00624099
IF DEWPT=. THEN DEWPT=50; 00625099
00630099
* TRANSLATION OF CLOUD COVER DATA; 00640099
00650099

```

```

IF CC ='A' OR CC='1' THEN CL=0.1; 00660099
IF CC ='B' OR CC='2' THEN CL=0.2; 00670099
IF CC ='C' OR CC='3' THEN CL=0.3; 00680099
IF CC ='D' OR CC='4' THEN CL=0.4; 00690099
IF CC ='E' OR CC='5' THEN CL=0.5; 00700099
IF CC ='F' OR CC='6' THEN CL=0.6; 00710099
IF CC ='G' OR CC='7' THEN CL=0.7; 00720099
IF CC ='H' OR CC='8' THEN CL=0.8; 00730099
IF CC ='I' OR CC='9' THEN CL=0.9; 00740099
IF CC ='{' OR CC='0' THEN CL=0.0; 00750099
IF CC ='X' THEN CL=1.0; 00760099
IF CC ='-' OR CC=' ' THEN CL=0.5; 00761099
                                00770099
*CONVERSION OF CLOUD COVER TO SOLAR RADIATION CORRECTED FOR CLOUDS RCL; 00780099
*SOLAR RADIATION AT LATITUDE 30 DEGREES NORTH; 00790099
* FROM NET RADIATION RECEIVED FROM A HORIZONTAL SURFACE BY DE JONG; 00800099
                                00810099
IF MONTH = 1 THEN R0=520/(24*60); 00820099
IF MONTH = 2 THEN R0=630/(24*60); 00830099
IF MONTH = 3 THEN R0=775/(24*60); 00840099
IF MONTH = 4 THEN R0=895/(24*60); 00850099
IF MONTH = 5 THEN R0=975/(24*60); 00860099
IF MONTH = 6 THEN R0=1000/(24*60); 00870099
IF MONTH = 7 THEN R0=990/(24*60); 00880099
IF MONTH = 8 THEN R0=925/(24*60); 00890099
IF MONTH = 9 THEN R0=820/(24*60); 00900099
IF MONTH =10 THEN R0=685/(24*60); 00910099
IF MONTH =11 THEN R0=560/(24*60); 00920099
IF MONTH =12 THEN R0=490/(24*60); 00930099
                                00940099
*SOLAR RADIATION CORRECTED FOR CLOUD COVER; 00950099
* FROM V P SINGH; 00960099
RCL=R0*(1-0.65*CL); 00970099
                                00980099
*SETTING SOLAR RADIATION AT ZERO LEVELS FOR NIGHT TIME; 00990099
* FROM SUNSET TABLES FOR LOUISIANA CITIES; 01000099
                                01010099
IF MONTH =1 AND (HUR<9 OR HUR >15)THEN RCL=0; 01020099
IF MONTH =2 AND (HUR<9 OR HUR >15)THEN RCL=0; 01030099
IF MONTH =3 AND (HUR<8 OR HUR >16)THEN RCL=0; 01040099
IF MONTH =4 AND (HUR<8 OR HUR >16)THEN RCL=0; 01050099
IF MONTH =5 AND (HUR<7 OR HUR >17)THEN RCL=0; 01060099
IF MONTH =6 AND (HUR<7 OR HUR >17)THEN RCL=0; 01070099
IF MONTH =7 AND (HUR<7 OR HUR >17)THEN RCL=0; 01080099
IF MONTH =8 AND (HUR<8 OR HUR >16)THEN RCL=0; 01090099
IF MONTH =9 AND (HUR<8 OR HUR >16)THEN RCL=0; 01100099
IF MONTH =10 AND (HUR<8 OR HUR >16)THEN RCL=0; 01110099
IF MONTH =11 AND (HUR<8 OR HUR >15)THEN RCL=0; 01120099
IF MONTH =12 AND (HUR<9 OR HUR >15)THEN RCL=0; 01130099
                                01140099
DIFF=ABS(TEMP-DEWPT); 01150099
                                01160099
DROP CC CL R0 FROZEN1-FROZEN3; 01170099
                                01180099
PROC SORT; BY YEAR MONTH DAY HUR; 01190099
                                01200099
DATA _NULL_; 01210099
SET I; BY YEAR MONTH DAY HUR; 01220099
                                01230099
FILE TEMP NOPRINT NOTITLE; 01240099
IF FIRST.DAY THEN PUT DATE FRZN FOG DEWPT WIND 01250099
                        TEMP RH RCL DIFF @@; 01260099
IF LAST.DAY THEN PUT FRZN FOG DEWPT WIND 01270099
                        TEMP RH RCL DIFF; 01280099

```

```

ELSE PUT FRZN FOG DEWPT WIND                                01290099
      TEMP RH RCL DIFF @@ ;                                01300099
                                                         01310099
                                                         01320099
DATA III;                                                  01330099
INFILE TEMP;                                              01340099
INPUT DATE $ FRZN1 FOG1 DEWPT1 WIND1 TEMP1 RH1 RCL1 DIFF1 01350099
      FRZN2 FOG2 DEWPT2 WIND2 TEMP2 RH2 RCL2 DIFF2       01360099
      FRZN3 FOG3 DEWPT3 WIND3 TEMP3 RH3 RCL3 DIFF3       01370099
      FRZN4 FOG4 DEWPT4 WIND4 TEMP4 RH4 RCL4 DIFF4       01380099
      FRZN5 FOG5 DEWPT5 WIND5 TEMP5 RH5 RCL5 DIFF5       01390099
      FRZN6 FOG6 DEWPT6 WIND6 TEMP6 RH6 RCL6 DIFF6       01400099
      FRZN7 FOG7 DEWPT7 WIND7 TEMP7 RH7 RCL7 DIFF7       01410099
      FRZN8 FOG8 DEWPT8 WIND8 TEMP8 RH8 RCL8 DIFF8       01420099
      FRZN9 FOG9 DEWPT9 WIND9 TEMP9 RH9 RCL9 DIFF9       01430099
      FRZN10 FOG10 DEWPT10 WIND10 TEMP10 RH10 RCL10 DIFF10 01440099
      FRZN11 FOG11 DEWPT11 WIND11 TEMP11 RH11 RCL11 DIFF11 01450099
      FRZN12 FOG12 DEWPT12 WIND12 TEMP12 RH12 RCL12 DIFF12 01460099
      FRZN13 FOG13 DEWPT13 WIND13 TEMP13 RH13 RCL13 DIFF13 01470099
      FRZN14 FOG14 DEWPT14 WIND14 TEMP14 RH14 RCL14 DIFF14 01480099
      FRZN15 FOG15 DEWPT15 WIND15 TEMP15 RH15 RCL15 DIFF15 01490099
      FRZN16 FOG16 DEWPT16 WIND16 TEMP16 RH16 RCL16 DIFF16 01500099
      FRZN17 FOG17 DEWPT17 WIND17 TEMP17 RH17 RCL17 DIFF17 01510099
      FRZN18 FOG18 DEWPT18 WIND18 TEMP18 RH18 RCL18 DIFF18 01520099
      FRZN19 FOG19 DEWPT19 WIND19 TEMP19 RH19 RCL19 DIFF19 01530099
      FRZN20 FOG20 DEWPT20 WIND20 TEMP20 RH20 RCL20 DIFF20 01540099
      FRZN21 FOG21 DEWPT21 WIND21 TEMP21 RH21 RCL21 DIFF21 01550099
      FRZN22 FOG22 DEWPT22 WIND22 TEMP22 RH22 RCL22 DIFF22 01560099
      FRZN23 FOG23 DEWPT23 WIND23 TEMP23 RH23 RCL23 DIFF23 01570099
      FRZN24 FOG24 DEWPT24 WIND24 TEMP24 RH24 RCL24 DIFF24 01580099
      ;                                                    01590099
                                                         01600099
PROC SORT; BY DATE;                                       01610099
                                                         01620099
DATA ONE1;                                                01630099
MERGE ONE III; BY DATE;                                   01640099
                                                         01650099
                                                         01660099
DATA TWO;                                                 01670099
* GET FIVE HURS OF PRECI OF PREVICUS DAY AND PUT IT IN THE SAME LINE; 01680099
SET ONE1; BY DATE;                                       01690099
DATE=DATE+1;                                             01700099
ARRAY HR{10} HR20-HR24 HR25-HR29;                       01710099
ARRAY FR{10} FRZN20-FRZN24 FRZN25-FRZN29;               01720099
ARRAY FG{10} FOG20-FOG24 FOG25-FOG29;                   01730099
ARRAY DW{10} DEWPT20-DEWPT24 DEWPT25-DEWPT29;          01740099
ARRAY WD{10} WIND20-WIND24 WIND25-WIND29;               01750099
ARRAY TM{10} TEMP20-TEMP24 TEMP25-TEMP29;               01760099
ARRAY RH{10} RH20-RH24 RH25-RH29;                       01770099
ARRAY RCL{10} RCL20-RCL24 RCL25-RCL29;                  01780099
ARRAY DIFF{10} DIFF20-DIFF24 DIFF25-DIFF29;             01790099
                                                         01800099
DO I= 6 TO 10;                                           01810099
HR{I}=HR{I-5};                                          01820099
FR{I}=FR{I-5};                                          01830099
FG{I}=FG{I-5};                                          01840099
DW{I}=DW{I-5};                                          01850099
WD{I}=WD{I-5};                                          01860099
TM{I}=TM{I-5};                                          01870099
RH{I}=RH{I-5};                                          01880099
RCL{I}=RCL{I-5};                                        01890099
END;                                                      01900099
                                                         01910099
DATE=COMPRESS(DATE);                                     01920099

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KEEP DATE HR25-HR29 FRZN25-FRZN29 FOG25-FOG29 DEWPT25-DEWPT29      01930099
WIND25-WIND29 TEMP25-TEMP29 RH25-RH29 RCL25-RCL29 DIFF25-DIFF29;    01940099
                                                                    01950099
                                                                    01960099
PROC SORT; BY DATE;                                                  01970099
                                                                    01980099
DATA THREE;                                                           01990099
MERGE TWO ONE1;                                                       02000099
BY DATE;                                                                02010099
                                                                    02020099
                                                                    02030099
DATA TWA;                                                             02040099
* GET FIVE HURS OF NEXT DAY AND PUT IT IN THE SAME LINE;            02050099
SET THREE; BY DATE;                                                  02060099
)DATE=DATE-1;                                                         02070099
DATE=COMPRESS(DATE);                                                 02080099
ARRAY HR{10} HR1-HR5 HR30-HR34;                                       02090099
ARRAY FR{10} FRZN1-FRZN5 FRZN30-FRZN34;                               02100099
ARRAY FG{10} FOG1-FOG5 FOG30-FOG34;                                   02110099
ARRAY DW{10} DEWPT1-DEWPT5 DEWPT30-DEWPT34;                         02120099
ARRAY WD{10} WIND1-WIND5 WIND30-WIND34;                               02130099
ARRAY TM{10} TEMP1-TEMP5 TEMP30-TEMP34;                               02140099
ARRAY RH{10} RH1-RH5 RH30-RH34;                                       02150099
ARRAY RCL{10} RCL1-RCL5 RCL30-RCL34;                                   02160099
ARRAY DIFF{10} DIFF1-DIFF5 DIFF30-DIFF34;                             02170099
                                                                    02180099
DO I= 6 TO 10;                                                       02190099
HR{I}=HR{I-5};                                                       02200099
FR{I}=FR{I-5};                                                       02210099
FG{I}=FG{I-5};                                                       02220099
DW{I}=DW{I-5};                                                       02230099
WD{I}=WD{I-5};                                                       02240099
TM{I}=TM{I-5};                                                       02250099
RH{I}=RH{I-5};                                                       02260099
RCL{I}=RCL{I-5};                                                     02270099
END;                                                                    02280099
                                                                    02290099
KEEP DATE HR30-HR34 FRZN30-FRZN34 FOG30-FOG34 DEWPT30-DEWPT34      02300099
WIND30-WIND34 TEMP30-TEMP34 RH30-RH34 RCL30-RCL34 DIFF30-DIFF34;    02310099
                                                                    02320099
                                                                    02330099
PROC SORT; BY DATE;                                                  02340099
                                                                    02350099
DATA THREEA;                                                           02360099
MERGE TWA THREE;                                                       02370099
BY DATE;                                                                02380099
                                                                    02390099
                                                                    02400099
DATA FOUR;                                                             02410099
SET THREEA;                                                            02420099
                                                                    02430099
                                                                    02440099
ARRAY HUR{34} HR25-HR29 HR1-HR24 HR30-HR34;                         02450099
ARRAY WETHR{28} WHR1-WHR28;                                           02460099
ARRAY FRZN{34} FRZN25-FRZN29 FRZN1-FRZN24 FRZN30-FRZN34;           02470099
ARRAY FOG{34} FOG25-FOG29 FOG1-FOG24 FOG30-FOG34;                 02480099
ARRAY DEWPT{34} DEWPT25-DEWPT29 DEWPT1-DEWPT24 DEWPT30-DEWPT34;   02490099
ARRAY WIND{34} WIND25-WIND29 WIND1-WIND24 WIND30-WIND34;           02500099
ARRAY TEMP{34} TEMP25-TEMP29 TEMP1-TEMP24 TEMP30-TEMP34;           02510099
ARRAY RH{34} RH25-RH29 RH1-RH24 RH30-RH34;                          02520099
ARRAY RCL{34} RCL25-RCL29 RCL1-RCL24 RCL30-RCL34;                   02530099
ARRAY DIFF{34} DIFF25-DIFF29 DIFF1-DIFF24 DIFF30-DIFF34;           02540099
                                                                    02550099
                                                                    02560099

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DO I= 6 TO 29;
* WET HOUR DUE TO FOG;
IF HUR{I}=0 THEN DO;
  IF FOG{I}=1 OR FOG{I}=2 OR FOG{I}=3 THEN DO;
    IF DIFF{I} <=2 AND WIND{I}< 3 THEN DO;
      HUR{I}=0.06;
    END;
  END;
END;
*WET HOUR DUE TO PRECIPITATION ;
IF HUR{I}~0 THEN DO;
* DURATION OF RAINFALL DEPENDING ON INTENSITY;
  IF HUR{I}>=0.01 AND HUR{I}<0.02 THEN WETHR{I-5}=15;
  IF HUR{I}>=0.02 AND HUR{I}<0.03 THEN WETHR{I-5}=30;
  IF HUR{I}>=0.03 AND HUR{I}<0.05 THEN WETHR{I-5}=45;
  IF HUR{I}>=0.05 THEN WETHR{I-5}=60;
* RUNOFF TIME ASSUMED TO BE 5 MINUTES;
  WETHR{I-5}=WETHR{I-5}+5;
* DRYING TIME; *DEVIATIONS FROM MEAN DRYING TIME OF 31.6;
  WETHR{I-5}=WETHR{I-5}+31.6;
* TEMPERATURE RECORDS;
IF TEMP{I}<67.5 THEN WETHR{I-5}=WETHR{I-5}+3.7;
IF TEMP{I}>=67.5 AND TEMP{I}<82.5 THEN WETHR{I-5}=WETHR{I-5}-0.7;
ELSE WETHR{I-5}=WETHR{I-5}-3.0;
* RELATIVE HUMIDITY RECORDS;
IF RH{I}<50 THEN WETHR{I-5}=WETHR{I-5}-4.5;
IF RH{I}>=50 AND RH{I}<82.5 THEN WETHR{I-5}=WETHR{I-5}-1.6;
ELSE WETHR{I-5}=WETHR{I-5}+6.1;
*SOLAR RADIATION RECORDS;
IF RCL{I}<=0.4 THEN WETHR{I-5}=WETHR{I-5}+11.6;
IF RCL{I}>0.4 AND RCL{I}<0.85 THEN WETHR{I-5}=WETHR{I-5}+5.6;
ELSE WETHR{I-5}=WETHR{I-5}-17.2;
*WIND SPEED RECORDS;
IF WIND{I}<=1.5 THEN WETHR{I-5}=WETHR{I-5}+11.6;
IF WIND{I}>1.5 AND RCL{I}< 0.85 THEN WETHR{I-5}=WETHR{I-5}-11.6;
*PAVEMENT MATERIAL;
WETHR{I-5}=WETHR{I-5}+3.9;
END;

IF I=6 THEN DO;
* WET HOUR DUE TO FOG;
IF HUR{I-1}=0 THEN DO;
  IF FOG{I-1}=1 OR FOG{I-1}=2 OR FOG{I-1}=3 THEN DO;
    IF DIFF{I-1} <=2 AND WIND{I-1}< 3 THEN DO;
      HUR{I-1}=0.06;
    END;
  END;
END;
IF HUR{I-1}~0 THEN DO;
  IF HUR{I-1}>=0.01 AND HUR{I-1}<0.02 THEN WETHR{25}=15;
  IF HUR{I-1}>=0.02 AND HUR{I-1}<0.03 THEN WETHR{25}=30;
  IF HUR{I-1}>=0.03 AND HUR{I-1}<0.05 THEN WETHR{25}=45;
  IF HUR{I-1}>=.05 THEN WETHR{25}=60;
* RUNOFF TIME ASSUMED TO BE 5 MINUTES;
  WETHR{25}=WETHR{25}+5;
* DRYING TIME; *DEVIATIONS FROM MEAN DRYING TIME OF 31.6;
  WETHR{25}=WETHR{25}+31.6;
* TEMPERATURE RECORDS;
IF TEMP{I-1}<67.5 THEN WETHR{25}=WETHR{25}+3.7;
IF TEMP{I-1}>=67.5 AND TEMP{I-1}<82.5 THEN WETHR{25}=WETHR{25}-0.7;
ELSE WETHR{25}=WETHR{25}-3.0;
* RELATIVE HUMIDITY RECORDS;
IF RH{I-1}<50 THEN WETHR{25}=WETHR{25}-4.5;
IF RH{I-1}>=50 AND RH{I-1}<82.5 THEN WETHR{25}=WETHR{25}-1.6;

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ELSE WETHR{25}=WETHR{25}+6.1;                                03210099
*SOLAR RADIATION RECORDS;                                    03220099
IF RCL{I-1}<=0.4 THEN WETHR{25}=WETHR{25}+11.6;            03230099
IF RCL{I-1}>0.4 AND RCL{I-1}<0.85 THEN WETHR{25}=WETHR{25}+5.6; 03240099
ELSE WETHR{25}=WETHR{25}-17.2;                                03250099
*WIND SPEED RECORDS;                                        03260099
IF WIND{I-1}<=1.5 THEN WETHR{25}=WETHR{25}+11.6;            03270099
IF WIND{I-1}>1.5 AND RCL{I-1}< 0.85 THEN WETHR{25}=WETHR{25}-11.6; 03280099
*PAVEMENT MATERIAL;                                        03281099
WETHR{25}=WETHR{25}+3.9;                                    03282099
  END;                                                       03290099
END;                                                         03300099
                                                           03310099
  IF I=29 THEN DO;                                          03320099
* WET HOUR DUE TO FOG;                                       03330099
IF HUR{I+1}=0 THEN DO;                                       03340099
  IF FOG{I+1}=1 OR FOG{I+1}=2 OR FOG{I+1}=3 THEN DO;      03350099
    IF DIFF{I+1} <=2 AND WIND{I+1}< 3 THEN DO;              03360099
      HUR{I+1}=0.06;                                        03370099
    END;                                                       03390099
  END;                                                       03400099
  ELSE WETHR{27}=0;                                          03410099
END;                                                         03420099
* WET HOUR DUE TO PRECIPITATION;                             03430099
  IF HUR{I+1}~0 THEN DO;                                     03440099
    IF HUR{I+1}>=0.01 AND HUR{I+1}<0.02 THEN WETHR{27}=15;  03450099
    IF HUR{I+1}>=0.02 AND HUR{I+1}<0.03 THEN WETHR{27}=30;  03460099
    IF HUR{I+1}>=0.03 AND HUR{I+1}<0.05 THEN WETHR{27}=45;  03470099
    IF HUR{I+1}>=.05 THEN WETHR{27}=60;                     03480099
    * RUNOFF TIME ASSUMED TO BE 5 MINUTES;                   03490099
    WETHR{27}=WETHR{27}+5;                                   03500099
    * DRYING TIME; *DEVIATIONS FROM MEAN DRYING TIME OF 31.6; 03510099
    WETHR{27}=WETHR{27}+31.6;                                03520099
  * TEMPERATURE RECORDS;                                     03530099
  1) TEMP{I+1}<67.5 THEN WETHR{27}=WETHR{27}+3.7;          03540099
  1) TEMP{I+1}>=67.5 AND TEMP{I+1}<82.5 THEN WETHR{27}=WETHR{27}-0.7; 03550099
  ELSE WETHR{27}=WETHR{27}-3.0;                               03560099
  * RELATIVE HUMIDITY RECORDS;                               03570099
  IF RH{I+1}<50 THEN WETHR{27}=WETHR{27}-4.5;               03580099
  IF RH{I+1}>=50 AND RH{I+1}<82.5 THEN WETHR{27}=WETHR{27}-1.6; 03590099
  ELSE WETHR{27}=WETHR{27}+6.1;                               03600099
  *SOLAR RADIATION RECORDS;                                  03610099
  1) RCL{I+1}<=0.4 THEN WETHR{27}=WETHR{27}+11.6;           03620099
  1) RCL{I+1}>0.4 AND RCL{I+1}<0.85 THEN WETHR{27}=WETHR{27}+5.6; 03630099
  ELSE WETHR{27}=WETHR{27}-17.2;                             03640099
  *WIND SPEED RECORDS;                                       03650099
  IF WIND{I+1}<=1.5 THEN WETHR{27}=WETHR{27}+11.6;         03660099
  IF WIND{I+1}>1.5 AND RCL{I+1}< 0.85 THEN WETHR{27}=WETHR{27}-11.6; 03670099
  *PAVEMENT MATERIAL;                                        03671099
  WETHR{27}=WETHR{27}+3.9;                                    03672099
  END;                                                       03680099
END;                                                         03690099
                                                           03700099
*FOR AN HOUR WHOSE PREVIOUS HOUR HAD BUT NEXT DID NOT HAVE RAINFALL; 03710099
IF HUR{I-1}>0 AND HUR{I}>0 AND HUR{I+1}=0 THEN DO;         03720099
  IF I~6 THEN DO;                                           03730099
    IF WETHR{I-6}>=60 AND WETHR{I-5}>=60 THEN WETHR{I-6}=60; 03740099
    IF WETHR{I-6}>=60 AND WETHR{I-5}<60 THEN DO;             03750099
      WETHR{I-5}=WETHR{I-5}+WETHR{I-6}-60;                 03760099
      WETHR{I-6}=60;                                        03770099
      IF WETHR{I-5} >=60 THEN WETHR{I-5}=60;               03780099
    END;                                                       03790099
  END;                                                       03800099
END;                                                         03810099
  IF I=6 THEN DO;

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IF WETHR{25}>=60 AND WETHR{I-5}>=60 THEN WETHR{25}=60; 03820099
IF WETHR{25}>=60 AND WETHR{I-5}<60 THEN DO; 03830099
WETHR{I-5}=WETHR{I-5}+WETHR{25}-60; 03840099
WETHR{25}=60; 03850099
IF WETHR{I-5}>=60 THEN WETHR{I-5}=60; 03860099
END; 03870099
END; 03880099
END; 03890099
END; 03900099
03910099
DATA FIVE; 03920099
SET FOUR; BY DATE; 03930099
DATE=DATE-1; 03940099
DATE=COMPRESS(DATE); 03950099
WHR26=WHR25; 03960099
KEEP DATE WHR26; 03970099
03980099
PROC SORT; BY DATE; 03990099
04000099
DATA SIX; 04010099
MERGE FIVE FOUR; 04020099
BY DATE; 04030099
04040099
04050099
DATA SEVEN; 04060099
SET SIX; 04070099
ARRAY HUR{34} HR25-HR29 HR1-HR24 HR30-HR34; 04080099
ARRAY WETHR{28} WHR1-WHR28; 04090099
IF WHR26~=. AND WHR26~=0 THEN WHR24=WHR26; 04100099
04110099
DO I= 6 TO 29; 04120099
* FOR AN HOUR WHOSE NEXT HOUR HAD RAINFALL BUT PREVIOUS DID NOT; 04130099
IF HUR{I}~=0 AND HUR{I-1}=0 AND HUR{I+1}~=0 THEN DO; 04140099
IF WETHR{I-5}>=60 AND I~=29 THEN DO; 04150099
IF WETHR{I-4}>=60 THEN WETHR{I-5}=60; 04160099
IF WETHR{I-4}<60 THEN DO; 04170099
WETHR{I-4}=WETHR{I-4}+WETHR{I-5}-60; 04180099
IF WETHR{I-4}>=60 THEN WETHR{I-4}=60; 04190099
WETHR{I-5}=60; 04200099
END; 04210099
END; 04220099
IF WETHR{I-5}>=60 AND I=29 THEN DO; 04230099
IF WETHR{27}>=60 THEN WETHR{I-5}=60; 04240099
ELSE DO; 04250099
WETHR{27}=WETHR{27}+WETHR{I-5}-60; 04260099
WETHR{I-5}=60; 04270099
IF WETHR{27}>=60 THEN WETHR{27}=60; 04280099
END; 04290099
END; 04300099
END; 04310099
END; 04320099
04330099
DATA FIVEA; 04340099
SET SEVEN; BY DATE; 04350099
DATE=DATE+1; 04360099
DATE=COMPRESS(DATE); 04370099
WHR28=WHR27; 04380099
KEEP DATE WHR28; 04390099
04400099
PROC SORT; BY DATE; 04410099
04420099
04430099
DATA SIXA; 04440099

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BY DATE;
DATA EIGHTA;
SET SIXA;
ARRAY HUR{34} HR25-HR29 HR1-HR24 HR30-HR34;
ARRAY WETHR{28} WHR1-WHR28;
IF WHR28=0 AND WHR28=1. THEN WHR1=WHR28;
DO I= 6 TO 29;
*FOR AN HUR WITH BOTH PREVIOUS AND NEXT RAINFALL HURS;
IF HUR{I}=0 AND HUR{I-1}=0 AND HUR{I+1}=0 THEN DO;
IF I=29 AND WETHR{I-4}>=60 AND WETHR{I-5}>=60 THEN WETHR{I-5}=60;
IF I=29 AND WETHR{27}>=60 AND WETHR{I-5}>=60 THEN WETHR{I-5}=60;
IF I = 6 THEN DO;
IF WETHR{I-6}>=60 AND WETHR{I-5}<60 THEN DO;
WETHR{I-6}=60; WETHR{I-5}=WETHR{I-5}+WETHR{I-6}-60;
IF WETHR{I-5}>=60 THEN WETHR{I-5}=60;
END;
IF I=6 THEN DO;
IF WETHR{25}>=60 AND WETHR{I-5}<60 THEN DO;
WETHR{25}=60; WETHR{I-5}=WETHR{I-5}+WETHR{25}-60;
IF WETHR{I-5}>=60 THEN WETHR{I-5}=60;
END;
END;
END;
END;
END;
DATA NINE;
SET EIGHTA; BY DATE;
DATE=DATE-1;
DATE=COMPRESS(DATE);
WHR26=WHR25;
KEEP DATE WHR26;
PROC SORT; BY DATE;
DATA TEN;
MERGE NINE EIGHTA;
BY DATE;
IF WHR26=0 AND WHR26=1. THEN WHR24=WHR26;
DATA ELEVEN;
SET TEN; BY DATE;
DATE=DATE+1;
DATE=COMPRESS(DATE);
WHR28=WHR27;
KEEP DATE WHR28;
PROC SORT; BY DATE;
DATA TWELVE;
MERGE ELEVEN TEN;
BY DATE;
IF WHR28=0 AND WHR28=1. THEN WHR1=WHR28;
ARRAY WETHR{24} WHR1-WHR24;
ARRAY RCL{24} RCL1-RCL24;
ARRAY DIFF{24} DIFF1-DIFF24;
ARRAY TEMP{24} TEMP1-TEMP24;

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04460099
04470099
04480099
04490099
04500099
04510099
04520099
04530099
04540099
04550099
04560099
04570099
04580099
04590099
04600099
04610099
04620099
04630099
04640099
04650099
04660099
04670099
04680099
04690099
04700099
04710099
04720099
04730099
04740099
04750099
04760099
04770099
04780099
04790099
04800099
04810099
04820099
04830099
04840099
04850099
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04910099
04920099
04930099
04940099
04950099
04960099
04970099
04980099
04990099
04991099
05000099
05010099
05020099
05030099
05040099
05041099
05041199
05041299
05041399

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ARRAY WIND{24} WIND1-WIND24;
ARRAY RH{24} RH1-RH24;

DO I=1 TO 24;
IF WETHR{I}=. THEN WETHR{I}=0;

*DAY TIME SATURATED CONDITIONS AFFECTING DRYING;
IF WETHR{I}~0 AND WETHR{I}~60 AND
RCL{I}>0 AND DIFF{I}<2 THEN DO;
M=I+2;
DO K=I TO M UNTIL (DIFF{K}>2 OR K=24);
IF (DIFF{K}<2 AND K<M) THEN WETHR{K}=60;
IF (DIFF{K}>2 OR K=M) AND WETHR{K}=0 THEN DO;
* DRYING TIME; *DEVIATIONS FROM MEAN DRYING TIME OF 31.6;
WETHR{K}=WETHR{K}+31.6;
* TEMPERATURE RECORDS;
IF TEMP{K}<67.5 THEN WETHR{K}=WETHR{K}+3.7;
IF TEMP{K}>=67.5 AND TEMP{K}<82.5 THEN WETHR{K}=WETHR{K}-0.7;
ELSE WETHR{K}=WETHR{K}-3.0;
* RELATIVE HUMIDITY RECORDS;
IF RH{K}<50 THEN WETHR{K}=WETHR{K}-4.5;
IF RH{K}>=50 AND RH{K}<82.5 THEN WETHR{K}=WETHR{K}-1.6;
ELSE WETHR{K}=WETHR{K}+6.1;
*SOLAR RADIATION RECORDS;
IF RCL{K}<=0.4 THEN WETHR{K}=WETHR{K}+11.6;
IF RCL{K}>0.4 AND RCL{K}<0.85 THEN WETHR{K}=WETHR{K}+5.6;
ELSE WETHR{K}=WETHR{K}-17.2;
*WIND SPEED RECORDS;
IF WIND{K}<=1.5 THEN WETHR{K}=WETHR{K}+11.6;
IF WIND{K}>1.5 AND RCL{K}<0.85 THEN WETHR{K}=WETHR{K}-11.6;
*PAVEMENT MATERIAL;
WETHR{K}=WETHR{K}+3.9;
END;
END;
END;

* NIGHT TIME SATURATED DRYING CONDITIONS;
IF WETHR{I}~0 AND WETHR{I}~60 AND DIFF{I}<2
AND RCL{I}=0 THEN DO;
DO K=I TO 24 UNTIL (DIFF{K}>2 OR K=24);
IF K=24 THEN SATUR=1;
IF (DIFF{K}<2 AND WETHR{K}=0) THEN WETHR{K}=60;
IF DIFF{K}>2 AND WETHR{K}=0 THEN DO;
* DRYING TIME; *DEVIATIONS FROM MEAN DRYING TIME OF 31.6;
WETHR{K}=WETHR{K}+31.6;
* TEMPERATURE RECORDS;
IF TEMP{K}<67.5 THEN WETHR{K}=WETHR{K}+3.7;
IF TEMP{K}>=67.5 AND TEMP{K}<82.5 THEN WETHR{K}=WETHR{K}-0.7;
ELSE WETHR{K}=WETHR{K}-3.0;
* RELATIVE HUMIDITY RECORDS;
IF RH{K}<50 THEN WETHR{K}=WETHR{K}-4.5;
IF RH{K}>=50 AND RH{K}<82.5 THEN WETHR{K}=WETHR{K}-1.6;
ELSE WETHR{K}=WETHR{K}+6.1;
*SOLAR RADIATION RECORDS;
IF RCL{K}<=0.4 THEN WETHR{K}=WETHR{K}+11.6;
IF RCL{K}>0.4 AND RCL{K}<0.85 THEN WETHR{K}=WETHR{K}+5.6;
ELSE WETHR{K}=WETHR{K}-17.2;
*WIND SPEED RECORDS;
IF WIND{K}<=1.5 THEN WETHR{K}=WETHR{K}+11.6;
IF WIND{K}>1.5 AND RCL{K}<0.85 THEN WETHR{K}=WETHR{K}-11.6;
*PAVEMENT MATERIAL;
WETHR{K}=WETHR{K}+3.9;
END;
END.

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END;
END;
PROC SORT; BY DATE;
DATA XIIIA;
  SET TWELVE; BY DATE;
  DATE=DATE+1;
  IF SATUR=. THEN SATUR=0;
  KEEP DATE SATUR;
PROC SORT; BY DATE;
DATA XIIIB;
  MERGE XIIIA TWELVE;
  BY DATE;
  ARRAY WETHR{24} WHR1-WHR24;
  ARRAY RCL{24} RCL1-RCL24;
  ARRAY DIFF{24} DIFF1-DIFF24;
  ARRAY TEMP{24} TEMP1-TEMP24;
  ARRAY WIND{24} WIND1-WIND24;
  ARRAY RH{24} RH1-RH24;
IF SATUR=1 THEN DO;
  DO I=1 TO 24;
    IF WETHR{I}=0 AND
      RCL{I}<0 AND DIFF{I}<2 THEN DO;
      DO K=I TO 24 UNTIL (DIFF{K}>2 OR K=24);
      IF (DIFF{K}<2 AND K<M) THEN WETHR{K}=60;
      IF DIFF{K}>2 AND WETHR{K}=0 THEN DO;
        * DRYING TIME; *DEVIATIONS FROM MEAN DRYING TIME OF 31.6;
        WETHR{K}=WETHR{K}+31.6;
        * TEMPERATURE RECORDS;
        IF TEMP{K}<67.5 THEN WETHR{K}=WETHR{K}+3.7;
        IF TEMP{K}>=67.5 AND TEMP{K}<82.5 THEN WETHR{K}=WETHR{K}-0.7;
        ELSE WETHR{K}=WETHR{K}-3.0;
        * RELATIVE HUMIDITY RECORDS;
        IF RH{K}<50 THEN WETHR{K}=WETHR{K}-4.5;
        IF RH{K}>=50 AND RH{K}<82.5 THEN WETHR{K}=WETHR{K}-1.6;
        ELSE WETHR{K}=WETHR{K}+6.1;
        *SOLAR RADIATION RECORDS;
        IF RCL{K}<=0.4 THEN WETHR{K}=WETHR{K}+11.6;
        IF RCL{K}>0.4 AND RCL{K}<0.85 THEN WETHR{K}=WETHR{K}+5.6;
        ELSE WETHR{K}=WETHR{K}-17.2;
        *WIND SPEED RECORDS;
        IF WIND{K}<=1.5 THEN WETHR{K}=WETHR{K}+11.6;
        IF WIND{K}>1.5 AND RCL{K}< 0.85 THEN WETHR{K}=WETHR{K}-11.6;
        *PAVEMENT MATERIAL;
        WETHR{K}=WETHR{K}+3.9;
      END;
    END;
  END;
END;
END;
END;
DATA XIIIC;
  SET XIIIB;
  ARRAY WETHR{24} WHR1-WHR24;
  ARRAY PCWHR{24} PCWHR1-PCWHR24;
  ARRAY MISSING{24} MISS1-MISS24;

```

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05047899
05047999
05048099
05048199
05048299
05048399
05048499
05048599
05048699
05048799
05048899
05048999
05049099
05049199
05049299
05049399
05049499
05049599
05049699
05049799
05049899
05049999
05050099
05050199
05050299
05050399
05050499
05050599
05050699
05050799
05050899
05050999
05051099
05051199
05051299
05051399
05051499
05051599
05051699
05051799
05051899
05051999
05052099
05052199
05052299
05052399
05052499
05052599
05052699
05052799
05052899
05052999
05053099
05053199
05053299
05053399
05053499
05053599
05053699
05053799
05053899
05054099
05055099
05056099

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CWHR{I}=WETHR{I};
IF WETHR{I}~=>60 AND WETHR{I}~=>0 THEN DO;
PCWHR{I}=WETHR{I}-7.8;
END;
END;
DO I=1 TO 24;
IF I=1 THEN ASUMHR=0;
IF I=1 THEN PSUMHR=0;
IF I=1 THEN ASUMMI=0;
IF I=1 THEN PSUMMI=0;
ASUMHR=SUM(ASUMHR,WETHR{I});
PSUMHR=SUM(PSUMHR,PCWHR{I});
ASUMMI=SUM(ASUMMI,MISSING{I});
PSUMMI=SUM(PSUMMI,MISSING{I});
END;
ATOTHR=ASUMHR/60;
PTOTHR=PSUMHR/60;
ATOTMIS=ASUMMI;
PTOTMIS=PSUMMI;
PROC SORT; BY YEAR;
PROC MEANS NOPRINT SUM N;
VAR ATOTHR ASUMHR ATOTMIS PTOTHR PSUMHR PTOTMIS;
BY YEAR;
OUTPUT OUT=STAT SUM=ATOTHUR ATOTMIN AMISSING PTOTHUR PTOTMIN PMISSING
N=NUM NUM1 NUM2 NUM3 NUM4 NUM5 ;
DATA XIII;
SET STAT;
LABEL NUM= NUMBER OF DAYS
ATOTHUR=TOTAL WET HOURS (ASPHLT)
ATOTMIN=TOTAL WET MINUTES (ASPHLT)
AMISSING=MISSING HOURS
APROPRWT= PROPORTION WET (ASPHLT)
PTOTHUR=TOTAL WET HOURS (PRTLND)
PTOTMIN=TOTAL WET MINUTES (PRTLND)
PMISSING=MISSING HOURS
PPROPRWT= PROPORTION WET (PRTLND);
APROPRWT=(ATOTHUR)/((NUM-(AMISSING/24))*24);
PPROPRWT=(PTOTHUR)/((NUM-(PMISSING/24))*24);
DROP NUM1 NUM2 NUM3 NUM4 NUM5 PMISSING;
IF APROPRWT=0 AND PPROPRWT=0 THEN DELETE;
DATA _NULL_;
SET XIII;
FILE OUT NOPRINT NOTITLE MOD;
PUT @ 2 YEAR @ 10 NUM @ 20 ATOTHUR @ 30 ATOTMIN @ 40 AMISSING
@ 44 APROPRWT @ 56 PTOTHUR @ 71 PTOTMIN @ 85 PPROPRWT ;
PROC PRINT DATA=XIII LABEL;
TITLE 'WET HOUR PERCENTAGES BY MONTH FOR BATON ROUGE PAVEMENTS';
//

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//LTRC JOB (1318,05886,10,9999),'SRIKANTH',NOTIFY=IEKLEE,      00010099
//          MSGCLASS=S,CLASS=H                                00020099
/*JOBPARM SHIFT=H                                           00030099
//STEP1 EXEC SAS,TIME=10                                     00040099
//PRI DD DSN=IEKLEE.SRIKANTH.PROGRAM(PRIMARY),DISP=SHR      00050099
//SEC DD DSN=IEKLEE.SRIKANTH.PGM2(NORMALS),DISP=SHR         00060099
//WLC DD DSN=IEKLEE.WETHOURS.LAKECHAS,DISP=SHR              00070099
//WBR DD DSN=IEKLEE.WETHOURS.BTR,DISP=SHR                   00080099
//WNO DD DSN=IEKLEE.WETHOURS.NEWORLNS,DISP=SHR              00090099
//WSH DD DSN=IEKLEE.WETHOURS.SHV,DISP=SHR                   00091099
//CSC DD DSN=IEKLEE.DATA.FILES(TRIANGLE),DISP=SHR          00100099
//OUT DD DSN=IEKLEE.SRIKANTH.OUT,DISP=SHR                    00110099
//MAPS DD DSN='SAS.R518.MAPS',DISP=SHR                       00120099
//SYSIN DD *                                                  00130099
                                                                00140099
OPTIONS NOCAPS;                                             00150099
OPTIONS TLS=80 PS=60 LS=80;                                  00160099
GOPTIONS NOTEXT82;                                          00170099
GOPTIONS DEVICE=GDDMFAM4 GDDMNICKNAME=IBM3820 GDDMTOKEN=IMG240; 00180099
                                                                00190099
*****;                                                    00200099
* THIS PROGRAM CALCULATES THE DISTANCE BETWEEN A FIRST AND *; 00210099
* SECOND ORDER STATION AND LISTS THE NEAREST AND SECOND *; 00220099
* NEAREST FIRST ORDER STATION TO EACH SECOND ORDER STATION *; 00230099
* DISTANCE IN ARC DISTANCE *; 00240099
* *; 00250099
* *; 00260099
* AN EMPIRICAL BAYES ANALYSIS OF THE PROPORTION WET TIME *; 00270099
* BASED ON THE WETTIME CALCULATIONS IS THEN MADE FOR EVERY *; 00280099
* TRIANGLE FORMED BY THE MESH OF WEATHER STATIONS *; 00290099
* *; 00300099
* *; 00310099
*****;                                                    00320099
                                                                00330099
DATA ONE;                                                    00340099
INFILE SEC;                                                  00350099
    INPUT INDEX NAME & $14. LATD LATM LOND LONM PARISH NORMAL; 00360099
    M=1;                                                       00370099
                                                                00380099
DATA TWO;                                                    00390099
INFILE PRI;                                                  00400099
    INPUT INDEX1 PARISH1 LATD1 LATM1 LOND1 LONM1 NORMAL1      00410099
    INDEX2 PARISH2 LATD2 LATM2 LOND2 LONM2 NORMAL2          00420099
    INDEX3 PARISH3 LATD3 LATM3 LOND3 LONM3 NORMAL3          00430099
    INDEX4 PARISH4 LATD4 LATM4 LOND4 LONM4 NORMAL4;         00440099
    M=1;                                                       00450099
                                                                00460099
DATA THREE;                                                  00470099
MERGE ONE TWO;                                              00480099
BY M;                                                         00490099
                                                                00500099
DROP PARISH1-PARISH4;                                       00510099
ARRAY INDEXP{5} INDEX INDEX1-INDEX4;                        00520099
ARRAY LATDP{5} LATD LATD1-LATD4;                            00530099
ARRAY LATMP{5} LATM LATM1-LATM4;                            00540099
ARRAY LONDP{5} LOND LOND1-LOND4;                            00550099
ARRAY LONMP{5} LONM LONM1-LONM4;                            00560099
ARRAY LATI{5} LAT1-LAT5;                                     00570099
ARRAY LONI{5} LON1-LON5;                                     00580099
ARRAY DIST{5} DIS1-DIS5;                                     00590099

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ARRAY DISTA{5} DISA1-DISA5;                                00600099
ARRAY NORMALP{5} NORMAL NORMAL1-NORMAL4;                  00610099

D2R=ATAN(1)/45;                                           00620099

DO I= 1 TO 5;                                             00630099
LATI{I}=D2R*(LATDP{I}+(LATMP{I}/60));                     00640099
LONI{I}=D2R*(LONDP{I}+(LONMP{I}/60));                     00650099
END;                                                         00660099

DO I=2 TO 5;                                             00670099
DIST{I}=SIN(LATI{1})* SIN(LATI{I});                       00680099
DISTA{I}=COS(LATI{1})*COS(LATI{I})*COS(ABS(LONI{1}-LONI{I})); 00690099
DIST{I}= ARCOS(DIST{I}+ DISTA{I});                         00700099
END;                                                         00710099

MINDIS=MIN(DIS2,DIS3,DIS4,DIS5);                          00720099
SMINDIS=MAX(DIS2,DIS3,DIS4,DIS5);                         00730099

DO I=2 TO 5;                                             00740099
IF DIST{I} <= SMINDIS AND DIST{I} > MINDIS THEN          00750099
SMINDIS=DIST{I};                                          00760099
END;                                                         00770099

DO I=2 TO 5;                                             00780099
IF DIST{I}=MINDIS THEN NEAREST=INDEXP{I};                 00790099
IF DIST{I}=MINDIS THEN NRRNML=NORMALP{I};                 00800099
IF DIST{I}=SMINDIS THEN SNRRNML=NORMALP{I};                 00810099
IF DIST{I}=SMINDIS THEN SNEAREST=INDEXP{I};                 00820099
END;                                                         00830099

DROP DISA1-DISA5 LATD LOND LONM LATM LATD1-LATD4 LOND1-LOND4 LONM1-LONM4 00840099
I INDEX1-INDEX4 LAT2-LAT5 LON2-LON5                        00850099
LATM1-LATM4 DIS1 D2R;                                     00860099

DATA FOUR;                                                00870099
INFILE WBR;                                                00880099
INPUT YEAR DAYS AWETHR1 AWETMIN1 MISSING APWT1 PWETHR1 PWETMIN1 PPWT1; 00890099
KEEP YEAR AWETHR1 PWETHR1 APWT1 PPWT1;                     00900099
PROC SORT; BY YEAR;                                       00910099

DATA FIVE;                                                 00920099
INFILE WLC;                                                 00930099
INPUT YEAR DAYS AWETHR2 AWETMIN2 MISSING APWT2 PWETHR2 PPWT2; 00940099
KEEP YEAR AWETHR2 PWETHR2 APWT2 PPWT2;                     00950099
PROC SORT; BY YEAR;                                       00960099

DATA SIX;                                                  00970099
INFILE WNO;                                                  00980099
INPUT YEAR DAYS AWETHR3 AWETMIN3 MISSING APWT3 PWETHR3 PPWT3; 00990099
KEEP YEAR AWETHR3 PWETHR3 APWT3 PPWT3;                     01000099
PROC SORT; BY YEAR;                                       01010099

DATA SIXA;                                                 01020099
INFILE WSH;                                                 01030099
INPUT YEAR DAYS AWETHR4 AWETMIN4 MISSING APWT4 PWETHR4 PPWT4; 01040099
KEEP YEAR AWETHR4 PWETHR4 APWT4 PPWT4;                     01050099
PROC SORT; BY YEAR;                                       01060099

DATA SEVEN;                                               01070099
MERGE FOUR FIVE SIX SIXA;                                  01080099

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BY YEAR;

PROC TRANSPOSE PREFIX=ABWH OUT=OUT1;
VAR AWETHR1;

PROC TRANSPOSE DATA=SEVEN PREFIX=ALWH OUT=OUT2;
VAR AWETHR2;

PROC TRANSPOSE DATA=SEVEN PREFIX=ANWH OUT=OUT3;
VAR AWETHR3;

PROC TRANSPOSE DATA=SEVEN PREFIX=ASWH OUT=OUT3A;
VAR AWETHR4;

PROC TRANSPOSE DATA=SEVEN PREFIX=YR OUT=OUT4;
VAR YEAR;

PROC TRANSPOSE DATA=SEVEN PREFIX=PBWH OUT=OUT5;
VAR PWETHR1;

PROC TRANSPOSE DATA=SEVEN PREFIX=PLWH OUT=OUT6;
VAR PWETHR2;

PROC TRANSPOSE DATA=SEVEN PREFIX=PNWH OUT=OUT7;
VAR PWETHR3;

PROC TRANSPOSE DATA=SEVEN PREFIX=PSWH OUT=OUT7A;
VAR PWETHR4;

PROC TRANSPOSE DATA=SEVEN PREFIX=ABPT OUT=OUT8;
VAR APWT1;

PROC TRANSPOSE DATA=SEVEN PREFIX=ALPT OUT=OUT9;
VAR APWT2;

PROC TRANSPOSE DATA=SEVEN PREFIX=ANPT OUT=OUT10;
VAR APWT3;

PROC TRANSPOSE DATA=SEVEN PREFIX=ASPT OUT=OUT10A;
VAR APWT4;

PROC TRANSPOSE DATA=SEVEN PREFIX=PBPT OUT=OUT11;
VAR PPWT1;

PROC TRANSPOSE DATA=SEVEN PREFIX=PLPT OUT=OUT12;
VAR PPWT2;

PROC TRANSPOSE DATA=SEVEN PREFIX=PNPT OUT=OUT13;
VAR PPWT3;

PROC TRANSPOSE DATA=SEVEN PREFIX=PSPT OUT=OUT13A;
VAR PPWT4;

DATA EIGHT;
SET OUT1;
SET OUT2;
SET OUT3;
SET OUT3A;
SET OUT4;
SET OUT5;
SET OUT6;
SET OUT7;
SET OUT7A;
SET OUT8;

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01180099
01190099
01200099
01210099
01220099
01230099
01240099
01250099
01260099
01270099
01280099
01281099
01282099
01283099
01290099
01300099
01310099
01320099
01330099
01340099
01350099
01360099
01370099
01380099
01390099
01400099
01401099
01402099
01403099
01410099
01420099
01430099
01440099
01450099
01460099
01470099
01480099
01490099
01491099
01492099
01493099
01500099
01510099
01520099
01530099
01540099
01550099
01560099
01570099
01580099
01581099
01582099
01583099
01590099
01600099
01610099
01620099
01621099
01630099
01640099
01650099
01660099
01661099
01670099

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SET OUT9;                                01680099
SET OUT10;                               01690099
SET OUT10A;                              01691099
SET OUT11;                               01700099
SET OUT12;                               01710099
SET OUT13;                               01720099
SET OUT13A;                              01721099
M=1;                                      01730099
                                          01740099
DATA NINE;                               01750099
MERGE EIGHT THREE;                       01760099
BY M;                                     01770099
                                          01780099
ARRAY ABWH{50} ABWH1-ABWH50;             01790099
ARRAY PBWH{50} PBWH1-PBWH50;             01800099
ARRAY ABPT{50} ABPT1-ABPT50;             01810099
ARRAY PBPT{50} PBPT1-PBPT50;             01820099
ARRAY ALWH{50} ALWH1-ALWH50;             01830099
ARRAY PLWH{50} PLWH1-PLWH50;             01840099
ARRAY ALPT{50} ALPT1-ALPT50;             01850099
ARRAY PLPT{50} PLPT1-PLPT50;             01860099
ARRAY ANWH{50} ANWH1-ANWH50;             01870099
ARRAY PNWH{50} PNWH1-PNWH50;             01880099
ARRAY ANPT{50} ANPT1-ANPT50;             01890099
ARRAY PNPT{50} PNPT1-PNPT50;             01900099
ARRAY ASWH{50} ASWH1-ASWH50;             01901099
ARRAY PSWH{50} PSWH1-PSWH50;             01902099
ARRAY ASPT{50} ASPT1-ASPT50;             01903099
ARRAY PSPT{50} PSPT1-PSPT50;             01904099
ARRAY AWHX{50} AWHX1-AWHX50;             01910099
ARRAY PWHX{50} PWHX1-PWHX50;             01920099
ARRAY APWTX{50} APWTX1-APWTX50;          01930099
ARRAY PPWTX{50} PPWTX1-PPWTX50;          01940099
ARRAY YR{50} YR1-YR50;                   01950099
                                          01960099
DO I=1 TO 50;                             01970099
IF YR{I}~= . AND MINDIS ^= 0 THEN DO;     01980099
                                          02010199
  *BATON ROUGE SHREVEPORT BEING TWO NEAREST;
    IF (NEAREST=549 AND SNEAREST=8440)
                                          02011099
      OR (NEAREST=8440 AND SNEAREST=549) THEN DO;
        AWHX{I}=(ABWH{I}*DIS5*(NORMAL/NORMAL1));
                                          02012099
        AWHX{I}=AWHX{I}+(ASWH{I}*DIS2*(NORMAL/NORMAL4));
                                          02013099
        AWHX{I}=AWHX{I}/(DIS5+DIS2);
                                          02014099
                                          02015099
                                          02016099
        PWHX{I}=(PBWH{I}*DIS5*(NORMAL/NORMAL1));
                                          02017099
        PWHX{I}=PWHX{I}+(PSWH{I}*DIS2*(NORMAL/NORMAL4));
                                          02018099
        PWHX{I}=PWHX{I}/(DIS5+DIS2);
                                          02019099
                                          02019199
                                          02019299
        APWTX{I}=(ABPT{I}*DIS5*(NORMAL/NORMAL1));
                                          02019399
        APWTX{I}=APWTX{I}+(ASPT{I}*DIS2*(NORMAL/NORMAL4));
                                          02019499
        APWTX{I}=APWTX{I}/(DIS5+DIS2);
                                          02019599
                                          02019699
        PPWTX{I}=(PBPT{I}*DIS5*(NORMAL/NORMAL1));
                                          02019799
        PPWTX{I}=PPWTX{I}+(PSPT{I}*DIS2*(NORMAL/NORMAL4));
                                          02019899
        PPWTX{I}=PPWTX{I}/(DIS5+DIS2);
                                          02019999
                                          02020099
    END;
                                          02020199
                                          02021099
  *SHREVEPORT NEW ORLEANS BEING TWO NEAREST;
    IF (NEAREST=8440 AND SNEAREST=6660)
                                          02022099
      OR (NEAREST=6660 AND SNEAREST=8440) THEN DO;
        AWHX{I}=(ASWH{I}*DIS4*(NORMAL/NORMAL4));
                                          02023099
        AWHX{I}=AWHX{I}+(ANWH{I}*DIS5*(NORMAL/NORMAL3));
                                          02024099
                                          02025099
                                          02026099

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AWHX{I}=AWHX{I}/(DIS5+DIS4); 02027099
                                02028099
PWHX{I}=(PSWH{I}*DIS4*(NORMAL/NORMAL4)); 02029099
PWHX{I}=PWHX{I}+(PNWH{I}*DIS5*(NORMAL/NORMAL3)); 02029199
PWHX{I}=PWHX{I}/(DIS5+DIS4); 02029299
                                02029399
APWTX{I}=(ASPT{I}*DIS4*(NORMAL/NORMAL4)); 02029499
APWTX{I}=APWTX{I}+(ANPT{I}*DIS5*(NORMAL/NORMAL3)); 02029599
APWTX{I}=APWTX{I}/(DIS5+DIS4); 02029699
                                02029799
PPWTX{I}=(PSPT{I}*DIS4*(NORMAL/NORMAL4)); 02029899
PPWTX{I}=PPWTX{I}+(PNPT{I}*DIS5*(NORMAL/NORMAL3)); 02029999
PPWTX{I}=PPWTX{I}/(DIS5+DIS4); 02030099
                                02030199
END; 02030299
                                02030399
* SHREVEPORT AND LAKE CHARLES BEING THE TWO NEAREST; 02030499
                                02030599
    IF (NEAREST=5078 AND SNEAREST=8440) 02030699
        OR (NEAREST=8440 AND SNEAREST=5078) THEN DO; 02030799
AWHX{I}=(ALWH{I}*DIS5*(NORMAL/NORMAL2)); 02030899
AWHX{I}=AWHX{I}+(ASWH{I}*DIS3*(NORMAL/NORMAL4)); 02030999
AWHX{I}=AWHX{I}/(DIS5+DIS3); 02031099
                                02031199
PWHX{I}=(PLWH{I}*DIS5*(NORMAL/NORMAL2)); 02031299
PWHX{I}=PWHX{I}+(PSWH{I}*DIS3*(NORMAL/NORMAL4)); 02031399
PWHX{I}=PWHX{I}/(DIS5+DIS3); 02031499
                                02031599
APWTX{I}=(ALPT{I}*DIS5*(NORMAL/NORMAL2)); 02031699
APWTX{I}=APWTX{I}+(ASPT{I}*DIS3*(NORMAL/NORMAL4)); 02031799
APWTX{I}=APWTX{I}/(DIS5+DIS3); 02031899
                                02031999
PPWTX{I}=(PLPT{I}*DIS5*(NORMAL/NORMAL2)); 02032099
PPWTX{I}=PPWTX{I}+(PSPT{I}*DIS3*(NORMAL/NORMAL4)); 02032199
PPWTX{I}=PPWTX{I}/(DIS5+DIS3); 02032299
                                02032399
END; 02032499
                                02032599
*BATON ROUGE NEW ORLEANS BEING TWO NEAREST; 02033099
    IF (NEAREST=549 AND SNEAREST=6660) 02040099
        OR (NEAREST=6660 AND SNEAREST=549) THEN DO; 02050099
AWHX{I}=(ABWH{I}*DIS4*(NORMAL/NORMAL1)); 02060099
AWHX{I}=AWHX{I}+(ANWH{I}*DIS2*(NORMAL/NORMAL3)); 02070099
AWHX{I}=AWHX{I}/(DIS4+DIS2); 02080099
                                02090099
PWHX{I}=(PBWH{I}*DIS4*(NORMAL/NORMAL1)); 02100099
PWHX{I}=PWHX{I}+(PNWH{I}*DIS2*(NORMAL/NORMAL3)); 02110099
PWHX{I}=PWHX{I}/(DIS4+DIS2); 02120099
                                02130099
APWTX{I}=(ABPT{I}*DIS4*(NORMAL/NORMAL1)); 02140099
APWTX{I}=APWTX{I}+(ANPT{I}*DIS2*(NORMAL/NORMAL3)); 02150099
APWTX{I}=APWTX{I}/(DIS4+DIS2); 02160099
                                02170099
PPWTX{I}=(PBPT{I}*DIS4*(NORMAL/NORMAL1)); 02180099
PPWTX{I}=PPWTX{I}+(PNPT{I}*DIS2*(NORMAL/NORMAL3)); 02190099
PPWTX{I}=PPWTX{I}/(DIS4+DIS2); 02200099
                                02210099
END; 02220099
                                02230099
* NEW ORLEANS AND LAKE CHARLES BEING THE TWO NEAREST; 02240099
                                02250099
    IF (NEAREST=5078 AND SNEAREST=6660) 02260099
        OR (NEAREST=6660 AND SNEAREST=5078) THEN DO; 02270099
AWHX{I}=(ALWH{I}*DIS5*(NORMAL/NORMAL2)); 02280099

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DATA ONE;	02930099
LENGTH COUNTY 4;	02940099
SET NINE;	02950099
COUNTY=-1;	02960099
IF INDEX=4842.2 OR INDEX=1707.2 THEN DELETE;	02970099
	02980099
	02990099
DATA MAP;	03000099
SET MAPS.COUNTIES;	03010099
IF STATE=22;	03020099
	03030099
DATA MAP1;	03040099
SET MAP ONE;	03050099
	03060099
PROC GPROJECT DATA=MAP1	03070099
OUT=PROJCOM	03080099
PROJECT=ALBERS	03090099
PARALEL1=29.5	03100099
PARALEL2=45.5;	03110099
ID COUNTY;	03120099
	03130099
DATA PROJLOU PROJSTA ;	03140099
SET PROJCOM;	03150099
IF COUNTY = -1 THEN OUTPUT PROJSTA;	03160099
ELSE OUTPUT PROJLOU;	03170099
	03180099
PROC G3GRID DATA=PROJSTA OUT=GRIDONE OUTTRI=TRIONE;	03190099
GRID X*Y=YR1/ AXIS1=-0.039 TO 0.04 BY 0.05	03200099
AXIS2=-0.18 TO -0.075 BY 0.05;	03210099
	03220099
PROC MEANS NOPRINT DATA=TRIONE;	03230099
OUTPUT OUT=OUTA N=N;	03240099
BY TRIANGLE;	03250099
	03260099
DATA TRITWO;	03270099
MERGE TRIONE OUTA;	03280099
BY TRIANGLE;	03290099
IF N ^= 3 THEN DELETE;	03300099
X=ROUND(X,0.000001);	03310099
Y=ROUND(Y,0.000001);	03320099
	03330099
	03340099
DATA PROJST;	03350099
SET PROJSTA;	03360099
X=ROUND(X,0.000001);	03370099
Y=ROUND(Y,0.000001);	03380099
DROP COUNTY SEGMENT STATE DENSITY;	03390099
	03400099
PROC SORT ; BY X Y;	03410099
	03420099
	03430099
PROC TRANSPOSE DATA=TRITWO PREFIX=X OUT=OUTB1;	03440099
VAR X;	03450099
BY TRIANGLE;	03460099
	03470099
	03472099
	03480099
PROC TRANSPOSE DATA=TRITWO PREFIX=Y OUT=OUTB2;	03490099
VAR Y;	03500099
BY TRIANGLE;	03510099
	03520099
DATA COMB2;	03530099
SET OUTB1;	03540099
SET OUTB2;	03550099
BY TRIANGLE;	

DROP _NAME_ _LABEL_;	03560099
	03570099
PROC SORT; BY X1 Y1;	03590099
	03600099
	03610099
	03620099
DATA COMB3;	03630099
SET PROJST;	03640099
X1=X; Y1=Y;	03650099
ARRAY AWHX{50} AWHX1-AWHX50;	03660099
ARRAY AW1X{50} AW1X1-AW1X50;	03670099
ARRAY PWHX{50} PWHX1-PWHX50;	03680099
ARRAY PW1X{50} PW1X1-PW1X50;	03690099
ARRAY APWTX{50} APWTX1-APWTX50;	03700099
ARRAY APW1X{50} APW1X1-APW1X50;	03710099
ARRAY PPWTX{50} PPWTX1-PPWTX50;	03720099
ARRAY PPW1X{50} PPW1X1-PPW1X50;	03730099
ARRAY YR{50} YR1-YR50;	03740099
	03750099
DO I=1 TO 50;	03760099
AW1X{I}=AWHX{I};	03770099
PW1X{I}=PWHX{I};	03780099
APW1X{I}=APWTX{I};	03790099
PPW1X{I}=PPWTX{I};	03800099
END;	03810099
	03820099
DROP X Y AWHX1-AWHX50 PWHX1-PWHX50 APWTX1-APWTX50 PPWTX1-PPWTX50;	03830099
	03840099
PROC SORT; BY X1 Y1;	03850099
	03860099
DATA COMB4; MERGE COMB2 COMB3; BY X1 Y1;	03870099
if x2=. and y2=. and x3=. and y3=. then delete;	03871099
	03880099
PROC SORT DATA=COMB4; BY X2 Y2;	03890099
	03893099
	03900099
DATA COMB5; SET PROJST; X2=X; Y2=Y;	03910099
ARRAY AWHX{50} AWHX1-AWHX50;	03920099
ARRAY AW2X{50} AW2X1-AW2X50;	03930099
ARRAY PWHX{50} PWHX1-PWHX50;	03940099
ARRAY PW2X{50} PW2X1-PW2X50;	03950099
ARRAY APWTX{50} APWTX1-APWTX50;	03960099
ARRAY APW2X{50} APW2X1-APW2X50;	03970099
ARRAY PPWTX{50} PPWTX1-PPWTX50;	03980099
ARRAY PPW2X{50} PPW2X1-PPW2X50;	03990099
ARRAY YR{50} YR1-YR50;	04000099
	04010099
DO I=1 TO 50;	04020099
AW2X{I}=AWHX{I};	04030099
PW2X{I}=PWHX{I};	04040099
APW2X{I}=APWTX{I};	04050099
PPW2X{I}=PPWTX{I};	04060099
END;	04070099
	04080099
DROP X Y AWHX1-AWHX50 PWHX1-PWHX50 APWTX1-APWTX50 PPWTX1-PPWTX50	04090099
YR1-YR50;	04100099
PROC SORT; BY X2 Y2;	04110099
	04120099
DATA COMB6; MERGE COMB4 COMB5; BY X2 Y2;	04130099
if x3=. and y3=. and x1=. and y1=. then delete;	04131099
	04132099
PROC SORT; BY X3 Y3;	04140099
	04141099
	04150099

```

DATA COMB7; SET PROJST; X3=X; Y3=Y;
ARRAY AWHX{50} AWHX1-AWHX50;
ARRAY AW3X{50} AW3X1-AW3X50;
ARRAY PWHX{50} PWHX1-PWHX50;
ARRAY PW3X{50} PW3X1-PW3X50;
ARRAY APWTX{50} APWTX1-APWTX50;
ARRAY APW3X{50} APW3X1-APW3X50;
ARRAY PPWTX{50} PPWTX1-PPWTX50;
ARRAY PPW3X{50} PPW3X1-PPW3X50;
ARRAY YR{50} YR1-YR50;

DO I=1 TO 50;
AW3X{I}=AWHX{I};
PW3X{I}=PWHX{I};
APW3X{I}=APWTX{I};
PPW3X{I}=PPWTX{I};
END;

DROP X Y AWHX1-AWHX50 PWHX1-PWHX50 APWTX1-APWTX50 PPWTX1-PPWTX50
YR1-YR50;
PROC SORT; BY X3 Y3;

DATA COMB8; MERGE COMB6 COMB7; BY X3 Y3;
if x2=. and y2=. and x1=. and y1=. then delete;

ARRAY AW1X{50} AW1X1-AW1X50;
ARRAY AW2X{50} AW2X1-AW2X50;
ARRAY AW3X{50} AW3X1-AW3X50;
ARRAY PW1X{50} PW1X1-PW1X50;
ARRAY PW2X{50} PW2X1-PW2X50;
ARRAY PW3X{50} PW3X1-PW3X50;
ARRAY APW1X{50} APW1X1-APW1X50;
ARRAY APW2X{50} APW2X1-APW2X50;
ARRAY APW3X{50} APW3X1-APW3X50;
ARRAY PPW1X{50} PPW1X1-PPW1X50;
ARRAY PPW2X{50} PPW2X1-PPW2X50;
ARRAY PPW3X{50} PPW3X1-PPW3X50;
ARRAY YR{50} YR1-YR50;
ARRAY AAW1X{50} AAW1X1-AAW1X50;
ARRAY AAW2X{50} AAW2X1-AAW2X50;
ARRAY AAW3X{50} AAW3X1-AAW3X50;
ARRAY APAW1X{50} APAW1X1-APAW1X50;
ARRAY APAW2X{50} APAW2X1-APAW2X50;
ARRAY APAW3X{50} APAW3X1-APAW3X50;
ARRAY AAPW1X{50} AAPW1X1-AAPW1X50;
ARRAY AAPW2X{50} AAPW2X1-AAPW2X50;
ARRAY AAPW3X{50} AAPW3X1-AAPW3X50;
ARRAY APPW1X{50} APPW1X1-APPW1X50;
ARRAY APPW2X{50} APPW2X1-APPW2X50;
ARRAY APPW3X{50} APPW3X1-APPW3X50;
ARRAY AWHMN{50} AWHMN1-AWHMN50;
ARRAY PWHMN{50} PWHMN1-PWHMN50;
ARRAY APWMN{50} APWMN1-APWMN50;
ARRAY PPWMN{50} PPWMN1-PPWMN50;

B1=X2*Y3-X3*Y2; B2=X3*Y1-X1*Y3; B3=X1*Y2-X2*Y1;
C1=Y2-Y3; C2=Y3-Y1; C3=Y1-Y2;
D1=X3-X2; D2=X1-X3; D3=X2-X1;

AREA= (B1+B2+B3)/2;

DO I=1 TO 50;

```

```

04170099
04180099
04190099
04200099
04210099
04220099
04230099
04240099
04250099
04260099
04270099
04280099
04290099
04300099
04310099
04320099
04330099
04340099
04350099
04360099
04370099
04380099
04390099
04391099
04392099
04412099
04420099
04430099
04440099
04450099
04460099
04470099
04480099
04490099
04500099
04510099
04520099
04530099
04540099
04550099
04560099
04570099
04580099
04590099
04600099
04610099
04620099
04630099
04640099
04650099
04660099
04670099
04680099
04690099
04700099
04710099
04720099
04730099
04740099
04750099
04760099
04770099
04780099
04790099

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AAW1X{I}=(B1*AW1X{I}+B2*AW2X{I}+B3*AW3X{I})/(2*AREA); 04800099
AAW2X{I}=(C1*AW1X{I}+C2*AW2X{I}+C3*AW3X{I})/(2*AREA); 04810099
AAW3X{I}=(D1*AW1X{I}+D2*AW2X{I}+D3*AW3X{I})/(2*AREA); 04820099
04830099
AWHMN{I}=AAW1X{I}+(AAW2X{I}*(X1+X2+X3)/3)+(AAW3X{I}*(Y1+Y2+Y3)/3); 04840099
04850099
04860099
APAW1X{I}=(B1*PW1X{I}+B2*PW2X{I}+B3*PW3X{I})/(2*AREA); 04870099
APAW2X{I}=(C1*PW1X{I}+C2*PW2X{I}+C3*PW3X{I})/(2*AREA); 04880099
APAW3X{I}=(D1*PW1X{I}+D2*PW2X{I}+D3*PW3X{I})/(2*AREA); 04890099
04900099
PWHMN{I}=APAW1X{I}+(APAW2X{I}*(X1+X2+X3)/3)+(APAW3X{I}*(Y1+Y2+Y3)/3); 04910099
04920099
AAPW1X{I}=(B1*APW1X{I}+B2*APW2X{I}+B3*APW3X{I})/(2*AREA); 04930099
AAPW2X{I}=(C1*APW1X{I}+C2*APW2X{I}+C3*APW3X{I})/(2*AREA); 04940099
AAPW3X{I}=(D1*APW1X{I}+D2*APW2X{I}+D3*APW3X{I})/(2*AREA); 04950099
04960099
APWMN{I}=AAPW1X{I}+(AAPW2X{I}*(X1+X2+X3)/3)+(AAPW3X{I}*(Y1+Y2+Y3)/3); 04970099
04980099
04990099
APPW1X{I}=(B1*PPW1X{I}+B2*PPW2X{I}+B3*PPW3X{I})/(2*AREA); 05000099
APPW2X{I}=(C1*PPW1X{I}+C2*PPW2X{I}+C3*PPW3X{I})/(2*AREA); 05010099
APPW3X{I}=(D1*PPW1X{I}+D2*PPW2X{I}+D3*PPW3X{I})/(2*AREA); 05020099
05030099
PPWMN{I}=APPW1X{I}+(APPW2X{I}*(X1+X2+X3)/3)+(APPW3X{I}*(Y1+Y2+Y3)/3); 05040099
05050099
END; 05060099
IF AWHMN1=. THEN DELETE; 05070099
05080099
KEEP TRIANGLE APWMN1-APWMN50 05090099
PPWMN1-PPWMN50; 05100099
05110099
PROC SORT; BY TRIANGLE; 05120099
05130099
05140099
DATA EMPBAYES; 05150099
SET COMB8; 05160099
BY TRIANGLE; 05170099
G=_N_; 05180099
IF G <= 3 THEN G=G; 05190099
ELSE DO; 05200099
G=MOD(G,3); 05210099
IF G=0 THEN G=3; 05220099
END; 05230099
05240099
PROC SORT; BY G; 05250099
05260099
05270099
DATA EMPBAYI; 05280099
SET EMPBAYES; BY G; 05290099
ARRAY APWMN{50} APWMN1-APWMN50; 05300099
ARRAY PPWMN{50} PPWMN1-PPWMN50; 05310099
P=0; K=0; SUMA=0; SUMP=0; 05320099
DO I=1 TO 50; 05330099
IF APWMN{I}~=. THEN DO; 05340099
SUMA=SUMA+APWMN{I}; 05350099
K=K+1; 05360099
END; 05370099
IF PPWMN{I}~=. THEN DO; 05380099
SUMP=SUMP+PPWMN{I}; 05390099
P=P+1; 05400099
END; 05410099
END; 05420099
05430099
XIABAR=SUMA/K; XIPBAR=SUMP/P;

```

```

PROC SORT; BY G;
PROC MEANS NOPRINT MEAN N;
VAR APWMN1-APWMN50 PPWMN1-PPWMN50;
BY G;
OUTPUT OUT=NAT MEAN=AMN1-AMN50 PMN1-PMN50 N=AN1-AN50 PN1-PN50;

PROC SORT DATA=NAT; BY G;

DATA EMPBAYII; MERGE EMPBAYI NAT; BY G;

ARRAY APWMN{50} APWMN1-APWMN50;
ARRAY PPWMN{50} PPWMN1-PPWMN50;
ARRAY AMN{50} AMN1-AMN50;
ARRAY PMN{50} PMN1-PMN50;
ARRAY AN{50} AN1-AN50;
ARRAY PN{50} PN1-PN50;
SUMSQA=0;
SUMSQP=0;

DO I= 1 TO 50;
  IF APWMN{I}~= . THEN DO;
    SUMSQA=SUMSQA+(APWMN{I}-(AMN{I}/AN{I}))**2;
  END;
  IF PPWMN{I}~= . THEN DO;
    SUMSQP=SUMSQP+(PPWMN{I}-(PMN{I}/PN{I}))**2;
  END;
END;

PROC SORT; BY G;

PROC MEANS SUM N;
VAR SUMSQA SUMSQP;
BY G;
OUTPUT OUT=VARIANCE SUM= SUMSQNA SUMSQNP N=NA NP;

PROC SORT DATA=VARIANCE; BY G;

DATA EMBYIII;
MERGE VARIANCE EMPBAYII;
BY G;

ARRAY APWMN{50} APWMN1-APWMN50;
ARRAY PPWMN{50} PPWMN1-PPWMN50;
ARRAY MUEBA{50} MUEBA1-MUEBA50;
ARRAY VREBA{50} VREBA1-VREBA50;
ARRAY MUEBP{50} MUEBP1-MUEBP50;
ARRAY VREBP{50} VREBP1-VREBP50;
SGSFHA=SUMSQNA/(NA*(NA-1)*K);
SGSFHP=SUMSQNP/(NP*(NP-1)*P);

MUPIAH=XIABAR; MUPIPH=XIPBAR;
SSQA=SUMSQA; SSQP=SUMSQP;

SGSPIHA=(SSQA/(K-1))-SGSFHA;
IF SGSPIHA < 0 THEN SGSPIHA=0;

SGSPIHP=(SSQP/(P-1))-SGSFHP;
IF SGSPIHP < 0 THEN SGSPIHP=0;

BHATA=((K-3)/(K-1))*SGSFHA/(SGSFHA+SGSPIHA);
BHPATA=((P-3)/(P-1))*SGSFHP/(SGSFHP+SGSPIHP);

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05440099
05450099
05460099
05470099
05480099
05490099
05500099
05510099
05520099
05530099
05540099
05550099
05560099
05570099
05580099
05590099
05600099
05610099
05620099
05630099
05640099
05650099
05660099
05670099
05680099
05690099
05700099
05710099
05720099
05730099
05740099
05750099
05760099
05770099
05780099
05790099
05800099
05810099
05820099
05830099
05840099
05850099
05860099
05870099
05880099
05890099
05900099
05910099
05920099
05930099
05940099
05950099
05960099
05970099
05980099
05990099
06000099
06010099
06020099
06030099
06040099
06050099
06060099

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DO I= 1 TO 50;                                06080099
  IF APWMN{I} ^=. THEN DO;                    06090099
    FACT=APWMN{I}-MUPIAH;                      06100099
    MUEBA{I}=APWMN{I}-BHATA*FACT;             06110099
    VREBA{I}=SGSFHA*(1-((K-1)/K)*BHATA) + (2/(K-3))*BHATA**2*FACT**2; 06120099
    END;                                       06130099
                                           06140099
    IF PPWMN{I} ^=. THEN DO;                  06150099
      FACTP= PPWMN{I}-MUPIPH;                 06160099
      MUEBP{I}=PPWMN{I}-BHATP*FACTP;          06170099
      VREBP{I}=SGSFHP*(1-((P-1)/P)*BHATP) + (2/(P-3))*BHATP**2*FACTP**2; 06180099
      END;                                       06190099
    END;                                       06200099
                                           06210099
DO I=2 TO 50;                                06220099
* GET OUT THE LATEST YEARS EMPIRICAL BAYES ESTIMATE; 06230099
                                           06240099
IF APWMN{I}=. AND APWMN{I-1} ^=. THEN DO;    06250099
VREBAL=VREBA{I-1}; APWMNL=APWMN{I-1};        06260099
MUEBAL=MUEBA{I-1};                            06270099
END;                                           06280099
                                           06290099
IF PPWMN{I}=. AND PPWMN{I-1} ^=. THEN DO;    06300099
VREBPL=VREBP{I-1}; PPWMNL=PPWMN{I-1};        06310099
MUEBPL=MUEBP{I-1};                            06320099
END;                                           06330099
END;                                           06340099
                                           06350099
*PROBABILITY THAT A TRIANGLE HAS EXPERIENCED LESS NUMBER OF WET HOURS 06360099
  THAN THE REGIONAL NUMBER OF WET HOURS;      06370099
                                           06380099
* P{THETHAI <= OBSERVED AVERAGE | Y};        06390099
* TRANSFORM FIRST INTO 0,1 NORMAL;            06400099
KEEP TRIANGLE G MUPIAH APWMNL PPWMNL MUEBAL VREBAL MUEBPL VREBPL 06410099
  MUPIPH;                                     06420099
                                           06430099
PROC MEANS NOPRINT MEAN;                       06440099
VAR APWMNL PPWMNL;                             06450099
BY G;                                           06460099
OUTPUT OUT=STATSII MEAN= APWRMN PFWRMN;       06470099
                                           06480099
PROC SORT DATA=STATSII; BY G;                 06490099
                                           06500099
DATA EMBYIV;                                   06510099
MERGE EMBYIII STATSII; BY G;                  06520099
                                           06530099
ZA=(APWRMN-MUEBAL)/SQRT(VREBAL);              06540099
ZP=(PPWRMN-MUEBPL)/SQRT(VREBPL);             06550099
                                           06560099
WTA=PROBNORM(ZA);                             06570099
WTP=PROBNORM(ZP);                             06580099
                                           06590099
LABEL MUEBAL=EMP. BAYES EST. OF MEAN          06600099
      VREBAL=EMO. BAYES EST. OF VAR.          06610099
      APWMNL=LATEST YEAR PROPORTION WET TIME 06620099
      WTA=PROB. OF BEING LESS THAN REGIONALMEAN; 06630099
LABEL MUEBPL=EMP. BAYES EST. OF MEAN          06640099
      VREBPL=EMO. BAYES EST. OF VAR.          06650099
      PPWMNL=LATEST YEAR PROPORTION WET TIME 06660099
      WTP=PROB. OF BEING LESS THAN REGIONALMEAN; 06670099
                                           06680099
KEEP MUEBPL MUEBAL VREBPL VREBAL TRIANGLE PPWMNL APWMNL WTA WTP 06690099
;                                               06700099
                                           06710099

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PROC SORT; BY TRIANGLE;	06720099
	06730099
PROC PRINT;	06740099
	06750099
DATA CSEC;	06760099
INFILE CSC;	06770099
INPUT CONTROL SECTION TRIANGLE;	06780099
	06790099
PROC SORT; BY TRIANGLE;	06800099
	06810099
DATA TRIANGLE;	06820099
MERGE CSEC EMBYIV; BY TRIANGLE;	06830099
IF APWMNL=. THEN DELETE;	06840099
	06850099
PROC PRINT;	06860099
	06870099
DATA _NULL_;	06880099
SET TRIANGLE;	06890099
FILE OUT NOPRINT NOTITLE;	06900099
PUT CONTROL SECTION TRIANGLE MUEBAL MUEBPL VREBAL VREBPL PPWMNL APWMNL	06910099
WTA WTP;	06920099
*/	06921099
//	06930099

```

//LTRC JOB (1318,05886,10,9999),'SRIKANTH',NOTIFY=IEKLEE,          00010099
//          MSGCLASS=S,CLASS=H                                     00020099
/*JOBPARM SHIFT=H                                               00030099
//STEP1 EXEC SAS606,TIME=10                                       00040099
//ACCI DD DSN=IEKLEE.ACC.MASTER88,DISP=SHR                       00050099
//INP  DD DSN=IEKLEE.SRIKANTH.OUT,DISP=SHR                       00240099
//OUT  DD DSN=IEKLEE.NEW2.SASDATA,DISP=OLD
//SYSIN DD *                                                     00250099
                                                                    00260099

* TO RUN FOR 1989 AND 1990 CHANGE THE ACCI LINE IN THE JCL
  STATEMENT TO ACC.MASTER89 AND ACC.MASTER90 RESPECTIVELY;

*****;
* THIS PROGRAM FLAGS CLUSTERS BY THE WET ACCIDENT *;          00270099
* CRITERIONS DEVELOPED FOR ACCIDENT DATA IN LOUISIANA *;    00280099
* BY THE RATE QUALITY CONTROL METHOD C2 AND THE SECOND *;    00290099
* BAYESIAN CRITERIONS ON THE BASIS OF SIMULATIONS RUN BEFORE *; 00290099
*****;
                                                                    00300099
                                                                    00310099
*READS ALL INPUT DATA FROM MASTER ACCIDENT FILE;              00320099
*OPTIONS TIME=MAX TLS=80 PS=60 LS=80;                          00330099
OPTIONS NOCAPS;                                                 00340099
GOPTIONS NOTEXT82;                                             00350099
GOPTIONS DEVICE=GDDMFAM4 GDDMNICKNAME=IBM3820 GDDMTOKEN=IMG240; 00360099
                                                                    00370099
DATA MASACC;                                                    00380099
  INFILE ACCI RECFM=FB LRECL=225 BLKSIZE=11250;                00390099
  INPUT
    YEAR 13                                                       00400099
    PARISH 17-18                                                  00410099
    MP 25-28 1                                                    00420099
    HNUM $ 29-33                                                  00430099
    HTYPE 34                                                       00440099
    SURCON $ 55                                                    00450099
    RDCON $ 58                                                      00460099
    WEATH $ 60                                                       00470099
    INT 78                                                           00480099
    HCLASS 87                                                       00490099
    CONTROL 101-103                                                00500099
    SECTION 104-105                                                00510099
    CLOCA 106-109 2                                                00520099
    BCLM 115-118 2                                                  00530099
    ECLM 119-122 2                                                  00540099
    PAVTYP 123-124                                                 00550099
    PAVWID 125-126                                                 00560099
    ADT 134-139 ;                                                 00570099
                                                                    00580099
*ELIMINATES UNWANTED DATA;                                     00590099
                                                                    00600099
IF BCLM<0 OR ECLM<0 THEN DELETE;                                00610099
IF BCLM=0 AND ECLM=0 THEN DELETE;                                00620099
IF BCLM >= ECLM THEN LENGTH=(BCLM-ECLM);                        00630099
ELSE LENGTH=(ECLM-BCLM);                                         00640099
IF BCLM>=ECLM THEN DO;                                          00650099
  TEMP=BCLM;                                                      00660099
  BCLM=ECLM;                                                       00670099
  ECLM=TEMP;                                                       00680099
  DROP TEMP;                                                       00690099
END;                                                                00700099
IF ADT<=0 THEN DELETE;                                          00710099

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IF MP < 0 THEN DELETE;
IF INT ^=0 AND INT ^=1 THEN DELETE;
IF CONTROL<0 OR SECTION <0 THEN DELETE;

*CLASSIFIES INTERSECTIONS;
IF INT=1 THEN LTYPE='INTERSECTION';

*CLASSIFIES SECTIONS;
ELSE IF INT=0 THEN LTYPE='SECTION';

IF LTYPE='INTERSECTION' THEN LENGTH=1;
IF LTYPE='INTERSECTION' THEN DELETE;

*ELIMINATES LOCAL AND ARTERIAL ROADS;
IF HTYPE ^=1 AND HTYPE ^=2 AND HTYPE ^=3 THEN DELETE;

    LABEL SECTION= SECTION NUMBER
          BCLM=BEGINNING OF SECTION (LOG MILE)
          ECLM=END OF SECTION (LOG MILE)
          HNUM=HIGHWAY NUMBER
          MP=MILEPOST
          LTYPE=LOCATION TYPE
          SURCON=SURFACE CONDITION
          HCLASS=HIGHWAY CLASS;

OUTPUT;

*SORTS THE ACCIDENT DATA AS GIVEN IN BY STATEMENT;

PROC SORT ;
BY LTYPE HCLASS CONTROL SECTION BCLM ;
/*
PROC FORMAT;
VALUE $SURCON
(MAX=100 MIN=0)
'A'='DRY CONDITION'
'B'='RAINY CONDITION'
'C'='MUDDY CONDITION'
'D'='SNOWY/ICY CONDITION'
'E'='OTHER CONDITIONS'
OTHER='MISSING VALUES' ;

PROC FORMAT;
VALUE HCL
(MAX=100 MIN=0)
1='RURL 2 LANE'
2='RURL OTHER'
3='RURL MULT LN DIV'
4='RURL INTERSTATE'
5='URBN 2 LANE'
6='URBN OTHER'
7='URBN MULT LN DIV'
8='URBN INTERSTATE'
OTHER='MISSING VALUES';
*/

DATA MASACC1;
SET MASACC;
*CHECKS FOR WET CRITERION;
IF SURCON='A' THEN DELETE;

* CHECKS FOR MISSING AND UNKNOWN SURFACE CONDITIONS;

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00720099
00730099
00740099
00750099
00760099
00770099
00780099
00790099
00800099
00810099
00820099
00830099
00840099
00850099
00860099
00870099
00880099
00890099
00900099
00910099
00920099
00930099
00940099
00950099
00960099
00970099
00980099
00990099
01000099
01010099
01020099
01030099
01040099
01050099
01060099
01070099
01080099
01090099
01100099
01110099
01120099
01130099
01140099
01150099
01160099
01170099
01180099
01190099
01200099
01210099
01220099
01230099
01240099
01250099
01260099
01270099
01280099

```

```

01330099
01340099
01350099
01360099

```

```
IF SURCON='E' OR SURCON= ' ' THEN DO;
  IF RDCON='J' AND RDCON != 'K' THEN DELETE;
  IF WEATH='A' OR WEATH='F' OR WEATH='G' THEN DELETE;
END;
```

01370099
01380099
01390099
01400099

```
IF PARISH=01 THEN DISTRICT=03;
IF PARISH=02 THEN DISTRICT=07;
IF PARISH=03 THEN DISTRICT=61;
IF PARISH=04 THEN DISTRICT=61;
IF PARISH=05 THEN DISTRICT=08;
IF PARISH=06 THEN DISTRICT=07;
IF PARISH=07 THEN DISTRICT=04;
IF PARISH=08 THEN DISTRICT=04;
IF PARISH=09 THEN DISTRICT=04;
IF PARISH=10 THEN DISTRICT=07;
IF PARISH=11 THEN DISTRICT=58;
IF PARISH=12 THEN DISTRICT=07;
IF PARISH=13 THEN DISTRICT=58;
IF PARISH=14 THEN DISTRICT=04;
IF PARISH=15 THEN DISTRICT=58;
IF PARISH=16 THEN DISTRICT=04;
IF PARISH=17 THEN DISTRICT=61;
IF PARISH=18 THEN DISTRICT=05;
IF PARISH=19 THEN DISTRICT=61;
IF PARISH=20 THEN DISTRICT=07;
IF PARISH=21 THEN DISTRICT=58;
IF PARISH=22 THEN DISTRICT=08;
IF PARISH=23 THEN DISTRICT=03;
IF PARISH=24 THEN DISTRICT=61;
IF PARISH=25 THEN DISTRICT=05;
IF PARISH=26 THEN DISTRICT=02;
IF PARISH=27 THEN DISTRICT=07;
IF PARISH=28 THEN DISTRICT=03;
IF PARISH=29 THEN DISTRICT=03;
IF PARISH=30 THEN DISTRICT=58;
IF PARISH=31 THEN DISTRICT=05;
IF PARISH=32 THEN DISTRICT=62;
IF PARISH=33 THEN DISTRICT=05;
IF PARISH=34 THEN DISTRICT=05;
IF PARISH=35 THEN DISTRICT=08;
IF PARISH=36 THEN DISTRICT=02;
IF PARISH=37 THEN DISTRICT=05;
IF PARISH=38 THEN DISTRICT=02;
IF PARISH=39 THEN DISTRICT=61;
IF PARISH=40 THEN DISTRICT=08;
IF PARISH=41 THEN DISTRICT=04;
IF PARISH=42 THEN DISTRICT=05;
IF PARISH=43 THEN DISTRICT=08;
IF PARISH=44 THEN DISTRICT=02;
IF PARISH=45 THEN DISTRICT=02;
IF PARISH=46 THEN DISTRICT=62;
IF PARISH=47 THEN DISTRICT=61;
IF PARISH=48 THEN DISTRICT=02;
IF PARISH=49 THEN DISTRICT=03;
IF PARISH=50 THEN DISTRICT=03;
IF PARISH=51 THEN DISTRICT=03;
IF PARISH=52 THEN DISTRICT=62;
IF PARISH=53 THEN DISTRICT=62;
IF PARISH=54 THEN DISTRICT=58;
IF PARISH=55 THEN DISTRICT=02;
IF PARISH=56 THEN DISTRICT=05;
IF PARISH=57 THEN DISTRICT=03;
IF PARISH=58 THEN DISTRICT=08;
```

```

IF PARISH=59 THEN DISTRICT=62;
IF PARISH=60 THEN DISTRICT=04;
IF PARISH=61 THEN DISTRICT=61;
IF PARISH=62 THEN DISTRICT=05;
IF PARISH=63 THEN DISTRICT=61;
IF PARISH=64 THEN DISTRICT=08;

```

```

PROC SORT;
BY HCLASS HNUM;

```

```

PROC FASTCLUS OUT=TR2 MEAN=TR3 CLUSTER=MEMBER MAXC=250 RADIUS=0.5
REPLACE=PART MAXITER=10 CONV=0.001 DRIFT NOPRINT IMPUTE;
VAR CLOCA;
BY HCLASS HNUM;

```

```

PROC SORT DATA=TR2;
BY HCLASS HNUM MEMBER;

```

```

PROC MEANS DATA=TR2 NOPRINT MIN MAX;
VAR CLOCA;
BY HCLASS HNUM MEMBER ;
OUTPUT OUT=CLMEAN MIN=BCLUS MAX=ECLUS;

```

```

PROC SORT DATA=CLMEAN;
BY HCLASS HNUM MEMBER;

```

```

DATA CHANGE;
SET TR3;
AVCLOCA=CLOCA;
DROP CLOCA;

```

```

PROC SORT DATA=CHANGE;
BY HCLASS HNUM MEMBER ;

```

```

DATA OTR3;
MERGE TR2 CHANGE;
BY HCLASS HNUM MEMBER ;

```

```

DATA NEWTR3;
MERGE CLMEAN OTR3;
BY HCLASS HNUM MEMBER;
LTYPE='4';

```

```

IF FIRST.MEMBER THEN TOT_ACC=0;
TOT_ACC+1;

```

```

IF LAST.MEMBER THEN DO;
LENGTH=1;
OUTPUT;
END;

```

```

PROC SORT; BY CONTROL SECTION;

```

```

DATA TRI;
INFILE INP;
INPUT CONTROL SECTION TRIANGLE MUEBAL MUEBPL VREBAL VREBPL PPWMNL
APWMNL WTA WTP;

```

```

PROC SORT; BY CONTROL SECTION;

```

```

DATA RAT; MERGE NEWTR3 TRI; BY CONTROL SECTION;
IF MUEBAL=. THEN DELETE;
IF YEAR=. AND ADT=. THEN DELETE;

```

```

01440099
01450099
01460099
01470099
01480099
01490099
01500099
01510099
01520099
01530099
01540099

```

```

IF PAVTYP=50
OR PAVTYP=60 THEN DO;
MU=MUEBAL; VR=VREBAL; WMN=APWMNL; PR=WTA;
END;

ELSE DO;
MU=MUEBPL; VR=VREBPL; WMN=PPWMNL; PR=WTP;
END;

DROP TRIANGLE MUEBAL MUEBPL VREBAL VREBPL WTA WTP APWMNL PPWMNL;

PROC SORT; BY LTYPE HCLASS CONTROL SECTION;

DATA RATE; SET RAT;
BY LTYPE HCLASS CONTROL SECTION;

*CALCULATES THE ACCIDENTS PER MILLION VEHICLE MILES;

*EXPOSURE IS DEPENDENT ON PROPORTION WET TIME AND LENGTH;
ADT=ADT*LENGTH*WMN;
MVM=365*ADT/1000000;
ACC_MVM=TOT_ACC/MVM;
ACC_MIL=TOT_ACC/LENGTH;
VOL=ADT*365;
SQRVOL=VOL**2;
TRU_RAT=TOT_ACC/(MU*LENGTH*ADT*365);
NIBYVI=TOT_ACC/VOL;
NIBYSQVI=TOT_ACC/SQRVOL;
ONEBYVOL=1/VOL;

LABEL TOT_ACC=ACCIDENTS PER INTERSECTION
ACC_MIL=ACCIDENTS PER MILE
ACC_MVM=ACCIDENTS PER MILLION VEHICLE MILES;

OUTPUT;

PROC MEANS NOPRINT SUM MEAN STD VAR RANGE N;
VAR TOT_ACC ACC_MVM ADT NIBYVI NIBYSQVI ONEBYVOL TRU_RAT;
BY LTYPE HCLASS;
*FORMAT HCLASS HCL.;
OUTPUT OUT=STATAV SUM=STATSUM MVMSUM ADTSUM NVSUM
MEAN=STATOT STAMVM STAADT STANV STASQV HARVOL MNTR
STD=STASTD MVMSTD ADTSTD NVSTD NVSSTD ONESTD TRSTD
VAR=TOTVAR MVMVAR ADTVAR NVVAR NSVVAR
RANGE=TOTRG MVMRG ADTRG NVRNG NSRNG
N=TN MN AN NVN NSN;

PROC SORT DATA=STATAV;
BY LTYPE HCLASS;

DATA COMBINE;
MERGE RATE STATAV;
BY LTYPE HCLASS;

* FLAGGING BY C2 RATE QUALITY CONTROL METHOD;

SIG_NBYV=STATSUM/(ADTSUM*365);

C2=SIG_NBYV+(1.645 *SQRT(SIG_NBYV/VOL)) + (1/(2*VOL));

*FLAGGING BY BAYESIAN CRITERION 2;

```

BETA=STANV/NVVAR;	02430099	
ALPHA=BETA*STANV;	02440099	
	02450099	
	02460099	
BETAI=BETA+VOL;	02470099	45
ALPHAI=ALPHA + TOT_ACC;	02480099	
	02490099	
ADJ_STA1= STANV*BETAI;	02500099	
ADJ_STA2= SIG_NBYV*BETAI;	02510099	
	02520099	
	02590099	
B2= 1-PROBGAM(ADJ_STA2,ALPHAI);	02600099	

KEEP DISTRICT ACC_MVM TOT_ACC CONTROL SECTION HNUM HTYPE LTYPE
 PARISH BCLM BCLUS ECLUS HCLASS ADT C2 B2;

DATA OUT.SNCLS88;
 SET COMBINE;

01680099

//

05440099

```

//LTRC JOB (1318,05886,10,9999),'SRIKANTH',NOTIFY=IEKLEE,          00010099
//          MSGCLASS=S                                           00020099
/*JOBPARM SHIFT=H                                               00030099
//STEP1 EXEC SAS,TIME=10                                         00040099
//ACCI DD DSN=IEKLEE.ACC.MASTER88,DISP=SHR                       00050099
//OUT DD DSN=IEKLEE.SRIKANTH.OUT,DISP=SHR                       00240099
//OUT2 DD DSN=IEKLEE.ALOK.OUTPUT,DISP=NEW
//SYSIN DD *                                                     00250099
                                                                    00260099
* TO RUN THE PROGRAM FOR 1989 AND 1990 CHANGE ACCI STATEMENT IN THE JCL
  TO ACC.MASTER89 AND ACC.MASTER90 RESPECTIVELY;

*****;
* THIS PROGRAM FLAGS INTERSECTIONS AND SECTIONS FOR THE BAYESIAN;
* CRITERIONS DEVELOPED FOR ACCIDENT DATA IN LOUISIANA *;
*****;
*READS ALL INPUT DATA FROM MASTER ACCIDENT FILE;
*OPTIONS TIME=MAX TLS=80 PS=60 LS=80;
OPTIONS NOCAPS;
GOPTIONS NOTEXT82;
GOPTIONS DEVICE=GDDMFAM4 GDDMNICKNAME=IBM3820 GDDMTOKEN=IMG240;
DATA MASACC;
  INFILE ACCI RECFM=FB LRECL=225 BLKSIZE=11250;
  INPUT
    YEAR 13
    PARISH 17-18
    MP 25-28 1
    HNUM $ 29-33
    HTYPE 34
    SURCON $ 55
    RDCON $ 58
    WEATH $ 60
    INT 78
    HCLASS 87
    CONTROL 101-103
    SECTION 104-105
    CLOCA 106-109 2
    BCLM 115-118 2
    ECLM 119-122 2
    PAVTYP 123-124
    PAVWID 125-126
    ADT 134-139 ;
*ELIMINATES UNWANTED DATA;
IF BCLM<0 OR ECLM<0 THEN DELETE;
IF BCLM=0 AND ECLM=0 THEN DELETE;
IF BCLM >= ECLM THEN LENGTH=(BCLM-ECLM);
ELSE LENGTH=(ECLM-BCLM);
IF BCLM>=ECLM THEN DO;
TEMP=BCLM;
BCLM=ECLM;
ECLM=TEMP;
DROP TEMP;
END;
IF ADT<=0 THEN DELETE;
IF MP < 0 THEN DELETE;
IF INT ^=0 AND INT ^=1 THEN DELETE;

```



```

IF CONTROL<0 OR SECTION <0 THEN DELETE;
*CLASSIFIES INTERSECTIONS;
IF INT=1 THEN LTYPE='INTERSECTION';
*CLASSIFIES SECTIONS;
ELSE IF INT=0 THEN LTYPE='SECTION';
IF LTYPE='INTERSECTION' THEN LENGTH=1;
*ELIMINATES LOCAL AND ARTERIAL ROADS;
IF HTYPE ^=1 AND HTYPE ^=2 AND HTYPE ^=3 THEN DELETE;

LABEL SECTION= SECTION NUMBER
      BCLM=BEGINNING OF SECTION (LOG MILE)
      ECLM=END OF SECTION (LOG MILE)
      HNUM=HIGHWAY NUMBER
      MP=MILEPOST
      LTYPE=LOCATION TYPE
      SURCON=SURFACE CONDITION
      HCLASS=HIGHWAY CLASS;

OUTPUT;

*SORTS THE ACCIDENT DATA AS GIVEN IN BY STATEMENT;

PROC SORT ;
BY LTYPE HCLASS CONTROL SECTION BCLM ;

/*PROC FORMAT;
VALUE $SURCON
(MAX=100 MIN=0)
'A'='DRY CONDITION'
'B'='RAINY CONDITION'
'C'='MUDDY CONDITION'
'D'='SNOWY/ICY CONDITION'
'E'='OTHER CONDITIONS'
OTHER='MISSING VALUES' ;

PROC FORMAT;
VALUE HCL
(MAX=100 MIN=0)
1='RURL 2 LANE'
2='RURL OTHER'
3='RURL MULT LN DIV'
4='RURL INTERSTATE'
5='URBN 2 LANE'
6='URBN OTHER'
7='URBN MULT LN DIV'
8='URBN INTERSTATE'
OTHER='MISSING VALUES';
*/

DATA MASACC1;
SET MASACC;
*CHECKS FOR WET CRITERION;
IF SURCON='A' THEN DELETE;

* CHECKS FOR MISSING AND UNKNOWN SURFACE CONDITIONS;
IF SURCON='E' OR SURCON= ' ' THEN DO;
  IF RDCON='J' AND RDCON ^= 'K' THEN DELETE;
  IF WEATH='A' OR WEATH='F' OR WEATH='G' THEN DELETE;

```

END;

01400099

48

IF PARISH=01 THEN DISTRICT=03;
IF PARISH=02 THEN DISTRICT=07;
IF PARISH=03 THEN DISTRICT=61;
IF PARISH=04 THEN DISTRICT=61;
IF PARISH=05 THEN DISTRICT=08;
IF PARISH=06 THEN DISTRICT=07;
IF PARISH=07 THEN DISTRICT=04;
IF PARISH=08 THEN DISTRICT=04;
IF PARISH=09 THEN DISTRICT=04;
IF PARISH=10 THEN DISTRICT=07;
IF PARISH=11 THEN DISTRICT=58;
IF PARISH=12 THEN DISTRICT=07;
IF PARISH=13 THEN DISTRICT=58;
IF PARISH=14 THEN DISTRICT=04;
IF PARISH=15 THEN DISTRICT=58;
IF PARISH=16 THEN DISTRICT=04;
IF PARISH=17 THEN DISTRICT=61;
IF PARISH=18 THEN DISTRICT=05;
IF PARISH=19 THEN DISTRICT=61;
IF PARISH=20 THEN DISTRICT=07;
IF PARISH=21 THEN DISTRICT=58;
IF PARISH=22 THEN DISTRICT=08;
IF PARISH=23 THEN DISTRICT=03;
IF PARISH=24 THEN DISTRICT=61;
IF PARISH=25 THEN DISTRICT=05;
IF PARISH=26 THEN DISTRICT=02;
IF PARISH=27 THEN DISTRICT=07;
IF PARISH=28 THEN DISTRICT=03;
IF PARISH=29 THEN DISTRICT=03;
IF PARISH=30 THEN DISTRICT=58;
IF PARISH=31 THEN DISTRICT=05;
IF PARISH=32 THEN DISTRICT=62;
IF PARISH=33 THEN DISTRICT=05;
IF PARISH=34 THEN DISTRICT=05;
IF PARISH=35 THEN DISTRICT=08;
IF PARISH=36 THEN DISTRICT=02;
IF PARISH=37 THEN DISTRICT=05;
IF PARISH=38 THEN DISTRICT=02;
IF PARISH=39 THEN DISTRICT=61;
IF PARISH=40 THEN DISTRICT=08;
IF PARISH=41 THEN DISTRICT=04;
IF PARISH=42 THEN DISTRICT=05;
IF PARISH=43 THEN DISTRICT=08;
IF PARISH=44 THEN DISTRICT=02;
IF PARISH=45 THEN DISTRICT=02;
IF PARISH=46 THEN DISTRICT=62;
IF PARISH=47 THEN DISTRICT=61;
IF PARISH=48 THEN DISTRICT=02;
IF PARISH=49 THEN DISTRICT=03;
IF PARISH=50 THEN DISTRICT=03;
IF PARISH=51 THEN DISTRICT=03;
IF PARISH=52 THEN DISTRICT=62;
IF PARISH=53 THEN DISTRICT=62;
IF PARISH=54 THEN DISTRICT=58;
IF PARISH=55 THEN DISTRICT=02;
IF PARISH=56 THEN DISTRICT=05;
IF PARISH=57 THEN DISTRICT=03;
IF PARISH=58 THEN DISTRICT=08;
IF PARISH=59 THEN DISTRICT=62;
IF PARISH=60 THEN DISTRICT=04;
IF PARISH=61 THEN DISTRICT=61;

```

IF PARISH=62 THEN DISTRICT=05;
IF PARISH=63 THEN DISTRICT=61;
IF PARISH=64 THEN DISTRICT=08;

```

```

PROC SORT;
BY LTYPE HCLASS CONTROL SECTION;

```

```

DATA MASACC3;
SET MASACC1;
BY LTYPE HCLASS CONTROL SECTION BCLM;
IF LTYPE='INTERSECTION' THEN LTYPE='1';
IF LTYPE='SECTION' THEN LTYPE='2';

```

```

IF FIRST.SECTION THEN TOT_ACC=0;
TOT_ACC+1;

```

```

IF LAST.SECTION THEN DO;
LENGTH=1;
OUTPUT;
END;

```

```

PROC SORT; BY CONTROL SECTION;

```

```

DATA TRI;
INFILE OUT;
INPUT CONTROL SECTION TRIANGLE MUEBAL MUEBPL VREBAL VREBPL PPWMNL
APWMNL WTA WTP;

```

```

PROC SORT; BY CONTROL SECTION;

```

```

DATA RAT; MERGE MASACC3 TRI; BY CONTROL SECTION;
IF MUEBAL=. THEN DELETE;
IF YEAR=. AND ADT=. THEN DELETE;
IF PAVTYP=50
OR PAVTYP=60 THEN DO;
MU=MUEBAL; VR=VREBAL; WMN=APWMNL; PR=WTA;
END;

```

```

ELSE DO;
MU=MUEBPL; VR=VREBPL; WMN=PPWMNL; PR=WTP;
END;

```

```

DROP TRIANGLE MUEBAL MUEBPL VREBAL VREBPL WTA WTP APWMNL PPWMNL;

```

```

PROC SORT; BY LTYPE HCLASS CONTROL SECTION;

```

```

DATA RATE; SET RAT;
BY LTYPE HCLASS CONTROL SECTION;

```

```

*CALCULATES THE ACCIDENTS PER MILLION VEHICLE MILES;

```

```

*EXPOSURE IS DEPENDENT ON PROPORTION WET TIME AND LENGTH;
ADT=ADT*LENGTH*WMN;
MVM=365*ADT/1000000;
ACC_MVM=TOT_ACC/MVM;
ACC_MIL=TOT_ACC/LENGTH;
VOL=ADT*365;
SQRVOL=VOL**2;
TRU_RAT=TOT_ACC/(MU*LENGTH*ADT*365);
NIBYVI=TOT_ACC/VOL;

```

```

01440099
01450099
01460099
01470099
01480099
01490099
01500099
01510099
01520099
01530099
01540099
01550099
01560099
01570099
01580099
01590099
01600099
01610099
01620099
01630099
01640099
01641099
01641199
01641299
01690099
01700099

```

```

01430099
01710099
01760099
01820099
01830099
01840099
01850099
01860099
01870099
01880099
01890099
01900099
01910099

```

NIBYSQVI=TOT_ACC/SQRVOL;	01920099	
ONEBYVOL=1/VOL;	01930099	
	01970099	
LABEL TOT_ACC=ACCIDENTS PER INTERSECTION	01980099	
ACC_MIL=ACCIDENTS PER MILE	01990099	50
ACC_MVM=ACCIDENTS PER MILLION VEHICLE MILES;	02000099	
	02010099	
OUTPUT;	02020099	
	02040099	
PROC MEANS NOPRINT SUM MEAN STD VAR RANGE N;	02050099	
VAR TOT_ACC ACC_MVM ADT NIBYVI NIBYSQVI ONEBYVOL TRU_RAT;	02060099	
BY LTYPE HCLASS;	02070099	
*FORMAT HCLASS HCL.;	02080099	
OUTPUT OUT=STATAV SUM=STATSUM MVMSUM ADTSUM NVSUM	02090099	
MEAN=STATOT STAMVM STAADT STANV STASQNV HARVOL MNTR	02100099	
STD=STASD MVMSTD ADTSTD NVSTD NVSSD ONESTD TRSTD	02110099	
VAR=TOTVAR MVMVAR ADTVAR NVVAR NSVVAR	02120099	
RANGE=TOTRG MVMRG ADTRG NVRNG NSRNG	02121099	
N=TN MN AN NVN NSN;	02122099	
	02130099	
PROC SORT DATA=STATAV;	02140099	
BY LTYPE HCLASS;	02150099	
	02170099	
DATA COMBINE;	02180099	
MERGE RATE STATAV;	02190099	
BY LTYPE HCLASS;	02200099	
	02210099	
	02211099	
* FLAGGING BY C2;	02340099	
	02350099	
SIG_NBYV=STATSUM/(ADTSUM*365);	02360099	
	02370099	
C2=SIG_NBYV+(1.645 *SQRT(SIG_NBYV/VOL)) + (1/(2*VOL));	02380099	
	02410099	
*FLAGGING BY BAYESIAN CRITERION 2;	02420099	
	02430099	
BETA=STANV/NVVAR;	02440099	
ALPHA=BETA*STANV;	02450099	
	02460099	
BETAI=BETA+VOL;	02470099	
ALPHAI=ALPHA + TOT_ACC;	02480099	
	02490099	
ADJ_STA1= STANV*BETAI;	02500099	
ADJ_STA2= SIG_NBYV*BETAI;	02510099	
	02520099	
	02590099	
B2= 1-PROBGAM(ADJ_STA2,ALPHAI);	02600099	
KEEP DISTRICT ACC_MVM TOT_ACC CONTROL SECTION HNUM HTYPE LTYPE		
PARISH BCLM HCLASS ADT C2 B2;		
DATA OUT2.SNINT88;		
SET COMBINE ;	01680099	
//	05440099	

```

//LTRC JOB (1318,05886,10,9999),'SRIKANTH',NOTIFY=IEKLEE,          00010099
//          MSGCLASS=S,CLASS=H                                     00020099
/*JOBPARM SHIFT=H                                                00030099
//STEP1 EXEC SAS606,TIME=10                                       00040099
//ACCI DD DSN=IEKLEE.ACC.MASTER88,DISP=SHR                         00050099
//OUT DD DSN=IEKLEE.SRIKANTH.OUT,DISP=SHR                         00240099
//OUT2 DD DSN=IEKLEE.NEW2.SASDATA,DISP=OLD
//SYSIN DD *                                                       00250099
                                                                    00260099

* TO RUN THIS FOR 1989 AND 1990 CHANGE THE JCL ACCI STATEMENT TO
  ACC.MASTER89 AND ACC.MASTER90 RESPECTIVELY;

*****;
* THIS PROGRAM FLAGS SPOTS BY THE WET ACCIDENT*;
* CRITERIONS DEVELOPED FOR ACCIDENT DATA IN LOUISIANA *;
*****;
*READS ALL INPUT DATA FROM MASTER ACCIDENT FILE;
*OPTIONS TIME=MAX TLS=80 PS=60 LS=80;
OPTIONS NOCAPS;
GOPTIONS NOTEXT82;
GOPTIONS DEVICE=GDDMFAM4 GDDMNICKNAME=IBM3820 GDDMTOKEN=IMG240;

DATA MASACC;
  INFILE ACCI RECFM=FB LRECL=225 BLKSIZE=11250;
  INPUT
    YEAR 13
    PARISH 17-18
    MP 25-28 1
    HNUM $ 29-33
    HTYPE 34
    SURCON $ 55
    RDCON $ 58
    WEATH $ 60
    INT 78
    HCLASS 87
    CONTROL 101-103
    SECTION 104-105
    CLOCA 106-109 2
    BCLM 115-118 2
    ECLM 119-122 2
    PAVTYP 123-124
    PAVWID 125-126
    ADT 134-139 ;

*ELIMINATES UNWANTED DATA;

IF BCLM<0 OR ECLM<0 THEN DELETE;
IF BCLM=0 AND ECLM=0 THEN DELETE;
IF BCLM >= ECLM THEN LENGTH=(BCLM-ECLM);
ELSE LENGTH=(ECLM-BCLM);
IF BCLM>=ECLM THEN DO;
  TEMP=BCLM;
  BCLM=ECLM;
  ECLM=TEMP;
  DROP TEMP;
END;
IF ADT<=0 THEN DELETE;
IF MP < 0 THEN DELETE;

```

```

IF INT ^=0 AND INT ^=1 THEN DELETE;                                00730099
IF CONTROL<0 OR SECTION <0 THEN DELETE;                            00740099
                                                                    00750099
*CLASSIFIES INTERSECTIONS;                                          00760099
IF INT=1 THEN LTYPE='INTERSECTION';                                00770099
                                                                    00780099
*CLASSIFIES SECTIONS;                                              00790099
ELSE IF INT=0 THEN LTYPE='SECTION';                                00800099
                                                                    00810099
IF LTYPE='INTERSECTION' THEN LENGTH=1;                             00820099
                                                                    00830099
*ELIMINATES LOCAL AND ARTERIAL ROADS;                              00840099
IF HTYPE ^=1 AND HTYPE ^=2 AND HTYPE ^=3 THEN DELETE;            00850099
                                                                    00860099
                                                                    00870099
    LABEL SECTION= SECTION NUMBER                                  00880099
        BCLM=BEGINNING OF SECTION (LOG MILE)                      00890099
        ECLM=END OF SECTION (LOG MILE)                            00900099
        HNUM=HIGHWAY NUMBER                                       00910099
        MP=MILEPOST                                               00920099
        LTYPE=LOCATION TYPE                                         00930099
        SURCON=SURFACE CONDITION                                  00940099
        HCLASS=HIGHWAY CLASS;                                     00950099
                                                                    00960099
OUTPUT;                                                            00970099
                                                                    00980099
*SORTS THE ACCIDENT DATA AS GIVEN IN BY STATEMENT;               00990099
                                                                    01000099
PROC SORT ;                                                         01010099
BY LTYPE HCLASS HNUM MP ;                                         01020099
                                                                    01030099
/* PROC FORMAT;                                                    01040099
VALUE $SURCON                                                       01050099
(MAX=100 MIN=0)                                                     01060099
'A'='DRY CONDITION'                                                01070099
'B'='RAINY CONDITION'                                              01080099
'C'='MUDDY CONDITION'                                              01090099
'D'='SNOWY/ICY CONDITION'                                          01100099
'E'='OTHER CONDITIONS'                                             01110099
OTHER='MISSING VALUES' ;                                         01120099
                                                                    01130099
PROC FORMAT;                                                         01140099
VALUE HCL                                                            01150099
(MAX=100 MIN=0)                                                     01160099
1='RURL 2 LANE'                                                     01170099
2='RURL OTHER'                                                       01180099
3='RURL MULT LN DIV'                                               01190099
4='RURL INTERSTATE'                                                01200099
5='URBN 2 LANE'                                                     01210099
6='URBN OTHER'                                                       01220099
7='URBN MULT LN DIV'                                               01230099
8='URBN INTERSTATE'                                                01240099
OTHER='MISSING VALUES';                                           01250099
    */                                                                01260099
                                                                    01270099
                                                                    01280099
DATA MASACC1;
SET MASACC;

*CHECKS FOR WET CRITERION;                                          01330099
IF SURCON='A' THEN DELETE;                                         01340099
                                                                    01350099
* CHECKS FOR MISSING AND UNKNOWN SURFACE CONDITIONS;              01360099
IF SURCON='E' OR SURCON= ' ' THEN DO;                              01370099

```

```
IF RDCON='J' AND RDCON != 'K' THEN DELETE;
IF WEATH='A' OR WEATH='F' OR WEATH='G' THEN DELETE;
END;
```

```
01380099
01390099
01400099
```

53

```
IF PARISH=01 THEN DISTRICT=03;
IF PARISH=02 THEN DISTRICT=07;
IF PARISH=03 THEN DISTRICT=61;
IF PARISH=04 THEN DISTRICT=61;
IF PARISH=05 THEN DISTRICT=08;
IF PARISH=06 THEN DISTRICT=07;
IF PARISH=07 THEN DISTRICT=04;
IF PARISH=08 THEN DISTRICT=04;
IF PARISH=09 THEN DISTRICT=04;
IF PARISH=10 THEN DISTRICT=07;
IF PARISH=11 THEN DISTRICT=58;
IF PARISH=12 THEN DISTRICT=07;
IF PARISH=13 THEN DISTRICT=58;
IF PARISH=14 THEN DISTRICT=04;
IF PARISH=15 THEN DISTRICT=58;
IF PARISH=16 THEN DISTRICT=04;
IF PARISH=17 THEN DISTRICT=61;
IF PARISH=18 THEN DISTRICT=05;
IF PARISH=19 THEN DISTRICT=61;
IF PARISH=20 THEN DISTRICT=07;
IF PARISH=21 THEN DISTRICT=58;
IF PARISH=22 THEN DISTRICT=08;
IF PARISH=23 THEN DISTRICT=03;
IF PARISH=24 THEN DISTRICT=61;
IF PARISH=25 THEN DISTRICT=05;
IF PARISH=26 THEN DISTRICT=02;
IF PARISH=27 THEN DISTRICT=07;
IF PARISH=28 THEN DISTRICT=03;
IF PARISH=29 THEN DISTRICT=03;
IF PARISH=30 THEN DISTRICT=58;
IF PARISH=31 THEN DISTRICT=05;
IF PARISH=32 THEN DISTRICT=62;
IF PARISH=33 THEN DISTRICT=05;
IF PARISH=34 THEN DISTRICT=05;
IF PARISH=35 THEN DISTRICT=06;
IF PARISH=36 THEN DISTRICT=02;
IF PARISH=37 THEN DISTRICT=05;
IF PARISH=38 THEN DISTRICT=02;
IF PARISH=39 THEN DISTRICT=61;
IF PARISH=40 THEN DISTRICT=08;
IF PARISH=41 THEN DISTRICT=04;
IF PARISH=42 THEN DISTRICT=05;
IF PARISH=43 THEN DISTRICT=08;
IF PARISH=44 THEN DISTRICT=02;
IF PARISH=45 THEN DISTRICT=02;
IF PARISH=46 THEN DISTRICT=62;
IF PARISH=47 THEN DISTRICT=61;
IF PARISH=48 THEN DISTRICT=02;
IF PARISH=49 THEN DISTRICT=03;
IF PARISH=50 THEN DISTRICT=03;
IF PARISH=51 THEN DISTRICT=03;
IF PARISH=52 THEN DISTRICT=62;
IF PARISH=53 THEN DISTRICT=62;
IF PARISH=54 THEN DISTRICT=58;
IF PARISH=55 THEN DISTRICT=02;
IF PARISH=56 THEN DISTRICT=05;
IF PARISH=57 THEN DISTRICT=03;
IF PARISH=58 THEN DISTRICT=08;
IF PARISH=59 THEN DISTRICT=62;
```

```

IF PARISH=60 THEN DISTRICT=04;
IF PARISH=61 THEN DISTRICT=61;
IF PARISH=62 THEN DISTRICT=05;
IF PARISH=63 THEN DISTRICT=61;
IF PARISH=64 THEN DISTRICT=08;

```

```

PROC SORT;
BY LTYPE HCLASS HNUM MP;

```

```

DATA MASACC3;
SET MASACC1;
BY LTYPE HCLASS HNUM MP;

```

```
LTYPE='3';
```

```

IF FIRST.MP      THEN TOT_ACC=0;
TOT_ACC+1;

```

```

IF LAST.MP      THEN DO;
LENGTH=1;
OUTPUT;
END;

```

```
PROC SORT; BY CONTROL SECTION;
```

```

DATA TRI;                                01440099
INFILE OUT;                              01450099
INPUT CONTROL SECTION TRIANGLE MUEBAL MUEBPL VREBAL VREBPL PPWMNL 01460099
      APWMNL WTA WTP;                    01470099
                                           01480099

```

```
PROC SORT; BY CONTROL SECTION;
```

```

DATA RAT; MERGE MASACC3 TRI; BY CONTROL SECTION; 01520099
IF MUEBAL=. THEN DELETE;                        01530099
  IF YEAR=. AND ADT=. THEN DELETE;              01540099
    IF PAVTYP=50                                01550099
    OR PAVTYP=60 THEN DO;                        01560099
      MU=MUEBAL; VR=VREBAL; WMN=APWMNL; PR=WTA; 01570099
    END;                                          01580099
                                           01590099
    ELSE DO;                                     01600099
      MU=MUEBPL; VR=VREBPL; WMN=PPWMNL; PR=WTP; 01610099
    END;                                          01620099
                                           01630099
    DROP TRIANGLE MUEBAL MUEBPL VREBAL VREBPL WTA WTP APWMNL PPWMNL; 01640099
                                           01641099
    PROC SORT; BY LTYPE HCLASS HNUM MP;          01641199

```

```

DATA RATE; SET RAT;                          01690099
BY LTYPE HCLASS HNUM MP;                      01700099

```

```

                                           01430099
                                           01710099
*CALCULATES THE ACCIDENTS PER MILLION VEHICLE MILES; 01760099
                                           01820099

```

```

*EXPOSURE IS DEPENDENT ON PROPORTION WET TIME AND LENGTH; 01830099
ADT=ADT*LENGTH*WMN;                               01840099
MVM=365*ADT/1000000;                              01850099
ACC_MVM=TOT_ACC/MVM;                              01860099
ACC_MIL=TOT_ACC/LENGTH;                          01870099
VOL=ADT*365;                                       01880099
SQRVOL=VOL**2;                                     01890099

```


TRU_RAT=TOT_ACC/(MU*LENGTH*ADT*365);	01900099
NIBYVI=TOT_ACC/VOL;	01910099
NIBYSQVI=TOT_ACC/SQRVOL;	01920099
ONEBYVOL=1/VOL;	01930099
LABEL TOT_ACC=ACCIDENTS PER INTERSECTION	01970099
ACC_MIL=ACCIDENTS PER MILE	01980099
ACC_MVM=ACCIDENTS PER MILLION VEHICLE MILES;	01990099
	02000099
OUTPUT;	02010099
	02020099
	02040099
PROC MEANS NOPRINT SUM MEAN STD VAR RANGE N;	02050099
VAR TOT_ACC ACC_MVM ADT NIBYVI NIBYSQVI ONEBYVOL TRU_RAT;	02060099
BY LTYPE HCLASS;	02070099
*FORMAT HCLASS HCL.;	02080099
OUTPUT OUT=STATAV SUM=STATSUM MVMSUM ADTSUM NVSUM	02090099
MEAN=STATOT STAMVM STAADT STANV STASQNV HARVOL MNTR	02100099
STD=STASTD MVMSTD ADTSTD NVSTD NVSSTD ONESTD TRSTD	02110099
VAR=TOTVAR MVMVAR ADTVAR NVVAR NSVVAR	02120099
RANGE=TOTRG MVMRG ADTRG NVRNG NSRNG	02121099
N=TN MN AN NVN NSN;	02122099
	02130099
PROC SORT DATA=STATAV;	02140099
BY LTYPE HCLASS;	02150099
	02170099
DATA COMBINE;	02180099
MERGE RATE STATAV;	02190099
BY LTYPE HCLASS;	02200099
	02210099
* FLAGGING BY C2;	02211099
	02340099
SIG_NBYV=STATSUM/(ADTSUM*365);	02350099
	02360099
C2=SIG_NBYV+(1.645 *SQRT(SIG_NBYV/VOL)) + (1/(2*VOL));	02370099
	02380099
*FLAGGING BY BAYESIAN CRITERION 2;	02410099
	02420099
BETA=STANV/NVVAR;	02430099
ALPHA=BETA*STANV;	02440099
	02450099
BETAI=BETA+VOL;	02460099
ALPHAI=ALPHA + TOT_ACC;	02470099
	02480099
ADJ_STA1= STANV*BETAI;	02490099
ADJ_STA2= SIG_NBYV*BETAI;	02500099
	02510099
	02520099
B2= 1-PROBGAM(ADJ_STA2,ALPHAI);	02590099
	02600099
KEEP DISTRICT ACC_MVM TOT_ACC CONTROL SECTION HNUM HTYPE LTYPE	
PARISH BCLM HCLASS ADT C2 B2;	

DATA OUT2.SNSPT88;
 SET COMBINE ;
 //

4.2 MENU PROGRAM LISTING

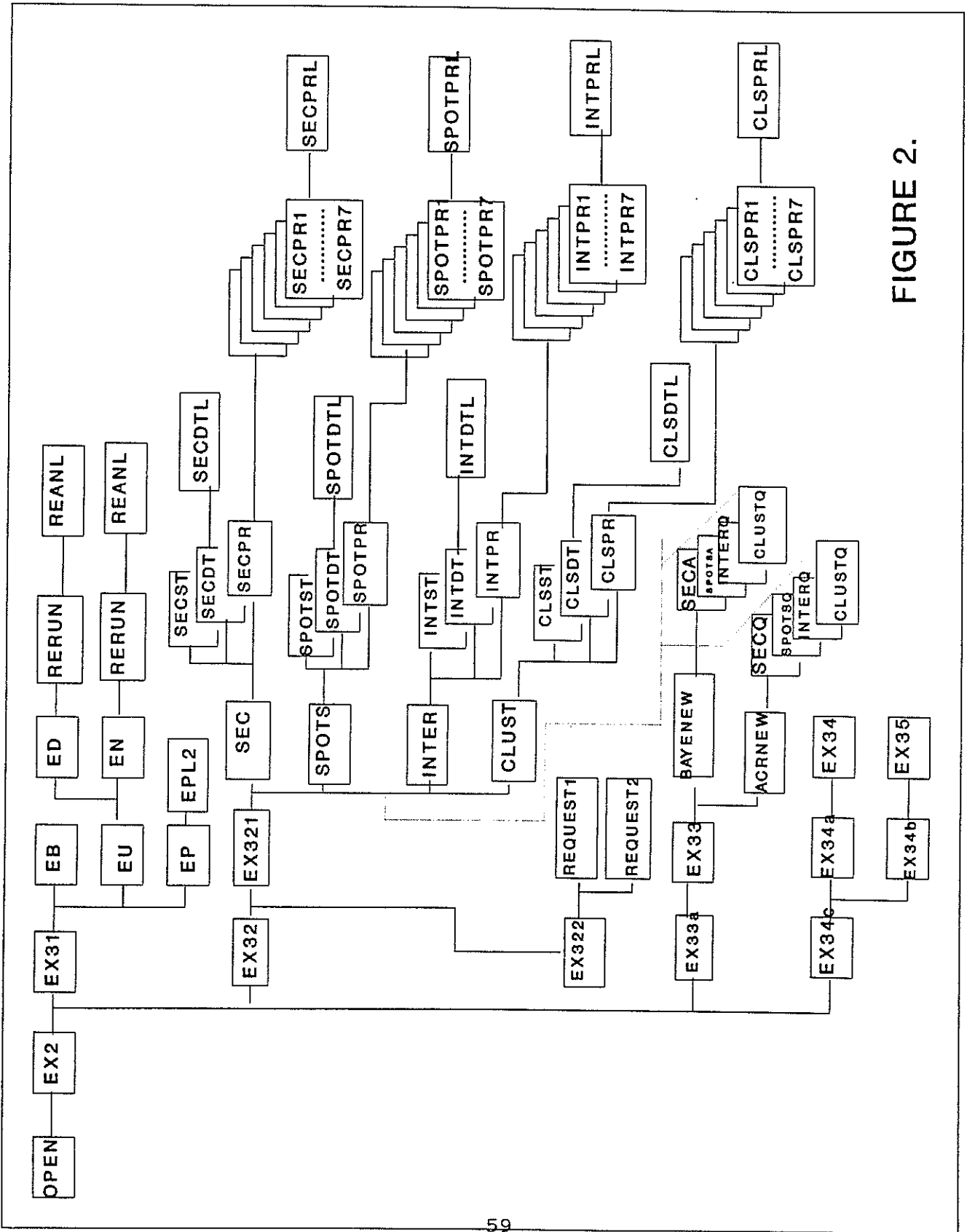


FIGURE 2.

SPOTPRL

INTPRL

CLSPRL

EX33 : Follows EX33a, for choice of analysis schemes.
ACRNEW : Follows EX33, for Bayesian Results.
SECA : Bayesian Sections report.
SPOTSA : Bayesian Spots report.
INTERA : Bayesian Intersections report.
CLUSTA : Bayesian Clusters report.
QLTYNEW : Follows EX33, for Quality Control Results.
SECQ : Quality Control, Sections report.
SPOTSQ : Quality Control, Spots report.
INTERQ : Quality Control, Intersections report.
CLUSTQ : Quality Control, Clusters report.

EX34a : Follows EX34c, for browsing the previous years tables.
EX34b : Follows EX34c, for deleting the previous years tables.
EX34 : Table selection.
EX35 : Table selection.

4. THE MENU DRIVEN DATABASE SYSTEM

4.1 THE MENU STRUCTURE

The complete menu structure of the entire database system has been given in figure 2. The menu generating programs have been named in the following order.

OPEN : This is the opening menu.

EX2 : This menu displays the utilities implemented.

EX31 : This menu is for maintenance utility.
EX32 : This menu is for the reports utility.
EX33a : This menu is for the analysis utility.
EX34c : This menu is for the archives utility.

EB : Follows EX31, for browsing tables.
EU : Follows EX31, for updating tables.
ED : Follows EU, for modifying tables.
EN : Follows EU, for inserting new records in the tables.
RERUN : Confirms the changes made.
REANL : Triggers off the analysis programs.
EP : Follows EX31, for printing tables (Onscreen/Hard Copy).
EPL3 : Confirmation for printing tables.
EPL2 : Destination options.

EX321 : Follows EX32, for DOTD reports.
EX322 : Follows EX32, for LTRC reports.
SEC : Follows EX321, for hazardous sections.
SPOTS : Follows EX321, for hazardous spots.
INTER : Follows EX321, for hazardous intersections.
CLUST : Follows EX321, for hazardous clusters.
SECST : Follows SEC, for a statewide report.
SEC DT : Follows SEC, for a districtwise report.
SEC DTL : Follows SEC DT, report for a particular district.
SEC PR : Follows SEC, for a parishwise report.
SEC PR1-7 : Follows SEC PR, making a choice for a particular parish.
SEC PRL : Follows SEC PR1-7, displays the report.

On similar lines, menus have been developed for reports on spots, intersections and clusters. They are as follows:

Follows SPOTS:	Follows INTER:	Follows CLUST:
SPOTST	INTST	CLSST
SPOTDT	INTDT	CLS DT
SPOTDTL	INTDTL	CLS DTL
SPOTPR	INTPR	CLSPR
SPOTPR1-7	INTPR1-7	CLSPR1-7

ENTRY: EX31.PROGRAM EX31.PROGRAM Last updated: 04/06/92

***** SOURCE *****

```
init:
return;
main:
choice=1;
loop:
do while (choice ne 0);
    choice=block('manipulation','manipulate dbase',25,
                'browse','update',' ',' ',
                ' ','print','help',' ',
                'end',' ',' ',' ');
select(choice);
when(1) call display('eb.program');
when(2) call display('eu.program');
when(6) call display('epc.program');
when(7) call display('hex31.help');
when(9) leave loop;
otherwise
    do;
        if (choice<0) then call display('help.program', choice);
    end;
end;
call endblock();
return;
term:
return;
```


ENTRY: EU.PROGRAM EU.PROGRAM Last updated: 04/06/92

***** SOURCE *****

```
init:
return;
main:
choice=1;
loop:
do while (choice ne 0);
    choice=block('update','update tables',25,
                'modify/delete','insert','','',
                'end','','','');
select(choice);
when(1) call display('ed.program');
when(2) call display('en.program');
when(9) leave loop;
otherwise
    do;
        if (choice<0) then call display('help.program', choice);
    end;
end;
call endblock();
return;
term:
return;
```


ENTRY: EP.PROGRAM EP.PROGRAM Last updated: 04/06/92

***** SOURCE *****

```
init:
return;
main:
choice=1;
loop:
do while (choice ne 0);
call wregion(1,1,19,80,'cmdline');
    choice=block('print','print tables',22,
                'accident','driver','vehicle',' ',
                'section',' ','skid',' ',
                ' ',' ','end',' ');
select(choice);
when(1) do;
call display('ep12.program');
submit continue ;
    proc printto unit=20 new;
    proc print data=newlib.accl88;
    proc printto;run;
    run;
    filename ft20f001 clear;
endsubmit;
end;
when(2) do;
call display('ep12.program');
submit continue ;
    proc printto unit=20 new;
    proc print data=newlib.drvr88;
    run;
    proc printto; run;
    filename ft20f001 clear;
endsubmit;
end;
when(3) do;
call display('ep12.program');
submit continue ;
    proc printto unit=20 new;
    proc print data=newlib.vhcl88;
    run;
    proc printto;run;
    filename ft20f001 clear;
endsubmit;
end;
when(5) do;
call display('ep12.program');
submit continue ;
    proc printto unit=20 new;
```

ENTRY: EP.PROGRAM EP.PROGRAM Last updated: 04/06/92

```
proc print data=newlib.sectn88;
run;
proc printto;run;
filename ft20f001 clear;
endsubmit;
end;
when(7) do;
call display('ep12.program');
submit continue ;
proc printto unit=20 new;
proc print data=newlib.skid88;
run;
proc printto;run;
filename ft20f001 clear;
endsubmit;
end;
when(11) leave loop;
otherwise
do;
if (choice<0) then call display('help.program', choice);
end;
end;
end;
call endblock();
return;
term:
*call endlegend();
*call poplegend();
return;
```

ENTRY: EPL2.PROGRAM EPL2.PROGRAM Last updated: 04/06/92

***** SOURCE *****

```
init:
return;
main:
choice=1;
loop:
do while (choice ne 0);
call wregion(1,1,19,80,'cmdline');
  choice=block('printers','select destination',22,
              'ceba','ioroom',' ',' ',
              'stubbs','pageprint',' ',' ',
              ' ',' ','end',' ');
select(choice);
when(1) do;
submit continue ;
filename ft20f001 sysout=a dest=ceba;
endsubmit;
end;
when(2) do;
submit continue ;
filename ft20f001 sysout=a dest=ioroom;
endsubmit;
end;
when(5) do;
submit continue ;
filename ft20f001 sysout=a dest=stubbs;
endsubmit;
end;
when(6) do;
submit continue ;
filename ft20f001 sysout=a dest=pageprt;
endsubmit;
end;
when(11) leave loop;
otherwise
  do;
    if (choice<0) then call display('help.program', choice);
  end;
end;
end;
call endblock();
return;
term:
*call endlegend();
*call poplegend();
return;
```

ENTRY: ED.PROGRAM ED.PROGRAM Last updated: 05/12/92

```

  call display('rerun.program');
end;
when(5) do;
call wregion(16,1,25,80,' ');
call putlegend(1,'Modifying Section Table....','green','blinking');
call legend('Section Information','','yellow','reverse');
call putlegend(3,'Alt- PF3  END,  PF7  UP,  PF8  DOWN','cyan','none')
call putlegend(4,'Alt- PF10  RIGHT, PF11  LEFT','cyan','none');
call putlegend(5,'USE ARROW KEYS TO GET TO THE DESIRED','pink','none');
call putlegend(6,'OBSERVATION, THEN PRESS <ENTER>','pink','none');
  call wregion(1,1,15,80,'cmdline');
  call fsview('newlib1.sectn88','edit','newlib.ltrc.sectn88.formula');
  call display('rerun.program');
end;
when(7) do;
call wregion(16,1,25,80,' ');
call putlegend(1,'Modifying Skid Table....','green','blinking');
call legend('Skid Information','','yellow','reverse');
call putlegend(3,'Alt- PF3  END,  PF7  UP,  PF8  DOWN','cyan','none')
call putlegend(4,'Alt- PF10  RIGHT, PF11  LEFT','cyan','none');
call putlegend(5,'USE ARROW KEYS TO GET TO THE DESIRED','pink','none');
call putlegend(6,'OBSERVATION, THEN PRESS <ENTER>','pink','none');
  call wregion(1,1,15,80,'cmdline');
  call fsview('newlib1.skid','edit') ;
  call display('rerun.program');
end;
when(11) leave loop;
otherwise
  do;
    if (choice<0) then call display('help.program', choice);
  end;
end;
end;
call endblock();
return;
term:
call endlegend();
*call poplegend();
return;

```

ENTRY: EN.PROGRAM EN.PROGRAM Last updated: 04/06/92

***** SOURCE *****

```

init:
return;
main:
choice=1;
loop:
do while (choice ne 0);
call wregion(1,1,19,80,'cmdline');
  choice=block('insert','insert tables',18,
              'accident','driver','vehicle',' ',
              'section',' ','skid',' ',
              ' ',' ','end',' ');

select(choice);
when(1) do;
call wregion(16,1,25,80,' ');
call putlegend(1,'Inserting into Accident Table....','green','blinking');
call legend('Accident 1',' ','yellow','reverse');
call putlegend(3,' HOT KEYS !!!','red','none');
call putlegend(5,'Alt- PF3 END, PF7 UP, PF8 DOWN','cyan','none')
call putlegend(6,'Alt- PF10 RIGHT, PF11 LEFT','cyan','none');
call putlegend(8,'USE ARROW KEYS TO GET TO THE DESIRED','pink','none');
call putlegend(9,'OBSERVATION, THEN PRESS <ENTER>','pink','none');
  call wregion(1,1,15,80,'cmdline');
  call fsview('newlib.acc188','add');
  call display('rerun.program');
end;
when(2) do;
call wregion(16,1,25,80,' ');
call putlegend(1,'Inserting into Driver Table....','green','blinking');
call legend('Driver Information',' ','yellow','reverse');
call putlegend(3,' HOT KEYS !!!','red','none');
call putlegend(5,'Alt- PF3 END, PF7 UP, PF8 DOWN','cyan','none')
call putlegend(6,'Alt- PF10 RIGHT, PF11 LEFT','cyan','none');
call putlegend(8,'USE ARROW KEYS TO GET TO THE DESIRED','pink','none');
call putlegend(9,'OBSERVATION, THEN PRESS <ENTER>','pink','none');
  call wregion(1,1,15,80,'cmdline');
  call fsview('newlib.drivr88','add');
  call display('rerun.program');
end;
when(3) do;
call wregion(16,1,25,80,' ');
call putlegend(1,'Inserting into Vehicle Table....','green','blinking');
call legend('Vehicle Information',' ','yellow','reverse');
call putlegend(3,' HOT KEYS !!!','red','none');
call putlegend(5,'Alt- PF3 END, PF7 UP, PF8 DOWN','cyan','none')
call putlegend(6,'Alt- PF10 RIGHT, PF11 LEFT','cyan','none');
call putlegend(8,'USE ARROW KEYS TO GET TO THE DESIRED','pink','none');

```

ENTRY: EN.PROGRAM EN.PROGRAM Last updated: 04/06/92

```

call putlegend(9,'OBSERVATION, THEN PRESS <ENTER>','pink','none');
  call wregion(1,1,15,80,'cmdline');
  call fsview('newlib.vhcl88','add');
  call display('rerun.program');
end;
when(5) do;
call wregion(16,1,25,80,' ');
call putlegend(1,'Inserting into Section Table...','green','blinking');
call legend('Section Information','','yellow','reverse');
call putlegend(3,' HOT KEYS !!!','red','none');
call putlegend(5,'Alt- PF3  END,  PF7  UP,  PF8  DOWN','cyan','none')
call putlegend(6,'Alt- PF10  RIGHT, PF11  LEFT','cyan','none');
call putlegend(8,'USE ARROW KEYS TO GET TO THE DESIRED','pink','none');
call putlegend(9,'OBSERVATION, THEN PRESS <ENTER>','pink','none');
  call wregion(1,1,15,80,'cmdline');
  call fsview('newlib1.sectn88','add');
  call display('rerun.program');
end;
when(7) do;
call wregion(16,1,25,80,' ');
call putlegend(1,'Inserting into Skid Table...','green','blinking');
call legend('Skid Information','','yellow','reverse');
call putlegend(3,' HOT KEYS !!!','red','none');
call putlegend(5,'Alt- PF3  END,  PF7  UP,  PF8  DOWN','cyan','none')
call putlegend(6,'Alt- PF10  RIGHT, PF11  LEFT','cyan','none');
call putlegend(8,'USE ARROW KEYS TO GET TO THE DESIRED','pink','none');
call putlegend(9,'OBSERVATION, THEN PRESS <ENTER>','pink','none');
  call wregion(1,1,15,80,'cmdline');
  call fsview('newlib1.skid','add');
  call display('rerun.program');
end;
when(11) leave loop;
otherwise
  do;
    if (choice<0) then call display('help.program', choice);
  end;
end;
end;
call endblock();
return;
term:
call endlegend();
*call poplegend();
return;

```

ENTRY: RERUN.PROGRAM CONFIRM.PROGRAM Last updated: 04/06/92

***** SOURCE *****

```
init:
return;
main:
choice=9;
loop:
do while (choice ne 0);
    choice=block('rerun analysis program','analysis programs to be rerun?',
                24,' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',' ',
                'yes','no','end',' ');
select(choice);
when(9) call display('reanl.program');
when(10) leave loop;
when(11) leave loop;
otherwise
do;
    if (choice<0) then call display('help.program', choice);
alarm;
end;

end;
end;
call endblock();
return;
term:
return;
```

ENTRY: REANL.PROGRAM REANL.PROGRAM Last updated: 04/06/92

***** SOURCE *****

```
init:
return;
main:
*tso submit ltrc.final(pgm33) ;
*tso submit ltrc.final(pgm44) ;
*tso submit ltrc.final(pgm55) ;
return;
term:
return;
```


ENTRY: EX32.PROGRAM EX32.PROGRAM Last updated: 04/06/92

***** SOURCE *****

```
init:
return;
main:
choice=1;
loop:
do while (choice ne 0);
    choice=block('reports','reports section',9,
        'dotd','ltrc',' ',' ',' ',
        ' ','help',' ',' ',' ',
        ' ',' ',' ',' ',
        'end');
select(choice);
when(1) call display('ex321.program');
when(2) call display('ex322.program');
when(6) call display('hex32.help');
when(12) leave loop;
otherwise
    do;
        if (choice<0) then call display('help.program', choice);
    end;
end;
end;
call endblock();
return;
term:
return;
```

ENTRY: EX321.PROGRAM EX321.PROGRAM Last updated: 04/07/92

***** SOURCE *****

```
init:
return;
main:
choice=1;
loop:
do while (choice ne 0);
    choice=block('reports','dotd reports ',9,
                'sections','spots',' ',' ',
                'intersections','clusters',' ',' ',
                'help',' ',' ',
                'end');
select(choice);
when(1) do;
submit continue sql;
create view newlib.rl as select parish,district,hnum,htype,hclass,control,
    section,bclm,adt,ltype,b2 from newlib.snsi88
where ltype='2' order by b2;
endsubmit;
call display('sec.program');
end;
when(2) do;
submit continue sql;
create view newlib.rl as select parish,district,hnum,htype,hclass,control,
    section,bclm,adt,ltype,b2 from newlib.snspt88
where ltype='3' order by b2;
endsubmit;
call display('spots.program');
end;
when(5) do;
submit continue sql;
create view newlib.rl as select parish,district,hnum,htype,hclass,control,
    section,bclm,adt,ltype,b2 from newlib.snsi88
where ltype='1' order by b2;
endsubmit;
call display('inter.program');
end;
when(6) do;
submit continue sql;
create view newlib.rl as select parish,district,hnum,htype,hclass,control,
    section,bclm,adt,ltype,b2 from newlib.sncls88
where ltype='4' order by b2;
endsubmit;
call display('clust.program');
end;
when(9) call display('hex321.help');
when(12) leave loop;
```

ENTRY: EX321.PROGRAM EX321.PROGRAM Last updated: 04/07/92

```
otherwise
  do;
    if (choice<0) then call display('help.program', choice);
  end;
end;
end;
call endblock();
return;
term:
return;
```

ENTRY: SEC.PROGRAM SEC1.PROGRAM Last updated: 04/06/92

***** SOURCE *****

```
init:
return;
main:
choice=1;
loop:
do while (choice ne 0);
    choice=block('recommended method','sections',23,
                'statewise','districtwise',' ',' ',' ',
                'parishwise','help',' ',' ',' ',
                'end',' ',' ',' ',' ');
select(choice);
when(1) call display('secst.program');
when(2) call display('secdt.program');
when(5) call display('secpr.program');
when(6) call display('hloc.help');
when(9) leave loop;
otherwise
    do;
        if (choice<0) then call display('help.program', choice);
    end;
end;
end;
call endblock();
return;
term:
return;
```

ENTRY: SECDT.PROGRAM SECDT.PROGRAM Last updated: 04/06/92

***** SOURCE *****

```
init:
return;
main:
choice=1;
loop:
do while (choice ne 0);
  choice=block('sections','districtwise analysis',12,
    'district # 02',
    'district # 03',
    'district # 04',
    'district # 05',
    'district # 07',
    'district # 08',
    'district # 58',
    'district # 61',
    'district # 62',
    ' ',' ','end');
select(choice);
when(1) do;
submit continue sql;
create view newlib.r2 as select * from newlib.r1
where district = 02;
endsubmit;
call display('secdt1.program');
end;
when(2) do;
submit continue sql;
create view newlib.r2 as select * from newlib.r1
where district = 03;
endsubmit;
call display('secdt1.program');
end;
when(3) do;
submit continue sql;
create view newlib.r2 as select * from newlib.r1
where district = 04;
endsubmit;
call display('secdt1.program');
end;
when(4) do;
submit continue sql;
create view newlib.r2 as select * from newlib.r1
where district = 05;
endsubmit;
call display('secdt1.program');
end;
```

ENTRY: SECDT.PROGRAM SECDT.PROGRAM Last updated: 04/06/92

```
when(5) do;
submit continue sql;
create view newlib.r2 as select * from newlib.rl
where district = 07;
endsubmit;
call display('secdt1.program');
end;
when(6) do;
submit continue sql;
create view newlib.r2 as select * from newlib.rl
where district = 08;
endsubmit;
call display('secdt1.program');
end;
when(7) do;
submit continue sql;
create view newlib.r2 as select * from newlib.rl
where district = 58;
endsubmit;
call display('secdt1.program');
end;
when(8) do;
submit continue sql;
create view newlib.r2 as select * from newlib.rl
where district = 61;
endsubmit;
call display('secdt1.program');
end;
when(9) do;
submit continue sql;
create view newlib.r2 as select * from newlib.rl
where district = 62;
endsubmit;
call display('secdt1.program');
end;
when(12) leave loop;
otherwise
do;
if (choice<0) then call display('help.program', choice);
end;
end;
end;
call endblock();
return;
term:
return;
```

ENTRY: SECDTL.PROGRAM SECDTL.PROGRAM Last updated: 04/20/92

***** SOURCE *****

```

init:
return;
main:
choice=1;
loop:
do while (choice ne 0);
    choice=block('sections','districtwise analysis',9,
                '2 ln rural',
                '4 ln rural',
                '4 ln dvd rural',
                'freeway rural',
                '2 ln urban',
                '4 ln urban',
                '4 ln dvd urban',
                'freeway urban',
                ' ',' ',' ','end');
select(choice);
when(1) do;
submit continue sql;
create view newlib.r3 as select * from newlib.r2
where hclass = 1;
endsubmit;
call wregion(18,1,25,80,' ');
call putlegend(1,'Two Lane Rural','yellow','blinking');
call legend('Districtwise Sections Report',' ','green','reverse');
call putlegend(3,'Alt- PF3  END,  PF7  UP,  PF8  DOWN','cyan','none')
call putlegend(4,'Alt- PF10  RIGHT, PF11  LEFT','cyan','none');
    call wregion(1,1,17,80,'cmdline');
call fsview('newlib.r3');
call display('fpcl.program');
end;
when(2) do;
submit continue sql;
create view newlib.r3 as select * from newlib.r2
where hclass = 2;
endsubmit;
call wregion(18,1,25,80,' ');
call putlegend(1,'Four Lane Rural','yellow','blinking');
call legend('Districtwise Sections Report',' ','green','reverse');
call putlegend(3,'Alt- PF3  END,  PF7  UP,  PF8  DOWN','cyan','none')
call putlegend(4,'Alt- PF10  RIGHT, PF11  LEFT','cyan','none');
    call wregion(1,1,17,80,'cmdline');
call fsview('newlib.r3');
call display('fpcl.program');
end;
when(3) do;

```