IOWA

DEPARTMENT OF TRANSPORTATION

**User Manual
for the
On-line Applications
of the
Pavement Management Information System (PMIS)**

**Developed for
Management Systems Policy Committee
and
Primary System Pavement Management Task Force**

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Introduction

In 1992, the Iowa DOT Pavement Management Information System (PMIS) was designed and implemented. The PMIS replaced the Iowa Pavement Management System (IPMS) that had been implemented in 1979. Based upon the interviews that were conducted with many Iowa DOT Offices so that "User Requirements" for the system could be determined, this phase of the PMIS is the "first building block" in providing better and easier access to the data that is used in the calculation of PCIs (Pavement Condition Indexes). The PCIs are used as a guide by the Planning and Programming Division, Maintenance Division, and Transportation Centers to determine which sections of highways should be included in the five-year "Iowa Transportation Improvement Program".

The Federal Highway Administration (FHWA) published regulations in 1989 that defined a Pavement Management System (PMS) as "A set of tools or methods that can assist decision makers in finding cost-effective strategies for providing, evaluating, and maintaining pavements in a serviceable condition.". The purpose of a PMS is "To set forth a policy to select, design, and manage Federal-Aid pavements in a cost-effective manner and identify pavement work eligible for Federal-Aid funding.". The PMIS On-Line Applications that are described in this manual plus several "Batch" programs that are described in the "PMIS Systems Manual" have been implemented to assist the Iowa DOT in satisfying the requirements set forth by the FHWA.

The SAS System was used for the design and implementation of the PMIS. The PMIS is on the mainframe computer in the Office of Data Services and statewide access is provided via the DOT telecommunications network. Requirements for access to the PMIS are explained on page 5 of this manual.

Currently, there are twelve on-line applications that provide access to data that is available in the PMIS. Following are brief descriptions of what each application is used for. The application descriptions are presented to you in the order of "most anticipated usage" for each. Detailed user instructions for each are explained in its own section of this manual.

Application Name: PMISNEWS

PMISNEWS is used to share news items related to the PMIS. Such things as system enhancements, changes to screen or record formats, scheduled system maintenance, progress reports, helpful hints, etc., are posted on the PMIS News Master File and are accessible by all users of the PMIS. This application is a "Bulletin Board" designed specifically for PMIS. Currently, news items are posted by personnel in the Office of Data Services.

Application Name: PMISCURR

PMISCURR allows a user to BROWSE and EDIT data that is stored in the current working-copy of the PMIS Master File. Many basic queries can be done in this application, also. Six screens of information are provided for each pavement management section of every primary highway route (Interstate, U.S., & Iowa) within the State. This application is used mainly to see what is stored in the master file and to provide a method for keeping the data current in preparation for

calculating the annual PCIs. EDITING privileges have been granted to a select few of the users so that certain data elements can be updated when necessary.

Application Name: PMISINFO

PMISINFO stands for PMIS Information and provides a method for users to create "formal type" reports and graphs from data stored in the PMIS Master Files. When PMISINFO is invoked, the user is taken into SAS/ASSIST which will allow him to create his own customized form of output or to recall "canned programs" that were created previously. Copies of the current master file, snapshot history master file, multi-year history master file, current control change log, history control change log and project master file are created for use by the user while in this application. Copies are made so that the original master files cannot be damaged.

SAS/ASSIST is very user friendly and self-explanatory but some practice will be required to become proficient in the use of it. Assistance will be available for those of you that need it.

Application Name: PMISMAPS

PMISMAPS is a mapping application that allows the user to create a state, transportation region, or county map based upon criteria selected from the PMIS Current Master File. All highway routes, the National Highway System, or the Interstate System are options that can be selected for the type of system map desired. Regular DOT Transportation Region Boundaries or Maintenance Responsibility Area Boundaries can be specified. After the user decides on the type of map, which system, and type of boundary he wants, he can specify up to five different colors to have his select criteria plotted. Hard copies of the maps can be produced after review has been completed on the user's terminal screen.

This application is strictly a query/mapping type of application and is in no way a full blown GIS (Geographic Information System). PMISMAPS is a precursor to a GIS and provides for some very good pictorial representations of queries which in turn will give users things to think about as we proceed toward a GIS.

Application Name: PMISHIST

PMISHIST stands for PMIS History and provides a method for users to BROWSE data that is stored in the Multi-Year History PMIS Master File. PMISHIST produces the same types of data screens as PMISCURR does. The only differences between the two applications are that PMISHIST uses the multi-year history file as input instead of the current master file and the user can specify a given year for which history data is desired. NO EDITING capabilities are provided in PMISHIST to anyone as we do not want to alter any of the history data. Many basic queries can be done in this application.

Application Name: PMISSNAP

PMISSNAP stands for PMIS Snapshot and provides users with a snapshot of the PMIS data at the time the PCIs were calculated, reviewed, and approved. The PMIS Snapshot History Master File is created on an annual basis and it is done as soon as the PCIs are finalized each year. The data on this file is never changed throughout the year and provides users with the actual data related to the highway systems at the time of PCI calculations.

Application Name: PMISPROJ

PMISPROJ stands for PMIS Projects and provides a method for users to access project data on the Project History Master File as it pertains to the pavement management sections. Projects can be reviewed on a users screen and can be printed out for future reference.

Application Name: PROJHIST

PROJHIST stands for Project History and provides a method for BROWSING and EDITING data that is stored on the Project History Master File for use in the PMISPROJ Application. Some of the data on this file is obtained from data that is provided from the Letting System and some of the data is provided by the Office of Materials.

Application Name: PMISUSER

PMISUSER allows us to find out which users are accessing any of the on-line applications of the PMIS at any given time. It will be used whenever the system needs to be taken down for maintenance so that we can wait until all users are off the system or so that we can notify them that something needs to be fixed. The Pavement Management Development Section will be the primary users of this application.

Application Name: PMISCTLS

PMISCTLS stands for PMIS Controls and provides a method for selected users to change the controls that identify a pavement management section on the PMIS Current Master File. The controls are made up of Route Number, Highway System, Direction, Beginning Milepost, Ending Milepost, and County Number. These controls are very important to us for tracking a pavement management section back through the years and that is why very few of the users are allowed to use this application.

The following 6 types of changes are permitted in this application:

1. ADD a new pavement management section.
2. CHANGE the Beginning/Ending Milepost(s) of an existing section.
3. SPLIT an existing section into two or more new sections.
4. COMBINE two or more existing sections into one new section.
5. DELETE an existing section.
6. CHANGE system, route, or direction of an existing section.

Application Name: PMISXREF

PMISXREF stands for PMIS Cross Reference and provides access to the milepoint/milepost cross reference file. This cross reference is necessary for us to be able to match pavement management sections (milepost reference system) with the primary road base records (milepoint reference system). PMISXREF allows us to browse data that is stored in the milepoint/milepost master file.

Application Name: PMISESAL

PMISESAL stands for PMIS Equivalent Single Axle Loads (ESALs) and provides a method for updating ESAL data on the Multi-Year PMIS Master File. Updating capabilities in this application are restricted to just a few users.

Now that we have covered, briefly, what each application is used for, we would like to point out documentation conventions that are being used throughout this manual. They are:

1. A key cap font, e.g., Enter, Tab, F1, F2 ...F12, etc., is being used to show you a key that needs to be pressed.

2. Letters, numbers, or character strings that need to be typed by you are shown as *BOLD FACE* letters, numbers, and characters followed by "press Enter".

3. ☞ Important tips that we want to draw your attention to are highlighted just like this paragraph you are now reading.

Welcome to the PMIS (Pavement Management Information System). We hope that you will find it very useful in your efforts in providing better highways for all. The following sections of this manual explain how to access the PMIS and how to use each of the individual on-line applications.

Access To The On-Line Applications Of The PMIS

First of all, you need access to the TSO (Time Sharing Option) System from your TPX (TeleProcessing Network) Menu screen. Secondly, if you are planning to process PMISMAPS or high resolution graphics in PMISINFO, you will need host graphics capabilities. Host graphics capabilities require that you have a graphics terminal or a PC. Both need to be set up with a 24 X 80 screen size. The PC requires Attachmate with the Host Graphics Option OR Personal Communications/3270 Version 3.0 or higher. If you have a need to print or plot colored maps and graphs, you will need a color printer or color pen plotter. Your Office of Data Services (ODS) support team will assist you in getting all of the above if you don't already have them.

After "Logging On" to the IDOT Data Network, press F2 to gain access to the "DOT Time Sharing System (TSO)" from the TPX menu.

☞   Some of you might have a Function Key other than the F2 Key that provides access to TSO so you will need to use that key.

You will either receive a screen that asks you to "ENTER ACCOUNT NUMBER" or the TSO/E LOGON screen that asks you to "Enter LOGON parameters below:". If you receive the "ENTER ACCOUNT NUMBER" screen, type *XXXX-XXX* and press Enter.

☞   The *Xs* represent an account number. The 4 *Xs* preceding the dash identify your Cost Center; the 3 *Xs* following the dash represent your function code. Most users have had their account number hard coded into their logon procedure and this screen is bypassed.

The TSO/E LOGON screen asks you to "Enter LOGON parameters below:". Depending upon how your logon procedure has been set up, you may or may not have to type your "Userid ===>" and "Password ===>". The only other parameter that you may have to change is the "Procedure ===>" parameter.

If necessary, type your *USERID* on the "Userid ===>" line, Tab↹ down to the "Password ===>" line and type your *PASSWORD*. Tab↹ down to the "Procedure ===>" line and type *GDDM* and press Enter.

☞   GDDM (Graphical Data Display Manager) is required as the procedure name ONLY if you plan to process high resolution graphics within the PMISMAPS or PMISINFO applications.

☞ If this is your FIRST entry into TSO OR if it has been 60 DAYS OR MORE since your last entry, you will want to process the procedures contained in the next section -- **Setting TSO Default Parameters** -- of this manual.

Depending upon how your TSO Access has been established, you will either receive a "READY" screen OR the "ISPF Primary Option Menu" screen. These are the screens that provide access to the "Iowa Pavement Management Information System (PMIS) Menu" screen from which you can select a PMIS On-Line Application.

If you receive the "READY" screen, type *pmis* and press [Enter]. If you receive the "ISPF Primary Option Menu" screen, type *6* following "Option = = = >", press [Enter], and you will receive the "ISPF Command Shell" screen that asks you to "Enter TSO or Workstation commands below:". This is the screen where you will type *PMIS* on the = = = > line and press [Enter] OR select PMIS from one of the = > lines and press [Enter]. You should now be on the PMIS Menu screen where you can select a PMIS On-Line Application for processing.

When you are ready to EXIT the PMIS, you need to exit from the PMIS Menu Screen. Press the [F3] Key. If you receive a "READY" screen, type *z* and press [Enter]. If you receive the "ISPF Command Shell" screen, press [F3] again and you will receive the "ISPF Primary Option Menu" screen where you can either press [F3] OR type *x* following "Option = = = >" and press [Enter]. You are now back to the "READY" screen where you need to type *z* and press [Enter]. After you have entered the z on the "READY" screen, you will be returned to the "TPX Menu" screen where you can either select a different TPX Application OR exit TPX by typing *f* on the "Command = = = >" line and pressing [Enter].

☞ From this point on, access to the individual on-line PMIS Applications will be provided via the PMIS Menu screen as shown on the next page.

```
+------------------------------------------------------------------+
|                                                                  |
|          Iowa Pavement Management Information System (PMIS) Menu  |
|                                                                  |
| Following is a list of PMIS On-Line Applications.  To select an application,|
| type the number for the application and press Enter OR place your cursor on |
| an application name and press Enter OR point and click with your mouse.      |
|                                                                  |
| Application Number ===>                          Screen 1 Of 1   |
|                                                                  |
|      1    PMISNEWS    Browse News Items Related To Activities Within The PMIS |
|      2    PMISCURR    Browse And/Or Edit The Current PMIS Master File         |
|      3    PMISINFO    Multi-Functional Application To Create Reports & Graphs |
|      4    PMISMAPS    Create Maps From User-Defined Select Criteria           |
|      5    PMISHIST    Browse Multi-Year History PMIS Master File              |
|      6    PMISSNAP    Browse Annual Snapshot History PMIS Master File         |
|      7    PMISPROJ    Browse And/Or List Data On Project History Master File  |
|      8    PROJHIST    Browse And/Or Edit Data On Project History Master File  |
|      9    PMISUSER    Find Out Who Is Currently Using a PMIS Application       |
|     10    PMISCTLS    Make Changes To Pavement Management Section Controls     |
|     11    PMISXREF    Browse Milepost/Milepoint Cross-Reference Master File    |
|     12    PMISESAL    Browse/Edit ESALs On The Multi-Year History PMIS File    |
|================================================================= |
|           PF3 = Exit PMIS Processing                             |
+------------------------------------------------------------------+
 M  a                                                      88/827
```

Menu Screen For PMIS On-Line Applications

From the menu, you can select the PMIS Application that you wish to process, i.e., PMISNEWS, PMISCURR, etc. You can select a given application in 1 of 3 ways -- type the number of the application following "Application Number = = = >" and press [Enter]; place your cursor on the 8 character application name and press [Enter]; OR point and click with your mouse using the 8 character application name as your target. After you have made your selection, you will be presented with the Entry Screen for the PMIS On-Line Application of your choice. Instructions for processing each of the On-Line Applications are contained in its own section of this manual.

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Setting TSO Default Parameters

If this is your 1st entry into TSO and PMIS OR if it has been 60 days or more since you have last entered the PMIS, you will want to process the following procedure to set or re-set some of the default parameters contained in ISPF (Interactive System Productivity Facility). ISPF is the front end processor for TSO. By setting the default parameters as indicated in this section, the actual processing of the PMIS will be in sync with the instructions that are contained in the remainder of this User Manual.

After you have selected TSO from the TPX Menu and have gone through the Logon Procedure, you will either be presented with a screen that says READY or with the ISPF Primary Option Menu screen. If you receive the READY screen, type *%$spf*, press [Enter], and you will receive the ISPF Primary Option Menu screen. Before you get to the ISPF Primary Option Menu from whichever direction you are taken, you will receive a screen that contains the following:

*** ISPF PROFILE DATA SET 'yourid.ISPF.ISPPROF' HAS BEEN CREATED ***

Press [Enter]. This will complete the creation of your User Profile for ISPF and the ISPF Primary Option Menu screen will be presented to you. This is the screen where all of the fun starts and everyone needs to be on this screen so the following instructions can be processed:

☞   The following instructions appear to be quite complicated, but once you start through them, you will find them to be quite simple. Remember that you only have to do these once OR whenever you don't get into ISPF/PMIS for 60 days or more.

Following "Option = = = >" on the ISPF Option Menu screen, type *0* and press [Enter]. That is a ZERO and it is the Option Number for Settings.

You will receive the "ISPF Settings" screen that contains several options that have either a / or a space in front of them. The following options need to be changed and you can use the [Tab⇥] Key or Cursor Arrow Keys to get to them:

  / Command line at bottom -- use the [Spacebar] to blank out the /
  / Tab to action bar choices -- use the [Spacebar] to blank out the /
   Tab to point-and-shoot fields -- type a / in front of this line

Press [Enter] and the defaults will be changed. Your cursor will return to the Command = = = > line which has been moved to the top portion of your screen.

Use the Cursor Arrow Keys to move your cursor above the dashed line so it is on Log/List and press [Enter]. You will be presented with a window that contains 4 items. Type *1* (for Log Data set defaults), press [Enter], and you will be presented with the "Log Data Set Defaults" screen. Tab to the line called "Primary pages . . .", type *0*, and press [Enter]. This will zero out the "Primary pages

. . ." and "Secondary Pages . ." on this screen. This action eliminates a screen that is NOT NEEDED when you finish processing the PMIS.

Press ⌐F3⌐ and you will return to the "ISPF Settings" screen.

Type *cuaattr* following Command ===> and press ⌐Enter⌐. You will receive a screen called "CUA Attribute Change Utility". CUAATTR stands for "Common User Access ATTRibute change utility". The "CUA Attribute Change Utility" screen is a scrollable screen of Panel Elements -- ⌐F8⌐ Key to scroll forward; ⌐F7⌐ Key to scroll backward. The "Highlight" column for the following 3 Panel Elements needs to be changed:

> "Choice Entry Field" on the 1st screen
> "List Entry Field" on the 2nd screen
> "Normal Entry Field" on the 2nd screen

For each of the above Panel Elements, use your Cursor Arrow Keys to move your cursor to the "Highlight" column, type *none*, and press ⌐Enter⌐. This will change the "Highlight" column from USCORE (Underscore) to NONE for each of the above Panel Elements.

Press ⌐F3⌐ to return to the "ISPF Settings" screen.
Press ⌐F3⌐ to return to the "ISPF Primary Option Menu" screen.

Type *6* following Option ===> and press ⌐Enter⌐. You will receive the "ISPF Command Shell" screen.

Use the Cursor Arrow Keys to move your cursor above the dashed line so it is on Mode and press ⌐Enter⌐. You will receive a window with 3 items. Type *2* (for Execute), press ⌐Enter⌐, and you will return to the "ISPF Command Shell" screen where you can now proceed with the processing of the PMIS.

On the "ISPF Command Shell" screen where it says "Enter TSO or Workstation commands below:", type *pmis* and press ⌐Enter⌐. You will be presented with the Menu Screen for the PMIS from which you can select a PMIS On-Line Application that you wish to process.

From this point on, the instructions contained in the previous section -- **Access To The On-Line Applications Of The PMIS** -- will apply when you wish to exit the system OR the next time you wish to enter the system.

Application Name: PMISNEWS

This application is activated when the user selects PMISNEWS on the PMIS Menu screen. News items related to activities within the PMIS can be browsed by the user to find out such things as program and system enhancements, helpful hints, scheduled maintenance, scheduled training, suggested enhancements, and other items that the users wish to share. As shown on the PMISNEWS Entry Screen, the user can request items by starting at the beginning of the file by pressing the [F1] Key, request a given period of time, or request a keyword or phrase.

News items are presented to you in reverse chronology so you will always start with the most recent item of news. Normally, just one news item per screen is presented to you. There have been times when we have needed to continue news items on two or more screens due to the limited size of the screen. Currently, news items are entered by personnel in the Office of Data Services.

If you decide to EXIT this application OR any other PMIS on-line application, press the [F3] Key to return to the PMIS Menu Screen so you can either select another PMIS on-line application OR exit TSO completely (refer to previous instructions that explain how to exit TSO).

☞ Instructions needed to exit ALL of the PMIS On-Line Applications and TSO are the same from here forward and will not be repeated in the explanations of the other PMIS applications.

The entry screen for PMISNEWS and a news item screen are shown on the next page.

```
+IOWA --- Pavement Management Info System------------------------------------+
 Command ===>

                      Application Name:  PMISNEWS

     This application is used to Browse the Pavement Management Information
     System (PMIS) News File.  Items pertaining to PMIS training, program
     updates, screen format changes, system enhancements, system documenta-
     tion, etc., are available.  PMISNEWS was implemented in September 1995
     so news from that date forward is available.  News items are presented
     in reverse chronology (most recent first).  You can start your review
     from the beginning of the file by pressing the PF1 Key, OR select items
     for a given timeframe, OR select items with specific keywords/phrases.
     NOTE:  One screen per item per date is presented.

     ▮_____   Begin Date (Example: 01 Sep 1995)
      _____   End Date   (Example: 16 Oct 1995)
      - OR -
      _____   Keyword/Phrase

    ==========================================================================
     ENTER = Proceed;  PF1 = Go To First Record;  PF3 = Return To PMIS Menu;

----------------------------------------------------------------------------
 M3  a                                                              16/886
```

Entry Screen For PMISNEWS

```
+IOWA --- Pavement Management Information System-----------------------Obs 36-+
 Command ===> ▮

                 PMIS NEWS FILE        Screen 1 Of 1     Date:  23 Jul 96

 Date Of News.... 8 Sep 1995           Item Num.. 1      Entered By.. JEP
 Type Of News.... 16 New PMIS Applications

 PMISNEWS was implemented on September 8, 1995.  This new application will
 provide users of the PMIS with news related to activities within the PMIS.
 Such things as new applications, program and system enhancements, scheduled
 maintenance, scheduled training, documentation updates, and status reports
 will be posted.

 This application is a result of a request from the PMIS NHS Task Force and
 should be very helpful in keeping users informed.

 If you have news items to share, please let Dave Oesper or John Pierce know
 so we can enter them.  Enjoy!

 ==========================================================================
 PF3 = Find Another Record Or Exit;
 PF6 = Print Screen;                       PF7 = Prev Record; PF8 = Next Record;
----------------------------------------------------------------------------
 M3  a                                                              82/816
```

News Item Screen

Application Name: PMISCURR

This is the PMIS application that allows users to browse the Current Working Copy of the PMIS Master File. There are a select few of the users that are permitted to edit the data in the file. Following is a brief description of the data that is stored on the Current Master File and instructions that will assist you in using this application. The instructions that are shown for this application are applicable for other applications, also.

There are approximately 4,000 pavement management sections stored in the Current Working Copy of the PMIS Master File. Every kilometer of the Iowa Primary Highway System (Interstate, U.S., and Iowa Routes) is accounted for - approximately 18,000 kilometers total. About 92% of the meterage is flagged as being tested and has pavement condition indexes (PCIs) calculated for it. The remaining 8% is either located in urban areas and cannot be tested or is included in stub highway route meterage and doesn't require testing. The PMIS data is stored "by route" so that all routes can be reviewed from the beginning to end or by any section therein. Mileposts are being used as the reference system along all routes.

At the end of the calendar year when the PCI processing is completed, the Current Working Copy of the PMIS Master File is closed and committed to the Multi-Year History PMIS Master File and the Snapshot History PMIS Master File is recreated from the current file. After both history files are created, the Current Working Copy of the PMIS Master File will be prepared for the next year of PCI processing. There is a "record key" that is made up of the route, system, direction, beginning milepost, ending milepost, and county that permits us to "tie" pavement management sections together through time. This tie is used for maintaining section history from the Current Working Copy of the PMIS Master File back through the years with data contained in the Multi-Year History PMIS Master File.

On the next page is the Entry Screen for PMISCURR that you will receive when you request PMISCURR from the PMIS Menu Screen. You can either start reviewing data from the beginning of the Current PMIS Master File by pressing the F1 Key or by entering controls for a specific route or section.

```
+IOWA --- Pavement Management Info System-------------------------------------+
 Command ===>

                        Application Name:  PMISCURR

 This application is used to Browse and Edit data that is stored on the
 Pavement Management Master File.  Enter the following information for a
 specific pavement management section that you wish to review OR press
 the PF1 Key to go to the FIRST record on the master file:

        System............. ▮         (I-, US, or IA)

        Route..............  ___

        Direction.......... 1         (1 = NB/EB, 2 = SB/WB)

        Beginning Milepost.. _____ _  (Optional)
              -OR-
        County............. __        (Optional)

 ================================================================================
 ENTER = Proceed;  PF1 = Go To First Record;  PF3 = Return To PMIS Menu;
+-----------------------------------------------------------------------------+
 M▮    a                                                              11/038
```

Entry Screen For PMISCURR

If the ⌐F1⌐ Key is not used to gain access to the Current PMIS Master File, System, Route, and Direction 1 are the minimum required data fields needed to find the beginning of a given route. When System, Route, and Direction 2 are entered, you will be taken to the 1st SB/WB divided roadway section for that route. If you want a specific Beginning Milepost or County, you will need to enter either the beginning milepost OR the county number to pinpoint a section that you wish to review. Entry to PMISCURR is obtained as follows:

Press the ⌐F1⌐ Key to start reviewing sections at the beginning of the file
OR
Type *I-*, *US*, or *IA* for System
⌐Tab⌐ to Route and type *route number* (1, 001, 210, 30, 030, etc)
⌐Tab⌐ to Direction and Type *1* or *2* (1 is the default)
If desired, ⌐Tab⌐ to Beginning Milepost and type desired *milepost*
If desired, ⌐Tab⌐ to County and type *county number* (1, 01, 85, etc.).

☞ Either a milepost OR a county number can be entered - NOT BOTH.

☞ If you do not know a specific milepost, just type in a milepost that is close to the one that you want, e.g., 150 for 153.68, and you will be presented with the section that contains milepost 150 from which you can move up or down the road.

☞ ⌐ErEOF⌐, ⌐End⌐, or ⌐Spacebar⌐ may be required to clear some of the select lines of data that might be left over from a previous request.

Press ⌐Enter⌐ and you will be presented with Screen 1 Of 6 of the data that pertains to the pavement management section that you requested.

When you are ready to return to the PMIS Menu Screen, press the ⌐F3⌐ Key when on the entry screen for the individual on-line applications.

Formats of the 6 data screens that are produced by PMISCURR are shown at the end of this section. Following are explanations of the screens and instructions that apply to all of the screens that are produced by PMISCURR, PMISSNAP, and PMISHIST.

First of all, we would like to describe how the screens have been designed and how they fit together in the scheme of things:

All 6 Screens: The 1st 5 lines show you the PMIS year, the name of the file that you are browsing, screen number, current date, whether or not the section is part of the NHS (National Highway System), whether or not the section is tested for PCI purposes, where the section is located, and a description of it.

Screen 1 Of 6:   Shows the DOT Region, County, City, and Urban Area that the section is located in. The Original Key for "history tracking purposes" is on this screen. Other data on this screen shows dates of construction/reconstruction and resurfacing, number of lanes, whether a divided highway or not, physical characteristics of the pavement section, planning classes, a maintenance concept number, the PCI (Pavement Condition Index), and whether or not some type of work has been programmed for the section in the Five Year Iowa Transportation Improvement Program.

Screen 2 Of 6:   Shows the test data that is used in the calculation of the PCI and whether or not defaults had to be used in the calculation. Test data includes IRI (International Roughness Index), Friction, Surface Treatments, Crack and Patch, Rut Depth, Faulting, Road Rater, etc.

Screen 3 Of 6:   Shows 4 lines of construction or rehabilitation history data by project number for the section.

Screen 4 Of 6:   Shows 4 more lines of construction or rehabilitation history data by project number for the section, if needed.

Screen 5 Of 6:   Shows any concurrent routes, the maintenance service level, the area of maintenance responsibility, the kilometerpoints that are used for cross reference purposes, the actual length of the section, and the coordinates and longitudes/latitudes used for mapping purposes.

Screen 6 Of 6:   Shows traffic data and ESALs (Equivalent Single Axle Loads) for the section.

You will notice there are 2 lines of PF Keys (Program Function or Function Keys) at the bottom of each screen. These are the main PF Keys that help you through the screens and records. Some keyboards have PF Keys and others have F Keys. We have used F Keys throughout this manual and they relate to the PF Keys shown on the screen formats. In the following instructions, we are going to discuss the functions of the F1 through F12 Keys - some appear on the PMIS screens and some do not.

The following seven F Keys appear on the PMIS Data Screens and their function is the same for all PMIS On-Line Applications. If there is a variation in any of the F Key functions for a given application, it will be explained in the section for that application.

F3 will return you to the Entry Screen for PMISCURR so that you can either request another pavement management section or exit the application.

F4 will allow you to obtain the pavement management section that is directly across from the section that you are reviewing. This will only work for sections that are on a divided highway, i.e., there needs to be a Direction 1 (Northbound/Eastbound) section with an associated Direction 2 (Southbound/Westbound) section for this function to work.

F6 allows you to print a hardcopy of the data. When you press the F6, you will be presented with a pop-up window that asks you to enter your printer ID and to select the type of printout that you want.

Type your *printer ID* on the "Printer ID....." line. You can then select the type of printout that you want by typing an *x* for the format that you want. The default format is "Print Entire Record On 2 Pages..." as you can see from the X on this line. If you want the printout in screen format, clear the default X with the Spacebar and type an *x* for the screen(s) that you want. After you have typed in the above, press Enter and your print will be completed and you will return to the data screen. Whatever you type will remain for the duration of your session or until you change something. Refer to the Print Request Screen Format on page 22.

F7 will take you to the pavement management section immediately preceding the section that is in front of you.

F8 will take you to the pavement management section immediately following the section that is in front of you.

F10 moves you to the preceding screen for the same section.

F11 moves you to the next screen for the same section.

Following is an explanation of the remaining five F Keys that do not appear on the data screens:

F1 allows you to find out what a variable name is for a given data field on the screen. The actual variable name and format is needed when you wish to do some type of query. Tab⇆ or use the cursor arrow keys → to move your cursor to a given data field on the screen, press F1 and you will be presented with the Variable Name and Format (numeric or alphanumeric) for the data field.

F2 is not active and you will receive an Error Message if you press F2.

F5 allows you to do a Repeat Find after you issue a Find Command which we will explain in the Command Line Section of this manual.

F9 is not active and you will receive an Error Message if you press F9 .

F12 will return your cursor to the "Command = = = >" line.

In addition to the lines of data and the PF Key lines, there are 3 other lines at the top of the screen that are used for various purposes.

The 1st line at the top of the screens is the Heading Line that contains "IOWA --- Pavement Management Information System ----". This line also contains some other bits of information - an Obs (Observation/Record) Number, a Screen Number, and sometimes the word "Where...". The Obs Number and "Where..." will be discussed in the Command Line Section of this manual.

The 2nd line from the top is the Command Line that contains "Command = = = > _". This is where the user can enter commands for queries and for moving around in the PMIS Files. The commands for this line will be discussed in the Command Line Section of this Manual.

The 3rd line from the top is the Message Line that the PMIS uses to communicate with the user. Error messages, warning messages, informational type messages, and variable names will appear on this line.

Please review the following screen formats for PMISCURR. When you have a fairly good understanding of the formats, the data, and the F Keys, log on to PMISCURR and then use some or all of the commands that are contained in the Command Line Section of this manual so that you can get a feeling for what can be done within the applications. This will give you a better understanding of what can be done in this and the other PMIS Applications. Explanations of the data that is contained on the screens can be found in Appendix A - Glossary of Pavement Management Screen Items and Appendix B - PMIS Master File Record Format.

```
+IOWA --- Pavement Management Information System------------Obs 1358  Screen 1-+
 Command ===> █

   PMIS Yr... 1996  CURRENT MASTER FILE      Screen 1 of 6     Date:  23 Jul 96

   Nat Hwy Sys.. Y  County... 86  System... US  Route... 838  Direction..... 1
   Tested Sect.. Y  Begin Milepost.... 232.88   Ending Milepost....... 237.41
   Section Desc...  From W JCT US 38/US 218 East To Milepost 237.41

   DOT Region.. EC  County Name... Benton(86)        City Number...... ____
                    Original Key.. 03021232 88237 4186  Urban Area Code.. ___

   Constructed.... 1927     Resurfaced..... 1998 Lanes.. 2     Median.. N
   Pavement Type.. 3  (COM)  Thickness...... 533  Width.. 7.3  SN...... 152
   Surf Type... 65  Desc..... Asphalt on old portland cement concrete
   Shoulders......  Lt: G / 3.8 W / ___ T / _     Rt: G / 8.9 W / ___ T / _
   Multi-Surf... N  Treated.. AC       Subdrains....... _         Special.... _

   Planning Class/Level... 2 / B      Fed Func Class.. 3       MCN.. ____
   PCI........ 88  Programmed.. 1998 GD PV 99 ADD 2 LANE        PIN.. 9286848
 =============================================================================
 PF3 = Find Another Section or Exit; PF4 = Other Direct; PF6 = Print Screen;
 PF7 = Prev Sect; PF8 = Next Sect;   PF18 = Prev Screen; PF11 = Next Screen;
 ...........................................................................
 M8  a                                                             82/816
```

Screen 1 Of 6 - Description Of Section

```
+IOWA --- Pavement Management Information System------------Obs 1358  Screen 2-+
 Command ===> █

   PMIS Yr... 1996  CURRENT MASTER FILE      Screen 2 of 6     Date:  23 Jul 96

   Nat Hwy Sys.. Y  County... 86  System... US  Route... 838  Direction..... 1
   Tested Sect.. Y  Begin Milepost.... 232.88   Ending Milepost....... 237.41
   Section Desc...  From W JCT US 38/US 218 East To Milepost 237.41

   Surf Type... 65  Pavt Type.. 3  (COM)  Struct No... 152     PCI....... 88

   IRI.. 1.18 1994  Friction... 47 1995   Surf Treat.. AC ____  Defaults.. N

   Condition:  Cracking.........   8  Rut Depth... 3.8  H Crack..   8
      Date     Patching.........   8  Faulting.... 3.8  L Crack..   1
      1993     Trans Cracks......   6  D Cracking.. 8    PSI Ded..  8.82

   Road Rater: Av Struct Rating.. 7.82  88% Structural Rating........  6.14
      Date     Average K Value... 58       Relative Structural Ratio.... 8.85
   1995/85/22  Thickness........ 533      Av Struct Rating At Joints... 6.83
 =============================================================================
 PF3 = Find Another Section or Exit; PF4 = Other Direct; PF6 = Print Screen;
 PF7 = Prev Sect; PF8 = Next Sect;   PF18 = Prev Screen; PF11 = Next Screen;
 ...........................................................................
 M8  a                                                             82/816
```

Screen 2 Of 6 - Test Data Collected For Section

```
+IOWA --- Pavement Management Information System-----------Obs 1358  Screen 3-+
| Command ===> █                                                              |
|                                                                             |
|  PMIS Yr... 1996  CURRENT MASTER FILE      Screen 3 of 6     Date:  23 Jul 96|
|                                                                             |
|  Nat Hwy Sys.. Y  County... 86  System... US  Route... 838  Direction..... 1|
|  Tested Sect.. Y  Begin Milepost.... 232.88   Ending Milepost....... 237.41 |
|  Section Desc...  From W JCT US 30/US 218 East To Milepost 237.41           |
|  Pavt Type...... 3 (COM)   Constructed........ 1927    Resurfaced... 1990   |
|  Agg Rating.....  _____    Asphalt Age Rating..  _____  Thickness.... 533   |
|  Line  Year _____Project Number_____ Type  Surface  __Base_ Subbase   |
|   01   1990  FN-30-6(49)--21-06              _    AAC  76   __ __  __ __     |
|   02   1976  FN-970-1(1)--21-86              _    AAC  30   TBB 30  __ __    |
|   03   1965  FN-233*<1>                      _    AAC  76   __ __  __ __     |
|   04   1949  FN-233(2)                       _    PCC 165   __ __  __ __     |
|  Line  ___Agg Source___  AggType Class Removal  _____Remarks_____  |
|   01   HENNESSEY         C.LST.    _   MIL  30   _____   |
|   02   GARRISON B        C.LST.    _   __ __     _____   |
|   03   S. CEDAR RAPIDS   C.LST.    _   __ __     _____   |
|   04   CEDAR RAPIDS      C.LST.    1   __ __     _____   |
| ========================================================================== |
|  PF3 = Find Another Section or Exit; PF4 = Other Direct; PF6 = Print Screen;|
|  PF7 = Prev Sect; PF8 = Next Sect;   PF10 = Prev Screen; PF11 = Next Screen;|
+-----------------------------------------------------------------------------+
 MB  a                                                                82/816
```

Screen 3 Of 6 - Project History Data

```
+IOWA --- Pavement Management Information System-----------Obs 1358  Screen 4-+
| Command ===> █                                                              |
|                                                                             |
|  PMIS Yr... 1996  CURRENT MASTER FILE      Screen 4 of 6     Date:  23 Jul 96|
|                                                                             |
|  Nat Hwy Sys.. Y  County... 86  System... US  Route... 838  Direction..... 1|
|  Tested Sect.. Y  Begin Milepost.... 232.88   Ending Milepost....... 237.41 |
|  Section Desc...  From W JCT US 30/US 218 East To Milepost 237.41           |
|  Pavt Type...... 3 (COM)   Constructed........ 1927    Resurfaced... 1990   |
|  Agg Rating.....  _____    Asphalt Age Rating..  _____  Thickness.... 533   |
|  Line  Year _____Project Number_____ Type  Surface  __Base_ Subbase   |
|   05   1927  F-270                           _    PC7 170   __ __  __ __     |
|   06   ____  _____       _    __ __   __ __  __ __      |
|   07   ____  _____       _    __ __   __ __  __ __      |
|   08   ____  _____       _    __ __   __ __  __ __      |
|  Line  ___Agg Source___  AggType Class Removal  _____Remarks_____  |
|   05   LE GRAND         C.LST.    1   __ __     DUR=0                        |
|   06   _____  _____   _   __ __     _____    |
|   07   _____  _____   _   __ __     _____    |
|   08   _____  _____   _   __ __     SA                          |
| ========================================================================== |
|  PF3 = Find Another Section or Exit; PF4 = Other Direct; PF6 = Print Screen;|
|  PF7 = Prev Sect; PF8 = Next Sect;   PF10 = Prev Screen; PF11 = Next Screen;|
+-----------------------------------------------------------------------------+
 MB  a                                                                82/816
```

Screen 4 Of 6 - Project History Data (Continued)

```
+IOWA --- Pavement Management Information System------------Obs 1358  Screen 5-+
| Command ===> █

  PMIS Yr... 1996  CURRENT MASTER FILE    Screen 5 of 6    Date:  23 Jul 96

  Nat Hwy Sys.. Y  County... 86  System... US  Route... 838  Direction..... 1
  Tested Sect.. Y  Begin Milepost.... 232.88   Ending Milepost....... 237.41
  Section Desc...  From W JCT US 38/US 218 East To Milepost 237.41

  Concurrent Routes........... 218 ___

  Maintenance:  Service Level....... B  Region.. EC   Area.. 6   Garage.. 83

  Kmpoints:     Base Rec Begin.. 22.55  Base Rec End.... 31.14 BR Route.. ___
                Trav Way Begin.. 22.55  Trav Way End.... 31.14 Length.. 8.59
  Coordinates:  Begin X.... 364394138  Begin Y.... -35869984
                End X...... 392899979  End Y...... -35478898
  Long, Lat:    Begin LONG.... 92.8259  Begin LAT..... 41.9649
                End LONG...... 91.9236  End LAT....... 41.9648

  ============================================================================
  PF3 = Find Another Section or Exit; PF4 = Other Direct; PF6 = Print Screen;
  PF7 = Prev Sect; PF8 = Next Sect;   PF10 = Prev Screen; PF11 = Next Screen;
  ----------------------------------------------------------------------------
 MB  a                                                            02/016
```

Screen 5 Of 6 - Concurrent Routes And Mapping Data

```
+IOWA --- Pavement Management Information System------------Obs 1358  Screen 6-+
| Command ===> █

  PMIS Yr... 1996  CURRENT MASTER FILE '   Screen 6 of 6    Date:  23 Jul 96

  Nat Hwy Sys.. Y  County... 86  System... US  Route... 838  Direction..... 1
  Tested Sect.. Y  Begin Milepost.... 232.88   Ending Milepost....... 237.41
  Section Desc...  From W JCT US 38/US 218 East To Milepost 237.41

  Constructed.... 1927     Resurfaced..... 1998

  Pavement Type.. 3 (COM) Thickness...... 533    Struct No... 152

  __ Traffic Count 1994 __       __ ESALs (Equivalent Single Axle Loads) __
  ADT............. 5,788         Predicted Lifetime............ 68,331,965
  Trucks.........    984         Annual........................    139,692
  Percent Trucks..    16         Accum Since Resurfacing.......    881,742
                                 Accum Since Construction......  4,869,887
                                 Percent Life Used............  _____

  ============================================================================
  PF3 = Find Another Section or Exit; PF4 = Other Direct; PF6 = Print Screen;
  PF7 = Prev Sect; PF8 = Next Sect;   PF10 = Prev Screen; PF11 = Next Screen;
  ----------------------------------------------------------------------------
 MB  a                                                            02/016
```

Screen 6 Of 6 - Traffic Count Data And ESAL Data

```
                                        System...........Obs 1358  Screen 6..
   Command ===>                                                              .
   NOTE: At top.                                                             .
   Enter the following initially OR if      Screen 6 of 6    Date:  23 Jul 96  .
   changes are required:                                                     .
                                          . US  Route... 838  Direction..... 1  .
   Printer ID................ █_____    .88   Ending Milepost....... 237.41  .
                                          8 East To Milepost 237.41           .
   Print Entire Record On 2 Pages.... X                                       .
                                          ... 1998                            .
              -- OR --                                                        .
                                          ... 533     Struct No... 152        .
   Print the Following Screens:                                               .
                                          Ls (Equivalent Single Axle Loads) __  .
     CUR  ALL  1  2  3  4  5  6           ted Lifetime............  68,331,965  .
      _    _   _  _  _  _  _  _           ........................    139,692  .
                                          Since Resurfacing.......    881,742  .
   ======================================= Since Construction......  4,869,887  .
   Press ENTER to Proceed OR PF3 to Exit  t Life Used............  _____   .

   . =============================================================================
   . PF3 = Find Another Section or Exit; PF4 = Other Direct; PF6 = Print Screen;  .
   . PF7 = Prev Sect; PF8 = Next Sect;   PF10 = Prev Screen; PF11 = Next Screen;  .
   ...............................................................................
   M█   a                                                              87/831
```

Print Request Screen

Application Name: PMISINFO

This PMIS application allows a user to perform detailed queries and analyze data that is stored on the PMIS Master Files. When this application is accessed, copies of the PMIS files are created for users to perform their tasks. The most recent data is provided but we decided to use copies of the files so that no one can alter any of the data that is stored on the master files.

Reports can be created, charts and graphs can be created, and data can be analyzed many different ways. All of this can be done for review on the user's screen with an option to print hard copies. Programs that are created to accomplish the above can be saved for recall at a later time. SAS/ASSIST is the basis for this application. It is fairly simple to use and provides for many tasks but is going to take some practice to become proficient in its use. A tutorial task is provided with this application and there are SAS/ASSIST Manuals that can be obtained for training and reference purposes. We would recommend the following SAS Manuals for starters: (1) Getting Started with the SAS System Using SAS/ASSIST Software, Version 6, Second Edition; (2) Doing More with SAS/ASSIST Software, Version 6, First Edition; (3) SAS/ASSIST Software: Changes and Enhancements, Version 6, First Edition.

We would like to suggest that anyone wishing to use the PMISINFO application review the above manuals and then schedule some training time with us in Ames so they can learn how to use SAS/ASSIST. There are so many things available in SAS/ASSIST that we don't feel we can do it justice or cover it all in this manual.

The Primary Menu Screen as shown on the next page is the screen that is presented to you when you select PMISINFO from the PMIS Menu Screen. Once you are on the Primary Menu Screen for PMISINFO, you can either [Tab⇆] to the desired task and press [Enter] or use your mouse [] to move your cursor to the desired task and click on it with the []. After you have entered the various tasks, the menus are quite self explanatory and you can use the [Tab⇆] and [Enter] keys or your [] to move around through the tasks and menus. The CANCEL and GOBACK buttons at the bottom of the screens of the various tasks will eventually get you back to the main menus and you should be able to recover from just about anything. Some sample SAS/ASSIST screens are shown with the Primary Menu Screen, also.

A good place for users to start with this application is the Tutorial Task on the Primary Menu. This will give you most of the SAS Basics and introduce you to the look, feel, and operation of SAS/ASSIST.
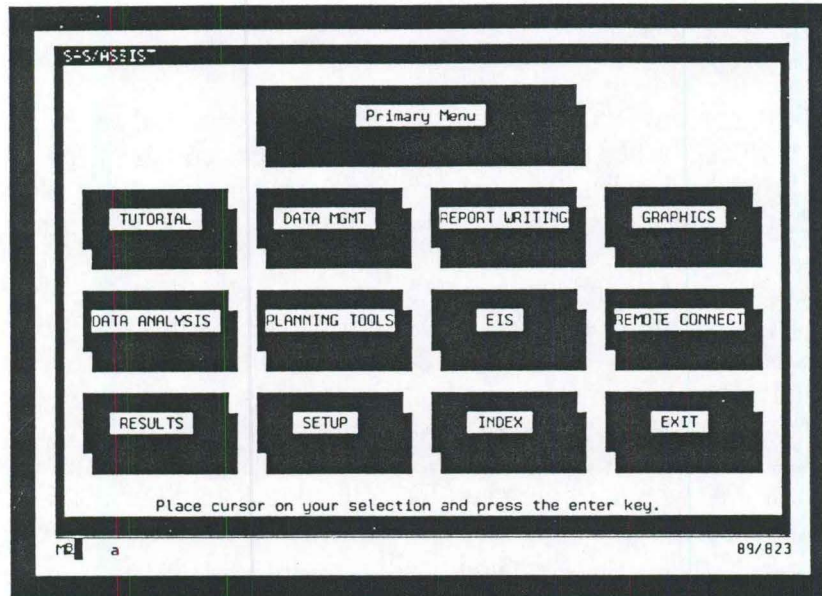
Entry Screen For PMISINFO - SAS/ASSIST Primary Menu
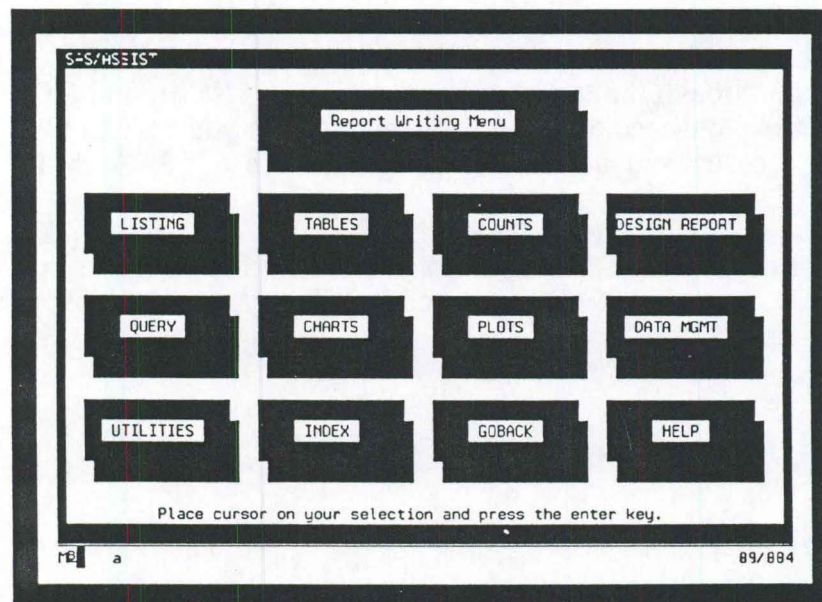
SAS/ASSIST Report Writing Menu
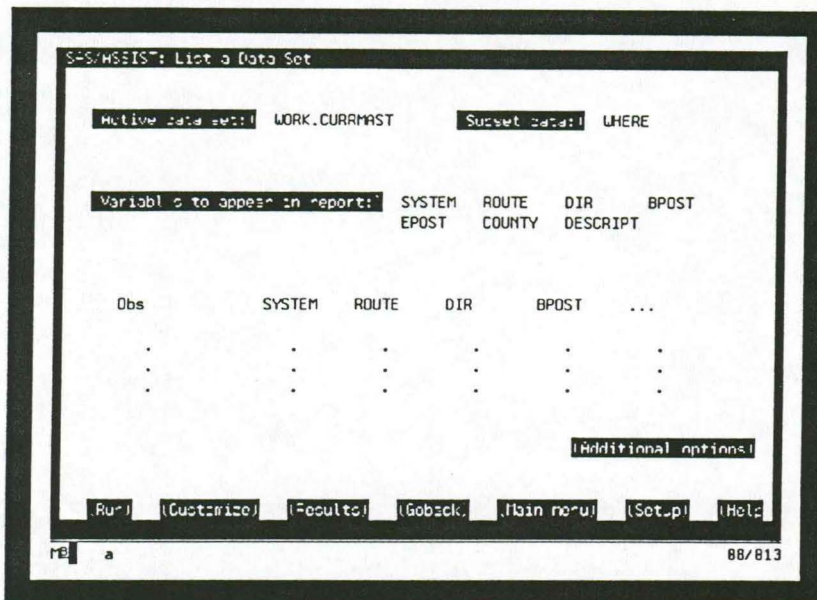
SAS/ASSIST List A Data Set Screen
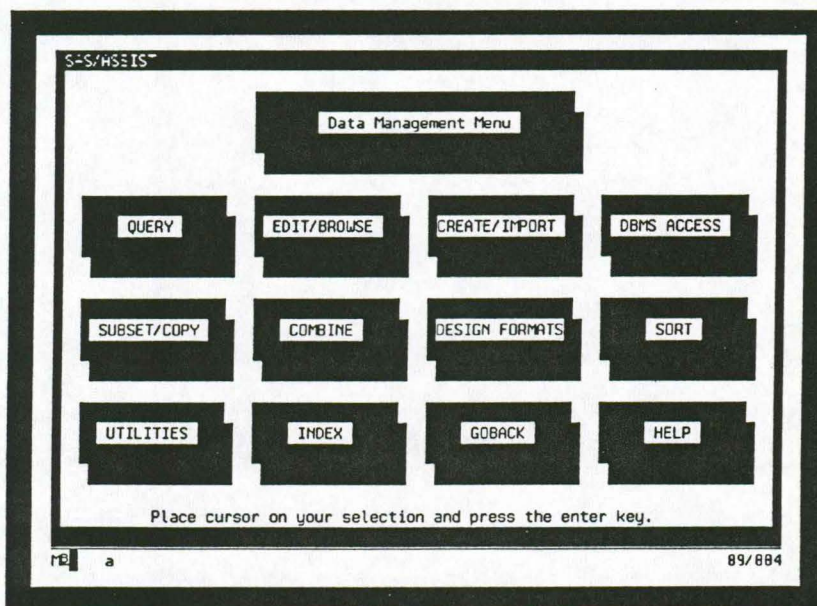
SAS/ASSIST Data Management Menu

(This page left blank intentionally)

Application Name: PMISMAPS

This PMIS application is used to create colored maps that are based upon user-defined selection criteria. State, Transportation Region, or County maps can be created from data stored in the Current PMIS Master File. Maps can be drawn that include ALL routes (Interstate, U.S., and Iowa) in the Iowa Highway System, just the National Highway System (NHS) routes in Iowa, or just the Iowa Interstate System routes. The Transportation Region and County maps can be requested with the Regular Region and County Boundaries OR with Maintenance Responsibility Area Boundaries.

The entry screen for PMISMAPS is shown on page 29. The entry screen is where you will select the type of map, which system(s), and which boundaries you want plotted. The Default Map, as you can see from the Xs that are presented the first time you enter this application, is a State Map with All Highway Systems that will have Regular Region/County Boundaries. If you wish to change any of the default Xs, you need to [Tab⇥] or use the cursor arrow keys [→] to move your cursor to the default X, use the [Spacebar] to clear the default X, and then type an X for what you want. If you want a Trans Region Map, you will need to type the region identifier, i.e., C, NE, NW, SW, SE, or EC. If you want a County Map, you will need to type the county number, i.e., 01 thru 99. The default Xs or whatever you enter will remain active until you change any of them.

☞   Do Not Press [Enter] until everything (Type Of Map, Desired System, Boundaries, Shared Selected Criteria, and Color Selections) on this screen has been decided upon and typed in its proper location.

The line that begins with "Shared Select Criteria.." may be used when certain select criteria can be shared with the remaining 5 select lines. This can save you a lot of typing at times. For example, if everything that you wanted to plot applied only to tested sections, you could type *tested='Y'* on this line and then only the tested sections would be selected for the rest of your select criteria. Suppose you wanted to plot all tested, U.S. routes that have something programmed -- you could type *tested='Y' and system=2* on the Shared Criteria line and this would be shared by the rest of your selected color criteria. If Shared Select Criteria data is not needed, this line can be left blank or can be blanked out with the [Spacebar], [End], or [ErEOF] keys.

The remaining 5 lines on this screen are where you will type the criteria that you want plotted in the colors indicated. At least 1 line needs select criteria typed on it. All 5 lines may be used or any portion thereof. If a certain color is not needed, just leave it blank or blank it out. After you have typed everything that you want, press [Enter] and a colored map will be produced for you for review on your screen.

Suppose you want to create a map for the Central Transportation Region with regular region boundaries that includes all highway systems showing tested sections with PCIs below the cutoff value for a given planning/service level. Following is how you could do this:

> [Tab⇆] to "State... X" line and press [Spacebar] to blank out the default X
> Type *C* for the Trans Region
> [Tab⇆] to "Shared Select Criteria.."   line and type *tested = 'y'*
> [Tab⇆] to "RED for routes where...."   line and type *plevel = 'b' and pci < = 60*
> [Tab⇆] to "BLUE for routes where..."   line and type *plevel = 'c' and pci < = 50*
> [Tab⇆] to "GREEN for routes where.."   line and type *plevel = 'd' and pci < = 40*
> Press [Enter] and you will be presented with a screen showing your map.

After you have reviewed your map on the screen, you need to press [Enter] so that you can return to the entry screen where you can either request another map, get a hard copy of the map that you just reviewed, or exit PMISMAPS.

The [Enter] key is used to proceed with your processing. The [F1] key will produce screens of an alphabetical listing of the PMIS Master File variable names that can be used in your select criteria statements. The [F3] key will end the mapping session. The [F6] key is used when you wish to print a hard copy of the map that you reviewed on your screen. Before a hard copy of a map can be printed, the map must be created and reviewed on your screen.

If you want to send your map to a plotter or printer so that you can get a hard copy of it, press [Enter] after you have reviewed the soft copy of the map on your screen and you will be returned to the Entry Screen for PMISMAPS. Press the [F6] key and you will receive the "PMISMAPS Hard Copy" screen. From this screen, press the [F1] key and you will be presented with a screen showing you the plotters and printers that are supported within PMISMAPS. If you need your plotter/printer added to the list, please contact your ODS Support Team and they will work with us in getting it added. After you have selected your plotter/printer, press [F3] to return to the "PMISMAPS Hard Copy" screen. Type your *plotter/printer ID* on the "Enter Plotter/Printer ID....." line. If you want the default heading which is the same as the heading and footnote as shown on the map on your screen, type an *X* on the default heading line and press [Enter]. If you want custom headings and footnote on your printed map, leave the default line blank, [Tab⇆] to the custom heading line, and type an *X* on the custom heading line. You can now type 1 or 2 custom headings and/or a footnote on the lines provided. One or all three lines may be used. After you have typed the above necessary information on the proper lines, press [Enter] and your map will be sent to the plotter or printer that you have specified. You will receive a message on your screen when your printed map is completed and you can then press the [F3] key to return to the PMISMAPS entry screen. You can then request another map or exit PMISMAPS.

Hard copies of the maps are not required and the plotting or printing of them should be reserved for special occasions.

Some points of interest related to the PMISMAPS Application: When PMISMAPS is invoked, the required data needed to create the maps is read into storage so there is a slight delay at the beginning of this application while the data is being stored. Latitudes and longitudes for each end of pavement management sections are used to create the maps. When you have a fairly long section that may contain a curve or two, you are going to be presented with a straight line connecting the lat/longs for the ends of the section and may receive a little distortion in some of the routes. We will continue to clean these up as we proceed. The lat/longs for the sections are stored on the PMIS Master File and they are calculated from X, Y coordinates that are obtained from the Base Records. As we get farther along and as the need arises, we may try to add some additional identifying markers, i.e., route numbers, major cities, etc., to the maps. PMISMAPS is a precursor to a full blown Geographic Information System (GIS) and will provide us with things to consider as we move in that direction.

```
+IOWA --- Pavement Management Info System----------------------------------+
| Command ===> █                                                            |
|                                                                           |
|                        Application Name:  PMISMAPS                        |
|                                                                           |
|   This application is used to create colored maps that are based upon     |
|   user-defined selection criteria.  State, Transportation Region, or      |
|   County maps can be created from data contained in the PMIS Master File. |
|                                                                           |
|   Type of Map Desired:   State... X  Trans Region..... _   County........ _ |
|   System(s) Desired:     All..... X  Natl Hwy Sys..... _   Interstate.... _ |
|   Boundary(s) Desired:   Regular Trans Region/County.. X   Maint Respon.. _ |
|                                                                           |
|   Shared Select Criteria.. _____  |
|                                                                           |
|   RED for routes where.... _____  |
|   PINK for routes where... _____  |
|   BLUE for routes where... _____  |
|   TURQ for routes where... _____  |
|   GREEN for routes where.. _____  |
|                                                                           |
|   =====================================================================   |
|   ENTER=Proceed; PF1=PMIS Variables; PF3=Return To PMIS Menu; PF6=Hard Copy; |
+---------------------------------------------------------------------------+
 MB    a                                                          82/816
```

Entry Screen For PMISMAPS
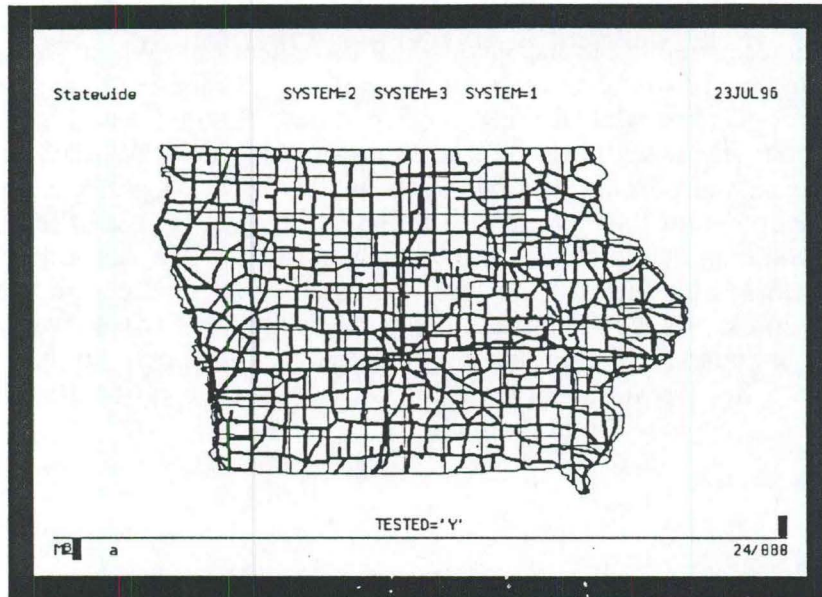
Screen Of Plotted Statewide Map
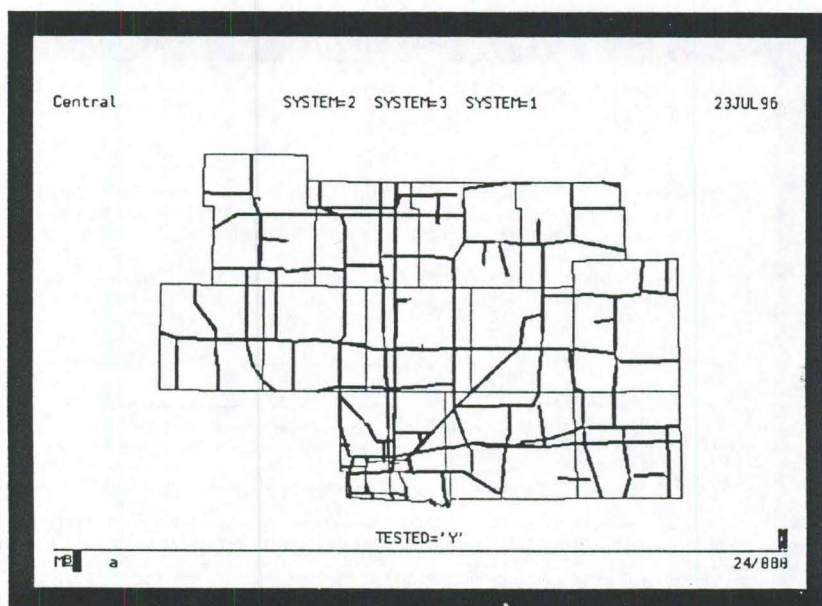
Screen Of Plotted Central Transportation Region Map

Polk(77)   SYSTEM=2 SYSTEM=3 SYSTEM=1   23JUL96

TESTED='Y'
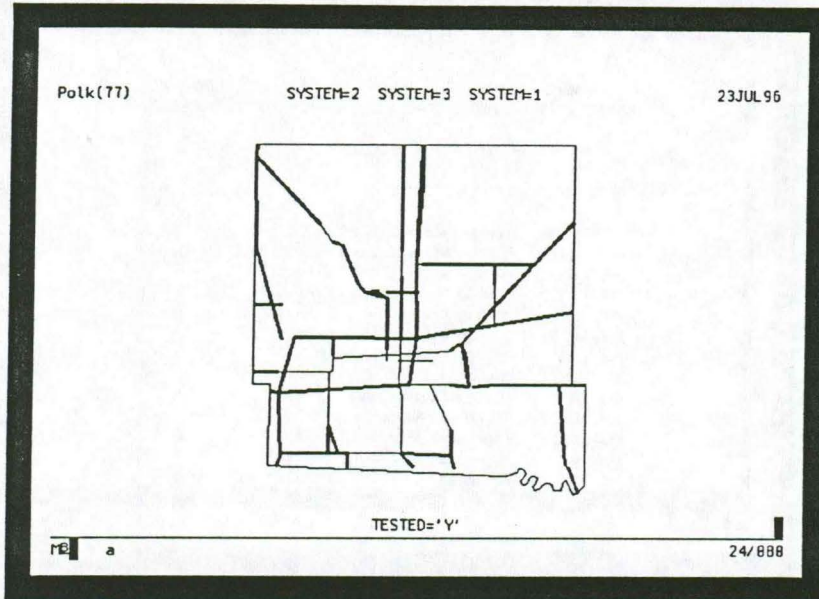
Screen Of Plotted Polk County Map


```
Command ===>

                              State of Iowa

                   Pavement Management Information System

                          PMISMAPS Hard Copy


Enter Plotter/Printer ID.....

Default Heading Showing Your Select Criteria.............. _
                    OR
Custom Heading(s) And/Or Footnote As Indicated Below....... _

Heading 1... _____
Heading 2... _____
Footnote.... _____


===========================================================================
ENTER = Proceed;  PF1 = List of Supported Plotters/Printers
                  PF3 = Return To PMISMAPS Selection Screen
```

Screen For PMISMAPS Hard Copy Request

```
O_TPUT                                          Processing submitted statements
Command ===>

                PAVEMENT MANAGEMENT INFORMATION SYSTEM (PMIS)           1
                VARIABLE NAMES AND DESCRIPTIONS IN ALPHABETICAL ORDER

              (PF3 = RETURN;  PF7 = BACKWARD;  PF8 = FORWARD)

          NAME        DESCRIPTION

          ADT         Average Daily Traffic
          AGGCLAS1    PC Aggregate Class (Line 1)
          AGGCLAS2    PC Aggregate Class (Line 2)
          AGGCLAS3    PC Aggregate Class (Line 3)
          AGGCLAS4    PC Aggregate Class (Line 4)
          AGGCLAS5    PC Aggregate Class (Line 5)
          AGGCLAS6    PC Aggregate Class (Line 6)
          AGGCLAS7    PC Aggregate Class (Line 7)
          AGGCLAS8    PC Aggregate Class (Line 8)
          AGGRATE     Aggregate Rating
          AGGSRC1     Aggregate Source (Line 1)
          AGGSRC2     Aggregate Source (Line 2)
          AGGSRC3     Aggregate Source (Line 3)

M2   a                                                              02/016
```

Screen Of PMISMAPS Variable Names

```
+-----------------------------------------------------------------------+
| Command ===>                                                          |
|                                                                       |
| Here is a list of supported plotters/printers for the PMISMAPS Application: |
|                                                                       |
|                                                                       |
|  PLOTTER                                      LOCATION                |
|  ===================================          ============================ |
|  CALCOMP8 -- CalComp 1044 GT 8-pen Plotter    Data Services Computer Room |
|  DT1039AP -- HP DeskJet 550C Printer          Pavt Mgmt, Data Services |
|  DT1DS01P -- HP DesignJet 650C Plotter        Central Iowa T.C. (1) - ROW |
|  DT1ME30  -- HP 7550 8-pen Plotter            Office of Materials      |
|  DT1MF03  -- HP 7550 8-pen Plotter            Maintenance Division     |
|  DT1MF12P -- HP PaintJet XL300 Printer        Systems Planning         |
|  DT1ML07  -- HP 7550 8-pen Plotter            Pavt Mgmt, Office of Design |
|  DT1MM25P -- HP DeskJet 560C Printer          John Selmer - Maintenance |
|  DT1MS28P -- HP DeskJet 500C Printer          Systems Planning         |
|                                                                       |
|                                                                       |
|                                                                       |
|  ==================================================================== |
| Press PF3 to Return                                                   |
+-----------------------------------------------------------------------+
M2   a                                                              02/016
```

Screen Of PMISMAPS Plotters/Printers

Application Name: PMISHIST

This PMIS application allows a user to browse pavement management information that has been committed to the Multi-Year PMIS History File. We have historical pavement management data stored for each year back to 1992.

After a user has gained access to **PMISHIST**, it functions exactly like the **PMISCURR** application. We will not spend much time explaining this application since it is so much like the **PMISCURR** application. The entry screen for **PMISHIST** is shown below. The only difference between **PMISHIST** and **PMISCURR** is that the user can request data for a specific year, if desired. The data fields on screens 1 through 6 are identical for both applications. The ⓕ keys and commands for the "Command = = = >" line are the same, also.

```
+IOWA --- Pavement Management Info System------------------------------------+
| Command ===>                                                               |
|                                                                            |
|                     Application Name:  PMISHIST                            |
|                                                                            |
|    This application is used to Browse data that is stored on the Pavement  |
|    Management Master History File.  Enter the following information for a  |
|    specific year and pavement management section that you wish to review   |
|    OR press the PF1 Key to go to the FIRST record on the history file:     |
|                                                                            |
|          Year................ █                                           |
|                                                                            |
|          System..............  _        (I-, US, or IA)                    |
|                                                                            |
|          Route...............  __                                          |
|                                                                            |
|          Direction..........  1         (1 = NB/EB, 2 = SB/WB)             |
|                                                                            |
|          Beginning Milepost.. _____ _   (Optional)                        |
|                    -OR-                                                     |
|          County..............  _         (Optional)                        |
|============================================================================|
|   ENTER = Proceed;  PF1 = Go To First Record;  PF3 = Return To PMIS Menu;  |
+----------------------------------------------------------------------------+
MB   a                                                              11/838
```

Entry Screen For PMISHIST

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Application Name: PMISSNAP

This PMIS application allows a user to browse pavement management information that has been committed to the Snapshot PMIS History File. Absolutely no one is authorized to alter any of the data stored in this History File, therefore, this application is used only for reviewing historical snapshot data. This file provides a "snapshot" of what the highway network looked like at the time the PCIs were calculated, reviewed, and approved each year.

After a user has gained access to **PMISSNAP**, it functions exactly like the **PMISCURR** application. We will not spend much time explaining this application since it is so much like the **PMISCURR** application. The entry screen for **PMISSNAP** is shown below. The only difference between **PMISSNAP** and **PMISCURR** is that there might be a few differences in some of the screen formats due to modifications that may have taken place in **PMISCURR** during the year. For the most part, the data fields on screens 1 through 6 are identical for both applications. The F keys and commands for the "Command = = = >" line are the same, also.

```
+IOWA --- Pavement Management Info System----------------------------------------+
 Command ===>

                      Application Name:  PMISSNAP

     This application is used to browse data that is stored on the Pavement
     Management Snapshot History File.  Enter the following information for
     a specific pavement management section that you wish to review OR press
     the PF1 Key to go to the FIRST record on the master file:

          System.............. L          (I-, US, or IA)

          Route...............  __

          Direction........... 1          (1 = NB/EB,  2 = SB/WB)

          Beginning Milepost.. _____ _    (Optional)
                    -OR-
          County.............. __         (Optional)

 ================================================================================
   ENTER = Proceed;  PF1 = Go To First Record;  PF3 = Return To PMIS Menu;

 ...............................................................................
  M8   a                                                                11/838
```

Entry Screen For PMISSNAP

(This page left blank intentionally)

Application Name: PMISPROJ

This PMIS application allows a user to browse historical project data as it applies to segments of the highway network. The Project History Master File is the input for this application. When you receive the entry screen for this application, you must type the *system, route, direction, beginning milepost, and ending milepost* for the segment of highway for which you want project data and press Enter OR you can press the F3 key to exit the application. All projects that fall within the milepost limits that you specified will be presented to you on the project summary screen. When you receive the summary screen, nine projects per screen are presented. From this screen, you have several options as to how you can proceed. The F3 key will return you to the entry screen so you can either request another segment of the highway network or exit **PMISPROJ**. The Enter key will allow you to retrieve detailed information related to a given project on the summary screen -- this will be discussed a little later. The F6 key will allow you to print a list of ALL the projects that have been found for the segment that you specified. The F7 and F8 keys allow you to scroll backward and forward through the projects that are presented on the summary screen if there are more than nine projects for the segment that you specified. The F9 key will allow you to sort the project summary information several different ways.

Back to the Enter key - if there is a project on the summary screen that you would like to have the project detail, move your cursor to the LINE NO for that project and press the Enter key. You will be presented with 5 screens of detail for that project. From any one of the five screens, you once again have several options by using the F keys. The F3 key will return you to the project summary screen so that you can either request the detail for another LINE NO or exit **PMISPROJ**. The F6 key will allow you to print a hard copy of one, all, or any combination of the five screens, OR you can print a hard copy of the entire project record on one page. The F7 and F8 keys allow you to view Previous Projects and Next Projects within the Summary List of Projects. The F10 and the F11 keys allow you to move back and forth within these five screens.

☞ Printing a hard copy of the List Of Projects OR a Project Record is not a requirement. A review of the list and project record can be done on-line on your screen. Also, whatever you enter in the "Print Request Window" will remain active until you make a change.

☞ Due to the fact that you are taken from the Entry Screen to the Summary Screen and subsequently to the Detail Screen for a given project while in **PMISPROJ**, most of the commands for the Command Line and some of the F keys that can be processed in PMISCURR do not apply to PMISPROJ.

Following are examples of the Entry, Summary, Detail, and Print Request Screens that are produced by this application:

```
+IOWA --- Pavement Management Info System----------------------------------------+
| Command ===>                                                                   |
|                                                                                |
|                      Application Name:  PMISPROJ                               |
|                                                                                |
|       This application is used to select projects for review from the Project  |
|       History Master File.  You will be provided with an online summary of the |
|       projects within your specified segment of highway.  You can then select  |
|       projects which you need to review in more detail from the summary.  Enter |
|       the following items for the segment of highway that you wish to review:   |
|                                                                                |
|              System.............. █        (I-, US, OR IA)                     |
|                                                                                |
|              Route...............  __                                          |
|                                                                                |
|              Direction.......... 1         (1 = NB/EB, 2 = SB/WB)              |
|                                                                                |
|              Beginning Milepost.. _____ _                                      |
|                                                                                |
|              Ending Milepost..... _____ _                                      |
|                                                                                |
| ================================================================================|
|       ENTER = Proceed;  PF3 = End Session;                                      |
+--------------------------------------------------------------------------------+
  MB   a                                                                  12/832
```

Entry Screen For PMISPROJ

```
+IOWA --- Pavement Management Info System----------------------------------------+
| Command ===> █                                                                 |
|                                                                                |
| SUMMARY.. PROJECT MASTER FILE          Screen 1 Of 2     Date:  25 Jul 96      |
| Sorted By Project Number & Seq Code                                            |
| Sys.. I-  Route.. 35  Dir.. 1  Begin MPost.. 188.88   End MPost... 138.88      |
|                                                                                |
| LINE                                   Work Year  Begin   End   Length         |
| NO  ___ Project Number & Seq Code ___  Code Open  MPost   MPost  (km)          |
|                                                                                |
|   81  I-IG-35-4(12)183            81  1811 1965  182.79  111.68  14.18         |
|   82  I-IG-35-5(13)113--84-85     81  1811 1967  111.68  112.71   1.79         |
|   83  I-35-4(11)93--77-16         81  1811 1965   92.77  181.78  14.58         |
|   84  I-35-4(11)93--77-16         82  1811 1965  181.78  182.79   1.63         |
|   85  IR-35-3(47)87--12-77        81  1523 1987  185.78  111.68   9.37         |
|   86  IR-35-3(49)87--12-77        81  1523 1988   92.65  181.78  14.69         |
|   87  IR-35-3(49)87--12-77        82  1523 1988  181.78  182.56   1.26         |
|   88  IR-35-4(55)111--12-85       82  1523 1987  126.84  138.92   7.85         |
|   89  IR-35-5(35)111--12-85       81  1832 1983  112.71  117.12   7.18         |
+--------------------------------------------------------------------------------+
. **** (NOTE: Place cursor on desired LINE NO before using the ENTER Key) **** .
. PF3 = Find Another Segment Or Exit;     ENTER = Select Project Detail Info; .
. PF6 = Print List; PF7 = Scroll Backward; PF8 = Scroll Forward; PF9 = Sort;  .
..................................................................................
  MB   a                                                                  82/816
```

Summary Screen Of Projects

```
                                    ystem.....................................
 Select Option ===>                                                          .
                                                                             .
 Type an X below for the order in      Screen 1 Of 2    Date:  25 Jul 96  .
 which you would like to have the   e
 SUMMARY of projects presented on   gin MPost.. 108.08   End MPost... 138.08  .
 your screen:                                                                .
                                         Work  Year    Begin    End   Length .
 By Begin MPost...............  █      ___ Code  Open    MPost   MPost   (km)  .
                                                                             .
 By Year Open.................  _     01  1011  1965   102.79  111.68  14.18 .
                                      01  1011  1967   111.68  112.71   1.79 .
 By Project Number & Seq Code.. _     01  1011  1965    92.77  101.78  14.58 .
                                      02  1011  1965   101.78  102.79   1.63 .
 =================================     01  1523  1987   105.78  111.68   9.37 .
 Press ENTER to Proceed with Sort     01  1523  1988    92.65  101.78  14.69 .
 Press PF3 to Return to SUMMARY       02  1523  1988   101.78  102.56   1.26 .
                                      02  1523  1987   126.04  138.92   7.85 .
 .  89  IR-35-5(35)111--12-85         01  1032  1983   112.71  117.12   7.10 .
 ............................................................................
 . **** (NOTE: Place cursor on desired LINE NO before using the ENTER Key) **** .
 . PF3 = Find Another Segment Or Exit;    ENTER = Select Project Detail Info; .
 . PF6 = Print List; PF7 = Scroll Backward; PF8 = Scroll Forward; PF9 = Sort;  .
 ............................................................................
 M█   a                                                             89/834
```

Sort Request Screen

```
 +IOWA --- Pavement Management Information System--------------Obs 5   Screen 1-+
  Command ===> █

                PROJECT MASTER FILE     Screen 1 Of 5      Date:  25 Jul 96

  Project No.... I-IG-35-4(12)183          Seq  1 Of 2  Let.. 12/01/1964
  Description... 1/2 MI. N IA 210 TO 1/8 MI. N RELOCATED US 30

  NHS.. Y  Sys.. I-  Route... 835  Dir... 1  County... 85  Trans Region... C
  Plan Class.... 1   Beginning Milepost.. 182.79    Ending Milepost.. 111.68

  Work Code..... 1011 PCC Pavement - New
  Comments...... TRANS WIRE #4 GAGE @ 12" CEN. & LONG. WIRE #08 GAGE @ 6" CEN
                 TERS.   INCLUDES ENFORCEMENT SCALES GRADE & PCC PAVE.
  Length........ 14.18    Rural/Urban Code.. ____        Spec Yr... ____

                                         Admin ID....... _____
  Vendor ID..... _____          Contract ID.... _____
  Vendor Name... _____
  Year Open..... 1965                    Amount Bid.....$ _____
  ================================================================================
  PF3 = Find Another Project Or Exit;                  PF6 = Print Screen;
  PF7 = Prev Proj; PF8 = Next Proj;  PF10 = Prev Screen; PF11 = Next Screen;
 +-------------------------------------------------------------------------------+
 M█   a                                                             82/816
```

Screen 1 Of 5 - Description Of Project

```
*IOWA --- Pavement Management Information System-------------Obs 5  Screen 2-*
  Command ===>

                    PROJECT MASTER FILE     Screen 2 Of 5       Date:  25 Jul 96

  Project No.... I-IG-35-4(12)183              Seq  1 Of 2  Let.. 12/01/1964
  Description... 1/2 MI. N IA 218 TO 1/8 MI. N RELOCATED US 30
  _____
  NHS.. Y  Sys.. I-  Route... 035  Dir... 1  County... 85  Trans Region... C
  Plan Class.... 1   Beginning Milepost.. 102.79    Ending Milepost.. 111.60

  Surface:  Type.... PCC  Thickness.... 254  Width..... 7.3  Agg Size.... __
  Binder:   Type.... ___  Thickness.... ___  Width..... ____ Agg Size.... __
  Base:     Type.... ___  Thickness.... ___  Width..... ____ Agg Size.... __
  Subbase:  Type.... GSB  Thickness.... 102  Width..... 7.3  Agg Size.... __
  Widening: Type.... ___  Thickness.... ___  Width..... ____ Agg Size.... __
  Shoulder: Type.... ATB  Thickness.... 203  Width..... 3.0  Agg Size.... __
  Milling:  Type.... ___  Thickness.... ___  Width..... ____ Location.... _



  =======================================================================
  PF3 = Find Another Project Or Exit;                    PF6 = Print Screen;
  PF7 = Prev Proj; PF8 = Next Proj;   PF10 = Prev Screen; PF11 = Next Screen;
  ------------------------------------------------------------------------
 MB   a                                                          82/016
```

Screen 2 Of 5 - Structural Characteristics Of Pavement

```
*IOWA --- Pavement Management Information System-------------Obs 5  Screen 3-*
  Command ===>

                    PROJECT MASTER FILE     Screen 3 Of 5       Date:  25 Jul 96

  Project No.... I-IG-35-4(12)183              Seq  1 Of 2  Let.. 12/01/1964
  Description... 1/2 MI. N IA 218 TO 1/8 MI. N RELOCATED US 30
  _____
  NHS.. Y  Sys.. I-  Route... 035  Dir... 1  County... 85  Trans Region... C
  Plan Class.... 1   Beginning Milepost.. 102.79    Ending Milepost.. 111.60
  S    Agg Type 1......... GRAVEL            Fric Class... ___ Dur.... 1
  U    Agg Source 1....... CHRISTENSEN 22-84-24        ___ Code 1.. A85582
  R    Agg Type 2......... CRUSHED LIMESTONE  Fric Class... ___ Dur.... 3
  F    Agg Source 2....... FERGUSON 5-82-27             ___ Code 2.. A64002
  A    Fine Agg Source 1.. CHRISTENSEN 22-84-24         ___ Code 1.. A85582
  C    Fine Agg Source 2.. _____       ___ Code 2.. _____
  E    Cement Source 1.... HAWKEYE,DES MOINES
       Cement Source 2.... PENN DIXIE,W.DES MOINES
  PCC  Fly Ash Source 1... _____
       Fly Ash Source 2... _____
  =======================================================================
  PF3 = Find Another Project Or Exit;                    PF6 = Print Screen;
  PF7 = Prev Proj; PF8 = Next Proj;   PF10 = Prev Screen; PF11 = Next Screen;
  ------------------------------------------------------------------------
 MB   a                                                          82/016
```

Screen 3 Of 5 - Surface Aggregate Types And Sources

```
+IOWA --- Pavement Management Information System--------------Obs 5  Screen 4-+
  Command ===> █

                  PROJECT MASTER FILE      Screen 4 Of 5       Date:  25 Jul 96

     Project No.... I-IG-35-4(12)183             Seq  1 Of 2  Let.. 12/01/1964
     Description... 1/2 MI. N IA 218 TO 1/8 MI. N RELOCATED US 30

     NHS.. Y  Sys.. I-  Route... 035  Dir... 1  County... 85  Trans Region... C
     Plan Class.... 1   Beginning Milepost.. 102.79   Ending Milepost.. 111.68

     Binder:    ___   Agg Source.. _____  Code.... _____
     Base:      ___   Agg Source.. _____  Code.... _____
     Subbase:   GSB   Agg Source.. _____  Code.... _____
     Widening:  ___   Agg Source.. _____  Code.... _____
     Shoulder:  ATB   Agg Source.. _____  Code.... _____
     Pavt Cement Type.. ____   Pavt PC Mix: C-3          _____
     Water Reducer.... _____ Longitudinal Joint Type.. L-1
     Transverse Joint Type...... C        Transverse Joint Spacing..... 76.5'
     Widening PC Mix........... _____ Shoulder PC Mix.......... _____
     ===========================================================================
     PF3 = Find Another Project Or Exit;                    PF6 = Print Screen;
     PF7 = Prev Proj; PF8 = Next Proj;   PF10 = Prev Screen; PF11 = Next Screen;
  ...........................................................................
 M█    a                                                              82/016
```

Screen 4 Of 5 - Base Aggregate Sources And PCC Data

```
+IOWA --- Pavement Management Information System--------------Obs 5  Screen 5-+
  Command ===> █

                  PROJECT MASTER FILE      Screen 5 Of 5       Date:  25 Jul 96

     Project No.... I-IG-35-4(12)183             Seq  1 Of 2  Let.. 12/01/1964
     Description... 1/2 MI. N IA 218 TO 1/8 MI. N RELOCATED US 30

     NHS.. Y  Sys.. I-  Route... 035  Dir... 1  County... 85  Trans Region... C
     Plan Class.... 1   Beginning Milepost.. 102.79   Ending Milepost.. 111.68

     AC          Lab     AC  Modi-  % Asph  % Asph  % Air  % Crushed      %
     Lift      Number  Grade fier   Design  Actual  Voids (Specified) Recycled
     Surface:  _____  ____ ____    _____   _____   _____   _____       ____
     Binder:   _____  ____ ____    _____   _____   _____   _____       ____
     Base:     _____  ____ ____    _____   _____   _____   _____       ____
     Subbase:  _____  ____ ____    _____   _____   _____   _____       ____
     Widening: _____  ____ ____    _____   _____   _____   _____       ____
     Shoulder: _____  ____ ____    _____   _____   _____   _____       ____
     Marshall or Superpave Procedure.. _   Number of Blows or Gyrations... ___
     ===========================================================================
     PF3 = Find Another Project Or Exit;                    PF6 = Print Screen;
     PF7 = Prev Proj; PF8 = Next Proj;   PF10 = Prev Screen; PF11 = Next Screen;
  ...........................................................................
 M█    a                                                              82/016
```

Screen 5 Of 5 - ACC Data

```
Command ===>                          System..............Obs 5  Screen 5..
NOTE: At top.                                                             .
Enter the following initially OR if   Screen 5 Of 5   .   Date:  25 Jul 96 .
changes are required:                                                     .
                                             Seq 1 Of 2  Let.. 12/01/1964 .
Printer ID...............  █_____    MI. N RELOCATED US 30               .
                                                                         .
Print Entire Record On 1 Page..... X  . 1 County... 85  Trans Region... C .
                                      . 182.79    Ending Milepost.. 111.60 .
            -- OR --                                                      .
                                        h  % Asph  % Air  % Crushed     % .
Print the Following Screens:          n  Actual  Voids (Specified) Recycled .
                                         _____  _____   _____     _____   .
 CUR   ALL   1   2   3   4   5           _____  _____   _____     _____   .
  _     _    _   _   _   _   _           _____  _____   _____     _____   .
                                         _____  _____   _____     _____   .
                                         _____  _____   _____     _____   .
====================================     _____  _____   _____     _____   .
Press ENTER to Proceed OR PF3 to Exit                                    .
                         ,            Number of Blows or Gyrations... ___ .
. ======================================================================= .
. PF3 = Find Another Project Or Exit;              PF6 = Print Screen;    .
. PF7 = Prev Proj; PF8 = Next Proj;   PF10 = Prev Screen; PF11 = Next Screen; .
.........................................................................
M3   a                                                            07/031
```

Print Request Screen

Application Name: PROJHIST

This application is used for making updates to the Project History Master File that is used as input to **PMISPROJ**. There are just a few users authorized to make updates. Other users can use this application to browse the data and make basic queries related to specific project numbers.

When you receive the Entry Screen for **PROJHIST**, you have five options for selecting project information. You can press the `F1` Key to go to the first record on the file; you can type the entire *project number* and a *sequence code* for a specific project; you can type the entire *project number* for a specific project number and leave the sequence code blank to receive all sequence codes for the project; you can type in some part of the first portion of a project number and all project numbers that begin with that string of characters will be presented, e.g., *F-30-5* will find all sequence codes for projects **F-30-5(105)--20-85**, **F-30-5(17)--20-85**, and **F-30-5(80)--20-85**; OR you can type in data for a specific segment of highway and receive all projects for that segment..

Following is the Entry Screen for PROJHIST. If you enter PROJHIST by using the `F1` Key, the `F` Keys and commands for the Command Line are pretty much the same as those for PMISCURR. If you enter PROJHIST via a Project Number search, you are somewhat restricted in the use of `F` Keys and commands. The five detail screens and the print request screen for PROJHIST are identical to the screens that are provided in PMISPROJ.

```
+IOWA --- Pavement Management Info System------------------------------------+
| Command ===>
|
|                      Application Name: PROJHIST
|
|       This application is used to Browse and Edit data that is stored on the
|       Project History Master File.  Enter the following information for a
|       specific project number OR pavement management section that you wish to
|       review OR press the PF1 Key to go to the FIRST record on the master file:
|
|
|
|           Project Number......  █
|           Sequence Number.....  _          (Optional)
|               - OR -
|           System..............  _          (I-, US, OR IA)
|           Route...............  __
|           Direction...........  1          (1 = NB/EB, 2 = SB/WB)
|           Milepost............  _____ _     (Optional)
|           County..............  _          (Optional)
|
| =========================================================================
|       ENTER = Proceed;  PF1 = Go To First Record;  PF3 = End Session;
|
+----------------------------------------------------------------------------+
| MB  a                                                              12/832
```

Entry Screen For PROJHIST

(This page left blank intentionally)

Application Name: PMISUSER

This application is used by the Pavement Management Information System Developers when it is necessary to check to see if anyone is using any application within the system. This becomes necessary when some type of maintenance is required to any of the programs within PMIS and we don't want to take the system down while someone is using it. If the maintenance is of a critical nature, this application will allow us to find out if any users are active so that we can notify them that we need to take the system down for a while. Entry to this application is provided when **PMISUSER** is selected from the PMIS Menu Screen. The informational screen that shows the active PMIS users is shown below.

The informational screen lists the User ID of all users that are actively using the system at any given time. There are some system messages on the screen that can be ignored. The active User IDs appear between the two double lines. The F3 Key will exit you from this application.

```
O.TPUT                                        PROC OPERATE suspended
  Command ===>
  NOTE: Procedure OPERATE created 1 page(s) of output.
  Active PMIS Users                        18:54 Thursday, July 25, 1996   1

  PROC OPERATE is set to default server SASSERVE.
  ===============================================================================

                              NUMBER OF
  USER ID         STATUS      LIBRARIES
  ---------------------------------------
  TIN40.JPIERCE   ACTIVE          0
  -------------------------------------------------------------------------------




  Press PF3 to Exit

  M3    a                                                         82/816
```

Screen Showing Current Users In PMIS

(This page left blank intentionally)

Application Name: PMISCTLS

This is the PMIS application that allows a select few of the users to change the record key of a pavement management section record on the PMIS Current Master File. The key or control for a pavement management section record is made up of route, system, direction, beginning milepost, ending milepost, and county number. This is the key that helps us track pavement management sections through time and that is why we have limited the number of users that can change, add, or delete records that reside on the Current Master File.

Since there is limited access to this application, we are going to show you the Entry Screen, only, so that you can see the types of updates that can be made to the record key. This way you will know what it is used for and that the capability exists. Detailed user instructions for this application will be written for those that are permitted to use it.

```
+Change PMIS Controls-----------------------------------------------------------+
 Select Option ===> █

                          Application Name:  PMISCTLS

    WARNING - This process is to be used ONLY when it is necessary to
    perform one of the following functions:

    1  ADD a NEW Pavement Management Section to the Master File.

    2  CHANGE the Beginning/Ending Milepost(s) for an EXISTING Section.

    3  SPLIT an EXISTING Section into Two or More NEW Sections.

    4  COMBINE Two or More EXISTING Sections into One NEW Section.

    5  DELETE an EXISTING Section.

    6  CHANGE System, Route, or Direction on EXISTING Section(s).

    Select a function by entering the appropriate number above.

    PF3 = Return To PMIS Menu
-------------------------------------------------------------------------
 M█   a                                                         82/822
```

Entry Screen For PMISCTLS

(This page left blank intentionally)

Application Name: PMISXREF

This PMIS application allows users to browse data that is stored in the Milepost/Milepoint Cross Reference Master File. Mileposts are being used as the reference system for the pavement management system. Milepoints were used for years in the base record inventory of the routes and in 1996 were converted to a Linear Reference Distance Point (LRDPT) or meterpoint. Since we need to obtain data from all types of systems -- some using mileposts and some using meterpoints -- we needed a method for accurately cross referencing both types of systems. The Cross Reference Master File contains all mileposts for all routes and they are cross referenced to the milepoints within a county. Milepost/Milepoint cross references for all major paved road intersections along a route have been added to the Cross Reference Master File to assist with the verification of the cross reference data.

It is very important that mileposts are maintained properly so that we don't lose this cross referencing capability. Videologs are being used to verify and correct any problem areas that may arise. Videologs are reviewed every year for this purpose.

The entry screen for **PMISXREF**, three cross reference screens, and print request screen for US Route 30 in Story County are shown on the next three pages. Up to 7 data screens may be required for a given route within a county. All 7 screens are identical in that they show the Route, County, and County Sequence on the 1st line of data and then list the Milepoints, Mileposts, Intersections, and Comments. The F keys function as follows:

F3   will return you to PMISXREF Entry Screen so that you can either request another route/county cross reference record or exit the application.

F6   allows you to print a hard copy of the screen that is in front of you.

F7   will take you to the previous county or route.

F8   will take you to the next county or route.

F10   moves you to the previous screen within a county and if you run out of screens for a given county, it will move you to the previous county or to the previous route.

F11   moves you to the next screen within a county and if you run out of screens for a given county, it will move you to the next county or to the next route.

```
+IOWA --- Pavement Management Info System--------------------------------------+
  Command ===>


                        Application Name:  PMISXREF

   This application is used to browse data that is stored on the PMIS
   Milepoint/Milepost Cross Reference Master File.  Enter the following
   information for the route and county that you want to review:



                       System.. ▌   (I-,US, or IA)


                       Route... __


                       County.. __   (Optional)

   Press ENTER To Proceed OR PF3 To Return To PMIS Menu




  :
 MB  a                                                              12/836
```

Entry Screen For PMISXREF

```
+IOWA --- Pavement Management Info System-------------------Obs 165   Screen 1-+
  Command ===> ▌
  NOTE: This application uses 7 screens.
   Milepost/Milepoint Cross Reference File     Screen 1 of 3   Date: 25 Jul 96

   Route... US  38   County... Story(85)            County Sequence......  6

   Milepoint  Milepost    Intersection      Comments
      8.31     144        _____        _____
      1.11     144.88     JCT Co Rd R38     _____
      1.31     145        _____        _____
      2.31     146        _____        _____
      3.32     147        _____        _____
      4.32     148        _____        _____
      4.75     148.43     JCT US 69         _____
      5.32     149        _____        _____
      5.41     158        _____        _____
      6.41     151        _____        _____
      6.76     151.35     JCT I-35          _____
      7.39     152        _____        _____
 ==============================================================================
  PF3 = Find Another Route/County Or Exit;              PF6 = Print Screen;
  PF7 = Prev Rec;  PF8 = Next Rec;    PF18 = Prev Screen;   PF11 = Next Screen;
  :
 MB  a                                                              82/816
```

Milepoint/Milepost/Intersection Cross Reference

```
*IOWA --- Pavement Management Info System-------------------Obs 165  Screen 2-*
 Command ===> █

    Milepost/Milepoint Cross Reference File    Screen 2 of 3   Date: 25 Jul 96

    Route... US  38   County... Story(85)            County Sequence......  6

    Milepoint  Milepost     Intersection     Comments
       8.32     152.93      JCT Co Rd A78     _____
       8.39     153         _____      _____
       9.39     154         _____      _____
      10.39     155         _____      _____
      11.48     156         _____      _____
      12.36     156.96      JCT Co Rd S14     _____
      12.48     157         _____      _____
      12.85     157.45      JCT IA 133        _____
      13.41     158         _____      _____
      14.41     159         _____      _____
      15.33     159.92      JCT Co Rd S27     _____
      15.48     168         _____      _____
   ==========================================================================
   PF3 = Find Another Route/County Or Exit;           PF6 = Print Screen;
   PF7 = Prev Rec;  PF8 = Next Rec;   PF18 = Prev Screen;   PF11 = Next Screen;
   -----------------------------------------------------------------------------
 M█   a                                                           82/816
```

Milepoint/Milepost/Intersection Cross Reference

```
*IOWA --- Pavement Management Info System-------------------Obs 165  Screen 3-*
 Command ===> █

    Milepost/Milepoint Cross Reference File    Screen 3 of 3   Date: 25 Jul 96

    Route... US  38   County... Story(85)            County Sequence......  6

    Milepoint  Milepost     Intersection     Comments
      16.41     161         _____      _____
      17.41     162         _____      _____
      18.41     163         _____      _____
      19.41     164         _____      _____
      20.38     164.89      JCT US 65         _____
      20.41     165         _____      _____
      21.38     166         _____      _____
      22.38     167         _____      _____
      23.39     168         _____      _____
      24.38     _____      _____      County End
      _____    _____      _____      _____
      _____    _____      _____      _____
   ==========================================================================
   PF3 = Find Another Route/County Or Exit;           PF6 = Print Screen;
   PF7 = Prev Rec;  PF8 = Next Rec;   PF18 = Prev Screen;   PF11 = Next Screen;
   -----------------------------------------------------------------------------
 M█   a                                                           82/816
```

Milepoint/Milepost/Intersection Cross Reference

```
                                          ...................Obs 165  Screen 3..
                                                                                 .
  ENTER PRINTER ID ===>  █_____                                                .
                                           e    Screen 3 of 3   Date: 25 Jul 96  .
 =====================================                                           .
 Press ENTER to Proceed OR PF3 to Exit                   County Sequence......  6  .
                                           Comments                              .
 .    16.41    161                                                               .
 .    17.41    162              _____    _____            .
 .    18.41    163              _____    _____            .
 .    19.41    164              _____    _____            .
 .    20.38    164.89   JCT US 65          _____            .
 .    20.41    165              _____    _____            .
 .    21.38    166              _____    _____            .
 .    22.38    167              _____    _____            .
 .    23.39    168              _____    _____            .
 .    24.38    _____            _____    County End                            .
 .    _____    _____            _____    _____            .
 .    _____    _____            _____    _____            .
 . ============================================================================  .
 . PF3 = Find Another Route/County Or Exit;              PF6 = Print Screen;  .
 . PF7 = Prev Rec;  PF8 = Next Rec;   PF10 = Prev Screen;   PF11 = Next Screen;  .
 .............................................................................
 ┌─┐
 │M│   a                                                             83/825
 └─┘
```

Print Request Screen

Application Name: PMISESAL

This PMIS application provides a method for a few select users to be able to update ESAL (Equivalent Single Axle Load) data on the PMIS Multi-Year History Master File. If other users have the need or the desire to review the ESAL data, this application will allow them to browse the data. The PMISESAL Entry Screen is shown below. The ESAL Update Screen and Print Request Screen are shown on the next page.

```
+IOWA --- Pavement Management Info System----------------------------------+
| Command ===>

                     Application Name: PMISESAL

  This application is used to Browse and Edit ESAL (Equivalent Single Axle
  Load) data that is stored on the Multi-Year PMIS History Master File.
  Enter the following information for the pavement management section that
  you wish to review OR press PF1 Key to go to the FIRST record on the file:

           System.............. L          (I-, US, or IA)

           Route...............  __

           Direction.......... 1           (1 = NB/EB, 2 = SB/WB)

           Beginning Milepost.. _____  _    (Optional)
                -OR-
           County.............. __          (Optional)

==========================================================================
   ENTER = Proceed;   PF1 = Go To First Record;   PF3 = Return To PMIS Menu;
--------------------------------------------------------------------------
 MB   a                                                           11/838
```

Entry Screen For PMISESAL

```
+IOWA --- Pavement Management Info System-------------------------------------
 Command ===>

 ESAL (Equivalent Single Axle Load) UPDATE APPLICATION       Date:  25 Jul 96

 Nat Hwy Sys.. Y  County... 25  System... I-  Route... 88   Direction..... 1
 Tested Sect.. Y  Begin Milepost.... 899 21   Ending Milepost....... 188 88
 Section Desc...  From Madison/Dallas Co Line NE To 8.5 Mi E Of JCT I88/US6
 Con/Recon Yr... 1971  Resurface Years:  1988 ____ ____ ____ ____ ____ ____

 PMIS  Pavt  Total                 Cumulative ESALs  Cumulative ESALs  Num of
 Year  Type  Thick  Annual ESALs   Since Con/Recon   Since Resurface   Trucks

 1995   3A    356   ▌ 1,888,343      21,858,774        7,392,186       5,821
 1994   3A    356     1,187,486      19,962,431        6,383,763       5,856
 1993   3A    356     1,845,837      18,854,945        5,196,277       5,535
 1992   3     ___     1,827,791      17,597,416        4,852,648       5,472



+------------------------------------------------------------------------------+
. PF3 = Find Another Section or Exit;                        PF6 = Print Screen; .
. PF7 = Prev Sect; PF8 = Next Sect;                                              .
..............................................................................
M╒  a                                                              14/823
```

ESAL Update Screen

```
  .................................................
  ENTER PRINTER ID ===>  ▌_____                  .
                                                    TE APPLICATION       Date:  25 Jul 96  .
  =======================================         .
  Press ENTER to Proceed OR PF3 to Exit  . I-  Route... 88   Direction..... 1  .
                                          21   Ending Milepost....... 188 88  .
                                          Line NE To 8.5 Mi E Of JCT I88/US6  .
. Con/Recon Yr... 1971  Resurface Years:  1988 ____ ____ ____ ____ ____ ____  .
.                                                                            .
. PMIS  Pavt  Total                 Cumulative ESALs  Cumulative ESALs  Num of .
. Year  Type  Thick  Annual ESALs   Since Con/Recon   Since Resurface   Trucks .
.                                                                            .
. 1995   3A    356     1,888,343      21,858,774        7,392,186       5,821 .
. 1994   3A    356     1,187,486      19,962,431        6,383,763       5,856 .
. 1993   3A    356     1,845,837      18,854,945        5,196,277       5,535 .
. 1992   3     ___     1,827,791      17,597,416        4,852,648       5,472 .
.                                                                            .
.                                                                            .
.                                                                            .
. PF3 = Find Another Section or Exit;                        PF6 = Print Screen; .
. PF7 = Prev Sect; PF8 = Next Sect;                                              .
..............................................................................
M╒  a                                                              83/825
```

Print Request Screen

Command Line

The Command Line is directly below the Heading Line on the PMIS Data Screens and is identified as "Command === > ". This is where the user can enter some type of command to perform queries and to move around in the master files. When using the Command Line, there is information that occasionally appears in the Heading Line which is directly above the Command Line and in the Message Line which is directly below the Command Line. This information will assist the user when entering some of the commands.

We are going to give you some of the commands that we think you will find very useful. Others will be available on a need-to-know basis and when you become more comfortable with SAS. All of the commands are explained in more detail in many of the SAS Manuals.

Before we get into the actual commands for the Command Line, the Obs Number in the Heading Line needs to be explained. The Obs Number is the number of the observation or record that you are reviewing. There are approximately 4,000 pavement management sections in the Current PMIS Master File and each section has its own observation number. When you press the [F1] Key while on the Entry Screen for PMISCURR, you will be taken to the first record on the file which is observation number 1. As you can see from the examples of the screens starting on page 19, the section that was requested is "Obs 1350". The 1st command below relates to this observation number.

n press [Enter]. *n* is the number of the observation that you wish to go to directly. Example: *2275* press [Enter] will take you directly to observation number 2,275. If you happen to enter an observation number greater than the highest observation number on the file, you will be taken to the last record in the file. The *n* press [Enter] command can save you some time in that you do not have to return to the Entry Screen every time you wish to find another section, if you have some idea what the observation number is for the new section.

=n press [Enter]. *=n* identifies the screen number that you wish to go to directly. Example: Assume that you are on screen 1 of 6 and wish to go directly to screen 6 of 6 -- you would type *=6* and press [Enter]. This can save you time when you wish to flip back and forth between specific screens.

☞ Before using any of the following commands, you should go to Observation Number 1, i.e., *1* press [Enter], so that you begin your search commands from the beginning of the master file.

find or **f** *search-criterion* press [Enter]. *search-criterion* is something that you wish to find on the master file, e.g., tested='y', system=1, program>0, etc. After you have entered your find command and have found the first occurrence of your search, you can use the [F5] key to do a repeat find. Multiple *search-criterion* can be used with the find command. If several are used, there is an implied "and" between each and all have to be "true" to be selected, e.g., *f system=2 tested='Y' pci<60 program>0* [Enter]. This find command will search for all sections that are U.S. Routes flagged as being tested that have a pavement condition index less than 60 and have

some type of work programmed in the 5 year program. After the first record has been found, the
[F5] key can be used to do a repeat find.

☞   Comparison-operators that can be used are: = or eq for EQUAL; ¬= or ne for NOT
       EQUAL; > or gt for GREATER THAN; >= or ge for GREATER THAN OR EQUAL;
       < or lt for LESS THAN; <= or le for LESS THAN OR EQUAL.

☞   If the data that you are trying to find is alphanumeric, contains embedded blanks, or
       contains special characters, the data must be enclosed with single quotes. For example --
       f tested='Y'.

☞   If you need to find out what the variable name is that is to be used in your search-criterion,
       you can either refer to the PMIS Master File Record Format in Appendix B of this manual
       OR use the [F1] Key. To use the [F1] Key, place your cursor on the highlighted data field
       on the data screens, press [F1], and you will receive the VAR: name on the Message Line.
       The name following VAR: is the variable name that you will use in your search-criterion.

---

find@ or **f@** *search-criterion search-criterion* press [Enter]. This is another find command that
works the same as the above find command except the @ sign is an implied "or" and you need
2 or more search-criterion. If any of the *search-criterion* are "true", the record will be displayed.

locate or **loc** *search-value* press [Enter]. This command will locate all records that contain a variable
whose value exactly matches the specified alphanumeric or numeric search-value. A **name**
variable-name press [Enter] command needs to be executed prior to using the locate command. An
example of how to use these commands is:

       Command ===> **name progcom** press [Enter]
       Command ===> **loc AC** press [Enter]

The above commands name the PROGCOM (Program Year Comments) variable field as the
variable to be searched and locates all of the program comments that only contain AC. If you
wanted to locate all of the program comments that contain AC SUBDRAIN, you would need to
type **loc 'AC SUBDRAIN'** due to the fact that all character values that contain embedded blanks
or special characters need to be enclosed with single quotes. After you find the 1st record that
contains what you are looking for, the [F5] Key can be used to do a repeat find.

locate: or **loc:** *search-string* press ⟨Enter⟩. This command will locate all records that contain a variable value for which the beginning characters match the specified *search-string*. This command needs to be executed just like the regular **locate** command, i.e., **name** command, single quote rule, ⟨F5⟩ Key, etc.

search *search-string* press ⟨Enter⟩. The *search-string* is a word or group of words that you wish to search for on the master file. The **search** command can only be used to search character variables. A **string** *variable-name* press ⟨Enter⟩ command needs to be executed prior to using the search command. An example of how to use these commands is:

Command = = = > **string descript** press ⟨Enter⟩
Command = = = > **search Ames** press ⟨Enter⟩

The above commands identify the DESCRIPT (PM Section Description) variable field as the variable to be searched and locates all of the descriptions that have Ames anywhere in the description field. Search values with embedded blanks or special characters need to be enclosed in single quotes, e.g., 'Des Moines', 'Cedar Rapids'. Upper and lower case letters need to be used in your search value, i.e., ames will not locate Ames. After you find the 1st record that contains what you are looking for, the ⟨F5⟩ Key can be used to do a repeat find.

☞ One or more variable names can be entered with the **string** command if it is necessary to search more than one variable for the same value.

---

search@ *search-string* *search-string* *search-string* press ⟨Enter⟩. Each *search-string* is a word or group of words that you wish to search for on the master file. The **search@** command works exactly like the regular **search** command with one exception -- it allows you to search for more than one word or group of words in one pass through the master file.

The following information relates to a very versatile and time saving command called the **WHERE** Statement Command. The **WHERE** statement enables you to specify a certain set of conditions that the data must satisfy before the records or observations are selected from the master file and presented to you. This can speed up your processing time due to the fact that the system is not required to read all of the observations on the master file when you do some type of find, locate, or search. It can assist you with concentrating on one set of data, e.g., **where** *system=1* will give you only those observations that pertain to the Interstate Highway System. Doing this reduces the number of observations that you need to "look through" from 4,014 (total number of pavement management sections on the current master file) to 445 (total number of sections for the Interstate System). As you can see, that is quite a reduction in the number of observations that need to be "handled". The **WHERE** statement is a temporary process that you can invoke, change, or delete whenever you desire.

☞ When you have an active **WHERE** command, "Where..." will appear in the Heading Line on the data screens just ahead of the Obs Number.

WHERE *where-expression* -- The **WHERE** portion of this command can be upper or lower case letters. The *where-expression* is a variable name and condition. The variable name can be upper or lower case letters. If the condition is alphanumeric, it needs to be enclosed with single quotes and it is upper and lower case sensitive, i.e., Ames will not be selected if you enter ames.

Examples and explanations of the **WHERE** Statement Command are:

where *system=1* [Enter] brings in sections for the Interstate System.

where *tested='Y'* [Enter] brings in tested sections.

where *program>0* [Enter] brings in sections that have a program year.

where *progcom* [Enter] brings in sections that have a program comment.

where *0<pci<=40* [Enter] brings in sections with PCIs of 1 thru 40.

where also *tested='Y'* [Enter] adds an additional condition to previous where command.

where undo [Enter] deletes the additional condition to previous where.

where *descript contains 'Ames'* [Enter] brings in all sections that have Ames anywhere in the description variable.

where *descript ? 'Ames'* [Enter] works the same as previous where command.

where *pci between 40 and 60* [Enter] brings in all sections with a PCI of 40 through 60, inclusive.

where also *plevel='B'* [Enter] adds the additional condition of Planning Level = B to the previous where command.

where *plevel='B' and (40<=pci<=60)* [Enter] another way to do the previous 2 commands.

where [Enter] cancels the entire current temporary **WHERE** command so that you can create another one or do something else.

The above examples are just some of the things that you can do with the **WHERE** command. There are many more things that you can do with it after you become comfortable with the use of it.

After you have entered a **where** command, you can proceed with the **find, locate,** and **search** commands OR you can page back and forth through the selected records by using the F7 and F8 Keys. Be sure to execute the **where** Enter command to cancel all previous **where** commands when you are finished or when you want to go back to being able to read all of the records on the master file. When you issue the **where** Enter command, the "Where..." will be removed from the Heading Line and you will be returned to Observation Number 1 on the master file.

The use of the F Keys and the commands for the "Command = = = >" line are standard for all of the on-line applications of the Pavement Management Information System.

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Appendix A - Glossary Of Pavement Management Screen Items

Following is a glossary of the data items that appear on the PMIS Screens. Instead of listing the items alphabetically, the items are listed as they are presented on Screens 1 through 6 in PMISCURR.

_____ Screen 1 _____	_____ Definition Of Item _____
Nat Hwy Sys	A flag to indicate whether or not a pavement management section is part of the National Highway System (NHS) or not. Will be a Y if it is and an N if it is not.
County	This is the county number - 01 thru 99.
System	This identifies the highway system that a route is part of: I- for the Interstate System; US for the US Primary System; or IA for the Iowa Primary System. Internally, the systems are flagged as 1, 2, and 3, respectively.
Route	This is the highway route number - 001 thru 999.
Direction	This is the flag that identifies the direction of travel for the lanes of a divided roadway. A 1 is for the Northbound/Eastbound lanes; a 2 is for Southbound/Westbound lanes. A 1 is used for all non-divided roadways.
Tested Sect	If this flag is equal to Y, the pavement management section is a tested section and it will have a PCI (Pavement Condition Index) calculated. An N equals No.
Begin Milepost	This is the beginning milepost limit of the section; the same as the sections that are contained in the "Test Sections by Mileposts" Manual for the Primary Highway System as published by the Office of Materials.
Ending Milepost	This is the ending milepost limit of the section; the same as the sections that are contained in the "Test Sections by Mileposts" Manual for the Primary Highway System as published by the Office of Materials.
Section Desc	This is the literal description of the pavement management section. Your basic FROM-TO description.

☞ The previous items are repeated on all six screens so that the user will have the description of the pavement management section available on whatever screen is being viewed.

DOT Region	This identifies which DOT Transportation Region the section is in: C for Central; NE for Northeast; NW for Northwest; SW for Southwest; SE for Southeast; and EC for East Central. Internally, these are 1, 2, 3, 4, 5, and 6, respectively.
County Name	This is the county name spelled out followed by the county number in parenthesis.
City Number	If the pavement management section is within the city limits, this field will contain the city number for that city.
Original Key	This key is made up of the route number, system number, direction number, beginning milepost, ending milepost, and county number. This key is the thread that ties pavement management sections together back through time when something is changed via PMISCTLS.
Urban Area Code	If the pavement management section is within an urban area boundary, this field will contain the 3 digit urban area code for that urban area. Urban areas may contain more than one city.
Constructed	This is the year that the PM section was originally constructed OR reconstructed.
Resurfaced	If the PM section has been resurfaced, this is the year of the most recent resurfacing.
Lanes	Number of lanes.
Median	If there is a median, a Y will be shown. If there is no median, an N will be shown.
Pavement Type	A 1 or 2 character code followed by a 3 character code in parenthesis that shows the type of pavement. Pavement types are: 1 = Portland Cement Concrete (PCC); 2A = Continuous Reinforced Concrete (CRC) with Asphalt Treated Base; 2B = CRC with Granular Subbase or Cement Treated Base; 3 = Composite (COM) Pavement which is usually an asphalt overlay on PCC pavement; 3A = COM with Jointed PCC; 3B = COM with CRC; 4 = Full Depth Asphaltic Cement Concrete (ACC) pavement.

Thickness	Thickness of the pavement in millimeters (mm).
Width	Width of the pavement in meters (m).
SN	This is the Structure Number used in conjunction with pavement types 3, 3A, 3B, and 4 to determine the correlation of COM and ACC pavements with PCC pavements. The SN is in millimeters (mm).
Surf Type	This is a two digit code from the Base Records that identifies the Surface Type.
Desc	The description of the surface type is generated from the two digit surface type code. This description goes into a little more detail in describing the type of pavement.
Shoulders	Information is shown for both the left (Lt) and the right (Rt) shoulders. First item is type of shoulder: E for Earth; G for Granular; P for Paved; and N for None. The second item is the width of shoulder in meters (m). The third item is the thickness of shoulder in millimeters (mm). The fourth item shows whether the shoulder is a tied shoulder or not. If it is a tied shoulder, i.e. a paved shoulder that is tied to the roadway slab, a T will be presented.
Multi-Surf	This will show a Y if the pavement management section is made up of more than one type of pavement. An N will be presented if the section is just one type of pavement.
Treated	This field is used to show if some type of treatment has been performed on the pavement. Blank = no treatment; GD = grinding; SC = seal coat; and SS = slurry seal.
Subdrains	A Y for Yes if longitudinal subdrains have been installed and blank for No subdrain installation.
Special	If this is blank, it is a normal design section. An E = Experimental; M = Multipavement; and S = SHRP Site (Strategic Highway Research Program).
Planning Class/Level	The new planning classification (1, 2, 3, 4, or 5) is to the left of the / and the old planning level (A, B, C, or D) is to the right. These are used to stratify the primary road system into levels with unique service characteristics. Each class has a different role in supporting the transportation needs of the state, i.e. 1 = Interstate, 2 = Commercial & Industrial Network, 3 = Area Development, 4 =

Access Routes, and 5 = Local Service. The planning levels which will be eliminated soon are: A = Interstate; B = Arterial Routes - High AADT; C = Other Arterial Routes; and D = Non-Arterial Routes.

Fed Func Class

This classification (1, 2, 3, 4, 5, 6, or 7) is required by the FHWA and it defines the way a particular road serves the flow of trips through a highway network. These classes are divided into Rural or Urban classifications. For any pavement management section that has been assigned an Urban Area Code, the urban federal functional classification is used. If urban: 1 = Interstate; 2 is not used; 3 = Other Principal Arterial; 4 = Minor Arterial; 5 = Collector; 6 is not used; and 7 = Local. If rural: 1 = Interstate; 2 is not used; 3 = Other Principal Arterial; 4 = Minor Arterial; 5 = Major Collector; 6 = Minor Collector; and 7 = Local.

MCN

This is the Maintenance Concept Number that is assigned by the Maintenance Division when some type of maintenance is being considered for a section of road. The first two digits are the year and the last three digits are the sequence number.

PCI

This is the Pavement Condition Index that has been calculated from the test data that is provided by the Office of Materials. The PCI has a range from 0 (poor) to 100 (excellent).

Programmed

There are two items associated with this. The first item is the year that something has been programmed in the "Five Year Iowa Transportation Improvement Program" by the Office of Program Management. The second item is a brief description of the work to be accomplished.

PIN

This is the Project Improvement Number that ties the programmed information to the Five Year Program System. The first two digits represent the year programmed, the second two digits are county number, and the last three digits are a sequence number for that county and year.

☞ All six screens have two rows of PF (Program Function) Keys that appear at the bottom of each screen. The function associated with each of the PF Keys is explained in detail in the section of this manual that has the title **Application Name: PMISCURR** starting on page 13. The PF Keys are the same for all PMIS applications unless otherwise stated for some of the applications.

_____ Screen 2 _____

Surf Type	Surface Type (repeated from screen 1 of 6).
Pavt Type	Pavement Type (same as Pavement Type from screen 1 of 6).
Struct No	Structure Number (same as SN from screen 1 of 6).
PCI	Pavement Condition Index (same as PCI from screen 1 of 6).

IRI

International Roughness Index. This number is obtained from data that is provided by the South Dakota Type Profiler that measures the roughness of a test section in meters per kilometer. This index (meters divided by kilometers) is then used to determine the Longitudinal Profile Value for a pavement. The year for the IRI test follows the IRI value. The Office of Materials provides the IRI value and they test one half of the highway network mileage on an annual basis.

Friction

Friction Number followed by the year of the test. A KJ Law friction unit traveling at 65 kilometers per hour (km/h) collects the friction values. This number is shown on the screen but it does not influence calculations of the PCI. Routes are tested on a variable schedule with a maximum of four years between tests.

Surf Treat

Surface Treatment Code (same as Treated from screen 1 of 6) followed by the year of the treatment.

Defaults

This is a code (Y for Yes; N for No) to indicate whether or not some of the test data needed for the PCI equations was missing and if a default value needed to be substituted for any of the missing values.

Condition Date

This is the year that the Crack And Patch Surveys were conducted on a pavement management test section. Test sections within a pavement management section are 1/2 mile segments that are representative of the entire PM section. A PM section up to 5 miles long has one test segment, a 5 to 10 mile long PM section has two test segments, and a PM section longer than 10 miles has three test segments. The Office of Materials and Transportation Center Materials Offices perform the crack and patch survey and provides the data.

Cracking

For flexible pavements (Type 3 (COM) & Type 4 (ACC)) this is the square meters per test segment of pavement surface exhibiting alligator or fatigue cracking. For rigid pavements (Type 1 (PCC)

& Type 2 (CRC)) this is the number of full width cracks per test segment - cracks six millimeters wide or more or which have been sealed are included.

Patching

This is the repair of the pavement surface by skin or full depth patch and it is measured in square meters per test segment.

Trans Cracks

Transverse or T Cracking is the number of transverse (perpendicular to direction of traffic flow) cracks per 80 meter segment that are open to a width of six millimeters or more for over half their length or that have been sealed. T Cracking counts are used for flexible pavements (Type 3 (COM) & Type 4 (ACC)). Random or diagonal cracks are not included.

Rut Depth

This is the mean depth of rutting, in millimeters, in the wheel paths as measured under a 4 foot straightedge.

Faulting

Faulting is the mean vertical displacement, in millimeters, measured under a 4 foot straightedge.

D Cracking

D Cracking or Durability Cracking refers to a characteristic pattern that can develop in portland cement concrete pavements. The number that is shown is the DOF (D cracking Occurrence Factor) numerical rating based upon the following descriptiions: 0 = No D cracking noticeable; 1 = D cracking is evident at some joints with no maintenance required; 2 = D cracking is evident at most joints with no maintenance required; 3 = D cracking is evident at virtually all joints and random cracks with some minor maintenance required; 4 = D cracking is evident at virtually all joints and regular maintenance quality is noticeable; 5 = D cracking has progressed beyond DOFs 3 and 4 and reduced driving speed is necessary for comfort and safety.

H Crack

For PC pavements only, this is the number of transverse cracks that only extend across one lane and they are counted as "Half Cracks".

L Crack

L Cracking is the number of longitudinal (parallel to direction of traffic flow) cracks per 80 meter segment which exceed 30.5 meters in length and are open to a width of six millimeters over half their length or have been sealed. L crack counts are used for flexible pavements (Type 3 (COM) & Type 4 (ACC)).

PSI Ded

This is the Present Serviceability Index Deduction factor based upon calculations using the data stored for Cracking, Patching, and Rut Depth. The PSI was developed by the AASHTO Road Test as an objective means of evaluating the ability of a pavement to serve traffic.

Road Rater Date

This is the year, month, and day showing the date of the most recent road rater test performed on a PM section by the Office of Materials for the following data.

Av Struct Rating

This is the Average Structural Rating of a pavement based on springtime deflection values. Higher Average Structural Ratings mean stronger pavements.

Average K Value

This is the average soil support value based on springtime deflection values. Higher K values mean better soil support.

Thickness

This is the Thickness of the pavement in millimeters (same as Thickness from screen 1 of 6).

80% Structural Rating

This is a statistically developed value based on the Average Structural Rating and the standard deviation. 80% of the pavement section would have values greater than or equal to the 80th percentile Structural Rating.

Relative Structural Ratio

This is the Average Structural Rating divided by the Structure Number (same as Struct No or SN) for flexible pavements (COM or ACC). For rigid pavements (PCC or CRC), it is the Average Structural Rating divided by the thickness of pavement that has been multiplied by a constant value per unit of thickness of pavement.

Av Structural Rating at Joints

This is the Average Structural Rating At Joints based on springtime deflection values..

_____ Screens 3 & 4 _____

Pavt Type   Pavement Type (same as Pavement Type from screens 1 Of 6 and 2 Of 6).

Constructed   This is the year that the pavement was constructed or reconstructed. Repeated from screen 1 of 6.

Resurfaced   This is the year of the most recent resurfacing. Repeated from screen 1 of 6.

Agg Rating   Aggregate Rating is used for pavements in the Interstate System. This rating is obtained from a table of rating factors based upon the age of the pavement and the class of aggregate, i.e., PMIS Year minus Line 01 Year for Line 01 Aggregate Classes of 1, 2, 3, and I.

Asphalt Age Rating   This rating is used to rate asphalt overlays on jointed PCC pavements (Composite Pavement Type 3A) in the Interstate System. The rating factor is obtained from a table and is based upon age of last AC overlay, i.e., PMIS Year minus Line 01 Year for Pavement Type 3A.

Thickness   Thickness of pavement in millimeters (same as Thickness from screen 1 of 6).

Line   This is the line number for a specific project number in the project history. The first four lines (01 thru 04) include the first part of the project history information and the last four lines (01 thru 04) are a continuation of the project history. If there are more than four projects associated with a pavement management section, Lines 05 through 08 on Screen 4 Of 6 are used.

Year   This is the year that the work was completed for a given project.

Project Number   This is the project number that identifies some type of work that has been done on a pavement management section.

Type   This explains the type of the project and it assists with identifying the items that are to be added to the pavement thickness. If type is blank, the project work pertains to the entire width of the pavement. Other Type codes are: W = Widening; L = Left Lane; R = Right Lane; and V = Various Locations.

Surface   Two things are shown under Surface - Left column is the type of surface and right column is thickness of surface in millimeters. See

Appendix B for the codes that are used to define the types of surface.

Base
Two things are shown under Base - Left column is the type of base and right column is thickness of base in millimeters. See Appendix B for the codes that are used to define the types of base.

Subbase
Two things are shown under Subbase - Left column is the type of subbase and right column is thickness of subbase in millimeters. See Appendix B for the codes that are used to define the types of subbase.

Agg Source
Aggregate Source identifies where the aggregate that was used in the project was obtained.

AggType
Aggregate Type identifies the type of aggregate that was used in the project. There are several Aggregate Type codes -- the most common are C.LST (Crushed Limestone) and GRAVEL.

Class
This is the Durability Class that has been assigned to Aggregate Type: Class 1 = Durability of less than 10 years; Class 2 = Durability of 10 to 20 years; Class 3 = Durability of more than 20 years; Class I = Durability of 20 to 30 years.

Removal
Two things are shown under Removal - Left column is the type of pavement repair that was performed and right column is the depth of removal in millimeters. Types of pavement repair are: GND = Grinding; MIL = Milling; and SCR = Heater Scarification.

Remarks
Any short remark that might apply to a given project.

☞ Screen 4 of 6 contains four more lines of project history information and is a continuation of screen 3 of 6 when more than four lines are needed.

_____ Screen 5 _____

Concurrent Routes

If there are any routes that run concurrent with the route that appears in the basic description, the concurrent routes will be shown here.

Maintenance:

There are four data elements related to Maintenance shown on this line. The four elements are explained below.

Service Level

There are four Levels of Service (A, B, C, and D) used by the Maintenance Division to determine the priority used for maintaining a given section of a route. A = Higher Priority and D = Lowest Priority.

Region

This element identifies the Transportation Region that is responsible for the maintenance of a given PM section.

Area

This element identifies the Maintenance Area within a Transportation Region that is responsible for the maintenance of a given PM section.

Garage

This element identifies the Maintenance Garage within an Area and Transportation Region that is responsible for the maintenance of a given PM section.

Kmpoints:

Kilometer Points are stored on the PMIS Master File for our use in matching the beginning and ending limits of the pavement management sections with the meter point limits that are used in the Base Record System. Base records that fall within the limits of the pavement management sections are used in defining the "Typical Section" for the PM section. In most cases, many base records make up one pavement management section.

Base Rec Begin

This is the meter point (converted to kilometer point) at the beginning of the base record that matches with the beginning milepost of the PM section.

Base Rec End

This is the meter point (converted to kilometer point) at the end of the base record that matches with the ending milepost of the PM section. The ending meter point is calculated by adding the length of the base record to the beginning meter point.

BR Route

If the route number used as the control in the PMIS is different from the route number that is used as the control in the base records, the base record route number will appear here and as a Concurrent Route.

Trav Way Begin	This is the Traveled Way Beginning kilometer point for the PM section and it is used in conjunction with the Trav Way End (Traveled Way Ending) kilometer point to calculate the exact Length in kilometers of the PM section.
Trav Way End	Explained above.
Length	Length (in kilometers) is the actual calculated length of the PM section as explained above.
Coordinates:	The X, Y Coordinates provided from the Base Records that are used to calculate the Latitudes and Longitudes that are used in the mapping application called PMISMAPS. The coordinates are shown in increments of 1/1000 of a foot. The 0,0 point of the coordinates is the center of the design plane used for map files.
Begin X	This is the X coordinate for the beginning point of the PM section.
Begin Y	This is the Y coordinate for the beginning point of the PM section.
End X	This is the X coordinate for the ending point of the PM section.
End Y	This is the Y coordinate for the ending point of the PM section.
Long, Lat:	These are are Longitudes and Latitudes that are derived from the X, Y coordinates.
Begin LONG	This is the Longitude in degrees for the beginning point of the PM section.
Begin LAT	This is the Latitude in degrees for the beginning point of the PM section.
End LONG	This is the Longitude in degrees for the ending point of the PM section.
End LAT	This is the Latitude in degrees for the ending point of the PM section.

_____ Screen 6 _____

Constructed	This is a repeat of the Original Construction/Reconstruction year from Screen 1 Of 6.
Resurfaced	This is a repeat of the Resurfaced Year from Screen 1 Of 6.
Pavement Type	This is a repeat of the Pavement Type from Screen 1 Of 6.
Thickness	This is a repeat of the Thickness from Screen 1 Of 6.
Struct No	This is the Structure Number and it is a repeat of the SN from Screen 1 Of 6.
Traffic Count	This data relates to the most current Traffic Count data. This first data item is the Year of the most recent data.
AADT	The traffic volume on a section of highway is expressed as AADT (Annual Average Daily Traffic) which is the total traffic for the year divided by 365. Divided highways have directional splits for traffic volumes.
Trucks	This is the number of trucks included in the AADT.
Percent Trucks	This is the percentage of trucks. Calculation for this is Trucks divided by AADT.
ESALs	ESALs stands for Equivalent Single Axle Loads based upon 18 kip axle weights. A kip stands for Ki(lo) P(ounds) or a unit of weight equal to 1,000 pounds. An 18 kip axle is equivalent to an 18,000 pound axle weight. The following five items relate to the ESALs.
Predicted Lifetime	Each pavement type and pavement design thickness within that type has a Predicted Lifetime based upon the number of ESALs that it can withstand.
Annual	This is the calculated number of Annual ESALs that is obtained from the Traffic Count data.
Accum Since Resurfacing	If a pavement has been resurfaced, this is the total number of ESALs that have Accumulated Since Resurfacing.
Accum Since Construction	This is the total number of ESALs that have Accumulated since the Construction/Reconstruction of the pavement.
Percent Life Used	Percent Life Used is calculated by dividing the ESALs for Accum Since Construction by the Predicted Lifetime ESALs. Currently, this is only calculated for the Interstate Highway System.

Appendix B - PMIS Master File Record Format

FLD NUM	POSITION BEG	POSITION END	FIELD NAME	PICTURE	DESCRIPTION	RANGE
K 1	1	3	ROUTE	999	Route	1 to 998
E 2	4	4	SYSTEM	9	Highway System	1 = Interstate
Y						2 = U.S.
						3 = Iowa
F 3	5	5	DIR	9	Direction	1 = non-divided
I						or divided,NB/EB
E						2 = divided,SB/WB
L 4	6	11	BPOST	999X99	Beginning Milepost	(103 23=103.23)
D 5	12	17	EPOST	999X99	Ending Milepost	(105A12=105.12A)
S 6	18	19	COUNTY	99	County Number	1 to 99

+++

Field	Picture	Description	Range
PMISYR	9999	PMIS Year	1981 to 9999
NHS	X	National Highway System?	Y = Yes
			N = No
TESTED	X	Tested?	Y = Yes
			N = No
DESCRIPT	X(58)	P.M. Section Description	
REGION	9	D.O.T. Region	1=C;2=NE;3=NW;4=SW;5=SE;6=EC
CITY	9999	City Number	15 to 8637, blank
ORIGKEY	X(19)	Original Key	Fields 1 - 6
URBAN	999	Urban Area Code	0 to 999, blank
CONYR	9999	Year of Construction/Recon.	1900 to 9999
RESYR	9999	Year of Last Resurfacing	1900 to 9999, blank
LANES	9	Number of Lanes	0 to 9
MEDIAN	X	Median?	Y = Yes
			N = No
PAVTYP	9X	Pavement Type	1 = PC
			2A = CRC w/ATB
			2B = CRC w/GSB or CTB
			3 = Composite
			3A = Composite w/JT PCC
			3B = Composite w/CRC
			4 = AC
PAVTHICK	999	Pavement Thickness	in millimeters
WIDTH	99.9	Pavement Width	in meters
STRUCTNO	999	Structure Number	in millimeters
SURFACE	99	Surface Type	0 to 96; from base records

------------------ INSIDE (LEFT) SHOULDER DATA -----------------------------

Field	Picture	Description	Range
ISHLDTYP	X	Inside Shoulder Type	N = No shoulder
			E = Earth
			G = Granular
			P = Paved
			? = Unknown
ISHLDWID	9.9	Inside Shoulder Width	in meters
ISHLDTHK	999	Inside Shoulder Thickness	in millimeters
ISHLDTIE	X	Inside Shoulder Tied?	T = tied to concrete
			blank = not tied

----------------- OUTSIDE (RIGHT) SHOULDER DATA -----------------------------

Field	Picture	Description	Range
OSHLDTYP	X	Outside Shoulder Type	N = No shoulder
			E = Earth
			G = Granular
			P = Paved
			? = Unknown
OSHLDWID	9.9	Outside Shoulder Width	in meters
OSHLDTHK	999	Outside Shoulder Thickness	in millimeters

```
FLD
NUM      PICTURE  DESCRIPTION                  RANGE
================================================================================

OSHLDTIE      X  Outside Shoulder Tied?       T = tied to concrete
                                              blank = not tied
COMPLEX       X  Multiple Surface Types?      Y = Yes
                                              N = No
SUBDRAIN      X  Subdrains?                   Y = Yes
                                              N = No
SPECIAL       X  Special Section?               = Normal Sect.
                                              E = Experimental
                                              M = Multipavement
                                              S = SHRP Site


PCLASS        9  Planning Classification      1 to 5
PLEVEL        X  Old Planning Level           A to D
FCLASS        9  Federal Functional Class     1 to 7
CONCEPT   99999  Maintenance Concept Number   00000 to 99999, blank
PROGRAM    9999  Fiscal Year Programmed       1981 to 9999
PROGCOM   X(25)  Program Year Comments
PIN     9999999  Project Improvement Number   0 to 9999999, blank
PCI         999  Pavement Condition Index     0 to 100
PCIDEF        X  PCI Defaulted?               Y = Yes
                                              N = No
IRI        9.99  Internat. Roughness Index    0.50 to 9.99
IRIDAT     9(4)  IRI Test Year                1970 to 2070
FRICT        99  Friction Value               5 to 75
FRIDAT     9(4)  Friction Test Year           1970 to 2070
TREATMNT     XX  Surface Treatment              = none
                                              GD = Grinding
                                              SC = Seal Coat
                                              SS = Slurry Seal
TREATYR    9999  Surface Treatment Year       1981 to 9999
CRACK    999999  Cracking                     sq. m. for 3,3A,3B,4
                                              # of cracks for 1,2A,2B
RUT        99.9  Rut Depth                    in millimeters
HCRACK      999  Half-Cracking                0 to 500
PATCH     99999  Patching                     in square meters
FAULT      99.9  Faulting                     in millimeters
LCRACK      999  Longitudinal Cracking        0 to 500
CAPDAT     9(4)  Crack & Patch Test Year      1970 to 2070
TCRACK      999  Transverse Cracking          0 to 500
DCRACK        9  D-Cracking                   0 to 5
PSIDED     9.99  PSI (Crack&Patch) Deduction  0.00 to 9.99
STRUCAV   99.99  Average Structural Rating    0.50 to 15.00
STRUC80   99.99  80% Structural Rating        0.00 to 15.00
AVEK        999  Average "K" Rating           in kiloPascal/millimeter
RSRATIO  999.99  Relative Structural Ratio    0.27 to 100.00
RDRDAT    X(10)  Road Rater Test Date         YYYY/MM/DD
STRUCJT   99.99  Ave. Struc. Rating at Joints 0.00 to 15.00
AGGRATE   999.9  Aggregate Rating             0.0 to 100.0
```

```
FLD
NUM       PICTURE DESCRIPTION                    RANGE
==================================================================================
------------------PAVEMENT HISTORY DATA-----------------------------------------
LAYR1      9999 Layer Year #1                    1900 to 9999
PROJECT1   X(30) Project Number #1
PROJTYP1      X  Project Type #1                 blank = entire pavement width
                                                 W = widening project
                                                 L = left (inside) lane(s) only
                                                 R = right (outside) lane(s) only
                                                 V = various locations
SURTYP1     XXX  Surface Type #1                 AAC = Type A Asphalt Cement Conc
                                                 ARC = Asphalt Rubber Cement Conc
                                                 ASC = Asphalt-Sand Surface Cours
                                                 BAC = Type B Asphalt Cement Conc
                                                 BSC = Bituminous Seal Coat
                                                 BTB = Bituminous Treated Agg Bas
                                                 PCC = Portland Cement Concrete
                                                 PC7 = 10"-7"-10" PCC Concr. Slab
                                                 PC8 = 10"-8"-10" PCC Concr. Slab
                                                 RAC = Recycled Asphalt Cmnt Conc
                                                 RPC = Recycled PCC Pavement
                                                 SS  = Slurry Seal
                                                 TBB = Type B Asph Cmnt Conc Base
SURTHK1     999  Surface Thickness #1            in millimeters
BASTYP1     XXX  Base Type #1                    AAC = Type A Asphalt Cement Conc
                                                 ATB = Asphalt Treated Base
                                                 BAC = Type B Asphalt Cement Conc
                                                 BTB = Bituminous Treated Agg Bas
                                                 CTB = Cement Treated Base
                                                 ECB = Econocrete Base
                                                 GSB = Granular Subbase
                                                 PCB = Portland Cement Concr Base
                                                 RAC = Recycled Asphalt Cmnt Conc
                                                 RSB = Rolled Stone Base
                                                 SAS = Soil Aggregate Subbase
                                                 SCS = Soil-Cement Subbase
                                                 TBB = Type B Asph Cmnt Conc Base
BASTHK1     999  Base Thickness #1               in millimeters
SUBTYP1     XXX  Subbase Type #1                 ATB = Asphalt Treated Base
                                                 BTB = Bituminous Treated Agg Bas
                                                 GSB = Granular Subbase
                                                 RAC = Recycled Asphalt Cmnt Conc
                                                 RSB = Rolled Stone Base
                                                 SAS = Soil Aggregate Subbase
                                                 SCS = Soil-Cement Subbase
                                                 SLS = Soil-Lime Subbase
                                                 TBB = Type B Asph Cmnt Conc Base
SUBTHK1     999  Subbase Thickness #1            in millimeters
AGGSRC1    X(16) Aggregate Source #1
AGGTYP1    X(7)  Aggregate Type #1               C.LST. = Crushed Limestone
                                                 GRAVEL = Gravel
AGGCLAS1      X  Aggregate Class #1              1 = Class 1 Durability (<10 yrs)
                                                 2 = Class 2 Durability (10-20 y)
                                                 3 = Class 3 Durability (>20 yrs)
                                                 I = Class 3i Durability (20-30)
```

```
FLD
NUM         PICTURE  DESCRIPTION                       RANGE
===================================================================================
RMVTYP1       XXX    Removal Type #1                   GND = Grinding
                                                       MIL = Milling
                                                       SCR = Heater Scarification

RMVTHK1       999    Removal Thickness #1             in millimeters
REMARKS1     X(26)   Remarks #1
LAYR2        9999    Layer Year #2                    1900 to 9999
PROJECT2     X(30)   Project Number #2
PROJTYP1       X     Project Type #2
SURTYP2       XXX    Surface Type #2
SURTHK2       999    Surface Thickness #2             in millimeters
BASTYP2       XXX    Base Type #2
BASTHK2       999    Base Thickness #2                in millimeters
SUBTYP2       XXX    Subbase Type #2
SUBTHK2       999    Subbase Thickness #2             in millimeters
AGGSRC2      X(16)   Aggregate Source #2
AGGTYP2      X(7)    Aggregate Type #2
AGGCLAS2       X     Aggregate Class #2
RMVTYP2       XXX    Removal Type #2
RMVTHK2       999    Removal Thickness #2             in millimeters
REMARKS2     X(26)   Remarks #2
LAYR3        9999    Layer Year #3                    1900 to 9999
PROJECT3     X(30)   Project Number #3
PROJTYP1       X     Project Type #3
SURTYP3       XXX    Surface Type #3
SURTHK3       999    Surface Thickness #3             in millimeters
BASTYP3       XXX    Base Type #3
BASTHK3       999    Base Thickness #3                in millimeters
SUBTYP3       XXX    Subbase Type #3
SUBTHK3       999    Subbase Thickness #3             in millimeters
AGGSRC3      X(16)   Aggregate Source #3
AGGTYP3      X(7)    Aggregate Type #3
AGGCLAS3       X     Aggregate Class #3
RMVTYP3       XXX    Removal Type #3
RMVTHK3       999    Removal Thickness #3             in millimeters
REMARKS3     X(26)   Remarks #3
LAYR4        9999    Layer Year #4                    1900 to 9999
PROJECT4     X(30)   Project Number #4
PROJTYP1       X     Project Type #4
SURTYP4       XXX    Surface Type #4
SURTHK4       999    Surface Thickness #4             in millimeters
BASTYP4       XXX    Base Type #4
BASTHK4       999    Base Thickness #4                in millimeters
SUBTYP4       XXX    Subbase Type #4
SUBTHK4       999    Subbase Thickness #4             in millimeters
AGGSRC4      X(16)   Aggregate Source #4
AGGTYP4      X(7)    Aggregate Type #4
AGGCLAS4       X     Aggregate Class #4
RMVTYP4       XXX    Removal Type #4
RMVTHK4       999    Removal Thickness #4             in millimeters
REMARKS4     X(26)   Remarks #4
LAYR5        9999    Layer Year #5                    1900 to 9999
PROJECT5     X(30)   Project Number #5
PROJTYP1       X     Project Type #5
SURTYP5       XXX    Surface Type #5
SURTHK5       999    Surface Thickness #5             in millimeters
```

```
FLD
NUM         PICTURE  DESCRIPTION                      RANGE
===================================================================================
BASTYP5      XXX    Base Type #5
BASTHK5      999    Base Thickness #5                in millimeters
SUBTYP5      XXX    Subbase Type #5
SUBTHK5      999    Subbase Thickness #5             in millimeters
AGGSRC5     X(16)   Aggregate Source #5
AGGTYP5      X(7)   Aggregate Type #5
AGGCLAS5       X    Aggregate Class #5
RMVTYP5      XXX    Removal Type #5
RMVTHK5      999    Removal Thickness #5             in millimeters
REMARKS5    X(26)   Remarks #5
LAYR6       9999    Layer Year #6                    1900 to 9999
PROJECT6    X(30)   Project Number #6
PROJTYP1       X    Project Type #6
SURTYP6      XXX    Surface Type #6
SURTHK6      999    Surface Thickness #6             in millimeters
BASTYP6      XXX    Base Type #6
BASTHK6      999    Base Thickness #6                in millimeters
SUBTYP6      XXX    Subbase Type #6
SUBTHK6      999    Subbase Thickness #6             in millimeters
AGGSRC6     X(16)   Aggregate Source #6
AGGTYP6      X(7)   Aggregate Type #6
AGGCLAS6       X    Aggregate Class #6
RMVTYP6      XXX    Removal Type #6
RMVTHK6      999    Removal Thickness #6             in millimeters
REMARKS6    X(26)   Remarks #6
LAYR7       9999    Layer Year #7                    1900 to 9999
PROJECT7    X(30)   Project Number #7
PROJTYP1       X    Project Type #7
SURTYP7      XXX    Surface Type #7
SURTHK7      999    Surface Thickness #7             in millimeters
BASTYP7      XXX    Base Type #7
BASTHK7      999    Base Thickness #7                in millimeters
SUBTYP7      XXX    Subbase Type #7
SUBTHK7      999    Subbase Thickness #7             in millimeters
AGGSRC7     X(16)   Aggregate Source #7
AGGTYP7      X(7)   Aggregate Type #7
AGGCLAS7       X    Aggregate Class #7
RMVTYP7      XXX    Removal Type #7
RMVTHK7      999    Removal Thickness #7             in millimeters
REMARKS7    X(26)   Remarks #7
LAYR8       9999    Layer Year #8                    1900 to 9999
PROJECT8    X(30)   Project Number #8
PROJTYP1       X    Project Type #8
SURTYP8      XXX    Surface Type #8
SURTHK8      999    Surface Thickness #8             in millimeters
BASTYP8      XXX    Base Type #8
BASTHK8      999    Base Thickness #8                in millimeters
SUBTYP8      XXX    Subbase Type #8
SUBTHK8      999    Subbase Thickness #8             in millimeters
AGGSRC8     X(16)   Aggregate Source #8
AGGTYP8      X(7)   Aggregate Type #8
AGGCLAS8       X    Aggregate Class #8
RMVTYP8      XXX    Removal Type #8
RMVTHK8      999    Removal Thickness #8             in millimeters
REMARKS8    X(26)   Remarks #8
```

```
FLD
NUM        PICTURE  DESCRIPTION                     RANGE
=================================================================================
CONRTE1       999   1st Concurrent Route            1 to 998
CONRTE2       999   2nd Concurrent Route            1 to 998
MLEVEL          X   Maintenance Service Level       A to D
MREGION         9   Maintenance Region              1=C;2=NE;3=NW;4=SW;5=SE;6=EC
AREA            9   Maintenance Area                1 to 9
GARAGE         99   Maintenance Garage              1 to 99
BRPOINTB    99.99   Base Records Beg. Kmpoint       0.00 to 99.99
BRPOINTE    99.99   Base Records End. Kmpoint       0.00 to 99.99
BRROUTE       999   Base Records Route              1 to 998
TWPOINTB    99.99   Traveled Way Beg. Kmpoint       0.00 to 99.99
TWPOINTE    99.99   Traveled Way End. Kmpoint       0.00 to 99.99
TWLENGTH    99.99   Traveled Way Segment Length     in kilometers
BXCOOR      9(10)   Beginning X-Coordinate          - to + 999999999
BYCOOR      9(10)   Beginning Y-Coordinate          - to + 999999999
EXCOOR      9(10)   Ending   X-Coordinate           - to + 999999999
EYCOOR      9(10)   Ending   Y-Coordinate           - to + 999999999
BLNG      99.9999   Beginning Longitude             90.1400 - 96.6374
BLAT      99.9999   Beginning Latitude              40.3758 - 43.5007
ELNG      99.9999   Ending   Longitude              90.1400 - 96.6374
ELAT      99.9999   Ending   Latitude               40.3758 - 43.5007
TRYR         9999   Traffic Year                    1981 to 9999
ADT        999999   Average Daily Traffic           0 to 999999
TRUCKS     999999   ADT - Trucks                    0 to 999999
KIPSANN      9(9)   Annual 18 KIPS (ESALS)          0 to 999999999
KIPSRES      9(9)   Accum KIPS Since Resurfacing     0 to 999999999
KIPSCON      9(9)   Accum. Const/Reconst 18 KIPS    0 to 999999999
ALTOBS      99999   Alternate Direction Observation Number
```

PMIS

For Better Highways