

Concrete Pavement Design and Rehabilitation

DATA BASE USERS MANUAL

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ADOT DATA BASE USERS MANUAL

INTRODUCTION

Under contract HPR-PL-1(31)264, "Concrete Pavement Design and Rehabilitation," a comprehensive data base was created which contains pavement design and construction data, climatic information, traffic data, and condition data for 48 pavement sections. The data base includes projects from jointed concrete pavements (40 sections), prestressed concrete pavements (4 sections), continuously reinforced concrete pavements (2 sections), and 3-layer structural rehabilitation pavements (2 sections).

The data base used was the UNIFY Relational Data Base System. The system resides on an IBM PC-AT with 640K RAM and a 30-Mb hard disk. The project data base, termed ADOT, occupies approximately 8-Mb of hard disk space.

DATA BASE SET-UP

Note that the UNIFY system must be properly installed and the path must include the UNIFY BIN directory before using UNIFY. The following describes the procedure to set up the ADOT data base from diskettes provided by ERES.

For this discussion, all references to words or letters in quotes (such as "adot" or "P") indicate that those words or letters should be typed in. The references to <RETURN> or <ENTER> indicate that the return or enter key is to be hit. Symbols such as <^U>, <^X>, and so on, indicate that while the Control key is depressed, the U or X key is hit.

The directory names to be entered are arbitrary but the following terms were assigned:

1. **Monitor Data Base.** The monitoring data is expected to reside in the directory ADOT\DBASE\DBMON. This directory must first be created by typing "md" and then the directory title. Once this directory has been created, enter the directory by typing "cd\adot\ibase\dbmon", and insert the *Monitor Data Base Disk #1* in drive "A". Type the command `SPLICE A: [destination filename] - e.g. C:\ADOT\IBASE\DBMON`. After disk #1 has been copied to the hard drive, the user will be prompted to enter disk #2, and then disk #3. This will copy the rest of file MON.EXE, onto the hard drive. Execute the files by typing the file name. Once the files have been loaded into the directory, erase the .EXE file from the directory.

2. *Inventory Data Base.* The inventory data is expected to reside in the directory ADOT\DATABASE\DBINVEN. As before, this directory must first be created by typing "md\adot\dbase\dbinven" and then the directory title. Once this directory has been created, enter the directory by typing "cd\adot\dbase\dbinven", and insert the *Inventory Data Base Disk* in drive A:. To load this data, copy the INV.EXE files into the ADOT\DATABASE\DBINVEN directory; then execute the files by typing the file name. Once the files have been loaded into the directory, erase the .EXE file from the directory.

This procedure will install both data bases onto the hard disk. To use either data base, simply enter the appropriate directory and type "unify". Complete instructions follow.

There are two directories (Monitor and Inventory) set up for this complete data base. To enter these directories from the main drive enter the following information:

```
"CD\ADOT\DATABASE\DBMON"  
"CD\ADOT\DATABASE\DBINVEN"
```

Once this information is typed in, the user needs to enter "UNIFY" to enter the data base directory.

The *Monitor Data Base* (DBMON) contains screens for all Monitoring and Traffic Data. The *Inventory Data Base* (DBINVEN) contains screens for all Inventory, Maintenance, Environmental, and Rehabilitation Data.

The first menu screen to come up in each of these data bases is the screen in figure 1. This is the UNIFY Main Menu. Before any data can be entered, the word "adot" must be typed in by the SELECTION command. The command "adot" must be typed in lower case letters, as the UNIFY system is case sensitive. This is true for both directories.

Failure to type in "adot" at the SELECTION prompt and directly entering any of the categories on the UNIFY Main Menu will enter the user into the programming menus for the data base. If this is inadvertently done, <^U> will return the user to the chosen menu. <F3> will then return the user to the Main Menu where "adot" can then be typed in to enter the menus for data entry.

The following figures show the layout of the menus and sub-menus for each Directory. Figures 2a - 2h are *Inventory Data Base Screens* and figures 3a - 3h are *Monitoring Data Base Screens*.

For selection of a sub-menu, the <RETURN> key can be used to toggle down to the desired sub-menu. Then the sub-menu is selected by hitting the <F1> key. The number designating the sub-menu can also be typed in, followed by the <RETURN> key.

A listing and description of the function and input keys is provided in Appendix B.

[mainmenu]

UNIFY Release 3.2
UNIFY Main Menu

2 MAY 1990 - 12:42

1. Design and Create a New Data Base
2. Create or Modify Screen Forms
3. SQL - Query/DML Language
4. Edit SQL or RPT Command Files
5. Add, Modify or Delete Menus
6. Data Base Design Utilities
7. System Administration

SELECTION: adot

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 1. UNIFY Main Menu.

[adot]

UNIFY Release 3.2
ADOT Inventory Data - Main Menu

2 MAY 1990 - 02:57

1. ADOT Required Information
2. ADOT Inventory Data
3. ADOT Maintenance Data
4. ADOT Environmental Data
5. ADOT Error Checking Routines
6. ADOT Data Listing Procedure
7. ADOT Rehabilitation Information

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 2a. ADOT Inventory Data - Main Menu.

[reqinfo]

UNIFY Release 3.2
ADOT Required Information

2 MAY 1990 - 02:57

1. ERES Identification
2. State Identification
3. ADOT Inventory Data
4. ADOT Maintenance Data
5. ADOT Environmental Data
6. ADOT Data Sheet Comments

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 2b. ADOT Required Information.

[inv]

UNIFY Release 3.2
ADOT Inventory Data

2 MAY 1990 - 02:57

1. Inventory Data - Sheets 1 & 2	10. Inventory Data - Sheet 11
2. Inventory Data - Sheet 3	11. Inventory Data - Sheet 12
3. Inventory Data - Sheet 4	12. Inventory Data - Sheet 13
4. Inventory Data - Sheet 5	13. Inventory Data - Sheet 14
5. Inventory Data - Sheet 6	14. Inventory Data - Sheet 15
6. Inventory Data - Sheet 7	15. Inventory Data - Sheet 16
7. Inventory Data - Sheet 8	
8. Inventory Data - Sheet 9	
9. Inventory Data - Sheet 10	
SELECTION:	

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 2c. ADOT Inventory Data.

[main]

UNIFY Release 3.2
ADOT Maintenance Data

2 MAY 1990 - 02:58

1. Maintenance Data - Sheet 1
2. Maintenance Data - Sheet 2

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 2d. ADOT Maintenance Data.

[env]

UNIFY Release 3.2
ADOT Environmental Data

2 MAY 1990 - 02:58

1. Environmental Data - Sheet 1
2. Environmental Data - Sheet 2
3. Environmental Data - Sheet 3

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 2e. ADOT Environmental Data.

[errorchk]

UNIFY Release 3.2
ADOT Error Checking Routines

2 MAY 1990 - 02:58

1. Inventory Error Checking
2. Maintenance Error Checking
3. Environmental Error Checking
4. Rehabilitation Error Checking

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 2f. ADOT Error Checking Routines.

[dumpdata]

UNIFY Release 3.2
ADOT Data Listing Procedure
ADOT Data Base Data Dump

2 MAY 1990 - 02:58

Enter ERES ID you wish to print data for :

II

Accept entries [CTRL E], Clear field [CTRL Z], Exit [CTRL X]

Figure 2g. ADOT Data Listing Procedure.

[rehab]

UNIFY Release 3.2
ADOT Rehabilitation Information

2 MAY 1990 - 02:58

1. 3-Layer System Data - Sheet 5a

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 2h. ADOT Rehabilitation Information.

[reqinfo]

UNIFY Release 3.2
Required ADOT Data Base Information

2 MAY 1990 - 12:42

1. ERES Identification
2. State Code Maintenance
3. ADOT Traffic Menu
4. ADOT Monitoring Data - Sheet 1
5. ADOT Monitoring Data - Sheets 2-11
6. Monitoring Data Comment Sheets

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 3a. Required ADOT Data Base Information.

[adot]

UNIFY Release 3.2
ADOT Monitoring Data - Main Menu

2 MAY 1990 - 12:42

1. Required ADOT Data Base Information
2. ADOT Monitoring Data - Sheet 1
3. ADOT Monitoring Data - Sheets 2-11
4. ADOT Monitoring Data - Sheets 8a-13a
5. ADOT Traffic Menu
6. ADOT Monitor Error Checking
7. ADOT Report Generation
8. Redux and Repetative Data Entry

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 3b. ADOT Monitoring Data - Main Menu.

[monitor]

UNIFY Release 3.2
ADOT Monitoring Data - Sheets 2-11

2 MAY 1990 - 12:42

- | | |
|-------------------------------------|--------------------------------------|
| 1. Monitoring Data - Sheet 2 (req) | 10. Monitoring Data - Sheet 7 (data) |
| 2. Monitoring Data - Sheet 2 (data) | |
| 3. Monitoring Data - Sheet 3 | |
| 4. Monitoring Data - Sheet 4 | |
| 5. Monitoring Data - Sheet 5 (req) | |
| 6. Monitoring Data - Sheet 5 (data) | |
| 7. Monitoring Data - Sheet 6 (req) | |
| 8. Monitoring Data - Sheet 6 (data) | |
| 9. Monitoring Data - Sheet 7 (req) | |

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

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Figure 3c. ADOT Monitoring Data - Sheets 2-11.

[monitor3]

UNIFY Release 3.2

2 MAY 1990 - 12:42

ADOT Monitoring Data - Sheets 8a-13a

1. Monitoring Data - Sheet 8a
2. Monitoring Data - Sheet 9a
3. Monitoring Data - Sheet 8b
4. Monitoring Data - Sheet 9b
5. Monitoring Data - Sheet 10a
6. Monitoring Data - Sheet 11a
7. Monitoring Data - Sheet 12a
8. Monitoring Data - Sheet 13a

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 3d. ADOT Monitoring Data - Sheets 8a-13a.

[traffic]

UNIFY Release 3.2
ADOT Traffic Menu

2 MAY 1990 - 12:43

1. Traffic Data - Sheet 1
2. Traffic Data - Sheet 1 Additional
3. WIM Vehicle Class
4. Axle Load Distributions

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 3e. ADOT Traffic Menu.

[monerror]

UNIFY Release 3.2
ADOT Monitor Error Checking
ADOT Data Base Error Checking

2 MAY 1990 - 12:43

This routines checks for any data errors in the Monitoring Data relations.

18

Proceed ?

Figure 3f. ADOT Monitor Error Checking.

[dumpmenu]

UNIFY Release 3.2
ADOT Report Generation

2 MAY 1990 - 12:43

1. ADOT Data Listing Procedure
2. FWD Data
3. Vehicle Classification
4. WIM Data
5. Traffic Data

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 3g. ADOT Report Generation.

[convert]

UNIFY Release 3.2
Redux and Repetitive Data Entry

2 MAY 1990 - 12:43

1. Convert Redux Data to Input Format
2. Repetitive Data Entry

SELECTION:

F1-select ^U-up RET-down F2-home F3-previous F4-clear F5-exit F6-help /-more

Figure 3h. Redux and Repetitive Data Entry.

ADDING FILES

The initial information to be input into both directories (for all sections) should be the Required ADOT Data Base Information. This is the first selection on the Main Menu, then the first selection on the first sub-menu. This category is ERES Identification. This screen contains the ERES ID, state code, and project ID. All other input data is referenced from this information.

Every screen will come up first with the following prompt at the bottom of the screen: (I)nquire, (A)dd, (M)odify, (D)elete. Type in "A" and then hit <RETURN> to add data for an individual section.

After data is input, <^U> will save the screen and call up another blank screen for more data entry. If no more data input is needed, then <^U> will again call up the same (I), (A), (M), (D) prompts for any Inquiries, Additions, Modifications, or Deletions of data for that particular screen. Hitting <^U> again will send the user back to the previous menu. To add another screen of data, the user just needs to continue entering another section after the first <^U> has cleared the previous screen and saved the data.

The user should keep in mind that once a data input screen has been saved by hitting <^U>, any additional information that needs to be added to that screen in that particular file will have to be added in the (M)odify mode. If the user tries to add more data in that same file, the following message will appear at the bottom of the screen: *This record already exists.*

The user can continue to enter data as mentioned above for each of the sheets (screens) on each of the sub-menus. Once the user has entered all of the data in a particular sub-menu, the user can then hit the <F3> key to go back to the previous main menu and toggle through the sub-menus until all data has been entered for all menus and sub-menus.

While in the *Monitoring or Inventory Data Bases*, the following sheets of distress information have to be entered in a special way:

- Monitoring Data sheets 5 (data), 6 (data), 7 (data)
- Traffic Data sheet 1a
- Traffic Data sheet 1b
- Inventory Data sheet 8

These sheets contain repetitive data that has to be input with only one line of data per screen in the following manner:

1. Enter ERES ID.

2. Enter lane number (if applicable).
3. Enter first line of information on sheet.
4. <^U> to save screen and call up blank screen.
5. Repeat steps 1 and 2.
6. Enter second line of information on sheet.
7. <^U> to save this screen and call up blank screen.
8. Continue this process for every line of data.

All data for all screens in both directories can be entered by following the instructions described above.

An alternate means of entering data for monitoring sheets 5, 6, and 7 is through the use of the Repetitive Data Entry Program listed in the "adot" sub-menu. Before entering any data through this program, the required data for sheets 5, 6, and 7 must be entered first. This is accomplished by going to the "adot" sub-menu and entering REDUX and Repetitive Data Entry. In this menu, enter the Repetitive Data Entry function and choose the number which corresponds to the data sheet that is being entered. Enter the data in the following way:

1. Enter ERES ID.
2. Enter Date of Survey.
3. Enter Lane Number.
4. Enter rest of required data on screen.
5. <^U> to save this screen.

After step 5, the ERES ID, data of survey and lane number will remain the same and does not have to be input again until the ERES ID, date of survey, or lane number changes.

When all of the data is input for a specific ID, date, or lane, entering a zero (0) in the fourth line down will send the user back to the Repetitive Date Entry Menu. The user can then choose another data sheet for input or type <E> to exit program.

The first selection of the Repetitive Data Entry menu, *Convert REDUX Data to Input Format*, was specifically designed for the input of ERES' reduced FWD data and this program is only applicable for use with FWD data that ERES has reduced.

MODIFYING FILES

To modify any screen, go through the menu to the screen that needs modification. Type "M" then <RETURN>. The user can hit <^E>, which will call up all input files. The user can then scan every file to find the necessary file(s) for modification. If the user chooses to scan all files in this manner, after <^E> is hit the following prompt will come up on the bottom of the screen: (N)ew, (P)revious,

(S)top. By entering "N" then <RETURN>, the next file in the program will be called up to the screen. By entering "P" then <RETURN>, the program will call up the previous file to the screen. Entering "S" then <RETURN> will stop the Modification process and return the user to the prompt: (I)nquire, (A)dd, (M)odify, (D)elete. All files can also be scanned in this mode by hitting the <RETURN> key. Doing this will advance the screens of input one at a time in the same manner as hitting "N". The user can also just type in the name of file (ERES ID) to be modified. This hit <RETURN> and <^E> for the program to search for that particular file.

Data can then be modified by toggling with the <RETURN> key to the correct data entry point. After modification, <^U> will save the modified screen and allow for additional search of data input with the prompt <^E> for additional search. Hitting <^X> will exit to the menu. <^U> can also be hit to exit back to the (I), (A), (M), (D) prompt, then <^U ^U> to go back to the previous menu.

An alternative method for scanning particular files can be done in the following ways:

1. "*" <^E> - Calls up all files.
2. "AZ*" <^E> - Calls up all files with the first letters of the ERES ID beginning "AZ".
3. "AZ 1-*" <^E> - Calls up all files with the ERES ID beginning "AZ 1-".
4. "AZ 1-1" <^E> - Calls up the file AZ 1-1.
5. Any field on any record can be searched by entering either "*", text values, or numerical values in that field followed by <^E>. All entries that match the user's query will be called up to the screen.

DELETING FILES

To delete any complete screen or any portion of a screen, go through the menu to the screen that has the file to delete. When the prompt (I)nquire, (A)dd, (M)odify, (D)elete comes up, type in "D" and <RETURN>. The prompt ^E, ^Z, ^X will appear at the bottom of the screen. By entering <^E>, the program will begin searching all files. The user can also type in the ID of the section desired to be deleted. Then, by entering <^E>, that particular section will be brought up on the screen for complete or partial deletion.

Once the file is identified, the prompt (N)ew, (P)revious, (D)elete, (S)top comes up at the bottom of the screen. The (N), (P), and (S) commands will function the same as stated before in the instructions for Modifying Files. By hitting "D" and <RETURN>, that entire screen of input data will be deleted. If only a portion of the data needs to be deleted, the user can toggle the cursor down the screen by hitting <RETURN> and then by hitting <^Z> or <F4>. If only a part of the file is deleted, the Modification Program can be used to re-enter the new data for the file. The user

can return to the menu in the same manner as mentioned before in the section on Modifying Files.

Note: If deleting only a reference file that has no data input into it, the prompt -Delete?- will come up at the bottom of the screen. Replying with the response "Y" and then <RETURN> will delete the reference file. Replying with an "N" and then <RETURN> will cancel the (D) command for that file.

INQUIRING INTO FILES

The Inquire command allows the user to view any or all files of data for any screen that has information input into it.

While in the Inquire mode, the user can search all files by hitting <^E> and then toggling through using the <RETURN> key or by using the (N)ew, or (P)revious commands. Typing "S" and then the <RETURN> key will send the user back to the ^E, ^Z, or ^X mode. These commands in this mode perform the same as in the Modify or Delete mode. The user also has the option to search for a particular file by typing in that file name, then <^E> for the program to search for that file.

ERROR CHECKING

The error checking routine checks for values that are either out of range or invalid. To utilize this command, go to "ADOT Error Checking Routines" on either directory Main Menu. Whereas in the *Monitoring Data Base*, all categories of screens are checked together with one command. In the *Inventory Data Base*, there are four separate categories of screens for error checking: Inventory, Maintenance, Environmental, and Rehabilitation. In the *Inventory Data Base*, go to the desired category for error checking. The screen will indicate that this routine will check for any data errors in the category the user has chosen. Type in "Y" to proceed with the error checking, or "N" to return to the previous menu. In the *Monitoring Data Base*, the program will automatically check all categories for errors.

Regardless of which data base the user is in, this Error Checking Routine will check for all errors in all files that have been input. There is no way of singling out a single file or screen for error checking.

The next screen that comes up for this routine will be Method of Output for Error Checking. Enter report "1", then toggle using the <RETURN> key to the method of output you have chosen: SCREEN, PRINT, or FILE. Type an "X" in the appropriate blank. Toggle the <RETURN> key back to SCREEN and hit <^U>. The prompt (F)oreground, (D)ebug, (C)ancel will then come up at the bottom of the screen. Type in "F" and <RETURN> to proceed with the chosen method of output. The program will run internally first, then continue with output. By typing "C" and

<RETURN>, this program will be canceled and the user returned to the previous menu.

After data has been output, <^U> can be hit until the user is back at the previous menu.

DATA LISTING

The data listing command provides a report of all data for a section or sections that are specified by the user. To utilize this command, go to "ADOT Data Listing Procedure" in the *Inventory Data Base* and "Report Generation" in the *Monitoring Data Base*. In the *Inventory Data Base*, all of the data that has been input will be given in the method of output chosen by the operator.

In the *Monitoring Data Base*, the user has the option of listing the FWD data, vehicle classification data, weigh-in-motion (WIM) data, historical traffic data, or all other monitored data. The exact ID file name can be input after the prompt, or a certain category of sections can be entered. For example: "CA*" <^E> would search and list all data in all of the sections with "CA" as the beginning letters for the ERES ID, whereas "CA 1-1" <^E>, which is an exact section ID, would search and list all data for this particular section. By entering "*" <^E>, the program will search for all data entries and will list all entries.

The Method of Output for Data Listing Procedure and Report Generation is the same as described above in the method for Error Checking Routines.

ADDITIONAL NOTES

- A default value of -99 was selected to indicate that a specific field of information on the screens was either unavailable or not applicable to a particular section.
- A "Comments Sheet" has been added to both directories for the input of any additional information that is not required to be input anywhere else in the data bases. This information consists of any information gathered in the field surveys or through research that is unique to the section or may be useful in the analysis of that section.
- When adding data to the individual screens in either directory, the ERES ID is the first information to be entered. This gives the program a reference under which to save the files. If the correct ID is not entered to each individual screen, a message will appear at the bottom of the screen: "Reference not Found". The cursor will then return to the first line of the screen for the correct ID to be entered. Remember that the

UNIFY System is upper and lower case type sensitive. If the ERES Identification was originally entered in upper case, it must continue to be entered that way.

- The location codes for FWD testing are as follows:

Code 0 - Wheelpath
Code 1 - Midslab
Code 2 - Same slab as Code 1, but adjacent joint at outside corner
Code 3 - Next slab, but adjacent to same joint

If sensor "-1" is perpendicular to the other sensors, the prefix 1 is used with the above codes, i.e. 11, 12, 13.

Code 4 - Sensor D_0 load in wheelpath at approach to crack (prestressed).
Code 22 - Sensor D_0 load in wheelpath at approach to anchor joint (prestressed).
Code 23 - Sensor D_0 load in wheelpath on opposite side of approach to anchor joint (prestressed).
Code 32 - Sensor D_0 load on corner at approach to anchor joint (prestressed).
Code 33 - Sensor D_0 load on corner on opposite side of approach to anchor joint (prestressed).
Code 42 - Sensor D_0 load in center of slab at approach to crack (CRCP).
Code 43 - Sensor D_0 load in center of slab on opposite side of approach to crack (CRCP).

- Traffic sheets 2 and 3 - 9 are the monitored vehicle classification and weigh-in-motion data. Because of the substantial amount of information for this record, the following section ID's were used and these ID's reflect project wide information:

AZI10EB - AZI10-01, AZI10-02, AZI10-05, AZ 2

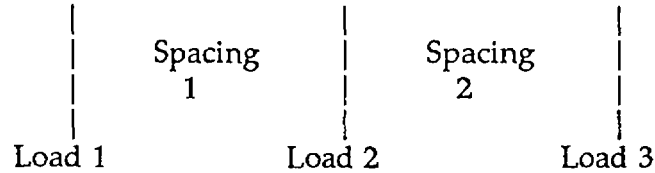
AZI10WB - AZI10-03, AZI10-04, AZI10-06, AZI10-07

AZI17NB - AZI17-01, AZI17-02, AZI17-03, AZI17-04, AZI17-05, AZI17-06, AZI17-07, AZI17-09, AZI17-10, AZI17-11

AZ360 - AZ360-01, AZ360-02, AZ360-03, AZ360-04, AZ360-05, AZ360-06, AZ360-07, AZ360-08, AZ360-09, AZ36010A, AZ36010B, AZ 1-1, AZ 1-2, AZ 1-4, AZ 1-5, AZ 1-6, AZ 1-7

There was no WIM studies done for any of the California sections.

On each of these screens there is always one more axle load than axle spacings. Load 1 and 2 correspond with spacing 1; load 2 and 3 correspond with spacing 2; and so on.



- On sheet 9 in the *Inventory Data Base*, the field for dowel spacing is coded as a string of XX characters so that numbers (e.g., 6, 18, 30, etc.) as well as letters (e.g., No Dowels) could be listed.

APPENDICES

Several appendices are provided in support of this users manual. Appendix A provides tables and figures listing all standard codes contained in the data base. These standard codes are taken directly from the Data Collection Guide for Long Term Pavement Performance Studies. Appendix B provides a description of the functional input keys for manipulation of the data base. Appendix C lists standard FHWA vehicle classifications with definitions of each class. Appendix D contains the data sheets for all pavement sections.

APPENDIX A

TABLES AND FIGURES

OF

STANDARD CODES

Table A.1 Table of Standard Codes for States, District of Columbia, Puerto Rico, American Protectorates and Canadian Provinces.

<u>State</u>	<u>Code</u>	<u>State</u>	<u>Code</u>
Alabama	01	New York	36
Alaska	02	North Carolina	37
Arizona	04	North Dakota	38
Arkansas	05	Ohio	39
California	06	Oklahoma	40
Colorado	08	Oregon	41
Connecticut	09	Pennsylvania	42
Delaware	10	Rhode Island	44
District of Columbia	11	South Carolina	45
Florida	12	South Dakota	46
Georgia	13	Tennessee	47
Hawaii	15	Texas	48
Idaho	16	Utah	49
Illinois	17	Vermont	50
Indiana	18	Virginia	51
Iowa	19	Washington	53
Kansas	20	West Virginia	54
Kentucky	21	Wisconsin	55
Louisiana	22	Wyoming	56
Maine	23	American Samoa	60
Maryland	24	Guam	66
Massachusetts	25	Puerto Rico	72
Michigan	26	Virgin Islands	78
Minnesota	27	Alberta	81
Mississippi	28	British Columbia	82
Missouri	29	Manitoba	83
Montana	30	New Brunswick	84
Nebraska	31	Newfoundland	85
Nevada	32	Nova Scotia	86
New Hampshire	33	Ontario	87
New Jersey	34	Prince Edward Island	88
New Mexico	35	Quebec	89
		Saskatchewan	90

Note: The U.S. codes are consistent with the Federal Information Processing Standards (FIPS) and HPMS.

Table A.2 Functional Class Codes.

<u>Functional Class</u>	<u>Code</u>
Rural:	
Principal Arterial- Interstate	01
Principal Arterial - Other	02
Minor Arterial	06
Major Collector	07
Minor Collector	08
Local Collector	09
Urban:	
Principal Arterial - Interstate	11
Principal Arterial - Other Freeways or Expressways	12
Other Principal Arterial	14
Minor Arterial	16
Collector	17
Local	19

Note: These codes are consistent with the HPMS system.

Table A.4 Pavement Type Codes.

<u>Type of Pavement</u>	<u>Code</u>
<u>Flexible Pavements:</u>	
Asphalt Concrete With Granular Base	01
Asphalt Concrete With Stabilized Base	02
Asphalt Concrete Pavement With Asphalt Concrete Overlay	03
Asphalt Concrete Pavement With JPCP Overlay	04
Asphalt Concrete Pavement With JRCP Overlay	05
Asphalt Concrete Pavement With CRCP Overlay	06
<u>Rigid Pavements:</u>	
JPCP - Original Construction	11
JRCP - Original Construction	12
CRCP - Original Construction	13
JPCP With Asphalt Concrete Overlay	14
JRCP With Asphalt Concrete Overlay	15
CRCP With Asphalt Concrete Overlay	16
JPCP With JPCP Overlay	17
JPCP With JRCP Overlay	18
JRCP With JPCP Overlay	19
JRCP With JRCP Overlay	20
CRCP With JPCP Overlay	21
CRCP With JRCP Overlay	22
CRCP With CRCP Overlay	23
JPCP With CRCP Overlay	24
JRCP With CRCP Overlay	25
Prestressed Concrete	52
<u>Composite Pavements (Overlay Included in Initial Construction):</u>	
CRCP With Asphalt Concrete Overlay	31
CRCP Over Asphalt Concrete Base	32
JPCP Over Asphalt Concrete Base	33
JRCP Over Asphalt Concrete Base	34
CRCP Over Lean Concrete Base	35
JPCP Over Lean Concrete Base	36
JRCP Over Lean Concrete Base	37
<u>Definitions:</u>	
JPCP - Jointed Plain Concrete Pavement	
JRCP - Jointed Reinforced Concrete Pavement	
CRCP - Continuously Reinforced Concrete Pavement	
Flexible Pavement - Asphalt Concrete Pavement	
Rigid Pavement - Portland Cement Concrete Pavement	

Table A.5 Pavement Surface Material Type Codes.

<u>Material Type</u>	<u>Code</u>
Asphalt Concrete, Dense Graded	01
Asphalt Concrete, Open Graded (Porous Friction Course)	02
Sand Asphalt.	03
Portland Cement Concrete (JPCP)	04
Portland Cement Concrete (JRCP)	05
Portland Cement Concrete (CRCP)	06
Portland Cement Concrete (Prestressed)	07
Portland Cement Concrete (Fibrous)	08
Plant Mix Material (Emulsified Asphalt), Cold Laid	09
Plant Mix Material (Cutback Asphalt), Cold Laid	10
Single Surface Treatment	11
Double Surface Treatment	12
Recycled Asphalt Concrete	
Hot, Central Plant Mix	13
Cold Laid, Central Plant Mix	14
Cold Laid, Mix-In-Place	15
Heater Scarification/Recompaction	16
Recycled Portland Cement Concrete	
JPCP.	17
JRCP.	18
CRCP.	19

Table A.6 Base and Subbase Material Type Codes.

	<u>Code</u>
No Base (Pavement Placed Directly on Subgrade)	21
Gravel (Uncrushed)	22
Crushed Stone, Gravel, or Slag	23
Sand.	24
Soil/Aggregate Mixture (Predominantly Fine-Grained Soil)	25
Soil/Aggregate Mixture (Predominantly Course-Grained Soil)	26
Soil Cement (Cement Treated Sand)	27
Asphalt Bound Base or Subbase Materials	
Dense Graded, Hot Laid, Central Plant Mix	28
Dense Graded, Cold Laid, Central Plant Mix	29
Dense Graded, Cold Laid, Mixed-In-Place	30
Open Graded, Hot Laid, Central Plant Mix	31
Open Graded, Cold Laid, Central Plant Mix	32
Open Graded, Cold Laid, Mixed-In-Place	33
Recycled Asphalt Concrete, Plant Mix, Hot Laid	34
Recycled Asphalt Concrete, Plant Mix, Cold Laid	35
Recycled Asphalt Concrete, Mixed-In-Place	36
Cement-Aggregate Mixture (Gravel and Crushed Stone)	37
Lean Concrete Mixture	38
Recycled Concrete Mixture	39
Sand-Shell Mixture	40
Limerock	41
Lime-Treated Subgrade Soil	42
Cement-Treated Subgrade Soil	43
Pozzolanic-Aggregate Mixture	44
Cracked and Seated PCC Layer	45
Open Graded Aggregate Layer	46
Other	49

Table A.7 Subgrade Soil Description Codes.

<u>Soil Description</u>	<u>Code</u>
Fine-Grained Subgrade Soils:	
Clay (Liquid Limit >50)	51
Sandy Clay	52
Silty Clay	53
Silt	54
Sandy Silt	55
Clayey Silt	56
Coarse-Grained Subgrade Soils:	
Sand	57
Poorly Graded Sand	58
Silty Sand	59
Clayey Sand	60
Gravel	61
Poorly Graded Gravel	62
Clayey Gravel	63
Shale	64
Rock	65

Table A.8 Material Type Codes for Thin Seals and Interlayers.

	<u>Code</u>
Chip Seal Coat	71
Slurry Seal Coat	72
Fog Seal Coat	73
Woven Fabric	74
Nonwoven Fabric	75
Stress Absorbing Membrane Interlayer	77
Thin Asphalt Concrete Interlayer	78
Gravel Interlayer	79
Open-Graded Asphalt Interlayer	80
Chip Seal with Special Binder	81
Sand Seal	82
Asphalt Rubber	83
Sand Asphalt	84

Table A.10 Soil Type Codes, AASHTO Soil Classification.

	<u>Code</u>
A-1-a	01
A-1-b	02
A-3	03
A-2-4	04
A-2-5	05
A-2-6	06
A-2-7	07
A-4	08
A-5	09
A-6	10
A-7-5	11
A-7-6	12

Table A.11 Portland Cement Type Codes.

	<u>Code</u>
Type I	41
Type II	42
Type III	43
Type VI	44
Type V	45
Type IS	46
Type ISA	47
Type IA	48
Type IIA	49
Type IIIA	50
Type IP	51
Type IPA	52
Type N	53
Type NA	54
Other	55

Table A.16 Grades of Asphalt, Emulsified Asphalt, and
Cutback Asphalt Codes.

	<u>Code</u>
Asphalt Cements	
AC-2.5	01
AC-5	02
AC-10	03
AC-20	04
AC-30	05
AC-40	06
AR-1000 (AR-10 by AASHTO Designation)	07
AC-2000 (AR-20 by AASHTO Designation)	08
AC-4000 (AR-40 by AASHTO Designation)	09
AC-8000 (AR-80 by AASHTO Designation)	10
AC-16000 (AR-160 by AASHTO Designation)	11
200-300 pen	12
120-150 pen	13
85-100 pen	14
60-70 pen	15
40-50 pen	16
Emulsified Asphalts	
RS-1	17
RS-2	18
MS-1	19
MS-2	20
MS-2h	21
HFMS-1	22
HFMS-2	23
HFMS-2h	24
HFMS-2s	25
SS-1	26
SS-1h	27
CRS-1	28
CRS-2	29
CMS-2	30
CMS-2h	31
CSS-1	32
CSS-1h	33

Table A.16 Grades of Asphalt, Emulsified Asphalt, and
Cutback Asphalt Codes (Continued).

	<u>Code</u>
Cutback Asphalts (RC, MC, SC)	
30 (MC Only)	34
70	35
250	36
800	37
3000	38

Taken from MS-5, "A Brief Introduction to Asphalt," and Specification Series No. 2 (SS-2), "Specifications for Paving and Industrial Asphalts," both publications by the Asphalt Institute.

Table A.17 Maintenance and Rehabilitation Work Type Codes.

	<u>Code</u>
Crack Sealing (linear ft.)	01
Transverse Joint Sealing (linear ft.)	02
Lane/Shoulder Longitudinal Joint Sealing (linear ft.)	03
Full Depth Transverse Joint Repair Patch (sq. yds.)	04
Full Depth Patching of PCC Pavement Other Than at a Joint (sq. yds.)	05
Partial Depth Patching of PCC Pavement (sq. yds.)	06
PCC Slab Replacement (sq. yds.)	07
PCC Shoulder Restoration (sq. yds.)	08
PCC Shoulder Replacement (sq. yds.)	09
AC Shoulder Restoration (sq. yds.)	10
AC Shoulder Replacement (sq. yds.)	11
Grinding Surface (sq. yds.)	12
Grooving Surface (sq. yds.)	13
Pressure Grout Subsealing (no. of holes)	14
Slab Jacking Depressions (no. of depressions)	15
Asphalt Subsealing (no. of holes)	16
Spreading of Sand or Aggregate (sq. yds.)	17
Reconstruction (Removal and Replacement - sq. yds.)	18
Asphalt Concrete Overlay (sq. yds.)	19
Portland Cement Concrete Overlay (sq. yds.)	20
Mechanical Premix Patch (using motor grader and roller - sq. yds.)	21
Manual Premix Spot Patch (hand spreading and compacting with roller - sq. yds.)	22
Machine Premix Patch (placing premix with paver roller - sq. yds.)	23
Full Depth Patch of AC Pavement (removing damaged material, repairing supporting, material, repairing - sq. yds.)	24
Patch Pot Holes (hand spread and compacted with truck - no. of holes)	25
Skin Patching (hand tools/hot pour to apply liquid asphalt and aggregate - sq. yds.)	26
Strip Patching (using spreader and distributor to apply hot liquid asphalt and aggregate - sq. yds.)	27
Surface Treatment, Single Layer (sq. yds.)	28
Surface Treatment, Double Layer (sq. yds.)	29
Surface Treatment, Three or More Layers (sq. yds.)	30

Table A.17 Maintenance and Rehabilitation Work Type Codes (Continued).

	<u>Code</u>
Aggregate Seal Coat (sq. yds.)	31
Sand Seal Coat (sq. yds.)	32
Slurry Seal Coat (sq. yds.)	33
Fog Seal Coat (sq. yds.)	34
Prime Coat (sq. yds.)	35
Tack Coat (sq. yds.)	36
Dust Layering (sq. yds.)	37
Longitudinal Subdrains (linear ft.)	38
Transverse Subdrains (linear ft.)	39
Drainage Blankets (sq. yds.)	40
Well System	41
Drainage Blankets with Longitudinal Drains	42
Hot Mix Recycled Asphalt Concrete (sq. yds.)	43
Cold Mix Recycled Asphalt Concrete (sq. yds.)	44
Heater Scarification, Surface Recycled Asphalt Concrete (sq. yds.)	45
Crack and Seat PCC Pavement as a Base for New AC Surface (sq. yds.)	46
Crack and Seat PCC Pavement as a Base for New PCC Surface (sq. yds.)	47
Recycled Portland Cement Concrete (sq. yds.)	48
Pressure Relief Joints in PCC Pavements (linear ft.)	49
Joint Load Transfer Restoration in PCC Pavements (linear ft.)	50
Mill Off AC and Overlay with AC (sq. yds.)	51
Mill Off AC and Overlay with PCC (sq. yds.)	52
Other	53

Table A.18 Location on Pavement Codes.

	<u>Code</u>
Outside Lane (Number 1)	01
Inside Lane (Number 2)	02
Inside Lane (Number 3)	03
Shoulder	04
Curb and Gutter	05
Side Ditch	06
Culvert	07
Other	08
All Lanes, Both Directions	09

Note: SHRP LTPP only studies outside lanes.

Table A.19 Maintenance Materials Type Codes.

	<u>Code</u>
Preformed Joint Fillers	01
Hot Poured Joint and Crack Sealer	02
Cold Poured Joint and Crack Sealer	03
Open Graded Asphalt Concrete	04
Hot Mix Asphalt Concrete Laid Hot	05
Hot Mix Asphalt Concrete Laid Cold	06
Sand Asphalt	07
Portland Cement Concrete (Overlay or Replacement)	
Jointed Plain (JPCP)	08
Jointed Reinforced (JRCP)	09
Continuously Reinforced (CRCP)	10
Portland Cement Concrete (Patches)	11
Hot Liquid Asphalt and Aggregate (Seal Coat)	12
Hot Liquid Asphalt and Mineral Aggregate	13
Hot Liquid Asphalt and Sand	14
Emulsified Asphalt and Aggregate (Seal Coat)	15
Emulsified Asphalt and Mineral Aggregate	16
Emulsified Asphalt and Sand	17
Hot Liquid Asphalt	18
Emulsified Asphalt	19
Sand Cement (Using Portland Cement)	20
Lime Treated or Stabilized Materials	21
Cement Treated or Stabilized Materials	22
Cement Grout	23
Aggregate (Gravel, Crushed Stone, or Slag)	24
Sand	25
Mineral Dust	26
Mineral Filler	27
Other	28

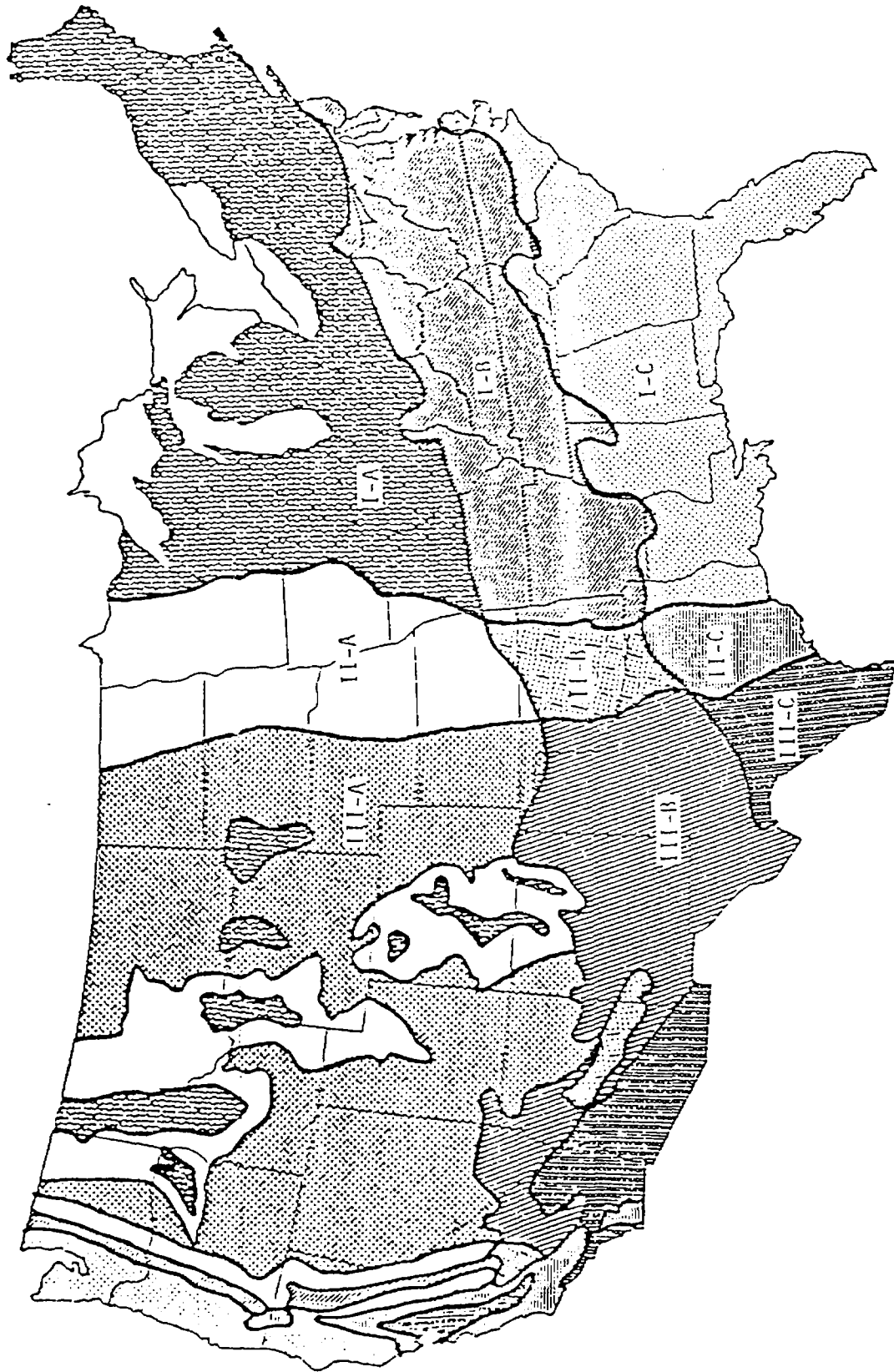


Figure 4. Climatic zones for the United States.
(See following table for explanation of codes)

**CLIMATIC ZONES FOR THE UNITED STATES
WITH CORRESPONDING PRRP DATA BASE CODES**

CLIMATIC ZONES	PRRP ENVIRONMENTAL ZONES
I-A, Wet-Freeze	Wet-Freeze (2)
I-B, Wet-Freeze-Thaw	Wet-Freeze (2)
I-C, Wet-No Freeze	Wet-No Freeze (1)
II-A, Intermediate-Freeze	Dry-Freeze (4)
II-B, Intermediate-Freeze-Thaw	Dry-Freeze (4)
II-C, Intermediate-No Freeze	Dry-Freeze (4)
III-A, Dry-Freeze	Dry-Freeze (4)
III-B, Dry-Freeze-Thaw	Dry-Freeze (4)
III-C, Dry-No Freeze	Dry-No Freeze (3)

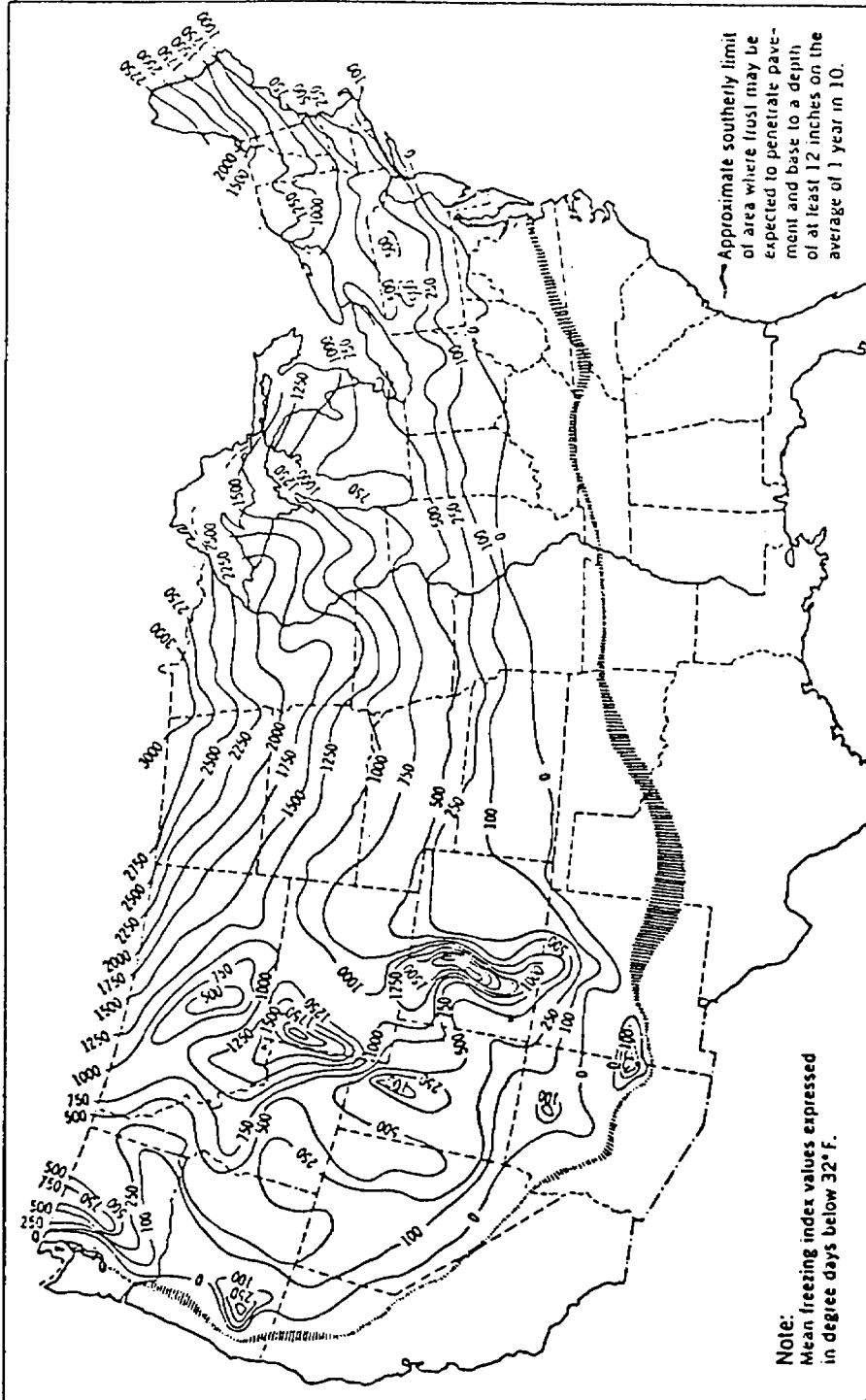


Figure 5. Distribution of mean freezing-index values in the continental United States. (From Corps of Engineers EM 1110-345-306.)

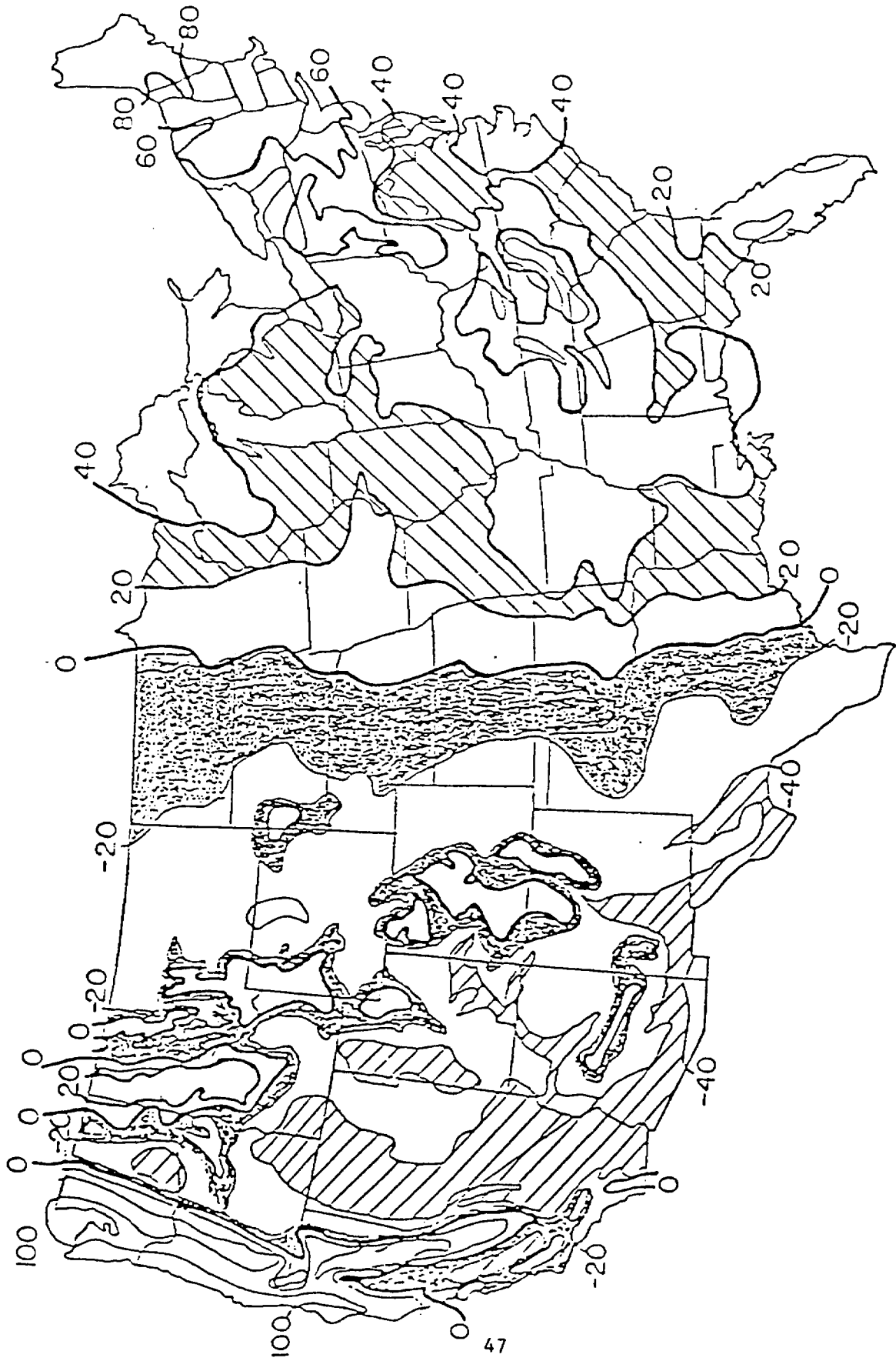


Figure 6. Distribution of Thornthwaite Moisture Index in the United States (After Thornthwaite)

APPENDIX B

FUNCTION AND

INPUT KEYS

FUNCTION AND INPUT KEYS

- F1 - Select
- F2 - Home Menu
- F3 - Previous Menu
- F4 - Clears field or line cursor is on
- F5 - Exit to DOS
- F6 - Help key
- F9 - Toggles Function Key Menu off and on

- ^U** - While inputting data, this command will move the cursor up one line. After screen input is complete, <^U> will save the screen and then call up the same blank screen for more input. Hitting <^U> again will call up the (I)nquire, (A)dd, (M)odify, (D)elete menu at bottom of screen. Hitting <^U> again will send the user back to the menu. After data input, the cursor must be on the first line of data for user to be able to hit <^U> and save the screen.
- ^E** - This command will search all records by hitting <^E>, or will search for a particular record if that record's ID is already input.
- ^X** - While in any mode, this command will exit the user to the previous menu.
- ^Z** - This command will clear the field that the cursor is on for deletion or modification.
- I** - Inquire - While in a data input screen, type in ID of section and this mode will bring that screen information up for viewing on the monitor. The user can also search all records for inquiry by hitting <^E>.
- A** - Add - This mode is used for initial input of all data to any screen.
- M** - Modify - This mode is used to modify data or add more data to a screen that already exists.
- D** - Delete - This mode can be used to delete entire screens of input data or can be used to delete specific lines of data by using the <F4> key or <^Z>.

While in (I)nquire, (M)odify, and (D)elete modes, and while searching all fields of data input for any screen, hitting either the <RETURN> key or "N" and <RETURN> will call up the next screen of input data, "P" and <RETURN> will toggle

back to previous screen of input, and "S" then <RETURN> will stop the search and go back into ^E, ^Z, or ^X mode. While in this mode, <^U> must be hit four times to get back to the previous menu if <^X> is not used.

APPENDIX C

FHWA VEHICLE

CLASSIFICATIONS

WITH

DEFINITIONS

FHWA VEHICLE CLASSIFICATIONS WITH DEFINITIONS

Type Name and Description

1. Motorcycles (Optional) - All two- or three-wheeled motorized vehicles. Typical vehicles in this category have saddle type seats and are steered by handle bars rather than a wheel. This category includes motorcycles, motor scooters, mopeds, motor-powered bicycles, and three-wheeled motorcycles. This vehicle type may be reported at the option of the State.
2. Passenger Cars - All sedans, coupes, and station wagons manufactured primarily for the purpose of carrying passengers and including those passenger cars pulling recreational or other light trailers.
3. Other Two-Axle, Four-Tire Single Unit Vehicles - All two-axle, four-tire vehicles, other than passenger cars. Included in this classification are pickups, vans, and other vehicles such as campers, motor homes, ambulances, hearses, and carryalls. Other two-axle, four-tire single unit vehicles pulling recreational or other light trailers are included in this classification.
4. Buses - All vehicles manufactured as traditional passenger-carrying buses with two axles and six tires or three or more axles. This category includes only traditional buses (including school buses) functioning as passenger-carrying vehicles. All two-axle, four-tire minibuses should be classified as other two-axle, four-tire single unit vehicles. Modified buses should be considered to be a truck and be appropriately classified.

NOTE: In reporting information on trucks, the following criteria should be used:

- a. Truck tractor units traveling without a trailer will be considered single unit trucks.
- b. A truck tractor unit pulling other such units in a "saddle mount" configuration will be considered as one single unit truck and will be defined only by the axles on the pulling unit.
- c. Vehicles shall be defined by the number of axles in contact with the roadway. Therefore, "floating" axles are counted only when in the down position.
- d. The term "trailer" includes both semi- and full trailers.

5. Two-Axle, Six-Tire, Single Unit Trucks - All vehicles on a single frame including trucks, camping and recreation vehicles, motor homes, etc., having two axles and dual rear wheels.
6. Three-Axle Single Unit Trucks - All vehicles on a single frame including trucks, camping and recreation vehicles, motor homes, etc., having three axles.
7. Four or More Axle Single Unit Trucks - All trucks on a single frame with four or more axles.
8. Four or Less Axle Single Trailer Trucks - All vehicles with four or less axles consisting of two units, one of which is a tractor or straight truck power unit.
9. Five-Axle Single Trailer Trucks - All five-axle vehicles consisting of two units, one of which is a tractor or straight truck power unit.
10. Six or More Axle Single Trailer Trucks - All vehicles with six or more axles consisting of two units, one of which is a tractor or straight truck power unit.
11. Five or Less Axle Multi-Trailer Trucks - All vehicles with five or less axles consisting of three or more units, one of which is a tractor or straight truck power unit.
12. Six-Axle Multi-Trailer Trucks - All six-axle vehicles consisting of three or more units, one of which is a tractor or straight truck power unit.
13. Seven or More Axle Multi-Trailer Trucks - All vehicles with seven or more axles consisting of three or more units, one of which is a tractor or straight truck power unit.
14. All Other Vehicle Types - Any and all vehicles which do not fit into one of the above-mentioned categories.

APPENDIX D

DATA SHEETS

INVENTORY

DATA SHEETS

SHEET 1
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

GEOMETRIC, SHOULDER, AND DRAINAGE INFORMATION

1. TYPE OF PAVEMENT (SEE CODES, TABLE A.4) _____
2. NUMBER OF THROUGH LANES IN DIRECTION OF SURVEY _____
3. LANE WIDTH (FEET) _____
4. LANES (BY NUMBER) INCLUDED IN MONITORING SECTION _____, _____, _____
 (LANE 1 IS OUTSIDE LANE,
 LANE 2 IS NEXT TO LANE 1, ETC.)
5. OUTSIDE SHOULDER WIDTH (FEET) _____.
6. INSIDE SHOULDER WIDTH (FEET) _____.
7. SHOULDER SURFACE TYPE:

Turf 1	Concrete 4
Granular 2	Surface Treatment . . . 5
Asphalt Concrete . . 3	Other _____ 6

 - a) OUTSIDE SHOULDER _____
 - b) INSIDE SHOULDER _____
8. OUTSIDE SHOULDER:
 - a) BASE TYPE (SEE BASE TYPE CODE, TABLE A.6) _____
 - b) SURFACE THICKNESS (INCHES) _____.
 - c) MAXIMUM _____.
 - d) MINIMUM _____.
 - e) CONTINUOUS SLOPE Y / N
 - f) BASE THICKNESS (INCHES) _____.
 - g) JOINT SPACING (FEET) _____ - _____ - _____ - _____
 - h) TRANSVERSE JOINTS IN SHOULDER MATCH JOINTS IN
 MAINLINE PAVEMENT Y / N
 - i) TRANSVERSE JOINT SKEWNESS Y / N

SHEET 2
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____ - _____

GEOMETRIC, SHOULDER, AND DRAINAGE INFORMATION (CONTINUED)

SUBSURFACE DRAINAGE TYPE _____

No subsurface drainage	1	_____
Longitudinal drains	2	_____
Transverse drains	3	_____
Drainage blanket	4	_____
Well system	5	_____
Drainage blanket with longitudinal drains	6	_____
Other (Specify)	7	_____

DIAMETER OF LONGITUDINAL DRAINPIPES (INCHES) _____

SUBSURFACE DRAINAGE LOCATION _____

Continuous along Project	1	_____
Intermittent	2	_____

SPACING OF LATERAL OUTLETS (FEET) _____

COEFFICIENT OF DRAINAGE (C_d) _____

SHEET 3
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

 AZ PROJECT ID _____

FIELD SURVEY: GENERAL INFORMATION

DATE OF FIELD SURVEY (MONTH/DAY/YR) _____/_____/_____
 SURVEYORS' INITIALS _____/_____/_____
 FUNCTIONAL CLASSIFICATION (See Table A.2, Appendix A) _____

TEST SECTION LOCATION:

START POINT MILEMARK _____
 END POINT MILEMARK _____

START POINT STATION NUMBER _____+_____
 END POINT STATION NUMBER _____+_____

LENGTH OF SECTION (FEET) _____

IF NO MP OR STN, DISTANCE FROM NEAREST STRUCTURE/
 INTERCHANGE/CROSSROAD (FEET) _____

TYPE/NAME OF STRUCTURE/INTERCHANGE/CROSSROAD _____

AVERAGE CONTRACTION JOINT SPACING (FEET) _____
 RANDOM JOINT SPACING (IF APPLICABLE) _____
 TRANSVERSE JOINT SKEWNESS _____
 FT/LANE _____
 Y / N

SHEET 4
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

FIELD SURVEY: DRAINAGE INFORMATION

	<u>STATION</u>	<u>SLOPE SIGN</u>	<u>INNER LANE</u>	<u>SLOPE SIGN</u>	<u>OUTER LANE</u>
LONGITUDINAL SLOPE ¹ (Percent)	_____+_____	_____	_____	_____	_____
(3 MEASUREMENTS, EQUALLY SPACED ALONG PROJECT)	_____+_____	_____	_____	_____	_____
	_____+_____	_____	_____	_____	_____
TRANSVERSE SLOPE ² (Percent)	_____+_____	_____	_____	_____	_____
(3 MEASUREMENTS, EQUALLY SPACED ALONG PROJECT)	_____+_____	_____	_____	_____	_____
	_____+_____	_____	_____	_____	_____
SHOULDER SLOPE ² (Percent)	_____+_____	_____	_____	_____	_____
(3 MEASUREMENTS, EQUALLY SPACED ALONG PROJECT)	_____+_____	_____	_____	_____	_____
	_____+_____	_____	_____	_____	_____
CUT OR FILL DEPTH (GROUND LEVEL TO PAVEMENT SURFACE ELEVATION)					_____
Fill > 40 FT					1
Fill 16 - 40 FT					2
Fill 6 - 15 FT					3
At Grade (5 FT Fill to 5 FT Cut)					4
Cut 6 - 15 FT					5
Cut 16 - 40 FT					6
Cut > 40 FT					7
Other _____					8
DEPTH OF DITCH LINE (FROM PAVEMENT SURFACE, FEET)					_____

NOTES: ¹ Longitudinal slope is positive when elevation increases in the direction of the survey.

² Transverse slope is negative when the elevation of the center-line side of the lane is greater than the elevation of the shoulder side of the lane in the direction of the survey.

SHEET 5
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

 AZ PROJECT ID _____

FIELD SURVEY: DRAINAGE INFORMATION (CONTINUED)

LANE/SHOULDER JOINT INTEGRITY:

SEALANT DAMAGE ¹ BLOWHOLES	<u>OUTER SHOULDER</u>				<u>INNER SHOULDER</u>			
	N	L	M	H	N	L	M	H
	N	L	M	H	N	L	M	H

INDICATORS OF POOR DRAINAGE:

Cattails or willows growing in ditch	Y / N
Drainage outlets clogged	Y / N
Drainage outlets below ditchline	Y / N
Non-continuous cross section, crown to drainage ditch	Y / N
Pumping	N L M H
Other _____	Y / N

NOTE:¹ If not applicable, leave blank.

SHEET 6
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____ - _____

PHYSICAL PROPERTIES OF THE BASE COURSE

THICKNESS (INCHES) _____ . _____
 LIQUID LIMIT _____ . _____
 PLASTIC LIMIT _____ . _____
 PLASTICITY INDEX _____ . _____

GRADATION:

<u>SIEVE</u>	<u>PERCENT PASSING</u>
1-1/2"	_____ . _____
3/4"	_____ . _____
3/8"	_____ . _____
# 4	_____ . _____
# 10	_____ . _____
# 30	_____ . _____
# 40	_____ . _____
# 60	_____ . _____
# 80	_____ . _____
# 100	_____ . _____
# 200	_____ . _____

SHEET 7
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

AGE AND MAJOR PAVEMENT IMPROVEMENTS

DATE CONSTRUCTED (MONTH/YEAR) _____/____

OPENED TO TRAFFIC (MONTH/YEAR) _____/____

YEARS WHEN MAJOR IMPROVEMENTS OCCURRED AND
 TYPES OF IMPROVEMENTS

<u>IMPROVEMENT TYPE CODES</u>	<u>YEAR</u>	<u>TYPE</u>
OVERLAY 01	_____	_____
SLAB JACKING 02	_____	_____
JOINT REPAIR 03	_____	_____
IMPROVED SHOULDER 04	_____	_____
RECYCLED 05	_____	_____
UNDERDRAINS 06	_____	_____
REMOVED AND RECONSTRUCTED . 07	_____	_____
OTHER, SPECIFY _____ 08	_____	_____

YEAR WHEN ROADWAY WIDENED _____

ORIGINAL NUMBER OF LANES (ONE DIRECTION) _____

FINAL NUMBER OF LANES (ONE DIRECTION) _____

LANE NUMBER OF LANE ADDED _____

NOTES: ¹ A lane created by roadway widening should not be used for SHRP-LTPP unless the pavement structure under the entire lane was constructed at the same time and is uniform.

² Major improvements to pavements only. Does not include bridges.

SHEET 8
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

LAYER DESCRIPTIONS

<u>LAYER¹ NUMBER</u>	<u>LAYER² DESCRIPTION</u>	<u>THICKNESS (INCHES) FROM PLANS</u>	<u>THICKNESS (INCHES) FROM CORES/BORING</u>	<u>MATERIAL³ TYPE CLASSIFICATION</u>
1	SUBGRADE (7)	_____	_____	_____
2	_____	_____	_____	_____
3	_____	_____	_____	_____
4	_____	_____	_____	_____
5	_____	_____	_____	_____
6	_____	_____	_____	_____
7	_____	_____	_____	_____
8	_____	_____	_____	_____
9	_____	_____	_____	_____

DEPTH (FEET) BELOW SURFACE TO "RIGID" LAYER
 SUCH AS ROCK, STONE, OR DENSE SHALE _____

NOTES: ¹ Layer 1 is subgrade soil; the last layer is the existing surface.

² LAYER DESCRIPTION CODES:
 Overlay 1 Subbase Layer 6
 Seal Coat 2 Subgrade 7
 Original Surface . . 3 Interlayer 8
 HMAC Layer (Below Porous Friction
 Surface Layer). . . . 4 Course 9
 Base Layer 5 Surface Treatment10

³ The material type classification codes for surface, base or subbase, subgrade, and seal coat or interlayer materials appear in Tables A.5, A.6, A.7, and A.8 respectively.

SHEET 9
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

 AZ PROJECT ID _____

RIGID PAVEMENT LAYERS,¹JOINT DATA

LAYER NUMBER (FROM SHEET 8) _____

AVERAGE CONTRACTION JOINT SPACING (FEET) _____

RANDOM JOINT SPACING, IF ANY: _____

BUILT-IN EXPANSION JOINT SPACING (FEET) _____

SKEWNESS OF JOINT (FT/LANE) _____

TRANSVERSE CONTRACTION JOINT LOAD TRANSFER SYSTEM _____

- Dowels 1
- Aggregate Interlock. 2
- I-Beams 3
- Star Lugs 4
- Other (Specify) _____ 5

DOWEL DIAMETER (INCHES) _____

DOWEL LOCATION, DISTANCE FROM LANE/SHOULDER EDGE, INCHES

DOWEL NUMBER²

	1	2	3	4	5	6	7	8	9	10	11	12
OUTER LANE												
INNER LANE												

DOWEL LENGTH (INCHES) _____

DOWEL COATING _____

- Paint and/or Grease 1
- Plastic 2
- Monel 3
- Stainless Steel 4
- Epoxy 5
- Other (Specify) _____ 6

METHOD USED TO INSTALL DOWELS _____

- Preplaced on baskets 1
- Mechanically installed 2
- Other (Specify) _____ 3

JOINT LOAD TRANSFER (PERCENT) _____

NOTES: ¹ Use a separate sheet for each rigid pavement layer.
² For each lane, Dowel Number 1 is nearest the lane/shoulder joint, Number 2 is next to Number 1, and so on.

RIGID PAVEMENT LAYERS, JOINT DATA¹ (CONTINUED)

LAYER NUMBER (FROM SHEET 8) _____

METHOD USED TO FORM TRANSVERSE JOINTS _____

Sawed 1
 Plastic Insert 2
 Metal Insert (i.e., Uni-Tube) . 3
 Other (Specify) _____ 4

TRANSVERSE JOINT SEALANT TYPE (AS BUILT) _____

Preformed (open web) 1
 Asphalt 2
 Rubberized Asphalt 3
 Low-Modulus Silicone 4
 Other (i.e., closed neoprene
 or specify) _____ 5

TRANSVERSE JOINT SEALANT RESERVOIR (AS BUILT)

WIDTH, (IN.) _____

DEPTH, (IN.) _____

TYPE OF LONGITUDINAL JOINT (BETWEEN LANES) _____

Butt 1 Insert Weakened Plane 4
 Keyed 2 Other _____ 5
 Sawed Weakened Plane . . 3 (Specify)

TIE BAR DIAMETER (INCHES) _____

TIE BAR LENGTH (INCHES) _____

TIE BAR SPACING (INCHES) _____

TYPE OF SHOULDER-OUTER LANE JOINT _____

Butt 1 Insert Weakened Plane 4
 Keyed 2 Tied Concrete Curb 5
 Sawed Weakened Plane . . 3 Other _____ 6
 (Specify)

SHOULDER-TRAFFIC LANE JOINT TIE BAR (FOR CONCRETE SHOULDER)

DIAMETER (INCHES) _____

LENGTH (INCHES) _____

SPACING (INCHES) _____

DEPTH OF LONGITUDINAL JOINT CUT (IN.) _____

NOTE: ¹ Use a separate sheet for each rigid pavement layer.

SHEET 11
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

RIGID PAVEMENT LAYERS,
REINFORCING STEEL DATA¹

LAYER NUMBER (FROM SHEET 8) _____

TYPE OF REINFORCEMENT _____

Deformed Bars 1 _____

Welded Wire Fabric 2 _____

Other (Specify) _____ 3 _____

TRANSVERSE BAR DIAMETER (INCHES) _____

TRANSVERSE BAR SPACING (INCHES) _____

LONGITUDINAL BAR DIAMETER (INCHES) _____

LONGITUDINAL BAR SPACING (INCHES) _____

YIELD STRENGTH OF REINFORCEMENT (KSI) _____

DEPTH TO REINFORCEMENT FROM SLAB SURFACE (INCHES) _____

NOTE: ¹ Use a separate sheet for each rigid pavement layer.

SHEET 12
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

RIGID PAVEMENT LAYERS, CONCRETE MIXTURE DATA¹

LAYER NUMBER (FROM SHEET 8) _____

MIX DESIGN (LB/YD³ - OVEN DRIED WEIGHT)

- (A) Coarse Aggregate _____
- (B) Fine Aggregate _____
- (C) Cement _____
- (D) Water _____

STRENGTH (28-day Modulus of Rupture - AASHTO T97 OR ASTM C78)
 (psi) (based on 3rd point loading)

- (A) Mean _____
- (B) Range:
 - Maximum Value _____
 - Minimum Value _____
- (C) Number of Tests _____
- (D) Standard Deviation _____

SLUMP (inches) (AASHTO T119 OR ASTM C143)

- (A) Mean _____
- (B) Range:
 - Minimum Value _____
 - Maximum Value _____
- (C) Standard Deviation _____
- (D) Number of Tests _____

TYPE CEMENT USED

See Cement Type Codes, Table A.11 _____

ENTRAINED AIR CONTENT, (PERCENT) (AASHTO T152 OR ASTM C231)

- (A) Mean _____
- (B) Range:
 - Minimum Value _____
 - Maximum Value _____

COMPOSITION OF COARSE AGGREGATE

- Crushed Stone 1
- Gravel 2
- Crushed Gravel 3
- Crushed Slag 4
- Manufactured Lightweight. . 5
- Recycled Concrete 6
- Other (Specify) _____ 7

<u>TYPE</u>	<u>PERCENT</u>
_____	_____
_____	_____
_____	_____

MEAN COMPRESSIVE STRENGTH (PSI) _____ NUMBER OF DAYS _____

NOTE: ¹ Use a separate sheet for each rigid pavement layer.

SHEET 13
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

RIGID PAVEMENT LAYERS, CONCRETE MIXTURE DATA¹ (CONTINUED)

LAYER NUMBER (FROM SHEET 8) _____

METHOD USED TO CURE CONCRETE

Membrane Curing Compound	1	Burlap-Polyethylene Blanket	5
Burlap Curing Blankets	2	Cotton Mat Curing	6
Waterproof Paper Blankets	3	Hay	7
White Polyethylene Sheeting	4	Other _____	8
		(Specify)	

METHOD USED TO FINISH CONCRETE

Tine	1	Grooved Float	4
Broom	2	Astro Turf	5
Burlap Drag	3	Other _____	6
		(Specify)	

ELASTIC MODULUS (KSI):

Minimum _____
 Maximum _____
 Mean _____
 Standard Deviation. _____
 Number of Tests. _____

TEST METHOD FOR ELASTIC MODULUS

Indirect Tensile Test on Cores (ASTM C496-85)	1
Compression Test on Cores (ASTM C39-84)	2
Compression Test on Cylinders During Initial Construction (ASTM C39-84)	3
Calculated Using ACI Relation Between Elastic Modulus and Compressive Strength (ACI 318-83, Section 8.5)	4
Other Specify) _____	5

IN-SERVICE CONCRETE STRENGTH FROM CORING:

Elastic Modulus from Indirect Tensile Test, KSI _____
 Modulus of Rupture from USAF Correlation, PSI _____
 Modulus of Elasticity KSI, (Backcalculated) _____

NOTE: ¹ Use a separate sheet for each rigid pavement layer.

SHEET 14
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____ - _____

RIGID PAVEMENT LAYERS, IN-SERVICE CONCRETE MIXTURE DATA¹ (CONTINUED)

LAYER NUMBER (FROM SHEET 8) _____

FLEXURAL STRENGTH, PSI:
 (28-DAY MODULUS OF RUPTURE, BASED ON THIRD
 POINT LOADING, AASHTO T97 OR ASTM C78)

Minimum _____.
 Maximum _____.
 Mean _____.
 Standard Deviation _____.
 Number of Tests _____.

INDIRECT TENSILE STRENGTH OF CONCRETE (PSI):
 (TEST METHOD AASHTO T198 OR ASTM C496)

Minimum _____.
 Maximum _____.
 Mean _____.
 Standard Deviation _____.
 Number of tests _____.

NOTE: ¹ Data to be obtained from coring of in-service pavement.

SHEET 15
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____ - _____

UNBOUND OR STABILIZED BASE OR SUBBASE
MATERIAL DESCRIPTION¹

LAYER NUMBER (FROM SHEET 8) _____

AASHTO SOIL CLASSIFICATION (SEE CODES, TABLE A.10) _____

PERCENT BINDER (PASSING NO. 40 SIEVE) _____

PERCENT PASSING NO. 200 SIEVE _____

STABILIZED BASE COURSE:

TYPE OF STABILIZING AGENT _____

Asphalt Cement 1	Fly Ash 6
Emulsified Asphalt 2	Lime/Fly Ash 7
Cutback Asphalt 3	Portland Cement/Fly Ash . 8
Portland Cement 4	Other (Specify) _____ 9
Lime 5	

K-VALUE AT TOP OF BASE² (PCI) _____

DENSITY (LBS/FT³) _____

PERCENT MOISTURE _____

PERMEABILITY (IN/HR) _____

DRAINABILITY (a, m, u, or combination) _____/_____

a - acceptable
 m - marginal
 u - unacceptable

NOTES: ¹ Use a separate sheet for each base or subbase layer.

² Back-calculated from 9 kip FWD data.

SHEET 16
 INVENTORY DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

SUBGRADE DATA

AASHTO SOIL CLASSIFICATION (SEE CODES, TABLE A.10) _____

CBR (ESTIMATE FROM OTHER DATA IF NOT AVAILABLE) _____

RESISTANCE (R-VALUE) _____

MODULUS OF SUBGRADE REACTION (K-VALUE, PCI) _____

PERCENT PASSING NO. 200 SIEVE _____

PLASTICITY INDEX _____

LIQUID LIMIT _____

PLASTIC LIMIT _____

RESILIENT MODULUS¹ (PSI) _____

NATURAL DRAINAGE CLASSIFICATION² _____

Excessively Drained 1

Somewhat Excessively Drained 2

Well Drained 3

Moderately Well Drained 4

Somewhat Poorly Drained 5

Poorly Drained 6

Very Poorly Drained 7

HYDROLOGICAL GROUP² (A, B, C, D, OR COMBINATION) ____/____

PERMEABILITY (IN/HR) _____

DEPTH TO HIGH WATER TABLE (FEET) _____

% MOISTURE _____

NATURAL DRAINAGE INDEX (NDI) _____

DRAINABILITY (k, j, i) _____

i - poor

j - average

k - good

NOTES: ¹ Back-calculated from 9 kip FWD data.

² See USDA SCS or other soil survey.

TRAFFIC

DATA SHEETS

SHEET 1
 TRAFFIC DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

HISTORICAL DATA
TRAFFIC VOLUME AND DISTRIBUTION¹

LANE NUMBER _____			
<u>YEAR</u>	<u>ONE WAY AADT</u>	<u>ONE WAY % TRUCKS²</u>	<u>ONE WAY LANE DISTRIBUTION OF TRUCKS (%)</u>
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

ADJUSTMENT FACTOR _____

- TYPE OF FACTOR _____
1. (W-4) TABLES _____
 2. WIM DATA _____
 3. OTHER _____

NOTES: ¹ Use as many sheets as needed to include available data since the section was opened to traffic.

² Excluding pickups and panels.

SHEET 1b
TRAFFIC DATA
ADOT/ERES CONSULTANTS STUDY
"CONCRETE PAVEMENT PERFORMANCE
AND REHABILITATION"

AZ PROJECT ID _____

HISTORICAL DATA
TRAFFIC ESALS AND DISTRIBUTION¹

LANE _____

YEAR _____

TRUCK FACTOR _____

ADJUSTED ESALS _____

ADJUSTED CUMULATIVE ESALS _____

CUMULATIVE ESALS ON OVERLAY _____

SHEET 2
TRAFFIC DATA
ADOT/ERES CONSULTANTS STUDY
"CONCRETE PAVEMENT PERFORMANCE
AND REHABILITATION"

AZ PROJECT ID _____

MONITORED DATA FOR
VEHICLE CLASSIFICATION

DATE OF SURVEY: ___/___/___

HOUR MONITORED FROM: ___ ___ ___

HOUR MONITORED TO: ___ ___ ___

LANE: ___

2-AXLE, 6-TIRE SINGLE UNIT TRUCKS: _____

3-AXLE SINGLE UNIT TRUCKS: _____

4⁺-AXLE SINGLE UNIT TRUCKS: _____

4⁻-AXLE SINGLE UNIT TRUCKS: _____

5-AXLE SINGLE UNIT TRUCKS: _____

6⁺-AXLE SINGLE UNIT TRUCKS: _____

5⁻-AXLE MULTI-TRAILER TRUCKS: _____

6-AXLE MULTI-TRAILER TRUCKS: _____

7⁺-AXLE MULTI-TRAILER TRUCKS: _____

ALL OTHER VEHICLE TYPES: _____

SHEET 3 THRU 9
TRAFFIC DATA
ADOT/ERES CONSULTANTS STUDY
"CONCRETE PAVEMENT PERFORMANCE
AND REHABILITATION"

AZ PROJECT ID _____

MONITORED DATA
WEIGH-IN-MOTION TRAFFIC DATA

DATE OF SURVEY: ___/___/___

VEHICLE CLASS: ___

LANE: ___

LOAD 1: _____

AXLE SPACING 1: _____

LOAD 2: _____

AXLE SPACING 2: _____

LOAD 3: _____

AXLE SPACING 3: _____

LOAD 4: _____

AXLE SPACING 4: _____

LOAD 5: _____

AXLE SPACING 5: _____

LOAD 6: _____

AXLE SPACING 6: _____

LOAD 7: _____

AXLE SPACING 7: _____

LOAD 8: _____

MAINTENANCE

DATA SHEETS

SHEET 1
 MAINTENANCE DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____ - _____

HISTORICAL MAINTENANCE INFORMATION

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YEAR	MAINT.	WORK	LOCATION	MAINT.	WORK	THICKNESS	PROCEDURES
	CASE NO. (CASE)	TYPE CODE (TABLE A.17)	ON PAVE- MENT CODE (TABLE A.18)	MATERIAL CODE (TABLE A.19)			WHERE APPLICABLE
---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---

NOTE: This data will frequently be very difficult to convert from existing records, but it is sufficiently important that every effort should be made to obtain it.

SHEET 2
 MAINTENANCE DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

PATCHES, SUBSEALING, AND DIAMOND GRINDING/MILLING DATA

PATCHES -- FULL DEPTH:

<u>LOCATION OF PATCHES</u>	<u>QUANTITY</u>	<u>AVERAGE SIZE, SQUARE YARDS</u>
JOINT	---	---.---
INTERMEDIATE CRACK	---	---.---
REPLACED SLAB	---	---.---

PATCHES -- PARTIAL DEPTH:

<u>LOCATION OF PATCHES</u>	<u>QUANTITY</u>	<u>AVERAGE SIZE, SQUARE YARDS</u>
JOINT	---	---.---
INTERMEDIATE CRACK	---	---.---
REPLACED SLAB	---	---.---

SUBSEALING:

DATE (MO/YR) _____/_____/_____
 TYPICAL NUMBER OF SUBSEALING HOLES
 NEAR CRACK OR JOINT _____
 TYPE OF GROUT _____
 Limestone-Cement 2
 Pozzolan-Cement 3
 Other 6

GRINDING/MILLING:

DATE OF WORK (MO/YR) _____/_____/_____
 METHOD USED _____
 Diamond Grinding 1
 Milling 2

EXTENT OF GRINDING/MILLING

Entire length of test section 1
 At individual joints 2
 Other _____ 3

**MONITORED
DATA SHEETS**

SHEET 1
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DATA ON DEFLECTION DEVICE, TEMPERATURES,
 AND DATES OF MEASUREMENT, AND ROUGHNESS AND SERVICEABILITY

TYPE OF DEFLECTION DEVICE _____

Benkelman Beam 1	Falling Weight Deflectometer 4
Deflection Beam 2	Road Rater 5
Dynaflect. 3	Other (Specify) _____ 6

ID NUMBER OF DEFLECTION DEVICE _____

LOCATION OF SENSORS, IN INCHES, FROM CENTER OF LOAD:

SENSOR 5	_____
SENSOR 4	_____
SENSOR 3	_____
SENSOR 2	_____
SENSOR 1	_____
SENSOR 0	<u>0</u> <u>0</u> . <u>0</u>
SENSOR -1	_____

ROUGHNESS AND SERVICEABILITY:

		<u>LANE NUMBER¹</u>		
		<u>1</u>	<u>2</u>	<u>3</u>
ROUGHNESS INDEX ²	(TRIAL 1)	_____	_____	_____
	(TRIAL 2)	_____	_____	_____
	AVERAGE	_____	_____	_____
AZDOT ROUGHNESS INDEX		_____	_____	_____
ROUGHNESS MEASUREMENT SPEED (MPH)		_____	_____	_____
PRESENT SERVICEABILITY RATING (MEAN)		_____	_____	_____

NOTES ¹ Lane 1 is outer lane, lane 2 is next to lane 1, etc.

² Obtained by Mays meter.

SHEET 2
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DEFLECTION MEASUREMENTS

DATE OF TESTING ___/___/___
 (Month/Day/Year)
 AIR TEMPERATURE (°F) _____
 LANE NUMBER _____

TIME OF DAY
 (24-Hour Clock) _____ to _____
 PAVEMENT TEMPERATURE (°F) _____

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Point No.	Point Distance (Feet)	Location Code ¹	Load (Pounds)	Frequency (Hertz)	MEASUREMENTS FROM DEFLECTION SENSORS (MILS)							
					-1	0	1	2	3	4	5	
---	---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---	---
---	---	---	---	---	---	---	---	---	---	---	---	---

¹ Location Code: Midslab -01; Same Slab as 1, But Adjacent to Joint at Outside Corner -02; Next Slab But Adjacent to Same Joint -03; Sensor "-1" perpendicular to other sensors; use prefix of 1- with above, i.e. 11, 12, or 13. Leave "Location Code" Blank for Asphaltic Concrete Pavements and PCC Pavements Without Transverse Joints.

SHEET 3
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DISTRESS SURVEY FOR PAVEMENTS WITH JOINTED
 PORTLAND CEMENT CONCRETE SURFACES

DATE OF DISTRESS SURVEY (MONTH/DAY/YEAR) _____/_____/_____

LANE NUMBER _____.

DISTRESS TYPE ¹	SEVERITY LEVEL		
	LOW	MODERATE	HIGH
BLOWUPS (NUMBER)	_____.	_____.	_____.
SPALLING OF TRANSVERSE JOINTS (No. of Joints)	_____.	_____.	_____.
SPALLING OF JOINT BETWEEN LANES (Linear Feet)	_____.	_____.	_____.
SPALLING OF LANE/SHOULDER JOINT (Linear Feet)	_____.	_____.	_____.
CRACKING FROM IMPROPER JOINT CONSTRUCTION (Linear Feet)			_____.
PUMPING AND WATER BLEEDING, (Severity Level - Check one)	___	___	___
DURABILITY 'D' CRACKING (Linear Feet)	_____.	_____.	_____.
LONGITUDINAL CRACKING (Linear Feet)	_____.	_____.	_____.
TRANSVERSE CRACKING (No. of Cracks)	_____.	_____.	_____.

NOTE ¹ Distress identification and measurement should be consistent with that provided in the latest revision of "Distress Identification Manual for the Long-Term Pavement Performance (LTPP) Studies"

SHEET 4
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DISTRESS SURVEY FOR PAVEMENTS WITH JOINTED
 PORTLAND CEMENT CONCRETE SURFACES (CONTINUED)

LANE NUMBER _____

DISTRESS TYPE ¹	SEVERITY LEVEL		
	LOW	MODERATE	HIGH
CORNER BREAKS (NUMBER)			_____
REACTIVE AGGREGATE (% OF AREA)	_____	_____	_____
JOINT SEAL DAMAGE OF TRANSVERSE JOINTS (NUMBER)	_____	_____	_____
SLAB DETERIORATION ADJACENT TO PATCH, JRCP ONLY (NUMBER)	_____	_____	_____
PATCH OR SLAB REPLACEMENT DETERIORATION (SQUARE FEET) (NUMBER)	_____	_____	_____
SCALING AND MAP CRACKING SEVERITY LEVEL (CHECK ONE)	_____	_____	_____
BLOWHOLES IN AC SHOULDER			_____
No AC shoulder			1
AC shoulder, no blowholes			2
Blowholes exist			3

NOTE: ¹ Distress identification and measurement should be consistent with that provided in the latest revision of "Distress Identification Manual for the Long-Term Pavement Performance (LTPP) Studies."

SHEET 5
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DISTRESS SURVEY FOR PAVEMENTS WITH JOINTED
 PORTLAND CEMENT CONCRETE SURFACES¹
 (CONTINUED)

DATE OF SURVEY (MONTH/DAY/YEAR) _____/_____/_____

LANE NUMBER _____

Point No.	Point Distance ² (Feet)	Lane-to-Shoulder ³ Dropoff (In.)
1	_____.	_____.
2	_____.	_____.
3	_____.	_____.
4	_____.	_____.
5	_____.	_____.
6	_____.	_____.
7	_____.	_____.
8	_____.	_____.
9	_____.	_____.
10	_____.	_____.
11	_____.	_____.
12	_____.	_____.
13	_____.	_____.
14	_____.	_____.
15	_____.	_____.
16	_____.	_____.

MINIMUM DROPOFF (INCHES) _____.

MAXIMUM DROPOFF (INCHES) _____.

MEAN DROPOFF (INCHES) _____.

STANDARD DEVIATION OF DROPOFF (INCHES) _____.

- NOTES: ¹ Use additional sheets as needed.
- ² "Point Distance" is the distance in feet from the start of the test section to the point where the measurement was made.
- ³ Distress identification and measurement should be consistent with that provided for in the latest version of "Distress identification Manual for the Long-Term Pavement Performance (LTPP) Studies."

SHEET 6
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DISTRESS SURVEY FOR PAVEMENTS WITH JOINTED
 PORTLAND CEMENT CONCRETE SURFACES¹ (CONTINUED)

DATE OF SURVEY (MONTH/DAY/YEAR) _____/_____/_____

LANE NUMBER _____

Point No.	Point Distance ² (Feet)	Lane-to-Shoulder ³ Separation (In.)	Longitudinal Joint Faulting (In.)
1	_____.	_____.	_____.
2	_____.	_____.	_____.
3	_____.	_____.	_____.
4	_____.	_____.	_____.
5	_____.	_____.	_____.
6	_____.	_____.	_____.
7	_____.	_____.	_____.
8	_____.	_____.	_____.
9	_____.	_____.	_____.
10	_____.	_____.	_____.
11	_____.	_____.	_____.
12	_____.	_____.	_____.
13	_____.	_____.	_____.
14	_____.	_____.	_____.
15	_____.	_____.	_____.
16	_____.	_____.	_____.

MINIMUM SEPARATION (INCHES) _____.

MAXIMUM SEPARATION (INCHES) _____.

MEAN SEPARATION (INCHES) _____.

STANDARD DEVIATION (INCHES) _____.

- NOTES: ¹ Use additional sheets as needed.
- ² "Point Distance" is the distance in feet from the start of the test section to the point where the measurement was made.
- ³ Distress identification and measurement should be consistent with that provided in the latest version of "Distress Identification Manual for the Long-Term Pavement Performance (LTPP) Studies."

SHEET 7
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DISTRESS SURVEY FOR PAVEMENTS WITH JOINTED
 PORTLAND CEMENT CONCRETE SURFACES¹ (CONTINUED)

DATE OF SURVEY (MONTH/DAY/YEAR) _____/_____/_____
 LANE NUMBER _____

JOINT NO. ²	JOINT WIDTH (INCHES)	TRANSVERSE JOINT ³ (INCHES)	CRACK NO. ²	CRACK FAULTING ³ (INCHES)
1	_____	_____	1	_____
2	_____	_____	2	_____
3	_____	_____	3	_____
4	_____	_____	4	_____
5	_____	_____	5	_____
6	_____	_____	6	_____
7	_____	_____	7	_____
8	_____	_____	8	_____
9	_____	_____	9	_____
10	_____	_____	10	_____
11	_____	_____	11	_____
12	_____	_____	12	_____
13	_____	_____	13	_____
14	_____	_____	14	_____
15	_____	_____	15	_____

MINIMUM JOINT ³	_____	MINIMUM CRACK ³	_____
FAULTING (INCHES)	_____	FAULTING (INCHES)	_____
MAXIMUM JOINT	_____	MAXIMUM CRACK	_____
FAULTING (INCHES)	_____	FAULTING (INCHES)	_____
MEAN JOINT	_____	MEAN CRACK	_____
FAULTING (INCHES)	_____	FAULTING (INCHES)	_____
STANDARD DEVIATION (INCHES)	_____	STANDARD DEVIATION (INCHES)	_____

- NOTES:
- ¹ Use additional sheets as needed.
 - ² Numbers represent only joints or cracks measured. One joint should be measured at random within each 100-foot interval of the test section for SHRP-LTPP. One transverse crack should also be measured within each 100-foot interval. If there is no transverse crack, leave the space blank.
 - ³ Enter either positive or negative sign in left space, depending on whether the "approach slab" is higher or lower than the departure slab, respectively.
 - ⁴ Absolute values are to be entered as maximum and minimum values, and used for calculating means and standard deviations.

ENVIRONMENTAL

DATA SHEETS

SHEET 1
 ENVIRONMENTAL DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

 AZ PROJECT ID _____

GENERAL HISTORICAL DATA

GENERAL TYPE OF ENVIRONMENT (SEE FIGURE 4) _____

LATITUDE (DEGREES-MINUTES-SECONDS) _____ - _____ - _____

LONGITUDE (DEGREES-MINUTES-SECONDS) _____ - _____ - _____

FREEZING INDEX (CORPS OF ENGINEERS METHOD,
 SEE FIGURE 5) _____

ELEVATION ABOVE SEA LEVEL (FEET) _____

THORNTHWAITE MOISTURE INDEX _____

SOURCE OF THORNTHWAITE MOISTURE INDEX _____

 CALCULATED FROM AVAILABLE DATA 1
 MOISTURE INDEX MAP (FIGURE 6) 2

TWO YEARS IN TEN AVERAGE MAXIMUM TEMPERATURE _____

TWO YEARS IN TEN AVERAGE MINIMUM TEMPERATURE _____

TWO YEARS IN TEN AVERAGE MAXIMUM PRECIPITATION _____

TWO YEARS IN TEN AVERAGE MINIMUM PRECIPITATION _____

SHEET 2
 ENVIRONMENTAL DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _ _ _ _ - _ _ _ _

ANNUAL HISTORICAL DATA

NUMBER OF FREEZE-THAW CYCLES DURING THE YEAR	_____
HIGHEST MONTHLY MEAN SOLAR RADIATION (LANGLEYS/DAY)	_____
LOWEST MONTHLY MEAN SOLAR RADIATION (LANGLEYS/DAY)	_____
AVERAGE DEICING SALT APPLICATION DURING THE YEAR (TONS/LANE MILE/YEAR)	_____
AVERAGE MONTHLY PRECIPITATION (INCHES)	_____
AVERAGE ANNUAL NUMBER OF DAYS OF PRECIPITATION	_____

SHEET 3
 ENVIRONMENTAL DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

AVERAGE MONTHLY HISTORICAL DATA

	<u>AVG. MONTHLY TEMP., °F</u>	<u>AVG. MAX DAILY TEMP., °F</u>	<u>AVG. MIN. DAILY TEMP., °F</u>	<u>AVG. MONTHLY PRECIPITATION, IN. OF WATER</u>
JANUARY	_____.	_____.	_____.	_____.
FEBRUARY	_____.	_____.	_____.	_____.
MARCH	_____.	_____.	_____.	_____.
APRIL	_____.	_____.	_____.	_____.
MAY	_____.	_____.	_____.	_____.
JUNE	_____.	_____.	_____.	_____.
JULY	_____.	_____.	_____.	_____.
AUGUST	_____.	_____.	_____.	_____.
SEPTEMBER	_____.	_____.	_____.	_____.
OCTOBER	_____.	_____.	_____.	_____.
NOVEMBER	_____.	_____.	_____.	_____.
DECEMBER	_____.	_____.	_____.	_____.

**GENERAL
COMMENTS
SHEET**

SHEET 1
GENERAL COMMENT SHEET
ADOT/ERES CONSULTANTS STUDY
"CONCRETE PAVEMENT PERFORMANCE
AND REHABILITATION"

AZ PROJECT ID _____ - _____

Please note any comments that are unique to this particular section or any general comments that will help in the analysis of this data.

PRESTRESSED

PAVEMENTS

DATA SHEETS

SHEET 8 (8a)
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

 AZ PROJECT ID _____

DISTRESS SURVEY FOR PRESTRESSED PAVEMENT SURFACES

DATE OF DISTRESS SURVEY (MONTH/DAY/YEAR) _____/_____/_____

LANE NUMBER _____.

DISTRESS TYPE ¹	SEVERITY LEVEL		
	LOW	MODERATE	HIGH
PRE-STRESSING WIRE CORROSION (Linear Feet)	_____.	_____.	_____.
"D" CRACKING (Linear Feet)	_____.	_____.	_____.
LONGITUDINAL CRACKING (Linear Feet)	_____.	_____.	_____.
TRANSVERSE CRACKING (Number of Cracks)	_____.	_____.	_____.
REACTIVE AGGREGATE (% Area)	_____.	_____.	_____.
SCALING/MAP CRACKING (% Area)	_____.	_____.	_____.
NUMBER OF "PAVER STOPS"	_____		

SHEET 9 (9a)
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DISTRESS SURVEY FOR PRESTRESSED PAVEMENT SURFACES
(CONTINUED)

LANE NUMBER _____

DISTRESS TYPE ¹	SEVERITY LEVEL		
	LOW	MODERATE	HIGH
PATCH DETERIORATION (SQUARE FEET) (NUMBER)	_____	_____	_____
DETERIORATION ADJACENT TO PATCH (Check One)	_____	_____	_____
DETERIORATION ADJACENT TO JOINT (Check One)	_____	_____	_____
LONGITUDINAL JOINT SPALLING (Linear Feet)	_____	_____	_____
LOCALIZED DETERIORATION (Area)	_____	_____	_____

PRESTRESSED PAVEMENT SURFACES - GAP SLAB DISTRESSES

JOINT FACE AREA PATCHED (Sq. Ft./ Joint Face)	_____
% JOINT FACE PATCHED	_____
% PATCH & JOINT FACE SPALLED	_____

CONTINUOUSLY

REINFORCED

PAVEMENTS

DATA SHEETS

SHEET 8 (8b)
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DISTRESS SURVEY FOR CONTINUOUSLY REINFORCED CONCRETE PAVEMENT

DATE OF DISTRESS SURVEY (MONTH/DAY/YEAR) _____/_____/_____

LANE NUMBER _____.

DISTRESS TYPE ¹	SEVERITY LEVEL		
	LOW	MODERATE	HIGH
BLOWUP (Number)	_____.	_____.	_____.
CONSTRUCTION JOINT DETERIORATION (Linear Feet)	_____.	_____.	_____.
CORROSION (Linear Feet)	_____.	_____.	_____.
"D" CRACKING (Linear Feet)	_____.	_____.	_____.
PUNCHOUTS (Number)	_____.	_____.	_____.
LONGITUDINAL CRACKING (Linear Feet)	_____.	_____.	_____.
TRANSVERSE CRACKING (Number of Cracks)	_____.	_____.	_____.
PUMPING (Check Severity)	_____.	_____.	_____.
REACTIVE AGGREGATE (% Area)	_____.	_____.	_____.
SCALING/MAP CRACKING (% Area)	_____.	_____.	_____.

AVERAGE CRACK SPACING IN 200 FEET _____.

NOTE: ¹ Distress identification and measurement should be consistent with that provided in the latest revision of "Distress Identification Manual for the Long-Term Pavement Performance (LTPP) Studies"

SHEET 9 (9b)
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DISTRESS SURVEY FOR CONTINUOUSLY REINFORCED CONCRETE PAVEMENT
(CONTINUED)

LANE NUMBER _____

DISTRESS TYPE ¹	SEVERITY LEVEL		
	LOW	MODERATE	HIGH
PATCH DETERIORATION (SQUARE FEET) (NUMBER)	_____	_____	_____
DETERIORATION ADJACENT TO PATCH (Check One)	_____	_____	_____
DETERIORATION ADJACENT TO JOINT (Check One)	_____	_____	_____
LONGITUDINAL JOINT SPALLING (Linear Feet)	_____	_____	_____
TRANSVERSE JOINT SPALLING (Linear Feet)	_____	_____	_____
LOCALIZED DETERIORATION (Area)	_____	_____	_____

NOTE: ¹ Distress identification and measurement should be consistent with that provided in the latest revision of "Distress Identification Manual for the Long-Term Pavement Performance (LTPP) Studies."

**3-LAYER
SYSTEM
DATA SHEETS**

SHEET 5 (5a)
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

 AZ PROJECT ID _____ - _____

DESIGN DATA FOR 3-LAYER SYSTEM

LANE _____

DATE OF OVERLAY (MO/YR) _____/_____/_____

PRESENCE OF "D" CRACKING OR REACTIVE AGGREGATE
 PRIOR TO OVERLAY _____

- NONE.....0
- LOW - Only cracking present.....1
- MEDIUM - Some spalling.....2
- HIGH - Severe spalling.....3

PRE-OVERLAY REPAIR

<u>REPAIR TYPE CODES</u>	<u>YEAR</u>	<u>TYPE</u>
JOINT SEALING.....02	____	____
SLAB REPLACEMENT.....07	____	____
AC SHLDR. RESTORATION.....10	____	____
GRINDING.....12	____	____
SLAB JACKING.....15	____	____
OTHER, SPECIFY _____53	____	____

(SEE TABLE A.17 FOR OTHER CODES)

SHEET 10 (10a)
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DISTRESS SURVEY FOR 3-LAYER SYSTEM PAVEMENT SURFACES

DATE OF DISTRESS SURVEY (MONTH/DAY/YEAR) _____/_____/_____

LANE NUMBER _____.

DISTRESS TYPE ¹	SEVERITY LEVEL		
	LOW	MODERATE	HIGH
RAVELING/WEATHERING (Square Feet)	_____.	_____.	_____.
BLEEDING (Square Feet)			_____.
ALLIGATOR (FATIGUE) CRACKING (Square Feet)	_____.	_____.	_____.
BLOCK CRACKING (Square Feet)	_____.	_____.	_____.
LONGITUDINAL CRACKING (Linear Feet)	_____.	_____.	_____.
TRANSVERSE CRACKING (Number of Cracks)	_____.	_____.	_____.
POTHoles (Number)	_____.	_____.	_____.
TRANSVERSE JOINT REFLECTION CRACKING (Number of Cracks)	_____.	_____.	_____.
CRACK BETWEEN LANE AND SHOULDER (Linear Feet)	_____.	_____.	_____.

NOTE: ¹ Distress identification and measurement should be consistent with that provided in the latest revision of "Distress Identification Manual for the Long-Term Pavement Performance (LTPP) Studies"

SHEET 13 (13a)
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DISTRESS SURVEY FOR 3-LAYER SYSTEM PAVEMENT SURFACE
(CONTINUED)

DATE OF SURVEY (MONTH/DAY/YEAR) _____/_____/_____

LANE NUMBER _____

Point No.	Point Distance ¹ (Feet)	Lane-to-Shoulder ² Dropoff (In.)
1	_____.	____.____
2	_____.	____.____
3	_____.	____.____
4	_____.	____.____
5	_____.	____.____
6	_____.	____.____
7	_____.	____.____
8	_____.	____.____
9	_____.	____.____
10	_____.	____.____
11	_____.	____.____
12	_____.	____.____
13	_____.	____.____
14	_____.	____.____
15	_____.	____.____
16	_____.	____.____

MINIMUM DROPOFF (INCHES) _____.

MAXIMUM DROPOFF (INCHES) _____.

MEAN DROPOFF (INCHES) _____.

STANDARD DEVIATION OF DROPOFF (INCHES) _____.

- NOTES: ¹ "Point Distance" is the distance in feet from the start of the test section to the point where the measurement was made.
- ² Distress identification and measurement should be consistent with that provided for in the latest version of "Distress identification Manual for the Long-Term Pavement Performance (LTPP) Studies."

SHEET 12 (12a)
 MONITORING DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

DISTRESS SURVEY FOR 3-LAYER SYSTEM PAVEMENT SURFACE
(CONTINUED)

DATE OF SURVEY (MONTH/DAY/YEAR) _____/_____/_____
 LANE NUMBER _____

<u>LEFT WHEEL PATH</u>			<u>RIGHT WHEEL PATH</u>		
Point No.	Point ¹	Rut Depth (Inches)	Point No.	Point ¹	Rut Depth (Inches)
	Distance (Feet)			Distance (Feet)	
1	_____.	_____	1	_____.	_____
2	_____.	_____	2	_____.	_____
3	_____.	_____	3	_____.	_____
4	_____.	_____	4	_____.	_____
5	_____.	_____	5	_____.	_____
6	_____.	_____	6	_____.	_____
7	_____.	_____	7	_____.	_____
8	_____.	_____	8	_____.	_____
9	_____.	_____	9	_____.	_____
10	_____.	_____	10	_____.	_____
11	_____.	_____	11	_____.	_____
12	_____.	_____	12	_____.	_____
13	_____.	_____	13	_____.	_____
14	_____.	_____	14	_____.	_____
15	_____.	_____	15	_____.	_____
16	_____.	_____	16	_____.	_____

MIN. RUT DEPTH
 (INCHES) _____
 MAX. RUT DEPTH
 (INCHES) _____
 MEAN RUT DEPTH
 (INCHES) _____
 STANDARD DEVIATION
 (INCHES) _____

MIN. RUT DEPTH
 (INCHES) _____
 MAX. RUT DEPTH
 (INCHES) _____
 MEAN RUT DEPTH
 (INCHES) _____
 STANDARD DEVIATION
 (INCHES) _____

NOTE: ¹ "Point Distance" is the distance in feet from the start of the test section to the point where the measurement was made.

REHABILITATION

DATA SHEET

SHEET 4
 REHABILITATION DATA
 ADOT/ERES CONSULTANTS STUDY
 "CONCRETE PAVEMENT PERFORMANCE
 AND REHABILITATION"

AZ PROJECT ID _____

ASPHALT CONCRETE OVERLAY, ASPHALT PROPERTIES

LAYER NUMBER ¹	_____	_____	_____	_____
THICKNESS, INCHES	____.____	____.____	____.____	____.____
ASPHALT GRADE (see Table A.16)	____	____	____	____
MARSHALL STABILITY (LBS)	____	____	____	____
HVEEM STABILITY	____	____	____	____
PERCENT AIR VOIDS	____.____	____.____	____.____	____.____
MARSHALL FLOW (0.01 IN.)	____	____	____	____
SPECIFIC GRAVITY, G _{mb}	____.____	____.____	____.____	____.____

NOTE: ¹ Use the same layer numbers as designated on Sheet 8, INVENTORY DATA. That is, the highest number is the surface layer, the next highest is the layer directly beneath the surface layer, and so on.