1988 PAVEMENT EVALUATION SYSTEM

RATER'S MANUAL

Texas State Department of Highways
and Public Transportation

June 10, 1988

FOREWARD

The information in this manual defines the methods for
conducting a visual pavement evaluation, as part of the 1988
Pavement Evaluation System (PES) survey. The purpose of the
PES survey is to provide data concerning the condition of
pavements which can be used by itself or in combination with
ride quality, environmental, and traffic data to assist in
describing the overall condition of the State highway
system. The PES data can also be used to make general
estimates of statewide pavement rehabilitation funding
needs.

This manual has been developed for use during the 1988 PES
Rater Training School conducted during the summer in each
Regional Center. The Rater's Manual may also be used as a
reference by persons responsible for pavement management
activities.

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Chapter 1 -- INTRODUCTION

The present condition of pavement surfaces is of interest to the Department since it serves as a direct method for describing the overall condition of the State-maintained highway system. Pavement condition is also an important indicator of the need for rehabilitation. Various types of instruments are used to determine the condition of pavement surfaces. These instruments measure ride quality, structural adequacy, and skid resistance. However, these instruments do not supply all of the information needed to accurately describe a pavement's condition. Thus it is necessary to visually survey the pavement surface to assess the level of distress and to record these observations in an orderly and consistent fashion.

This Rater's Manual defines the methods to be used for conducting visual evaluations of ACP (asphalt concrete or "flexible"), CRC ("continuously reinforced concrete"), and JCP ("jointed concrete pavement") pavement sections. The purpose of these evaluations is to provide information that can be used as follows:

1. To develop a numerical rating which describes the condition of the pavement surface. This rating must be consistent so that it is possible to fairly describe pavement condition across these geographical areas:

      a. Maintenance Section
      b. County
      c. District
      d. Statewide

    At this time the statewide estimate is the most reliable. Estimates on smaller areas are subject to greater error due to sample size variations.

2. To identify pavement sections with the highest need for rehabilitation and to estimate the funding required to restore these sections.

The annual PES survey currently consists of three separate surveys: a visual evaluation survey, a ride quality survey and a structural strength survey. Other data, such as skid resistance, may be collected, however it is not included in the current PES analysis procedures.

The visual evaluation survey methods described in this manual will use three forms -- one for ACP ("flexible") sections, one for CRC ("continuously reinforced concrete") sections, and one for JCP ("jointed concrete pavement") sections.

This Rater's Manual describes only the visual evaluation survey. For information on the ride quality survey, please refer to the "MRM Operation Manual" or the "SIometer Operation Manual" available from D-10E.

Chapter 2 -- IDENTIFYING PES SECTIONS

PES contains approximately 35,000 sections which, when combined, make up the entire network of State-maintained highways. These PES sections are usually two miles in length, although some are longer and some are much shorter. Locating a PES section is the first step in conducting the visual evaluation.

LOCATING MILEPOSTS

PES sections are identified by mileposts. Mileposts are highway route signs with numbers placed just below the sign. For consistency, mileposts are spaced at approximately 2-mile intervals except on Interstate highways, where they are located at every mile.

Direction Of Increasing Milepost Numbers

If you are travelling on an east-west road, the milepost numbers will increase only if you travel EAST. This is true for all highways.

If you are travelling on a north-south road, the milepost numbers will increase only if you travel SOUTH. This is true for all highways except Interstate highways, whose milepost numbers increase as you travel NORTH.

In summary, to view increasing milepost numbers, travel in the following directions:

    1. On Interstate Highways -- EAST or NORTH.
    2. On US Highways -- EAST or SOUTH.
    3. On State Highways -- EAST or SOUTH.
    4. On Farm-to-Market Roads -- EAST or SOUTH.

These milepost rules may at times appear to be disregarded on some roads, especially the longer cross-state routes. For example, US 59 goes between Laredo and Texarkana, travelling slightly more east-west than north-south. From Laredo to Houston US 59 travels primarily east, however the mileposts decrease instead of increase. The reason for this is that US 59 is considered to be a north-south route -- travelling east is assumed to be the same as travelling north, therefore the milepost numbers are observed to be decreasing.

If you should find a road whose mileposts do not seem to follow the rules listed above, please contact your District Pavement Manager.

Milepost locations are maintained on D-10 files, and it is essential to the current and future success of the Department's pavement management activities that mileposts be consistently placed.

Finding Milepost 0

Milepost 0 indicates the beginning of a highway. The location of milepost 0 depends on several factors:

1.   If the road is an Interstate Highway, milepost 0 is located at the southernmost or westernmost State line. If the Interstate Highway starts in Texas (e.g. IH 20), milepost 0 is located at the road's southern or western end. Refer to Figure 2.1.

2.   If the road (non-Interstate) begins within a county, milepost 0 is located at the northern or western end of the road. Refer to Figure 2.2.

3.   If the road (non-Interstate) crosses a county line, the milepost numbers are reset to zero, and milepost 0 is located at the point where the road crosses the southern or eastern county line. Refer to Figure 2.3.

Additional Milepost Rules

1.   Interstate Highway mileposts are located to the right of both mainlane roadbeds (i.e. one for the East- or North-bound mainlanes and one for the West- or South-bound mainlanes).

2.   Mileposts for non-Interstate highways alternate from one side of the road to the other. If you travel in the direction of increasing mileposts (as described earlier), you can look to the right of the road and see mileposts 0, 4, 8, 12, 16, and so on. If you were also watching the left side of the road, you may have seen mileposts 2, 6, 10, 14, 18, and so on. This method of placing mileposts is particularly troublesome when rating divided US or State highways. If you are rating a divided highway with a wide median, you may have to look over a long distance to find a milepost on the other side of the road!

3.   If you don't know exactly which direction you're travelling on a non-Interstate highway, look to the right of the road for a milepost. If you see a milepost whose number is evenly divisible by 4, then you are travelling in the direction of increasing mileposts.
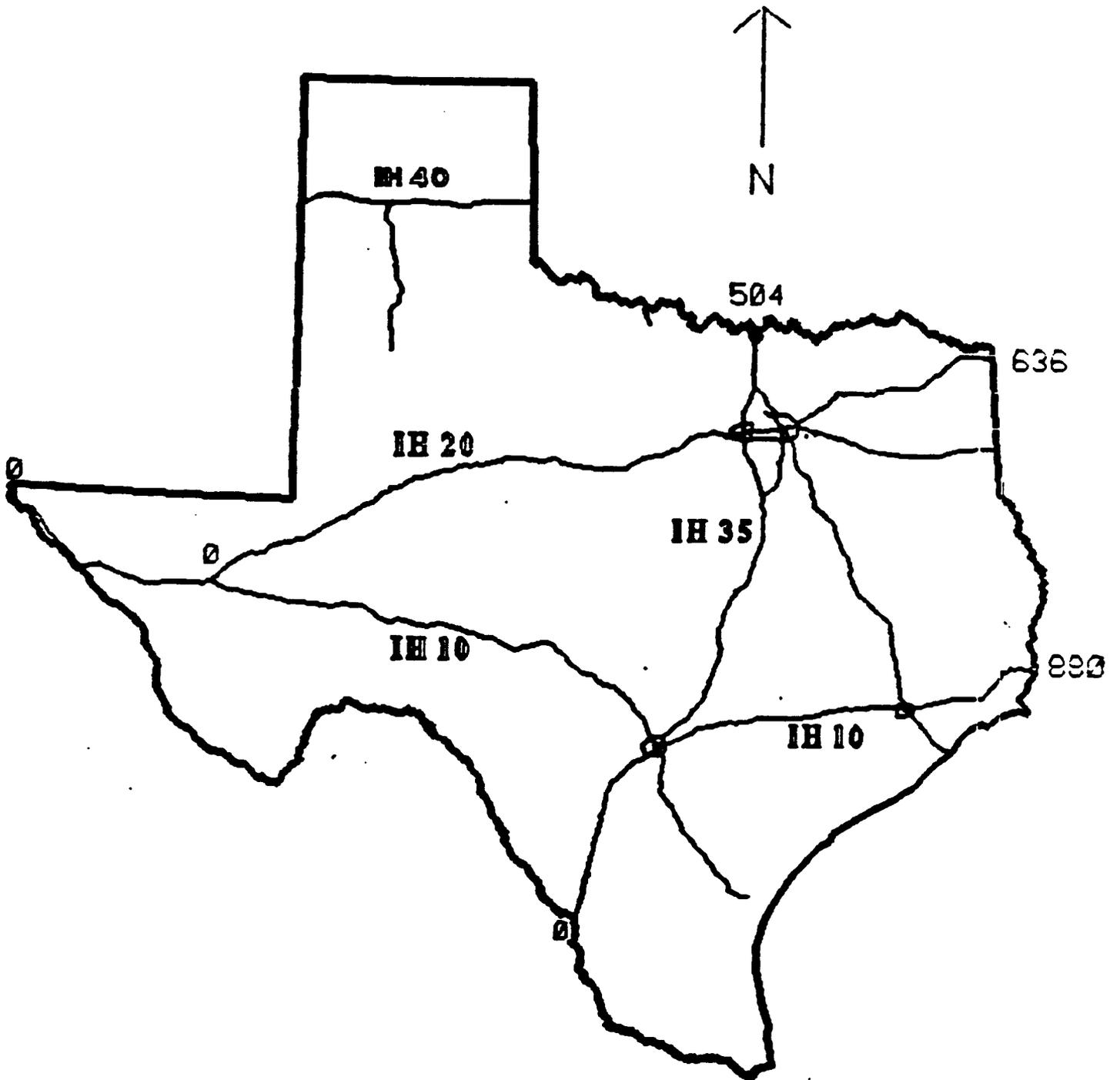
Figure 2.1 -- Milepost Numbering for Interstate Highways
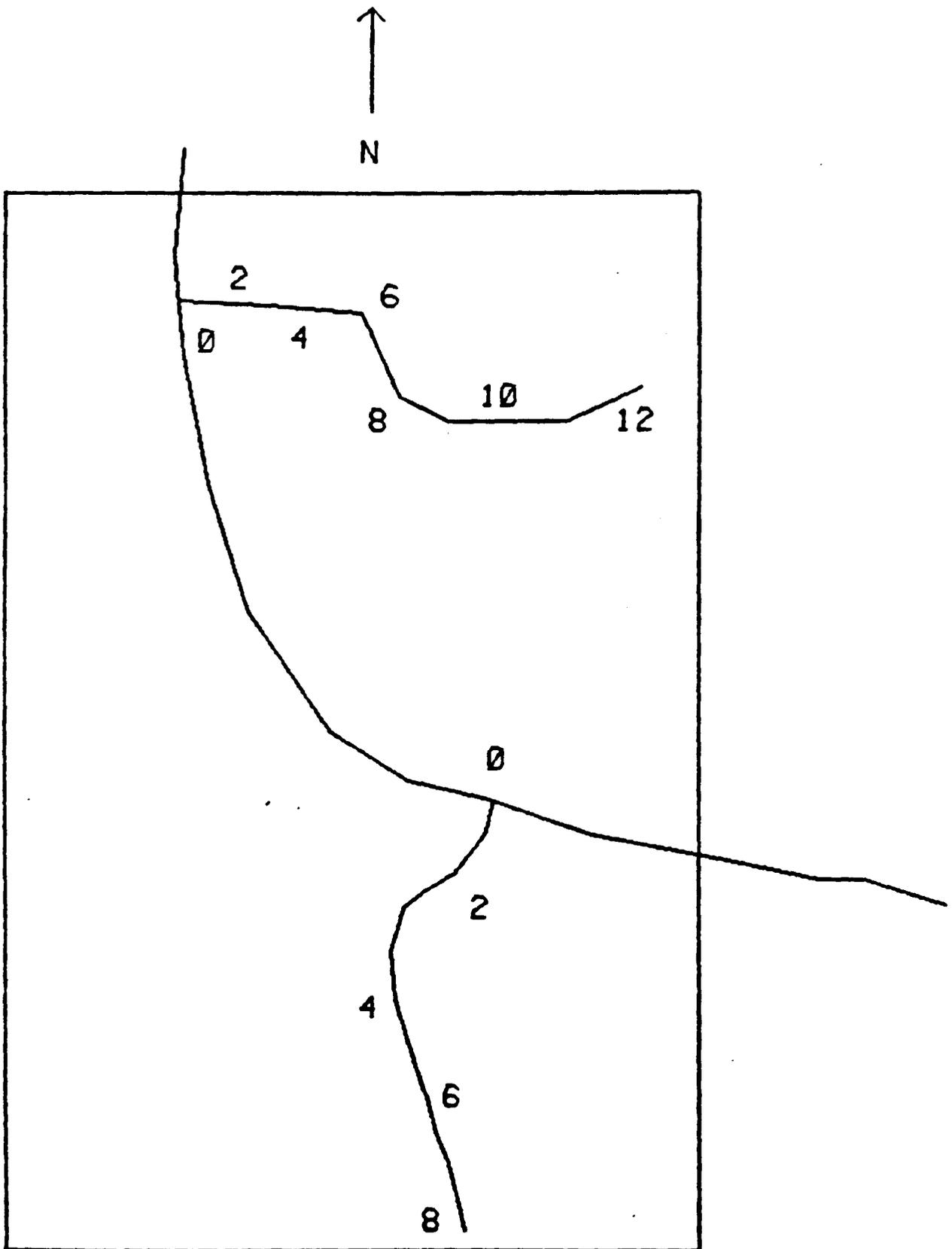
Figure 2.2 -- Milepost Numbering for Non-Interstate
Roads Within a County
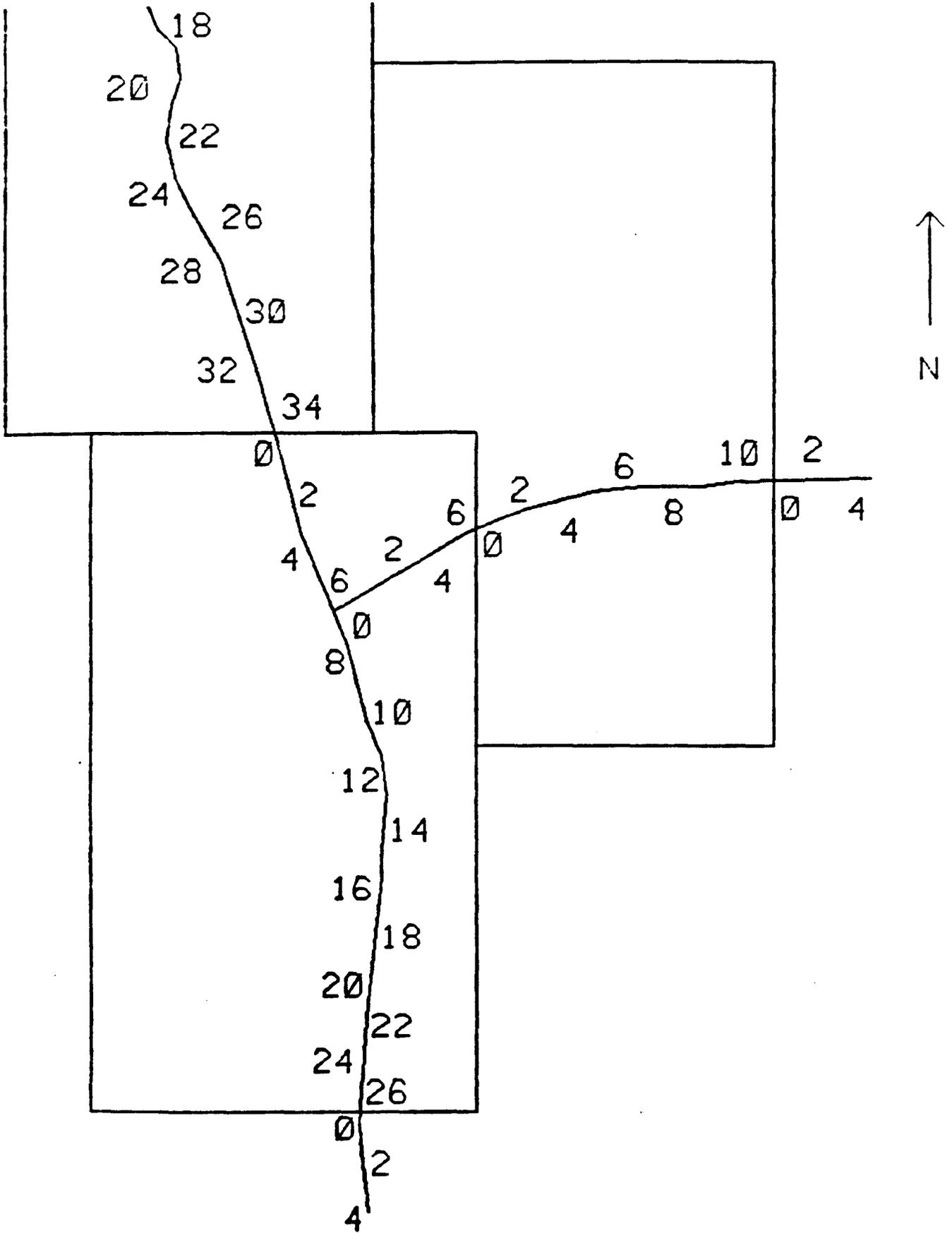
Figure 2.3 -- Milepost Numbering for Non-Interstate
Roads Which Cross County Lines

LOCATING SECTIONS IN THE FIELD
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PES Standard Report R01 lists all of the PES sections that must be
rated during the survey. Figure 2.4 contains an excerpt from a
Report R01 (for information on how to run a Report R01, please refer
to the "1986 PES Input Manual," available from D-18P). Most PES
sections begin and end exactly at a milepost, thus locating these
sections is relatively easy. However, some sections do not begin or
end right at a milepost. For example, one of the sections in Figure
2.4 is SH 70 in Motley County, from milepost 34+0.0 to milepost
34+1.6. The beginning milepost "34+0.0" indicates that the section
begins 0.0 miles from milepost 34. The ending milepost "34+1.6"
indicates that the section ends 1.6 miles past milepost 34.

The ending milepost of "34+1.6" demonstrates that milepost
designations in PES consist of two parts: a milepost (e.g. "34"),
and a displacement (e.g. "+1.6"). In "34+1.6," the milepost ("34")
is the actual milepost that can be found in the field. The dis-
placement ("+1.6") indicates that the section ends 1.6 miles past
milepost 34, in the direction of increasing mileposts. A dis-
placement of "-1.6" would mean that the section ends 1.6 miles
before milepost 34, if you were travelling in the direction of
increasing mileposts.

It may be helpful to think of a milepost designation like "34+1.6"
as being "milepost 34 plus 1.6 miles." You may also think of
milepost "34-1.6" as being "milepost 34 minus 1.6 miles." However,
these suggestions would be applicable only if you were travelling in
the direction of increasing mileposts.

Mileposts On Concurrent Highways
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If two highways are concurrent (i.e. they travel along the same
route), the mileposts should follow the major highway, according to
the following rules:

1.   If the roads have different prefixes (i.e. IH, US, SH, or FM),
      identify the major highway as that having the "highest" prefix,
      in the following order: IH, US, SH, then FM.

2.   If the roads have the same prefix, identify the major highway
      as that having the lower number (e.g. US 62 & US 82 would be
      rated as "US 62").

DIST	COUNTY	MAINT SECT	HIGHWAY	MILEPOST & DISP BEGIN	END	LNGTH	NO. OF RDWAYS	SEL.FLAGS MAND	OTHR	SURFACE TYPE
14	227 TRAVIS	06	IH0035	222+0.0	225+0.0	3.0	4	A	B	55
14	227 TRAVIS	10	FM0812	2+0.0	4+0.0	2.0	1	A	K	51
14	227 TRAVIS	10	FM0969	10+0.0	12+0.0	2.0	1	A	B	51
14	227 TRAVIS	10	FM0969	12+0.0	14+0.0	2.0	1	A	B	51
14	227 TRAVIS	10	FM0973	14+0.0	16+0.0	2.0	1	A	B	51
14	227 TRAVIS	10	FM0973	24+0.0	26+0.0	2.0	1	A	B	51
14	227 TRAVIS	10	FM0973	26+0.0	28+0.0	1.5	1	A	B	51
14	227 TRAVIS	10	FM1625	2-2.0	2+0.0	2.0	1	A	K	51
14	227 TRAVIS	10	SH0071	20+1.6	32+0.0	2.6	2	A	B	55
14	227 TRAVIS	10	SH0071	36+0.0	38+0.0	2.0	2	A	B	55
14	227 TRAVIS	10	SH0111S	0+1.4	2+1.8	2.4	1	A	B	55
14	227 TRAVIS	10	SH0343S	2+1.5	6+0.0	1.2	1	A	B	55
14	227 TRAVIS	10	SH0343S	6+0.0	6+2.1	2.1	1	A	B	55
14	227 TRAVIS	10	US0183	20+0.0	22+0.7	2.7	2	A	B	55
14	227 TRAVIS	10	US0183	22+0.7	24+0.0	1.3	1	A	B	55
14	227 TRAVIS	10	US0183	24+0.0	26+0.0	2.0	1	A	B	55
14	227 TRAVIS	10	US0183	30+0.0	30+1.1	1.1	1	A	B	55
14	227 TRAVIS	10	US0290	26+0.0	28+0.0	2.0	2	A	B	55
14	227 TRAVIS	10	IH0035	246+0.5	247+0.6	1.1	4	A	D	55
14	227 TRAVIS	11	FM2222	6+3.1	6+4.8	1.7	1	A	B	55
14	227 TRAVIS	11	SH0275S	4+0.0	4+1.8	1.8	1	A	B	55
14	227 TRAVIS	11	SH0275S	4+1.8	6+0.1	0.3	2	A	B	55
14	227 TRAVIS	11	SH0343S	0+0.5	2+1.0	2.5	1	A	B	55
14	227 TRAVIS	12	FM1825	2+0.0	2+1.9	1.9	1	A	B	55
14	227 TRAVIS	13	FM0973	0+0.0	2+0.0	2.0	1	A	K	51
14	227 TRAVIS	13	FM1100	2-2.0	2+0.0	2.0	1	A	B	51
14	227 TRAVIS	13	US0290	36+0.0	38+0.0	2.0	1	A	B	55
14	227 TRAVIS	14	SH0001S	4-4.0	4-3.3	0.7	1	A	D	55
14	227 TRAVIS	14	SH0001S	4-1.6	4+0.0	1.6	4	A	B	55
14	227 TRAVIS	14	SH0001S	4+0.0	6+0.0	2.0	2	A	B	55
14	227 TRAVIS	14	SH0001S	8+0.0	8+2.1	2.1	4	A	B	55
14	227 TRAVIS	14	SH0001S	8+2.1	8+4.1	2.0	4	A	D	55

Figure 2.4 -- Example List of Sections to be Rated
(PES Standard Report R01)

There is no consistent method used for setting mileposts on concurrent routes. Mileposts on the major highway should continue uninterrupted. However, mileposts on the minor highway may be interrupted at the end of the concurrent route. Figure 2.5 illustrates two possible mileposting schemes that you may see when rating concurrent highways.

IN ALL CASES, you should enter the PES section location exactly as shown in Report R01.

One More Special Case

As mentioned earlier, every road at some point or another begins with milepost 0. If the road begins at an intersection, it is physically impossible (unless you ignore safety) to locate the post at the centerline of the intersection. Therefore, you may turn onto the road and travel a short distance before finding milepost 0. In these cases, the PES section may actually be listed as beginning at "milepost 0-0.1" (or something similar). Figure 2.6 depicts this case. If you find a section which begins at a milepost like "0-0.1," you should begin rating at a point near the intersection but far enough away so as not to pose a safety hazard.

DEFINING THE RATED LANE

When travelling across a PES section, you should rate the lane which shows the most distress on each roadway. For example, undivided highways have only 1 roadway. Divided highways have 2 roadways, unless frontage roads are also present. Highways with frontage roads (such as most Interstate highways) may have as many as 4 roadways -- the most distressed lane in each roadway should be rated. Report R01 lists the number of roadways to be rated in each PES section.

PES accepts a one-letter code which identifies the rated lane. To select the proper code, face in the direction of increasing mileposts and refer to Figure 2.7.

In some cases, the number of roadways or surface type listed for a section on the R01 may be in error. If you find such a section, please contact the District Pavement Manager. It is essential that such sections be identified and corrected through D-10, to insure the accuracy of the PES and roadway inventory files.
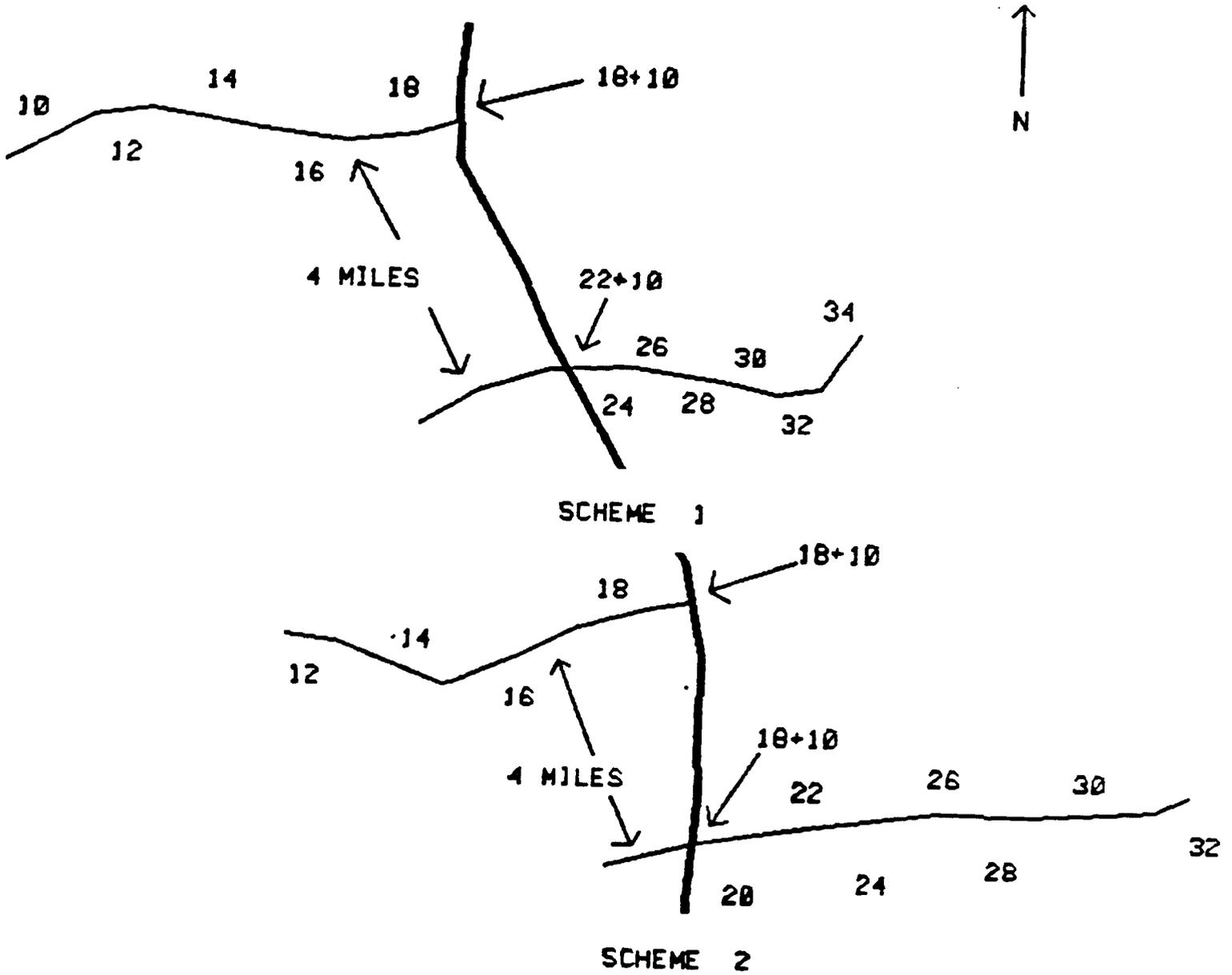
Figure 2.5 -- Two Milepost Schemes for Concurrent Routes

N

⊢ MP 0

0.1 MILES
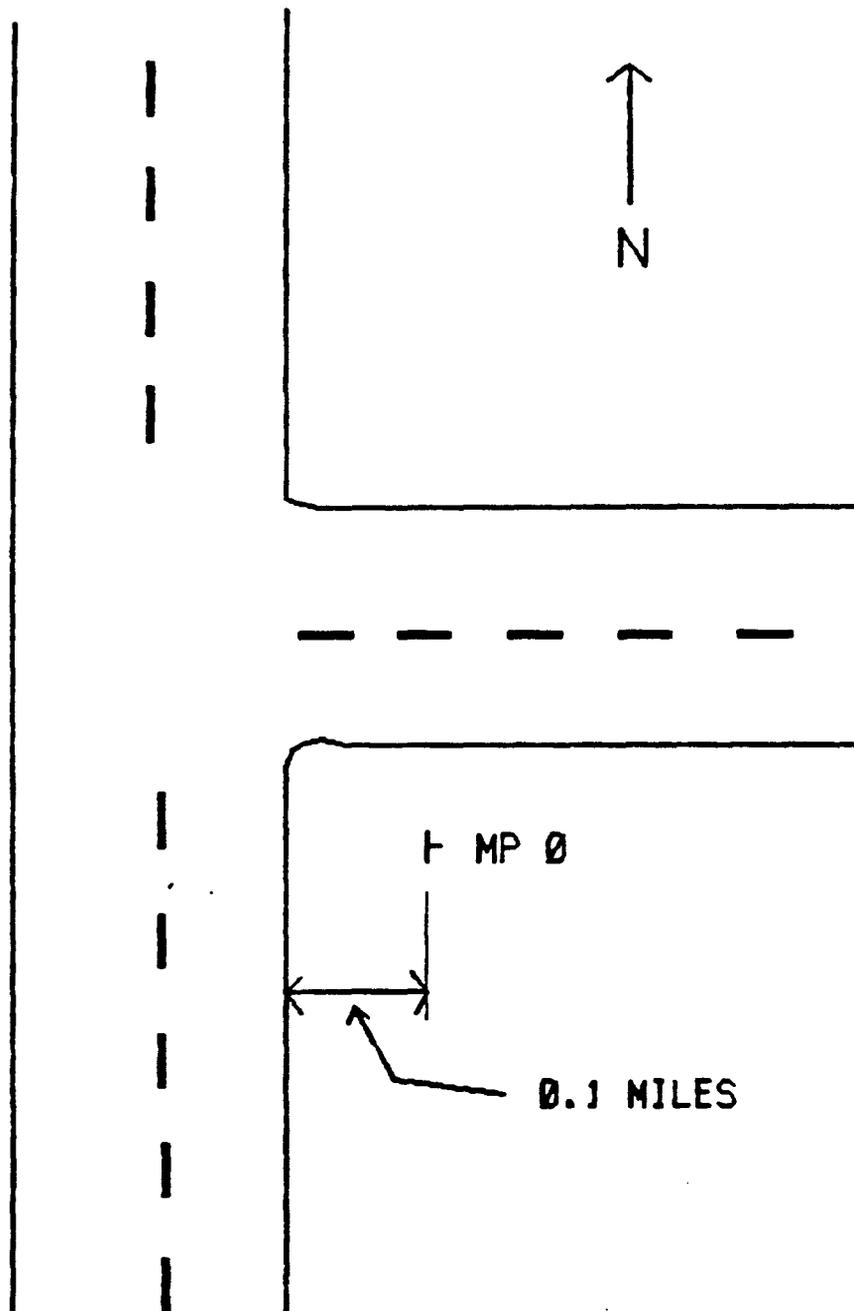
Figure 2.6 -- Locating Milepost "000-0.1"

X Y Z
FRONTAGE
ROAD

L M N O P
MAIN LANES

V U T S R
MAIN LANES

C B A
FRONTAGE
ROAD

POINT ARROW IN DIRECTION
OF INCREASING MILEPOST
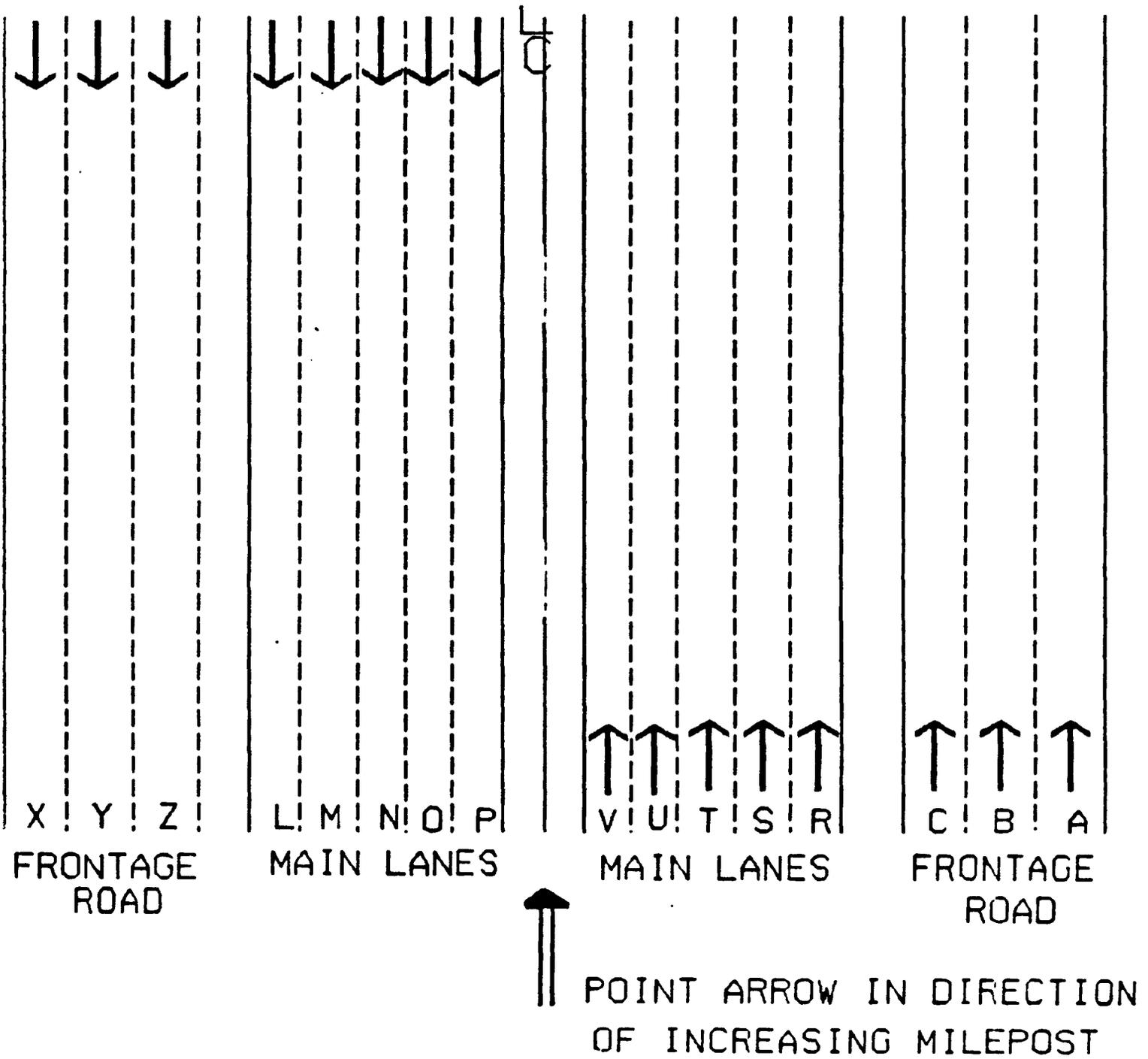
Figure 2.7 -- Identifying the Rated Lane

Chapter 3 -- VISUAL EVALUATION PROCEDURE

Prior to starting the PES visual (and ride) survey, each District should run a Standard Report R01. The R01 will locate every section required for evaluation -- these section locations are to be entered exactly as they appear, to insure the evaluation data will be stored properly. Most of the PES sections will be two miles in length, however you may rate some that are longer and some that are much shorter.

In addition, District raters will also be given three sets of milepost maps for their District. At least two of the sets are intended for use by the raters, while the remaining set should be kept in the office at all times, for reference purposes.

The visual evaluation procedure to be followed depends on whether you are rating a flexible (ACP) pavement section or a rigid (CRC or JCP) pavement section. If any is under construction for more than half the section length enter "99" on the comment code and do not rate it.

There should be two raters in the team.

RATING FLEXIBLE PAVEMENT SECTIONS

Raters should record the occurrence of the following surface distress types on flexible pavement sections:

1. Rutting
2. Patching
3. Failures
4. Block Cracking
5. Alligator Cracking
6. Longitudinal Cracking
7. Transverse Cracking

Raters should travel along the side of the road (with traffic) at no more than 15 miles per hour, rating the most severely distressed lane, and stopping at least once every 0.5 miles. The first stop should be made at the beginning milepost. At each stop, the raters should walk 100' each way from the vehicle, observing all distress types visible. Within a 200' area, rutting should be measured at least three times using an approved method of measurement. The purpose of the stop is to "calibrate" the rater's vision as to which distress types exist within the section. Stops should be made at least once every 0.5 miles, with additional stops where major changes occur.

At the end of the section, raters should enter their overall section ratings for all of the flexible pavement distress types.

RATING RIGID PAVEMENT SECTIONS

Rigid pavement sections (CRC or JCP) are rated according to a different procedure. Raters should begin counting distress occurrences at one end of the section, travelling along the edge of the road (with traffic) at no more than 15 miles per hour. The only stop required is at the end of the section, to enter the evaluation data. For safety, the driver should only be responsible for counting "easy" distresses, such as concrete patches, punchouts, or failed slabs.

Distress types to be rated on CRC sections are:

1. Spalled Cracks
2. Punchouts
3. Asphalt Patches
4. Concrete Patches
5. Average (transverse) Crack Spacing

Distress types to be rated on JCP sections are:

1. Failed Joints and Cracks
2. Failures
3. Shattered (failed) Slabs
4. Slabs with Longitudinal Cracks
5. Concrete Patches
6. Apparent Joint Spacing

SAFETY INFORMATION

Raters should always wear hard hats and reflective safety vests whenever they are outside of the vehicle. The rating vehicle should also be equipped with a flashing yellow light (mounted on top or inside of the vehicle) to be operating during the visual evaluation. The blue and yellow strobe combination is also acceptable for use in PES rating vehicles and may be desirable for greater visability in high traffic volume areas.

Chapter 4 -- DISTRESS TYPES FOR ACP SECTIONS

Raters should record the occurrence of the following surface distress types on flexible pavement sections:

1. Rutting
2. Patching
3. Failures
4. Block Cracking
5. Alligator Cracking
6. Longitudinal Cracking
7. Transverse Cracking

The rating consists of entering three-digit codes for each of these seven distress types. The codes indicate either the area or the amount of each distress that was observed. In addition, the code for rutting indicates the severity (i.e. rut depth) of the ruts that were observed.

The following general guidelines may prove helpful when rating flexible pavement sections:

1. Distances can be measured by using lane stripes. Lane stripes are typically 10' long with 30' of space between them. As a result, it is 40' from the beginning of one stripe to the beginning of the next stripe. This is especially helpful when measuring the length of patches or overlaid areas.

2. Bridge deck, culvert, cattle guard, or railroad track surfaces should not be rated. The length of these surfaces should be monitored so that the final rating values can be prorated over the entire section length.

3. Do not rate concrete pavement encountered within a flexible pavement section. If the total length of concrete pavement is greater than half the length of the section, the section should be rated as a rigid pavement section.

RUTTING

A rut is a surface depression in a wheelpath (Figure 4.1). Rutting in the rated lane may be observed in one or both of the wheelpaths.

Rutting is caused by consolidation or lateral movement of the pavement materials due to traffic loads. Significant amounts of rutting indicate that one or more of the pavement layers is inadequate. Rutting is indicative of a structural problem and may lead to the onset of serious structural failures.

How to Rate

Rutting is rated by area and severity. Area of rutting is measured as a percent of the section's total wheelpath area that is rutted to a depth of at least 0.5". The specific area groups are:

* 1-25%   --   (one wheelpath with discontinuous rutting)
* 26-50%   --   (two wheelpaths with discontinuous rutting, or one wheelpath halfway- to fully-rutted)
* >50%   --   (two wheelpaths with discontinuous rutting, or one fully-rutted wheelpath and one wheelpath with some rutting)

$$\frac{\text{Total feet of Rutting}}{\text{No. of Stops X 200 X 2(wheelpaths)}} = \text{\% of Rutting}$$

Severity of rutting is described in terms of rut depth. The specific severity groups are:

* 0.5"-1.0" --   (ruts are from one-half to one inch deep)
* >1.0"   --   (ruts are greater than one inch deep)

Acceptable Rating Values

The severity of rutting determines the number to be used in the rating (i.e. 0, 1, or 2). The area of rutting determines the column in which the "severity" number is to be placed (i.e. in the left, middle, or right column). Therefore, the possible rating values are:

* 000 --   Less than 1% rutting (or rutting less than 0.5" deep)
* 100 --   0.5"-1.0" deep ruts covering 1-25% of the section's total wheelpath area
* 010 --   0.5"-1.0" deep ruts covering 26-50% of the section's total wheelpath area
* 001 --   0.5"-1.0" deep ruts covering more than 50% of the section's total wheelpath area
* 200 --   Ruts deeper than 1" covering 1-25% of the section's total wheelpath area
* 020 --   Ruts deeper than 1" covering 26-50% of the section's total wheelpath area
* 002 --   Ruts deeper than 1" covering more than 50% of the section's total wheelpath area

Special Cases

1. If a rut is 3" deep or more, measure its length and rate it as one or more failures.

2. Other distress types within a rut should be rated separately.

3. If a section contains both severities of rutting, select the appropriate rating value according to the following list:

    Priority from best to worst

       000
       100
       010
       200
       001
       020
       002

    Enter worst rating on code sheet

In other words, if a section could be rated as 010 or 200, enter "200" as the rating value.

Figure 4.1 -- Rutting

PATCHING

Patches are repairs made to pavement distress (Figure 4.2). The presence of patching indicates prior maintenance activity, and is thus used as a general measure of maintenance cost.

How to Rate

Patching is rated according to the percentage of the rated lane's total surface area. Specific area groups are:

* 1-10%
* 11-50%
* >50%

For the typical 2-mile PES section, these percentages work out to 106-1056', 1057-5280', and >5280' of full-width patching.

No severity rating is made for patching.

Acceptable Rating Values

* 000 -- Less than 1% patching
* 100 -- Patches cover 1-10% of the rated lane's total surface area
* 010 -- Patches cover 11-50% of the rated lane's total area
* 001 -- Patches cover more than 50% of the rated lane's total surface area

Special Cases

1. Other distress types within the patch should be rated separately.

2. If a patch meets all of the requirements listed under "failures," then rate the patch as a failure. Do not rate it as a patch.

3. Level-ups and overlays should be counted as a patch if:

   a. it does not cover the full width of the roadway, or

   b. it covers the full width of the roadway, but is less than 500' long (i.e. 12 lane stripes).

Figure 4.2 -- Patching

FAILURES

A failure is a localized section of pavement where the surface has
been severely eroded, badly cracked, or depressed (Figures
4.3-4.4). Failures are important to rate because they identify
specific structural deficiencies which may pose safety hazards.

How to Rate

Unrepaired potholes less than 12" in diameter but greater than 2"
in diameter should not be rated as failures, except that ten
potholes in a section may be counted as one failure. Failed areas
longer than 40 feet should be considered as multiple failures. For
example, a 70' failed area should be rated as two failures. Only
unrepaired failures should be rated. If a failed area has been
adequately patched, then it should be rated as a patch. However,
if a patched area meets the criteria for failures (listed above),
the area should be rated as a failure, not as a patch.

Raters should count the total number of failures observed along the
entire section and then divide by the section length to obtain the
number of failures per mile.

$$\frac{\text{Total No. of Failures}}{\text{Length of Section}} = \text{Failures per mile}$$

Acceptable Rating Values

The possible rating values for failures are:

* 000 -- Less than 1 failure per mile
* 100 -- 1-5 failures per mile
* 010 -- 6-10 failures per mile
* 001 -- >10 failures per mile

For the typical 2-mile PES section, these groups work out to 2-10,
11-20, and >20 failures per section.

Special Cases

1. Severe alligator cracking should be rated as a failure if the
    base layer is exposed.

2. Ruts greater than 3" deep should be rated as a failure. If
    the rut is longer than 40', rate it as multiple failures.

3. There can be no more than one failure for each 40' of
    pavement.

Figure 4.3 -- Failures
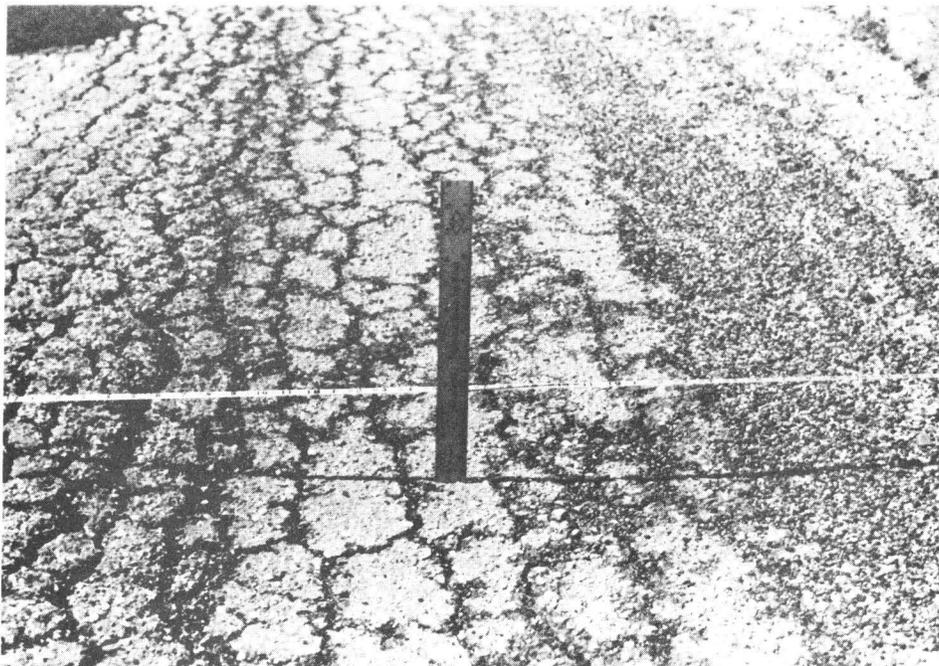
Figure 4.4 -- More Failures

BLOCK CRACKING

Block cracking consists of interconnecting cracks that divide the pavement surface into approximately rectangular pieces, varying in size from 1' X 1' up to 10'X 10' (Figure 4.5). Although similar in appearance to alligator cracking, block cracks are much larger. Block cracking is not load-associated. Instead, it is commonly caused by shrinkage of the asphalt concrete or by shrinkage of cement- or lime-stabilized based courses.

How to Rate

Block cracking is rated according to the percentage of the rated lane's total surface area. All block cracks, regardless of width, should be rated. Specific area groups are:

$$\frac{\text{Total feet of Block Cracking (Full Width)}}{\text{No. of Stops X 200}} = \text{\% of Block Cracking}$$

* 1-10%
* 11-50%
* >50%

No severity rating is made for block cracking.

Acceptable Rating Values

There are four possible rating values for block cracking:

* 000 -- Less than 1% block cracking
* 100 -- Block cracking covers 1-10% of the rated lane's total surface area
* 010 -- Block cracking covers 11-50% of the rated lane's total surface area
* 001 -- Block cracking covers more than 50% of the rated lane's total surface area

Special Cases

1. Do not confuse block cracking with longitudinal and transverse cracking, especially on sections of overlaid concrete. Block cracks can be identified by their irregular shapes. Longitudinal and transverse cracks tend to be very straight, intersecting at near 90-degree angles.

2. If alligator and block cracking are seen together, the alligator cracking is restricted to the wheelpaths. When computing the area of block cracking in this case, subtract any wheelpath areas that contain alligator cracking. For example, if the entire lane contains block cracking, with alligator cracking in both wheelpaths, the rating should be for 50% block cracking and 100% alligator cracking. This rating assumes that one wheelpath occupies 25% of the lane's total surface area.
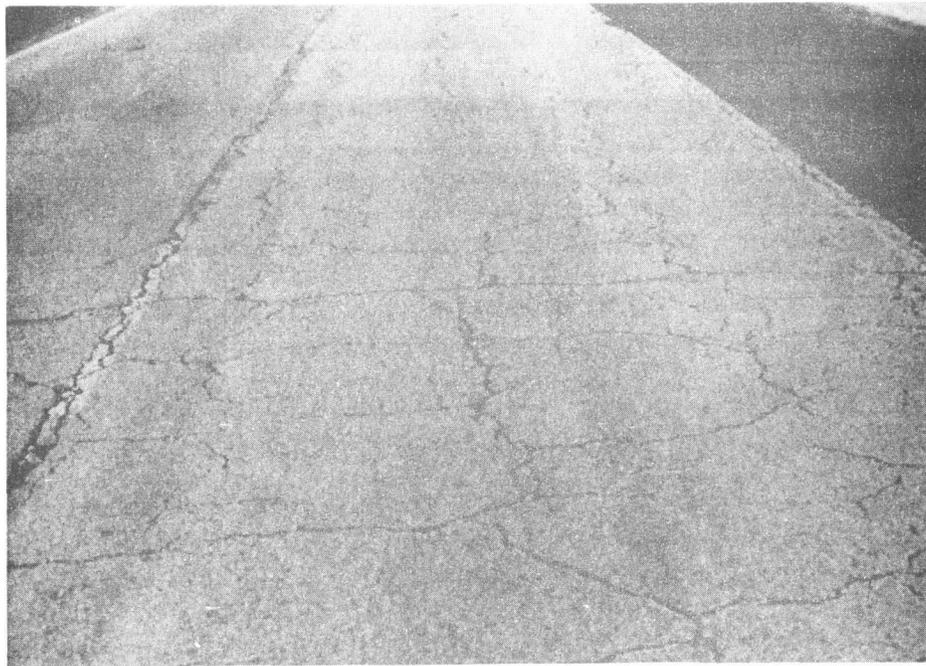
Figure 4.5 -- Block Cracking

ALLIGATOR CRACKING

Alligator cracking consists of interconnecting cracks which form small, irregularly-shaped blocks which resemble the patterns found on an alligator's skin (Figure 4.6). Blocks formed by alligator cracks are less than 1' X 1' (larger block should be rated as block cracking).

Alligator cracks are formed whenever the pavement surface is repeatedly flexed under traffic loads. As a result, alligator cracking may indicate improper design or weak structural layers. Alligator cracking may also be caused by heavily-loaded vehicles.

How to Rate

Rate only the alligator cracking which occurs in the wheelpaths, regardless of the crack's width. The rating value measures the percentage of the rated lane's total wheelpath area that is covered by alligator cracking. Specific area groups are:

$$\frac{\text{Total feet of Alligator Cracking}}{\text{No. of Stops x 200 x 2(wheelpaths)}} = \text{\% Alligator Cracking}$$

Acceptable Rating Values

* 000 -- Less than 1% alligator cracking
* 100 -- Alligator cracks cover 1-10% of the rated lane's total wheelpath area
* 010 -- Alligator cracks cover 11-50% of the rated lane's total wheelpath area
* 001 -- Alligator cracks cover more than 50% of the rated lane's total wheelpath area

Special Cases

1. Alligator cracking in a rut or patch should be rated as alligator cracking, unless the area can be rated as a failure.
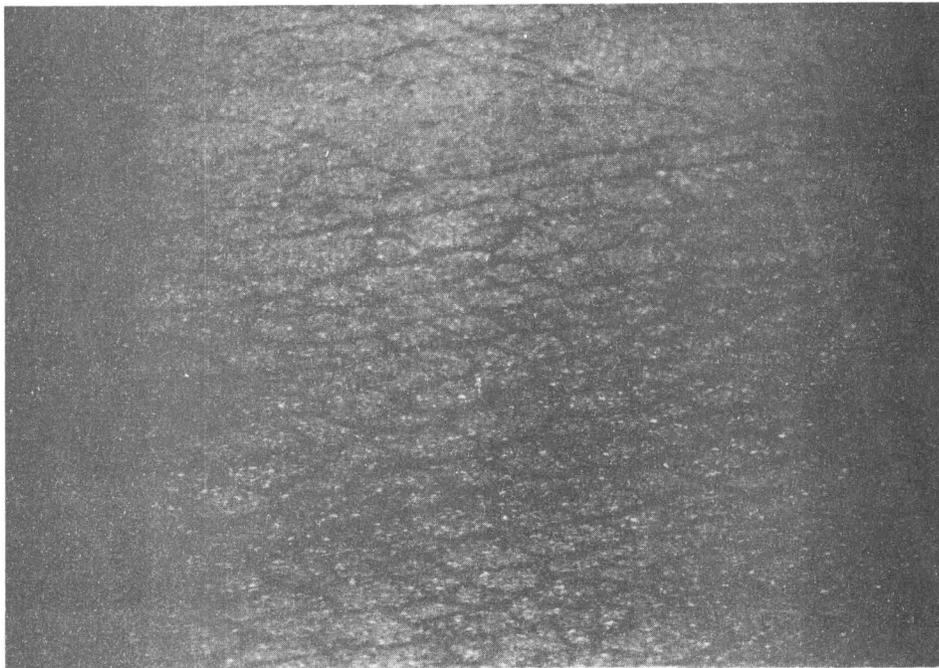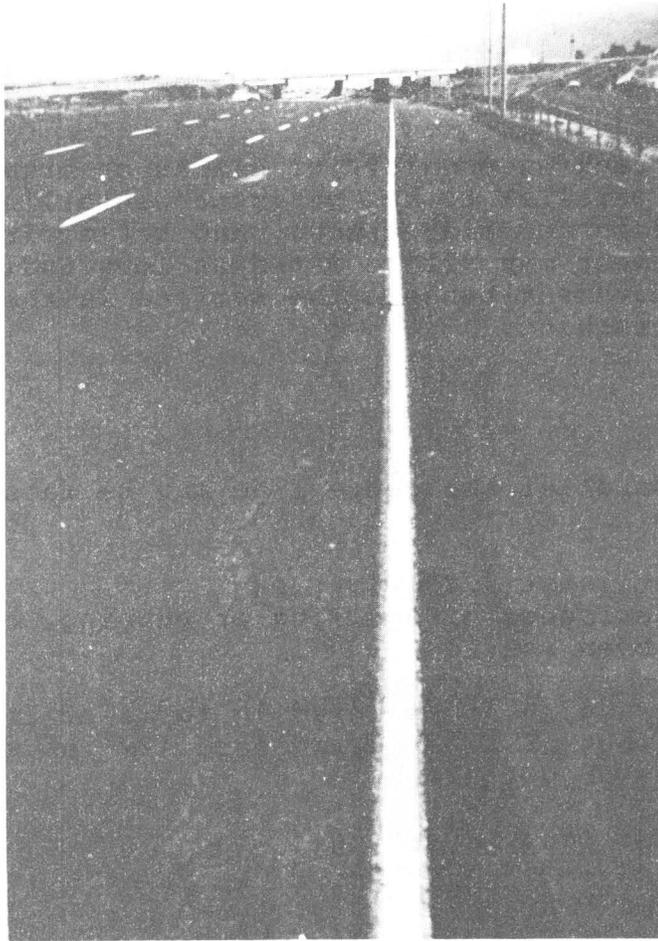
Figure 4.6 -- Alligator Cracking

LONGITUDINAL CRACKING

Longitudinal cracking consists of cracks or breaks which run approximately parallel to the pavement centerline (Figure 4.7). Edge cracks, joint or slab cracks, and reflective cracking on composite pavement may all be rated as longitudinal cracking. Differential movement beneath the surface is the primary cause of longitudinal cracking.

How to Rate

Cracks which parallel the centerline may be rated as longitudinal cracks if they:

1. are at least 1/8" wide, or
2. show evidence of spalling or pumping, or
3. have been sealed

Longitudinal cracking is measured in terms of lineal feet per station (i.e. feet of cracking in each 100' of surface). The specific rating groups are:

$$\frac{\text{Total ft. of Long. Cracking}}{\text{No. of Stops X 2}} = \text{Ft. per Station}$$

* 10- 99' per station
* 100-200' per station
* >200' per station

Acceptable Rating Values

* 000 -- Less than 10' per station
* 100 -- 10-99' per station
* 010 -- 100-200' per station
* 001 -- >200' per station

Special Cases

1. Longitudinal cracks on the edge stripe of a lane are to be rated at their full length.

2. Longitudinal cracks on the lane stripe are to be rated at 50% of their length. This assumes that the other 50% is to be assigned to the adjacent lane.

3. Longitudinal joint or edge cracks (in which there may be two or more distinct cracks within a narrow area) are to be rated individually, not as one longitudinal crack.
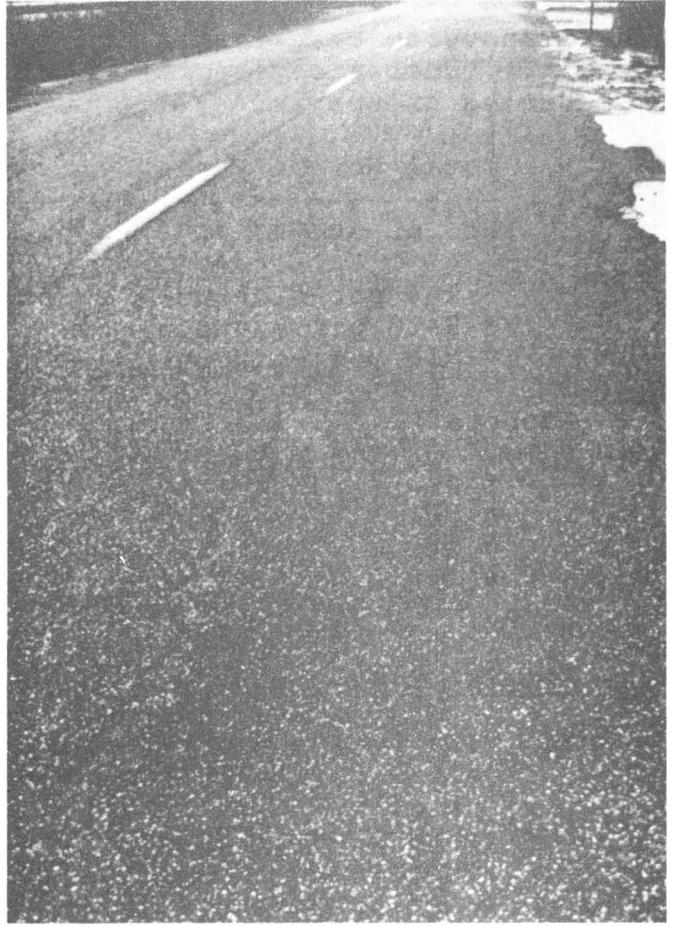
Figure 4.7 -- Longitudinal Cracking

TRANSVERSE CRACKING

Transverse cracking consists of cracks or breaks which travel at right angles to the pavement centerline (Figure 4.8). Joint cracks and reflective cracks may also be rated as transverse cracking.

Transverse cracks are usually caused by differential movement beneath the pavement surface. They may also be caused by surface shrinkage due to extreme temperature variations.

How to Rate

Cracks which are at right angles to the centerline may be rated as transverse cracks if they:

1. are at least 1/8" wide, or
2. show evidence of spalling or pumping, or
3. have been sealed

Transverse cracking is measured in terms of number per station (i.e. number of cracks in each 100' of surface). The specific rating groups are:

$$\frac{\text{Total No. of Transverse Cracks}}{\text{No. of Stops X 2}} = \text{No. of Trans. Crack per sta.}$$

* 1-4 per station
* 5-10 per station
* >10 per station

Acceptable Rating Values

* 000 -- Less than 1 per station
* 100 -- 1-4 per station
* 010 -- 5-10 per station
* 001 -- >10 per station

Special Cases

1. Transverse cracks which do not extend across the full lane width should be counted as partial cracks. For example, a 6' crack on a 12' lane should be counted as half a crack. In the same example, a 3' crack should be rated as one-fourth of a crack.

2. Joint or edge cracks (in which there may be two or more distinct cracks within a narrow area) are to be rated individually, not as one transverse crack.
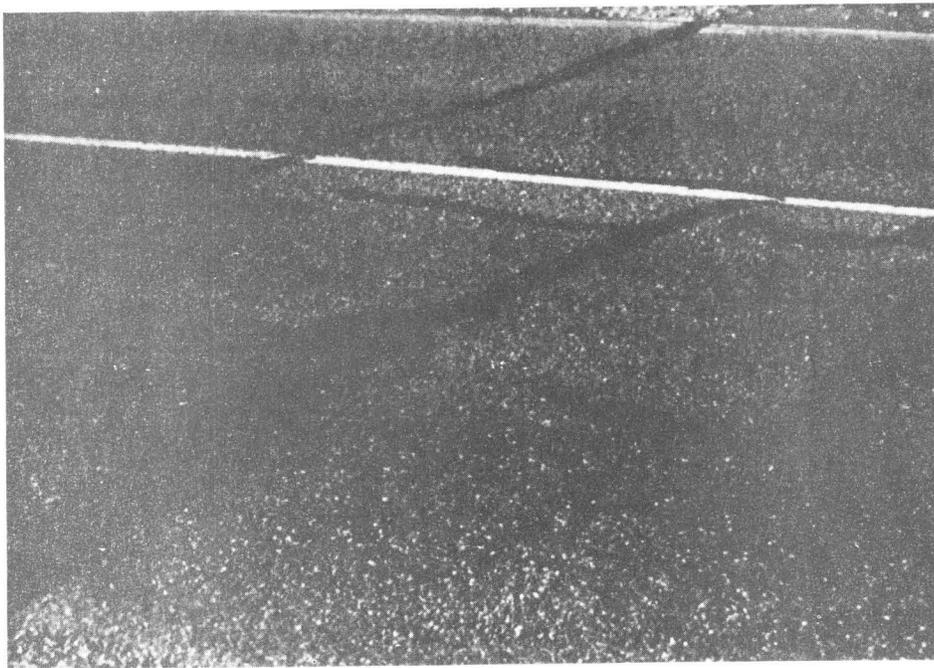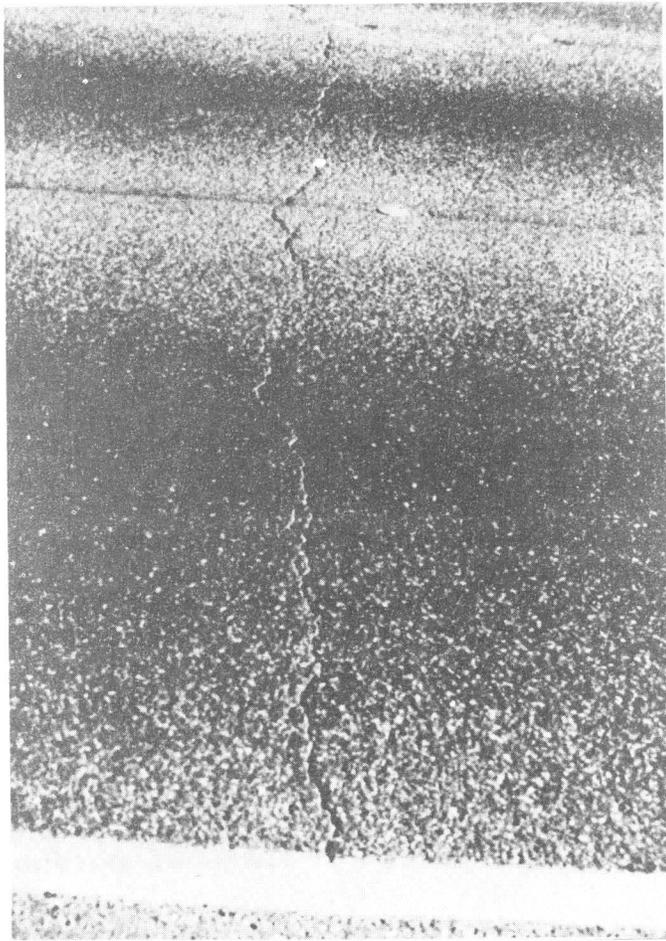
Figure 4.8 -- Transverse Cracking

Chapter 5 -- DISTRESS TYPES FOR CRC SECTIONS

Distress types to be rated on CRC sections are:

1. Spalled Cracks
2. Punchouts
3. Asphalt Patches
4. Concrete Patches
5. Average (transverse) Crack Spacing

The following general guidelines may prove helpful when rating CRC pavement sections:

1. Distances can be measured by using lane stripes. Lane stripes are typically 10' long with 30' of space between them. As a result, it is 40' from the beginning of one stripe to the beginning of the next stripe. This is especially helpful when checking for average crack spacing as well as when rating punchouts or concrete patches.

2. Bridge deck, culvert, cattle guard, or railroad track surfaces should not be rated. The length of these surfaces should be monitored so that the final rating values can be prorated over the entire section length.

3. Do not rate flexible pavement encountered within a CRC pavement section. If the total length of flexible pavement is greater than half the length of the section, the section should be rated as a flexible pavement section.

4. Do not rate JCP encountered within a CRC section. If the total length of JCP is greater than half the length of the section, the section should be rated as a JCP section.

SPALLED CRACKS

A spalled crack is a crack which has widened, showing signs of chipping on either side, along some or all of its length (Figure 5.1).

How to Rate

A spalled crack must display spalling (i.e. edge chipping or secondary cracking) of at least 1" wide (on either side) which covers more than 1' of the crack's total width across the lane. Rate only those transverse cracks that have spalled -- spalled longitudinal cracks should not be rated.

Acceptable Rating Values

Enter the total number of spalled cracks observed. Therefore, the possible range of rating values is 0-999.

Special Cases

1. A transverse crack with many localized spalled areas may be rated as a "spalled crack" if the total length of spalling is greater than 1'.

2. If a spalled area is filled with asphalt rate the area as a spalled crack. Do not rate the area as a patch.

3. Do not rate a spalled crack which has been adequately repaired with concrete unless the repair is spalled.
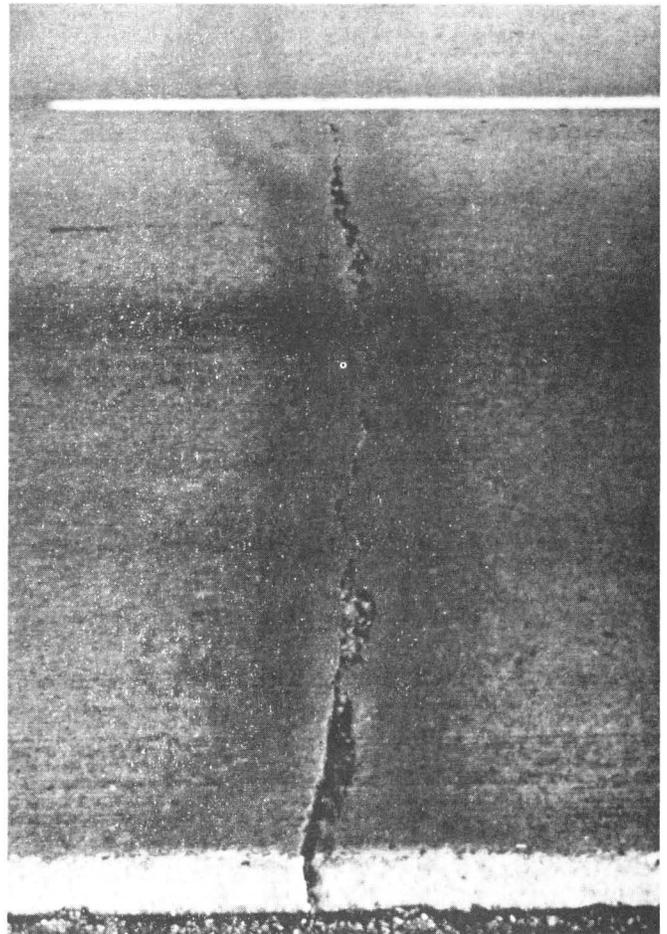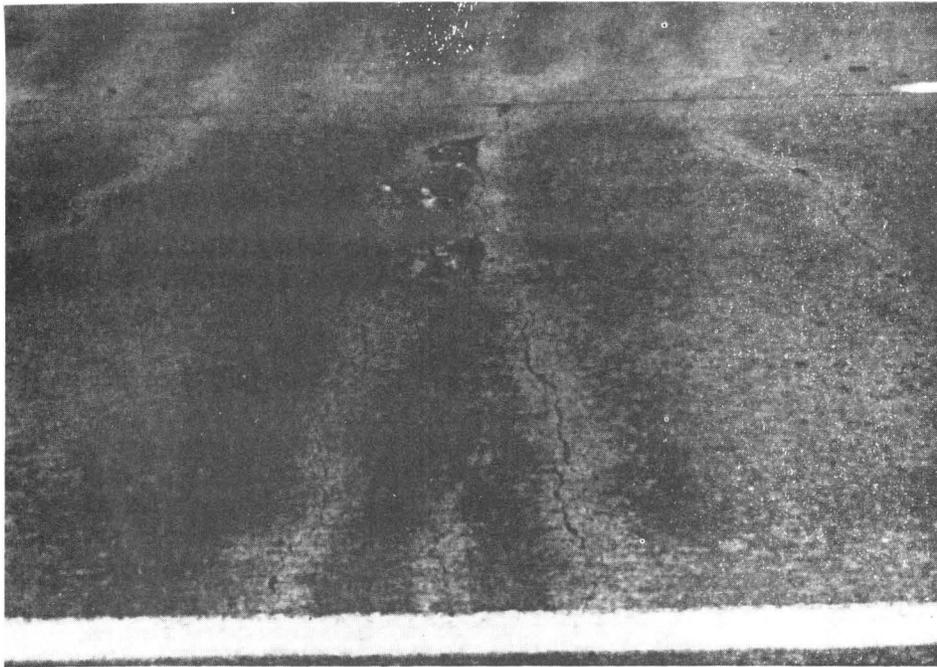
Figure 5.1 -- Spalled Cracks

PUNCHOUTS

A punchout is a block of pavement formed when one longitudinal
crack crosses two transverse cracks (Figure 5.2). Although usually
rectangular in shape, some punchouts may appear in other shapes.

How to Rate

Each of the boundaries of a punchout (except the slab edge, if
present) must exhibit either severe spalling or faulting. Load
transfer is the key to identifying severely spalled punchout edges
if it is obvious that the slab is not sustaining any of the traffic
load because of the crack, then that crack may be considered as
being severely spalled. If a punchout is observed to be longer
than 10', then rate one punchout for each 10' of length.

Acceptable Rating Values

Enter the total number of punchouts observed. Therefore, the
possible range of rating values is 0-999. However, due to the
severe nature of this distress type, PES will issue a warning
statement if more than 100 punchouts are entered on the rating
form. PES will not accept any rated section which contains more
than 200 punchouts.

Special Cases

1. If two spalled cracks join to form a triangular-shaped
    punchout, rate only the punchout. Do not rate the two spalled
    cracks.

2. If an asphalt or concrete patch area meets the criteria for
    rating as a punchout, rate the area as a punchout. Do not
    rate the area as a patch.

3. If an "old" punchout less than 10' long has deteriorated into
    smaller punchouts, such as shown in Figure 5.2, rate only the
    single "old" punchout. If the "old" punchout is greater than
    10' long, rate one punchout for every 10' of length.
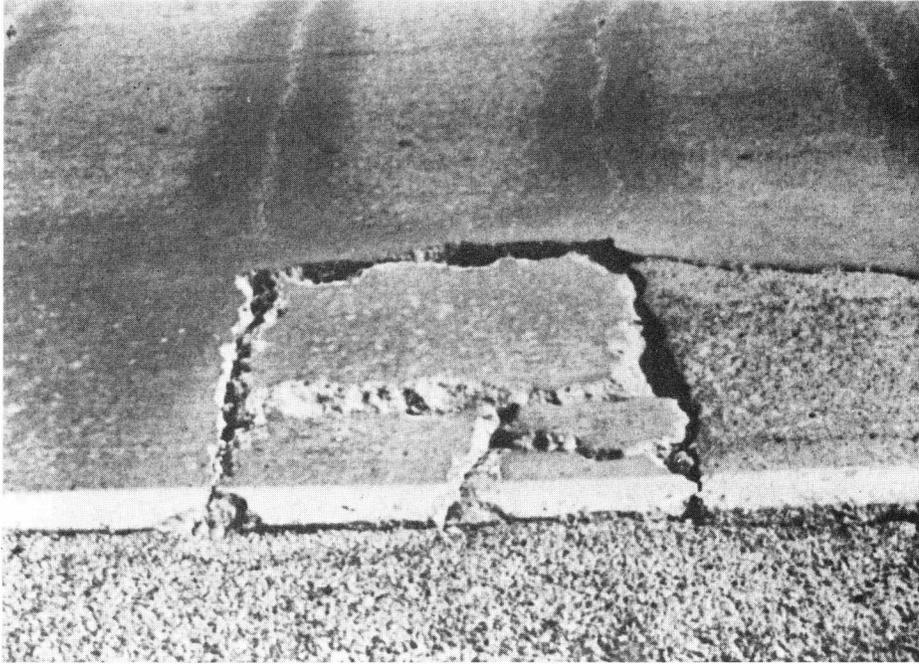
Figure 5.2 -- Punchout

ASPHALT PATCHES

An asphalt patch is a localized area of asphalt concrete which has been placed to the full depth of the surrounding concrete slab, as a method of correcting surface or structural defects (Figure 5.3).

How to Rate

Obviously it is impossible to determine the depth of a patch from a visual survey. Therefore, the following asphalt areas are not to be rated as asphalt patches:

* surface spalls or crack spalls
* overlays
* level-ups

Full-depth asphalt patches are usually cut into the slab, thus the patch is cleanly-shaped into either a square or a rectangle. The patch should be at least 8" long (the average depth of a CRC slab). Width of the patch should not be considered. However, long patches should be rated as one patch for every 10'. For example, a 15' asphalt patch should be rated as 2 asphalt patches.

Acceptable Rating Values

Enter the total number of asphalt patches observed. Therefore, the possible range of rating values is 0-999. However, due to the severe nature of this distress type, PES will issue a warning statement if more than 100 asphalt patches are entered on the rating form. PES will not accept any rated section which contains more than 200 asphalt patches.

Special Cases

1. If an asphalt patch contains a spalled crack, rate both the asphalt patch and the spalled crack.

2. If all of the edges of an asphalt patch exhibit spalling or faulting (i.e. meets the criteria for punchouts), rate the area as a punchout. Do not rate the area as an asphalt patch.

3. Keep track of the length covered by full-width asphalt level-ups and overlays. If the total length is greater than half of the section length, rate the entire pavement section as a flexible pavement.
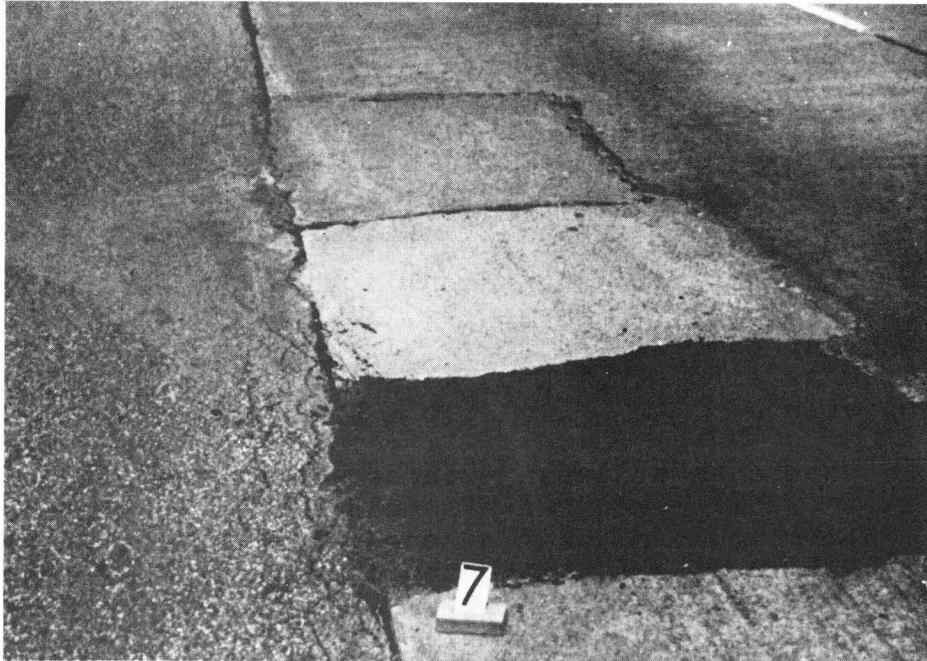
Figure 5.3 -- Asphalt Patch

CONCRETE PATCHES
_____

A concrete patch is a localized area of newer concrete which has
been placed to the full depth of the existing slab as a method of
correcting surface or structural defects (Figure 5.4).

How to Rate
_____

Obviously it is impossible to determine the depth of a patch from a
visual survey. However, full-depth concrete patches are usually
cut into the slab, thus the patch is cleanly-shaped into either a
square or a rectangle. Therefore, rate all cleanly-shaped square
or rectangular concrete patches. Irregularly-shaped areas may have
to be rated as either spalled cracks or punchouts, depending on
their appearance.

The patch should be at least 8 inches long (the average depth of a
CRC slab). Width of the patch should not be considered. However,
long patches should be rated as one patch for every 10'. For
example, a 15' concrete patch should be rated as 2 concrete
patches.

Acceptable Rating Values
_____

Enter the total number of concrete patches observed. Therefore,
the possible range of rating values is 0-999. However, due to the
severe nature of this distress type, PES will issue a warning
statement if more than 100 concrete patches are entered on the
rating form. PES will not accept any rated section which contains
more than 200 concrete patches.

Special Cases
_____

1.   If a concrete patch contains a spalled crack, rate both the
     concrete patch and the spalled crack.

2.   If all of the edges of a concrete patch exhibit spalling or
     faulting (i.e. meets the criteria for punchouts), rate the
     area as a punchout. Do not rate the area as a concrete patch.
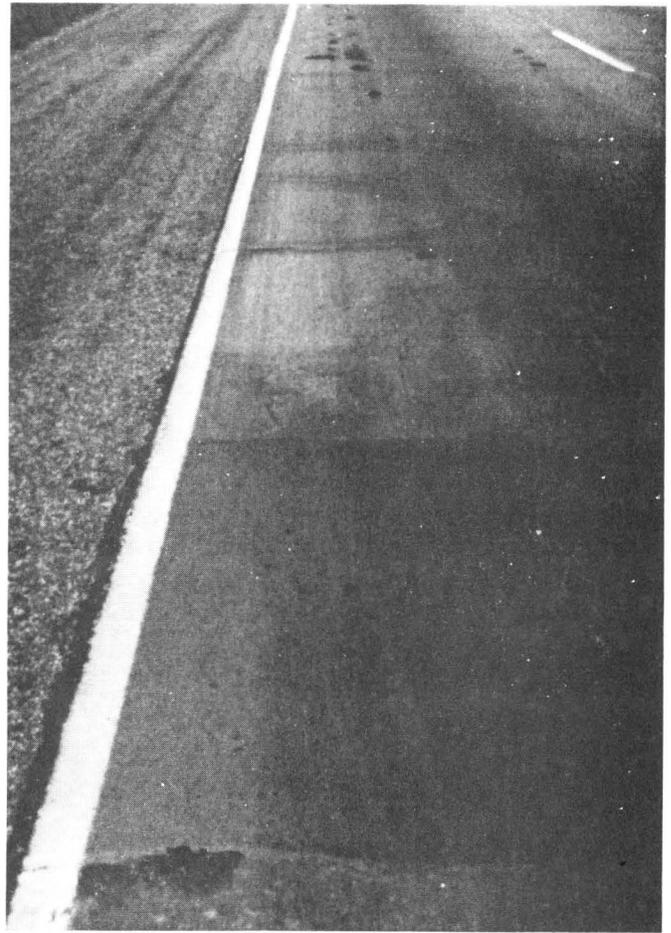
Figure 5.4 -- Concrete Patches

AVERAGE CRACK SPACING

Average crack spacing is not, in itself, a pavement distress type. It is rated as a method of obtaining the percentage of transverse cracks that are spalled. However, average crack spacing is valuable as a measure of whether or not the CRC slab is behaving as designed. A CRC section with a small average crack spacing may deteriorate rapidly into a series of small punchouts if the proper corrective measures are not applied.

How to Rate

Use the lane stripe as a guide in measuring average crack spacing. In general it is best to count the total number of transverse cracks observed in three 200' areas (beginning, middle, and end of section), and average the results.

Remember to count only transverse cracks.

Acceptable Rating Values

Do not enter an average crack spacing value greater than 75'. Values between 50' and 75' will receive a warning message.

Special Cases

None.

Chapter 6 -- DISTRESS TYPES FOR JCP SECTIONS

Distress types to be rated on JCP sections are:

1. Failed Joints and Cracks
2. Failures
3. Shattered (failed) Slabs
4. Slabs with Longitudinal Cracks
5. Concrete Patches
6. Apparent Joint Spacing

The following general guidelines may prove helpful when rating JCP sections:

1. Distances can be measured by using lane stripes. Lane stripes are typically 10' long with 30' of space between them. As a result, it is 40' from the beginning of one stripe to the beginning of the next stripe. This is especially helpful for checking apparent joint spacing or when measuring punchouts or concrete patches.

2. Bridge deck, culvert, cattle guard, or railroad track surfaces should not be rated. The length of these surfaces should be monitored so that the final rating values can be prorated over the entire section length.

3. Do not rate flexible pavement encountered within a JCP section. If the total length of flexible pavement is greater than half the length of the section, the section should be rated as a flexible pavement section.

4. Do not rate CRC pavement encountered within a JCP section. If the total length of CRC pavement is greater than half the length of the section, the section should be rated as a CRC pavement section.

FAILED JOINTS AND CRACKS

The distress type "failed joints and cracks" covers two major items: spalled joints or transverse cracks, and asphalt patches of spalled joints or transverse cracks (Figures 6.1-6.3).

How to Rate

A spalled crack is a crack which has widened, showing signs of chipping on either side, along some or all of its length. A spalled crack must display spalling (i.e. edge chipping or secondary cracking) of at least 1" wide (on either side) which covers more than 1' of the crack's total width across the lane. Rate only those transverse cracks or joints that have spalled -- spalled longitudinal cracks should not be rated as failed.

The following types of joints and cracks should not be rated as failed:

1. Faulted joints and cracks
2. Wide joints

Acceptable Rating Values

Enter the total number of failed joints and cracks observed. However, due to the severe nature of this distress type, sections with more than 175 failed joints and cracks will receive a warning message.

Special Cases

1. If a joint (or crack) has been patched with asphalt, it should be rated as a failed joint or crack.

2. If a joint (or crack) is spalled on both sides, rate the area as one failed joint (or crack).

3. Faulted joints should not be rated as failed unless they have spalled.

Figure 6.1 -- Failed Cracks
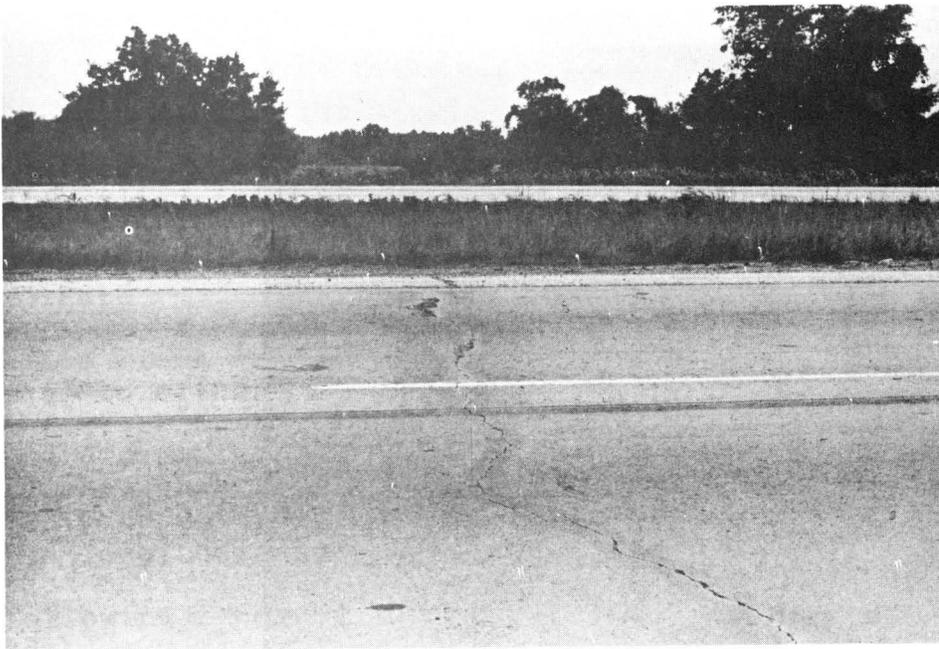
Figure 6.2 -- Failed Cracks (in far lane)
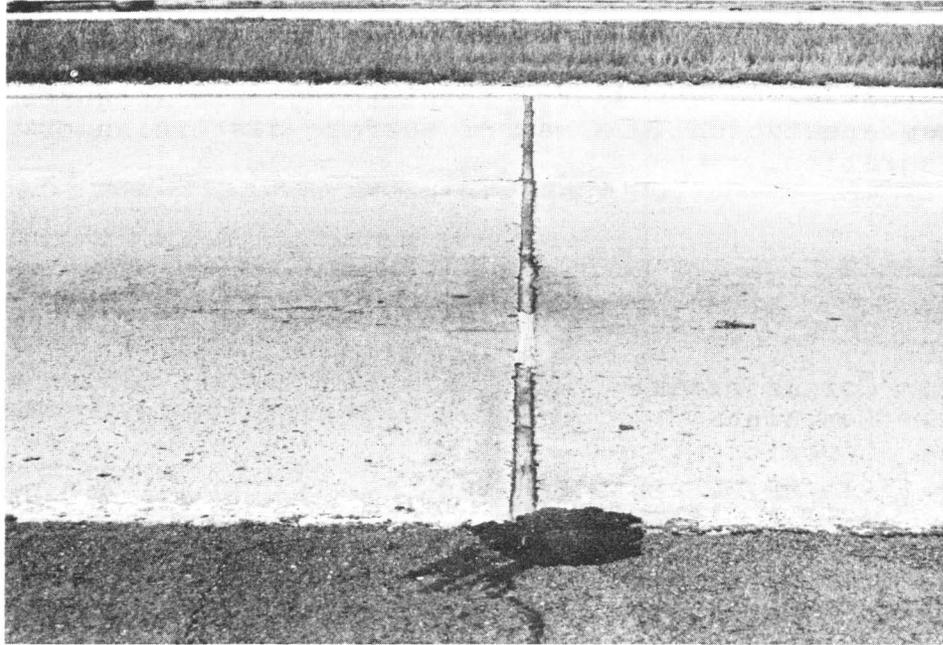
Figure 6.3 -- Wide Joint (not failed)

FAILURES

Failures are localized areas in which traffic loads do not appear to be transferred across the reinforcing bars (Figures 6.4-6.8). Failures are typically areas of surface distortion or disintegration.

How to Rate

The following distress types should be rated as "failures:"

1. Corner breaks
2. Punchouts
3. Asphalt patches
4. Failed concrete patches

A corner break is a crack (which may or may not be spalled) that travels from a joint to a slab edge. To be rated as a failure, the crack must intersect between 1' and halfway across each edge, as illustrated in Figure 6.4.

A punchout is a block of pavement formed when one longitudinal crack crosses two transverse cracks. Although usually rectangular in shape, some punchouts may appear in other shapes.

Each of the boundaries of a punchout (except the slab edge, if present) must exhibit either spalling or faulting. If a punchout is observed to be longer than 10', then rate one punchout for each 10' of length.

To be rated as a failure, an asphalt patch must be one of the following types:

1. Full-depth patch
2. Shallow-depth patch of a corner break or punchout
3. Asphalt patch more than 10" long, when used to repair a joint, transverse crack, or longitudinal crack

A full-depth asphalt patch is usually cut into the slab, thus the patch is cleanly shaped into either a square or a rectangle. Shallow-depth patches are usually irregularly shaped. Some of the asphalt may be shoved out of the patch, exposing the original concrete. Thin overlays and level-ups are not shallow-depth patches and thus should not be rated as failures.

Concrete patches which spalled or faulted around all edges should be rated as failures (punchouts) instead of as concrete patches.

If five or more failures appear on a slab, the slab may have to be rated as a "shattered slab."
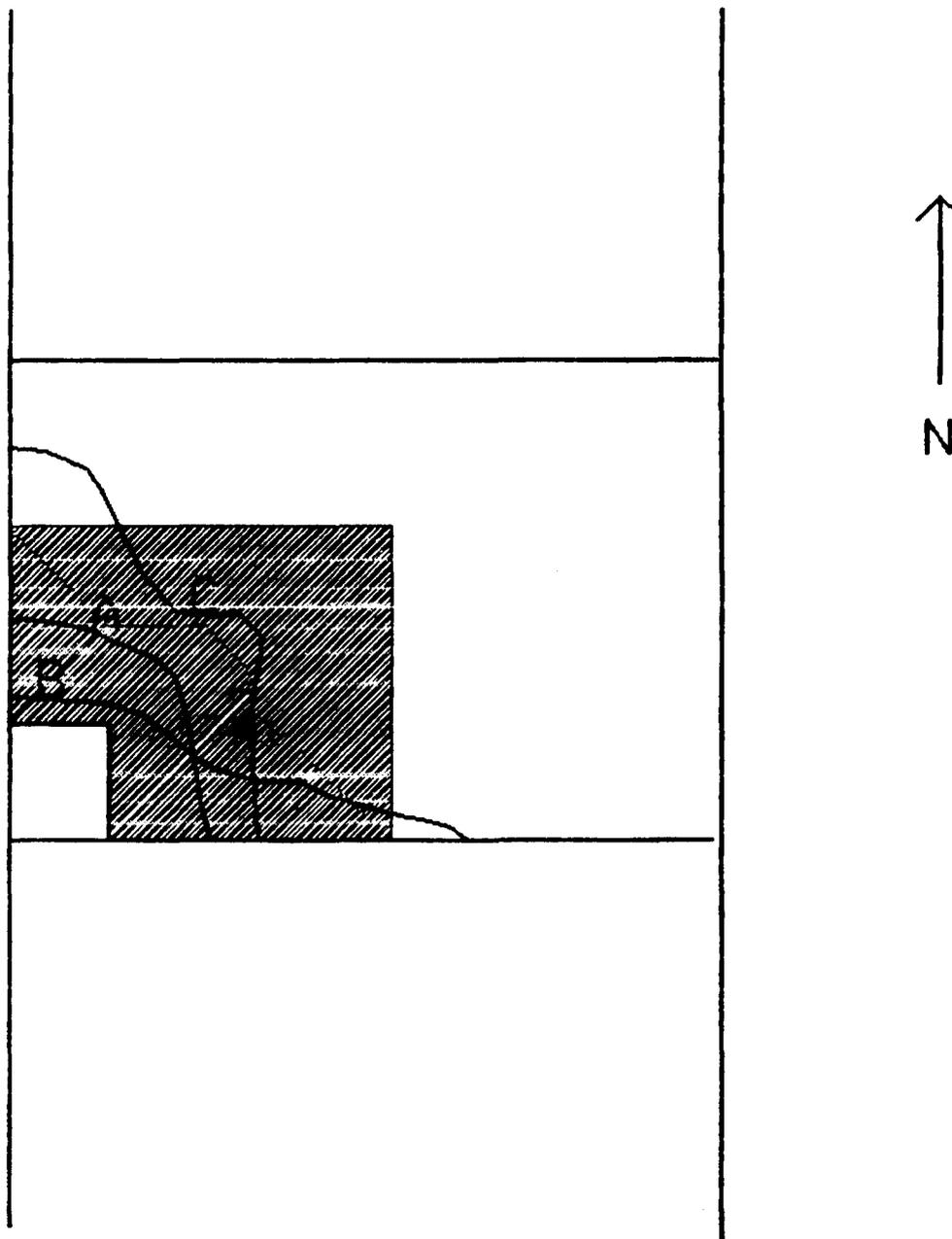
A = FAILURE (CORNER BREAK)

B = FAILED CRACK (IF SPALLED)

C = LONGITUDINAL CRACK

(DO NOT RATE UNLESS SEVERELY SPALLED)

Figure 6.4 -- Illustration of Corner Break
(and other similar cracks)
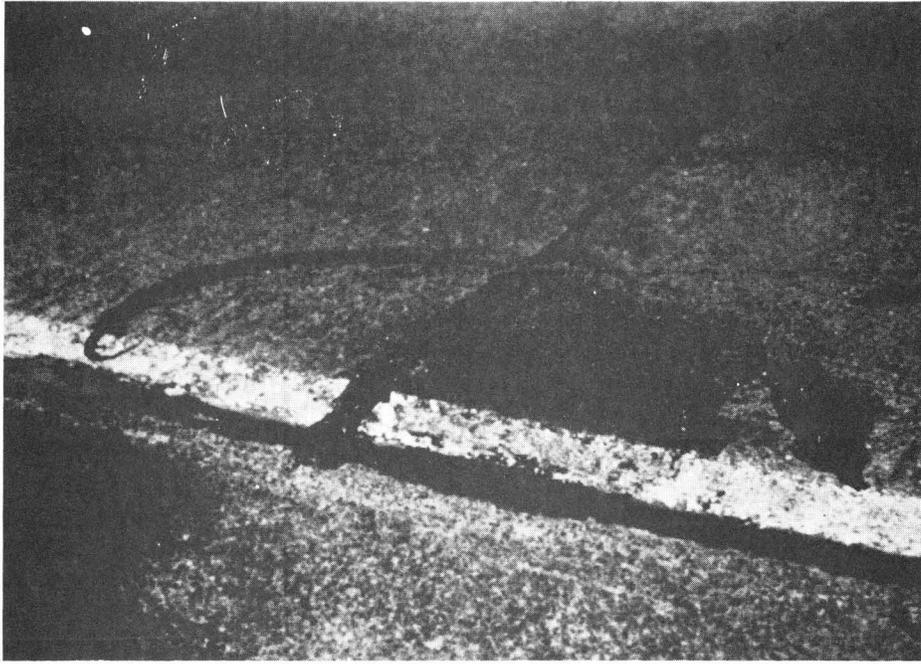
Figure 6.5 -- Failures (corner breaks)

Figure 6.6 -- Failures (asphalt patches)
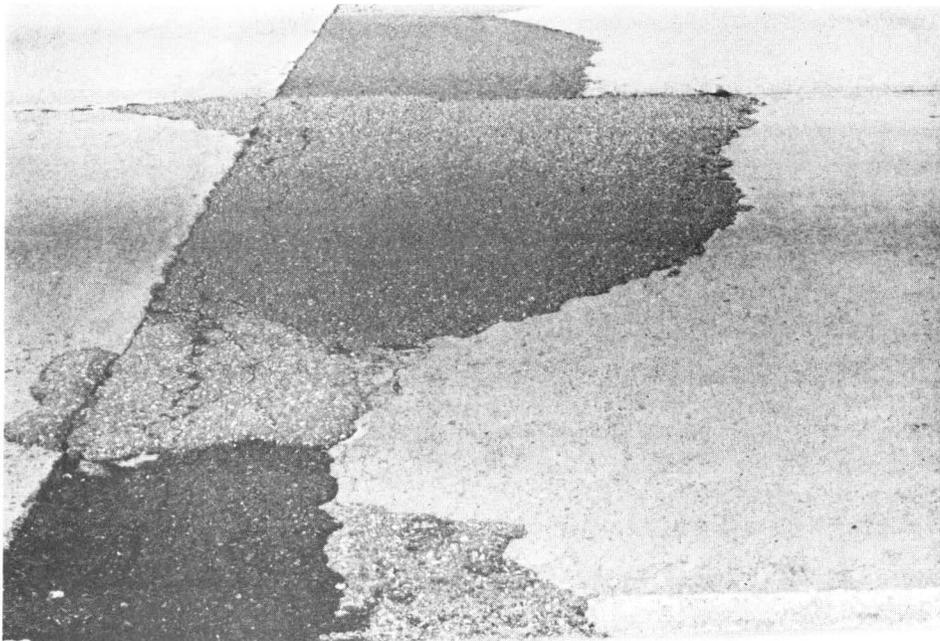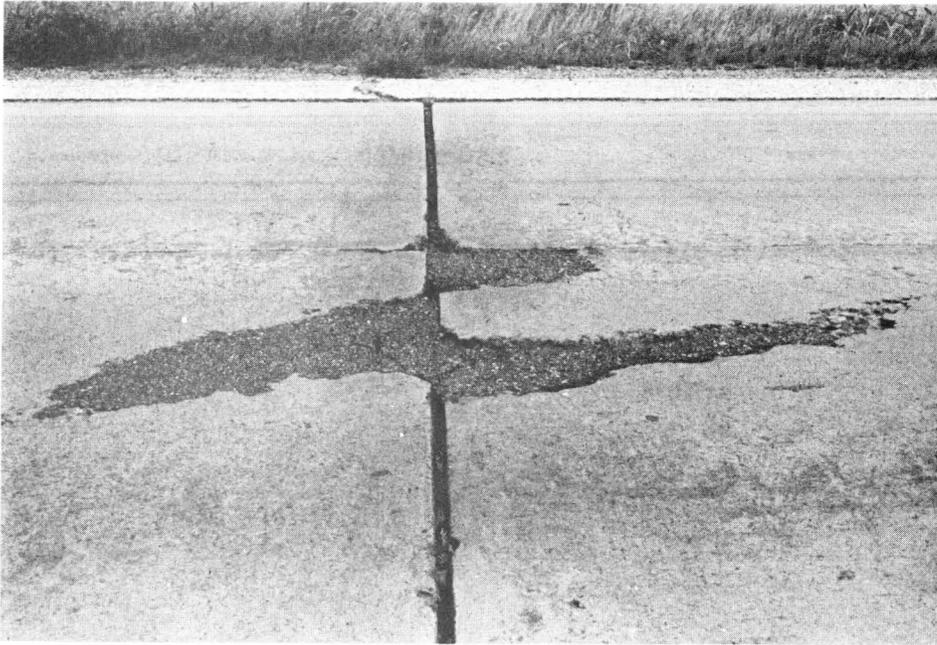
Figure 6.7 -- Multiple Failures
(three at top, four at bottom)
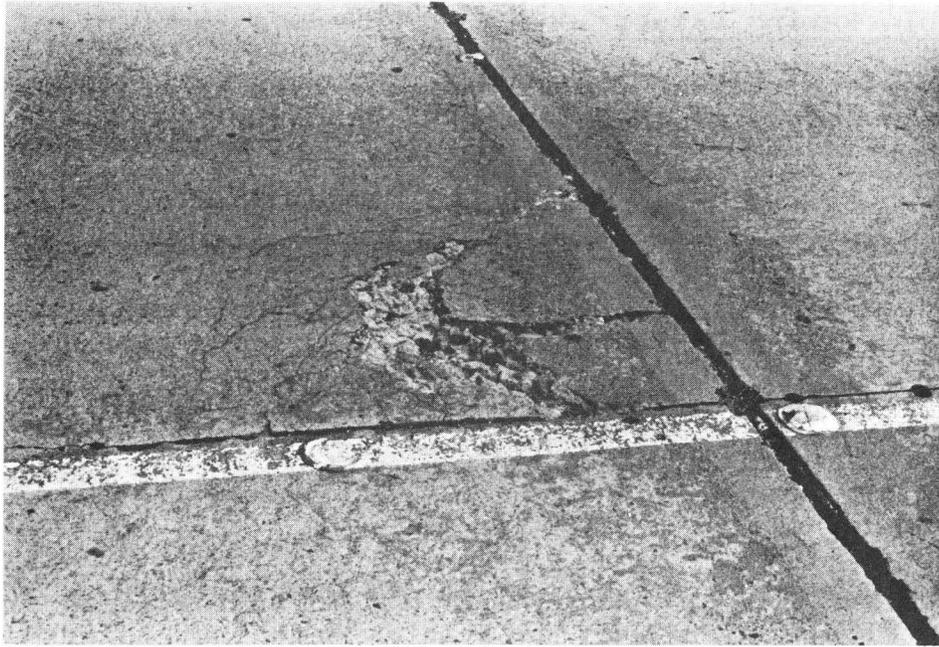
Figure 6.8 -- Failure (D-cracking)

Acceptable Rating Values

Enter the total number of failures observed in the section. Due to the severe nature of this distress type, PES will issue a warning message on any section which contains more than 75Ø failures.

Special Cases

1. If a corner break extends less than 1' on either edge, do not rate it as anything.

2. If a corner break extends more than halfway across the width of the slab, count it as a transverse crack. If such a transverse crack is spalled, rate it as a failed crack. If the area is spalled or faulted on all edges, the area is a punchout and should be rated as a failure.

3. If a corner break extends more than halfway down the length of the slab edge, do not rate it as anything, unless it is spalled or faulted -- then rate it as one slab with a longitudinal crack.
    If a joint has spalled on both slabs and both spalls are

4. patched with asphalt, rate the area as two failures (one for each slab) only if each patch is greater than 1Ø" long. If either patch is less than 1Ø" long, rate one failed joint and one failure. If both patches are less than 1Ø" long, rate one failed joint.

5. If a spalled crack has been patched with asphalt and the patch is more than 1Ø" long, rate the area as a failure. Do not rate the area as a failed crack.

6. If five or more failures are found on one slab, rate the slab as a shattered slab. Do not rate the individual failures.

7. If failures cover more than half of a slab's area, rate one shattered slab.

SHATTERED SLABS

A shattered slab is a slab which is so badly cracked that it warrants complete replacement (Figure 6.9).

How to Rate

If five or more failures are found, or if one or more failures cover more than half of a slab's area, rate the slab as a shattered slab. The following items should be considered as "failures:"

* Corner breaks
* Punchouts
* Asphalt patches
* Failed concrete patches

A failed concrete patch is a patch which displays the same cracking, spalling, or faulting as that defined for failures.

Acceptable Rating Values

Enter the total number of shattered slabs observed. PES will accept up to 999 shattered slabs, however entries greater than 175 will receive a warning message.

Special Cases

1. If five or more failed joints or cracks are found on a slab, rate the failed joints or cracks. Do not rate the slab as a shattered slab. Only failures should be considered when deciding if a slab is shattered.

2. If a shattered slab is found, do not rate any other distress type on that slab -- this includes failures.

Figure 6.9 -- Shattered Slab

SLABS WITH LONGITUDINAL CRACKS

A longitudinal crack is a crack which roughly parallels the roadway centerline (Figure 6.10).

How to Rate

If a severely spalled or faulted longitudinal crack travels from one joint to the next, for at least halfway down the length of a slab, rate the slab as having a longitudinal crack. "Severely spalled" means that the crack has chipped or cracked areas greater than 1" wide (on either side) for more than half of its length. "Faulted" means that one edge of the crack is one-quarter inch or more higher than the other edge. Therefore, a slab with longitudinal cracking must meet the following characteristics:

1. Slab must have at least one longitudinal crack greater than half the slab length travelling from apparent joint to apparent joint (or from an apparent joint to a longitudinal joint, as shown in Figure 6.4).

2. Longitudinal crack must either be severely spalled or faulted.

Acceptable Rating Values

Enter the total number of slabs observed with longitudinal cracking. Up to 999 slabs may be entered, however PES will issue a warning message if more than 175 slabs are entered.

Special Cases

1. If several small sections of a longitudinal crack are severely spalled, rate the slab as having a longitudinal crack if the sum of the severely spalled lengths adds up to more than half of the crack's length.

2. If a slab is divided into several smaller areas by "apparent" joints (i.e. cleanly-defined transverse cracks) and a longitudinal crack with severe spalling or faulting travels from one apparent joint to the next, rate the area as one slab with longitudinal cracking.

3. If a severely-spalled or faulted longitudinal crack does not reach from one apparent joint to the next, do not rate the slab as having a longitudinal crack, unless it intersects a longitudinal joint more than halfway down the slab's length.

4. If a longitudinal crack has been patched with asphalt, rate the asphalt area as a failure if the patch is greater than 10" wide. Even with the failure, the slab may still qualify for rating as having a longitudinal crack.

5. Meandering longitudinal cracks should be rated if: (a) the crack covers more than half of the slab length, and (b) the crack is severely spalled.

6. The number of longitudinal cracks in a slab does not affect the rating -- only one of the cracks must be full-length in order to qualify for rating as a slab with longitudinal cracking.

Figure 6.10 -- Slab with Longitudinal Crack

CONCRETE PATCHES

A concrete patch is a localized area of newer concrete which has been placed to the full depth of the existing slab as a method of correcting surface or structural defects (Figure 6.11).

How to Rate

Obviously it is impossible to determine the depth of a patch from a visual survey. However, full-depth concrete patches are usually cut into the slab, thus the patch is cleanly-shaped into either a square or a rectangle. Therefore, rate all cleanly-shaped square or rectangular concrete patches.

Length or width of the patch should not be considered. However, long patches should be rated as one patch for every 10'. For example, a 15' concrete patch should be rated as 2 concrete patches.

The following areas should NOT be rated as concrete patches:

* Level-ups and overlays
* Repaired spalls in good condition
* A patched corner break in good condition

If a concrete patch has spalled or faulted edges all the way around, it should be rated as a failure.

Acceptable Rating Values

Enter the total number of concrete patches observed, up to 999. However, PES will issue a warning message if more than 500 concrete patches are entered.

Special Cases

1. If a concrete patch crosses a joint or an apparent joint, and the joint remains, rate the area as two concrete patches. If the joint has been eliminated, rate the area as one concrete patch.

2. If an old concrete patch of a failed joint or crack is in bad condition, rate the area as a failed joint or crack. Do not rate the area as a concrete patch.

3. If one patch has obviously been placed adjacent to an older patch, rate the area as one concrete patch if the total length is less than 10'. If the area is longer than 10', rate one patch for every 10' of length.
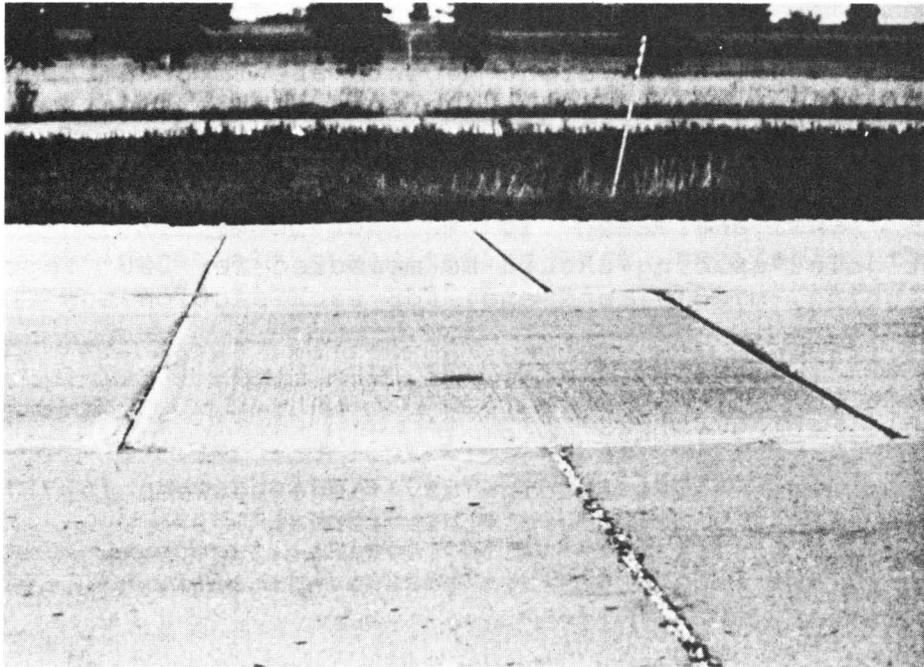
Figure 6.11 -- Concrete Patch

APPARENT JOINT SPACING

Some transverse cracks may become so wide that they look and act like joints. These "apparent" joints are important because they serve to divide the original slab into smaller units.

How to Rate

Apparent joint spacing should be measured for 200' three times (at the beginning, middle, and end) for each section and then averaging the results.

Acceptable Rating Values

Average apparent joint spacing may range between 15-75'. PES will not accept entries outside of this range.

Special Cases

None.

Chapter 7 -- Entering Visual Evaluation Data on Laptop Computers

There are four categories that have interactions with the use of the laptop computer for visual evaluation of the PES system. Each category is segregated into easy-to-follow step-by-step instructions. Should any additional instructions or questions that may arise, instructions and personal consultation are available through the Pavement and Permits Section of file D-18.

The four categories using the laptop computer are generally defined as follows:

1. Initialization - First and last time ordeal with initializing the internal systems of the laptop computer and the modem (provided a futuristic disaster does not occur). Also, the initialization of data cassette tapes to be used for PES visual evaluation data.

2. Loading - How to load the PES visual evaluation program from the cassette tape into the BASIC programming area.

3. Operation - A detailed example of how to use the PES visual evaluation program for all pavement types.

4. Transfer - Procedures and protocol used in transferring the PES visual evaluation data using a modem and telephone lines.

Initialization of the Laptop Computer, Modem and Micro Cassette Tape

Each subset of the initialization procedures should be followed separately, without relationship to each other. The occurrence and frequency of the initialization procedure will be described within each subset.

Laptop Computer

The following procedures need only to be followed once, unless the laptop computer's battery is removed or the computer's operating system is reset to its default mode.

TOP

Here
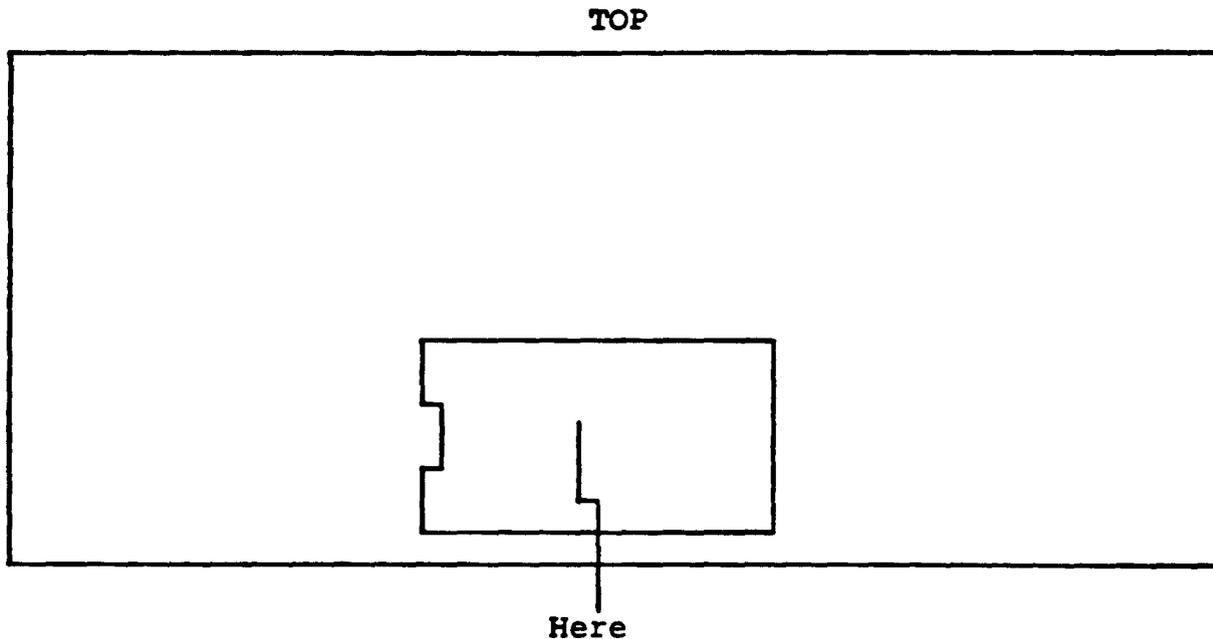
Each EPSON PX-8 Geneva laptop computer contains 2 ROM chip slots located on the underside of the computer. The example above identifies the location of the cover on the ROM chip slots. No special tools are needed to remove the ROM cover or the ROM chips.

When handling ROM chips, if possible, keep the ROM chips away from any type of static electricity. Static electricity can permanently damage ROM chips, causing them to never function properly again.

ROM 2   ROM 1
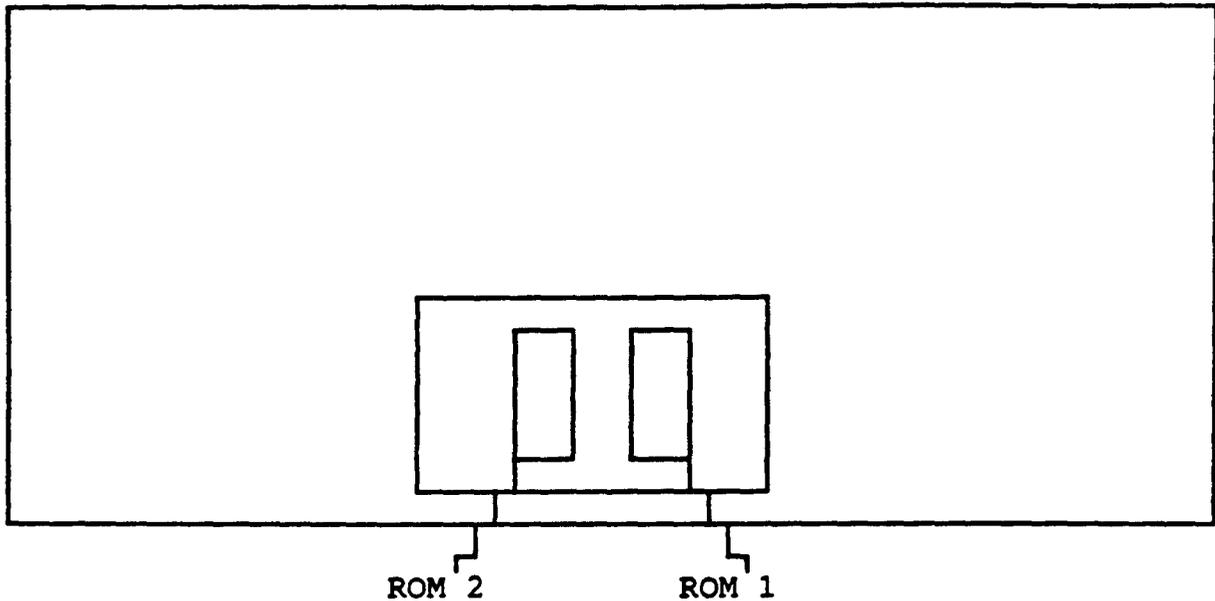
Pop the top off of the cover on the ROM chips, bend the silver cardboard back, and you should see the ROM slots or chips in the ROM slots. Make certain that ROM 1 contains the EPSON BASIC chip and ROM 2 contains the EPSON UTY (utility) chip. The above example shows the position and location of each ROM slot.

Should you need to change the chips, gently pull upward on the ears of each end of the ROM chip and remove it from the ROM slot.

Dimple

ROM
CHIP
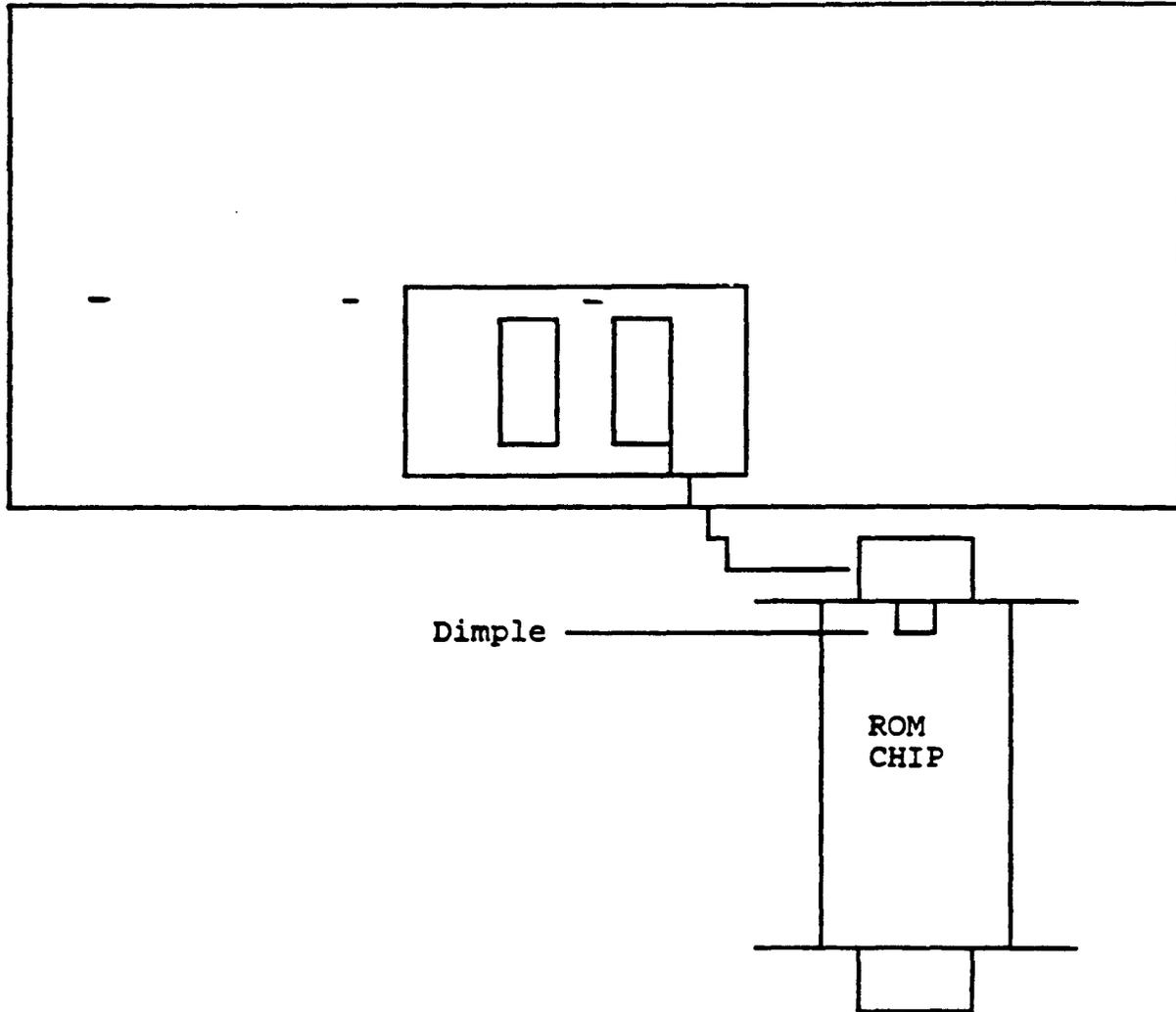
To place a ROM chip in a slot, position the chip in the ROM slot to
where the dimple in the chip is to the top of the computer (see above
example), and apply gentle downward pressure, until the ROM chip is
securely contained in the ROM slot. Do not force a ROM chip into the
ROM slot.

Place the silver cardboard over the ROM chips and replace the ROM chip
cover onto its position and snap it into place.

Flip the laptop computer right-side-up. Remove the keyboard cover and
unsnap and position the viewing screen to your desired viewing angle.
Locate the on-off switch on the right side of the computer. Turn the
computer on. An intensity adjustment is located on the bottom left of
the viewing screen. Should you have problems reading the characters
on the screen, adjust the intensity to where the characters are viewed
easily and clearly.

```
*** MENU screen ***   00/00/00 (SUN) 00:00:00  54.5k CP/M  ver 2.2 B PAGE 1/1
C:PIP
C:PIP      COM      C:STAT     COM      C:SUBMIT   COM      C:XSUB     COM
C:FILINK   COM      C:TERM     COM      C:CONFIG   COM      B:BASIC    COM
```

After you turn the computer on, the first screen that should appear on
the viewing screen is the MENU, like the one above. Use the burnt
orange arrow keys, located on the right side of the keyboard, and
position the flashing menu selection on the "C:CONFIG   COM" file and
press the "RETURN" key.

```
*** MAIN MENU ***                        CONFIG  V1.2
    Select alphanumeric or ESC to exit.
1=auto power off                         7=RAM disk
2=CP/M function key                      8=RS-232C
3=cursor & function key                  9=screen mode
4=date & time                            A=serial
5=disk drives                            B=user BIOS
6=printer                                C=country
```

The CONFIG file, above, has 12 possible selections.   The first
selection that we wish to choose is number 4 "date & time". We need
to set the system date and time to the current date and time.   Press
the "4" key and the computer should automatically select the "date &
time" function.

```
*** DATE & TIME ***
    Set date and time or ESC to return.
    Date as MM/DD/YY ?

Date              :  00/00/00  (SUN)
Time              :  00:00:00
```

The first prompt is to change the date. Type the current date in the
format given, where "MM" is the month, "DD" is the day and "YY" is the
year (example: 08/01/86/). Do not forget to type preceding zeros
where needed. Now press the "RETURN" key.

```
*** DATE & TIME ***
    Set date and time or ESC to return.
    Time as HH:MM:SS ?

Date                    :  00/00/00    (SUN)
Time                    :  00:00:00
```

The next prompt asks for the current time. Type the current 24 hour format time (where 1:00 pm is 13:00 hrs) in the given format, where "HH" is the hour, "MM" is the minute and "SS" is the second (example: 08:05:15). Again, do not forget preceding zeros where applicable. Now, press the "RETURN" key and the current time and date should appear. Press the "ESC" (escape) key, located at the top left of the keyboard, next to the red stop key.

```
*** MAIN MENU ***                       CONFIG   V1.2
    Select alphanumeric or ESC to exit.
1=auto power off                        7=RAM disk
2=CP/M function key                     8=RS-232C
3=cursor & function key                 9=screen mode
4=date & time                           A=serial
5=disk drives                           B=user BIOS
6=printer                               C=country
```

After you press the "ESC" key, you should return to the CONFIG selection menu above. Now, we want to assign the printer to the correct serial port. Press the "6" key for the printer selection. The next screen should automatically appear.

```
*** PRINTER ***
    Select number or ESC to return.

printer I/F       :RS-232C        1=RS-232C        2=serial
```

Select the "serial" port for the printer, by pressing the "2" key. Your selection should automatically update after you make your key entry. Now press the "ESC" key to return to the CONFIG menu screen.

```
*** MAIN MENU ***                         CONFIG  V1.2
    Select alphanumeric or ESC to exit.
1=auto power off                          7=RAM disk
2=CP/M function key                       8=RS-232C
3=cursor & function key                   9=screen mode
4=date & time                             A=serial
5=disk drives                             B=user BIOS
6=printer                                 C=country
```

The next selection we need to make is the RAM disk selection.   We
need to allocate space for the PES program, to be loaded later, by
changing the RAM disk space. Press the "7" to allocate the RAM disk
space, and the next screen should automatically appear.

```
*** RAM DISK ***
    Set RAM disk size or ESC to return.
    RAM disk size ?

RAM disk size        : 9  kb          Max. RAM disk size is 24 kb.
```

Type a "0" beside the "RAM disk size ?" prompt, and press the "RETURN"
key. If you are prompted with a question that says, "RAM disk files
will be destroyed (Y/N) ?", press the "Y" key. Now, press the "ESC"
key to return to the CONFIG menu screen.

```
*** MAIN MENU ***                         CONFIG  V1.2
    Select alphanumeric or ESC to exit.
1=auto power off                          7=RAM disk
2=CP/M function key                       8=RS-232C
3=cursor & function key                   9=screen mode
4=date & time                             A=serial
5=disk drives                             B=user BIOS
6=printer                                 C=country
```

We need to configure the RS-232C serial port for modem communication
protocol. Select the RS-232C option by pressing the "8" key.   The
next selection screen should automatically appear.

```
*** RS-232C ***
     Select alphanumeric or ESC to return.

bit rate   : 4800    1=19200   2=9600   3=4800    4=2400     5=1200     6=600
                     7=300     8=150    9=110     A=75/1200  B=1200/75  (Tx/Rx)
data bits  : 8       C=7       D=8
parity     : none    E=none    F=odd    G=even
stop bits  : 2       H=1       I=2
```

The first item we need to change is the bit rate. Press the "5" key
and the bit rate should automatically update to 1200.

The next item to change are the data bits. Press the "C" key and the
data bits should automatically update to 7.

Now, change the parity to even by pressing the "G" key.

Set the number of stop bits to 1 by pressing the "H" key.

The final updated RS-232C screen should look like the one below.   If
your screen does not match the screen below, go through the four steps
previously described above, until an exact match is accomplished.

```
*** RS-232C ***
     Select alphanumeric or ESC to return.

bit rate   : 1200    1=19200   2=9600   3=4800    4=2400     5=1200     6=600
                     7=300     8=150    9=110     A=75/1200  B=1200/75  (Tx/Rx)
data bits  : 7       C=7       D=8
parity     : even    E=none    F=odd    G=even
stop bits  : 1       H=1       I=2
```

After an exact match is accomplished, press the "ESC" key to
return to the CONFIG menu screen.

```
*** MAIN MENU ***                        CONFIG   V1.2
     Select alphanumeric or ESC to exit.
1=auto power off                         7=RAM disk
2=CP/M function key                      8=RS-232C
3=cursor & function key                  9=screen mode
4=date & time                            A=serial
5=disk drives                            B=user BIOS
6=printer                                C=country
```

Now we are to the last and final item. We need to change the serial port protocol. Press the "A" key to select the serial port, and the next menu screen should appear.

*** SERIAL ***
Select number or ESC to return.

bit rate (printer)   : 4800   1=4800   2=600   3=150

bit rate (FDD)   : 38400

Press the "1" key to select a bit rate of 4800 for the printer, and press the "ESC" key to return to the CONFIG menu screen.

*** MAIN MENU ***	CONFIG V1.2
Select alphanumeric or ESC to exit.	
1=auto power off	7=RAM disk
2=CP/M function key	8=RS-232C
3=cursor & function key	9=screen mode
4=date & time	A=serial
5=disk drives	B=user BIOS
6=printer	C=country

Press the "ESC" key again to return to the MENU screen.

This concludes the initialization procedure for the laptop computer.

Modem

The following procedures may not have to be performed, but a check is necessary. This procedure or check need only to be performed once.

The check or change you need to make to the modem is an internal change. Unplug all connections to the modem before attempting the following steps. A small screwdriver will be needed to open the cover of the modem.

Middle of the Seam   Front
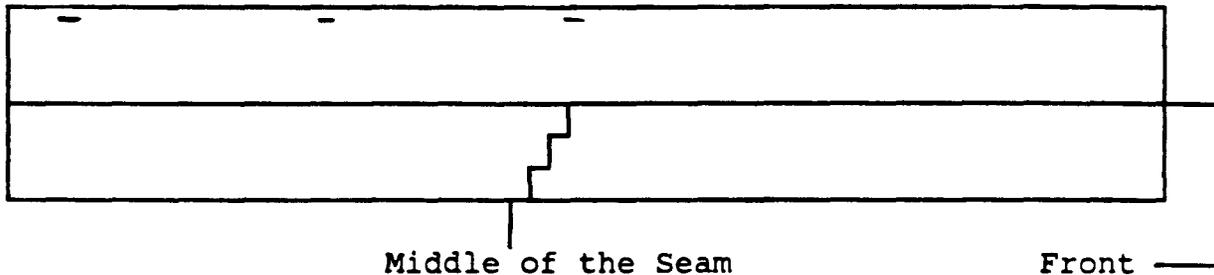
Position the modem to where the front of the modem is to your right. Place the blade of the small screwdriver in the middle of the seam and gently twist the screwdriver until the modem enclosure begins to open. Take the top of the modem enclosure completely off.

Red Switch Block
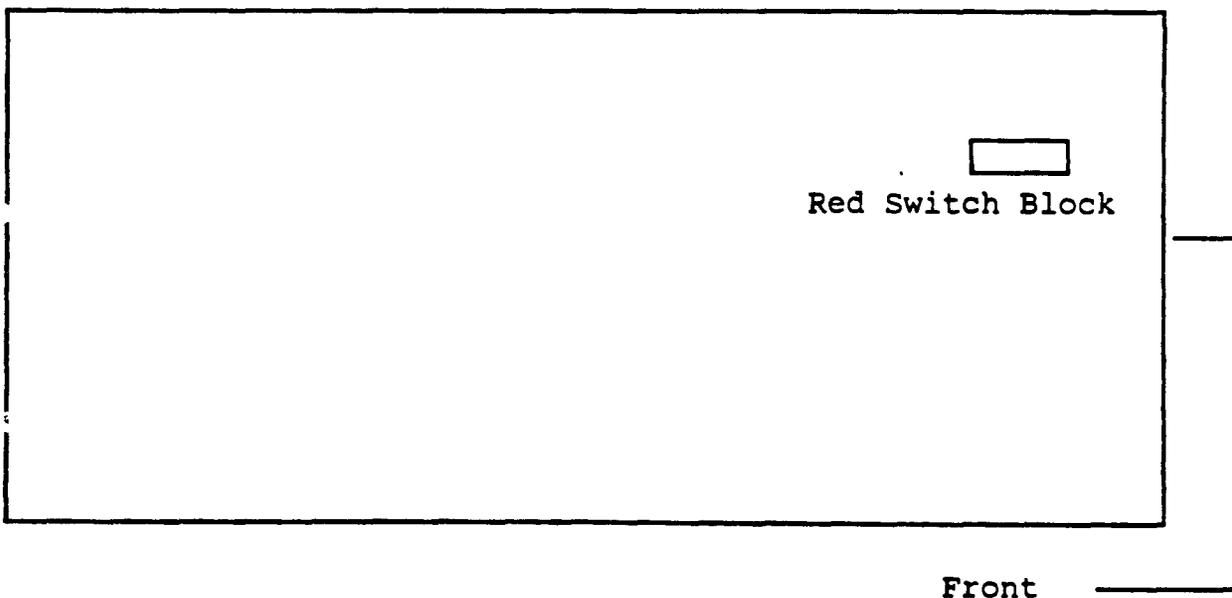
Front

Locate, inside, the red switch block, near the front of the modem. Each switch is labeled with a number. When making a switch setting change, do not use any type of metallic objects on the switch, a pencil will work very well. Set each switch to the following settings:

```
Switch #1 - Down
Switch #2 - Up
Switch #3 - Down
Switch #4 - Up
Switch #5 - Up
Switch #6 - Up
Switch #7 - Up
Switch #8 - Down
```

Now that you have checked and/or changed the switch settings, place the top cover on the modem and snap it into place.

This concludes the initialization and check of the modem.

Micro Cassettes

The following procedures apply only to new or unused micro cassettes. These procedures need only to be used once per side of a new or unused micro cassette. The laptop computer is required in the initialization of the cassettes.

Remove the keyboard cover from the laptop computer, flip the viewing screen up, and turn the laptop computer on. Hold down the "CTRL" (control) key (located at the left-center of the keyboard) and press the "HELP" key (located at the top of the keyboard). This will activate the SYSTEM DISPLAY screen.

********** LOOP **********

```
*** SYSTEM DISPLAY ***     08/01/86 (FRI) 08:00:00           <MENU>   <PASSWORD>

<RAM   DISK> 000   kb      <AUTO START>
<USER  BIOS> 000X256 b     <MCT   MODE>    stop,  nonverify <COUNT>   00182
<MENU DRIVE> ICBA          <MENU FILE> 1 .COM    2 .       3 .       4 .
- Select number or ESC to exit.
    1=password 2=alarm/wake  3=auto start  4=menu  5=MCT
         /remove          /               /               /               /
```

If your screen displays the bottom line, like the one above, proceed with this step, otherwise go to the next step.

Hold down the "SHIFT" key and press the "PF1" key (located at the top of the keyboard). You will then be prompted with the question "-Tape remove (Y/N)?". Press the "Y" key and the micro cassette tape player will write the updated or current directory to the tape that is currently in the tape player. The SYSTEM DISPLAY screen should reappear like the one below.

```
*** SYSTEM DISPLAY ***     08/01/86 (FRI) 08:00:00           <MENU>   <PASSWORD>

<RAM   DISK> 000   kb      <AUTO START>
<USER  BIOS> 000X256 b     <MCT   MODE>    stop,  nonverify <COUNT>   00182
<MENU DRIVE> ICBA          <MENU FILE> 1 .COM    2 .       3 .       4 .
- Select number or ESC to exit.
    1=password 2=alarm/wake  3=auto start  4=menu  5=MCT
      <<- /              <- /mount       __ /dirinit    ->> /erase   ooo /
```

Remove any micro cassette that was in the micro cassette tape player, and place the new or unused micro cassette in the tape player. Hold down the "SHIFT" key and press the "PF3" key (located at the top of the keyboard). You will then be prompted with a question "-Tape dirinit (Y/N)?". Press the "Y" key and the tape player will start

initializing a directory on one side of the micro cassette. After the
tape has initialized on one side, hold down the "SHIFT" key and press
the "PF1" key (located at the top of the keyboard). You will then be
prompted with the question "-Tape remove (Y/N)?". Press the "Y" key
and the micro cassette tape player will write the new directory to the
side of the tape that is in the tape player. The SYSTEM DISPLAY
screen should reappear like the one below.

```
*** SYSTEM DISPLAY ***    08/01/86 (FRI) 08:00:00        <MENU>   <PASSWORD>

<RAM    DISK> 000    kb    <AUTO START>
<USER  BIOS> 000X256 b    <MCT   MODE>    stop,  nonverify <COUNT>  00182
<MENU DRIVE> ICBA         <MENU  FILE> 1 .COM    2 .      3 .      4 .
- Select number or ESC to exit.
  1=password  2=alarm/wake  3=auto start  4=menu  5=MCT
   <<- /                <- /mount       __ /dirinit    ->> /erase    ooo /
```

Remove the micro cassette currently in the micro cassette drive. Flip
the micro cassette tape and place it back into the micro cassette tape
player. Hold down the "SHIFT" key and press the "PF3" key (located at
the top of the keyboard). You will then be prompted with a question
"-Tape dirinit (Y/N)?". Press the "Y" key and the tape player will
start initializing a directory on the other side of the micro
cassette.

If you wish to initialize another tape, go to the label
"********** LOOP **********" (on Page VII-12) and continue following
the directions from there.

After you have initialized all of the tapes you wish to initialize,
press the "ESC" key, and you should return to the MAIN MENU selection.

This concludes the micro cassette tape initialization.

Loading the PES Visual Evaluation Program

The PES visual evaluation program only needs to be loaded once, unless a program is activated from the MAIN MENU other than BASIC, the laptop computer's battery is removed, or the computer's operating system is reset to its default mode.

To load the PES visual evaluation program, you first need to remove the keyboard cover from the laptop computer, flip the viewing screen up, and turn the laptop computer on.

*** MENU screen ***	08/01/86	(FRI)	08:00:00	54.5k CP/M	ver 2.2 B PAGE 1/1	
C:PIP						
C:PIP	COM	C:STAT	COM	C:SUBMIT	COM	C:XSUB	COM
C:FILINK	COM	C:TERM	COM	C:CONFIG	COM	B:BASIC	COM

Position the flashing menu selection on the "B:BASIC   COM" file by using the burnt orange arrow keys on the right side of the keyboard. Press the "RETURN" key, and wait a moment for the BASIC program to boot.

```
EPSON BASIC ver-1.0 (C) 1977-1983 by Microsoft and EPSON
Move cursor, RETURN to run or SPACE to login.
        P1:             0 Bytes
        P2:             0 Bytes
        P3:             0 Bytes
        P4:             0 Bytes
        P5:             0 Bytes
            23965 Bytes Free
```

The next screen should look like the one above. Press the "RETURN" key and you will be in the BASIC programming area.

```
EPSON BASIC ver-1.0 (C) 1977-1983 by Microsoft and EPSON
23965 Bytes Free
P1:          0 Bytes
Ok
```

     auto /load"   list /save"   edit /system   stat /menu<_ run<_/login

---

Place the micro cassette, labeled "PES.BAS", into the micro cassette
tape drive. Hold down the "SHIFT" key and press the "PF1" key, and
the 'load"' phrase should appear on the screen, just below the "Ok".
Now, type "H:PES.BAS" (without the quotes) and press the "RETURN" key.
The PES visual evaluation program should start loading in the BASIC
programming area.

After the program has loaded, type "REMOVE" (without the quotes) and
press the "RETURN" key, and remove the PES.BAS micro cassette and keep
in a safe place.   Type "SYSTEM" (without the quotes) and you should
return to the MAIN MENU. Notice, the menu has changed. You have now
add a new item to the menu called "BASIC   (resident)" (see example
below).

```
*** MENU screen ***   08/01/86 (FRI) 08:00:00   54.5k CP/M   ver 2.2 B PAGE 1/1
C:PIP
BASIC    (resident) C:PIP       COM       C:STAT     COM       C:SUBMIT   COM
C:XSUB     COM       C:FILINK    COM       C:TERM     COM       C:CONFIG   COM
B:BASIC    COM
```

You have concluded the procedures in loading the PES visual evaluation
program.
```

## Running and Operating the PES Visual Evaluation Program

After the PES visual evaluation program has been loaded into the computer, you can access it and run it without any problem. Make certain that an initialized micro cassette tape, used only for PES data collection purposes, is in the micro cassette tape drive. Also, make sure the "CAPS" light is on by pressing the "CAPS LOCK" key, left of the space bar.

---

```
*** MENU screen ***   08/01/86 (FRI) 08:00:00  54.5k CP/M  ver 2.2 B PAGE 1/1
C:PIP
BASIC    (resident) C:PIP     COM      C:STAT    COM      C:SUBMIT   COM
C:XSUB   COM        C:FILINK  COM      C:TERM    COM      C:CONFIG   COM
B:BASIC  COM
```

First, turn the laptop computer on, and select the "BASIC (resident)" file ,by using the burnt orange arrow keys, and press the "RETURN" key.

```
EPSON BASIC ver-1.0 (C) 1977-1983 by Microsoft and EPSON
Move cursor, RETURN to run or SPACE to login.
        P1:PES       12226 Bytes
        P2:              0 Bytes
        P3:              0 Bytes
        P4:              0 Bytes
        P5:              0 Bytes
           23965 Bytes Free
```

Position the cursor beside the "P1" programming area (see example above), and press the "RETURN" key. The program should automatically begin to run. If any PES data was collected previously, the program will begin reading the lines of collected data and display the number of lines read. If no PES data was collected previously, the program creates the new PES.DAT file. The program then displays the type of pavement menu screen or the option to exit the program.

The next set of examples and instructions are going to be divided into three separate parts, by pavement type. Each data entry request will be prompted with special characters and the length of the field will be specified by the number of special characters ($$$ - identifies an alphanumeric field of length 3 and ### - identifies a numeric field of length 3).

Flexible Pavements

After the PES visual input program initializes, it then displays its menu selection (like the one below).

*** PAVEMENT RATING FORM ***

    (F)LEXIBLE PAVEMENT
    (C)ONTINUOUS PAVEMENT
    (J)OINTED PAVEMENT
    (E)XIT PROGRAM
SELECT (F,C,J,E)? $

    auto /load"   list /save"   edit /system   stat /menu<_   run<_/login

---

To select a Flexible Pavement Rating Form, press the "F" key and then press the "RETURN" key.

*** FLEXIBLE PAVEMENT ***
MMSE1

1) DISTRICT NO.: ##

    auto /load"   list /save"   edit /system   stat /menu<_   run<_/login

---

The program displays rater entered information on the top two lines, just below the title. You will notice that the system identifier (MMS) and the transaction identifier (E1) are automatically written by the program.

The program is now waiting for the rater to enter the District number. An entry of any number 01-25 except 22 with lead zero for numbers 01-09.

Enter the District number and press the "RETURN" key.

*** FLEXIBLE PAVEMENT ***
MMSE1

1) DISTRICT NO.: 01
2) NAME OF RATER 1: $$$$$$$$$$$$$$$$$$$$$$$$$

    auto /load"   list /save"   edit /system   stat /menu<_   run<_/login

---

The next field is the Name of Rater 1. The name of the first of two
raters is entered here. This field cannot be left blank; initials are
allowed.

Enter the Name of Rater 1 and press the "RETURN" key.

*** FLEXIBLE PAVEMENT ***

MMSE1

1) DISTRICT NO.: 01
2) NAME OF RATER 1: JOHN DOE
3) NAME OF RATER 2: $$$$$$$$$$$$$$$$$$$$$$$$

auto /load"   list /save"   edit /system   stat /menu<_   run<_/login

---

The next field is the Name of Rater 2. The name of the second of two
raters is entered here. This field cannot be left blank; initials are
allowed.

Enter the Name of Rater 2 and press the "RETURN" key.

*** FLEXIBLE PAVEMENT ***

MMSE1

1) DISTRICT NO.: 01   4) DATE: MMDDYY
2) NAME OF RATER 1: JOHN DOE
3) NAME OF RATER 2: JOHN DOE JR.

auto /load"   list /save"   edit /system   stat /menu<_   run<_/login

---

The Date is the next field.   Any valid date is allowed. Date cannot
exceed the current date. The given format is MM for month, DD for day
and YY for year.   The month can be any number from 01-12 with lead
zero. The day can range from 01-31 (based on month) with lead zero.
The year must not exceed this year.

Type in the Date (example: 080186 for 08/01/86) and press the
"RETURN" key.

```
                         *** FLEXIBLE PAVEMENT ***
MMSE1

1) DISTRICT NO.: 01                              4) DATE: 080186
2) NAME OF RATER 1: JOHN DOE
3) NAME OF RATER 2: JOHN DOE JR.
IS THIS LIST CORRECT (Y/N)? $
   auto /load"      list /save"      edit /system    stat /menu<_  run<_/login
```

The computer now prompts you if your entries are correct. Check the entries and make certain everything is correct.

If there are any changes press the "N" key and press the "RETURN" key. You will then be prompted with "INPUT ITEM NUMBER TO BE CORRECTED ?". Type the number of the item to be corrected, 1-4, and press the "RETURN" key. Make the change to the item that you selected and press the "RETURN" key.

If there are no changes, then press the "Y" key and press the "RETURN" key.

```
                         *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE          JOHN DOE JR.          080186
MMSE2
1) COUNTY NO.: ###


   auto /load"      list /save"      edit /system    stat /menu<_  run</login
```

Notice the first line below the title updated. All of the information that you entered is now displayed on this line in a packed format. Also, the computer automatically started the second line by writing the system (MMS) and transaction (E2) identifiers.

The next item is the County number. Numbers from 001-254 are valid with lead zero(s). County must be within District supplied above. Obtain County number from Rater's R01 Report.

Type in the County number and press the "RETURN" key.

```
                       *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE            JOHN DOE JR.          080186
MMSE2
1) COUNTY NO.: 060
2) FOREMAN NO.: ##


   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The Foreman number (aka: Maintenance Section) is the next field to
complete. Numbers from 01-99 are valid with lead zero. Obtain
Foreman number from Rater's R01 report.

Enter the Foreman number and press the "RETURN" key.

```
                       *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE            JOHN DOE JR.          080186
MMSE2
1) COUNTY NO.: 060
2) FOREMAN NO.: 03
3) HIGHWAY PREFIX: $$

   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The next prompt asks for the Highway Prefix. The prefixes IH, US, SH,
FM, and PR are valid. Note that RM, RR, RE, ... are considered FM.

Type in the Highway Prefix and press the "RETURN" key.

```
                       *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE            JOHN DOE JR.          080186
MMSE2
1) COUNTY NO.: 060
2) FOREMAN NO.: 03
3) HIGHWAY NO.: ####

   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

In the same place, you are prompted for the Highway number. Any
number from 0001-9999, with lead zero(s), are valid, plus 0OSR and
NASA.

Input the Highway number, and press the "RETURN" key.

```
                        *** FLEXIBLE PAVEMENT ***
MMSE1Ø1JOHN DOE              JOHN DOE JR.            Ø8Ø186
MMSE2
1) COUNTY NO.: Ø6Ø
2) FOREMAN NO.: Ø3
3) HIGHWAY SUFFIX: $

   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

In the same place again, you are prompted for the Highway Suffix. Values blank, A, S, E, W, and N for non-PR routes and blank, A-Z for PR routes are valid entries.

Type in the suffix and press the "RETURN" key.

```
                        *** FLEXIBLE PAVEMENT ***
MMSE1Ø1JOHN DOE              JOHN DOE JR.            Ø8Ø186
MMSE2
1) COUNTY NO.: Ø6Ø            4) BEGINNING MP: ###$##
2) FOREMAN NO.: Ø3
3) HIGHWAY NO.: FM ØØ64

   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The Beginning Milepost is the next field to complete. Copy the information supplied on the Rater's RØ1 Report. Under the MILEPOST and DISPLACEMENT (VALUE) sub-fields, insure use of lead zeros. The three sub-fields are:

   Milepost. Numeric values ØØØ-999 are valid.

   Displacement (Sign). Only special characters '+' and '-' are allowed.

   Displacement (Value). Note imbedded decimal point. Values ØØ-99 (Ø.Ø-9.9) are valid.

   Type the Beginning Milepost and press the "RETURN" key.

```
                    *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE            JOHN DOE JR.          080186
MMSE2
1) COUNTY NO.: 060        4) BEGINNING MP: 008+00
2) FOREMAN NO.: 03        5) ENDING MP: ###$##
3) HIGHWAY NO.: FM 0064

   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The next field is the Ending Milepost. Copy the information supplied on the Rater's R01 Report. Under the MILEPOST and DISPLACEMENT (VALUE) sub-fields, insure use of lead zeros. Refer to the description of the beginning milepost (previous) for valid data entry.

Enter the Ending Milepost and press the "RETURN" key.

```
                    *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE            JOHN DOE JR.          080186
MMSE2
1) COUNTY NO.: 060        4) BEGINNING MP: 008+00
2) FOREMAN NO.: 03        5) ENDING MP: 010+00
3) HIGHWAY NO.: FM 0064   6) LANE: $

   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The Lane descriptor is the next field to complete. Of the fields under the LOCATION, only lane is left for the Visual Evaluation Rater(s) to determine. Any valid lane identifier for the facility is allowed. Lanes are described as:

Main Lanes

```
    Lane L (outside lane against increasing mileposts).
         M (to the left of L and against increasing posts).
         N (to the left of M and against increasing posts).
         O (to the left of N and against increasing posts).
         P (to the left of O and against increasing posts).
    Lane V (to the left of U and with increasing posts).
         U (to the left of T and with increasing posts).
         T (to the left of S and with increasing posts).
         S (to the left of R and with increasing posts).
         R (outside lane with increasing mileposts).
```

Frontage Road Lanes

```
    Lane X (outside lane against increasing mileposts).
         Y (to the left of X and against increasing posts).
```

```
                   Z (to the left of Y and against increasing posts).
        Lane  C (to the left of B and with increasing posts).
              B (to the left of A and with increasing posts).
              A (outside lane with increasing mileposts).
```

Type in the Lane and press the "RETURN" key.

```
                        *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE               JOHN DOE JR.              080186
MMSE2
1) COUNTY NO.: 060        4) BEGINNING MP: 008+00
2) FOREMAN NO.: 03        5) ENDING MP: 010+00
3) HIGHWAY NO.: FM 0064   6) LANE: R
IS THIS LIST CORRECT (Y/N)? $
   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The computer now prompts you if your entries are correct. Check
the entries and make certain everything is correct.

If there are any changes press the "N" key and press the "RETURN" key.
You will then be prompted with "INPUT ITEM NUMBER TO BE CORRECTED ?".
Type the number of the item to be corrected, 1-6, and press the
"RETURN" key. Make the change to the item that you selected and press
the "RETURN" key.

If there are no changes, then press the "Y" key and press the "RETURN"
key.

```
                        *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE               JOHN DOE JR.              080186
MMSE206003FM0064 008+00010+00R
1) RUTTING: ###



   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

Notice the second line below the title updated. All of the
information that you entered is now displayed on this line in a packed
format.

The next field to complete is the Rutting category. For detailed
coding information, refer to Chapter 4. Valid code values are:

```
        000 - No rutting or rutting under 0.5 inches.
        100 - 0.5-1.0 inches, 01-25 percent of wheel path area.
        010 - 0.5-1.0 inches, 26-50 percent of wheel path area.
```

001 - 0.5-1.0 inches, over 50 percent of the wheel path
                              area.
                    200 - Over 1.0 inches, 01-25 percent of the wheel path
                              area.
                    020 - Over 1.0 inches, 26-50 percent of the wheel path
                              area.
                    002 - Over 1.0 inches, over 50 percent of the wheel path
                              area.

        Enter the Rutting value and press the "RETURN" key.

_____
                         *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE   JOHN DOE JR.   080186
MMSE206003FM0064 008+00010+00R
1) RUTTING: 000
2) PATCHING: ###

   auto /load"   list /save"   edit /system   stat /menu<_ run<_/login
_____

        The next field to complete is the Patching category. For detailed
        coding information, refer to Chapter 4. Valid code values are:

                    000 - No patches or under 1 percent of lane surface area
                          patched.
                    100 - 01-10 percent of lane surface area patched.
                    010 - 11-50 percent of lane surface area patched.
                    001 - Over 50 percent of lane surface area patched.

        Enter the Patching value and press the "RETURN" key.

_____
                         *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE   JOHN DOE JR.   080186
MMSE206003FM0064 008+00010+00R
1) RUTTING: 000
2) PATCHING: 000
3) FAILURES: ###

   auto /load"   list /save"   edit /system   stat /menu<_ run<_/login
_____

        The next field to complete is the Failures category. For detailed
        coding information, refer to Chapter 4. Valid code values are:

                    000 - No failures or under 10 potholes.
                    100 - 01-05 failures per lane mile.
                    010 - 06-10 failures per lane mile.
                    001 - Over 10 failures per lane mile.

Enter the Failures value and press the "RETURN" key.

```
                        *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE              JOHN DOE JR.            080186
MMSE206003FM0064 008+00010+00R
1) RUTTING: 000    4) BLOCK CRACKING: ###
2) PATCHING: 000
3) FAILURES: 000


   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The next field to complete is the Block Cracking category. For detailed coding information, refer to Chapter 4. Valid code values are:

           000 - Less than one percent of lane area exhibits block
                 cracks.
           100 - 01-10 percent of lane area exhibits block cracks.
           010 - 11-50 percent of lane area exhibits block cracks.
           001 - Over 50 percent of lane area exhibits block cracks.

Enter the Block Cracking value and press the "RETURN" key.

```
                        *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE              JOHN DOE JR.            080186
MMSE206003FM0064 008+00010+00R
1) RUTTING: 000    4) BLOCK CRACKING: 000
2) PATCHING: 000   5) ALLIG. CRACKING: ###
3) FAILURES: 000


   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The next field to complete is the Alligator Cracking category. For detailed coding information, refer to Chapter 4. Valid code values are:

           000 - No alligator cracking.
           100 - 01-10 percent of area contains alligator cracking.
           010 - 11-50 percent of area contains alligator cracking.
           001 - Over 50 percent area contains alligator cracking.

Enter the Alligator Cracking value and press the "RETURN" key.

```
                         *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE              JOHN DOE JR.              080186
MMSE206003FM0064 008+00010+00R
1) RUTTING: 000      4) BLOCK CRACKING: 000
2) PATCHING: 000     5) ALLIG. CRACKING: 000
3) FAILURES: 000     6) LONG. CRACKING: ###

   auto /load"      list /save"      edit /system      stat /menu<_  run<_/login
```

The next field to complete is the Longitudinal Cracking category.
For detailed coding information, refer to Chapter 4.   Valid code
values are:

        000 - No longitudinal cracking.
        100 - 010-099 linear feet per station (100 feet).
        010 - 100-200 linear feet per station (100 feet).
        001 - Over 200 linear feet per station (100 feet).

Enter the Longitudinal Cracking value and press the "RETURN" key.

```
                         *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE              JOHN DOE JR.              080186
MM E206003FM0064 008+00010+00R
1) RUTTING: 000      4) BLOCK CRACKING: 000    7) TRANS. CRACKING: ###
2) PATCHING: 000     5) ALLIG. CRACKING: 000
3) FAILURES: 000     6) LONG. CRACKING: 000

   auto /load"      list /save"      edit /system      stat /menu<_  run<_/login
```

The next field to complete is the Transverse Cracking category.
For detailed coding information, refer to Chapter 4.   Valid code
values are:

        000 - No transverse cracking.
        100 - 01-04 full lane cracks per station (100 feet).
        010 - 05-10 full lane cracks per station (100 feet).
        001 - Over 10 full lane cracks per station (100 feet).

Enter the Transverse Cracking value and press the "RETURN" key.

```
                         *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE                  JOHN DOE JR.               080186
MMSE206003FM0064 008+00010+00R
1) RUTTING: 000      4) BLOCK CRACKING: 000    7) TRANS. CRACKING: 000
2) PATCHING: 000     5) ALLIG. CRACKING: 000
3) FAILURES: 000     6) LONG. CRACKING: 000
IS THIS LIST CORRECT (Y/N)? $
   auto /load"      list /save"      edit /system      stat /menu<_  run<_/login
```

The computer now prompts you if your entries are correct. Check the
entries and make certain everything is correct.

If there are any changes press the "N" key and press the "RETURN" key.
You will then be prompted with "INPUT ITEM NUMBER TO BE CORRECTED ?".
Type the number of the item to be corrected, 1-7, and press the
"RETURN" key. Make the change to the item that you selected and press
the "RETURN" key.

If there are no changes, then press the "Y" key and press the "RETURN"
key.

```
                         *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE                  JOHN DOE JR.               080186
MMSE206003FM0064 008+00010+00R0000000000000000000000000
1) COMMENT CODE: ##



   auto /load"      list /save"      edit /system      stat /menu<_  run<_/login
```

Notice the second line below the title updated. All of the
information that you entered is now displayed on this line in a packed
format.

The next field to complete is the Comment Code. Any number 00-99 with
lead zero.

Enter the Comment Code and press the "RETURN" key.

```
                         *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE                  JOHN DOE JR.               080186
MMSE206003FM0064 008+00010+00R0000000000000000000000000
1) COMMENT CODE: 00
2) SPEED LIMIT: ##


   auto /load"      list /save"      edit /system      stat /menu<_  run<_/login
```

The next field to complete is the Speed Limit. Any number 01-65 with lead zero, in the unlikely case of posted speeds under 10 mph. Code the highest speed limit for the roadway within the segment evaluated.

Enter the Speed Limit and press the "RETURN" key.

*** FLEXIBLE PAVEMENT ***
```
MMSE101JOHN DOE               JOHN DOE JR.           080186
MMSE206003FM0064  008+00010+00R00000000000000000000000000
1) COMMENT CODE: 00
2) SPEED LIMIT: 55
3) PAVEMENT TYPE: ##

    auto /load"        list /save"        edit /system        stat /menu<_   run<_/login
```

The next field to complete is the Pavement Type. Any number from 04-10. A list of decoded values are presented below.

    04 - Thick asphaltic concrete (over 5.5 inches).
    05 - Intermediate thick asphaltic concrete (2.5-5.5
         inches).
    06 - Thin-surfaced flexible base (less than 2.5 inches).
    07 - Composite (asphalt-surfaced concrete).
    08 - Overlaid and/or widened old concrete.
    09 - Overlaid and/or widened old flexible.
    10 - Thin-surfaced flexible base (surface treated
         pavements).

Enter the Pavement type and press the "RETURN" key.

*** FLEXIBLE PAVEMENT ***
```
MMSE101JOHN DOE               JOHN DOE JR.           080186
MMSE206003FM0064  008+00010+00R00000000000000000000000000
1) COMMENT CODE: 00        4) COMMENTS: $$$$$$$$$$$$$$$$$$$$$$$$
2) SPEED LIMIT: 55
3) PAVEMENT TYPE: 10

    auto /load"        list /save"        edit /system        stat /menu<_   run<_/login
```

The next field to complete is the Comments. Any combination of blanks, letters, numbers, and special characters the coder wishes to enter. Remarks should relate only to the roadway within the segment under evaluation. This information is not retained in the Main Frame computer database; therefore, significant events should be recorded using the COMMENT CODE field described previously.

Enter any Comments and press the "RETURN" key.

```
                        *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE              JOHN DOE JR.              080186
MMSE206003FM0064 008+00010+00R00000000000000000000000000
1) COMMENT CODE: 00      4) COMMENTS:
2) SPEED LIMIT: 55
3) PAVEMENT TYPE: 10
IS THIS LIST CORRECT (Y/N)? $
   auto /load"       list /save"      edit /system      stat /menu<_  run<_/login
```

The computer now prompts you if your entries are correct. Check the entries and make certain everything is correct.

If there are any changes press the "N" key and press the "RETURN" key. You will then be prompted with "INPUT ITEM NUMBER TO BE CORRECTED ?". Type the number of the item to be corrected, 1-4, and press the "RETURN" key. Make the change to the item that you selected and press the "RETURN" key.

If there are no changes, then press the "Y" key and press the "RETURN" key.

```
                        *** FLEXIBLE PAVEMENT ***
MMSE101JOHN DOE              JOHN DOE JR.              080186
MMSE206003FM0064 008+00010+00R00000000000000000000000005510



   auto /load"       list /save"      edit /system      stat /menu<_  run<_/login
```

Notice the second line below the title updated. All of the information that you entered is now displayed on this line in a packed format.

The computer now writes all the segment evaluated information to the micro cassette tape.

The next prompt asks if you would like to evaluate another Flexible Pavement. Press the "Y" if you would want to evaluate another section, or press the "N" key if you do not want to evaluate another section and press the "RETURN" key.

If you have concurrent sections to rate, turn the computer off, and when you are ready to enter data for the next section turn the computer on again. The program remains in the same location where you left it when you turned it off.

```
                          *** PAVEMENT RATING FORM ***
     (F)LEXIBLE PAVEMENT
     (C)ONTINUOUS PAVEMENT
     (J)OINTED PAVEMENT
     (E)XIT PROGRAM
SELECT (F,C,J,E)? $

   auto /load"       list /save"       edit /system      stat /menu<_  run<_/login
```

If there is going to be a long period of time (hours) before data entry of the next section, select the "E" for exiting the program at the beginning menu (above), and press the "RETURN" key.

This concludes the data entry on the laptop computer for Flexible Pavements.

Continuously Reinforced Concrete Pavements

After the PES visual input program initializes, it then displays its menu selection (like the one below).

*** PAVEMENT RATING FORM ***

(F)LEXIBLE PAVEMENT
(C)ONTINUOUS PAVEMENT
(J)OINTED PAVEMENT
(E)XIT PROGRAM
SELECT (F,C,J,E)? $ •

  auto /load"   list /save"   edit /system   stat /menu<_   run<_/login

---

To select a Continuous Concrete Pavement Rating Form, press the "C" key and then press the "RETURN" key.

*** CONTINUOUS CONCRETE PAVEMENT ***

MMSF1

1) DISTRICT NO.: ##

  auto /load"   list /save"   edit /system   stat /menu<_   run<_/login

---

The program displays entered information on the top two lines, just below the title. You will notice that the system identifier (MMS) and the transaction identifier (F1) are automatically written by the program.

The program is now waiting for the rater to enter the District number. An entry of any number 01-25 except 22 with lead zero for numbers 01-09.

Enter the District number and press the "RETURN" key.

*** CONTINUOUS CONCRETE PAVEMENT ***

MMSF1

1) DISTRICT NO.: 01
2) NAME OF RATER 1: $$$$$$$$$$$$$$$$$$$$$$$$

  auto /load"   list /save"   edit /system   stat /menu<_   run<_/login

---

The next field is the Name of Rater 1. The name of the first of two raters is entered here. This field cannot be left blank; initials are allowed.

Enter the Name of Rater 1 and press the "RETURN" key.

*** CONTINUOUS CONCRETE PAVEMENT ***
MMSF1

1) DISTRICT NO.: 01
2) NAME OF RATER 1: JOHN DOE
3) NAME OF RATER 2: $$$$$$$$$$$$$$$$$$$$$$$$

auto /load"   list /save"   edit /system   stat /menu<_ run<_/login

---

The next field is the Name of Rater 2. The name of the second of two raters is entered here. This field cannot be left blank; initials are allowed.

Enter the Name of Rater 2 and press the "RETURN" key.

*** CONTINUOUS CONCRETE PAVEMENT ***
MMSF1

1) DISTRICT NO.: 01   4) DATE: MMDDYY
2) NAME OF RATER 1: JOHN DOE
3) NAME OF RATER 2: JOHN DOE JR.

auto /load"   list /save"   edit /system   stat /menu<_ run<_/login

---

The Date is the next field. Any valid date is allowed. Date cannot exceed the current date. The given format is MM for month, DD for day and YY for year. The month can be any number from 01-12 with lead zero. The day can range from 01-31 (based on month) with lead zero. The year must not exceed this year.

Type in the Date (example: 080186 for 08/01/86) and press the "RETURN" key.

```
                      *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF1

1) DISTRICT NO.: 01                              4) DATE: 080186
2) NAME OF RATER 1: JOHN DOE
3) NAME OF RATER 2: JOHN DOE JR.
IS THIS LIST CORRECT (Y/N)? $
   auto /load"       list /save"        edit /system     stat /menu<_  run<_/login
```

The computer now prompts you if your entries are correct. Check the
entries and make certain everything is correct.

If there are any changes press the "N" key and press the "RETURN" key.
You will then be prompted with "INPUT ITEM NUMBER TO BE CORRECTED ?".
Type the number of the item to be corrected, 1-4, and press the
"RETURN" key. Make the change to the item that you selected and press
the "RETURN" key.

If there are no changes, then press the "Y" key and press the "RETURN"
key.

```
                      *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF101JOHN DOE          JOHN DOE JR.            080186
MMSF2
1) COUNTY NO.: ###



   auto /load"       list /save"        edit /system     stat /menu<_  run<_/login
```

Notice the first line below the title updated. All of the information
that you entered is now displayed on this line in a packed format.
Also the computer automatically started the second line by writing the
system (MMS) and transaction (F2) identifiers.

The next item is the County number. Numbers from 001-254 are valid
with lead zero(s). County must be within District supplied above.
Obtain County number from Rater's R01 Report.

Type in the County number and press the "RETURN" key.

```
                    *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF101JOHN DOE              JOHN DOE JR.            080186
MMSF2
1) COUNTY NO.: 060
2) FOREMAN NO.: ##


   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The Foreman number (aka: Maintenance Section) is the next field to complete. Numbers from 01-99 are valid with lead zero. Obtain Foreman number from Rater's R01 report.

Enter the Foreman number and press the "RETURN" key.

```
                    *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF101JOHN DOE              JOHN DOE JR.            080186
MMSF2
1) COUNTY NO.: 060
2) FOREMAN NO.: 03
3) HIGHWAY PREFIX: $$

   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The next prompt asks for the Highway Prefix. The prefixes IH, US, SH, FM, and PR are valid. Note that RM, RR, RE, ... are considered FM.

Type in the Highway Prefix and press the "RETURN" key.

```
                    *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF101JOHN DOE              JOHN DOE JR.            080186
MMSF2
1) COUNTY NO.: 060
2) FOREMAN NO.: 03
3) HIGHWAY NO.: ####

   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

In the same place, you are prompted for the Highway number. Any number from 0001-9999, with lead zero(s), are valid, plus 0OSR and NASA.

Type the Highway number in and press the "RETURN" key.

```
                         *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF1Ø1JOHN DOE                    JOHN DOE JR.              Ø8Ø186
MMSF2
1) COUNTY NO.: Ø6Ø
2) FOREMAN NO.: Ø3
3) HIGHWAY SUFFIX: $

   auto /load"     list /save"      edit /system     stat /menu<_  run<_/login
```

In the same place again, you are prompted for the Highway Suffix.
Values blank, A, S, E, W, and N for non-PR routes and blank, A-Z for
PR routes are valid entries.

Type in the suffix and press the "RETURN" key.

```
                         *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF1Ø1JOHN DOE                    JOHN DOE JR.              Ø8Ø186
MMSF2
1) COUNTY NO.: Ø6Ø              4) BEGINNING MP: ###$##
2) FOREMAN NO.: Ø3
3) HIGHWAY NO.: FM ØØ64

   auto /load"     list /save"      edit /system     stat /menu<_  run<_/login
```

The Beginning Milepost is the next field to complete. Copy the
information supplied on the Rater's RØ1 Report. Under the MILEPOST
and DISPLACEMENT (VALUE) sub-fields, insure use of lead zeros.   The
three sub-fields are:

     Milepost. Numeric values ØØØ-999 are valid.

     Displacement (Sign). Only special characters '+' and '-'
     are allowed.

     Displacement (Value). Note imbedded decimal point. Values
     ØØ-99 (Ø.Ø-9.9) are valid.

Type the Beginning Milepost and press the "RETURN" key.

```
_____
                      *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF101JOHN DOE              JOHN DOE JR.              080186
MMSF2
1) COUNTY NO.: 060        4) BEGINNING MP: 008+00
2) FOREMAN NO.: 03        5) ENDING MP: ###$##
3) HIGHWAY NO.: FM 0064

   auto /load"      list /save"       edit /system      stat /menu<_   run<_/login
_____
```

The next field is the Ending Milepost. Copy the information supplied
on the Rater's R01 Report. Under the MILEPOST and DISPLACEMENT
(VALUE) sub-fields, insure use of lead zeros. Refer to the
description of the beginning milepost (previous) for valid data entry.

Enter the Ending Milepost and press the "RETURN" key.

```
_____
                      *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF101JOHN DOE              JOHN DOE JR.              080186
MMSF2
1) COUNTY NO.: 060        4) BEGINNING MP: 008+00
2) FOREMAN NO.: 03        5) ENDING MP: 010+00
3) HIGHWAY NO.: FM 0064   6) LANE: $

   auto /load"      list /save"       edit /system      stat /menu<_   run<_/login
_____
```

The Lane descriptor is the next field to complete. Of the fields
under the LOCATION, only lane is left for the Visual Evaluation
Rater(s) to determine. Any valid lane identifier for the facility is
allowed. Lanes are described as:

Main Lanes

```
Lane L (outside lane against increasing mileposts).
     M (to the left of L and against increasing posts).
     N (to the left of M and against increasing posts).
     O (to the left of N and against increasing posts).
     P (to the left of O and against increasing posts).
Lane V (to the left of U and with increasing posts).
     U (to the left of T and with increasing posts).
     T (to the left of S and with increasing posts).
     S (to the left of R and with increasing posts).
     R (outside lane with increasing mileposts).
```

Frontage Road Lanes

```
Lane X (outside lane against increasing mileposts).
     Y (to the left of X and against increasing posts).
```

Z (to the left of Y and against increasing posts).
Lane C (to the left of B and with increasing posts).
B (to the left of A and with increasing posts).
A (outside lane with increasing mileposts).

Type in the Lane and press the "RETURN" key.

```
                    *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF101JOHN DOE                JOHN DOE JR.              080186
MMSF2
1) COUNTY NO.: 060          4) BEGINNING MP: 008+00
2) FOREMAN NO.: 03          5) ENDING MP: 010+00
3) HIGHWAY NO.: FM 0064     6) LANE: R
IS THIS LIST CORRECT (Y/N)? $
   auto /load"      list /save"        edit /system     stat /menu<_  run<_/login
```

The computer now prompts you if your entries are correct. Check the
entries and make certain everything is correct.

If there are any changes press the "N" key and press the "RETURN" key.
You will then be prompted with "INPUT ITEM NUMBER TO BE CORRECTED ?".
Type the number of the item to be corrected, 1-6, and press the
"RETURN" key. Make the change to the item that you selected and press
the "RETURN" key.

If there are no changes, then press the "Y" key and press the "RETURN"
key.

```
                    *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF101JOHN DOE                JOHN DOE JR.              080186
MMSF206003FM0064 008+00010+00R
1) NUMB. OF SPALLED CRAX: ###


   auto /load"      list /save"        edit /system     stat /menu<_  run<_/login
```

Notice the second line below the title updated. All of the
information that you entered is now displayed on this line in a packed
format.

The next field to complete is the Number of Spalled Cracks. For
detailed coding information, refer to Chapter 5. Valid code values
are:

        000 - 999 Actual numeric count of spalled cracks over the
                  entire PES segment.

Enter the Number of Spalled Cracks value and press the "RETURN" key.

```
                    *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF101JOHN DOE                 JOHN DOE JR.              080186
MMSF206003FM0064 008+00010+00R
1) NUMB. OF SPALLED CRAX: 000
2) PUNCHOUTS: ###


   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The next field to complete is the number of Punchouts. For detailed coding information, refer to Chapter 5. Valid code values are:

> 000 - 200 - Actual numeric count of punchouts over the
>   entire PES segment.
>
>   Note: Due to the extreme nature of the count,
>   values from 100-200 are accepted, but
>   are accompanied by a warning message.
>   Values over 200 are considered an error
>   and are rejected.

Enter the Punchout value and press the "RETURN" key.

```
                    *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF101JOHN DOE                 JOHN DOE JR.              080186
MMSF206003FM0064 008+00010+00R
1) NUMB. OF SPALLED CRAX: 000
2) PUNCHOUTS: 000
3) ACP PATCHES: ###

   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The next field to complete is the number of ACP Patches. For detailed coding information, refer to Chapter 5. Valid code values are:

> 000 - 200 - Actual numeric count of ACP patches over the
>   entire PES segment.
>
>   Note: Due to the extreme nature of the count,
>   values from 100-200 are accepted, but
>   are accompanied by a warning message.
>   Values over 200 are considered an error
>   and are rejected.

Enter the number of ACP Patches and press the "RETURN" key.

```
                  *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF1Ø1JOHN DOE               JOHN DOE JR.            Ø8Ø186
MMSF2Ø6ØØ3FMØØ64 ØØ8+ØØØ1Ø+ØØR
1) NUMB. OF SPALLED CRAX: ØØØ      4) PCC PATCHES: ###
2) PUNCHOUTS: ØØØ
3) ACP PATCHES: ØØØ

   auto /load"      list /save"      edit /system    stat /menu<_  run<_/login
```

The next field to complete is the number of PCC Patches. For detailed
coding information, refer to Chapter 5. Valid code values are:

> ØØØ - 2ØØ - Actual numeric count of PCC patches over the
>   entire PES segment.
>
>   Note: Due to the extreme nature of the count,
>   values from 1ØØ-2ØØ are accepted, but
>   are accompanied by a warning message.
>   Values over 2ØØ are considered an error
>   and are rejected.

Enter the number of PCC Patches and press the "RETURN" key.

```
                  *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF1Ø1JOHN DOE               JOHN DOE JR.            Ø8Ø186
MMSF2Ø6ØØ3FMØØ64 ØØ8+ØØØ1Ø+ØØR
1) NUMB. OF SPALLED CRAX: ØØØ      4) PCC PATCHES: ØØØ
2) PUNCHOUTS: ØØØ                  5) AVE. CRACK SPACING: ###
3) ACP PATCHES: ØØØ

   auto /load"      list /save"      edit /system    stat /menu<_  run<_/login
```

The next field to complete is the Average Crack Spacing category.
For detailed coding information, refer to Chapter 5.   Valid code
values are:

> ØØØ - Ø75 - Average distance (in feet) between cracks over
>   the entire PES segment.
>
>   Note: Due to the extreme nature of the count,
>   values from Ø5Ø-Ø75 are accepted, but
>   are accompanied by a warning message.
>   Values over Ø75 are considered an error
>   and are rejected.

Enter the Average Crack Spacing value and press the "RETURN" key.

```
                    *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF1Ø1JOHN DOE                 JOHN DOE JR.             Ø8Ø186
MMSF2Ø6ØØ3FMØØ64 ØØ8+ØØØ1Ø+ØØR
1) NUMB. OF SPALLED CRAX: ØØØ      4) PCC PATCHES: ØØØ
2) PUNCHOUTS: ØØØ                  5) AVE. CRACK SPACING: ØØ5
3) ACP PATCHES: ØØØ
IS THIS LIST CORRECT (Y/N)? $
   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The computer now prompts you if your entries are correct. Check the
entries and make certain everything is correct.

If there are any changes press the "N" key and press the "RETURN" key.
You will then be prompted with "INPUT ITEM NUMBER TO BE CORRECTED ?".
Type the number of the item to be corrected, 1-5, and press the
"RETURN" key. Make the change to the item that you selected and press
the "RETURN" key.

If there are no changes, then press the "Y" key and press the
"RETURN" key.

```
                    *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF1Ø1JOHN DOE                 JOHN DOE JR.             Ø8Ø186
MMSF2Ø6ØØ3FMØØ64 ØØ8+ØØØ1Ø+ØØRØØØØØØØØØØØØØØØ5
1) COMMENT CODE: ##


   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

Notice the second line below the title updated. All of the
information that you entered is now displayed on this line in a packed
format.

The next field to complete is the Comment Code. Any number Ø1-99 with
lead zero.

Enter the Comment Code and press the "RETURN" key.

```
                    *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF1Ø1JOHN DOE                 JOHN DOE JR.             Ø8Ø186
MMSF2Ø6ØØ3FMØØ64 ØØ8+ØØØ1Ø+ØØRØØØØØØØØØØØØØØØ5
1) COMMENT CODE: ØØ
2) SPEED LIMIT: ##


   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The next field to complete is the Speed Limit. Any number 01-65 with lead zero, in the unlikely case of posted speeds under 10 mph. Code the highest speed limit for the roadway within the segment evaluated.

Enter the Speed Limit and press the "RETURN" key.

```
                    *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF1Ø1JOHN DOE                 JOHN DOE JR.            Ø8Ø186
MMSF2Ø6ØØ3FMØØ64 ØØ8+ØØØ1Ø+ØØRØØØØØØØØØØØØØØØØ5
1) COMMENT CODE: ØØ
2) SPEED LIMIT: 55
3) PAVEMENT TYPE: ##

   auto /load"      list /save"      edit /system     stat /menu<_   run<_/login
```

The next field to complete is the Pavement Type. Only the number 01 can be used for this pavement type. A list of decoded values are presented below.

      01 - Continuously reinforced concrete.

Enter the Pavement type and press the "RETURN" key.

```
                    *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF1Ø1JOHN DOE                 JOHN DOE JR.            Ø8Ø186
MMSF2Ø6ØØ3FMØØ64 ØØ8+ØØØ1Ø+ØØRØØØØØØØØØØØØØØØØ5
1) COMMENT CODE: ØØ        4) COMMENTS: $$$$$$$$$$$$$$$$$$$$$$$$
2) SPEED LIMIT: 55
3) PAVEMENT TYPE: Ø1

   auto /load"      list /save"      edit /system     stat /menu<_   run<_/login
```

The next field to complete is the Comments. Any combination of blanks, letters, numbers, and special characters the coder wishes to enter. Remarks should relate only to the roadway within the segment under evaluation. This information is not retained in the Main Frame computer database; therefore, significant events should be recorded using the COMMENT CODE field described previously.

Enter any Comments and press the "RETURN" key.

```
                  *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF101JOHN DOE              JOHN DOE JR.              080186
MMSF206003FM0064 008+00010+00R0000000000000005
1) COMMENT CODE: 00      4) COMMENTS:
2) SPEED LIMIT: 55
3) PAVEMENT TYPE: 01
IS THIS LIST CORRECT (Y/N)? $
   auto /load"      list /save"      edit /system   stat /menu<_  run<_/login
```

The computer now prompts you if your entries are correct. Check the
entries and make certain everything is correct.

If there are any changes press the "N" key and press the "RETURN" key.
You will then be prompted with "INPUT ITEM NUMBER TO BE CORRECTED ?".
Type the number of the item to be corrected, 1-4, and press the
"RETURN" key. Make the change to the item that you selected and press
the "RETURN" key.

If there are no changes, then press the "Y" key and press the
"RETURN" key.

```
                  *** CONTINUOUS CONCRETE PAVEMENT ***
MMSF101JOHN DOE              JOHN DOE JR.              080186
MMSF206003FM0064 008+00010+00R0000000000000005         005501



   auto /load"      list /save"      edit /system   stat /menu<_  run<_/login
```

Notice the second line below the title updated. All of the
information that you entered is now displayed on this line in a packed
format.

The computer now writes all the segment evaluated information to the
micro cassette tape.

The next prompt asks if you would like to evaluate another Continuous
Concrete Pavement. Press the "Y" if you would want to evaluate
another section, or press the "N" key if you do not want to evaluate
another section and press the "RETURN" key.

If you have concurrent sections to rate, turn the computer off, and
when you are ready to enter data for the next section turn the
computer on again. The program remains in the same location where you
left it when you turned it off.

```
                        *** PAVEMENT RATING FORM ***
      (F)LEXIBLE PAVEMENT
      (C)ONTINUOUS PAVEMENT
      (J)OINTED PAVEMENT
      (E)XIT PROGRAM
SELECT (F,C,J,E)? $

   auto /load"      list /save"      edit /system      stat /menu<_   run<_/login
```

If there is going to be a long period of time (hours) before data entry of the next section, select the "E" for exiting the program at the beginning menu (above), and press the "RETURN" key.

This concludes the data entry on the laptop computer for Continuous Concrete Pavements.

Jointed Concrete Pavements

After the PES visual input program initializes, it then displays its menu selection (like the one below).

```
                    *** PAVEMENT RATING FORM ***
   (F)LEXIBLE PAVEMENT
   (C)ONTINUOUS PAVEMENT
   (J)OINTED PAVEMENT
   (E)XIT PROGRAM
SELECT (F,C,J,E)? $

   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

To select a Jointed Concrete Pavement Rating Form, press the "J" key and then press the "RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG1

1) DISTRICT NO.: ##


   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The program displays entered information on the top two lines, just below the title. You will notice that the system identifier (MMS) and the transaction identifier (G1) are automatically written by the program.

The program is now waiting for the rater to enter the District number. An entry of any number 01-25 except 22 with lead zero for numbers 01-09.

Enter the District number and press the "RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG1

1) DISTRICT NO.: 01
2) NAME OF RATER 1: $$$$$$$$$$$$$$$$$$$$$$$$$


   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The next field is the Name of Rater 1. The name of the first of two
raters is entered here. This field cannot be left blank; initials are
allowed.

Enter the Name of Rater 1 and press the "RETURN" key.

*** JOINTED CONCRETE PAVEMENT ***
MMSG1

1) DISTRICT NO.: 01
2) NAME OF RATER 1: JOHN DOE
3) NAME OF RATER 2: $$$$$$$$$$$$$$$$$$$$$$$$$

    auto /load"   list /save"   edit /system   stat /menu<_ run<_/login

---

The next field is the Name of Rater 2. The name of the second of
two raters is entered here. This field cannot be left blank;
initials are allowed.

Enter the Name of Rater 2 and press the "RETURN" key.

*** JOINTED CONCRETE PAVEMENT ***
MMSG1

1) DISTRICT NO.: 01   4) DATE: MMDDYY
2) NAME OF RATER 1: JOHN DOE
3) NAME OF RATER 2: JOHN DOE JR.

    auto /load"   list /save"   edit /system   stat /menu<_ run<_/login

---

The Date is the next field. Any valid date is allowed. Date cannot
exceed the current date. The given format is MM for month, DD for day
and YY for year. The month can be any number from 01-12 with lead
zero. The day can range from 01-31 (based on month) with lead zero.
The year must not exceed this year.

Type in the Date (example: 080186 for 08/01/86) and press the
"RETURN" key.

```
                      *** JOINTED CONCRETE PAVEMENT ***
MMSG1

1) DISTRICT NO.: 01                              4) DATE: 080186
2) NAME OF RATER 1: JOHN DOE
3) NAME OF RATER 2: JOHN DOE JR.
IS THIS LIST CORRECT (Y/N)? $
   auto /load"        list /save"      edit /system     stat /menu<_  run<_/login
```

The computer now prompts you if your entries are correct. Check the
entries and make certain everything is correct.

If there are any changes press the "N" key and press the "RETURN" key.
You will then be prompted with "INPUT ITEM NUMBER TO BE CORRECTED ?".
Type the number of the item to be corrected, 1-4, and press the
"RETURN" key. Make the change to the item that you selected and press
the "RETURN" key.

If there are no changes, then press the "Y" key and press the
"RETURN" key.

```
                      *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE              JOHN DOE JR.            080186
MMSG2
1) COUNTY NO.: ###



   auto /load"        list /save"      edit /system     stat /menu<_  run<_/login
```

Notice the first line below the title updated. All of the
information that you entered is now displayed on this line in a
packed format. Also the computer automatically started the second
line by writing the system (MMS) and transaction (G2) identifiers.

The next item is the County number. Numbers from 001-254 are valid
with lead zero(s). County must be within District supplied above.
Obtain County number from Rater's R01 Report.

Type in the County number and press the "RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE              JOHN DOE JR.           080186
MMSG2
1) COUNTY NO.: 060
2) FOREMAN NO.: ##


   auto /load"      list /save"      edit /system      stat /menu<_  run<_/login
```

The Foreman number (aka: Maintenance Section) is the next field to complete. Numbers from 01-99 are valid with lead zero. Obtain Foreman number from Rater's R01 report.

Enter the Foreman number and press the "RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE              JOHN DOE JR.           080186
MMSG2
1) COUNTY NO.: 060
2) FOREMAN NO.: 03
3) HIGHWAY PREFIX: $$

   auto /load"      list /save"      edit /system      stat /menu<_  run<_/login
```

The next prompt asks for the Highway Prefix. The prefixes IH, US, SH, FM, and PR are valid. Note that RM, RR, RE, ... are considered FM.

Type in the Highway Prefix and press the "RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE              JOHN DOE JR.           080186
MMSG2
1) COUNTY NO.: 060
2) FOREMAN NO.: 03
3) HIGHWAY NO.: ####

   auto /load"      list /save"      edit /system      stat /menu<_  run<_/login
```

In the same place, you are prompted for the Highway number. Any number from 0001-9999, with lead zero(s), are valid, plus 00SR and NASA.

Type the Highway number in and press the "RETURN" key.

```
                          *** JOINTED CONCRETE PAVEMENT ***
MMSG1Ø1JOHN DOE                 JOHN DOE JR.              Ø8Ø186
MMSG2
1) COUNTY NO.: Ø6Ø
2) FOREMAN NO.: Ø3
3) HIGHWAY SUFFIX: $

   auto /load"      list /save"      edit /system    stat /menu<_  run<_/login
```

In the same place again, you are prompted for the Highway Suffix.
Values blank, A, S, E, W, and N for non-PR routes and blank, A-Z for
PR routes are valid entries.

Type in the suffix and press the "RETURN" key.

```
                          *** JOINTED CONCRETE PAVEMENT ***
MMSG1Ø1JOHN DOE                 JOHN DOE JR.              Ø8Ø186
MMSG2
1) COUNTY NO.: Ø6Ø              4) BEGINNING MP: ###$##
2) FOREMAN NO.: Ø3
3) HIGHWAY NO.: FM ØØ64

   auto /load"      list /save"      edit /system   , stat /menu<_  run<_/login
```

The Beginning Milepost is the next field to complete. Copy the
information supplied on the Rater's RØ1 Report. Under the MILEPOST
and DISPLACEMENT (VALUE) sub-fields, insure use of lead zeros. The
three sub-fields are:

      Milepost.   Numeric values ØØØ-999 are valid.

      Displacement (Sign).   Only special characters '+' and '-'
                               are allowed.

      Displacement (Value).   Note imbedded decimal point. Values
                               ØØ-99 (Ø.Ø-9.9) are valid.

Type the Beginning Milepost and press the "RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE              JOHN DOE JR.          080186
MMSG2
1) COUNTY NO.: 060       4) BEGINNING MP: 008+00
2) FOREMAN NO.: 03       5) ENDING MP: ###$##
3) HIGHWAY NO.: FM 0064

   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The next field is the Ending Milepost. Copy the information
supplied on the Rater's R01 Report. Under the MILEPOST and
DISPLACEMENT (VALUE) sub-fields, insure use of lead zeros. Refer to
the description of the beginning milepost (previous) for valid data
entry.

Enter the Ending Milepost and press the "RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE              JOHN DOE JR.          080186
MMSG2
1) COUNTY NO.: 060       4) BEGINNING MP: 008+00
2) FOREMAN NO.: 03       5) ENDING MP: 010+00
3) HIGHWAY NO.: FM 0064  6) LANE: $

   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The Lane descriptor is the next field to complete. Of the fields
under the LOCATION, only lane is left for the Visual Evaluation
Rater(s) to determine. Any valid lane identifier for the facility is
allowed. Lanes are described as:

Main Lanes

Lane L (outside lane against increasing mileposts).
     M (to the left of L and against increasing posts).
     N (to the left of M and against increasing posts).
     O (to the left of N and against increasing posts).
     P (to the left of O and against increasing posts).
Lane V (to the left of U and with increasing posts).
     U (to the left of T and with increasing posts).
     T (to the left of S and with increasing posts).
     S (to the left of R and with increasing posts).
     R (outside lane with increasing mileposts).

Frontage Road Lanes

Lane X (outside lane against increasing mileposts).
     Y (to the left of X and against increasing posts).

Z (to the left of Y and against increasing posts).
        Lane C (to the left of B and with increasing posts).
                B (to the left of A and with increasing posts).
                A (outside lane with increasing mileposts).

Type in the Lane and press the "RETURN" key.

_____
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE   JOHN DOE JR.   080186
MMSG2
1) COUNTY NO.: 060   4) BEGINNING MP: 008+00
2) FOREMAN NO.: 03   5) ENDING MP: 010+00
3) HIGHWAY NO.: FM 0064   6) LANE: R
IS THIS LIST CORRECT (Y/N)? $
   auto /load"   list /save"   edit /system   stat /menu<_ run<_/login
_____

The computer now prompts you if your entries are correct. Check
the entries and make certain everything is correct.

If there are any changes press the "N" key and press the "RETURN" key.
You will then be prompted with "INPUT ITEM NUMBER TO BE CORRECTED ?".
Type the number of the item to be corrected, 1-6, and press the
"RETURN" key. Make the change to the item that you selected and press
the "RETURN" key.

If there are no changes, then press the "Y" key and press the
"RETURN" key.

_____
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE   JOHN DOE JR.   080186
MMSG206003FM0064 008+00010+00R
1) FAILED JNTS. & CRAX: ###

   auto /load"   list /save"   edit /system   stat /menu<_ run<_/login
_____

Notice the second line below the title updated. All of the
information that you entered is now displayed on this line in a packed
format.

The next field to complete is the number of Failed Joints and Cracks.
For detailed coding information, refer to Chapter 6. Valid code
values are:

        000 - 175 Actual numeric count of failed joints and cracks
                over the entire PES segment.

Note: Due to the extreme nature of the count,
                         values greater than 175 will be accepted
                         but are accompanied by a warning message.

Enter the number of Failed Joints and Cracks value and press the
"RETURN" key.

                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE   JOHN DOE JR.   080186
MMSG206003FM0064 008+00010+00R
1) FAILED JNTS. & CRAX: 000
2) FAILURES: ###

   auto /load"   list /save"   edit /system   stat /menu<_ run<_/login

---

The next field to complete is the number of Failures. For detailed
coding information, refer to Chapter 6. Valid code values are:

       000 - 750 - Actual numeric count of failures over the
                   entire PES segment.

                  Note: Due to the extreme nature of the count,
                         values greater than 750 will be accepted
                         but are accompanied by a warning message.

Enter the number of Failures value and press the "RETURN" key.

                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE   JOHN DOE JR.   080186
MMSG206003FM0064 008+00010+00R
1) FAILED JNTS. & CRAX: 000
2) FAILURES: 000
3) SHATTERED SLABS: ###

   auto /load"   list /save"   edit /system   stat /menu<_ run<_/login

---

The next field to complete is the number of Shattered Slabs. For
detailed coding information, refer to Chapter 6. Valid code values
are:

       000 - 175 - Actual numeric count of shattered slabs over
                   the entire PES segment.

                  Note: Due to the extreme nature of the count,
                         values greater than 750 will be accepted
                         but are accompanied by a warning message.

Enter the number of Shattered Slabs and press the "RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE                  JOHN DOE JR.              080186
MMSG206003FM0064 008+00010+00R
1) FAILED JNTS. & CRAX: 000    4) SLABS WITH LONG. CRAX: ###
2) FAILURES: 000
3) SHATTERED SLABS: 000
        ⎯          ⎯           ⎯
   auto /load"       list /save"       edit /system    stat /menu<_  run<_/login
```

The next field to complete is the number of Slabs with Longitudinal
Cracks. For detailed coding information, refer to Chapter 6.   Valid
code values are:

       000 - 175 - Actual numeric count of slabs with
              longitudinal cracks over the entire PES
              segment.

            Note: Due to the extreme nature of the count,
                   values greater than 175 will be accepted
                   but are accompanied by a warning message.

Enter the number of Slabs with Longitudinal Cracks and press the
"RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE                  JOHN DOE JR.              080186
MMSG206003FM0064 008+00010+00R
1) FAILED JNTS. & CRAX: 000    4) SLABS WITH LONG. CRAX: 000
2) FAILURES: 000               5) PCC PATCHES: ###
3) SHATTERED SLABS: 000

   auto /load"       list /save"       edit /system    stat /menu<_  run<_/login
```

The next field to complete is the number of PCC Patches. For detailed
coding information, refer to Chapter 6. Valid code values are:

       000 - 500 - Actual numeric count of the number of SLABS
              with one or more PCC patches over the entire
              PES segment.

            Note: Due to the extreme nature of the count,
                   values greater than 500 will be accepted
                   but are accompanied by a warning message.

Enter the number of PCC Patches and press the "RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE               JOHN DOE JR.            080186
MMSG206003FM0064 008+00010+00R
1) FAILED JNTS. & CRAX: 000    4) SLABS WITH LONG. CRAX: 000
2) FAILURES: 000               5) PCC PATCHES: 000
3) SHATTERED SLABS: 000        6) APPARENT JNT. SPACING: ###

   auto /load"      list /save"      edit /system      stat /menu<_  run<_/login
```

The next field to complete is the Apparent Joint Spacing. For detailed coding information, refer to Chapter 6. Valid code values are:

> 015 - 075 - Numeric value indicating the predominant pattern of designed joints over the entire PES segment.
>
> Note: Due to the extreme nature of the count, values outside this range will be given an error message.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE               JOHN DOE JR.            080186
MMSG206003FM0064 008+00010+00R
1) FAILED JNTS. & CRAX: 000    4) SLABS WITH LONG. CRAX: 000
2) FAILURES: 000               5) PCC PATCHES: 000
3) SHATTERED SLABS: 000        6) APPARENT JNT. SPACING: 015
IS THIS LIST CORRECT (Y/N)? $
   auto /load"      list /save"      edit /system      stat /menu<_  run<_/login
```

The computer now prompts you if your entries are correct. Check the entries and make certain everything is correct.

If there are any changes press the "N" key and press the "RETURN" key. You will then be prompted with "INPUT ITEM NUMBER TO BE CORRECTED ?". Type the number of the item to be corrected, 1-6, and press the "RETURN" key. Make the change to the item that you selected and press the "RETURN" key.

If there are no changes, then press the "Y" key and press the "RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG1Ø1JOHN DOE                JOHN DOE JR.              Ø8Ø186
MMSG2Ø6ØØ3FMØØ64 ØØ8+ØØØ1Ø+ØØRØØØØØØØØØØØØØØØØØ15
1) COMMENT CODE: ##


    auto /load"      list /save"      edit /system    stat /menu<_  run<_/login
```

Notice the second line below the title updated. All of the information that you entered is now displayed on this line in a packed format.

The next field to complete is the Comment Code. Any number Ø1-99 with lead zero.

Enter the Comment Code and press the "RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG1Ø1JOHN DOE                JOHN DOE JR.        Ø8Ø186
MMSG2Ø6ØØ3FMØØ64 ØØ8+ØØØ1Ø+ØØRØØØØØØØØØØØØØØØØØ15
1) COMMENT CODE: ØØ
2) SPEED LIMIT: ##


    auto /load"      list /save"      edit /system    stat /menu<_  run<_/login
```

The next field to complete is the Speed Limit. Any number Ø1-55 with lead zero, in the unlikely case of posted speeds under 1Ø mph. Code the highest speed limit for the roadway within the segment evaluated.

Enter the Speed Limit and press the "RETURN" key.

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG1Ø1JOHN DOE                JOHN DOE JR.        Ø8Ø186
MMSG2Ø6ØØ3FMØØ64 ØØ8+ØØØ1Ø+ØØRØØØØØØØØØØØØØØØØØ15
1) COMMENT CODE: ØØ
2) SPEED LIMIT: 55
3) PAVEMENT TYPE: ##

    auto /load"      list /save"      edit /system    stat /menu<_ . run<_/login
```

The next field to complete is the Pavement Type. Any number from Ø2-Ø3 can be used for this pavement type. A list of decoded values are presented below.

```
         02 - Jointed reinforced concrete.
         03 - Jointed plain concrete.

    Enter the Pavement type and press the "RETURN" key.
```

```
                    *** JOINTED CONCRETE PAVEMENT ***
MMSG101JOHN DOE              JOHN DOE JR.              080186
MMSG206003FM0064 008+00010+00R0000000000000000000015
1) COMMENT CODE: 00      4) COMMENTS: $$$$$$$$$$$$$$$$$$$$$$$$$
2) SPEED LIMIT: 55
3) PAVEMENT TYPE: 02

    auto /load"      list /save"      edit /system      stat /menu<_   run<_/login
```

The next field to complete is the Comments. Any combination of
blanks, letters, numbers, and special characters the coder wishes to
enter. Remarks should relate only to the roadway within the segment
under evaluation. This information is not retained in the Main Frame
computer database; therefore, significant events should be recorded
using the COMMENT CODE field described previously.

Enter any Comments and press the "RETURN" key.

```
                   *** JOINTED CONCRETE PAVEMENT ***
MMSG1Ø1JOHN DOE              JOHN DOE JR.              Ø8Ø186
MMSG2Ø6ØØ3FMØØ64 ØØ8+ØØØ1Ø+ØØRØØØØØØØØØØØØØØØØ15
1) COMMENT CODE: ØØ      4) COMMENTS:
2) SPEED LIMIT: 55
3) PAVEMENT TYPE: Ø2
IS THIS LIST CORRECT (Y/N)? $
   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

The computer now prompts you if your entries are correct. Check the
entries and make certain everything is correct.

If there are any changes press the "N" key and press the "RETURN" key.
You will then be prompted with "INPUT ITEM NUMBER TO BE CORRECTED ?".
Type the number of the item to be corrected, 1-4, and press the
"RETURN" key. Make the change to the item that you selected and press
the "RETURN" key.

If there are no changes, then press the "Y" key and press the
"RETURN" key.

```
                   *** JOINTED CONCRETE PAVEMENT ***
MMSG1Ø1JOHN DOE              JOHN DOE JR.              Ø8Ø186
MMSG2Ø6ØØ3FMØØ64 ØØ8+ØØØ1Ø+ØØRØØØØØØØØØØØØØØØØ15   ØØ55Ø2



   auto /load"      list /save"      edit /system     stat /menu<_  run<_/login
```

Notice the second line below the title updated. All of the
information that you entered is now displayed on this line in a packed
format.

The computer now writes all the segment evaluated information to the
micro cassette tape.

The next prompt asks if you would like to evaluate another Continuous
Concrete Pavement. Press the "Y" if you would want to evaluate
another section, or press the "N" key if you do not want to evaluate
another section and press the "RETURN" key.

If you have concurrent sections to rate, turn the computer off, and
when you are ready to enter data for the next section turn the
computer on again. The program remains in the same location where you
left it when you turned it off.

```
                      *** PAVEMENT RATING FORM ***
      (F)LEXIBLE PAVEMENT
      (C)ONTINUOUS PAVEMENT
      (J)OINTED PAVEMENT
      (E)XIT PROGRAM
SELECT (F,C,J,E)? $

   auto /load"      list /save"      edit /system      stat /menu<_  run<_/login
```

If there is going to be a long period of time (hours) before data
entry of the next section, select the "E" for exiting the program at
the beginning menu (above), and press the "RETURN" key.

This concludes the data entry on the laptop computer for Jointed
Concrete Pavements.

Transfer of PES Visual Evaluation Data via Modem
_____

Data can easily be transferred over the phone lines using your modem
and laptop computer.

Use the cable set #724 to connect the modem with the laptop computer.
Plug the round end of the cable into the RS-232C port, on the back
side of the laptop computer.   Plug the other end, rectangular end,
into the modem port (EIA RS232C), located on the back side of the
modem.

Connect the telephone line (included with modem) from the wall
receptacle to the "line jack", located on the back side of the modem.
Plug the telephone line from the telephone into the "phone jack",
located on the back side of the modem.

Plug the modem power transformer into a wall receptacle, and the other
end into the back side of the modem.

```
*** MENU screen ***   08/01/86 (FRI) 08:00:00   54.5k CP/M   ver 2.2 B PAGE 1/1

BASIC      (resident) C:PIP      COM        C:STAT      COM        C:SUBMIT    COM
C:XSUB     COM        C:FILINK   COM        C:TERM      COM        C:CONFIG    COM
B:BASIC    COM
```

Turn the laptop computer on and select the "C:TERM   COM" file, by
positioning the flashing menu selection using the burnt orange arrow
keys. Press the "RETURN" key.

```
The RS-232C status is :
 bit rate = 1200    data bits = 7    stop bits = 1    parity = EVEN
Use CONFIG.COM program to change the RS-232C status.
Modes of TERM
  1 = Normal
  2 = Delete LF after CR (send)/ Insert LF after CR (receive)
  3 = Insert ETX and Delete LF after CR (send)
Select a mode  1
```

When the TERM file is selected, it will take a short time to run. The
screen above shows the communication protocol along with transmit and
receive options. Press the "RETURN" key to continue.

```
2 = Delete LF after CR (send)/ Insert LF after CR (receive)
3 = Insert ETX and Delete LF after CR (send)
Select a mode  1

ATFØ
OK

display/          print/          send/          receive/          /exit
```

You need to set your modem's duplex to half.   You can do this by
typing in "ATFØ" and pressing the "RETURN" key (see example above).
The computer should respond with an "OK".

Now you are ready to call the number of the computer that will receive
your data transmission.

If you have to dial a number to get an outside line (for example 9)
and then dial the number of the party you wish to contact, type
"ATDT#,######" for tone dialing or "ATD#,######" for rotary dialing.
For example, I have to dial 9 for an outside line, and I wish to dial
465-6312.   I   would   type   in   "ATDT9,4656312"   tone dialing   or
"ATD9,4656312" for rotary dialing.

If you only have a regular phone number of a party you wish to
contact, type "ATDT######" for tone dialing or "ATD######" for
rotary dialing. For example, I wish to dial the number 465-6312.   I
would type in "ATDT4656312" for tone dialing or "ATD4656312" for
rotary dialing.

Notice the phone number is one long number. If you want to call long
distance, just tag the 1 + area code in front of the number you wish
to call.   For example, I wish to call the number 465-6312, long
distance, with an area code of 512. I would type in "ATDT15124656312"
for tone dialing or "ATD15124656312" for rotary dialing.

After you have typed in the phone number you wish to contact, press
the "RETURN" key, and the computer and modem should begin their
process in contacting the telephone number that you typed in.

```
Select a mode   1

ATFØ
OK
ATDT9,4656312
CONNECT


display/            print/           send/          receive/           /exit
```

After the computer signals a "CONNECT", you are ready to send your
PES.DAT file, which contains all of your PES visual evaluation data.

********** LOOP **********

Make certain that your dedicated PES visual evaluation data collection
micro cassette tape is in the tape drive, and press the "PF3" key to
"send" a file.

```
ATFØ
OK
ATDT9,4656312
CONNECT
Enter file name       H:PES.DAT

display/              /             SEND/              /             /exit
```

The computer then responds with "Enter file name". Type "H:PES.DAT"
(without the quotes), and press the "RETURN" key.

```
ATDT9,4656312
CONNECT
Enter file name       H:PES.DAT
Set transmission delay time in 1Ø ms (Max. 255)
 After each character  Ø
 After CR.LF           Ø
 After 128 bytes       Ø
display/              /             SEND/              /             /exit
```

There is a short delay, and you are then prompted with three delay
times. Press the "RETURN" key three times, and the PES visual
evaluation data will be transmitted via telephone lines to a data
collection unit that you contacted.

```
MMSE212312IH0035  000+00002+00R00000000000000000000000005505
MMSE212312IH0035  002+00004+00R00000000000000000000000005505
MMSE212312IH0035  004+00006+00R00000000000000000000000005505
MMSE212312IH0035  006+00008+00R00000000000000000000000005505
MMSE212312IH0035  008+00010+00R00000000000000000000000005505
MMSE212312IH0035  010+00012+00R00000000000000000000000005505
display/          print/              send/           receive/              /exit
```

When the data transfer has completed for the current side of the tape,
hold down the "CTRL" key and press the "HELP" or "SYSTEM" key.

```
*** SYSTEM DISPLAY ***    08/01/86 (FRI) 08:00:00           <MENU>  <PASSWORD>

<RAM   DISK> 000   kb      <AUTO START>
<USER  BIOS> 000X256 b     <MCT   MODE>    stop,   nonverify <COUNT>   00182
<MENU DRIVE> ICBA          <MENU  FILE> 1 .COM    2 .       3 .      4 .
- Select number or ESC to exit.
   1=password  2=alarm/wake  3=auto start  4=menu  5=MCT
       /remove           /                /              /              /
```

Hold down the "SHIFT" key and press the "PF1" key (located at the top
of the keyboard). You will then be prompted with the question "-Tape
remove (Y/N)?". Press the "Y" key and the micro cassette tape player
will close the current directory to the tape.   The SYSTEM DISPLAY
screen should reappear like the one below.

```
*** SYSTEM DISPLAY ***    08/01/86 (FRI) 08:00:00           <MENU>  <PASSWORD>

<RAM   DISK> 000   kb      <AUTO START>
<USER  BIOS> 000X256 b     <MCT   MODE>    stop,   nonverify <COUNT>   00182
<MENU DRIVE> ICBA          <MENU  FILE> 1 .COM    2 .       3 .      4 .
- Select number or ESC to exit.
   1=password  2=alarm/wake  3=auto start  4=menu  5=MCT
    <<- /              <- /mount        __ /dirinit    ->> /erase   ooo /
```

Pop the micro cassette tape out of the micro cassette tape drive and
• flip it over, to transfer the data on the other side of the tape.
Press the "ESC" key to return to the data transmission screen.

```
MMSE212312IH0035  000+00002+00R0000000000000000000000005505
MMSE212312IH0035  002+00004+00R0000000000000000000000005505
MMSE212312IH0035  004+00006+00R0000000000000000000000005505
MMSE212312IH0035  006+00008+00R0000000000000000000000005505
MMSE212312IH0035  008+00010+00R0000000000000000000000005505
MMSE212312IH0035  010+00012+00R0000000000000000000000005505
display/          print/          send/          receive/          /exit
```

Press the "PF3" key to send the data from the other side of the micro
cassette tape.

```
MMSE212312IH0035  004+00006+00R0000000000000000000000005505
MMSE212312IH0035  006+00008+00R0000000000000000000000005505
MMSE212312IH0035  008+00010+00R0000000000000000000000005505
MMSE212312IH0035  010+00012+00R0000000000000000000000005505
Enter file name        H:PES.DAT

display/          /          SEND/          /          /exit
```

The computer then responds with "Enter file name". Type "H:PES.DAT"
(without the quotes), and press the "RETURN" key.

```
MMSE212312IH0035  008+00010+00R0000000000000000000000005505
MMSE212312IH0035  010+00012+00R0000000000000000000000005505
Enter file name        H:PES.DAT
Set transmission delay time in 10 ms (Max. 255)
 After each character  0
 After CR.LF           0
 After 128 bytes       0
display/          /          SEND/          /          /exit
```

There is a short delay, and you are then prompted with three delay
times. Press the "RETURN" key three times, and the PES visual
evaluation data will be transmitted.

If you have more than one tape to transmit, go back to the
"********** LOOP **********"(on Page VII-60) and proceed from there.

After all of the data has been transmitted, unplug the transformer
from the back of the modem, and you have completed the process of the
data transfer of PES visual evaluation data via modem.

Chapter 8 -- Entering Visual Evaluation Data on Forms

For PES Release 1.2, visual evaluation data is one of two major input types required for computation of pavement score. Detailed coding and data collection instructions and personal consultation are available through the Pavement and Permits Section of File D-18. As of September, 1984, PES will support visual evaluation data collection and pavement score calculations for rigid pavements (evaluated pavement types 01-03) in addition to the flexible and composite pavement (codes 04-10) support provided in the past.

The coder will note three categories of two transaction (record) types which, in special combination, constitute an evaluation set. The general categories provide the method of data capture (Form 1624, 1625 and 1626-1) and are generally defined as follows.

1. Form 1624   - En Category Transactions.
                  Flexible and Composite (over 1 inch overlaid concrete) pavements.
                  PES codes 04-10.

2. Form 1625   - Fn Category Transactions.
                  Continuously Reinforced Concrete pavements.
                  PES code 01.

3. Form 1626-1 - Gn Category Transactions.
                  Jointed Concrete pavements.
                  PES codes 02-03.

Within each general category (En, Fn, and Gn), the coder will encounter transaction Types 1 and 2. The Type 1 transaction (E1, for example) provides general information on the visual work underway; Type 1 transactions for all three categories are identical except for the Transaction Identifier (explained below).

Although used in conjunction with a Type 1 transaction, Type 2 transactions (E2, for instance) vary in content among three categories and are employed to capture specific segment identification under investigation. Each data form sheet provides space for 15 Type 2 transaction entries, but any number greater than zero may accompany the corresponding Type 1 transaction. Submission of multiple transaction sets may be of the same or different categories.

Visual data applies to an entire evaluation segment rather than to a small portion (such as 0.2 miles); therefore, raters must maintain averages, sums, etc.

En Transactions - Flexible and Composite Pavements

Using CARD-ID and En (E1 and E2) transactions, raters record location and distress information for Flexible and Composite pavements only. Other transaction categories describe entries for Continuously Reinforced (Fn) and Jointed (Gn) Concrete pavements.

E1 Transaction - General Header Information

CC 01-03 - System Identifier.
Entry of MMS has been precoded.

CC 04-05 - Transaction Identifier.
Entry of E1 has been precoded.

CC 06-07 - District Number.
Any number 01-25 except 22 with lead zero for numbers 01-09.

CC 08-29 - Rater's Name (1 of 2).
Name of the first of two raters on a team is entered here. This field cannot be left blank; initials are allowed.

CC 30-51 - Rater's Name (2 of 2).
See rater's name (1 of 2).

CC 52-57 - Date of Evaluation.
Any valid date is allowed. Date cannot exceed date submitted for computer processing. The three sub-fields used are:

CC 52-53 - Month. Any number 01-12 with lead zero.
CC 54-55 - Day. Numbers 01-31 (based on month) with lead zero.
CC 56-57 - Year. Any number not to exceed this year.

CC 58-80 - Blank Spaces.

E2 Transaction - Detail PES Segment Information

CC 01-03 - System Identifier.
Entry of MMS has been precoded.

CC 04-05 - Transaction Identifier.
Entry of E2 has been precoded.

CC 06-08 - County Number.
Numbers 001-254 are valid with lead zero(s). County must be within District supplied on E1. Obtain county number from Rater's R01 Report or from Page VIII-21.

CC 09-10 — Foreman Number (aka: Maintenance Section).
Numbers 01-99 are valid with lead zero. Obtain
foreman number from Rater's R01 Report.

CC 11-17 — Highway.
Copy the information supplied on the Rater's R01
Report exactly as presented. Under the NUMBER
sub-field, insure use of lead zeros. The three
sub-fields are:

CC 11-12 — Prefix. IH, US, SH, FM, and PR are valid.
Note that RM, RR, RE, ... are considered
FM.
CC 13-16 — Number. Numbers 0001-9999 are valid, plus
0OSR and NASA.
CC 17 — Suffix. Values blank, A, S, E, W, and N
for non-PR routes and blank, A-Z for PR
routes.

CC 18-23 — From (aka: Segment Begin Boundary).
Copy the information supplied on the Rater's R01
Report. Under the MILEPOST and DISPLACEMENT (VALUE)
sub-fields, insure use of lead zeros. The three
sub-fields are:

CC 18-20 — Milepost. Numeric values 000-999 are
valid.
CC 21 — Displacement (Sign). Only special
characters '+' and '-' are allowed.
CC 22-23 — Displacement (VALUE). Note imbedded
decimal point. Values 00-99 (0.0-9.9) are
valid.

CC 24-29 — To (aka: Segment End Boundary).
Refer to description of From in CC 18-23 above.

CC 30 — Lane Descriptor.
Of the fields under the LOCATION caption, only lane is
left for the Visual Evaluation Rater(s) to determine.
Any valid lane identifier for the facility is allowed.
Lanes are described as:

Main Lanes

Lane L (outside lane against increasing mileposts).
     M (to the left of L and against increasing
     posts).
     N (to the left of M and against increasing
     posts).
     O (to the left of N and against increasing
     posts).
     P (to the left of O and against increasing
     posts).

Lane V (to the left of U and with increasing posts).
U (to the left of T and with increasing posts).
T (to the left of S and with increasing posts).
S (to the left of R and with increasing posts).
R (outside lane with increasing mileposts).

Frontage Road Lanes

Lane X (outside lane against increasing mileposts).
Y (to the left of X and against increasing posts).
Z (to the left of Y and against increasing posts).
Lane C (to the left of B and with increasing posts).
B (to the left of A and with increasing posts).
A (outside lane with increasing mileposts).

CC 31-33 - Rutting.
For detailed coding information, refer to Chapter 4.
Valid code values are:

000 - No rutting or rutting under 0.5 inches.
100 - 0.5-1.0 inches, 01-25 percent of wheel path area.
010 - 0.5-1.0 inches, 26-50 percent of wheel path area.
001 - 0.5-1.0 inches, over 50 percent of wheel path area.
200 - Over 1.0 inch, 01-25 percent of wheel path area.
020 - Over 1.0 inch, 26-50 percent of wheel path area.
002 - Over 1.0 inch, over 50 percent of wheel path area.

CC 34-36 - Patching.
Refer to Chapter 4 for detailed explanations. Valid code values are:

000 - No patches are under 1 percent of lane surface area patched.
100 - 01-10 percent of lane surface area patched.
010 - 11-50 percent of lane surface area patched.
001 - Over 50 percent of lane surface area patched.

CC 37-39 - Failures.
Refer to Chapter 4 for detailed explanations. Ten potholes are considered one failure. Valid code values are:

000 - No failures or under 10 potholes
100 - 01-05 failures per lane mile.
010 - 06-10 failures per lane mile.
001 - Over 10 failures per lane mile.

CC 40-42 - Block Cracking.
Refer to Chapter 4 for detailed explanations. Valid
code values are:

000 - Less than one percent of lane area exhibits
block cracks.
100 - 01-10 percent of lane area exhibits block
cracks.
010 - 11-50 percent of lane area exhibits block
cracks.
001 - Over 50 percent of lane area exhibits block
cracks.

CC 43-45 - Alligator Cracking.
Refer to Chapter 4 for detailed explanations. Valid
code values are:

000 - No alligator cracking.
100 - 01-10 percent of area contains alligator
cracking.
010 - 11-50 percent of area contains alligator
cracking.
001 - Over 50 percent of area contains alligator
cracking.

CC 46-48 - Longitudinal Cracking.
Refer to Chapter 4 for detailed explanations. Valid
code values are:

000 - No longitudinal cracking.
100 - 010-099 linear feet per station (100 feet).
010 - 100-200 linear feet per station (100 feet).
001 - Over 200 linear feet per station (100 feet).

CC 49-51 - Transverse Cracking.
Refer to Chapter 4 for detailed explanations. Valid
code values are:

000 - No transverse cracks.
100 - 01-04 full lane cracks per station (100 feet).
010 - 05-10 full lane cracks per station (100 feet).
001 - Over 10 full lane cracks per station (100 feet).

CC 52-53 - Comment Code.
Any number 01-99 with lead zero. Reserved codes
appear on side 2 of each data form.

CC 54-55 - Speed Limit.
Any number 01-55 on Non-Interstate Freeways or 01-65
on Interstate Freeways with lead zero in the unlikely
case of posted speeds under 10 mph. Code the highest
speed limit for the roadway within the segment
evaluated.

CC 56-57 - Pavement Type.
Any number 01-10, depending upon Form and Card
Identifier. Codes 01-03 indicate rigid pavements
while codes 04-10 indicate Flexible and Composite
pavements. A full list of decoded values are
presented below; use only those appropriate for the
CARD-ID.

    01 - Continuously reinforced concrete.
    02 - Jointed reinforced concrete.
    03 - Jointed plain concrete.
** 04 - Thick asphaltic concrete (over 5.5 inches).
** 05 - Intermediate thick asphaltic concrete (2.5-5.5
         inches).
** 06 - Thin-surfaced flexible base (less than 2.5
         inches).
** 07 - Composite (asphalt-surfaced concrete).
** 08 - Overlaid and/or widened old concrete.
** 09 - Overlaid and/or widened old flexible.
** 10 - Thin-surfaced flexible base (surface treated
         pavements).

CC 58-80 - Comments/Notes.
Any combination of blanks, letters, numbers, and
special characters the coder wishes to enter.
Remarks should relate only to the roadway within
the segment under evaluation. This information
is not retained on the computer database; therefore,
significant events should be recorded using the
COMMENT CODE field described previously.

Fn Transactions - Continuously Reinforced Concrete Pavement

Using CARD-ID and Fn (F1 and F2) transactions, raters record location
and distress information for Continuously Reinforced Concrete
pavements only. Other transaction categories describe entries for
Flexible and Composite (En) and Jointed (Gn) Concrete pavements.

F1 Transaction - General Header Information

CC 01-03 - System Identifier.
Entry of MMS has been precoded.

CC 04-05 - Transaction Identifier.
Entry of F1 has been precoded.

CC 06-07 - District Number.
Any number 01-25 except 22 with lead zero for numbers
01-09.

CC 08-29 - Rater's Name (1 of 2).
Name of the first of two raters on a team is entered
here. This field cannot be left blank; initials are
allowed.

CC 30-51 - Rater's Name (2 of 2).
See rater's name (1 of 2).

CC 52-57 - Date of Evaluation.
Any valid date is allowed. Date cannot exceed date
submitted for computer processing. The three
sub-fields used are:

CC 52-53 - Month. Any number 01-12 with lead zero.
CC 54-55 - Day. Numbers 01-31 (based on month) with
lead zero.
CC 56-57 - Year. Any number not to exceed this year.

CC 58-80 - Blank Spaces.

F2 Transaction - Detail PES Segment Information

CC 01-03 - System Identifier.
Entry of MMS has been precoded.

CC 04-05 - Transaction Identifier.
Entry of F2 has been precoded.

CC 06-08 - County Number.
Numbers 001-254 are valid with lead zero(s). County
must be within District supplied on F1. Obtain county
number from Rater's R01 Report.

CC 09-10 - Foreman Number (aka: Maintenance Section).
Numbers 01-99 are valid with lead zero. Obtain
foreman number from Rater's R01 Report.

CC 11-17 - Highway.
Copy the information supplied on the Rater's R01
Report exactly as presented. Under the NUMBER
sub-field, insure use of lead zeros. The three
sub-fields are:

CC 11-12 - Prefix. IH, US, SH, FM, and PR are valid.
Note that RM, RR, RE, ... are considered
FM.
CC 13-16 - Number. Numbers 0001-9999 are valid, plus
0OSR and NASA.
CC 17   - Suffix. Values blank, A, S, E, W, and N
for non-PR routes and blank, A-Z for PR
routes.

CC 18-23 - From (aka: Segment Begin Boundary).
          Copy the information supplied on the Rater's R01
          Report. Under the MILEPOST and DISPLACEMENT (VALUE)
          sub-fields, insure use of lead zeros. The three
          sub-fields are:

          CC 18-20 - Milepost. Numeric values 000-999 are
                     valid.
          CC 21   - Displacement (Sign). Only special
                     characters '+' and '-' are allowed.
          CC 22-23 - Displacement (VALUE). Note imbedded
                     decimal point. Values 00-99 (0.0-9.9) are
                     valid.

CC 24-29 - To (aka: Segment End Boundary).
          Refer to description of From in CC 18-23 above.

CC 30   - Lane Descriptor.
          Of the fields under the LOCATION caption, only lane is
          left for the Visual Evaluation Rater(s) to determine.
          Any valid lane identifier for the facility is allowed.
          Lanes are described as:

          Main Lanes

          Lane L (outside lane against increasing mileposts).
               M (to the left of L and against increasing
                 posts).
               N (to the left of M and against increasing
                 posts).
               O (to the left of N and against increasing
                 posts).
               P (to the left of O and against increasing
                 posts).
          Lane V (to the left of U and with increasing posts).
               U (to the left of T and with increasing posts).
               T (to the left of S and with increasing posts).
               S (to the left of R and with increasing posts).
               R (outside lane with increasing mileposts).

          Frontage Road Lanes

          Lane X (outside lane against increasing mileposts).
               Y (to the left of X and against increasing
                 posts).
               Z (to the left of Y and against increasing
                 posts).
          Lane C (to the left of B and with increasing posts).
               B (to the left of A and with increasing posts).
               A (outside lane with increasing mileposts).

CC 31-33 - Spalled Cracks.
For detailed coding information, refer to Chapter 5.
Valid code values are:

000 - 999 - Actual numeric count of spalled cracks
over the entire PES segment.

CC 34-36 - Punchouts.
Refer to Chapter 5 for detailed explanations. Valid
code values are:

000 - 200 - Actual numeric count of punchouts over the
entire PES segment.

Note: Due to the extreme nature of the
count, values from 100-200 are
accepted, but are accompanied by a
warning message. Values over 200
are considered an error and are
rejected.

CC 37-39 - Asphaltic Concrete Pavement (ACP) Patches.
Refer to Chapter 5 for detailed explanations. Valid
code values are:

000 - 200 - Actual numeric count of ACP patches over
the entire PES segment.

Note: Due to the extreme nature of the
count, values from 100-200 are
accepted, but are accompanied by a
warning message. Values over 200
are considered an error and are
rejected.

CC 40-42 - Portland Cement Concrete Pavement (PCCP) Patches.
Refer to Chapter 5 for detailed explanations. Valid
code values are:

000 - 200 - Actual numeric count of PCCP patches
over the entire PES segment.

Note: Due to the extreme nature of the
count, values from 100-200 are
accepted, but are accompanied by a
warning message. Values over 200
are considered an error and are
rejected.

CC 43-45 - Crack Spacing.
Refer to Chapter 5 for detailed explanations. Valid
code values are:

000 - 075 - Average distance (in feet) between
cracks over the entire PES segment.

Note: Due to the extreme nature of the
count, values from 050-075 are
accepted, but are accompanied by a
warning message. Values over 075
are considered an error and are
rejected.

CC 46-51 - Blank Space.
Code sheet has been shaded in these particular
columns.

CC 52-53 - Comment Code.
Any number 01-99 with lead zero. Reserved codes
appear on side 2 of each data form.

CC 54-55 - Speed Limit.
Any number 01-55 on Non-Interstate Freeways or 01-65
on Interstate Freeways with lead zero in the unlikely
case of posted speeds under 10 mph. Code the highest
speed limit for the roadway within the segment
evaluated.

CC 56-57 - Pavement Type.
Any number 01-10, depending upon Form and Card
Identifier. Codes 01-03 indicate rigid pavements
while codes 04-10 indicate Flexible and Composite
pavements. A full list of decoded values are
presented below; use only those appropriate for the
CARD-ID.

** 01 - Continuously reinforced concrete.
    02 - Jointed reinforced concrete.
    03 - Jointed plain concrete.
    04 - Thick asphaltic concrete (over 5.5 inches).
    05 - Intermediate thick asphaltic concrete (2.5-5.5
         inches).
    06 - Thin-surfaced flexible base (less than 2.5
         inches).
    07 - Composite (asphalt-surfaced concrete).
    08 - Overlaid and/or widened old concrete.
    09 - Overlaid and/or widened old flexible.
    10 - Thin-surfaced flexible base (surface treated
         pavements).

CC 58-80 - Comments/Notes.
            Any combination of blanks, letters, numbers, and
            special characters the coder wishes to enter.
            Remarks should relate only to the roadway within
            the segment under evaluation. This information
            is not retained on the computer database; therefore,
            significant events should be recorded using the
            COMMENT CODE field described previously.

Gn Transactions - Jointed Concrete Pavement

Using CARD-ID and Gn (G1 and G2) transactions, raters record location
and distress information for Jointed Concrete pavements only.   Other
transaction categories describe entries for Flexible and Composite
(En) and Continuously Reinforced Concrete (Gn) pavements.

G1 Transaction - General Header Information

CC 01-03 - System Identifier.
            Entry of MMS has been precoded.

CC 04-05 - Transaction Identifier.
            Entry of G1 has been precoded.

CC 06-07 - District Number.
            Any number 01-25 except 22 with lead zero for numbers
            01-09.

CC 08-29 - Rater's Name (1 of 2).
            Name of the first of two raters on a team is entered
            here. This field cannot be left blank; initials are
            allowed.

CC 30-51 - Rater's Name (2 of 2).
            See rater's name (1 of 2).

CC 52-57 - Date of Evaluation.
            Any valid date is allowed. Date cannot exceed date
            submitted for computer processing. The three
            sub-fields used are:

            CC 52-53 - Month. Any number 01-12 with lead zero.
            CC 54-55 - Day. Numbers 01-31 (based on month) with
                        lead zero.
            CC 56-57 - Year. Any number not to exceed this year.

CC 58-80 - Blank Spaces.

G2 Transaction - Detail PES Segment Information

CC 01-03 - System Identifier.
    Entry of MMS has been precoded.

CC 04-05 - Transaction Identifier.
    Entry of G2 has been precoded.

CC 06-08 - County Number.
    Numbers 001-254 are valid with lead zero(s). County
    must be within District supplied on G1. Obtain county
    number from Rater's R01 Report.

CC 09-10 - Foreman Number (aka: Maintenance Section).
    Numbers 01-99 are valid with lead zero. Obtain
    foreman number from Rater's R01 Report.

CC 11-17 - Highway.
    Copy the information supplied on the Rater's R01
    Report exactly as presented. Under the NUMBER
    sub-field, insure use of lead zeros. The three
    sub-fields are:

    CC 11-12 - Prefix. IH, US, SH, FM, and PR are valid.
        Note that RM, RR, RE, ... are considered
        FM.
    CC 13-16 - Number. Numbers 0001-9999 are valid, plus
        00SR and NASA.
    CC 17   - Suffix. Values blank, A, S, E, W, and N
        for non-PR routes and blank, A-Z for PR
        routes.

CC 18-23 - From (aka: Segment Begin Boundary).
    Copy the information supplied on the Rater's R01
    Report. Under the MILEPOST and DISPLACEMENT (VALUE)
    sub-fields, insure use of lead zeros. The three
    sub-fields are:

    CC 18-20 - Milepost. Numeric values 000-999 are
        valid.
    CC 21   - Displacement (Sign). Only special
        characters '+' and '-' are allowed.
    CC 22-23 - Displacement (VALUE). Note imbedded
        decimal point. Values 00-99 (0.0-9.9) are
        valid.

CC 24-29 - To (aka: Segment End Boundary).
    Refer to description of From in CC 18-23 above.

CC 30   - Lane Descriptor.
         Of the fields under the LOCATION caption, only lane is
         left for the Visual Evaluation Rater(s) to determine.
         Any valid lane identifier for the facility is allowed.
         Lanes are described as:

         Main Lanes

         Lane L (outside lane against increasing mileposts).
              M (to the left of L and against increasing
                posts).
              N (to the left of M and against increasing
                posts).
              O (to the left of N and against increasing
                posts).
              P (to the left of O and against increasing
                posts).
         Lane V (to the left of U and with increasing posts).
              U (to the left of T and with increasing posts).
              T (to the left of S and with increasing posts).
              S (to the left of R and with increasing posts).
              R (outside lane with increasing mileposts).

         Frontage Road Lanes

         Lane X (outside lane against increasing mileposts).
              Y (to the left of X and against increasing
                posts).
              Z (to the left of Y and against increasing
                posts).
         Lane C (to the left of B and with increasing posts).
              B (to the left of A and with increasing posts).
              A (outside lane with increasing mileposts).

CC 31-33 - Failed Joints and Cracks.
         For detailed coding information, refer to Chapter 6.
         Valid code values are:

         000 - 175 - Actual numeric count of failed joints and
                     cracks over the entire PES segment.

                     Note: Due to the extreme nature of the
                           count, values greater than 175 will
                           be accepted but are accompanied by
                           a warning message.

CC 34-36 - Failures.
         Refer to Chapter 6 for detailed explanations. Valid
         code values are:

000 - 750 - Actual numeric count of failures over the entire PES segment.

Note: Due to the extreme nature of the count, values greater than 750 will be accepted but are accompanied by a warning message.

CC 37-39 - Shattered Slabs.
Refer to Chapter 6 for detailed explanations. Valid code values are:

000 - 175 - Actual numeric count of shattered slabs over the entire PES segment.

Note: Due to the extreme nature of the count, values greater than 175 will be accepted but are accompanied by a warning message.

CC 40-42 - Slabs with Longitudinal Cracks.
Refer to Chapter 6 for detailed explanations. Valid code values are:

000 - 175 - Actual numeric count of SLABS with longitudinal cracks over the entire PES segment.

Note: Due to the extreme nature of the count, values greater than 175 will be accepted but are accompanied by a warning message.

CC 43-45 - Slabs with Portland Cement Concrete Pavement (PCCP) Patches.
Refer to Chapter 6 for detailed explanations. Valid code values are:

000 - 500 - Actual numeric count of the number of SLABS with one or more PCCP patches over the entire PES segment.

Note: Due to the extreme nature of the count, values greater than 500 will be accepted but are accompanied by a warning message.

CC 46-48 - Apparent Joint Spacing.
Refer to Chapter 6 for detailed explanations. Valid code values are:

015 - 075 - Numeric value indicating the predominant
pattern of designed joints over the entire
PES segment.

Note: Due to the extreme value of the
spacing, values outside this range
will be given an error message.

CC 49-51 - Blank Space.
Code sheet has been shaded in these particular
columns.

CC 52-53 - Comment Code.
Any number 01-99 with lead zero. Reserved codes
appear on side 2 of each data form.

CC 54-55 - Speed Limit.
Any number 01-55 on Non-Interstate Freeways or 01-65
on Interstate Freeways with lead zero in the unlikely
case of posted speeds under 10 mph. Code the highest
speed limit for the roadway within the segment
evaluated.

CC 56-57 - Pavement Type.
Any number 01-10, depending upon Form and Card
Identifier. Codes 01-03 indicate rigid pavements
while codes 04-10 indicate Flexible and Composite
pavements. A full list of decoded values are
presented below; use only those appropriate for the
CARD-ID.

        01 - Continuously reinforced concrete.
** 02 - Jointed reinforced concrete.
** 03 - Jointed plain concrete.
        04 - Thick asphaltic concrete (over 5.5 inches).
        05 - Intermediate thick asphaltic concrete (2.5-5.5
           inches).
        06 - Thin-surfaced flexible base (less than 2.5
           inches).
        07 - Composite (asphalt-surfaced concrete).
        08 - Overlaid and/or widened old concrete.
        09 - Overlaid and/or widened old flexible.
        10 - Thin-surfaced flexible base (surface treated
           pavements).

CC 58-80 - Comments/Notes.
Any combination of blanks, letters, numbers, and
special characters the coder wishes to enter.
Remarks should relate only to the roadway within
the segment under evaluation. This information
is not retained on the computer database; therefore,
significant events should be recorded using the
COMMENT CODE field described previously.

Sample Data Forms

Samples of Form 1624, 1625 and 1626-1 begin on the following page. The back of each form, which is identical for all three, is also included.

State Department of Highways
and Public Transportation
FORM 1624   (Replaces Form 1505)

FLEXIBLE PAVEMENT EVALUATION

6-84

SYSTEM - ID M M S E I   DISTRICT
& CARD - ID 1 2 3 4 5   NO.   6 7

RATERS:

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |

| 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 |

DATE: MONTH [52 53]   DAY [54 55]   YEAR [56 57]

PAVEMENT CONDITIONS

COMMENTS / NOTES

NOTE:
Zero should be inserted in
appropriate pavement condition
column if no visual defect is noted.

LOCATION

SYSTEM ID	CARD - ID	COUNTY NO.	FOREMAN NO.	HIGHWAY NO. (PRE. / NO. / SUF.)	FROM (MILEPOST / DISPLACEMENT +1)	TO (MILEPOST / DISPLACEMENT +1)	LANE	RUTTING 1/2"-1"=1 >1"=2 % Area (1-25 / 26-50 / >50)	PATCHING % Area (1-50 / 11-50 / >50)	FAILURES NO. PER LN/MI (1-5 / 6-10 / >10)	BLOCK CRACKING % Area (1-10 / 11-50 / >50)	ALLIGATOR CRACKING % Area (1-10 / 11-50 / >50)	LONGITUDINAL CRACKING LIN. FT PER STA/LN. (10-99 / 100-200 / >200)	TRANSVERSE CRACKING NO. PER STA (1-4 / 5-10 / >10)	COMMENT CODE	SPEED LIMIT	PAVEMENT TYPE
M M S E 2																	
M M S E 2																	
M M S E 2																	
M M S E 2																	
M M S E 2																	
M M S E 2																	
M M S E 2																	
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M M S E 2																	
M M S E 2																	
M M S E 2																	
M M S E 2																	
M M S E 2																	
M M S E 2																	

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

State Department of Highways
and Public Transportation
FORM 1625

CONTINUOUSLY REINFORCED
CONCRETE PAVEMENT EVALUATION

PAVEMENT CONDITIONS

SYSTEM - ID M M S F I   DISTRICT NO.
& CARD - ID 1 2 3 4 5

RATERS:

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |

| 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 |

DATE: MONTH [ ] 52 53   DAY [ ] 54 55   YEAR [ ] 56 57

LOCATION

COMMENTS / NOTES

NOTE:
Zero should be inserted in appropriate pavement condition column if no visual defect is noted.

SYSTEM ID	CARD - ID	COUNTY NO.	FOREMAN NO.	HIGHWAY NO. (PRE. / NO. / SUF.)	FROM MILEPOST	FROM DISPLACEMENT ±1	TO MILEPOST	TO DISPLACEMENT ±1	LANE	SPALLED CRACKS TOTAL NO.	PUNCHOUTS TOTAL NO.	REPAIRS ASPHALTIC CONCRETE PATCHES TOTAL NO.	REPAIRS PORT. CEMENT CONC. PATCHES TOTAL NO.	AVERAGE CRACK SPACING FEET		COMMENT CODE	SPEED LIMIT	PAVEMENT TYPE
M M S F 2																		
M M S F 2																		
M M S F 2																		
M M S F 2																		
M M S F 2																		
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M M S F 2																		
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1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

Pavement Types

Code	Description
1	Continuously Reinforced Concrete Pavement
2	Jointed Reinforced Concrete Pavement
3	Jointed Plain Concrete Pavement
4	Thick Asphaltic Concrete Pavement (greater than 5 1/2")
5	Intermediate Thickness Asphaltic Concrete Pavement (2 1/2" to 5 1/2")
6	Thin Surfaced Flexible Base Pavement (less than 2 1/2")
7	Composite Pavement (Asphalt Surfaced Concrete Pavement)
8	Overlaid and/or Widened Old Concrete Pavement
9	Overlaid and/or Widened Old Flexible Pavement
10	Thin Surfaced Flexible Base Pavement (Surface Treatment-Seal Coat Combination)

Comment Codes

Code	Description
01	Concrete Pavement with Asphaltic Level-up
10	Encroachment
11	Automobile Encroachment
12	Agricultural Encroachment
13	Advertisement Encroachment
20	Signal
21	Improper Operating Signal
22	Improper Operating Flashing Signal
30	Geometrics
31	Improper Speed Signing of Curve
32	Improper Striping of No Passing Zone
40	Roadside Hazard
41	Dangerous Sign Support
42	Dangerous Tree
43	Dangerous Slope
50	Bridge
51	Narrow Bridge
52	Damaged Bridge Railing
53	Damaged Bridge Superstructures
60	Pest Control

JOINTED CONCRETE PAVEMENT EVALUATION

SYSTEM - ID |M|M|S| |G|I| DISTRICT NO.
& CARD - ID |1|2|3| |4|5|

RATERS:

| 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 |

| 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 |

DATE: MONTH ☐☐ DAY ☐☐ YEAR ☐☐
          52 53   54 55   56 57

PAVEMENT CONDITIONS

COMMENTS / NOTES

NOTE:
Zero should be inserted in appropriate pavement condition column if no visual defect is noted.

LOCATION

SYSTEM ID	CARD - ID	COUNTY NO.	FOREMAN NO.	HIGHWAY NO. (PRE. / NO. / SUF.)	FROM MILEPOST	FROM DISPLACEMENT +1	TO MILEPOST	TO DISPLACEMENT +1	LANE	FAILED JOINTS AND CRACKS TOTAL NO.	FAILURES TOTAL NO.	SHATTERED SLABS TOTAL NO.	SLABS WITH LONGITUDINAL CRACKS TOTAL NO.	REPAIRS PCC PATCHES TOTAL NO.	APPARENT JOINT SPACING FEET	COMMENT CODE	SPEED LIMIT	PAVEMENT TYPE
M M S G 2																		
M M S G 2																		
M M S G 2																		
M M S G 2																		
M M S G 2																		
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M M S G 2																		
M M S G 2																		

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

TEXAS COUNTIES
STATE DEPARTMENT OF HIGHWAYS AND PUBLIC TRANSPORTATION

CO. NO.	COUNTY NAME	DIST. NO.	CO. NO.	COUNTY NAME	DIST. NO.	CO. NO.	COUNTY NAME	DIST. NO.	CO. NO.	COUNTY NAME	DIST. NO.
1	ANDERSON	10	65	DONLEY	25	129	KARNES	16	192	REAGAN	7
2	ANDREWS	6	66	KENEDY	21	130	KAUFMAN	18	193	REAL	7
3	ANGELINA	11	67	DUVAL	21	131	KENDALL	15	194	RED RIVER	1
4	ARANSAS	16	68	EASTLAND	23	66	KENEDY	21	195	REEVES	6
5	ARCHER	3	69	ECTOR	6	132	KENT	8	196	REFUGIO	16
6	ARMSTRONG	4	70	EDWARDS	7	133	KERR	15	197	ROBERTS	4
7	ATASCOSA	15	71	ELLIS	18	134	KIMBLE	7	198	ROBERTSON	17
8	AUSTIN	13	72	EL PASO	24	135	KING	25	199	ROCKWALL	18
9	BAILEY	5	73	ERATH	2	136	KINNEY	7	200	RUNNELS	7
10	BANDERA	15	74	FALLS	9	137	KLEBERG	16	201	RUSK	10
11	BASTROP	14	75	FANNIN	1	138	KNOX	25	202	SABINE	11
12	BAYLOR	3	76	FAYETTE	13	139	LAMAR	1	203	SAN AUGUSTINE	11
13	BEE	16	77	FISHER	8	140	LAMB	5	204	SAN JACINTO	11
14	BELL	9	78	FLOYD	5	141	LAMPASAS	23	205	SAN PATRICIO	16
15	BEXAR	15	79	FOARD	25	142	LA SALLE	15	206	SAN SABA	23
16	BLANCO	14	80	FORT BEND	12	143	LAVACA	13	207	SCHLEICHER	7
17	BORDEN	8	81	FRANKLIN	1	144	LEE	14	208	SCURRY	8
18	BOSQUE	9	82	FREESTONE	17	145	LEON	17	209	SHACKELFORD	8
19	BOWIE	19	83	FRIO	15	146	LIBERTY	20	210	SHELBY	11
20	BRAZORIA	12	84	GAINES	5	147	LIMESTONE	9	211	SHERMAN	4
21	BRAZOS	17	85	GALVESTON	12	148	LIPSCOMB	4	212	SMITH	10
22	BREWSTER	24	86	GARZA	5	149	LIVE OAK	16	213	SOMERVELL	2
23	BRISCOE	25	87	GILLESPIE	14	150	LLANO	14	214	STARR	21
24	BROOKS	21	88	GLASSCOCK	7	151	LOVING	6	215	STEPHENS	23
25	BROWN	23	89	GOLIAD	16	152	LUBBOCK	5	216	STERLING	7
26	BURLESON	17	90	GONZALES	13	153	LYNN	5	217	STONEWALL	8
27	BURNET	14	91	GRAY	4	154	MADISON	17	218	SUTTON	7
28	CALDWELL	14	92	GRAYSON	1	155	MARION	19	219	SWISHER	5
29	CALHOUN	13	93	GREGG	10	156	MARTIN	6	220	TARRANT	2
30	CALLAHAN	8	94	GRIMES	17	157	MASON	14	221	TAYLOR	8
31	CAMERON	21	95	GUADALUPE	15	158	MATAGORDA	13	222	TERRELL	6
32	CAMP	19	96	HALE	5	159	MAVERICK	15	223	TERRY	5
33	CARSON	4	97	HALL	25	160	MC CULLOCH	23	224	THROCKMORTON	3
34	CASS	19	98	HAMILTON	9	161	MC LENNAN	9	225	TITUS	19
35	CASTRO	5	99	HANSFORD	4	162	MC MULLEN	15	226	TOM GREEN	7
36	CHAMBERS	20	100	HARDEMAN	25	163	MEDINA	15	227	TRAVIS	14
37	CHEROKEE	10	101	HARDIN	20	164	MENARD	7	228	TRINITY	11
38	CHILDRESS	25	102	HARRIS	12	165	MIDLAND	6	229	TYLER	20
39	CLAY	3	103	HARRISON	19	166	MILAM	17	230	UPSHUR	19
40	COCHRAN	5	104	HARTLEY	4	167	MILLS	23	231	UPTON	6
41	COKE	7	105	HASKELL	8	168	MITCHELL	8	232	UVALDE	15
42	COLEMAN	23	106	HAYS	14	169	MONTAGUE	3	233	VAL VERDE	7
43	COLLIN	18	107	HEMPHILL	4	170	MONTGOMERY	12	234	VAN ZANDT	10
44	COLLINGSWORTH	25	108	HENDERSON	10	171	MOORE	4	235	VICTORIA	13
45	COLORADO	13	109	HIDALGO	21	172	MORRIS	19	236	WALKER	17
46	COMAL	15	110	HILL	9	173	MOTLEY	25	237	WALLER	12
47	COMANCHE	23	111	HOCKLEY	5	174	NACOGDOCHES	11	238	WARD	6
48	CONCHO	7	112	HOOD	2	175	NAVARRO	18	239	WASHINGTON	17
49	COOKE	3	113	HOPKINS	1	176	NEWTON	20	240	WEBB	21
50	CORYELL	9	114	HOUSTON	11	177	NOLAN	8	241	WHARTON	13
51	COTTLE	25	115	HOWARD	8	178	NUECES	16	242	WHEELER	25
52	CRANE	6	116	HUDSPETH	24	179	OCHILTREE	4	243	WICHITA	3
53	CROCKETT	7	117	HUNT	1	180	OLDHAM	4	244	WILBARGER	3
54	CROSBY	5	118	HUTCHINSON	4	181	ORANGE	20	245	WILLACY	21
55	CULBERSON	24	119	IRION	7	182	PALO PINTO	2	246	WILLIAMSON	14
56	DALLAM	4	120	JACK	2	183	PANOLA	19	247	WILSON	15
57	DALLAS	18	121	JACKSON	13	184	PARKER	2	248	WINKLER	6
58	DAWSON	5	122	JASPER	20	185	PARMER	5	249	WISE	2
59	DEAF SMITH	4	123	JEFF DAVIS	24	186	PECOS	6	250	WOOD	10
60	DELTA	1	124	JEFFERSON	20	187	POLK	11	251	YOAKUM	5
61	DENTON	18	125	JIM HOGG	21	188	POTTER	4	252	YOUNG	3
62	DE WITT	13	126	JIM WELLS	16	189	PRESIDIO	24	253	ZAPATA	21
63	DICKENS	25	127	JOHNSON	2	190	RAINS	1	254	ZAVALA	15
64	DIMMIT	15	128	JONES	8	191	RANDALL	4			

Chapter 9 -- TECHNICAL ASSISTANCE

For general questions on PES, this Rater's Manual or rating procedures, please contact Doug Chalman at Texan 241-7653.

In addition, questions about milepost locations or other section identification questions should be directed to Jim Copeland, D-1Ø, to TexAn 241-7519. Requests for additional copies of District milepost maps should be directed to J.V. Hall, D-1Ø, at TexAn 241-7492.