LONG TERM PAVEMENT PERFORMANCE PROGRAM DIRECTIVE

For the Technical Direction of the LTPP Program

Program Area:	Monitoring	Directive Number:	D-14
Date:	March 1, 1999	Supersedes:	D-13
Subject:	Changes to "Distress Identification Manual for the Long-Term Pavement Performance Project, SHRP-P-338"		

The subject manual was published in May 1993. Since that time numerous minor corrections have been identified as well as some changes to descriptions, measurement techniques and data forms. This directive provides specific text and explanations intended for application by LTPP users only. Directive D-13, superseded, contained additional major changes which have been withheld pending further review.

The changes contained herein are in force as of the date of this directive.

Any questions regarding this directive should be submitted to the FHWA Pavement Performance Division with a copy to the LTPP Technical Assistance Contractor (TAC).

Prepared by: TSSC

Approved by:

Monte Symons
LTPP Team Leader

Summary of Changes

Since the introduction of the 1993 Distress Identification Manual (DIM), there have been a number of minor changes and suggested work-arounds proposed and implemented in order to promote consistency among the LTPP raters. Many of these changes are well known to those raters as they were the ones who identified the situations where changes were needed.

Revisions to the appendices are also needed. Procedures for distress surveys provided in Appendix A remain in force except that some data sheets have been revised. Dipstick procedures have been revised and incorporated into the "LTPP Manual for Profile Measurements, Operational Field Guidelines, Version 3.1, January 1999" and therefore Appendix B is no longer applicable to LTPP Operations. The faultmeter guidelines in Appendix C remain in force.

Specific Changes In this Directive

Asphalt Pavements

- Under transverse cracking description, added note on multiple distresses; e.g., transverse crack through area of fatigue cracking
- Declared that a patched Patch is high severity. For a rutted patch, established the following rut depth criteria to assign patch severity: L < 6 mm; 6 # M < 12 mm; H 12+ mm
- Described in note how to handle multiple distresses; e.g., potholes and fatigue cracking
- Clarified Pothole description of minimum plan dimension
- Eliminated severity levels for bleeding (continue determination of extent).
- Eliminated severity levels for raveling (continue determination of extent).
- Eliminated measurement and recording of lane to shoulder dropoff for AC pavements

Jointed Concrete Pavement

- For joint spalling (both longitudinal and transverse), changed distance of cracking to < 0.3 m to eliminate conflict with corner break criterion
- Incorporated errata from directive D-6 (joint seal damage)
- Under spalling of transverse joints, clarified "How to Measure" section to conform to practice
- Distress data Sheet 6 is revised to include ONLY faulting measurements for transverse joints and cracks and the point distance. Crack length, sealant and joint spalling data are no longer recorded on Sheet 6.
- Set the minimum length of longitudinal spalling needed before it is counted - 0.1 m
- Added comment for diamond grinding not being considered as polished aggregate
- Eliminated recording popouts

Continuously Reinforced

- Incorporated errata from D-6 for transverse cracking (edited description for Low Severity Transverse Cracking - CRCP 3)

- Under transverse cracking, 'Y' cracks can only extend from midlane; if longer, then count as 2 cracks
- Eliminated recording popouts
- The minimum length of longitudinal spalling needed before it is counted - 0.1 m

Appendix B - No longer applies; refer to "LTPP Manual for Profile Measurements, Operational Field Guidelines, v3.1" or later.

IMS Data

The changes in distress data collection shall be applied to existing IMS data, both manually collected and provided from film, as appropriate and practicable. The following table outlines the specific data elements to be revised to conform to these changes. Further directives will provide details and authorize effort to make these corrections. These are presented for information purposes.

Distress	Action
Asphalt Concrete	
11. Bleeding	**-- to be done by TSSC directly in IMS--**
13. Raveling	**-- to be done by TSSC directly in IMS--**

Implementation

The following pages contain specific detailed change instructions to be applied to the DIM. It is strongly urged that each manual used in the RCOC operations have all of these changes permanently applied, either through pen changes or by use of adhesive label materials containing the new text. The form of the instructions in this directive precludes using it as an accompanying document.

Also attached are revised distress summary sheets, numbers 1 through 10. These are to replace those published in the DIM.

DIM Page	Change
17	ADD: Notes: If the transverse crack extends through an area of fatigue cracking, the length of the crack within the fatigue area is not counted. The crack is treated as a single transverse crack, but at a reduced length. Cracks less than 0.3 m in length are not recorded.
20	**Replace "Severity Levels" with:** ***Severity Levels*** **Low** - Patch has at most low severity distress of any type including rutting less than 6 mm. **Moderate** - Patch has moderate severity distress of any type including rutting from 6 mm to 12 mm. **High** - Patch has high severity distress of any type including rutting greater than 12 mm or the patch has additional different patch material within it. **ADD after "How to Measure":** Note: Any distress in the boundary of the patch is included in rating the patch. Rutting (settlement) may be at the perimeter or interior of the patch.
21	**Replace Figure 24 caption with: "ACP7. High Severity Patch"**
22	**ADD after "How to Measure":** If pothole occurs within an area of fatigue cracking the area of fatigue cracking is reduced by the area of the pothole.
30	**Replace Figure 36 caption with: "ACP 11. Discoloration"** **Replace Figure 37 caption with: "ACP 11. Loss of Texture"** **Replace Figure 38 caption with: "ACP 11. Aggregate Obscured"** **Replace "Description", "Severity Levels", "How to Measure" with:** ***Description***

DIM Page	Change
	Excess bituminous binder occurring on the pavement surface, usually found in the wheelpaths. May range from a surface discolored relative to the remainder of the pavement, to a surface that is losing surface texture due to excess asphalt, to a condition where the aggregate may be obscured by excess asphalt possibly with a shiny, glass-like, reflective surface that may be tacky to the touch. ***Severity Levels*** Not applicable. The presence of bleeding indicates potential mixture related performance problems. Extent is sufficient to monitor any progression. ***How to Measure*** Record square meters of surface area affected.
32	**Replace Figure 40 caption with: "ACP 13. Loss of Fine Aggregate"** **Replace Figure 41 caption with: "ACP 13. Loss of Fine and Some Coarse Aggregate"** **Replace Figure 42 caption with: "ACP 13. Loss of Coarse Aggregate"** **Replace "Description", "Severity Levels", "How to Measure" with:** ***Description*** Wearing away of the pavement surface in hot mix asphalt concrete caused by the dislodging of aggregate particles and loss of asphalt binder. Raveling ranges from loss of fines to loss of some coarse aggregate and ultimately to a very rough and pitted surface with obvious loss of aggregate. ***Severity Levels*** Not applicable. The presence of raveling indicates potential mixture related performance problems. Extent is sufficient to monitor any progression. ***How to Measure*** Record square meters of affected surface area.

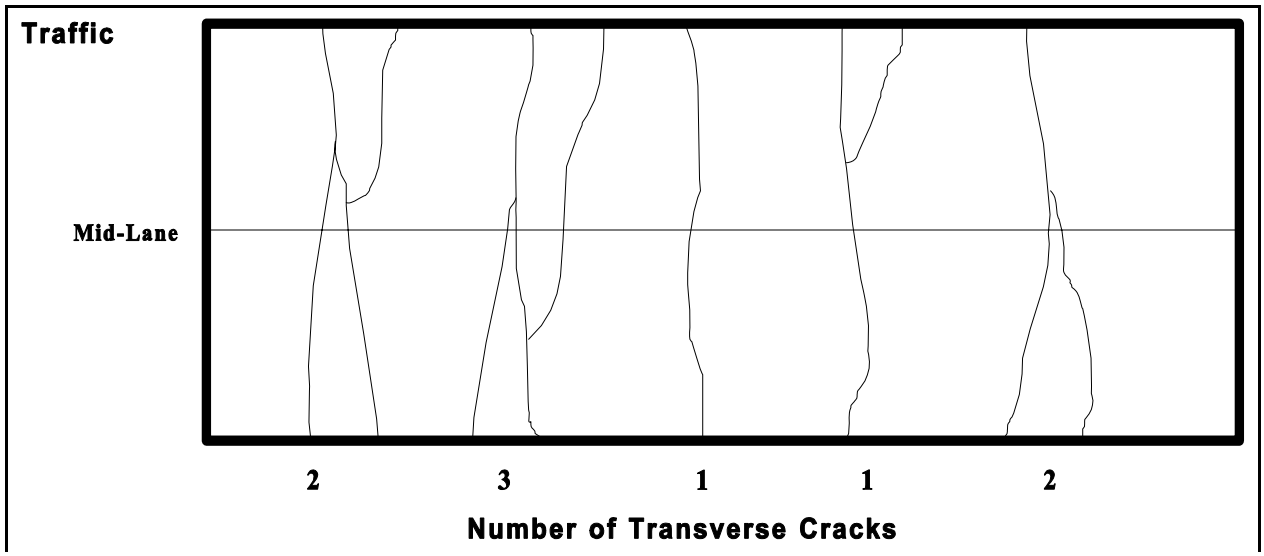
DIM Page	Change
34	**Draw diagonal line through page, upper left to lower right. ADD: "Not Recorded in LTPP Surveys"**
40	**Replace text for "High Severity" with:** Crack is spalled at moderate to high severity for more than 10% of its total length; or faulting of the crack or joint is $ 13 mm; or the corner piece is broken into two or more pieces or completely replaced by patch material.
48	**ADD after "How to Measure":** Any joint seal with no apparent damage is considered to be LOW severity
49	**In Figure 63 change "< 0.6 m" to "< 0.3 m"** **Replace "Description", "Severity Levels", "How to Measure" with:** ***Description*** Cracking, breaking, chipping, or fraying of slab edges less than 0.3 meters from the face of the longitudinal joint. ***Severity Levels*** **Low** - Less than 75 mm wide spalls, measured to the face of the joint, with loss of material or spalls with no loss of material and no patching. **Moderate** - 75 mm to 150 mm wide spalls, measured to the face of the joint, with loss of material. **High** - Greater than 150 mm wide spalls, measured to the face of the joint, with loss of material. ***How to Measure*** Record length in meters of longitudinal joint affected at each severity level. Only record spalls having a length of 0.1 m or more.
50	**In Figure 66 change "< 0.6 m" to "< 0.3 m"** **Replace "Description", "Severity Levels", "How to Measure" with:** ***Description***

DIM Page	Change
	Cracking, breaking, chipping, or fraying of slab edges less than 0.3 meters from the face of the transverse joint. ***Severity Levels*** **Low** - Less than 75 mm wide spalls, measured to the face of the joint, with loss of material or spalls with no loss of material and no patching. **Moderate** - 75 mm to 150 mm wide spalls, measured to the face of the joint, with loss of material. **High** - Greater than 150 mm wide spalls, measured to the face of the joint, with loss of material. ***How to Measure*** ● Record number of affected transverse joints at each severity level. A joint is affected only if the total length of spalling is 10% or more of the length of the joint. Rate the entire transverse joint at the highest severity level present for at least 10% of the total length of the spalling. ● Record length in meters of the spalled portion of the joint at the assigned severity level for the joint.
53	**ADD after "How to Measure":** NOTE: Diamond grinding also removes the surface mortar and texturing. However, this condition should not be recorded as Polished Aggregate but instead should be noted by a comment.
54	**Draw diagonal line through page, upper left to lower right. ADD: "Not Recorded in LTPP Surveys"**
57	**Replace "How to Measure" with:** ● Record in millimeters to the nearest millimeter; 0.3 meters from the outside slab edge and 0.75 meters from the outside slab edge (approximately the outer wheelpath). For a widened lane the wheelpath location will be 0.75 m from the outside lane edge stripe. ● If the "approach" slab is higher than the "departure" slab, record faulting as

DIM Page	Change
	positive (+); if the approach slab is lower, record faulting as negative (-).
68	**Replace Figure 96 with attached** **Replace "Description", "Severity Levels", "How to Measure" with:** ***Description*** Cracks that are predominantly perpendicular to the pavement centerline. This cracking is expected in a properly functioning continuously reinforced concrete pavement. All transverse cracks that intersect an imaginary longitudinal line at midlane shall be counted as individual cracks, as illustrated below. ***Severity Levels*** **Low** - Cracks with spalling along # 10% of the crack length. **Moderate** - Cracks with spalling along > 10% and # 50% of the crack length. **High** - Cracks with spalling along > 50% of the crack length. ***How to Measure*** Record separately the number and length in meters of transverse cracking at each severity level. Length recorded, in meters, is the total length of the crack and is assigned to the highest severity level present for at least 10% of the total length of the crack. The sum of all the individual crack lengths shall be recorded. Then record the total number of transverse cracks within the survey section.
73	**ADD after "How to Measure":** NOTE: Diamond grinding also removes the surface mortar and texturing. However, this condition should not be recorded as Polished Aggregate but instead should be noted by a comment.
74	**Draw diagonal line through page, upper left to lower right. ADD: "Not Recorded in LTPP Surveys"**
77	**DELETE Figure 113**

DIM Page	Change
81	**DELETE Figure 122**
84	**In Figure 127 change "< 0.6 m" to "< 0.3 m"** **Replace "Description", Severity Levels", "How to Measure" with:** ***Description*** Cracking, breaking, chipping, or fraying of slab edges within 0.3 meters of the longitudinal joint. ***Severity Levels*** **Low** - Less than 75 mm wide spalls, measured to the center of the joint, with loss of material or spalls with no loss of material and no patching. **Moderate** - 75 mm to 150 mm wide spalls, measured to the center of the joint, with loss of material. **High** - Greater than 150 mm wide spalls, measured to the center of the joint, with loss of material. ***How to Measure*** Record length in meters of longitudinal joint at each severity level. Only record spalls having a length of 0.1 m or more.
Appendix A **92**	**In "Equipment for Field Surveys" DELETE first bullet "This field manual"** **ADD:** **, Pavement thermometer** **, Copy of map for prior survey**
95	**In Figure 4 change "Alligator" to "Fatigue"; change "35. Reflection..." to "5. Reflection..."; change "11. Bleeding (Square Meters)L,M,H" to "11. Bleeding (Square Meters)"**
97-98	**Replace "Description of Data Sheet 6" with:** **This data sheet provides space to record faulting information for each transverse joint and crack. Distance from the beginning of the section, and faulting measurements made at two transverse locations are recorded. The**

DIM Page	Change
	transverse locations are 0.3 m and 0.75 m from the outside edge of the slab. For widened lanes measure 0.3 m from the edge of the slab and 0.75 m from the outside edge of the lane edge stripe. At each location, three measurements are made but only the approximate average of the readings is recorded to the nearest millimeter.
104-109	**The example map and summary are not revised**
111-126	**Data Sheets 1-10 are superseded by the attached revised sheets**
Appendix B	**No longer current - refer to "LTPP Manual for Profile Measurements Operational Field Guidelines, Version 3.1, January 1999" or later**
Appendix C	
145	**After first sentence in paragraph beginning "As indicated in..." ADD:** **In cases of a widened lane, measure 0.3 m from the edge of the slab and 0.75 m from the outside edge of the lane edge stripe.**
146	**After third paragraph under "Calibration" ADD:** **Note: For newer model faultmeters refer to operating instructions provided prior to attempting to make adjustments.**



Replacement Figure 96:

SHEET 1
DISTRESS SURVEY

LTPP PROGRAM

DISTRESS SURVEY FOR PAVEMENTS WITH ASPHALT CONCRETE SURFACES

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

SURVEYORS: __ __ __, __ __ __ PHOTOS, VIDEO, OR BOTH WITH SURVEY (P, V, B)
PAVEMENT SURFACE TEMP – BEFORE __ __ __ __°C; AFTER __ __ __ __°C

DISTRESS TYPE	SEVERITY LEVEL LOW	MODERATE	HIGH
CRACKING			
1. FATIGUE CRACKING (Square Meters)	__ __ __.__	__ __ __.__	__ __ __.
2. BLOCK CRACKING (Square Meters)	__ __ __.__	__ __ __.__	__ __ __.
3. EDGE CRACKING (Meters)	__ __ __.__	__ __ __.__	__ __ __.
4. LONGITUDINAL CRACKING			
4a. Wheelpath (Meters)	__ __ __.__	__ __ __.__	__ __ __.
Length Sealed (Meters)	__ __ __.__	__ __ __.__	__ __ __.
4b. Non-Wheel Path (Meters)	__ __ __.__	__ __ __.__	__ __ __.
Length Sealed (Meters)	__ __ __.__	__ __ __.__	__ __ __.
5. REFLECTION CRACKING AT JOINTS			
Number of Transverse Cracks	__ __ __	__ __ __	
Transverse Cracking (Meters)	__ __ __.__	__ __ __.__	__ __ __.
Length Sealed (Meters)	__ __ __.__	__ __ __.__	__ __ __.
Longitudinal Cracking (Meters)	__ __ __.__	__ __ __.__	__ __ __.
Length Sealed (Meters)	__ __ __.__	__ __ __.__	__ __ __.
6. TRANSVERSE CRACKING			
Number of Cracks	__ __ __	__ __ __	
Length (Meters)	__ __ __.__	__ __ __.__	__ __ __.
Length Sealed (Meters)	__ __ __.__	__ __ __.__	__ __ __.
PATCHING AND POTHOLES			
7. PATCH/PATCH DETERIORATION			
(Number)	__ __ __	__ __ __	
(Square Meters)	__ __ __.__	__ __ __.__	__ __ __.
8. Potholes			
(Number)	__ __ __	__ __ __	
(Square Meters)	__ __ __.__	__ __ __.__	__ __ __.

SHEET 2
DISTRESS SURVEY

LTPP PROGRAM

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

SURVEYORS: __ __ __,

DISTRESS SURVEY FOR PAVEMENTS WITH ASPHALT CONCRETE SURFACES
(CONTINUED)

DISTRESS TYPE	SEVERITY LEVEL LOW	MODERATE	HIGH
SURFACE DEFORMATION			
9. RUTTING - REFER TO SHEET 3 FOR SPS-3 OR Form S1 from Dipstick Manual			
10. SHOVING (Number) (Square Meters)			__ __ __.
SURFACE DEFECTS			
11. BLEEDING (Square Meters)			__ __ __.
12. POLISHED AGGREGATE (Square Meters)			__ __ __.
13. RAVELING (Square Meters)			__ __ __.
MISCELLANEOUS DISTRESSES			
14. LANE-TO-SHOULDER DROPOFF - Not Recorded			
15. WATER BLEEDING AND PUMPING (Number) Length of Affected Pavement (Meters)			__ __ __.
16. OTHER (Describe)			

SHEET 3
DISTRESS SURVEY

LTPP PROGRAM

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

SURVEYORS: __ __ __,

DISTRESS SURVEY FOR PAVEMENTS WITH ASPHALT CONCRETE SURFACES
(CONTINUED)

9. RUTTING (FOR SPS-3 SITE SURVEYS)

INNER WHEEL PATH			OUTER WHEEL PATH		
Point No.	Point Distance[1] (Meters)	Rut Depth (mm)	Point No.	Point Distance[1] (Meters)	Rut Depth (mm)
1	0.	__ __ __.	1	0.	__ __ __.
2	15.25	__ __ __.	2	15.25	__ __ __.
3	30.5	__ __ __.	3	30.5	__ __ __.
4	45.75	__ __ __.	4	45.75	__ __ __.
5	61.	__ __ __.	5	61.	__ __ __.
6	76.25	__ __ __.	6	76.25	__ __ __.
7	91.5	__ __ __.	7	91.5	__ __ __.
8	106.75	__ __ __.	8	106.75	__ __ __.
9	122.	__ __ __.	9	122.	__ __ __.
10	137.25	__ __ __.	10	137.25	__ __ __.
11	152.5	__ __ __.	11	152.5	__ __ __.

14. LANE-TO-SHOULDER DROPOFF -- Not Recorded

Note 1: "Point Distance" is the distance in meters from the start of the test section to the point where the measurement was made. The values shown are approximate SI equivalents of the 50 ft spacing used in previous surveys.

SHEET 4
DISTRESS SURVEY

LTPP PROGRAM

DISTRESS SURVEY FOR PAVEMENTS WITH JOINTED
PORTLAND CEMENT CONCRETE SURFACES

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

SURVEYORS: __ __ __, __ __ __,
PAVEMENT SURFACE TEMP - BEFORE __ __ __ __°C; AFTER __ __ __ __°C
PHOTOS, VIDEO, OR BOTH WITH SURVEY (P, V, B)

DISTRESS TYPE		SEVERITY LEVEL LOW	MODERATE	HIGH
CRACKING				
1. CORNER BREAKS (Number)		__ __ __	__ __ __	
2. DURABILITY "D" CRACKING (Number of Affected Slabs)		__ __ __	__ __ __	
AREA AFFECTED (Square Meters)		__ __ __.__	__ __ __.__	__ __ __.
3. LONGITUDINAL CRACKING (Meters)		__ __ __.__	__ __ __.__	__ __ __.
Length Sealed (Meters)		__ __ __.__	__ __ __.__	__ __ __.
4. TRANSVERSE CRACKING (Number of Cracks)	__ __ __	__ __ __		
(Meters)		__ __ __.__	__ __ __.__	__ __ __.
Length Sealed (Meters)		__ __ __.__	__ __ __.__	__ __ __.
JOINT DEFICIENCIES				
5a. TRANSVERSE JOINT SEAL DAMAGE Sealed? (Y, N)				
If "Y" Number of Joints		__ __	__ __	
5b. LONGITUDINAL JOINT SEAL DAMAGE Number of Longitudinal Joints that have been sealed (0, 1, or 2)				
Length of Damaged Sealant (Meters)				__ __ __.
6. SPALLING OF LONGITUDINAL JOINTS (Meters)		__ __ __.__	__ __ __.__	__ __ __.
7. SPALLING OF TRANSVERSE JOINTS Number of Affected Joints		__ __	__ __	
Length Spalled (Meters)		__ __ __.__	__ __ __.__	__ __ __.

SHEET 5
DISTRESS SURVEY

LTPP PROGRAM

DATE OF DISTRESS SURVEY (MONTH/DAY/YEAR) __ __/__ __/__ __
SURVEYORS: __ __ __,

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

DISTRESS TYPE	SEVERITY LEVEL LOW	MODERATE	HIGH
SURFACE DEFORMATION			
8a. MAP CRACKING (Number) (Square Meters)			__ __ __.
8b. SCALING (Number) (Square Meters)			__ __ __.
9. POLISHED AGGREGATE (Square Meters)			__ __ __.
10. POPOUTS	Not Recorded		
MISCELLANEOUS DISTRESSES			
11. BLOWUPS (Number)			
12. FAULTING OF TRANSVERSE JOINTS AND CRACKS - REFER TO SHEET 6			
13. LANE-TO-SHOULDER DROPOFF - REFER TO SHEET 7			
14. LANE-TO-SHOULDER SEPARATION - REFER TO SHEET 7			
15. PATCH/PATCH DETERIORATION			
Flexible (Number)	__ __ __	__ __ __	
(Square Meters)	__ __ __.__	__ __ __.__	__ __ __.
Rigid (Number)	__ __ __	__ __ __	
(Square Meters)	__ __ __.__	__ __ __.__	__ __ __.
16. WATER BLEEDING AND PUMPING (Number of Occurrences) Length Affected (Meters)			__ __ __.
17. OTHER (Describe)			

SHEET 6
DISTRESS SURVEY

LTPP PROGRAM

DATE OF DISTRESS SURVEY (MONTH/DAY/YEAR) __ __/__ __/
SURVEYORS: __ __ __,

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

12. FAULTING OF TRANSVERSE JOINTS AND CRACKS

Point[1] Distance (Meters)	Faulting[2], mm 0.3m	0.75m	Distance (Meters)	Faulting[2], mm 0.3m	0.75m

Note 1. Point Distance is from the start of the test section to the measurement location.

Note 2. If the "approach" slab is higher than the "departure" slab, faulting is recorded as positive (+ or 0); if the "approach" slab is lower, record faulting as negative (-) and the minus sign must be used.

SHEET 7
DISTRESS SURVEY

LTPP PROGRAM

DATE OF DISTRESS SURVEY (MONTH/DAY/YEAR) __ __/__ __/__ __
SURVEYORS: __ __ __,

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

13. LANE-TO-SHOULDER DROPOFF

14. LANE-TO-SHOULDER SEPARATION

Point No.	Point[1] Distance (meters)	Lane-to-shoulder[2] Dropoff (mm)	Lane-to-shoulder Separation (mm)	Well Sealed (Y/N)
1.	0.	_ _ _.	_ _ _.	_
2.	15.25	_ _ _.	_ _ _.	_
3.	30.5	_ _ _.	_ _ _.	_
4.	45.75	_ _ _.	_ _ _.	_
5.	61.	_ _ _.	_ _ _.	_
6.	76.25	_ _ _.	_ _ _.	_
7.	91.5	_ _ _.	_ _ _.	_
8.	106.75	_ _ _.	_ _ _.	_
9.	122.	_ _ _.	_ _ _.	_
10.	137.25	_ _ _.	_ _ _.	_
11.	152.5	_ _ _.	_ _ _.	_

Note 1. Point Distance is from the start of the test section to the measurement location. The values shown are SI equivalents of the 50 ft spacing used in previous surveys.

Note 2. If heave of the shoulder occurs (upward movement), record as a negative (-) value. Do not record (+) signs, positive values are assumed.

SHEET 8
DISTRESS SURVEY

LTPP PROGRAM

DISTRESS SURVEY FOR PAVEMENTS WITH CONTINUOUSLY REINFORCED PORTLAND CEMENT CONCRETE SURFACES

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

SURVEYORS: __ __ __, __ __ __ PHOTOS, VIDEO, OR BOTH WITH SURVEY (P,V,B)
PAVEMENT SURFACE TEMP - BEFORE __ __ __ __°C; AFTER __ __ __ __°C

DISTRESS TYPE	SEVERITY LEVEL LOW	MODERATE	HIGH
CRACKING			
1. DURABILITY "D" CRACKING (No. of Affected Trans Cracks)	__ __ __	__ __ __	
(Square Meters)	__ __ __.__	__ __ __.__	__ __ __.
2. LONGITUDINAL CRACKING (Meters)	__ __ __.__	__ __ __.__	__ __ __.
Length Well Sealed (Meters)	__ __ __.__	__ __ __.__	__ __ __.
3. TRANSVERSE CRACKING (Total Number of Cracks)			
(Number of Cracks) __ __ __	__ __ __		
(Meters)	__ __ __.__	__ __ __.__	__ __ __.
SURFACE DEFECTS			
4a. MAP CRACKING (Number)			
(Square Meters)			__ __ __.
4b. SCALING (Number)			
(Square Meters)			__ __ __.
5. POLISHED AGGREGATE (Square Meters)			__ __ __.
6. POPOUTS Not Recorded			

SHEET 9
DISTRESS SURVEY

LTPP PROGRAM

DATE OF DISTRESS SURVEY (MONTH/DAY/YEAR) __ __/__ __/__ __
SURVEYORS: __ __ __,

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

DISTRESS TYPE	SEVERITY LEVEL LOW	MODERATE	HIGH
MISCELLANEOUS DISTRESSES			
7. BLOWUPS (Number)			
8. TRANSVERSE CONSTRUCTION JOINT DETERIORATION (Number)	__ __	__ __	
9. LANE-TO-SHOULDER DROPOFF - REFER TO SHEET 10			
10. LANE-TO-SHOULDER SEPARATION - REFER TO SHEET 10			
11. PATCH/PATCH DETERIORATION Flexible (Number)	__ __ __	__ __ __	
(Square Meters)	__ __ __.__	__ __ __.__	__ __ __.
Rigid (Number)	__ __ __	__ __ __	
(Square Meters)	__ __ __.__	__ __ __.__	__ __ __.
12. PUNCHOUTS (Number)	__ __	__ __	
13. SPALLING OF LONGITUDINAL JOINT (Meters)	__ __ __.__	__ __ __.__	__ __ __.
14. WATER BLEEDING AND PUMPING (Number of Occurrences)			
Length Affected (Meters)			__ __ __.
15. LONGITUDINAL JOINT SEAL DAMAGE Number of Longitudinal Joints that have been sealed (0, 1, or 2)			
If Sealed Length w/Damaged Sealant (Meters)			__ __ __.
16. OTHER (Describe)			

SHEET 10
DISTRESS SURVEY

LTPP PROGRAM

DATE OF DISTRESS SURVEY (MONTH/DAY/YEAR) __ __/__ __/
SURVEYORS: __ __ __,

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

9. LANE-TO-SHOULDER DROPOFF

10. LANE-TO-SHOULDER SEPARATION

Point No.	Point[1] Distance (meters)	Lane-to-shoulder[2] Dropoff (mm)	Lane-to-shoulder Separation (mm)	Well Sealed (Y/N)
1.	0.	_ _ _.	_ _ _.	_
2.	15.25	_ _ _.	_ _ _.	_
3.	30.5	_ _ _.	_ _ _.	_
4.	45.75	_ _ _.	_ _ _.	_
5.	61.	_ _ _.	_ _ _.	_
6.	76.25	_ _ _.	_ _ _.	_
7.	91.5	_ _ _.	_ _ _.	_
8.	106.75	_ _ _.	_ _ _.	_
9.	122.	_ _ _.	_ _ _.	_
10.	137.25	_ _ _.	_ _ _.	_
11.	152.5	_ _ _.	_ _ _.	_

Note 1. Point Distance is from the start of the test section to the measurement location. The values shown are SI equivalents of the 50 ft spacing used in previous surveys.

Note 2. If heave of the shoulder occurs (upward movement), record as a negative (-) value. Do not record (+) signs, positive values are assumed.