

## ALDOT-392

### PROJECT LEVEL PAVEMENT CONDITION DATA COLLECTION PROCEDURE

#### 1. Scope

- 1.1. This procedure outlines the process for conducting a distress survey to evaluate the pavement condition. The purpose of conducting a distress survey is to identify and quantify the amount and severity of surface distress in a given segment of pavement. The results of the distress survey will be used to prepare a pavement condition report for pavement rehabilitation projects.

#### 2. Abbreviations and Acronyms

AASHTO	American Association of State Highway and Transportation Officials
ALDOT	Alabama Department of Transportation
CRCP	Continuously Reinforced Concrete Pavement
FHWA	Federal Highway Administration
ft	Foot
FWD	Falling Weight Deflectometer
HMA	Hot Mix Asphalt
in	Inch
JPCP	Jointed Plain Concrete Pavement
JRCP	Jointed Reinforced Concrete Pavement
m	Meter
mm	Millimeter
MUTCD	Manual on Uniform Traffic Control Devices
PCC	Portland Cement Concrete
WMA	Warm Mix Asphalt

#### 3. Referenced Documents

- 3.1. ALDOT Procedures  
391 Falling Weight Deflectometer (FWD) Testing Procedure
- 3.2. AASHTO Documents  
AASHTO Guide for Design of Pavement Structures, 1993
- 3.3. Federal Highway Administration Documents (FHWA)  
RD-03-031 Distress Identification Manual for the Long-Term Pavement Performance Program. This document can be found at the following web site: [www.tfhrc.gov/pavement/ltpcr/reports/03031/index.htm](http://www.tfhrc.gov/pavement/ltpcr/reports/03031/index.htm)  
MUTCD Manual on Uniform Traffic Control Devices

#### **4. Survey Process**

- 4.1. The safety of the survey team shall be the paramount factor in conducting a pavement distress survey. Safety vests shall be worn by every member of the survey team. Vehicles shall be equipped with working hazard lights and external warning flashing lights. The lights shall be operated at all times during the survey.
- 4.2. Distress surveys shall be conducted at the same time as core extractions are conducted. If this is not possible, the distress survey shall be performed from the adjacent shoulder. If there is not enough room on the shoulder to drive a vehicle or to walk, the condition survey may be performed from inside a slow-moving vehicle traveling the travel way.
- 4.3. If a distress survey is performed from inside a slow-moving vehicle, before the survey begins and during the survey, the raters shall make measurements of the observed distresses to “calibrate” their eyes to the severity level of the observed distresses.
- 4.4. Distress surveys shall be conducted on segments for the length of the project. Each surveyed segment will be equal to 1 mile (1 kilometer); ideally run from post marker to post marker.
- 4.5. The distress survey shall include the following three parameters for each distress:
  - Type
  - Severity level
  - Amount
- 4.6. A distress survey shall be conducted on all interchange ramps within the surveyed segment throughout the entire project.

#### **5. Distress Type**

- 5.1. Flexible Pavements (HMA and WMA) shall be evaluated for the following distress types:
  - CRACKING
    - Fatigue Cracking
    - Block Cracking
    - Edge Cracking
    - Longitudinal Cracking
    - Transverse Cracking
  - PATCHING AND POTHOLES
    - Patching Deterioration
    - Potholes
  - SURFACE DEFORMATIONS
    - Rutting
    - Shoving
  - SURFACE DEFECTS
    - Bleeding
    - Raveling

- MISCELLANEOUS DISTRESSES
    - Water Bleeding and Pumping
- 5.2. Jointed Rigid Pavements (JPCP, JRCP) shall be evaluated for the following distress types:
- CRACKING
    - Corner Breaks
    - “D” Cracking
    - Longitudinal Cracking
    - Transverse Cracking
    - Crack Faulting
  - JOINT DEFICIENCIES
    - Joint Seal Damage
    - Joint Spalling
    - Joint Faulting
  - SURFACE DEFECTS
    - Map Cracking
    - Scaling
  - MISCELLANEOUS DISTRESSES
    - Lane-to-Shoulder Drop-off
    - Patch/Patch Deterioration
    - Water Bleeding and Pumping
- 5.3. Continuously Reinforced Rigid Pavement (CRCP) shall be evaluated for the following distress types:
- CRACKING
    - “D” Cracking
    - Longitudinal Cracking
    - Transverse Cracking
  - SURFACE DEFECTS
    - Map Cracking
    - Scaling
    - Popouts
  - MISCELLANEOUS DISTRESSES
    - Blowups
    - Transverse Construction Joint Deterioration
    - Lane-to-Shoulder Drop-off
    - Lane-to-Shoulder Separation
    - Patch/Patch Deterioration
    - Punchouts
    - Longitudinal Joint Spalling
    - Water Bleeding and Pumping\
    - Longitudinal Joint Seal Damage

5.4. Composite Pavements (AC/PCC), in addition to being evaluated for the Flexible Pavement distress types, they shall also be evaluated for the following distress types:

- CRACKING
  - Unrepaired Deteriorated Reflection Cracking per Surveyed Segment
- JOINT DEFICIENCIES
  - Expansion Joints / Surveyed Segment
  - Exceptionally Wide Joints [ $> 1$  in (25 mm)] per Surveyed Segment
- PATCHING
  - Full Depth and Full Lane Width Patches per Surveyed Segment
- MISCELLANEOUS DISTRESSES
  - Punchouts / Surveyed Segment
  - PCC Durability Problems

## 6. Severity Level of Distress

- 6.1. The severity level of each type of distress will be based on the guidelines found in the FHWA Publication RD-03-031, as amended by Appendix A of this procedure.
- 6.2. The additional distresses for composite pavement are required to calculate the effective pavement thickness in the overlay design module of DARWin<sup>®</sup>. Guidance on the collection of these distresses is given in the 1993 AASHTO Pavement Design Guide Section 5.7.

## 7. Amount of Distress

- 7.1. The amount of distress reported will be based on the guidelines found in the FHWA Publication RD-03-031, as amended by Appendix A of this procedure.
- 7.2. In addition to the amount of distress reported in 7.1, the overall quantity of fatigue cracking on flexible pavement shall be reported as a percentage of the wheel path area within the surveyed segment. Each surveyed segment shall be considered as having two wheel paths each 3 ft (1 m) wide. The area of the wheel path in a 1 mi (1 km) segment is 31,680 ft<sup>2</sup> (2,000 m<sup>2</sup>). The percentage of fatigue cracking shall be calculated as follows:

$$\% \text{ FATIGUE CRACKING} = \frac{\text{CRACKING AREA}}{\text{WHEEL PATH AREA}} \times 100$$

- 7.3. In addition to the amount of distress reported in 7.1, the overall quantity of transverse cracking shall be reported as a percentage of the surveyed pavement segment. The percentage of transverse cracking shall be calculated as follows

$$\% \text{ TRANSVERSE CRACKING} = \frac{\text{LENGTH OF CRACKING}}{\text{SEGMENT PAVEMENT AREA}} \times 100$$

The segment pavement area is the width of a travel lane times the length of a surveyed segment pavement.

- 7.4. Rut depth measurements shall be taken in both the outer and inner wheel paths at the beginning,  $\frac{1}{4}$  point,  $\frac{1}{2}$  point, and  $\frac{3}{4}$  point of the surveyed pavement segment. The rater should find the lowest point (maximum rut depth) in the rut within 10 ft (3 m) of either side at each location. Several rut measurements shall be made to determine the lowest point. The maximum rut depth measured will be reported at each location.

## 8. Core Extraction

- 8.1. Coring of the pavement shall be required to determine the in-place pavement thickness, the depth of crack, and stripping. Coring shall be performed at the following two frequencies:
- 8.1.1. Frequency A:  
Per each surveyed segment a core shall be taken in the outer wheel path of the travel (outside) lane. The location of the core shall be as follows:
- If there is a longitudinal crack in the outer wheel path, extract the core at the crack within the surveyed segment at one of the FWD test locations defined in Article 8.4
  - If there is not a longitudinal cracks in the outer wheel path, extract the core at the beginning of the surveyed segment.
- 8.1.2. Frequency B:  
Per each length of roadway containing three (3) consecutive segments being surveyed, a core shall be taken in the outer wheel path of the passing (inside) lane. The location of the core shall be as follows:
- If there is a longitudinal crack in the outer wheel path, extract the core at a randomly selected point in the crack located within the length of roadway.
  - If there is not longitudinal cracks in the outer wheel path, extract the core at a randomly selected point within the length of roadway.
- 8.2. Coring frequencies A and B shall be applied as follows:
- 8.2.1. Two-Lane roadway (one lane in each direction)
- Coring Frequency A - Eastbound/Northbound lane
  - Coring Frequency B - Westbound/southbound lane
- 8.2.2. Four-Lane roadway (two lanes in each direction)
- Coring Frequency A - Outside lane on each direction
  - Coring Frequency B - Inside lane on each direction
- 8.2.3. Roadways with three or more lanes in each direction
- Coring Frequency A - One lane in each direction selected by the Division Materials Engineer
  - Coring Frequency B - All other through lanes
- 8.3. For roadways with three or more lanes in each direction, coring frequency A shall be applied to the most distressed lane in each travel direction. Normally, this will be the lane that carries the highest volume of truck traffic.

- 8.4. It is the intent of the Department to take cores at locations corresponding to the FWD test locations. Test locations for FWD are spaced at intervals of 0.2 mile (0.3 kilometer). The FWD testing shall be performed in accordance with ALDOT-391.
- 8.5. The Department may request that additional cores be taken at high deflection locations determined by FWD testing.
- 8.6. The thickness and type of granular layers within the pavement structure may be determined from the core hole borings.
- 8.7. The location and frequency of coring on rigid pavements will be determined by the Division Materials Engineer.
- 8.8. All core holes shall be filled with a bituminous mix.

## **9. Traffic Control**

- 9.1. Traffic control shall be set following the guidelines in the current MUTCD, Part 6, "*Temporary Traffic Control*".

## **10. Report Submittal**

- 10.1. Four copies of the condition survey report shall be submitted to the Division Materials Engineer.
- 10.2. The distress survey report shall include the following as a minimum:
  - Route designation
  - County
  - Beginning and ending marker posts
  - Core photo log
  - Pavement and shoulder width
  - Pavement layer information
  - Shoulder condition
  - Amount and severity level of each distress
- 10.3. The type, amount, and severity level of each of the observed distresses shall be reported for each individual project segment and each individual interchange ramp within the project limits.
- 10.4. A Size A4 paper format photo log of all cores taken on the project shall be compiled. The photo log shall include the following minimum information for each core taken:
  - Direction of travel lane
  - Distance from post marker
  - Distance from edge of pavement
  - Length of core
  - Depth of cracks in the core
  - Depth of stripping if present
- 10.5. Pavement layer information shall include each layer type and its thickness to the nearest 0.25 in (5 mm). The layer type shall be described as open graded friction

- course, wearing layer, bituminous binder, bituminous base, surface treatment, granular, concrete, etc.
- 10.6. The shoulder condition shall be described as good, fair, or poor. The location of any localized failures in the shoulder shall be reported along with the shoulder type (paved with surface treatment, plant mix surface, with scoring, grassed, etc.).
  - 10.7. The amount of drop-off or elevation difference between the mainline roadway and shoulder shall be measured and reported for each surveyed segment. Any separation (lane-shoulder gap) shall also be measured and reported for each surveyed segment.
  - 10.8. The following guidelines shall be followed to report the amount of pavement distress in the corresponding measured units:
    - Area measurements – to the nearest 5 ft<sup>2</sup> (0.5 m<sup>2</sup>)
    - Length measurements – to the nearest 1 ft (0.3 m)
  - 10.9. After all evaluations are completed, the extracted cores and the photo log shall be made available for display and/or further evaluation.

## 11. Appendix A

11.1. This appendix references the US Customary Units used by ALDOT when applying the Distress Identification Manual for the Long-Term Pavement Performance Program. The following three Sections of this appendix cover three types of pavement: Hot Mix Asphalt, Jointed Portland Cement Concrete, and Continuously Reinforced Portland Cement Concrete.

11.2.

### HMA

#### Page 4

#### Fatigue Cracking

##### Description

1<sup>st</sup> Paragraph, Last sentence ...usually less than 1 ft. (0.3 m) on the...

##### How to Measure

1<sup>st</sup> sentence Record square feet (square meters)...

#### Page 6

#### Block Cracking

##### Description

2<sup>nd</sup> sentence ...1 ft<sup>2</sup> (0.1 m<sup>2</sup>) to 110 ft<sup>2</sup> (10 m<sup>2</sup>).

##### Severity Levels

Low Cracks with a mean width > 1/25 in. and ≤ 1/8 in. (> 1 mm and ≤ 3 mm).

Moderate Cracks with a mean width > 1/8 in. and ≤ 1/4 in. (> 3 mm and ≤ 6 mm).

High Cracks with a mean width > 1/4 in. (> 6 mm).

##### How to Measure

1<sup>st</sup> sentence Record square feet (square meters)...

Note: ...be at least 50 ft. (15 m) long...

#### Page 7

#### Edge Cracking

##### Description

2<sup>nd</sup> sentence ...are located within 2 ft. (0.6 m)....

3<sup>rd</sup> sentence ...and within 2 ft. (0.6 m)...

##### How to Measure

1<sup>st</sup> sentence Record length in feet (meters)...

#### Page 8

#### Longitudinal Cracking

##### Severity Levels

Low A crack with a mean width > 1/25 in. and ≤ 1/8 in. (> 1 mm and ≤ 3 mm)...



Moderate	Any crack with a mean width $> 1/8$ in. and $\leq 1/4$ in. ( $> 3$ mm and $\leq 6$ mm).
High	Any crack with a mean width $> 1/4$ in. ( $> 6$ mm).

**Page 9 Longitudinal Cracking (Continuation)**

How to Measure

	4A. Wheel Path Longitudinal Cracking
1 <sup>st</sup> sentence	Record length in feet (meters)...
	4B. Non-Wheel Path Longitudinal Cracking
1 <sup>st</sup> sentence	Record length in feet (meters)...

**Page 10 Reflection Cracking at Joints (only on Composite Pavement)**

Severity Levels

Low	A crack with a mean width $> 1/25$ in. and $\leq 1/8$ in. ( $> 1$ mm and $\leq 3$ mm)...
Moderate	Any crack with a mean width $> 1/8$ in. and $\leq 1/4$ in. ( $> 3$ mm and $\leq 6$ mm).
High	Any crack with a mean width $> 1/4$ in. ( $> 6$ mm).

**Page 12 Transverse Cracking**

Severity Levels

Low	Cracks with a mean width $> 1/25$ in. and $\leq 1/8$ in. ( $> 1$ mm and $\leq 3$ mm)...
Moderate	Cracks with a mean width $> 1/8$ in. and $\leq 1/4$ in. ( $> 3$ mm and $\leq 6$ mm).
High	Cracks with a mean width $> 1/4$ in. ( $> 6$ mm).

**Page 13 Transverse Cracking (Continuation)**

How to Measure

1 <sup>st</sup> paragraph, 3 <sup>rd</sup> sentence	Length recorded, in feet (meters)...
2 <sup>nd</sup> paragraph	Also record length in feet (meters)...
Last sentence	Cracks less than 6 ft. (2 m) are not recorded. A crack shall project within 30° of perpendicular to the pavement centerline. Transverse cracks shall be rated prior to other types of cracking.

**Page 16 Patch/Patch Deterioration**

Description

1st sentence	...1 ft <sup>2</sup> (0.1 m <sup>2</sup> )...
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Severity Levels

Low	...rutting < 1/8 in. (6 mm)...
Moderate	... rutting from 1/8 in. to 1/2 in. (6 mm to 12 mm)...
High	...rutting > 1/2 in. (> 12 mm)...

How to Measure

1st sentence ...number of patches and square feet (square meters)...

**Page 18**

**Potholes**

Description

2nd sentence Minimum plan dimension is 6 in. (150 mm).

Severity Levels

Low	< 1 in. (25 mm) deep.
Moderate	1 in. to 2 in. (25 mm to 50 mm) deep.
High	> 2 in. (> 50 mm) deep.

How to Measure

1st sentence ...number of potholes and square feet (square meters)...

**Page 22**

**Rutting**

How to Measure

Rut depth measurements shall be taken in both the outer and inner wheel paths at each location and at 50, 100, and 150 feet (15, 30, and 45 meters) from the location for a total of eight measurements. Measurements are to be made with a 4 ft. (1.2 m) straight edge and the rut depth should be measured to the nearest 1/8 in. (3 mm). The rater should locate the lowest point (greatest rut depth) and measure there. Report the average and maximum depth values for both wheel paths.

**Page 23**

**Shoving**

How to Measure

Record number of occurrences and square feet (square meters) of affected surface area.

**Page 26**

**Bleeding**

How to Measure

The extent of bleeding shall be characterized by whether it occurs in localized random spots, predominately in the wheel paths, or over the entire lane.

**Page 27**

**Polished Aggregate**

Do not report

**Page 28**                      **Raveling**

How to Measure

The extent of raveling shall be characterized by whether it occurs in localized random spots, predominately in the wheel paths, or over the entire lane.

**Page 30**                      **Lane-To-Shoulder Drop-off**

Do not report

**Page 31**                      **Water Bleeding and Pumping**

How to Measure

Report occurrence of pumping.

11.3.                              **JPCP & JRCP**

**Page 36**                      **Corner Breaks**

Description

1<sup>st</sup> Paragraph, Last sentence    The length of the sides is < 6 ft (2 m).

Severity Levels

Moderate                      ... faulting of crack or joint is < 1/2 in (13 mm)...  
High                              ... faulting of the crack or joint is  $\geq$  1/2 in (13 mm)...

**Page 37**                      **"D" Cracking**

How to Measure

1<sup>st</sup> sentence                      ... "D" cracking and square feet (square meters)...

Severity Levels

High                              Displaced pieces, up to 1 ft<sup>2</sup> (0.1 m<sup>2</sup>), may have been patched.

**Page 38**                      **Longitudinal Cracking**

Severity Levels

The severity of the longitudinal crack, whether sealed or not, is determined in terms of crack width, spalling and faulting.

Low                              Crack widths < 1/8 in. (< 3 mm)...  
Moderate                      Crack widths  $\geq$  1/8 in. and < 1/2 in. (> 3 mm and < 13 mm); or with spalling < 3 in (75 mm); or faulting up to 1/2 in (13 mm).  
High                              Crack widths  $\geq$  1/2 in (13 mm); or with spalling  $\geq$  3 in (75 mm); or faulting  $\geq$  1/2 in (13 mm).

**Page 39**                      **How to Measure**

Record length in feet (meters) of longitudinal cracking at each severity level. Sealed cracks are to be rated as if they are not sealed. If sealed, a comment as to the quality of the seal (good, bad) should be made.

**Page 40**                      **Transverse Cracking**

Severity Levels

The severity of the transverse crack, whether sealed or not, is determined in terms of crack width, spalling and faulting. The crack will be rated at the highest severity level that occurs along the crack.

Low	Crack widths < 1/8 in. (< 3 mm)...
Moderate	Crack widths $\geq$ 1/8 in. and < 1/2 in. (> 3 mm and < 13 mm); or with spalling < 3 in (75 mm); or faulting up to 1/2 in (13 mm).
High	Crack widths $\geq$ 1/2 in (13 mm); or with spalling $\geq$ 3 in (75 mm); or faulting $\geq$ 1/2 in (13 mm).

**Page 41**                      **How to Measure**

The extent of transverse cracking will be measured as the number of cracks of each severity level in the sample section. Sealed cracks are to be rated as if they are not sealed. If sealed, a comment as to the quality of the seal (good, bad) should be made. Hairline cracks shorter than 6 ft (1.8 m) are not rated.

**Page 44**                      **Joint Seal Damage**

5b. Longitudinal Joint Seal Damage

How to Measure

Last sentence      ...when at least 3 ft (1 m) in length.

**Page 45**                      **Longitudinal Joint Spalling**

Description

Cracking, breaking, chipping, or fraying of slab edges within 1 ft (0.3 m) from the face of the joint.

Severity Levels

Low	Joints with spalls $\leq$ 1 in. (25 mm) wide...
Moderate	Joints with spalls > 1 in (25 mm) to $\leq$ 3 in (75 mm) wide...
High	Joints with spalls > 3 in (75 mm) wide...

How to Measure

The extent of spalling will be measured in terms of the number of joints at each severity level. If more than one level of severity exists along a joint, it will be recorded as having the highest severity level present.

**Page 46**                      **Transverse Joint Spalling**

Description

Cracking, breaking, chipping, or fraying of slab edges within 1 ft (0.3 m) from the face of the joint.

Severity Levels

Low	Joints with spalls $\leq$ 1 in. (25 mm) wide...
Moderate	Joints with spalls $>$ 1 in (25 mm) to $\leq$ 3 in (75 mm) wide...
High	Joints with spalls $>$ 3 in (75 mm) wide...

How to Measure

The extent of spalling will be measured in terms of the number of joints at each severity level. If more than one level of severity exists along a joint, it will be recorded as having the highest severity level present.

**Page 48**                      **Map Cracking and Scaling**

8a. Map Cracking

How to Measure

Report number of slabs with map cracking.

8b. Scaling

Description

Scaling is the deterioration of the upper concrete slab surface, normally 1/8 in. to 1/2 in (3 mm to 13 mm)...

How to Measure

Report number of slabs with scaling.

**Page 49**                      **Polished Aggregate**

Do not report

**Page 50**                      **Popouts**

Description

Small pieces of pavement broken loose from the surface, normally ranging in diameter from 1 in to 4 in (25 mm to 100 mm), and depth from 1/2 in to 2 in (13 mm to 50 mm).

How to Measure

Report number of slabs with popouts.

**Page 53**                      **Joint and Crack Faulting**

How to Measure

- 1<sup>st</sup> paragraph              Record in inches (millimeters), to the nearest 1/10<sup>th</sup> of an inch (millimeter). Take measurements in the outside wheel path which begins approximately 1 ft (0.3 m) from the outside slab edge and is 3 ft (1.0 m) wide. For a widened lane, the wheel path location will be 1 ft (0.3 m) from the outside lane edge stripe. Take three measurements and report the average of the three.
- 3<sup>rd</sup> paragraph              Faulting on PCC pavements is to be measured using an ALDOT approved rut/fault gauge.
- 4<sup>th</sup> paragraph              ...The maximum offset is 1 ft (0.3 m)...
- Disregard the 5<sup>th</sup> and 6<sup>th</sup> paragraphs.

**Page 54 & 55**    **Lane-to-Shoulder Drop-Off and Separation**

How to Measure

Record to the nearest 0.1 in (5 mm) at 50 ft (15 m) intervals along the lane-to-shoulder joint.

**Page 56**                      **Patch/Patch deterioration**

Description

A portion, greater than 1 ft<sup>2</sup> (0.1 m<sup>2</sup>), or all...

Severity Levels

- Moderate                  ... settlement up to 1/4 in (6 mm)...
- High                          ... settlement  $\geq$  1/4 in (6 mm)

**Page 57**                      **Patch/Patch deterioration (Continuation).**

How to Measure

Report number of patches and square feet (square meters) of affected surface area at each severity level.

**Page 58**                      **Water Bleeding and Pumping**

How to Measure

Report the existence of water bleeding/pumping.

11.4.

**CRCP**

**Page 62**                      **"D" Cracking**

Severity Levels

- High                          Displaced pieces, up to 1 ft<sup>2</sup> (0.1 m<sup>2</sup>), may have been patched.

### How to Measure

Record the number of affected transverse cracks at each severity level.

#### **Page 63                      Longitudinal Cracking**

##### Severity Levels

Low	Crack widths < 1/8 in. (< 3 mm)...
Moderate	Crack widths $\geq$ 1/8 in. and < 1/2 in. (> 3 mm and < 13 mm); or with spalling < 3 in (75 mm); or faulting up to 1/2 in (13 mm).
High	Crack widths $\geq$ 1/2 in (13 mm); or with spalling $\geq$ 3 in (75 mm); or faulting $\geq$ 1/2 in (13 mm).

##### How to Measure

Record length in feet (meters) of longitudinal cracking at each severity level. Sealed cracks are to be rated as if they are not sealed. If sealed, a comment as to the quality of the seal (good, bad) should be made.

#### **Page 65                      Transverse Cracking (Continuation)**

##### How to Measure

Record number of transverse cracks at each severity level. Sealed cracks are to be rated as if they are not sealed. If sealed, a comment as to the quality of the seal (good, bad) should be made. Cracks shorter than 6 ft (1.8 m) are not rated.

#### **Page 68                      Map Cracking and Scaling**

##### 8a. Map Cracking

##### How to Measure

Report occurrences as localized or entire lane width.

##### 4b. Scaling

##### Description

Scaling is the deterioration of the upper concrete slab surface, normally 1/8 in. to 1/2 in (3 mm to 13 mm)...

##### How to Measure

Report occurrences as localized or entire lane width.

#### **Page 69                      Polished Aggregate**

Do not report

**Page 70**

**Popouts**

Description

Small pieces of pavement broken loose from the surface, normally ranging in diameter from 1 in to 4 in (25mm to 100 mm), and depth from 1/2 in to 2 in (13 mm to 50 mm).

How to Measure

Report existence of popouts.

**Page 73 Transverse Construction Joint Deterioration**

Severity Levels

Low	No spalling or faulting within 2 ft (0.6 m) of joint.
Moderate	Spalling < 3 in (75 mm) exists within 2 ft (0.6 m) of joint.
High	Spalling $\geq$ 3 in (75 mm) and breakup exists within 2 ft (0.6 m) of joint.

**Page 74 & 75 Lane-to-Shoulder Drop-Off and Separation**

How to Measure

Record to the nearest 1/4 in (5 mm) at 50 ft (15 m) intervals along the lane-to-shoulder joint.

**Page 76 Patch/Patch deterioration**

Description

A portion, greater than 1 ft<sup>2</sup> (0.1 m<sup>2</sup>), or all...

Severity Levels

Moderate	... settlement up to 1/4 in (6 mm)...
High	... settlement $\geq$ 1/4 in (6 mm)

**Page 77 Patch/Patch deterioration (Continuation)**

How to Measure

Report number of patches and square feet (square meters) of affected surface area at each severity level.

**Page 78**

**Punchouts**

Description

The area enclosed by two closely spaced (usually < 2 ft (0.6 m)) transverse...

Severity Levels

Low	... spalling < 3 in. (75 mm) or faulting < 1/4 in (6 mm)...
Moderate	Spalling $\geq$ 3 in (75 mm) and < 6 in (150 mm) or faulting $\geq$ 1/4 in (6 mm) and < 1/2 in (13 mm) exists.



High                      Spalling > 6 in (150 mm), or concrete within the punchout  
is punched down by  $\geq$  1/2 in (13 mm)...

**Page 79                      Punchouts (Continuation)**

How to Measure

Note: ...cracks spaced greater than 2 ft (0.6 m) but less than or equal to 3 ft  
(1.0 m)...

**Page 80                      Longitudinal Joint Spalling**

Description

Cracking, breaking, chipping, or fraying of slab edges within 1 ft (0.3 m) from  
the face of the joint.

Severity Levels

Low                      Spalls  $\leq$  1 in. (25 mm) wide...  
Moderate              Spalls > 1 in (25 mm) to 3 in (75 mm) wide...  
High                      Spalls > 3 in (75 mm) wide...

**Page 81                      Longitudinal Joint Spalling (Continuation)**

How to Measure

Record the existence of longitudinal joint spalling as isolated or extensive. If  
more than one level of severity exists along a joint, it will be recorded as  
having the highest severity level present.

**Page 82                      Water Bleeding and Pumping**

How to Measure

Report occurrence of pumping.

**Page 83                      Longitudinal Joint Seal Damage**

How to Measure

Last sentence              ... when at least 3 ft (1 m) in length.