



# Identifying Pavement Distresses

## What Caused It and How to Fix It

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# Fix Your Drainage Then Fix the Pavement



# Subgrade Moisture



# Subsurface Moisture



# Asphalt PASER Manual

## PAvement Surface Evaluation Rating

◆ University of Wisconsin – Madison

◆ Visual Rating System

- Level of Severity

- Identify Causes

- Select Potential Options for Repair

<https://epd.wisc.edu/tic/publication/asphalt-paser-manual/>



# 4 Major Category of Distress

- ◆ **Surface Defects**
- ◆ **Surface Deformation**
- ◆ **Cracks**
- ◆ **Patches and Potholes**

# Rating

<i>Surface rating</i>	<i>Visible distress*</i>	<i>General condition/ treatment measures</i>
<b>10</b> Excellent	None.	New construction.
<b>9</b> Excellent	None.	Recent overlay. Like new.
<b>8</b> Very Good	No longitudinal cracks except reflection of paving joints. Occasional transverse cracks, widely spaced (40' or greater). All cracks sealed or tight (open less than 1/4").	Recent sealcoat or new cold mix. Little or no maintenance required.
<b>7</b> Good	Very slight or no raveling, surface shows some traffic wear. Longitudinal cracks (open 1/4") due to reflection or paving joints. Transverse cracks (open 1/4") spaced 10' or more apart, little or slight crack raveling. No patching or very few patches in excellent condition.	First signs of aging. Maintain with routine crack filling.
<b>6</b> Good	Slight raveling (loss of fines) and traffic wear. Longitudinal cracks (open 1/4"–1/2"). Transverse cracks (open 1/4"–1/2"), some spaced less than 10'. First sign of block cracking. Sight to moderate flushing or polishing. Occasional patching in good condition.	Shows signs of aging. Sound structural condition. Could extend life with sealcoat.

# Rating

<b>5</b> Fair	Moderate to severe raveling (loss of fine and coarse aggregate). Longitudinal and transverse cracks (open 1/2" or more) show first signs of slight raveling and secondary cracks. First signs of longitudinal cracks near pavement edge. Block cracking up to 50% of surface. Extensive to severe flushing or polishing. Some patching or edge wedging in good condition.	Surface aging. Sound structural condition. Needs sealcoat or thin non-structural overlay (less than 2")
<b>4</b> Fair	Severe surface raveling. Multiple longitudinal and transverse cracking with slight raveling. Longitudinal cracking in wheel path. Block cracking (over 50% of surface). Patching in fair condition. Slight rutting or distortions (1/2" deep or less).	Significant aging and first signs of need for strengthening. Would benefit from a structural overlay (2" or more).
<b>3</b> Poor	Closely spaced longitudinal and transverse cracks often showing raveling and crack erosion. Severe block cracking. Some alligator cracking (less than 25% of surface). Patches in fair to poor condition. Moderate rutting or distortion (greater than 1/2" but less than 2" deep). Occasional potholes.	Needs patching and repair prior to major overlay. Milling and removal of deterioration extends the life of overlay.
<b>2</b> Very Poor	Alligator cracking (over 25% of surface). Severe rutting or distortions (2" or more deep). Extensive patching in poor condition. Potholes.	Severe deterioration. Needs reconstruction with extensive base repair. Pulverization of old pavement is effective.
<b>1</b> Failed	Severe distress with extensive loss of surface integrity.	Failed. Needs total reconstruction.

\* Individual pavements will not have all of the types of distress listed for any particular rating. They may have only one or two types.



# Surface Defects

- ◆ Raveling
- ◆ Flushing
- ◆ Polishing

# Raveling



# Flushing



# Polishing



# Surface Deformation

- ◆ Rutting
- ◆ Distortion
  - Rippling
  - Shoving
- ◆ Settling
- ◆ Frost Heave

# Rutting



# Distortion



# Settling



# Frost Heave



# Cracks

- ◆ Transverse
- ◆ Reflection
- ◆ Slippage
- ◆ Longitudinal
- ◆ Block
- ◆ Alligator

# Transverse



# Reflective



# Slippage



# Longitudinal



# Block



# Alligator



# Patches and Potholes



# Forensics

(not just for CSI's)



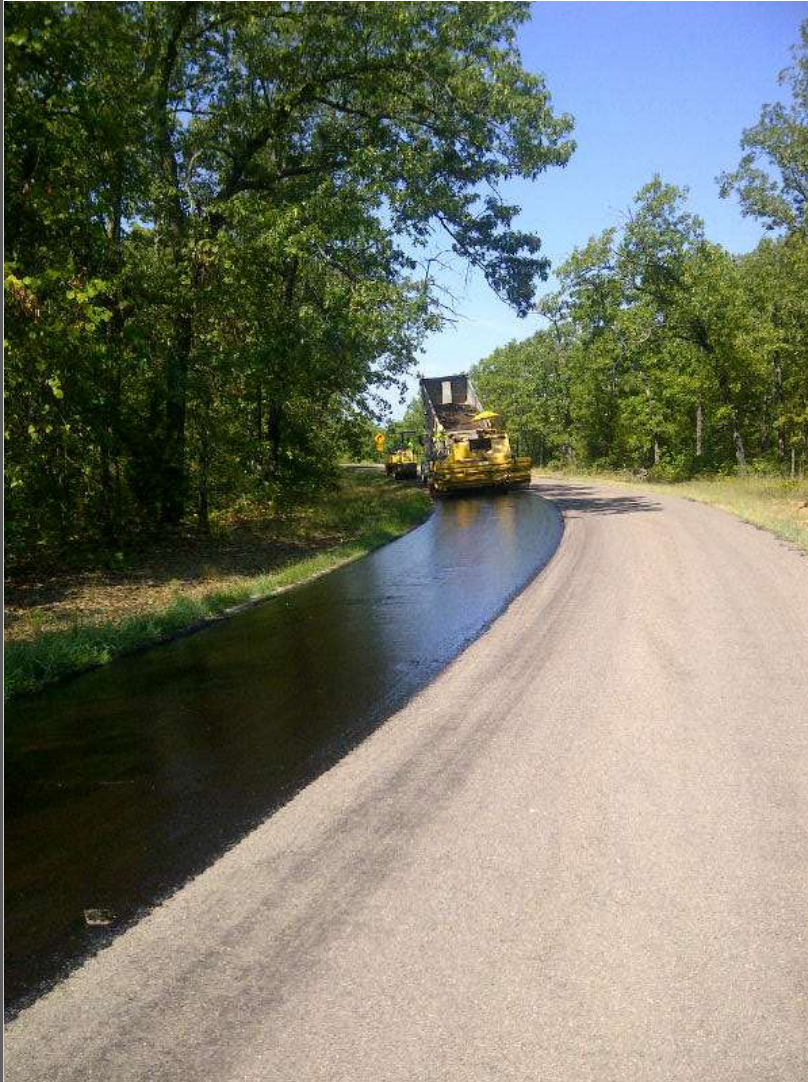
# Crack Sealing



# Patching



# Seal Coat, Scrub Seal Microsurfacing



# Ultrathin Wearing Surface



# Thin Overlay

(single lift)



# Overlay



# Reclaiming Hot In-Place Recycling



# Reclaiming Cold In-Place Recycling



# Reclaiming

## Full Depth Reclamation



# Rebuilding

(include pavement drainage)



ASPHALT AND CONCRETE PAVEMENTS  
CAN BE **RECYCLED!**

# Picking A Proper Mixture Using MoDOT Specs.

- ◆ MoDOT Section 402
  - Low Traffic Under 3500 AADT
  - Residential Streets, Parking Lots
- ◆ MoDOT Section 401
  - Over 3500 AADT
  - Major Through Streets, Heavier Intersections, Light Industrial Areas
- ◆ MoDOT Section 403
  - Highways, Heavy Industrial Areas

# Thank You

