



Appendix C  
Pavement Condition and Distresses

*Tools and Tactics for Roadway Pavement Preservation: An  
Implementation Guide to Preserving  
High-Traffic-Volume Roadways*

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## Pavement Conditions and Distresses

This appendix includes photos that illustrate overall pavement conditions and the various distress types listed in Table 3 of *Tools and Tactics for Roadway Pavement Preservation, An Implementation Guide to Preserving High-Traffic-Volume Roadways*.

### Overall pavement condition

Figure C-1 illustrates a range of overall condition levels for asphalt/composite and concrete pavements. Preservation is generally most suitable for pavements in good condition; however, some treatments can be successfully applied to pavements in fair condition.



Figure C-1. Example Illustrations of Overall Pavement Condition (Harrington and Fick 2014).

## Pavement distresses





The presence of distresses and the severity level and extent of those distresses are key to determining if a preservation treatment is appropriate or whether major rehabilitation is necessary. Both manual and automated pavement surveys can provide the condition information needed to assess whether a pavement is a good candidate for preservation and, if so, which types of preservation treatments are suitable.





The FHWA's Long-Term Pavement Performance (LTPP) program developed a detailed distress survey procedure and standardized definitions for identifying and recording distresses for asphalt and concrete pavements (Miller and Bellinger 2003). Titled the *Distress Identification Manual (DIM) for the LTPP*, this document describes and illustrates the appearance of each distress type at different severity levels, and specifies the standard units in which the distress is measured.

Another useful document for evaluating pavement distress is the pavement condition index (PCI) procedure as defined in ASTM D 6433-11, *Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys*. In addition to describing how to identify and quantify distress severity levels, it provides the procedure for computing the overall distress index, PCI.






Examples of a few of the more common distress types for asphalt/composite and concrete pavements are provided in tables C-1 and C-2, respectively. These tables also briefly discuss the applicability of preservation for addressing the distresses.



**Table C-1. Asphalt/Composite Pavement Distresses and Applicability of Pavement Preservation**

Distress	Example Illustration	Applicability of Pavement Preservation
Alligator Cracking		<p>Generally <u>not</u> applicable. However, isolated areas of cracking may be treated or repaired separately prior to applying a particular preservation treatment that addresses other deficiencies. Also, thicker/deeper treatments may be acceptable for more extensive areas of low-severity cracking.</p>
Block Cracking		<p>Applicable for most combinations of severity and extent.</p>
Edge Cracking		<p>Applicable. However, extensive amounts of high-severity edge cracking may be better addressed through rehabilitation.</p>
Longitudinal Wheelpath Cracking		<p>Generally <u>not</u> applicable. However, isolated areas of cracking may be treated separately prior to applying a particular preservation treatment that addresses other deficiencies. Also, thicker/deeper treatments may be acceptable for more extensive areas of low-severity cracking.</p>

Distress	Example Illustration	Applicability of Pavement Preservation
<p>Longitudinal Non-Wheelpath Cracking</p>		<p>Applicable for all severity levels. However, extensive amounts of high-severity longitudinal cracking, such as at the centerline joint, may be better addressed through localized repairs.</p>
<p>Raveling/Weathering</p>		<p>Applicable for most combinations of severity and extent.</p>
<p>Rutting</p>		<p>Applicable for most combinations of severity and extent, provided that the rutting is primarily due to densification or abrasion/wear. Some preservation treatments may be acceptable for mix instability rutting if the problem is confined to the top 2 or 3 in. of the surface.</p>
<p>Transverse Thermal Cracking</p>		<p>Applicable for most combinations of severity and extent.</p>

**Table C-2. Concrete Pavement Distresses and Applicability of Pavement Preservation**

Distress	Example Illustration	Applicability of Pavement Preservation
Corner Breaks		<p>Generally <u>not</u> applicable. However, isolated corner breaks may be patched or repaired as part of a broader preservation treatment that addresses other deficiencies.</p>
Durability (“D”) Cracking		<p>Generally <u>not</u> applicable. However, isolated areas of “D” cracking may be treated with full-depth repair as part of a broader preservation treatment that addresses other deficiencies.</p>
Joint Faulting		<p>Applicable for most combinations of severity and extent. If rate of faulting development is high, other treatments may be necessary to slow the re-occurrence of faulting.</p>
Joint Spalling		<p>Applicable for all severity levels. However, extensive amounts of medium- and high-severity spalling may be better addressed through rehabilitation.</p>
Joint Seal Damage		<p>Applicable for all combinations of severity and extent.</p>

Distress	Example Illustration	Applicability of Pavement Preservation
Scaling		<p>Applicable for all combinations of severity and extent.</p>
Transverse Cracking		<p>Applicable for low-severity cracking and possibly medium-severity cracking. Isolated cracked slabs may be treated with full-depth repair as part of a broader preservation treatment that addresses other deficiencies.</p>