

Field Guide for Airport Pavement Maintenance Recommendation Tool

Prepared for

Airport Cooperative Research Program
Transportation Research Board
of National Academies

Thomas J. Freeman, Jeffrey D. Borowiec, Bryan Wilson, Poura Arabali, Maryam Sakhaeifar

Texas A&M Transportation Institute College Station, TX

March 2016

ACKNOWLEDGMENT OF SPONSORSHIP
This work was sponsored by one or more of the following as noted:
☐ American Association of State Highway and Transportation Officials, in cooperation with the Federal Highway Administration, and was conducted in the National Cooperative Highway Research Program ,
☐ Federal Transit Administration and was conducted in the Transit Cooperative Research Program ,
X Federal Aviation Administration and was conducted in the Airport Cooperative Research Program,
☐ Research and Innovative Technology Administration and was conducted in the National Cooperative Freight Research Program,
☐ Pipeline and Hazardous Materials Safety Administration and was conducted in the Hazardous Materials Cooperative Research Program,
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This field guide is a paper version of the web-based Airport Pavement Maintenance Recommendation Tool developed as part of the ACRP 09-11, *Pavement Maintenance Guidelines for General Aviation Airport Management*. The web-based tool has considerably more functionality than this document and can be accessed at (http://acrp0911.tti.tamu.edu). The guidebook describes how to address airfield pavement distress. A final report covers the detailed research behind these documents.

How to Use This Field Guide

The steps are:

- 1. Determine Airport Classification.
- 2. Choose Climatic Zone.
- 3. Identify Distress Types.
- 4. Determine Treatment.

For more detailed information about each of these steps, refer to the guidebook.



Concrete

Maintenance

Treatment Hierarchy

Steps

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Distress Identification

See Chapter 2, Appendix A (for asphalt), and Appendix B (for concrete) of the guidebook for more information on how to determine distress type and severity.

More resources include the ASTM specification D5340 – 12, *Standard Test Method for Airport Pavement Condition Index Surveys* and the FAA Advisory Circular 150/5380-7B, *Airport Pavement Management Program (PMP)*. The manuals are available at the FAA Airports websites:

 $\underline{http://www.faa.gov/documentLibrary/media/Advisory_Circular/Asphalt-Surfaced-Airfields-Distress-Manual.pdf}$

 $\underline{http://www.faa.gov/documentLibrary/media/Advisory_Circular/Concrete-Surfaced-Airfields-Distress-Manual.\underline{pdf}}$

Step 1. Determine Airport Classification

FAA assigned general aviation airports into the following subcategories: national, regional, local, and basic. The categories focus on the role of the airport in communities and the nation, and not necessarily on airport size and features. Table 1 shows a description of each category.

Table 1. New Category Definitions of General Aviation Airports.

National

- 5,000+ instrument operations, 11+ based jets, 20+ international flights, or 500+ interstate departures, or
- 10,000+ enplanements and at least 1 charter enplanement by a large certified air carrier; or
- 500+ million pounds of landed cargo weight.

Regional

- Metropolitan Statistical Area (MSA) (Metro or Micro) and 10+ domestic flights over 500 miles, 1,000+ instrument operations, 1+ based jet, or 100+ based aircraft; or
- The airport is located in a metropolitan or micropolitan statistical area, and the airport meets the definition of commercial service.

Local

- 10+ instrument operations and 15+ based aircraft; or
- 2,500+ passenger enplanements.

Basic

- 10+ based aircraft; or
- 4+ based helicopters; or
- The airport is located 30+ miles from the nearest NPIAS airport; or
- The airport is identified and used by the U.S. Forest Service, or U.S. Marshals, or U.S. Customs and Border Protection (designated, international, or landing rights), or U.S. Postal Service (air stops), or has Essential Air Service; or
- The airport is a new or replacement facility activated after January 1, 2001; and
- Publicly owned or privately owned and designated as a reliever with a minimum of 90 based aircraft.



Step 2. Choose Climatic Zone

There are different stresses, needs, and potentially maintenance treatments for an airport in the dry-cold areas versus the wet-warm areas. To account for these potential differences in treatments and timing of treatments, these climatic zones were developed as part of the Long-Term Pavement Performance (LTPP) research (Figure 1).

Select:

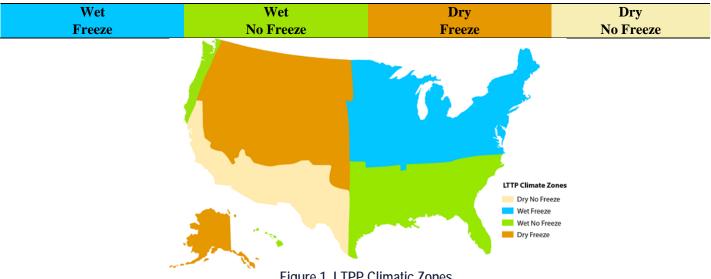


Figure 1. LTPP Climatic Zones.



Step 3. Identify Distress Types

See Appendices A (asphalt) and B (concrete) of the guidebook for a complete list of distress types and severity levels. This field guide contains an abbreviated version.

Identify the distress type/extent/severity that most closely matches the conditions at your facility. For example, if you have transverse cracks, spaced 40 ft apart that are ½-inch wide, you would use the combination of "Transverse Cracks 50 Ft Apart, Medium Severity." More than one distress type-severity-quantity can be selected, but the process of selecting a treatment (Step 4) must be completed for each combination.

Asphalt Pavement Distresses

Cracking

There are six types of cracking usually found on airport pavements.



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Longitudinal/Transverse/Edge Cracking (Non-PCC Joint Reflective)

Description

Longitudinal cracks are parallel to the pavement's center line or laydown direction. They may be caused by (1) a poorly constructed paving lane joint, (2) shrinkage of the AC surface due to low temperatures or hardening of the asphalt, or (3) a reflective crack caused by cracks beneath the surface course, including cracks in PCC slabs (but not at PCC joints). These types of cracks are not usually load associated. If the pavement is fragmented along a crack, the crack is said to be spalled.

Transverse cracks extend across the pavement at approximately right angles to the pavement's center line or direction of laydown. They may be caused by (1) a poorly constructed paving lane joint, (2) shrinkage of the AC surface due to low temperatures or hardening of the asphalt, or (3) a reflective crack caused by cracks beneath the surface course, including cracks in PCC slabs (but not at PCC joints). They may be caused by (2) or (3). These types of cracks are not usually load associated. If the pavement is fragmented along a crack, the crack is said to be spalled.

Edge cracking is differentiated from Longitudinal cracking only the location of the cracks. Edge cracks occur within four feet of the edge. All severities are the same. Edge cracks are often treated differently than cracks in the middle of the pavement and are listed separately for this reason.

Severity Levels

Low	Medium	High
Cracks have only light spalling	One of the following conditions exists: (1) cracks are	Cracks are severely
(little or no FOD potential) or no	moderately spalled (some FOD potential) and can be	spalled and pieces are
spalling, and can be filled or non-	either filled or non-filled of any width; (2) filled	loose or missing causing
filled. If non-filled, the cracks have	cracks are not spalled or are lightly spalled, but filler	definite FOD potential.
a mean width of ¼ inch (6 mm) or	is in unsatisfactory condition; (3) non-filled cracks	Cracks can be either
less; filled cracks are of any width,	are not spalled or are only lightly spalled, but the	filled or non-filled of
but their filler material is in	mean crack width is greater than ¼ inch (6 mm), or	any width.
satisfactory condition.	(4) light random cracking exists near the crack or at	
	the corners of intersecting cracks.	



Many Cracks



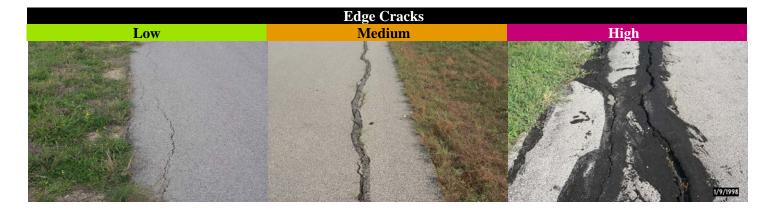
Step 3: Identify Distress Types

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Joint Reflection Cracking from PCC (Longitudinal and Transverse)

Description

This distress occurs only on pavements having an asphalt or tar surface over a PCC slab. This category does not include reflection cracking from any other type of base (that is, cement stabilized, lime stabilized). Such cracks are listed as longitudinal and transverse cracks. Joint reflection cracking is caused mainly by movement of the PCC slab beneath the AC surface because of thermal and moisture changes; it is not load-related. However, traffic loading may cause a breakdown of the AC near the crack, resulting in spalling and FOD potential. If the pavement is fragmented along a crack, the crack is said to be spalled. Knowledge of slab dimensions beneath the AC surface will help to identify these cracks.

Severity Levels

Low	Medium	High
Cracks have only light spalling	One of the following conditions exists: cracks are	Cracks are severely
(little or no FOD potential) or no	moderately spalled (some FOD potential) and can be	spalled with pieces
spalling, and can be filled or	either filled or non-filled of any width; filled cracks	loose or missing
non-filled. If non-filled, the	are not spalled or are lightly spalled, but filler is in	causing definite
cracks have a mean width of	unsatisfactory condition; non-filled cracks are not	FOD potential.
¹ / ₄ inch (6 mm) or less; filled	spalled or are only lightly spalled, but the mean crack	Cracks can be either
cracks are of any width, but their	width is greater than ¼ inch (6 mm); or light random	filled or non-filled
filler material is in satisfactory	cracking exists near the crack or at the corners of	of any width.
condition.	intersecting cracks.	

Step 3: Identify Distress Types

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Block Cracking

Description

Block cracks are interconnected cracks that divide the pavement into approximately rectangular pieces. The blocks may range in size from approximately 1 by 1 ft to 10 by 10 ft (0.3 by 0.3 m to 3 by 3 m). Block cracking is caused mainly by shrinkage of the AC and daily temperature cycling (that results in daily stress/strain cycling). It is not load associated. The occurrence of block cracking usually indicates that the asphalt has hardened significantly. Block cracking normally occurs over a large portion of pavement area, but sometimes will occur only in non-traffic areas. This type of distress differs from alligator cracking in that the alligator cracks form smaller, many-sided pieces with sharp angles. Also unlike block cracks, alligator cracks are caused by repeated traffic loadings and are, therefore, located only in traffic areas (that is, wheel paths).

Severity Levels

Low	Medium	High
Blocks are defined by cracks that	Blocks are defined by either: filled or non-filled	Blocks are well
are non-spalled (sides of the	cracks that are moderately spalled (some FOD	defined by cracks
crack are vertical) or lightly	potential); non-filled cracks that are not spalled or	that are severely
spalled, causing no FOD	have only minor spalling (some FOD potential), but	spalled, causing a
potential. Non-filled cracks have	have a mean width greater than approximately 1/4 inch	definite FOD
¹ / ₄ inch (6 mm) or less mean	(6 mm); or filled cracks greater than ½ inch that are	potential.
width and filled cracks have	not spalled or have only minor spalling (some FOD	
filler in satisfactory condition.	potential), but have filler in unsatisfactory condition.	

Concrete

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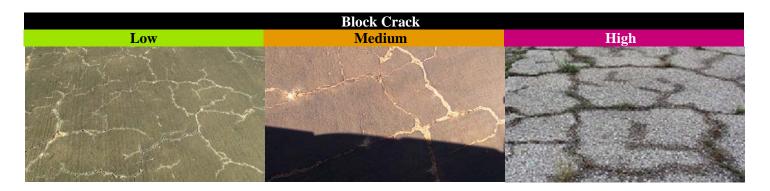
Treatment Hierarchy

Step 3: Identify Distress Types

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Alligator or Fatigue Cracking

Description

Alligator or fatigue cracking is a series of interconnecting cracks caused by fatigue failure of the AC surface under repeated traffic loading. The cracking initiates at the bottom of the AC surface (or stabilized base) where tensile stress and strain are highest under a wheel load. The cracks propagate to the surface initially as a series of parallel cracks. After repeated traffic loading, the cracks connect, forming many-sided, sharp-angled pieces that develop a pattern resembling chicken wire or the skin of an alligator. The pieces are less than 2 ft (0.6 m) on the longest side.

Alligator cracking occurs only in areas that are subjected to repeated traffic loadings, such as wheel paths. Therefore, it would not occur over an entire area unless the entire area was subjected to traffic loading. (Pattern-type cracking that occurs over an entire area that is not subjected to loading is rated as block cracking, that is, not a load-associated distress.) Alligator cracking is considered a major structural distress.

Severity Levels

Low	Medium	High
Fine, longitudinal hairline	Further development of light alligator cracking into	Network or pattern cracking
cracks running parallel to	a pattern or network of cracks that may be lightly	has progressed so that the
one another with none or	spalled. Medium-severity alligator cracking is	pieces are well defined and
only a few interconnecting	defined by a well-defined pattern of interconnecting	spalled at the edges; some of
cracks. The cracks are not	cracks, where all pieces are securely held in place	the pieces rock under traffic
spalled.	(good aggregate interlock between pieces).	and may cause FOD potential.

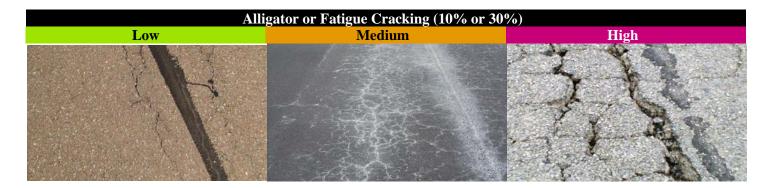
Concrete

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Surface Distress

There are four types of surface distress usually found on airport pavements.

Weathering (Surface Wear)—Dense Mix Asphalt

Description

The wearing away of the asphalt binder and fine aggregate matrix from the pavement surface.

Severity Levels

For this tool, the pavement should be identified as either low severity (starting to weather) or high severity (definitely weathering).

Low	Medium	High
Asphalt surface beginning to show signs	Loss of fine aggregate matrix	Edges of coarse aggregate have
of aging which may be accelerated by	is noticeable and edges of	been exposed greater than 1/4
climatic conditions. Loss is the fine	coarse aggregate have been	width (of the longest side) of
aggregate matrix is noticeable and may	exposed up to 1/4 width (of the	the coarse aggregate. There is
be accompanied by fading of the asphalt	longest side) of the coarse	considerable loss of fine
color. Edges of the coarse aggregates are	aggregate due to the loss of	aggregate matrix leading to
beginning to be exposed (less than 1 mm	fine aggregate matrix.	potential or some loss of coarse
or 0.05 inches). Pavement may be		aggregate.
relatively new (as new as 6 months old).		

Step 3: Identify Distress Types

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Raveling

Description

Raveling is the dislodging of coarse aggregate particles from the pavement surface.

Dense Mix Severity Levels

As used herein, coarse aggregate refers to predominant coarse aggregate sizes of the asphalt mix. Aggregate clusters refer to when more than one adjoining coarse aggregate piece is missing. If in doubt about a severity level, three representative areas of 1 square yard each (1 m²) should be examined and the number of missing coarse aggregate particles counted.

	Low	Medium	High
	(1) In a yd ² (m ²) representative area,	(1) In a yd ² (m ²) representative area,	(1) In a yd ² (m ²) representative
	the number of coarse aggregate	the number of coarse aggregate	area, the number of coarse
	particles missing is between 5 and 20,	particles missing is between 21 and	aggregate particles missing is over
Severity	and/or (2) missing aggregate clusters	40, and/or (2) missing aggregate	40, and/or (2) missing aggregate
Levels	are less than 2 percent of the	clusters are between 2 and 10 percent	clusters are more than 10 percent
	examined yd ² (m ²) area. In low	of the examined yd ² (m ²) area. In	of the examined yd ² (m ²) area. In
	severity raveling, there is little or no	medium severity raveling, there is	high severity raveling, there is
	FOD potential.	some FOD potential.	significant FOD potential.
Slurry	(1) The scaled area is less than 1%.	(1) The scaled area is between 1 and	(1) The scaled area is over 10%.
Seal/Coal	(2) In the case of coal tar where	10%. (2) In the case of coal tar where	(2) In the case of coal tar the
	pattern cracking has developed, the	pattern cracking has developed, the	surface is peeling off.
Tar over	surface cracks are less than 1/4 inch	cracks are ¼ inch (6 mm) wide or	
Dense Mix	(6 mm) wide.	greater.	

Step 3: Identify Distress Types

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Patching

Description

A patch is considered a defect, no matter how well it is performing.

Severity Levels

Low	Medium	High
Patch is in good condition	Patch is somewhat deteriorated and affects	Patch is badly deteriorated and
and is performing	ride quality to some extent. Moderate	affects ride quality significantly
satisfactorily.	amount of distress is present within the	or has high FOD potential.
	patch or has FOD potential, or both.	Patch soon needs replacement.



Step 3: Identify Distress Types

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Roughness

Roughness, as used in this tool, is a combination of several distress types, which are corrugation, depression, and swell. Regardless of the distress type, select the category that best matches the impact of the distress.

Corrugation

Corrugation is a series of closely spaced ridges and valleys (ripples) occurring at fairly regular intervals (usually less than 5 ft) (1.5 m) along the pavement. The ridges are perpendicular to the traffic direction. Traffic action combined with an unstable pavement surface or base usually causes this type of distress.

Severity	Runways and High- Speed Taxiways	Taxiways and Aprons	
L	< 1/4 inch (6 mm)	< ½ inch (13 mm)	Corrugations are minor and do not significantly affect ride quality
M	¹ / ₄ to ¹ / ₂ inch (6 to 13 mm)	½ to 1 inch (13 to 25 mm)	
Н	> ½ inch (13 mm)	> 1 inch (25 mm)	

Depression

Depressions are localized pavement surface areas having elevations slightly lower than those of the surrounding pavement. In many instances, light depressions are not noticeable until after a rain, when ponding water creates "birdbath" areas; but the depressions can also be located without rain because of stains created by ponding of water. Depressions can be caused by settlement of the foundation soil or can be built during construction. Depressions cause roughness and, when filled with water of sufficient depth, could cause hydroplaning of aircraft.

	Maximum Depth of Depression		
	Runways and High-Speed Taxiways	Taxiways and Aprons	Severity Levels
L	¹ / ₈ to ¹ / ₂ inch (3 to 13mm)	½ to 1 inch	Depression can be observed or located by stained areas, only slightly affects pavement riding quality, and may cause hydroplaning potential on runways (see measurement criteria below).
M	½ to 1 inch (13 to 25 mm)		The depression can be observed, moderately affects pavement riding quality, and causes hydroplaning potential on runways (see measurement criteria below).
Н	> 1 inch (> 25 mm)	1/ > 31 mm)	The depression can be readily observed, severely affects pavement riding quality, and causes definite hydroplaning potential (see measurement criteria below).

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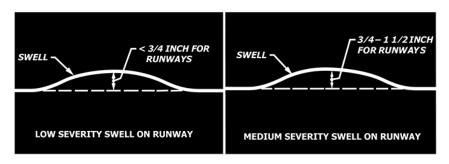


Swell

Swell is characterized by an upward bulge in the pavement's surface. A swell may occur sharply over a small area or as a longer, gradual wave. Either type of swell can be accompanied by surface cracking. A swell is usually caused by frost action in the subgrade or by swelling soil, but a small swell can also occur on the surface of an asphalt overlay (over PCC) as a result of a blowup in the PCC slab.

Sever	ity Height Differential	Severity Levels	
L	< 3⁄4 inch (20 mm)	Swell is barely visible and has a minor effect on the pavement's ride quality. (Low-severity swells may not always be observable, but their existence can be confirmed by driving a vehicle over the section. An upward acceleration will occur if the swell is present).	
M	3/4 to 11/2 inch (20 to 40 mm)	Swell can be observed without difficulty and has a significant effect on the pavement's ride quality.	
Н	> 1½ inch (40 mm)	nm) Swell can be readily observed and severely affects the pavement's ride quality.	

Rate severity on high-speed taxiways using measurement criteria provided above. Double the height differential criteria for other taxiways and aprons.



For each area of analysis, select the combinations of distress type, extent, and severity found in that area:

Distress Type and Extent		Severity	
Few Longitudinal Cracks or Joints	Low Severity	Medium Severity	High Severity
Many Longitudinal Cracks	Low Severity	Medium Severity	High Severity
A Few Edge Cracks	Low Severity	Medium Severity	High Severity
Transverse Cracks 50 Ft Apart	Low Severity	Medium Severity	High Severity
Transverse Cracks 20 Ft Apart	Low Severity	Medium Severity	High Severity
Block Cracking	Low Severity	Medium Severity	High Severity
Reflection Cracking	Low Severity	Medium Severity	High Severity
Fatigue Cracking- 10% Of Area	Low Severity	Medium Severity	High Severity
Fatigue Cracking- 30%	Low Severity	Medium Severity	High Severity
Starting to Weather	Low Severity		
Definitely Weathering		Medium Severity	
Starting to Ravel	Low Severity		
Definitely Raveling		Medium Severity	
Patching- 10% of Area	Low Severity	Medium Severity	High Severity
Patching- 30% of Area	Low Severity	Medium Severity	High Severity
Roughness	Long Wavelength Swells	Many Long Wavelength Swells	Many Short Wavelength Bumps



Step 3: Identify Distress Types

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Concrete Pavement Distresses

Joint Problems

There are two types of joint problems usually found on airport pavements.

Joint Seal Damage

Description

Joint seal damage is any condition that enables soil or rocks to accumulate in the joints or allows significant infiltration of water. Accumulation of incompressible materials prevents the slabs from expanding and may result in buckling, shattering, or spalling. A pliable joint filler bonded to the edges of the slabs protects the joints from accumulation of materials and also prevents water from seeping down and softening the foundation supporting the slab. Typical types of joint seal damage are: (1) stripping of joint sealant, (2) extrusion of joint sealant, (3) weed growth, (4) hardening of the filler (oxidation), (5) loss of bond to the slab edges, and (6) lack or absence of sealant in the joint.

Severity Levels

Medium Low High Joint sealer is in generally Joint sealer is in generally fair condition over the Joint sealer is in generally poor good condition throughout the entire surveyed sample with one or more of the condition over the entire sample. Sealant is performing above types of damage occurring to a moderate surveyed sample with one or well with only a minor amount degree. Sealant needs replacement within two more of the above types of of any of the above types of years. Joint seal damage is at medium severity if a damage occurring to a severe damage present. Joint seal few of the joints have any of the following degree. Sealant needs damage is at low severity if a conditions: (1) joint sealer is in place, but water immediate replacement. Joint few of the joints have sealer access is possible through visible openings no seal damage is at high severity which has debonded from, but more than \(\frac{1}{8} \) inch (3 mm) wide. If a knife blade if 10% or more of the joint is still in contact with, the joint cannot be inserted easily between sealer and joint sealer exceeds limiting criteria listed above, or if 10% or more edge. This condition exists if a face, this condition does not exist; (2) pumping knife blade can be inserted of sealer is missing. debris are evident at the joint; (3) joint sealer is between sealer and joint face oxidized and lifeless but pliable (like a rope), and without resistance. generally fills the joint opening; or (4) vegetation in the joint is obvious, but does not obscure the joint opening.

Step 3: Identify Distress Types

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Spalling

For the purposes of this tool, the two types of spalling (transverse/longitudinal joint and corner) are combined.

Transverse and Longitudinal Joint

Joint spalling is the breakdown of the slab edges within 2 ft (0.6 m) of the side of the joint. A joint spall usually does not extend vertically through the slab but intersects the joint at an angle. Spalling results from excessive stresses at the joint or crack caused by infiltration of incompressible materials or traffic load. Weak concrete at the joint (caused by overworking) combined with traffic loads is another cause of spalling. Note: Frayed condition as used in this test method indicates material is no longer in place along a joint or crack. Spalling indicates material may or may not be missing along a joint or crack.

Low	Medium	High
Spall over 2 ft (0.6 m) long: (1) spall is	Spall over 2 ft (0.6 m) long: (1) spall is broken	Spall over 2 ft (0.6
broken into no more than three pieces	into more than three pieces defined by light or	m) long: (1) spall is
defined by low- or medium-severity	medium cracks; (2) spall is broken into no more	broken into more
cracks; little or no FOD potential exists;	than three pieces with one or more of the cracks	than three pieces
or (2) joint is lightly frayed; little or no	being severe with some FOD potential existing; or	defined by one or
FOD potential. Spall less than 2 ft long is	(3) joint is moderately frayed with some FOD	more high-severity
broken into pieces or fragmented with	potential. Spall less than 2 ft long: spall is broken	cracks with high
little FOD or tire damage potential exists.	into pieces or fragmented with some of the pieces	FOD potential and
Lightly frayed means the upper edge of	loose or absent, causing considerable FOD or tire	high possibility of
the joint is broken away leaving a spall	damage potential. Moderately frayed means the	the pieces becoming
no wider than 1 in. (25 mm) and no	upper edge of the joint is broken away leaving a	dislodged, or (2)
deeper than ½ inch (13 mm). The	spall wider than 1 in. (25 mm) or deeper than	joint is severely
material is missing and the joint creates	½ inch (13 mm). The material is mostly missing	frayed with high
little or no FOD potential.	with some FOD potential.	FOD potential.

Note: If less than 2 ft (0.6 m) of the joint is lightly frayed, the spall should not be counted.

Step 3: Identify Distress Types

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Corner

Corner spalling is the raveling or breakdown of the slab within approximately 2 ft (0.6 m) of the corner. A corner spall differs from a corner break in that the spall usually angles downward to intersect the joint, while a break extends vertically through the slab.

Low	Medium	High
One of the following	One of the following conditions exists: (1)	One of the following conditions
conditions exists: (1) spall	spall is broken into two or more pieces	exists: (1) spall is broken into two or
is broken into one or two	defined by medium-severity crack(s), and	more pieces defined by high-severity
pieces defined by low-	a few small fragments may be absent or	fragmented crack(s) with loose or
severity cracks (little or no	loose; (2) spall is defined by one severe,	absent fragments; (2) pieces of the
FOD potential); or (2)	fragmented crack that may be	spall have been displaced to the
spall is defined by one	accompanied by a few hairline cracks; or,	extent that a tire damage hazard
medium-severity crack	(3) spall has deteriorated to the point	exists; or (3) spall has deteriorated to
(little or no FOD	where loose material is causing some	the point where loose material is
potential).	FOD potential.	causing high FOD potential.

A corner spall smaller than 3 inches (76 mm) wide, measured from the edge of the slab, and filled with sealant is not recorded.



Types





Cracking

There are three types of cracking usually found on airport pavements.

Longitudinal, Transverse, and Diagonal Cracks (Mid-Panel Cracking)

Description

These cracks, that divide the slab into two or three pieces, are usually caused by a combination of load repetition, curling stresses, and shrinkage stresses. (For slabs divided into four or more pieces.) Low-severity cracks are usually warping- or friction-related and are not considered major structural distresses. Medium- or high-severity cracks are usually working cracks and are considered major structural distresses.

Note: Hairline cracks that are only a few feet long and do not extend across the entire slab are rated as shrinkage cracks.

Low	Medium	High
Crack has little or minor spalling	One of the following conditions exists:	One of the following conditions
(no FOD potential). If non-filled,	(1) filled or non-filled crack is	exists: (1) filled or non-filled crack
it has a mean width less than	moderately spalled (some FOD	is severely spalled, causing
approximately 1/8 inch (3 mm). A	potential); (2) a non-filled crack has a	definite FOD potential; (2) a non-
filled crack can be of any width,	mean width between ½ and 1 inch (3	filled crack has a mean width
but the filler material must be in	and 25 mm); (3) a filled crack is not	greater than approximately 1 inch
satisfactory condition; or the slab	spalled or only lightly spalled, but the	(25 mm), creating a tire damage
is divided into three pieces by	filler is in unsatisfactory condition; or	potential; or (3) the slab is divided
low-severity cracks.	(4) the slab is divided into three pieces	into three pieces by two or more
	by two or more cracks, one of which is	cracks, one of which is at least
	at least medium severity.	high severity.



Step 3: Identify Distress Types

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables Concrete Maintenance Treatment Hierarchy



Corner Break

Description

A corner break is a crack that intersects the joints at a distance less than or equal to one half of the slab length on both sides, measured from the corner of the slab. For example, a slab with dimensions of 25 by 25 ft (7.5 by 7.5 m) that has a crack intersecting the joint 5 ft (1.5 m) from the corner on one side and 17 ft (5 m) on the other side is not considered a corner break; it is a diagonal crack. However, a crack that intersects 7 ft (2 m) on one side and 10 ft (3 m) on the other is considered a corner break. A corner break differs from a corner spall in that the crack extends vertically through the entire slab thickness, while a corner spall intersects the joint at an angle. Load repetition combined with loss of support and curling stresses usually cause corner breaks.

Low	Medium	High
Crack has little or minor	One of the following conditions exists: (1) filled	One of the following conditions
spalling (no FOD potential). If	or non-filled crack is moderately spalled (some	exists: (1) filled or non-filled
non-filled, it has a mean width	FOD potential); (2) a non-filled crack has a	crack is severely spalled, causing
less than approximately 1/8 inch	mean width between ½ and 1 inch (3 and	definite FOD potential; (2) a non-
(3 mm). A filled crack can be of	25 mm); (3) a filled crack is not spalled or only	filled crack has a mean width
any width, but the filler material	lightly spalled, but the filler is in unsatisfactory	greater than approximately 1 inch
must be in satisfactory	condition; or (4) the area between the corner	(25 mm), creating a tire damage
condition. The area between the	break and the joints is lightly cracked. Lightly	potential; or (3) the area between
corner break and the joints is	cracked means one low-severity crack dividing	the corner break and the joints is
not cracked.	the corner into two pieces.	severely cracked.





Step 3: Identify Distress Types

Asphalt Pavement Treatment Tables Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables Concrete Maintenance Treatment Hierarchy

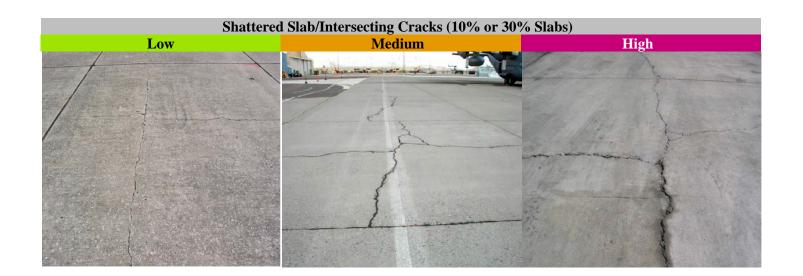


Shattered Slab/Intersecting Cracks

Description

Intersecting cracks are cracks that break the slab into four or more pieces due to overloading or inadequate support, or both. The high-severity level of this distress type, as defined as follows, is referred to as shattered slab. If all pieces or cracks are contained within a corner break, the distress is categorized as a severe corner break.

Low	Medium	High
Slab is broken into four	Slab is broken into four or five	At this level of severity, the slab is called
or five pieces	pieces with over 15% of the cracks	shattered: (1) slab is broken into four or five
predominantly defined	of medium severity (no high-severity	pieces with some or all cracks of high
by low-severity cracks.	cracks); slab is broken into six or	severity; or (2) slab is broken into six or more
	more pieces with over 85% of the	pieces with over 15% of the cracks of medium
	cracks of low severity.	or high severity.





Surface Distress

There are two types of surface distress usually found on airport pavements.

Patching

Description

A patch is an area where the origin all pavement has been removed and replaced by a filler material. For condition evaluation, patching is divided into two types: small (less than 5 $\rm ft^2$ [0.5 $\rm m^2$]) and large (over 5 $\rm ft^2$). Large patches are described in the next section.

Low	Medium	High
Patch is functioning	Patch deterioration or moderate spalling, or	Patch has deteriorated to a state
well with very little or	both, can be seen around the edges. Patch	that causes considerable roughness
no deterioration.	material can be dislodged with	or high FOD potential, or both.
	considerable effort, causing some FOD	The extent of the deterioration
	potential.	warrants replacement of the patch.



Settlement or Faulting

Description

Settlement or faulting is a difference of elevation at a joint or crack caused by upheaval or consolidation.

Severity Levels

Severity levels are defined by the difference in elevation across the fault and the associated decrease in ride quality and safety as severity increases:

	Runways/Taxiways	Aprons
L	< ½ inch (6 mm)	1/8 < ½ inch (3 to 13 mm)
M	¹ / ₄ to ¹ / ₂ inch (6 to 13 mm)	½ to 1 inch (13 to 25 mm)
Н	> ½ inch (13 mm)	> 1 inch (25 mm)

Introduction

Step 3: Identify Distress Types

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables





For each area of analysis, select the combinations of distress type, extent, and severity found in that area:

Distress Type and Extent			Severity	
Joint Seal Damage	None	Low Severity	Medium Severity	High Severity
Joint and Corner Spalls		Low Severity	Medium Severity	High Severity
Mid-Panel Cracks, 20% of slabs		Low Severity	Medium Severity	High Severity
Mid-Panel Cracks, 40% of slabs		Low Severity	Medium Severity	High Severity
Corner Breaks, 10% of slabs		Low Severity	Medium Severity	High Severity
Corner Breaks, 30% of slabs		Low Severity	Medium Severity	High Severity
Shattered Slabs, 10% of slabs		Low Severity	Medium Severity	High Severity
Shattered Slabs, 30% of slabs		Low Severity	Medium Severity	High Severity
Patches, 30% of slabs		Low Severity	Medium Severity	High Severity
Patches, 50% of slabs		Low Severity	Medium Severity	High Severity
Faulting, 10% of slabs		Low Severity	Medium Severity	High Severity
Faulting, 30% of slabs		Low Severity	Medium Severity	High Severity

Step 4. Determine Treatment

Using either asphalt or concrete pavement treatment tables, and previously identified airport classification, climatic zone, distress type-extent-severity, select the appropriate recommended and acceptable treatment. For all treatments except sealing and patching, it is recommended that a professional engineering firm with airport experience be engaged.

Example:

Airport Classification: Local

Climatic Zone: Dry-Freeze Pavement Type: Concrete

Distress Type: Corner Breaks, 30% of slabs, Medium severity =

Recommended: Full-depth repair (local)

Acceptable: Crack/joint seal

If there are additional distress types, repeat step 4. For each distress combination, select the preferred treatment. A facility might select the acceptable treatment instead of the recommended treatment for many reasons, such as local contractors, availability of material, the time to complete the treatment, initial cost, etc.

Once the chosen treatment for each distress combination has been identified, the asphalt or concrete pavement treatment hierarchy table is consulted to determine whether a single treatment or multiple treatments should be performed. For example, if one combination suggested a fog seal and the other combination suggested an overlay, only the overlay would be performed. However, if the second combination suggested a crack seal, both would be performed.

Asphalt Pavement Treatment Tables

		Wet – Freeze: Cracking	
	Distress	Acceptable	Recommended
ic .	Few long crack, Low severity	Do nothing	Crack seal/fill
asic	Few long crack, Med severity	Do nothing	Crack seal/fill
B	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Do nothing, or AC overlay/mill+overlay	Crack seal/fill
	Many long crack, Med severity	Patch/reconstruct area or do nothing	Crack seal/fill
	Many long crack, High severity	AC overlay/mill+overlay	Patch/recon area
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	AC overlay/mill+overlay or do nothing	Crack seal/fill
ılt	Trans crack, 50ft apart, High severity	Crack seal/fill	Patch/recon area
sphalt	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
ds	Trans crack, 20ft apart, Med severity	AC overlay/mill+overlay or do nothing	Crack seal/fill
A	Trans crack, 20ft apart, High severity	Crack seal/fill	Asphalt overlay/mill+overlay
	Block crack, Low severity	Do nothing	Crack seal/fill
	Block crack, Med severity	Do nothing	Crack seal/fill
	Block crack, High severity	Chip/cape seal	AC overlay/mill+overlay

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Wet – Freeze: Cracking			
	Distress	Acceptable	Recommended	
ic	Few edge crack, Low severity	Crack seal/fill	Do nothing	
asic	Few edge crack, Med severity	AC overlay/mill+overlay or patch/recon area	Crack seal/fill	
P	Few edge crack, High severity	AC overlay/mill+overlay	Patch/recon area	
	Reflection crack, Low severity	Do nothing	Crack seal/fill	
	Reflection crack, Med severity	AC overlay/mill+overlay or do nothing	Crack seal/fill	
	Reflection crack, High severity	AC overlay/mill+overlay or rehab/recon	Patch/recon area	
	Fatigue crack, 10%, Low severity	Do nothing	Crack seal/fill	
alı	Fatigue crack, 10%, Med severity	Fog/coal tar seal	Patch/recon area	
qc	Fatigue crack, 10%, High severity	AC overlay/mill+overlay	Patch/recon area	
Asph	Fatigue crack, 30%, Low severity	Fog/coal tar seal	AC overlay/mill+overlay or rehab/recon	
	Fatigue crack, 30%, Med severity	Patch/reconstruct area or rehab/recon	AC overlay/mill+overlay	
	Fatigue crack, 30%, High severity	AC overlay/mill+overlay or patch/recon area	Rehab/recon	

	Wet – Freeze: Surface Distress		
	Distress	Acceptable	Recommended
j.	Start to weather	Fog/coal tar seal, rejuvenator	Do nothing
asic	Definitely weather	Do nothing	Fog/coal tar seal, rejuvenator
B	Starting to ravel	Fog/coal tar seal, rejuvenator	Chip/cape seal
	Definitely ravel	Chip/cape seal	AC overlay/mill+overlay
	Patch, 10%, Low severity	Slurry/micro	Do nothing
	Patch, 10%, Med severity	Do nothing	Slurry/micro or patch/recon area
	Patch, 10%, High severity	Patch/recon area	AC overlay/mill+overlay
alt	Patch, 30%, Low severity	Fog/coal tar seal	Do nothing
sphal	Patch, 30%, Med severity	Fog/coal tar seal	Patch/recon area
ds	Patch, 30%, High severity	Patch/recon area	AC overlay/mill+overlay
A	Rough, Long Wave Swell	Patch/recon area	Do nothing
	Rough, Many Long Wave Swell	Patch/recon area	AC overlay/mill+overlay
	Rough, Many Short Wave Bump	Patch/recon area	AC overlay/mill+overlay



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Pavement

Treatment Tables

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Wet	– No Freeze: Crackin	g
	Distress	Acceptable	Recommended
Basic	Few long crack, Low severity	Do nothing or rejuvenator	Crack seal/fill
as	Few long crack, Med severity	Do nothing or rejuvenator	Crack seal/fill
P	Few long crack, High severity	AC overlay/mill+overlay	Patch/recon area
	Many long crack, Low severity	Do nothing	Crack seal/fill
	Many long crack, Med severity	AC overlay/mill+overlay	Crack seal/fill
	Many long crack, High severity	Crack seal/fill	AC overlay/mill+overlay
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	Do nothing	Crack seal/fill
ılt	Trans crack, 50ft apart, High severity	AC overlay/mill+overlay	Crack seal/fill
ha	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
Aspha	Trans crack, 20ft apart, Med severity	Chip/cape seal	Crack seal/fill
A	Trans crack, 20ft apart, High severity	AC overlay/mill+overlay	Crack seal/fill
	Block crack, Low severity	Do nothing	Crack seal/fill
	Block crack, Med severity	AC overlay/mill+overlay	Crack seal/fill
	Block crack, High severity	Chip/cape seal	AC overlay/mill+overlay

	Wet – No Freeze: Cracking		
	Distress	Acceptable	Recommended
1C	Few edge crack, Low severity	Crack seal/fill	Do nothing
asic	Few edge crack, Med severity	Rejuvenator	Crack seal/fill
B	Few edge crack, High severity	Crack seal/fill or rejuvenator	Patch/recon area
	Reflection crack, Low severity	Do nothing	Crack seal/fill
	Reflection crack, Med severity	Crack seal/fill	Crack seal/fill
	Reflection crack, High severity	Rehab/recon	Patch/recon area
Ţ	Fatigue crack, 10%, Low severity	Patch/recon area	Crack seal/fill
na]	Fatigue crack, 10%, Med severity	Chip/cape seal	Crack seal/fill
sph	Fatigue crack, 10%, High severity	Chip/cape seal	Patch/recon area
$\mathbf{A}\mathbf{s}$	Fatigue crack, 30%, Low severity	Rejuvenator	AC overlay/mill+overlay
7	Fatigue crack, 30%, Med severity	Patch/recon area	AC overlay/mill+overlay
	Fatigue crack, 30%, High severity	AC overlay/mill+overlay	Rehab/recon



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Maintenance Treatment Hierarchy

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Wet -	- No Freeze: Surface Dis	e: Surface Distress	
	Distress	Acceptable	Recommended	
ic	Start to weather	Do nothing or rejuvenator	Fog/coal tar seal	
Basic	Definitely weather	Rejuvenator or fog/coal tar seal	Slurry/micro	
B	Starting to ravel	Slurry/micro	Rejuvenator	
	Definitely ravel	Chip/cape seal	AC overlay/mill+overlay	
	Patch, 10%, Low severity	Do nothing	Do nothing	
	Patch, 10%, Med severity	Fog/coal tar seal	Do nothing	
	Patch, 10%, High severity	Slurry/micro or chip/cape seal	Patch/recon area	
alt	Patch, 30%, Low severity	Crack seal/fill	Do nothing	
he	Patch, 30%, Med severity	Chip/cape seal	AC overlay/mill+overlay	
Aspha	Patch, 30%, High severity	Rehab/recon	AC overlay/mill+overlay	
A	Rough, Long Wave Swell	Patch/recon area	Do nothing	
	Rough, Many Long Wave Swell	Patch/recon area	AC overlay/mill+overlay	
	Rough, Many Short Wave Bump	Patch/recon area	AC overlay/mill+overlay	

	Dry – Freeze: Cracking		
	Distress	Acceptable	Recommended
Basic	Few long crack, Low severity	Do nothing	Crack seal/fill
as	Few long crack, Med severity	Crack seal/fill	Crack seal/fill
$\mathbf{\Omega}$	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Do nothing	Crack seal/fill
	Many long crack, Med severity	Crack seal/fill	Crack seal/fill
	Many long crack, High severity	Patch/recon area	AC overlay/mill+overlay
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	Do nothing	Crack seal/fill
ılt	Trans crack, 50ft apart, High severity	AC overlay/mill+overlay	Crack seal/fill
he	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
Aspha]	Trans crack, 20ft apart, Med severity	Chip/cape seal	Crack seal/fill
A	Trans crack, 20ft apart, High severity	Chip/cape seal	AC overlay/mill+overlay
	Block crack, Low severity	Do nothing	Crack seal/fill
	Block crack, Med severity	Chip/cape seal	Crack seal/fill
	Block crack, High severity	Chip/cape seal	AC overlay/mill+overlay

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Dry – Freeze: Cracking		
	Distress	Acceptable	Recommended
asic	Few edge crack, Low severity	Do nothing	Crack seal/fill
as	Few edge crack, Med severity	Crack seal/fill	Crack seal/fill
B	Few edge crack, High severity	Crack seal/fill	Patch/recon area
	Reflection crack, Low severity	Do nothing	Crack seal/fill
	Reflection crack, Med severity	Crack seal/fill	Crack seal/fill
	Reflection crack, High severity	Crack seal/fill or Rehab/recon	Patch/recon area
	Fatigue crack, 10%, Low severity	Rejuvenator	Crack seal/fill
าลไ	Fatigue crack, 10%, Med severity	Chip/cape seal	Patch/recon area
spha	Fatigue crack, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
$\mathbf{A}\mathbf{s}$	Fatigue crack, 30%, Low severity	Chip/cape seal	AC overlay/mill+overlay
7	Fatigue crack, 30%, Med severity	Chip/cape seal	Patch/recon area
	Fatigue crack, 30%, High severity	AC overlay/mill+overlay	Patch/recon area

	Dry – Freeze: Surface Distress			
	Distress	Acceptable	Recommended	
Basic	Start to weather	Fog/coal tar seal	Rejuvenator	
as	Definitely weather	Fog/coal tar seal	Slurry/micro	
P	Starting to ravel	Slurry/micro	Chip/cape seal	
	Definitely ravel	Slurry/micro	Chip/cape seal	
	Patch, 10%, Low severity	Crack seal/fill	Do nothing	
	Patch, 10%, Med severity	Slurry/micro or fog/coal tar seal	Do nothing	
	Patch, 10%, High severity	Slurry/micro or fog/coal tar seal	Patch/recon area	
alt	Patch, 30%, Low severity	Crack seal/fill	Do nothing	
h	Patch, 30%, Med severity	Patch/recon area	AC overlay/mill+overlay	
Asphalt	Patch, 30%, High severity	Patch/recon area	AC overlay/mill+overlay	
A	Rough, Long Wave Swell	Patch/recon area	Do nothing	
	Rough, Many Long Wave Swell	AC overlay/mill+overlay	Do nothing	
	Rough, Many Short Wave Bump	AC overlay/mill+overlay	Do nothing	



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Maintenance Treatment Hierarchy

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Dry – No Freeze: Cracking		
	Distress	Acceptable	Recommended
asic	Few long crack, Low severity	Crack seal/fill	Do nothing
as	Few long crack, Med severity	Do nothing	Crack seal/fill
B	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Crack seal/fill	Do nothing
	Many long crack, Med severity	Do nothing	Crack seal/fill
	Many long crack, High severity	Crack seal/fill	AC overlay/mill+overlay
	Trans crack, 50ft apart, Low severity	Crack seal/fill	Do nothing
	Trans crack, 50ft apart, Med severity	Do nothing	Crack seal/fill
ılt	Trans crack, 50ft apart, High severity	Patch/recon area	Crack seal/fill
he	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
sphal	Trans crack, 20ft apart, Med severity	Do nothing	Crack seal/fill
A	Trans crack, 20ft apart, High severity	Chip/cape seal	Crack seal/fill
	Block crack, Low severity	Crack seal/fill	Do nothing
	Block crack, Med severity	Do nothing	Crack seal/fill
	Block crack, High severity	Crack seal/fill	AC overlay/mill+overlay

	Dry – No Freeze: Cracking		
	Distress	Acceptable	Recommended
Basic	Few edge crack, Low severity	Crack seal/fill	Do nothing
as	Few edge crack, Med severity	Do nothing	Crack seal/fill
B	Few edge crack, High severity	Crack seal/fill	Patch/recon area
	Reflection crack, Low severity	Crack seal/fill	Do nothing
	Reflection crack, Med severity	Do nothing	Crack seal/fill
	Reflection crack, High severity	Crack seal/fill	Patch/recon area
	Fatigue crack, 10%, Low severity	Do nothing	Crack seal/fill
Asphal	Fatigue crack, 10%, Med severity	Crack seal/fill	Patch/recon area
$\mathbf{p}^{\mathbf{l}}$	Fatigue crack, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
As	Fatigue crack, 30%, Low severity	Rejuvenator	AC overlay/mill+overlay
	Fatigue crack, 30%, Med severity	AC overlay/mill+overlay	Patch/recon area
	Fatigue crack, 30%, High severity	Patch/recon area	Rehab/recon



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Maintenance Treatment Hierarchy Steps

Asphalt Pavement Treatment Tables

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	Dry – No Freeze: Surface Distress		
	Distress	Acceptable	Recommended
asic	Start to weather	Fog/coal tar seal	Rejuvenator
as	Definitely weather	Rejuvenator	Fog/coal tar seal
B	Starting to ravel	Fog/coal tar seal	Slurry/micro
	Definitely ravel	Slurry/micro	Chip/cape seal
	Patch, 10%, Low severity	Crack seal/fill	Do nothing
	Patch, 10%, Med severity	Do nothing	Crack seal/fill
	Patch, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
alt	Patch, 30%, Low severity	Crack seal/fill	Do nothing
h	Patch, 30%, Med severity	AC overlay/mill+overlay	Chip/cape seal or slurry/micro
sphalt	Patch, 30%, High severity	Chip/cape seal or slurry/micro	AC overlay/mill+overlay
A	Rough, Long Wave Swell	Patch/recon area	Do nothing
	Rough, Many Long Wave Swell	AC overlay/mill+overlay	Do nothing
	Rough, Many Short Wave Bump	AC overlay/mill+overlay	Do nothing

	V	Vet – Freeze: Cracking	
	Distress	Acceptable	Recommended
al	Few long crack, Low severity	Do nothing	Crack seal/fill
Local	Few long crack, Med severity	Crack seal/fill	Crack seal/fill
À	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Rejuvenator or fog/coal tar seal	Crack seal/fill
	Many long crack, Med severity	AC Overlay/mill+ overlay	Crack seal/fill
	Many long crack, High severity	Rehab/recon	AC Overlay/mill+ overlay
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	Crack seal/fill	Crack seal/fill
ılt	Trans crack, 50ft apart, High severity	Patch/recon area	AC overlay/mill+overlay
Asphal	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
ds	Trans crack, 20ft apart, Med severity	Crack seal/fill	AC overlay/mill+overlay
A	Trans crack, 20ft apart, High severity	Chip/cape seal	AC overlay/mill+overlay
	Block crack, Low severity	Rejuvenator	Crack seal/fill
	Block crack, Med severity	AC overlay/mill+overlay	Crack seal/fill
	Block crack, High severity	Rehab/recon	AC overlay/mill+overlay



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	V	Vet – Freeze: Cracking	
	Distress	Acceptable	Recommended
ocal	Few edge crack, Low severity	Do nothing	Crack seal/fill
00	Few edge crack, Med severity	Patch/recon area	Crack seal/fill
T	Few edge crack, High severity	Crack seal/fill	Patch/recon area
	Reflection crack, Low severity	Do nothing	Crack seal/fill
	Reflection crack, Med severity	Crack seal/fill	Crack seal/fill
	Reflection crack, High severity	Rehab/recon	Patch/recon area
	Fatigue crack, 10%, Low severity	Do nothing	Crack seal/fill
าลไ	Fatigue crack, 10%, Med severity	Crack seal/fill	Patch/recon area
Asphal	Fatigue crack, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
As	Fatigue crack, 30%, Low severity	Rehab/recon	AC overlay/mill+overlay
7	Fatigue crack, 30%, Med severity	Rehab/recon	AC overlay/mill+overlay
	Fatigue crack, 30%, High severity	AC overlay/mill+overlay	Rehab/recon

	Wet -	- Freeze: Surface Distre	ess
	Distress	Acceptable	Recommended
al	Start to weather	Rejuvenator	Do nothing
ocal	Definitely weather	Fog/coal tar seal	Rejuvenator
H	Starting to ravel	Fog/coal tar seal	Slurry/micro
	Definitely ravel	Slurry/micro or chip/cape seal	AC overlay/mill+overlay
	Patch, 10%, Low severity	Crack seal/fill	Do nothing
	Patch, 10%, Med severity	Patch/recon area	Crack seal/fill
	Patch, 10%, High severity	Chip/cape seal	Patch/recon area
alt	Patch, 30%, Low severity	Crack seal/fill	Do nothing
spha	Patch, 30%, Med severity	AC overlay/mill+overlay	Patch/recon area
Sp	Patch, 30%, High severity	Patch/recon area	AC overlay/mill+overlay
A	Rough, Long Wave Swell	Do nothing	Do nothing
	Rough, Many Long Wave Swell	Patch/recon area	AC overlay/mill+overlay
	Rough, Many Short Wave Bump	Patch/recon area	AC overlay/mill+overlay

Asphalt Maintenance Treatment Hierarchy



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Maintenance Treatment Hierarchy

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Wet – No Freeze: Cracking		
	Distress	Acceptable	Recommended
ocal	Few long crack, Low severity	Do nothing	Crack seal/fill
00	Few long crack, Med severity	Do nothing	Crack seal/fill
ÌП	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Rejuvenator	Chip/cape seal
	Many long crack, Med severity	AC overlay/mill+overlay	Chip/cape seal
	Many long crack, High severity	Crack seal/fill	AC overlay/mill+overlay
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	Crack seal/fill	Crack seal/fill
alt	Trans crack, 50ft apart, High severity	Patch/recon area	AC overlay/mill+overlay
Aspha	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
ds	Trans crack, 20ft apart, Med severity	Crack seal/fill	AC overlay/mill+overlay
A	Trans crack, 20ft apart, High severity	Crack seal/fill	AC overlay/mill+overlay
	Block crack, Low severity	Do nothing	Crack seal/fill
	Block crack, Med severity	Rejuvenator	Crack seal/fill
	Block crack, High severity	Rehab/recon	AC overlay/mill+overlay

	Wet – No Freeze: Cracking			
	Distress	Acceptable	Recommended	
al	Few edge crack, Low severity	Do nothing	Crack seal/fill	
ocal	Few edge crack, Med severity	Patch/recon area	Crack seal/fill	
T	Few edge crack, High severity	Crack seal/fill	Patch/recon area	
	Reflection crack, Low severity	Do nothing	Crack seal/fill	
	Reflection crack, Med severity	Crack seal/fill	Crack seal/fill	
	Reflection crack, High severity	Patch/recon area	Rehab/recon	
t	Fatigue crack, 10%, Low severity	Rejuvenator	Patch/recon area	
ıal	Fatigue crack, 10%, Med severity	Rejuvenator	Patch/recon area	
sphal	Fatigue crack, 10%, High severity	Rejuvenator	Patch/recon area	
As	Fatigue crack, 30%, Low severity	Rejuvenator	Patch/recon area	
	Fatigue crack, 30%, Med severity	Rejuvenator	Patch/recon area	
	Fatigue crack, 30%, High severity	Patch/recon area	Rehab/recon	



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Maintenance Treatment Hierarchy

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Wet -	ress	
	Distress	Acceptable	Recommended
Local	Start to weather	Fog/coal tar seal	Rejuvenator
	Definitely weather	Rejuvenator or fog/coal tar seal	Slurry/micro
	Starting to ravel	Rejuvenator or fog/coal tar seal	Slurry/micro
	Definitely ravel	Slurry/micro or chip/cape seal	AC overlay/mill+overlay
	Patch, 10%, Low severity	Crack seal/fill	Do nothing
ılt	Patch, 10%, Med severity	Crack seal/fill	Patch/recon area
	Patch, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
	Patch, 30%, Low severity	Crack seal/fill	Do nothing
he	Patch, 30%, Med severity	Slurry/micro or chip/cape seal	Patch/recon area
Aspha	Patch, 30%, High severity	AC overlay/mill+overlay	Patch/recon area
	Rough, Long Wave Swell	Patch/recon area	Do nothing
	Rough, Many Long Wave Swell	Patch/recon area	Do nothing
	Rough, Many Short Wave Bump	Patch/recon area	AC overlay/mill+overlay

	D	Ory – Freeze: Cracking	
al	Distress	Acceptable	Recommended
	Few long crack, Low severity	Rejuvenator	Crack seal/fill
Local	Few long crack, Med severity	Fog/coal tar seal	Crack seal/fill
ĺЙ	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Fog/coal tar seal or rejuvenator	Crack seal/fill
	Many long crack, Med severity	AC overlay/mill+overlay	Crack seal/fill
	Many long crack, High severity	AC overlay/mill+overlay	Rehab/recon
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	Crack seal/fill	Crack seal/fill
ılt	Trans crack, 50ft apart, High severity	Crack seal/fill	AC overlay/mill+overlay
he	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
Asphalt	Trans crack, 20ft apart, Med severity	Crack seal/fill	Crack seal/fill
	Trans crack, 20ft apart, High severity	Crack seal/fill	AC overlay/mill+overlay
	Block crack, Low severity	Do nothing	Fog/Coal Tar seal
	Block crack, Med severity	Crack seal/fill	AC overlay/mill+overlay
	Block crack, High severity	AC overlay/mill+ overlay	Rehab/recon

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Maintenance Treatment Hierarchy

Steps

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Dry – Freeze: Cracking		
	Distress	Acceptable	Recommended
al	Few edge crack, Low severity	Crack seal/fill	Do nothing
ocal	Few edge crack, Med severity	Patch/recon area	Crack seal/fill
口	Few edge crack, High severity	Crack seal/fill	Patch/recon area
	Reflection crack, Low severity	Do nothing	Crack seal/fill
	Reflection crack, Med severity	Crack seal/fill	Crack seal/fill
	Reflection crack, High severity	Patch/recon area	Rehab/recon
<u>t</u>	Fatigue crack, 10%, Low severity	Fog/coal tar seal or rejuvenator	Crack seal/fill
าลไ	Fatigue crack, 10%, Med severity	Crack seal/fill	Patch/recon area
pł	Fatigue crack, 10%, High severity	AC overlay/mill+ overlay	Patch/recon area
Asphal	Fatigue crack, 30%, Low severity	Fog/coal tar seal	AC overlay/mill+ overlay
	Fatigue crack, 30%, Med severity	Patch/recon area	AC overlay/mill+ overlay
	Fatigue crack, 30%, High severity	Patch/recon area	Rehab/recon

Dry – Freeze: Surface Distre			'ess
	Distress	Acceptable	Recommended
al	Start to weather	Rejuvenator	Slurry/micro or fog/coal tar seal
Local	Definitely weather	Rejuvenator	Slurry/micro or fog/coal tar seal
Image: Control of the	Starting to ravel	AC overlay/mill+overlay	Slurry/micro or fog/coal tar seal
	Definitely ravel	Slurry/micro or chip/cape seal	AC overlay/mill+overlay
	Patch, 10%, Low severity	Crack seal/fill	Do nothing
	Patch, 10%, Med severity	Patch/recon area	Do nothing
	Patch, 10%, High severity	AC overlay/mill+ overlay	Patch/recon area
ılt	Patch, 30%, Low severity	Crack seal/fill	Do nothing
η	Patch, 30%, Med severity	Patch/recon area	Chip/cape seal
Asphal	Patch, 30%, High severity	Rehab/recon	AC overlay/mill+ overlay
	Rough, Long Wave Swell	Patch/recon area	Do nothing
	Rough, Many Long Wave Swell	Patch/recon area	AC overlay/mill+overlay
	Rough, Many Short Wave Bump	Patch/recon area	AC overlay/mill+overlay



Concrete

Maintenance Treatment Hierarchy

Steps

Steps

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Dry – No Freeze: Cracking		
	Distress	Acceptable	Recommended
al	Few long crack, Low severity	Do nothing	Crack seal/fill
Local	Few long crack, Med severity	Do nothing	Crack seal/fill
	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Fog/coal tar seal	Chip/cape seal
	Many long crack, Med severity	Slurry/micro or fog/coal tar seal or crack seal	Chip/cape seal
	Many long crack, High severity	Patch/recon area	AC overlay/mill+overlay
	Trans crack, 50ft apart, Low severity	Crack seal/fill	Do nothing
	Trans crack, 50ft apart, Med severity	Do nothing	Crack seal/fill
ılt	Trans crack, 50ft apart, High severity	AC overlay/mill+overlay	Crack seal/fill
he	Trans crack, 20ft apart, Low severity	Crack seal/fill	Fog/coal tar seal
Asphalt	Trans crack, 20ft apart, Med severity	Chip/cape seal	AC overlay/mill+overlay
	Trans crack, 20ft apart, High severity	Chip/cape seal	AC overlay/mill+overlay
	Block crack, Low severity	Do nothing or Crack seal/fill	Fog/coal tar seal
	Block crack, Med severity	Crack seal/fill	Chip/cape seal
	Block crack, High severity	Crack seal/fill	AC overlay/mill+overlay

		Dry – No Freeze: Cracking	
	Distress	Acceptable	Recommended
Local	Few edge crack, Low severity	Do nothing	Crack seal/fill
00	Few edge crack, Med severity	Do nothing	Crack seal/fill
Image: Control of the	Few edge crack, High severity	Patch/recon area	Crack seal/fill
	Reflection crack, Low severity	Do nothing	Crack seal/fill
	Reflection crack, Med severity	Do nothing	Crack seal/fill
	Reflection crack, High severity	Crack seal/fill	Patch/recon area
	Fatigue crack, 10%, Low severity	Crack seal/fill	Do nothing
าลไ	Fatigue crack, 10%, Med severity	Do nothing or crack seal/fill	Patch/recon area
pł	Fatigue crack, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
Asphali	Fatigue crack, 30%, Low severity	Patch/recon area	AC overlay/mill+overlay
7	Fatigue crack, 30%, Med severity	AC overlay/mill+overlay or patch/recon area	Rehab/recon
	Fatigue crack, 30%, High severity	AC overlay/mill+overlay or patch/recon area	Rehab/recon

Asphalt Maintenance Treatment Hierarchy



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Maintenance Treatment Hierarchy

Steps

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Dry – No Freeze: Surface Distress		
	Distress	Acceptable	Recommended
al	Start to weather	Slurry/micro or chip/cape seal	Fog/coal tar seal
ocal	Definitely weather	Slurry/micro or chip/cape seal	Fog/coal tar seal
T	Starting to ravel	Slurry/micro or chip/cape seal	Fog/coal tar seal
	Definitely ravel	Slurry/micro or chip/cape seal	Fog/coal tar seal
	Patch, 10%, Low severity	Crack seal/fill	Do nothing
	Patch, 10%, Med severity	Do nothing	Patch/recon area
	Patch, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
ılt	Patch, 30%, Low severity	Slurry/micro or chip/cape seal	Do nothing
he	Patch, 30%, Med severity	Slurry/micro or fog/coal tar seal	Chip/cape seal
sphal	Patch, 30%, High severity	Patch/recon area or rehab/recon	AC overlay/mill+overlay
A	Rough, Long Wave Swell	Patch/recon area	Do nothing
	Rough, Many Long Wave Swell	Patch/recon area	AC overlay/mill+overlay
	Rough, Many Short Wave Bump	Patch/recon area	AC overlay/mill+overlay

		Wet – Freeze: Cracking	
ਬ	Distress	Acceptable	Recommended
) II	Few long crack, Low severity	Do nothing	Crack seal/fill
	Few long crack, Med severity	Crack seal/fill	Crack seal/fill
Regional	Few long crack, High severity	Crack seal/fill or AC overlay/mill+overlay	Patch/recon area
24	Many long crack, Low severity	Do nothing	Crack seal/fill
	Many long crack, Med severity	AC overlay/mill+overlay	Crack seal/fill
	Many long crack, High severity	AC overlay/mill+overlay	Rehab/recon
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	Rejuvenator, fog/coal tar seal	Crack seal/fill
alt	Trans crack, 50ft apart, High severity	Crack seal/fill	Patch/recon area
Asphal	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
ds	Trans crack, 20ft apart, Med severity	AC overlay/mill+overlay	Crack seal/fill
A	Trans crack, 20ft apart, High severity	Chip/cape seal	AC overlay/mill+overlay
	Block crack, Low severity	Do nothing	Crack seal/fill
	Block crack, Med severity	Chip/cape seal	Crack seal/fill
	Block crack, High severity	Rehab/recon	AC overlay/mill+overlay

Asphalt Maintenance Treatment Hierarchy



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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	We	et – Freeze: Cracking	j
al	Distress	Acceptable	Recommended
Regional	Few edge crack, Low severity	Do nothing	Crack seal/fill
.50	Few edge crack, Med severity	Patch/recon area	Crack seal/fill
e	Few edge crack, High severity	Crack seal/fill	Patch/recon area
<u> </u>	Reflection crack, Low severity	Do nothing	Crack seal/fill
	Reflection crack, Med severity	Crack seal/fill	Crack seal/fill
	Reflection crack, High severity	Rehab/recon	Patch/recon area
	Fatigue crack, 10%, Low severity	Patch/recon area	Crack seal/fill
าลไ	Fatigue crack, 10%, Med severity	Crack seal/fill	Patch/recon area
ld	Fatigue crack, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
Aspha]	Fatigue crack, 30%, Low severity	Patch/recon area	AC overlay/mill+overlay
	Fatigue crack, 30%, Med severity	Patch/recon area	AC overlay/mill+overlay
	Fatigue crack, 30%, High severity	Patch/recon area	Rehab/recon

	Wet – Freeze: Surface Distress		
al	Distress	Acceptable	Recommended
Regional	Start to weather	Slurry/micro or fog/coal tar seal	Rejuvenator
. <u>5</u> 2	Definitely weather	Fog/coal tar seal or rejuvenator	Slurry/micro
e	Starting to ravel	Fog/coal tar seal or rejuvenator	Slurry/micro
X	Definitely ravel	Slurry/micro or chip/cape seal	AC overlay/mill+overlay
	Patch, 10%, Low severity	Crack seal/fill	Do nothing
	Patch, 10%, Med severity	Crack seal/fill	Patch/recon area
	Patch, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
alt	Patch, 30%, Low severity	Slurry/micro	Do nothing
he	Patch, 30%, Med severity	Patch/recon area	AC overlay/mill+overlay
Asphalt	Patch, 30%, High severity	AC overlay/mill+overlay	Patch/recon area
A	Rough, Long Wave Swell	AC overlay/mill+overlay	Do nothing
	Rough, Many Long Wave Swell	Patch/recon area	AC overlay/mill+overlay
	Rough, Many Short Wave Bump	Patch/recon area	AC overlay/mill+overlay

Asphalt Maintenance Treatment Hierarchy



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Maintenance Treatment Hierarchy

Steps

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Wet	- No Freeze: Cracking	
al	Distress	Acceptable	Recommended
) n	Few long crack, Low severity	Do nothing	Crack seal/fill
52	Few long crack, Med severity	Do nothing	Crack seal/fill
Regional	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Do nothing	Crack seal/fill
	Many long crack, Med severity	AC overlay/mill+overlay	Crack seal/fill
	Many long crack, High severity	Patch/recon area	AC overlay/mill+overlay
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	Crack seal/fill	Crack seal/fill
ılt	Trans crack, 50ft apart, High severity	Patch/recon area	Crack seal/fill
spha	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
ds	Trans crack, 20ft apart, Med severity	AC overlay/mill+overlay	Crack seal/fill
A	Trans crack, 20ft apart, High severity	Chip/cape seal	AC overlay/mill+overlay
	Block crack, Low severity	Do nothing	Crack seal/fill
	Block crack, Med severity	AC overlay/mill+overlay	Crack seal/fill
	Block crack, High severity	Rehab/recon	AC overlay/mill+overlay

	Wet – No Freeze: Cracking		
al	Distress	Acceptable	Recommended
) uc	Few edge crack, Low severity	Crack seal/fill	Do nothing
92.	Few edge crack, Med severity	Patch/recon area	Crack seal/fill
Regional	Few edge crack, High severity	Crack seal/fill	Patch/recon area
	Reflection crack, Low severity	Crack seal/fill	Do nothing
	Reflection crack, Med severity	Crack seal/fill	Crack seal/fill
	Reflection crack, High severity	Crack seal/fill	Patch/recon area
1	Fatigue crack, 10%, Low severity	Crack seal/fill	Do nothing
Asphal	Fatigue crack, 10%, Med severity	Crack seal/fill	Patch/recon area
ph	Fatigue crack, 10%, High severity	AC Overlay/mill+ overlay or patch/recon area	Patch/recon area
Δ S	Fatigue crack, 30%, Low severity	Patch/recon area	AC overlay/mill+overlay
7	Fatigue crack, 30%, Med severity	AC overlay/mill+overlay	Patch/recon area
	Fatigue crack, 30%, High severity	Patch/recon area	Rehab/recon



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Maintenance Treatment Hierarchy

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Wet – No Freeze: Surface Distress			
al	Distress	Acceptable	Recommended	
) ii	Start to weather	Fog/coal tar seal	Rejuvenator	
93.	Definitely weather	Rejuvenator	Slurry/micro	
Regional	Starting to ravel	Rejuvenator	Slurry/micro	
	Definitely ravel	Slurry/micro or chip/cape seal	AC overlay/mill+overlay	
	Patch, 10%, Low severity	Crack seal/fill	Do nothing	
	Patch, 10%, Med severity	Crack seal/fill	Patch/recon area	
	Patch, 10%, High severity	AC overlay/mill+overlay	Patch/recon area	
alt	Patch, 30%, Low severity	Slurry/micro or chip/cape seal	Do nothing	
he	Patch, 30%, Med severity	Patch/recon area	AC overlay/mill+overlay	
spha	Patch, 30%, High severity	AC overlay/mill+overlay	Rehab/recon	
A	Rough, Long Wave Swell	AC overlay/mill+overlay	Do nothing	
	Rough, Many Long Wave Swell	AC overlay/mill+overlay or do nothing	Patch/recon area	
	Rough, Many Short Wave Bump	AC overlay/mill+overlay	Patch/recon area	

	Dry – Freeze: Cracking		
al	Distress	Acceptable	Recommended
)II	Few long crack, Low severity	Do nothing	Crack seal/fill
35.	Few long crack, Med severity	Crack seal/fill	Crack seal/fill
Regional	Few long crack, High severity	Crack seal/fill	Patch/recon area
M	Many long crack, Low severity	Do nothing	Crack seal/fill
	Many long crack, Med severity	AC overlay/mill+overlay	Crack seal/fill
	Many long crack, High severity	Crack seal/fill	Rehab/recon
	Trans crack, 50ft apart, Low severity	Crack seal/fill	Do nothing
	Trans crack, 50ft apart, Med severity	Do nothing	Crack seal/fill
ılt	Trans crack, 50ft apart, High severity	AC overlay/mill+overlay	Crack seal/fill
Asphal	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
ds	Trans crack, 20ft apart, Med severity	Chip/cape seal or AC overlay/mill+ overlay	Crack seal/fill
A	Trans crack, 20ft apart, High severity	Chip/cape seal or AC overlay/mill+ overlay	Crack seal/fill
	Block crack, Low severity	Do nothing	Crack seal/fill
	Block crack, Med severity	Chip/cape seal	Crack seal/fill
	Block crack, High severity	Chip/cape seal or AC overlay/mill+overlay	Rehab/recon



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Maintenance Treatment Hierarchy

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	L	Ory – Freeze: Cracking	
al	Distress	Acceptable	Recommended
Regional	Few edge crack, Low severity	Crack seal/fill	Do nothing
93.	Few edge crack, Med severity	Patch/recon area	Crack seal/fill
e	Few edge crack, High severity	Patch/recon area	AC overlay/mill+overlay
	Reflection crack, Low severity	Crack seal/fill	Do nothing
	Reflection crack, Med severity	Crack seal/fill	Crack seal/fill
	Reflection crack, High severity	Patch/recon area	Rehab/recon
t	Fatigue crack, 10%, Low severity	Patch/recon area	Crack seal/fill
าลไ	Fatigue crack, 10%, Med severity	Crack seal/fill	Patch/recon area
Aspha	Fatigue crack, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
YS	Fatigue crack, 30%, Low severity	AC overlay/mill+overlay	Patch/recon area
7	Fatigue crack, 30%, Med severity	Patch/recon area	Rehab/recon
	Fatigue crack, 30%, High severity	Patch/recon area	Rehab/recon

	Dry – Freeze: Surface Distress		
Regional	Distress	Acceptable	Recommended
	Start to weather	Do nothing	Slurry/micro, fog/coal tar seal, rejuvenator
.29	Definitely weather	Slurry/micro	Rejuvenator
Se	Starting to ravel	AC overlay/mill+overlay	Slurry/micro or Chip/cape seal
	Definitely ravel	Slurry/micro or chip/cape seal	AC overlay/mill+overlay
	Patch, 10%, Low severity	Crack seal/fill	Do nothing
	Patch, 10%, Med severity	Crack seal/fill	Do nothing
	Patch, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
alt	Patch, 30%, Low severity	AC overlay/mill+overlay	Do nothing
he	Patch, 30%, Med severity	Chip/cape seal or AC overlay/mill+overlay	AC overlay/mill+overlay
Asphal	Patch, 30%, High severity	AC overlay/mill+overlay	Patch/recon area
A	Rough, Long Wave Swell	Do nothing	AC overlay/mill+overlay
	Rough, Many Long Wave Swell	Patch/recon area	AC overlay/mill+overlay
	Rough, Many Short Wave Bump	Patch/recon area	AC overlay/mill+overlay



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Maintenance Treatment Hierarchy

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Dr	y – No Freeze: Cracking	
al	Distress	Acceptable	Recommended
Regional	Few long crack, Low severity	Do nothing	Crack seal/fill
3.5	Few long crack, Med severity	Crack seal/fill	Crack seal/fill
6	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Do nothing	Crack seal/fill
	Many long crack, Med severity	Crack seal/fill	Crack seal/fill
	Many long crack, High severity	Crack seal/fill	AC overlay/mill+overlay
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	Do nothing	Crack seal/fill
ılt	Trans crack, 50ft apart, High severity	Crack seal/fill	Patch/recon area
Asphalt	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
ds	Trans crack, 20ft apart, Med severity	Crack seal/fill or AC overlay/mill+overlay	Crack seal/fill
A	Trans crack, 20ft apart, High severity	Crack seal/fill	AC overlay/mill+overlay
	Block crack, Low severity	Do nothing	Crack seal/fill
	Block crack, Med severity	Chip/cape seal	Crack seal/fill
	Block crack, High severity	Chip/cape seal	AC overlay/mill+overlay

	Dry – No Freeze: Cracking			
al	Distress	Acceptable	Recommended	
n C	Few edge crack, Low severity	Do nothing	Crack seal/fill	
Regional	Few edge crack, Med severity	Patch/recon area	Crack seal/fill	
é	Few edge crack, High severity	Crack seal/fill	Patch/recon area	
	Reflection crack, Low severity	Do nothing	Crack seal/fill	
	Reflection crack, Med severity	Crack seal/fill	Crack seal/fill	
	Reflection crack, High severity	Rehab/recon	Patch/recon area	
	Fatigue crack, 10%, Low severity	Do nothing	Crack seal/fill	
Asphal	Fatigue crack, 10%, Med severity	Crack seal/fill	Patch/recon area	
pł	Fatigue crack, 10%, High severity	Rehab/recon	Patch/recon area	
Δ S	Fatigue crack, 30%, Low severity	Patch/recon area	AC overlay/mill+overlay	
7	Fatigue crack, 30%, Med severity	Patch/recon area	AC overlay/mill+overlay	
	Fatigue crack, 30%, High severity	Patch/recon area	Rehab/recon	



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Maintenance Treatment Hierarchy

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Dry – No Freeze: Surface Distress			
al	Distress	Acceptable	Recommended	
Regional	Start to weather	Slurry/micro	Rejuvenator	
93.	Definitely weather	Chip/cape seal	Fog/coal tar seal	
e	Starting to ravel	Chip/cape seal	Slurry/micro	
	Definitely ravel	Slurry/micro or chip/cape seal	AC overlay/mill+overlay	
	Patch, 10%, Low severity	Do nothing	Crack seal/fill	
	Patch, 10%, Med severity	Crack seal/fill	Patch/recon area	
	Patch, 10%, High severity	AC overlay/mill+overlay	Patch/recon area	
ılt	Patch, 30%, Low severity	Slurry/micro	Do nothing	
he	Patch, 30%, Med severity	Chip/cape seal	AC overlay/mill+overlay	
Aspha]	Patch, 30%, High severity	AC overlay/mill+overlay	Rehab/recon	
A	Rough, Long Wave Swell	AC overlay/mill+overlay	Do nothing	
	Rough, Many Long Wave Swell	Patch/recon area	AC overlay/mill+overlay	
	Rough, Many Short Wave Bump	Patch/recon area	AC overlay/mill+overlay	

	Wet – Freeze: Cracking		
National	Distress	Acceptable	Recommended
	Few long crack, Low severity	Do nothing	Crack seal/fill
io	Few long crack, Med severity	Crack seal/fill	Crack seal/fill
[a]	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Do nothing	Crack seal/fill
	Many long crack, Med severity	AC overlay/mill+overlay	Crack seal/fill
	Many long crack, High severity	AC overlay/mill+overlay	Rehab or Reconstruct
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	Crack seal/fill	Crack seal/fill
llt	Trans crack, 50ft apart, High severity	Crack seal/fill	Patch/recon area
sphali	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
ds	Trans crack, 20ft apart, Med severity	AC overlay/mill+overlay	Crack seal/fill
A	Trans crack, 20ft apart, High severity	Crack seal/fill or Chip/cape seal	AC overlay/mill+overlay
	Block crack, Low severity	Do nothing, Chip/cape seal	Crack seal/fill
	Block crack, Med severity	Chip/cape seal or AC overlay/mill+overlay	Crack seal/fill
	Block crack, High severity	Chip/cape seal or AC overlay/mill+overlay	Rehab or Reconstruct

Asphalt Maintenance Treatment Hierarchy



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Maintenance Treatment Hierarchy

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Wet – Freeze: Cracking		
T T	Distress	Acceptable	Recommended
311.6	Few edge crack, Low severity	Crack seal/fill	Do nothing
tic	Few edge crack, Med severity	Patch/recon area	Crack seal/fill
National	Few edge crack, High severity	Crack seal/fill	Patch/recon area
4	Reflection crack, Low severity	Do nothing	Crack seal/fill
	Reflection crack, Med severity	Crack seal/fill	Crack seal/fill
	Reflection crack, High severity	Patch/recon area	Rehab or Reconstruct
t	Fatigue crack, 10%, Low severity	Crack seal/fill	Patch/recon area
ıal	Fatigue crack, 10%, Med severity	Crack seal/fill	Patch/recon area
ph	Fatigue crack, 10%, High severity	Rehab/recon	Patch/recon area
Aspha	Fatigue crack, 30%, Low severity	Patch/recon area	Rehab or Reconstruct
f	Fatigue crack, 30%, Med severity	Patch/recon area	Rehab or Reconstruct
	Fatigue crack, 30%, High severity	Patch/recon area	Rehab or Reconstruct

	Wet – Freeze: Surface Distress		
F	Distress	Acceptable	Recommended
me	Start to weather	Do nothing	Rejuvenator or fog/coal tar seal
tic	Definitely weather	Rejuvenator or fog/coal tar seal	Slurry/micro
National	Starting to ravel	Rejuvenator or fog/coal tar seal	Slurry/micro
	Definitely ravel	Chip/cape seal	AC overlay/mill+overlay
	Patch, 10%, Low severity	Crack seal/fill	Do nothing
	Patch, 10%, Med severity	Crack seal/fill	Patch/recon area
	Patch, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
It	Patch, 30%, Low severity	Slurry/micro or chip/cape seal	Do nothing
าล	Patch, 30%, Med severity	Chip/cape seal	AC overlay/mill+overlay
lds	Patch, 30%, High severity	AC overlay/mill+ overlay or patch/recon area	Rehab or Reconstruct
Asphalt	Rough, Long Wave Swell	Patch/recon area	AC overlay/mill+ overlay or do nothing
	Rough, Many Long Wave Swell	Rehab or Reconstruct	AC overlay/mill+overlay
	Rough, Many Short Wave Bump	AC overlay/mill+overlay	Patch/recon area



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Maintenance Treatment Hierarchy

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Wet	 No Freeze: Cracking 	g
al	Distress	Acceptable	Recommended
m	Few long crack, Low severity	Do nothing	Crack seal/fill
tic	Few long crack, Med severity	Crack seal/fill	Crack seal/fill
National	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Rejuvenator, fog/coal tar seal	Crack seal/fill
	Many long crack, Med severity	AC overlay/mill+overlay	Crack seal/fill
	Many long crack, High severity	AC overlay/mill+overlay	Patch/recon area
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	Crack seal/fill	Crack seal/fill
ılt	Trans crack, 50ft apart, High severity	AC overlay/mill+overlay	Patch/recon area
Asphalt	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
ds	Trans crack, 20ft apart, Med severity	AC overlay/mill+overlay	Crack seal/fill
A	Trans crack, 20ft apart, High severity	Crack seal/fill	AC overlay/mill+overlay
	Block crack, Low severity	Do nothing, chip/cape seal	Crack seal/fill
	Block crack, Med severity	AC overlay/mill+overlay	Crack seal/fill
	Block crack, High severity	AC overlay/mill+overlay	Rehab/recon

	Wet – No Freeze: Cracking				
TT	Distress	Acceptable	Recommended		
)II(Few edge crack, Low severity	Do nothing	Crack seal/fill		
tic	Few edge crack, Med severity	Patch/recon area	Crack seal/fill		
National	Few edge crack, High severity	Crack seal/fill	Patch/recon area		
	Reflection crack, Low severity	Do nothing	Crack seal/fill		
	Reflection crack, Med severity	Crack seal/fill	Crack seal/fill		
	Reflection crack, High severity	Patch/recon area	Rehab/recon		
t	Fatigue crack, 10%, Low severity	Crack seal/fill	Patch/recon area		
ıal	Fatigue crack, 10%, Med severity	Crack seal/fill	Patch/recon area		
Asphalt	Fatigue crack, 10%, High severity	AC overlay/mill+overlay	Rehab/recon		
YS	Fatigue crack, 30%, Low severity	AC overlay/mill+overlay or patch/recon area	Rehab/recon		
ł	Fatigue crack, 30%, Med severity	AC overlay/mill+overlay or patch/recon area	Rehab/recon		
	Fatigue crack, 30%, High severity	Patch/recon area	Rehab/recon		

Asphalt Maintenance Treatment Hierarchy



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Maintenance Treatment Hierarchy

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Wet – No Freeze: Surface Distress		
F	Distress	Acceptable	Recommended
) 11,6	Start to weather	Fog/coal tar seal	Rejuvenator
tic	Definitely weather	Rejuvenator or fog/coal tar seal	Slurry/micro
National	Starting to ravel	Rejuvenator or fog/coal tar seal	Slurry/micro
	Definitely ravel	Slurry/micro or chip/cape seal	AC overlay/mill+overlay
	Patch, 10%, Low severity	Crack seal/fill	Do nothing
	Patch, 10%, Med severity	Crack seal/fill	Patch/recon area
	Patch, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
Ilt	Patch, 30%, Low severity	Slurry/micro or cape/chip seal	Do nothing
ha	Patch, 30%, Med severity	Cape/Chip seal	AC overlay/mill+overlay
Aspha]	Patch, 30%, High severity	AC overlay/mill+overlay	Rehab/recon
A	Rough, Long Wave Swell	AC overlay/mill+overlay	Do nothing
	Rough, Many Long Wave Swell	Patch/recon area	AC overlay/mill+overlay
	Rough, Many Short Wave Bump	Patch/recon area	AC overlay/mill+overlay

	D	ry – Freeze: Cracking	
Ţ	Distress	Acceptable	Recommended
ne	Few long crack, Low severity	Do nothing	Crack seal/fill
tic	Few long crack, Med severity	Crack seal/fill	Crack seal/fill
National	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Do nothing	Crack seal/fill
	Many long crack, Med severity	AC overlay/mill+overlay	Crack seal/fill
	Many long crack, High severity	AC overlay/mill+overlay	Rehab/recon
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	Crack seal/fill	Crack seal/fill
llt	Trans crack, 50ft apart, High severity	Crack seal/fill	Patch/recon area
Asphalt	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
ds	Trans crack, 20ft apart, Med severity	AC overlay/mill+overlay	Crack seal/fill
A	Trans crack, 20ft apart, High severity	Crack seal/fill or chip/cape seal	AC overlay/mill+overlay
	Block crack, Low severity	Do nothing	Crack seal/fill
	Block crack, Med severity	Crack seal/fill	Chip/cape seal
	Block crack, High severity	Chip/cape seal	Rehab/recon



Concrete

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



		Dry – Freeze: Cracking	
ıl	Distress	Acceptable	Recommended
ne	Few edge crack, Low severity	Crack seal/fill	Do nothing
tio	Few edge crack, Med severity	Patch/recon area	Crack seal/fill
National	Few edge crack, High severity	Crack seal/fill	Patch/recon area
~	Reflection crack, Low severity	Do nothing	Crack seal/fill
	Reflection crack, Med severity	Chip/cape seal or AC overlay or mill+overlay	Crack seal/fill
	Reflection crack, High severity	Patch/recon area	Rehab/recon
t	Fatigue crack, 10%, Low severity	Patch/recon area	Crack seal/fill
ıal	Fatigue crack, 10%, Med severity	Crack seal/fill	Patch/recon area
ph	Fatigue crack, 10%, High severity	Crack seal/fill	Patch/recon area
Asphal	Fatigue crack, 30%, Low severity	AC overlay/mill+overlay	Patch/recon area
	Fatigue crack, 30%, Med severity	AC overlay/mill+overlay	Patch/recon area
	Fatigue crack, 30%, High severity	Patch/recon area	Rehab/recon

	Dry – Freeze: Surface Distress		
Ę	Distress	Acceptable	Recommended
m	Start to weather	Slurry/micro	Rejuvenator or fog/coal tar seal
tic	Definitely weather	Slurry/micro	Rejuvenator or fog/coal tar seal
National	Starting to ravel	Rejuvenator or fog/coal tar seal	Slurry/micro
4	Definitely ravel	Slurry/micro or chip/cape seal	AC overlay/mill+overlay
	Patch, 10%, Low severity	Crack seal/fill	Do nothing
	Patch, 10%, Med severity	Crack seal/fill	Patch/recon area
	Patch, 10%, High severity	AC overlay/mill+overlay	Patch/recon area
llt	Patch, 30%, Low severity	Crack seal/fill	Do nothing
ha	Patch, 30%, Med severity	Chip/cape seal	AC overlay/mill+overlay
Asphali	Patch, 30%, High severity	AC overlay/mill+overlay	Rehab/recon
A	Rough, Long Wave Swell	AC overlay/mill+overlay	Do nothing
	Rough, Many Long Wave Swell	Patch/recon area	AC overlay/mill+overlay
	Rough, Many Short Wave Bump	Patch/recon area	Patch/recon area



Concrete

Maintenance Treatment Hierarchy

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Dry -	- No Freeze: Crackin	g
TE	Distress	Acceptable	Recommended
ne	Few long crack, Low severity	Crack seal/fill	Do nothing
tio	Few long crack, Med severity	Crack seal/fill	Crack seal/fill
Nationa	Few long crack, High severity	Crack seal/fill	Patch/recon area
	Many long crack, Low severity	Crack seal/fill	Do nothing
	Many long crack, Med severity	Crack seal/fill	AC overlay/mill+overlay
	Many long crack, High severity	AC overlay/mill+overlay	Rehab/recon
	Trans crack, 50ft apart, Low severity	Do nothing	Crack seal/fill
	Trans crack, 50ft apart, Med severity	Crack seal/fill	Crack seal/fill
ılt	Trans crack, 50ft apart, High severity	Crack seal/fill	Patch/recon area
Aspha	Trans crack, 20ft apart, Low severity	Do nothing	Crack seal/fill
ds	Trans crack, 20ft apart, Med severity	AC overlay/mill+overlay	Crack seal/fill
A	Trans crack, 20ft apart, High severity	Crack seal/fill	AC overlay/mill+overlay
	Block crack, Low severity	Do nothing	Crack seal/fill
	Block crack, Med severity	Crack seal/fill	Crack seal/fill
	Block crack, High severity	Rehab/recon	Patch/recon area

	Dry – No Freeze: Cracking			
al	Distress	Acceptable	Recommended	
National	Few edge crack, Low severity	Rejuvenator, fog/coal tar seal	Crack seal/fill	
tic	Few edge crack, Med severity	Patch/recon area	Crack seal/fill	
Jai	Few edge crack, High severity	Crack seal/fill	Patch/recon area	
	Reflection crack, Low severity	Do nothing	Crack seal/fill	
	Reflection crack, Med severity	Crack seal/fill or chip/cape seal	Crack seal/fill	
	Reflection crack, High severity	Patch/recon area	Rehab/recon	
t	Fatigue crack, 10%, Low severity	Patch/recon area	Crack seal/fill	
ıal	Fatigue crack, 10%, Med severity	Patch/recon area	Crack seal/fill	
Asphal	Fatigue crack, 10%, High severity	Crack seal/fill	Patch/recon area	
S	Fatigue crack, 30%, Low severity	AC overlay/mill+overlay	Patch/recon area	
<i>y</i>	Fatigue crack, 30%, Med severity	AC overlay/mill+overlay	Patch/recon area	
	Fatigue crack, 30%, High severity	Rehab/recon	Patch/recon area	

Asphalt Maintenance Treatment Hierarchy



Concrete

Maintenance Treatment Hierarchy

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment Hierarchy Concrete Pavement Treatment Tables



	Dry – No Freeze: Surface Distress			
Te l	Distress	Acceptable	Recommended	
) 11,6	Start to weather	Fog/coal tar seal or slurry/micro	Rejuvenator	
tic	Definitely weather	Fog/coal tar seal	Slurry/micro	
Nationa]	Starting to ravel	Slurry/micro	Fog/coal tar seal	
	Definitely ravel	Slurry/micro or chip/cape seal	AC overlay/mill+overlay	
	Patch, 10%, Low severity	Crack seal/fill	Do nothing	
	Patch, 10%, Med severity	Crack seal/fill	Patch/recon area	
	Patch, 10%, High severity	AC overlay/mill+overlay	Patch/recon area	
llt	Patch, 30%, Low severity	Crack seal/fill	Do nothing	
ha	Patch, 30%, Med severity	Chip/cape seal	Rehab/recon	
sphal	Patch, 30%, High severity	AC overlay/mill+overlay	Rehab/recon	
A	Rough, Long Wave Swell	AC overlay/mill+overlay	Do nothing	
	Rough, Many Long Wave Swell	Patch/recon area	AC overlay/mill+overlay	
	Rough, Many Short Wave Bump	Patch/recon area	AC overlay/mill+overlay	

Asphalt Maintenance Treatment Hierarchy

Second Treatment First Treatment

riist ireatilielle	N.	occoma i i caminini	
Treatment	Do Nothing	Crack Seal/Fill	Rejuvenator
Do nothing	Do nothing	Crack seal/fill	Rejuvenator
Crack seal/fill	Crack seal/fill	Crack seal/fill	Both
Rejuvenator	Rejuvenator	Both	Rejuvenator
Fog/coal tar seal	Fog/coal tar seal	Both	Fog/coal tar seal
Slurry/micro	Slurry/micro	Both	Slurry/micro
Chip/cape seal	Chip/cape seal	Both	Chip/cape seal
AC overlay/mill+ overlay	AC overlay/mill+ overlay	AC overlay/mill+ overlay	AC overlay/mill+ overlay
Patch/reconstruct area	Patch/reconstruct area	Both	Both
Rehab/reconstruct	Rehab/reconstruct	Rehab/reconstruct	Rehab/reconstruct



Concrete

Maintenance

Steps

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Concrete Maintenance Treatment Hierarchy



Asphalt Maintenance Treatment Hierarchy

First Treatment

Second Treatment

Treatment	Fog/Coal Tar Seal	Slurry/Micro	Chip/Cape Seal
Do nothing	Fog/coal tar seal	Slurry/micro	Chip/cape seal
Crack seal/fill	Both	Both	Both
Rejuvenator	Fog/coal tar seal	Slurry/micro	Chip/cape seal
Fog/coal tar seal	Fog/coal tar seal	Slurry/micro	Chip/cape seal
Slurry/micro	Slurry/micro	Slurry/micro	Chip/cape seal
Chip/cape seal	Chip/cape seal	Chip/cape seal	Chip/cape seal
AC overlay/mill+ overlay	AC overlay/mill+ overlay	AC overlay/mill+ overlay	AC overlay/mill+ overlay
Patch/reconstruct area	Both	Both	Both
Rehab/reconstruct	Rehab/reconstruct	Rehab/reconstruct	Rehab/reconstruct

Asphalt Maintenance Treatment Hierarchy

Steps

First Treatment

Second Treatment

Treatment	AC Overlay/Mill+ Overlay	Patch/Reconstruct Area	Rehab/Reconstruct
Do nothing	AC overlay/mill+ overlay	Patch/reconstruct area	Rehab/reconstruct
Crack seal/fill	Both	Both	Rehab/reconstruct
Rejuvenator	AC overlay/mill+ overlay	Both	Rehab/reconstruct
Fog/coal tar seal	AC overlay/mill+ overlay	Both	Rehab/reconstruct
Slurry/micro	AC overlay/mill+ overlay	Both	Rehab/reconstruct
Chip/cape seal	AC overlay/mill+ overlay	Both	Rehab/reconstruct
AC overlay/mill+ overlay	AC overlay/mill+ overlay	Both	Rehab/reconstruct
Patch/reconstruct area	Both	Patch/reconstruct area	Rehab/reconstruct
Rehab/reconstruct	Rehab/reconstruct	Rehab/reconstruct	Rehab/reconstruct



Concrete Pavement Treatment Tables

	Wet – Freeze: Joint Problems			
1C	Distress	Acceptable	Recommended	
asic	Joint Seal, Still Good	Do nothing	Do nothing	
B	Joint Seal Low severity	Do nothing	Do nothing	
	Joint Seal Med severity	Do nothing	Crack/joint seal	
4)	Joint Seal High severity	Crack/joint seal	Crack/joint seal	
ete	Joint/Corner Spall Low severity	Crack/joint seal	Do nothing	
oncrete	Joint/Corner Spall Med severity	Crack/joint seal	Do nothing	
)n	Joint/Corner Spall High severity	Crack/joint seal	Partial depth repair	
ب				



Steps

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Maintenance

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment History

Concrete Pavement Treatment Tables



	Wet – Freeze: Cracking				
	Distress	Acceptable	Recommended		
Basic	Mid-Panel Crack, 20% slabs, Low severity	Crack/joint seal	Do nothing		
as	Mid-Panel Crack, 20% slabs, Med severity	Crack/joint seal	Do nothing		
B	Mid-Panel Crack, 20% slabs, High severity	Partial depth repair	Full-depth repair (local)		
	Mid-Panel Crack, 40% slabs, Low severity	Crack/joint seal	Do nothing		
	Mid-Panel Crack, 40% slabs, Med severity	Crack/joint seal	Full-depth repair (local)		
	Mid-Panel Crack, 40% slabs, High severity	Rehab/reconstruct	Full-depth repair (local)		
	Corner Brk, 10% slabs, Low severity	Crack/joint seal	Do nothing		
	Corner Brk, 10% slabs, Med severity	Do nothing	Crack/joint seal		
e	Corner Brk, 10% slabs, High severity	Full-depth repair (local)	Full-depth repair (local)		
Concrete	Corner Brk, 30% slabs, Low severity	Crack/joint seal	Do nothing		
nc	Corner Brk, 30% slabs, Med severity	Full-depth repair	Crack/joint seal		
Ō	Corner Brk, 30% slabs, High severity	Crack/joint seal	Full-depth repair (local)		
	10% Shattered, Low severity	Crack/joint seal	Do nothing		
	10% Shattered, Med severity	Full-depth repair (local)	Crack/joint seal		
	10% Shattered, High severity	Full-depth repair (local)	Full-depth repair (local)		
	30% Shattered, Low severity	Crack/joint seal	Do nothing		
	30% Shattered, Med severity	Full-depth repair (local)	Crack/joint seal		
	30% Shattered, High severity	Full-depth repair (local)	Full-depth repair (local)		

	Wet – Freeze: Surface Distress			
	Distress	Acceptable	Recommended	
i.	30% slabs, Patches Low severity	Do nothing	Do nothing	
asic	30% slabs, Patches Med severity	Do nothing	Partial depth repair	
P	30% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)	
	50% slabs, Patches Low severity	Do nothing	Do nothing	
	50% slabs, Patches Med severity	Full-depth repair (local)	Partial depth repair	
	50% slabs, Patches High severity	Full-depth repair (local)	Partial depth repair	
Ę.	10% slabs, Fault Low severity	Do nothing	Do nothing	
re	10% slabs, Fault Med severity	Do nothing	Crack/joint seal	
oncrete	10% slabs, Fault High severity	Grinding/grooving	Slab stabilization/jacking/underseal	
Ę	30% slabs, Fault Low severity	Crack/joint seal	Do nothing	
	30% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Grinding/grooving	
	30% slabs, Fault High severity	Grinding/grooving	Rehab/reconstruct	



Concrete Pavement

Treatment Tables

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment History

Concrete Pavement Treatment Tables



	Wet – No	Freeze: Joint Pr	oblems
ic	Distress	Acceptable	Recommended
asic	Joint Seal, Still Good	Do nothing	Do nothing
B	Joint Seal Low severity	Do nothing	Crack/joint seal
	Joint Seal Med severity	Do nothing	Crack/joint seal
4)	Joint Seal High severity	Crack/joint seal	Crack/joint seal
ete	Joint/Corner Spall Low severity	Do nothing	Crack/joint seal
oncrete	Joint/Corner Spall Med severity	Do nothing	Crack/joint seal
	Joint/Corner Spall High severity	Partial depth repair	Crack/joint seal

		Wet -	- No Freeze: (Cracking	
	Dis	tress	Accept	able	Recommended
Basic	Mid-Panel Crack, 20%	6 slabs, Low severity	Do nothing		Crack/joint seal
as	Mid-Panel Crack, 20%	6 slabs, Med severity	Crack/joint seal		Crack/joint seal
M	Mid-Panel Crack, 20%	6 slabs, High severity	Crack/joint seal		Full-depth repair (local)
	Mid-Panel Crack, 40%	6 slabs, Low severity	Do nothing		Crack/joint seal
	Mid-Panel Crack, 40%	6 slabs, Med severity	Crack/joint seal or for	ull-depth repair	Rehab/reconstruct
	Mid-Panel Crack, 40%	6 slabs, High severity	Full-depth repair		Rehab/reconstruct
	Corner Brk, 10% slab	s, Low severity	Do nothing		Crack/joint seal
	Corner Brk, 10% slab	s, Med severity	Do nothing		Crack/joint seal
	Corner Brk, 10% slab	s, High severity	Crack/joint seal		Full-depth repair (local)
<u>و</u>	Corner Brk, 30% slab	s, Low severity	Do nothing		Crack/joint seal
Ē	Corner Brk, 30% slab	s, Med severity	Full-depth repair or	do nothing	Crack/joint seal
Concrete	Corner Brk, 30% slab	s, High severity	Full-depth repair (lo	cal)	Full-depth repair (local)
Į,	10% Shattered, Low s	everity	Crack/joint seal		Crack/joint seal
\cup	10% Shattered, Med s	everity	Crack/joint seal		Full-depth repair (local)
	10% Shattered, High	severity	Concrete/asphalt over	erlay	Full-depth repair (local)
	30% Shattered, Low s	everity	Do nothing		Crack/joint seal
	30% Shattered, Med s	severity	Crack/joint seal		Full-depth repair (local)
	30% Shattered, High	severity	Concrete/asphalt over	erlay	Full-depth repair (local)
on	Steps	Asphalt Pavement Treatment Tables	Asphalt Maintenance Treatment History	Concrete Pavem Treatment Table	

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment History

Concrete Pavement Treatment Tables



	И	/et – No Freeze: Surface Distress	
ic	Distress Acceptable		Recommended
asic	30% slabs, Patches Low severity	Do nothing	Do nothing
B	30% slabs, Patches Med severity	Do nothing	Partial depth repair
	30% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)
	50% slabs, Patches Low severity	Do nothing	Do nothing
	50% slabs, Patches Med severity	Partial depth repair	Full-depth repair (local)
Ę	50% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)
Concrete	10% slabs, Fault Low severity	Do nothing	Crack/joint seal
uc	10% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Crack/joint seal
Ę	10% slabs, Fault High severity	Slab stabilization/jacking/underseal	Grinding/grooving
\mathcal{O}	30% slabs, Fault Low severity	Slab stabilization/jacking/underseal or crack/joint seal	Do nothing
	30% slabs, Fault Med severity	Slab stabilization/jacking/underseal or crack/joint seal	Grinding/grooving
	30% slabs, Fault High severity	Slab stabilization/jacking/underseal	Grinding/grooving

	Dry – Freeze: Joint Problems				
ic	Distress	Acceptable	Recommended		
Basic	Joint seal, still good	Do nothing	Do nothing		
B	Joint Seal Low severity	Do nothing	Do nothing		
	Joint Seal Med severity	Do nothing	Crack/joint seal		
4)	Joint Seal High severity	Crack/joint seal	Crack/joint seal		
ete	Joint/Corner Spall Low severity	Crack/joint seal	Do nothing		
oncrete	Joint/Corner Spall Med severity	Crack/joint seal	Do nothing		
й	Joint/Corner Spall High severity	Crack/joint seal	Partial depth repair		
ب					



Concrete Pavement

Treatment Tables

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment History

Concrete Pavement Treatment Tables



	I.	Dry – Freeze: Cracking	
	Distress	Acceptable	Recommended
ic	Mid-Panel Crack, 20% slabs, Low severity	Crack/joint seal	Do nothing
Basic	Mid-Panel Crack, 20% slabs, Med severity	Crack/joint seal	Do nothing
B	Mid-Panel Crack, 20% slabs, High severity	Partial depth repair	Full-depth repair (local)
	Mid-Panel Crack, 40% slabs, Low severity	Crack/joint seal	Do nothing
	Mid-Panel Crack, 40% slabs, Med severity	Crack/joint seal	Full-depth repair (local)
	Mid-Panel Crack, 40% slabs, High severity	Rehab/reconstruct	Full-depth repair (local)
	Corner Brk, 10% slabs, Low severity	Crack/joint seal	Do nothing
	Corner Brk, 10% slabs, Med severity	Do nothing	Crack/joint seal
	Corner Brk, 10% slabs, High severity	Full-depth repair (local)	Full-depth repair (local)
ह	Corner Brk, 30% slabs, Low severity	Crack/joint seal	Do nothing
re	Corner Brk, 30% slabs, Med severity	Full-depth repair	Crack/joint seal
Concrete	Corner Brk, 30% slabs, High severity	Crack/joint seal	Full-depth repair (local)
Ę	10% Shattered, Low severity	Crack/joint seal	Do nothing
\cup	10% Shattered, Med severity	Full-depth repair (local)	Crack/joint seal
	10% Shattered, High severity	Full-depth repair (local)	Full-depth repair (local)
	30% Shattered, Low severity	Crack/joint seal	Do nothing
	30% Shattered, Med severity	Full-depth repair (local)	Crack/joint seal
	30% Shattered, High severity	Full-depth repair (local)	Full-depth repair (local)

	<u> </u>	Dry – Freeze: Surface Di	istress
	Distress	Acceptable	Recommended
Basic	30% slabs, Patches Low severity	Do nothing	Do nothing
as	30% slabs, Patches Med severity	Do nothing	Partial depth repair
B	30% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)
	50% slabs, Patches Low severity	Do nothing	Do nothing
	50% slabs, Patches Med severity	Full-depth repair (local)	Partial depth repair
	50% slabs, Patches High severity	Full-depth repair (local)	Partial depth repair
Ę	10% slabs, Fault Low severity	Do nothing	Do nothing
Concrete	10% slabs, Fault Med severity	Do nothing	Crack/joint seal
30	10% slabs, Fault High severity	Grinding/grooving	Slab stabilization/jacking/underseal
Ę	30% slabs, Fault Low severity	Crack/joint seal	Do nothing
	30% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Grinding/grooving
	30% slabs, Fault High severity	Grinding/grooving	Rehab/reconstruct



Steps

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment History

Concrete Pavement Treatment Tables



	Dry – No Freeze: Joint Problems				
1C	Distress	Acceptable	Recommended		
asic	Joint seal, still good	Do nothing	Do nothing		
B	Joint Seal Low severity	Do nothing	Do nothing		
	Joint Seal Med severity	Do nothing	Crack/joint seal		
4)	Joint Seal High severity	Crack/joint seal	Crack/joint seal		
ete	Joint/Corner Spall Low severity	Crack/joint seal	Do nothing		
oncrete	Joint/Corner Spall Med severity	Crack/joint seal	Do nothing		
)n	Joint/Corner Spall High severity	Crack/joint seal	Partial depth repair		
ب					

		Dry	- No Freeze: C	racking	
	Γ	Distress	Accept	table	Recommended
Basic	Mid-Panel Crack, 2	0% slabs, Low severity	Crack/joint seal	Γ	Oo nothing
as	Mid-Panel Crack, 2	0% slabs, Med severity	Crack/joint seal	Г	Oo nothing
B	Mid-Panel Crack, 2	0% slabs, High severity	Partial depth repa	ir F	Full-depth repair (local)
	Mid-Panel Crack, 4	0% slabs, Low severity	Crack/joint seal	Г	Oo nothing
	Mid-Panel Crack, 4	0% slabs, Med severity	Crack/joint seal	F	Full-depth repair (local)
	Mid-Panel Crack, 4	0% slabs, High severity	Rehab/reconstruct	t F	Full-depth repair (local)
	Corner Brk, 10% sl	abs, Low severity	Crack/joint seal	Г	Oo nothing
	Corner Brk, 10% sl	abs, Med severity	Do nothing	C	Crack/joint seal
	Corner Brk, 10% sl	abs, High severity	Full-depth repair	(local) F	Full-depth repair (local)
<u>e</u>	Corner Brk, 30% sl	abs, Low severity	Crack/joint seal	Г	Oo nothing
<u>ē</u>	Corner Brk, 30% sl	abs, Med severity	Full-depth repair	C	Crack/joint seal
Concrete	Corner Brk, 30% sl	abs, High severity	Crack/joint seal	F	full-depth repair (local)
Į	10% Shattered, Lov	v severity	Crack/joint seal	Г	Oo nothing
\circ	10% Shattered, Med	d severity	Full-depth repair	(local)	Crack/joint seal
	10% Shattered, Hig	h severity	Full-depth repair	(local) F	full-depth repair (local)
	30% Shattered, Lov	w severity	Crack/joint seal	Г	Oo nothing
	30% Shattered, Med	d severity	Full-depth repair	(local)	Crack/joint seal
	30% Shattered, Hig	h severity	Full-depth repair	(local) F	full-depth repair (local)
n	Steps	Asphalt Pavement Treatment Tables	Asphalt Maintenance Treatment History	Concrete Pavemo	

Treatment History

Treatment Hierarchy

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Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment History

Concrete Pavement Treatment Tables



	Di	ry – No Freeze: Surface Distress	
	Distress	Acceptable	Recommended
asic	30% slabs, Patches Low severity	Do nothing	Do nothing
as	30% slabs, Patches Med severity	Do nothing	Partial depth repair
B	30% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)
	50% slabs, Patches Low severity	Do nothing	Do nothing
	50% slabs, Patches Med severity	Partial depth repair	Full-depth repair (local)
	50% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)
E	10% slabs, Fault Low severity	Do nothing	Crack/joint seal
re	10% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Crack/joint seal
Concrete	10% slabs, Fault High severity	Slab stabilization/jacking/underseal	Grinding/grooving
Ę	30% slabs, Fault Low severity	Slab stabilization/jacking/underseal or crack/joint seal	Do nothing
	30% slabs, Fault Med severity	Slab stabilization/jacking/underseal or crack/joint seal	Grinding/grooving
	30% slabs, Fault High severity	Slab stabilization/jacking/underseal	Grinding/grooving

	Wet – Freeze: Joint Problems				
al	Distress	Acceptable	Recommended		
00	Joint seal, still good	Do nothing	Do nothing		
Ĭ	Joint Seal Low severity	Do nothing	Crack/joint seal		
	Joint Seal Med severity	Do nothing	Crack/joint seal		
4)	Joint Seal High severity	Crack/joint seal	Crack/joint seal		
crete	Joint/Corner Spall Low severity	Partial depth repair or crack/joint seal	Do nothing		
CĽ	Joint/Corner Spall Med severity	Partial depth repair	Crack/joint seal		
)n	Joint/Corner Spall High severity	Crack/joint seal	Partial depth repair		



Steps

Asphalt Pavement Treatment Tables

Asphalt Maintenance Treatment History

Concrete Pavement Treatment Tables



	И	/et – Freeze: Cracking	
	Distress	Acceptable	Recommended
al	Mid-Panel Crack, 20% slabs, Low severity	Do nothing	Crack/joint seal
Local	Mid-Panel Crack, 20% slabs, Med severity	Crack/joint seal	Partial depth repair
Ă	Mid-Panel Crack, 20% slabs, High severity	Full-depth repair (local)	Partial depth repair
	Mid-Panel Crack, 40% slabs, Low severity	Do nothing	Crack/joint seal
	Mid-Panel Crack, 40% slabs, Med severity	Concrete/asphalt overlay or partial depth repair	Crack/joint seal
	Mid-Panel Crack, 40% slabs, High severity	Full-depth repair (local)	Partial depth repair
	Corner Brk, 10% slabs, Low severity	Do nothing	Crack/joint seal
	Corner Brk, 10% slabs, Med severity	Full-depth repair (local)	Crack/joint seal
	Corner Brk, 10% slabs, High severity	Full-depth repair (local)	Full-depth repair (local)
e	Corner Brk, 30% slabs, Low severity	Do nothing or Full-depth repair (local)	Crack/joint seal
ŢĢ.	Corner Brk, 30% slabs, Med severity	Crack/joint seal	Full-depth repair (local)
Concrete	Corner Brk, 30% slabs, High severity	Full-depth repair (local)	Full-depth repair (local)
Ę	10% Shattered, Low severity	Do nothing	Crack/joint seal
\mathcal{O}	10% Shattered, Med severity	Crack/joint seal	Full-depth repair (local)
	10% Shattered, High severity	Full-depth repair (local)	Full-depth repair (local)
	30% Shattered, Low severity	Do nothing	Crack/joint seal
	30% Shattered, Med severity	Crack/joint seal	Full-depth repair (local)
	30% Shattered, High severity	Full-depth repair (local)	Full-depth repair (local)

	Wet – Freeze: Surface Distress			
	Distress	Acceptable	Recommended	
al	30% slabs, Patches Low severity	Do nothing	Do nothing	
Local	30% slabs, Patches Med severity	Do nothing	Partial depth repair	
Й	30% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)	
	50% slabs, Patches Low severity	Do nothing	Do nothing	
	50% slabs, Patches Med severity	Full-depth repair (local)	Partial depth repair	
	50% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)	
<u>ن</u>	10% slabs, Fault Low severity	Do nothing	Do nothing	
re	10% slabs, Fault Med severity	Do nothing	Slab stabilization/jacking/underseal	
30	10% slabs, Fault High severity	Full-depth repair (local)	Full-depth repair (local)	
Concrete	30% slabs, Fault Low severity	Do nothing	Do nothing	
\mathcal{O}	30% slabs, Fault Med severity	Do nothing	Slab stabilization/jacking/underseal	
	30% slabs, Fault High severity	Full-depth repair (local)	Rehab/reconstruct	

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	Wet – No Freeze: Joint Problems				
al	Distress	Acceptable	Recommended		
ocal	Joint seal, still good	Do nothing	Do nothing		
À	Joint Seal Low severity	Do nothing	Crack/joint seal		
	Joint Seal Med severity	Crack/joint seal	Crack/joint seal		
4)	Joint Seal High severity	Crack/joint seal	Crack/joint seal		
oncrete	Joint/Corner Spall Low severity	Crack/joint seal	Do nothing		
CĽ	Joint/Corner Spall Med severity	Crack/joint seal or do nothing	Partial depth repair		
ЭÜ	Joint/Corner Spall High severity	Crack/joint seal	Partial depth repair		
$\ddot{\mathbf{C}}$					

	Distress	No Freeze: Cracking Acceptable	Recommended
न	Mid-Panel Crack, 20% slabs, Low severity	Do nothing	Crack/joint seal
ocal	Mid-Panel Crack, 20% slabs, Med severity	Do nothing	Crack/joint seal
Ĭ	Mid-Panel Crack, 20% slabs, High severity	Crack/joint seal	Partial depth repair
	Mid-Panel Crack, 40% slabs, Low severity	Do nothing	Crack/joint seal
	Mid-Panel Crack, 40% slabs, Med severity	Partial depth repair	Crack/joint seal
	Mid-Panel Crack, 40% slabs, High severity	Crack/joint seal	Rehab/reconstruct
	Corner Brk, 10% slabs, Low severity	Crack/joint seal	Do nothing
	Corner Brk, 10% slabs, Med severity	Full-depth repair (local)	Crack/joint seal
	Corner Brk, 10% slabs, High severity	Crack/joint seal	Full-depth repair (loca
ह	Corner Brk, 30% slabs, Low severity	Do nothing	Crack/joint seal
re	Corner Brk, 30% slabs, Med severity	Full-depth repair or do nothing	Crack/joint seal
Concrete	Corner Brk, 30% slabs, High severity	Full-depth repair (local)	Rehab/reconstruct
Ę	10% Shattered, Low severity	Full-depth repair or do nothing	Crack/joint seal
\cup	10% Shattered, Med severity	Crack/joint seal	Full-depth repair (loca
	10% Shattered, High severity	Concrete/asphalt overlay	Full-depth repair (loca
	30% Shattered, Low severity	Do nothing	Crack/joint seal
	30% Shattered, Med severity	Rehab/reconstruct	Full-depth repair (loca
	30% Shattered, High severity	Concrete/asphalt overlay	Rehab/reconstruct
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	Wet – No Freeze: Surface Distress				
	Distress	Acceptable	Recommended		
al	30% slabs, Patches Low severity	Do nothing	Do nothing		
ocal	30% slabs, Patches Med severity	Partial depth repair or do nothing	Do nothing		
Ĭ	30% slabs, Patches High severity	Partial depth repair or do nothing	Full-depth repair (local)		
	50% slabs, Patches Low severity	Do nothing	Do nothing		
	50% slabs, Patches Med severity	Concrete/asphalt overlay or do nothing	Partial depth repair		
	50% slabs, Patches High severity	Rehab/reconstruct	Concrete/asphalt overlay		
O	10% slabs, Fault Low severity	Do nothing	Partial depth repair		
Concrete	10% slabs, Fault Med severity	Slab stabilization/jacking/underseal or do nothing	Partial depth repair Cross-stitching/dowelbar		
ŭ	10% slabs, Fault High severity	Slab stabilization/jacking/underseal	retrofit		
$\frac{1}{2}$	30% slabs, Fault Low severity	Full-depth repair (local)	Concrete/asphalt overlay		
	30% slabs, Fault Med severity	Rehab/reconstruct	Concrete/asphalt overlay		
	30% slabs, Fault High severity	Concrete/Asphalt overlay	Rehab/reconstruct		

	Dry – Freeze: Joint Problems				
al	Distress	Acceptable	Recommended		
Local	Joint seal, still good	Do nothing	Do nothing		
	Joint Seal Low severity	Do nothing	Crack/joint seal		
	Joint Seal Med severity	Do nothing	Crack/joint seal		
Ę	Joint Seal High severity	Crack/joint seal	Crack/joint seal		
re	Joint/Corner Spall Low severity	Partial depth repair or crack/joint seal	Do nothing		
oncrete	Joint/Corner Spall Med severity	Crack/joint seal	Partial depth repair		
	Joint/Corner Spall High severity	Partial depth repair	Partial depth repair		
\cup					



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	Dry – Freeze: Cracking			
	Distress	Acceptable	Recommended	
al	Mid-Panel Crack, 20% slabs, Low severity	Crack/joint seal	Do nothing	
Local	Mid-Panel Crack, 20% slabs, Med severity	Partial depth repair or full-depth repair (local)	Crack/joint seal	
Image: Control of the	Mid-Panel Crack, 20% slabs, High severity	Concrete/Asphalt overlay	Crack/joint seal	
	Mid-Panel Crack, 40% slabs, Low severity	Crack/joint seal	Do nothing	
	Mid-Panel Crack, 40% slabs, Med severity	Partial depth repair	Crack/joint seal	
	Mid-Panel Crack, 40% slabs, High severity	Full-depth repair (local)	Rehab/reconstruct	
	Corner Brk, 10% slabs, Low severity	Crack/joint seal	Do nothing	
	Corner Brk, 10% slabs, Med severity	Full-depth repair (local)	Full-depth repair (local)	
	Corner Brk, 10% slabs, High severity	Full-depth repair (local)	Full-depth repair (local)	
E	Corner Brk, 30% slabs, Low severity	Crack/joint seal	Do nothing	
Concrete	Corner Brk, 30% slabs, Med severity	Crack/joint seal	Full-depth repair (local)	
nc	Corner Brk, 30% slabs, High severity	Full-depth repair (local)	Rehab/reconstruct	
Ę	10% Shattered, Low severity	Crack/joint seal	Do nothing	
	10% Shattered, Med severity	Crack/joint seal	Do nothing	
	10% Shattered, High severity	Full-depth repair (local)	Full-depth repair (local)	
	30% Shattered, Low severity	Crack/joint seal	Do nothing	
	30% Shattered, Med severity	Concrete/Asphalt overlay	Full-depth repair (local)	
	30% Shattered, High severity	Full-depth repair (local)	Rehab/reconstruct	

	Dry – Freeze: Surface Distress				
	Distress	Acceptable	Recommended		
Local	30% slabs, Patches Low severity	Do nothing	Do nothing		
00	30% slabs, Patches Med severity	Do nothing	Partial depth repair		
口	30% slabs, Patches High severity	Full-depth repair (local)	Rehab/reconstruct		
	50% slabs, Patches Low severity	Do nothing	Do nothing		
	50% slabs, Patches Med severity	Full-depth repair (local)	Concrete/Asphalt overlay		
	50% slabs, Patches High severity	Full-depth repair (local)	Rehab/reconstruct		
4)	10% slabs, Fault Low severity	Crack/joint seal	Do nothing		
ete	10% slabs, Fault Med severity	Grinding/grooving	Partial depth repair		
CIC	10% slabs, Fault High severity	Concrete/Asphalt overlay	Partial depth repair		
)II(30% slabs, Fault Low severity	Full-depth repair (local)	Do nothing		
Concrete	30% slabs, Fault Med severity	Concrete/Asphalt overlay or Slab stabilization/jacking/underseal Concrete/Asphalt overlay or Slab	Grinding/grooving		
	30% slabs, Fault High severity	stabilization/jacking/underseal or Grind/Groove	Rehab/reconstruct		



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	Dry – No Freeze: Joint Problems				
al	Distress	Acceptable	Recommended		
Local	Joint seal, still good	Do nothing	Do nothing		
\square	Joint Seal Low severity	Do nothing	Crack/joint seal		
	Joint Seal Med severity	Do nothing	Crack/joint seal		
e	Joint Seal High severity	Crack/joint seal	Crack/joint seal		
re	Joint/Corner Spall Low severity	Partial depth repair or do nothing	Crack/joint seal		
oncrete	Joint/Corner Spall Med severity	Crack/joint seal or do nothing	Partial depth repair		
Į	Joint/Corner Spall High severity	Crack/joint seal	Partial depth repair		
\mathcal{O}					

		Dry	- No Freeze: Crackin	ng	
	Distr		Acceptable		Recommended
al	Mid-Panel Crack, 20%	slabs, Low severity	Do nothing	Crack/j	joint seal
ocal	Mid-Panel Crack, 20%	slabs, Med severity	Do nothing	Crack/j	joint seal
Ĭ	Mid-Panel Crack, 20%	slabs, High severity	Crack/joint seal	Partial	depth repair
	Mid-Panel Crack, 40%	slabs, Low severity	Do nothing	Crack/j	joint seal
	Mid-Panel Crack, 40%	slabs, Med severity	Do nothing	Crack/j	joint seal
	Mid-Panel Crack, 40%	slabs, High severity	Crack/joint seal	Rehab/	reconstruct
	Corner Brk, 10% slabs,	Low severity	Do nothing	Crack/j	joint seal
	Corner Brk, 10% slabs,	Med severity	Full-depth repair (local)	Crack/j	joint seal
	Corner Brk, 10% slabs,	High severity	Crack/joint seal	Full-de	epth repair (local)
ह	Corner Brk, 30% slabs,	Low severity	Do nothing	Crack/j	joint seal
re!	Corner Brk, 30% slabs,	Med severity	Full-depth repair or do nothing	g Crack/j	joint seal
Concrete	Corner Brk, 30% slabs,	High severity	Full-depth repair (local)	Rehab/	reconstruct
Ę	10% Shattered, Low see	verity	Do nothing	Crack/j	joint seal
\cup	10% Shattered, Med se	verity	Crack/joint seal	Full-de	epth repair (local)
	10% Shattered, High se	everity	Concrete/Asphalt overlay	Full-de	epth repair (local)
	30% Shattered, Low see	verity	Do nothing	Crack/j	joint seal
	30% Shattered, Med se	verity	Full-depth repair or rehab/reco	onstruct Concre	ete/asphalt overlay
	30% Shattered, High se	everity	Concrete/asphalt overlay	Rehab/	reconstruct
ction	Steps	Asphalt Pavement Treatment Tables		ete Pavement ment Tables	Concrete Maintenance reatment Hierarchy

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	Dry – No Freeze: Surface Distress				
	Distress	Acceptable	Recommended		
Local	30% slabs, Patches Low severity	Do nothing	Do nothing		
00	30% slabs, Patches Med severity	Do nothing	Partial depth repair		
	30% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)		
	50% slabs, Patches Low severity	Concrete/Asphalt overlay	Do nothing		
	50% slabs, Patches Med severity	Concrete/Asphalt overlay or partial depth repair	Full-depth repair (local)		
	50% slabs, Patches High severity	Rehab/reconstruct	Concrete/asphalt overlay		
5	10% slabs, Fault Low severity	Crack/joint seal	Do nothing		
re	10% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Do nothing		
Concrete	10% slabs, Fault High severity	Slab stabilization/jacking/underseal	Cross-stitching/dowelbar retrofit		
Ę	30% slabs, Fault Low severity	Full-depth repair (local)	Do nothing		
\cup	30% slabs, Fault Med severity	Grinding/grooving	Concrete/asphalt overlay		
	30% slabs, Fault High severity	Concrete/asphalt overlay	Rehab/reconstruct		

	Wet - Freeze: Joint Problems				
la	Distress	Acceptable	Recommended		
0	Joint seal, still good	Do nothing	Do nothing		
Regional	Joint Seal Low severity	Do nothing	Crack/joint seal		
Re	Joint Seal Med severity	Do nothing	Crack/joint seal		
	Joint Seal High severity	Crack/joint seal	Crack/joint seal		
<u>و</u>	Joint/Corner Spall Low severity	Do nothing or partial depth repair	Crack/joint seal		
oncrete	Joint/Corner Spall Med severity	Crack/joint seal	Partial depth repair		
)C	Joint/Corner Spall High severity	Partial depth repair	Partial depth repair		
, [0]					



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	Wet – Freeze: Cracking				
al	Distress	Acceptable	Recommended		
Regional	Mid-Panel Crack, 20% slabs, Low severity	Do nothing	Crack/joint seal		
310	Mid-Panel Crack, 20% slabs, Med severity	Partial depth repair	Crack/joint seal		
ege	Mid-Panel Crack, 20% slabs, High severity	Full-depth repair (local)	Partial depth repair		
\simeq	Mid-Panel Crack, 40% slabs, Low severity	Do nothing	Crack/joint seal		
	Mid-Panel Crack, 40% slabs, Med severity	Full-depth repair (local)	Crack/joint seal		
	Mid-Panel Crack, 40% slabs, High severity	Partial depth repair	Full-depth repair (local)		
	Corner Brk, 10% slabs, Low severity	Do nothing	Crack/joint seal		
	Corner Brk, 10% slabs, Med severity	Full-depth repair (local)	Crack/joint seal		
te	Corner Brk, 10% slabs, High severity	Full-depth repair (local)	Full-depth repair (local)		
ŢĠ.	Corner Brk, 30% slabs, Low severity	Do nothing	Crack/joint seal		
nc	Corner Brk, 30% slabs, Med severity	Full-depth repair (local)	Crack/joint seal		
Concrete	Corner Brk, 30% slabs, High severity	Full-depth repair (local)	Full-depth repair (local)		
\cup	10% Shattered, Low severity	Do nothing	Crack/joint seal		
	10% Shattered, Med severity	Crack/joint seal	Full-depth repair (local)		
	10% Shattered, High severity	Concrete/asphalt overlay	Full-depth repair (local)		
	30% Shattered, Low severity	Full-depth repair (local)	Crack/joint seal		
	30% Shattered, Med severity	Rehab/reconstruct	Full-depth repair (local)		
	30% Shattered, High severity	Rehab/reconstruct	Full-depth repair (local)		

	Wet – Freeze: Surface Distress			
al	Distress	Acceptable	Recommended	
) iii	30% slabs, Patches Low severity	Do nothing	Do nothing	
310	30% slabs, Patches Med severity	Do nothing	Partial depth repair	
Regional	30% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)	
\simeq	50% slabs, Patches Low severity	Do nothing	Do nothing	
	50% slabs, Patches Med severity	Full-depth repair (local)	Partial depth repair	
	50% slabs, Patches High severity	Full-depth repair (local)	Rehab/reconstruct	
<u>5</u>	10% slabs, Fault Low severity	Do nothing	Crack/joint seal	
oncrete	10% slabs, Fault Med severity	Crack/joint seal	Grinding/grooving	
30	10% slabs, Fault High severity	Slab stabilization/jacking/underseal	Grinding/grooving	
Ę	30% slabs, Fault Low severity	Slab stabilization/jacking/underseal	Grinding/grooving	
\mathcal{O}	30% slabs, Fault Med severity	Cross-stitching/dowelbar retrofit	Grinding/grooving	
	30% slabs, Fault High severity	Slab stabilization/jacking/underseal	Rehab/reconstruct	



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	Wet – No Freeze: Joint Problems				
al	Distress	Acceptable	Recommended		
) III	Joint seal, still good	Crack/joint seal	Do nothing		
310	Joint Seal Low severity	Crack/joint seal	Do nothing		
Regional	Joint Seal Med severity	Crack/joint seal	Crack/joint seal		
\simeq	Joint Seal High severity	Crack/joint seal	Crack/joint seal		
	Joint/Corner Spall Low severity	Crack/joint seal	Do nothing		
Ę	Joint/Corner Spall Med severity	Crack/joint seal	Partial depth repair		
rete	Joint/Corner Spall High severity	Partial depth repair	Partial depth repair		

		We	et – No Freeze: (Cracking	
F	Distre	SS	Acceptable		Recommended
m	Mid-Panel Crack, 20% sl	abs, Low severity	Do nothing	Crack/joint sea	al
310	Mid-Panel Crack, 20% sl	abs, Med severity	Do nothing	Full-depth repa	air (local)
Regional	Mid-Panel Crack, 20% sl	abs, High severity	Partial depth repair	Full-depth repa	air (local)
2	Mid-Panel Crack, 40% sl	abs, Low severity	Partial depth repair	Full-depth repa	air (local)
	Mid-Panel Crack, 40% sl	abs, Med severity	Partial depth repair	Full-depth repa	air (local)
	Mid-Panel Crack, 40% sl	abs, High severity	Full-depth repair (loca	l) Concrete/Asph	nalt overlay
	Corner Brk, 10% slabs, L	ow severity	Crack/joint seal	Do nothing	
	Corner Brk, 10% slabs, M	led severity	Crack/joint seal	Full-depth repa	air (local)
	Corner Brk, 10% slabs, H	ligh severity	Full-depth repair (loca	l) Full-depth repa	air (local)
ð	Corner Brk, 30% slabs, L	ow severity	Do nothing	Crack/joint sea	al
Concrete	Corner Brk, 30% slabs, M	led severity	Crack/joint seal	Full-depth repa	air (local)
$\sum_{i=1}^{n}$	Corner Brk, 30% slabs, H	ligh severity	Full-depth repair (loca	l) Full-depth repa	air (local) or rehab/reconstru
ĬŎ.	10% Shattered, Low seve	rity	Crack/joint seal	Full-depth repa	air (local)
\circ	10% Shattered, Med seve	rity	Full-depth repair (loca	l) Full-depth repa	air (local)
	10% Shattered, High seve	erity	Full-depth repair (loca	l) Full-depth repa	air (local)
	30% Shattered, Low seve	rity	Crack/joint seal	Full-depth repa	air (local)
	30% Shattered, Med seve	rity	Full-depth repair (loca	l) Rehab/reconstr	ruct
	30% Shattered, High seve	erity	Full-depth repair (loca	l) Rehab/reconstr	ruct
ıction	Steps	Asphalt Pavement Treatment Tables	Asphalt Maintenance Treatment History	Concrete Pavement Treatment Tables	Concrete Maintenance Treatment Hierarchy

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	Wet – No Freeze: Surface Distress				
न्द	Distress	Acceptable	Recommended		
) II	30% slabs, Patches Low severity	Do nothing	Do nothing		
310	30% slabs, Patches Med severity	Crack/joint seal	Do nothing or partial depth repair		
Regional	30% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)		
\simeq	50% slabs, Patches Low severity	Do nothing	Do nothing		
	50% slabs, Patches Med severity	Concrete/asphalt overlay	Full-depth repair (local)		
	50% slabs, Patches High severity	Concrete/asphalt overlay	Full-depth repair (local)		
<u>e</u>	10% slabs, Fault Low severity	Crack/joint seal	Do nothing		
[e	10% slabs, Fault Med severity	Crack/joint seal	Slab stabilization/jacking/underseal		
Concrete	10% slabs, Fault High severity	Grinding/grooving	Slab stabilization/jacking/underseal		
Į,	30% slabs, Fault Low severity	Slab stabilization/jacking/underseal	Do nothing		
\mathcal{O}	30% slabs, Fault Med severity	Grinding/grooving	Slab stabilization/jacking/underseal		
	30% slabs, Fault High severity	Slab stabilization/jacking/underseal	Rehab/reconstruct		

Dry – Freeze: Joint Problems			
Distress	Acceptable	Recommended	
Joint seal, still good	Do nothing	Crack/joint seal	
Joint Seal Low severity	Do nothing	Crack/joint seal	
Joint Seal Med severity	Do nothing	Crack/joint seal	
Joint Seal High severity	Crack/joint seal	Crack/joint seal	
Joint/Corner Spall Low severity	Do nothing	Crack/joint seal	
Joint/Corner Spall Med severity	Crack/joint seal	Partial depth repair	
Joint/Corner Spall High severity	Crack/joint seal	Partial depth repair	



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	Dry – Freeze: Cracking		
ਵ	Distress	Acceptable	Recommended
Regional	Mid-Panel Crack, 20% slabs, Low severity	Do nothing	Crack/joint seal
31.0	Mid-Panel Crack, 20% slabs, Med severity	Partial depth repair	Crack/joint seal
e G	Mid-Panel Crack, 20% slabs, High severity	Partial depth repair	Full-depth repair (local)
	Mid-Panel Crack, 40% slabs, Low severity	Do nothing	Crack/joint seal
	Mid-Panel Crack, 40% slabs, Med severity	Partial depth repair or full-depth repair (local)	Rehab/reconstruct
	Mid-Panel Crack, 40% slabs, High severity	Full-depth repair (local)	Rehab/reconstruct
	Corner Brk, 10% slabs, Low severity	Do nothing	Crack/joint seal
	Corner Brk, 10% slabs, Med severity	Full-depth repair (local)	Crack/joint seal
	Corner Brk, 10% slabs, High severity	Crack/joint seal	Full-depth repair (local)
te	Corner Brk, 30% slabs, Low severity	Do nothing	Crack/joint seal
re	Corner Brk, 30% slabs, Med severity	Full-depth repair (local)	Crack/joint seal
Concrete	Corner Brk, 30% slabs, High severity	Crack/joint seal	Full-depth repair (local)
Ō	10% Shattered, Low severity	Do nothing	Crack/joint seal
\cup	10% Shattered, Med severity	Crack/joint seal	Full-depth repair (local)
	10% Shattered, High severity	Full-depth repair (local)	Full-depth repair (local)
	30% Shattered, Low severity	Do nothing	Full-depth repair (local)
	30% Shattered, Med severity	Full-depth repair (local)	Rehab/reconstruct
	30% Shattered, High severity	Full-depth repair (local)	Rehab/reconstruct

	Dry – Freeze: Surface Distress			
al	Distress	Acceptable	Recommended	
) N	30% slabs, Patches Low severity	Do nothing	Do nothing	
<u> </u>	30% slabs, Patches Med severity	Full-depth repair (local)	Do nothing	
Regional	30% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)	
	50% slabs, Patches Low severity	Do nothing	Do nothing	
	50% slabs, Patches Med severity	Full-depth repair (local)	Partial depth repair	
	50% slabs, Patches High severity	Concrete/asphalt overlay	Full-depth repair (local)	
<u>e</u>	10% slabs, Fault Low severity	Crack/joint seal	Do nothing	
Ţ.	10% slabs, Fault Med severity	Crack/joint seal	Grinding/grooving	
nc	10% slabs, Fault High severity	Cross-stitching/dowelbar retrofit	Slab stabilization/jacking/underseal	
Concrete	30% slabs, Fault Low severity	Grinding/grooving	Do nothing	
	30% slabs, Fault Med severity	Grinding/grooving	Do nothing	
	30% slabs, Fault High severity	Cross-stitching/dowelbar retrofit	Slab stabilization/jacking/underseal	



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Regional
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Dry – No Freeze: Joint Problems			
Distress	Acceptable	Recommended	
Joint seal, still good	Do nothing	Do nothing	
Joint Seal Low severity	Do nothing	Crack/joint seal	
Joint Seal Med severity	Do nothing	Crack/joint seal	
Joint Seal High severity	Crack/joint seal	Crack/joint seal	
Joint/Corner Spall Low severity	Crack/joint seal	Do nothing	
Joint/Corner Spall Med severity	Partial depth repair	Crack/joint seal	
Joint/Corner Spall High severity	Crack/joint seal	Partial depth repair	

		Dr	y – No Freeze: C	Cracking	
77	Distre	SS	Acce	ptable	Recommended
n (Mid-Panel Crack, 20% s	labs, Low severity	Crack/joint seal		Do nothing
zic	Mid-Panel Crack, 20% s	labs, Med severity	Partial depth repair		Crack/joint seal
Regional	Mid-Panel Crack, 20% s	labs, High severity	Full-depth repair (local))	Full-depth repair (local
\simeq	Mid-Panel Crack, 40% s	labs, Low severity	Crack/joint seal		Do nothing
	Mid-Panel Crack, 40% s	labs, Med severity	Partial depth repair or f	full-depth repair (local)	Crack/joint seal
	Mid-Panel Crack, 40% s	labs, High severity	Full-depth repair (local))	Rehab/reconstruct
	Corner Brk, 10% slabs, I	Low severity	Crack/joint seal		Do nothing
	Corner Brk, 10% slabs, I	Med severity	Full-depth repair (local))	Crack/joint seal
	Corner Brk, 10% slabs, I	High severity	Full-depth repair (local))	Full-depth repair (loca
<u>و</u>	Corner Brk, 30% slabs, I	Low severity	Crack/joint seal		Do nothing
Concrete	Corner Brk, 30% slabs, I	Med severity	Full-depth repair (local))	Crack/joint seal
]C	Corner Brk, 30% slabs, I	High severity	Crack/joint seal		Full-depth repair (loca
, O	10% Shattered, Low sev	erity	Do nothing		Crack/joint seal
\cup	10% Shattered, Med sev	erity	Full-depth repair (local))	Full-depth repair (loca
	10% Shattered, High sev	erity	Full-depth repair (local))	Full-depth repair (loca
	30% Shattered, Low sev	erity	Do nothing		Crack/joint seal
	30% Shattered, Med sev	erity	Full-depth repair (local))	Rehab/reconstruct
	30% Shattered, High sev	erity	Full-depth repair (local)	Rehab/reconstruct
ction	Steps	Asphalt Pavement Treatment Tables	Asphalt Maintenance Treatment History	Concrete Pavement Treatment Tables	Concrete Maintenance Treatment Hierarchy

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	Dry – No Freeze: Surface Distress			
al	Distress	Acceptable	Recommended	
)n	30% slabs, Patches Low severity	Do nothing	Do nothing	
. <u>.</u>	30% slabs, Patches Med severity	Partial depth repair	Do nothing	
Regional	30% slabs, Patches High severity	Partial depth repair	Full-depth repair (local)	
24	50% slabs, Patches Low severity	Do nothing	Do nothing	
	50% slabs, Patches Med severity	Full-depth repair (local)	Partial depth repair	
	50% slabs, Patches High severity	Concrete/Asphalt overlay	Rehab/reconstruct	
<u>e</u>	10% slabs, Fault Low severity	Crack/joint seal	Do nothing	
<u>re</u>	10% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Grinding/grooving	
Concrete	10% slabs, Fault High severity	Grinding/grooving	Slab stabilization/jacking/underseal	
Ę	30% slabs, Fault Low severity	Crack/joint seal	Do nothing	
	30% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Grinding/grooving	
	30% slabs, Fault High severity	Rehab/reconstruct	Slab stabilization/jacking/underseal	

Wet – Freeze: Joint Problems			
Distress	Acceptable	Recommended	
Joint seal, still good	Do nothing	Do nothing	
Joint Seal Low severity	Crack/joint seal	Do nothing	
Joint Seal Med severity	Crack/joint seal	Crack/joint seal	
Joint Seal High severity	Crack/joint seal	Crack/joint seal	
Joint/Corner Spall Low severity	Crack/joint seal or Do nothing	Partial depth repair	
Joint/Corner Spall Med severity	Crack/joint seal or Partial depth repair	Partial depth repair	
Joint/Corner Spall High severity	Partial depth repair	Partial depth repair	



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		Wet - Freeze: Cracking	
72	Distress	Acceptable	Recommended
National	Mid-Panel Crack, 20% slabs, Low severity	Crack/joint seal	Do nothing
tic	Mid-Panel Crack, 20% slabs, Med severity	Partial depth repair or full-depth repair	Crack/joint seal
Ja	Mid-Panel Crack, 20% slabs, High severity	Crack/joint seal or partial depth repair	Full-depth repair
	Mid-Panel Crack, 40% slabs, Low severity	Do nothing	Concrete/asphalt overlay
	Mid-Panel Crack, 40% slabs, Med severity	Rehab/reconstruct	Concrete/asphalt overlay
	Mid-Panel Crack, 40% slabs, High severity	Concrete/asphalt overlay	Rehab/reconstruct
	Corner Brk, 10% slabs, Low severity	Crack/joint seal or full-depth repair	Do nothing
	Corner Brk, 10% slabs, Med severity	Full-depth repair	Crack/joint seal
	Corner Brk, 10% slabs, High severity	Full-depth repair	Full-depth repair
te	Corner Brk, 30% slabs, Low severity	Crack/joint seal	Do nothing or full-depth repair
re	Corner Brk, 30% slabs, Med severity	Full-depth repair	Full-depth repair or concrete/asphalt overlay
nc	Corner Brk, 30% slabs, High severity	Full-depth repair	Rehab/reconstruct
Concrete	10% Shattered, Low severity	Do nothing	Full-depth repair
	10% Shattered, Med severity	Crack/joint seal	Full-depth repair
	10% Shattered, High severity	Concrete/asphalt overlay	Full-depth repair
	30% Shattered, Low severity	Rehab/reconstruct	Concrete/asphalt overlay
	30% Shattered, Med severity	Full-depth repair	Rehab/reconstruct
	30% Shattered, High severity	Full-depth repair	Rehab/reconstruct

	Wet – Freeze: Surface Distress			
Te l	Distress	Acceptable	Recommended	
m	30% slabs, Patches Low severity	Do nothing	Do nothing	
tic	30% slabs, Patches Med severity	Partial depth repair	Full-depth repair	
National	30% slabs, Patches High severity	Partial depth repair	Full-depth repair	
	50% slabs, Patches Low severity	Concrete/asphalt overlay	Do nothing	
	50% slabs, Patches Med severity	Full-depth repair	Concrete/asphalt overlay	
	50% slabs, Patches High severity	Concrete/asphalt overlay	Rehab/reconstruct	
<u>e</u>	10% slabs, Fault Low severity	Grinding/grooving	Do nothing	
Concrete	10% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Grinding/grooving	
nc	10% slabs, Fault High severity	Slab stabilization/jacking/underseal	Grinding/grooving	
Ę	30% slabs, Fault Low severity	Do nothing	Grinding/grooving	
	30% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Grinding/grooving	
	30% slabs, Fault High severity	Slab stabilization/jacking/underseal	Rehab/reconstruct	



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	Wet – No Freeze: Joint Problems		
1a]	Distress	Acceptable	Recommended
National	Joint seal, still good	Do nothing	Do nothing
ati	Joint Seal Low severity	Do nothing	Crack/joint seal
Ž	Joint Seal Med severity	Crack/joint seal	Crack/joint seal
	Joint Seal High severity	Crack/joint seal	Crack/joint seal
<u>e</u>	Joint/Corner Spall Low severity	Crack/joint seal	Partial depth repair
oncrete	Joint/Corner Spall Med severity	Crack/joint seal	Partial depth repair
30	Joint/Corner Spall High severity	Partial depth repair	Partial depth repair
Ę			

	Distress	O Freeze: Cracking Acceptable	Recommended
National	Mid-Panel Crack, 20% slabs, Low severity	Crack/joint seal	Do nothing
<u> </u>	Mid-Panel Crack, 20% slabs, Med severity	Partial depth repair	Crack/joint seal
at	Mid-Panel Crack, 20% slabs, High severity	Crack/joint seal	Partial depth repair
Z	Mid-Panel Crack, 40% slabs, Low severity	Crack/joint seal	Concrete/asphalt overlage
	Mid-Panel Crack, 40% slabs, Med severity	Partial depth repair	Concrete/asphalt overlage
	Mid-Panel Crack, 40% slabs, High severity	Concrete/asphalt overlay	Rehab/reconstruct
	Corner Brk, 10% slabs, Low severity	Crack/joint seal	Do nothing
	Corner Brk, 10% slabs, Med severity	Full-depth repair	Crack/joint seal
<u> </u>	Corner Brk, 10% slabs, High severity	Full-depth repair	Full-depth repair
Collicrete	Corner Brk, 30% slabs, Low severity	Crack/joint seal	Do nothing
<u>၁</u>	Corner Brk, 30% slabs, Med severity	Crack/joint seal	Full-depth repair
ξ	Corner Brk, 30% slabs, High severity	Full-depth repair	Rehab/reconstruct
	10% Shattered, Low severity	Crack/joint seal	Full-depth repair
	10% Shattered, Med severity	Crack/joint seal	Full-depth repair
	10% Shattered, High severity	Concrete/asphalt overlay	Full-depth repair
	30% Shattered, Low severity	Full-depth repair	Crack/joint seal
	30% Shattered, Med severity	Rehab/reconstruct	Full-depth repair
	30% Shattered, High severity	Full-depth repair	Rehab/reconstruct
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	Wet	– No Freeze: Surface D	istress
7	Distress	Acceptable	Recommended
me	30% slabs, Patches Low severity	Do nothing	Do nothing
tio	30% slabs, Patches Med severity	Full-depth repair	Partial depth repair
National	30% slabs, Patches High severity	Partial depth repair	Rehab/reconstruct
	50% slabs, Patches Low severity	Do nothing	Do nothing
	50% slabs, Patches Med severity	Concrete/asphalt overlay	Full-depth repair
	50% slabs, Patches High severity	Concrete/asphalt overlay	Rehab/reconstruct
<u>e</u>	10% slabs, Fault Low severity	Crack/joint seal	Do nothing
<u>E</u>	10% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Grinding/grooving
Concrete	10% slabs, Fault High severity	Grinding/grooving	Slab stabilization/jacking/underseal
Ę	30% slabs, Fault Low severity	Crack/joint seal	Do nothing
	30% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Grinding/grooving
	30% slabs, Fault High severity	Grinding/grooving	Slab stabilization/jacking/underseal

eeze: Joint Problems			al			
ed	Distress		on(
	good	Joint seal, st	tic			
	v severity	Joint Seal L	National			
	d severity	Joint Seal M	4			
	h severity	Joint Seal H	4)			
	Spall Low se	Joint/Corner	ete			
	Spall Med se	Joint/Corner	CL			
	Spall High s	Joint/Corner)U			
	Spall Med se	Joint/Corner Joint/Corner	oncrete			



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	Dry – F	reeze: Cracking	
72	Distress	Acceptable	Recommended
National	Mid-Panel Crack, 20% slabs, Low severity	Crack/joint seal	Do nothing
tic	Mid-Panel Crack, 20% slabs, Med severity	Partial depth repair	Crack/joint seal
[a]	Mid-Panel Crack, 20% slabs, High severity	Crack/joint seal	Partial depth repair
	Mid-Panel Crack, 40% slabs, Low severity	Crack/joint seal	Do nothing
	Mid-Panel Crack, 40% slabs, Med severity	Partial depth repair	Crack/joint seal
	Mid-Panel Crack, 40% slabs, High severity	Concrete/asphalt overlay	Rehab/reconstruct
	Corner Brk, 10% slabs, Low severity	Crack/joint seal	Do nothing
	Corner Brk, 10% slabs, Med severity	Full-depth repair	Crack/joint seal
	Corner Brk, 10% slabs, High severity	Full-depth repair	Full-depth repair
te	Corner Brk, 30% slabs, Low severity	Crack/joint seal	Do nothing
re	Corner Brk, 30% slabs, Med severity	Crack/joint seal	Full-depth repair
nc	Corner Brk, 30% slabs, High severity	Full-depth repair	Rehab/reconstruct
Concrete	10% Shattered, Low severity	Crack/joint seal	Full-depth repair
	10% Shattered, Med severity	Crack/joint seal	Full-depth repair
	10% Shattered, High severity	Concrete/asphalt overlay	Full-depth repair
	30% Shattered, Low severity	Full-depth repair	Crack/joint seal
	30% Shattered, Med severity	Rehab/reconstruct	Full-depth repair
	30% Shattered, High severity	Full-depth repair	Rehab/reconstruct

	Di	y – Freeze: Surface Dis	tress
7	Distress	Acceptable	Recommended
National	30% slabs, Patches Low severity	Do nothing	Do nothing
tic	30% slabs, Patches Med severity	Full-depth repair	Partial depth repair
Ja	30% slabs, Patches High severity	Partial depth repair	Rehab/reconstruct
	50% slabs, Patches Low severity	Do nothing	Do nothing
	50% slabs, Patches Med severity	Concrete/asphalt overlay	Full-depth repair
	50% slabs, Patches High severity	Concrete/asphalt overlay	Rehab/reconstruct
<u>e</u>	10% slabs, Fault Low severity	Crack/joint seal	Do nothing
<u>re</u>	10% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Grinding/grooving
nc	10% slabs, Fault High severity	Grinding/grooving	Slab stabilization/jacking/underseal
Concrete	30% slabs, Fault Low severity	Crack/joint seal	Do nothing
	30% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Grinding/grooving
	30% slabs, Fault High severity	Grinding/grooving	Slab stabilization/jacking/underseal



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Dry – No Freeze: Joint Problems				
Distress	Acceptable	Recommended		
Joint seal, still good	Do nothing	Do nothing		
Joint Seal Low severity	Do nothing	Crack/joint seal		
Joint Seal Med severity	Crack/joint seal	Crack/joint seal		
Joint Seal High severity	Crack/joint seal	Crack/joint seal		
Joint/Corner Spall Low severity	Crack/joint seal	Do nothing		
Joint/Corner Spall Med severity	Crack/joint seal	Partial depth repair		
Joint/Corner Spall High severity	Partial depth repair	Partial depth repair		

	Dry – No	Freeze: Cracking	
	Distress	Acceptable	Recommended
National	Mid-Panel Crack, 20% slabs, Low severity	Crack/joint seal	Do nothing
10	Mid-Panel Crack, 20% slabs, Med severity	Partial depth repair	Crack/joint seal
a	Mid-Panel Crack, 20% slabs, High severity	Crack/joint seal	Partial depth repair
	Mid-Panel Crack, 40% slabs, Low severity	Crack/joint seal	Do nothing
	Mid-Panel Crack, 40% slabs, Med severity	Partial depth repair	Crack/joint seal
	Mid-Panel Crack, 40% slabs, High severity	Concrete/asphalt overlay	Rehab/reconstruct
	Corner Brk, 10% slabs, Low severity	Crack/joint seal	Do nothing
	Corner Brk, 10% slabs, Med severity	Full-depth repair	Crack/joint seal
	Corner Brk, 10% slabs, High severity	Full-depth repair	Full-depth repair
<u>e</u>	Corner Brk, 30% slabs, Low severity	Crack/joint seal	Do nothing
Concrete	Corner Brk, 30% slabs, Med severity	Crack/joint seal	Full-depth repair
nc	Corner Brk, 30% slabs, High severity	Full-depth repair	Rehab/reconstruct
<u> </u>	10% Shattered, Low severity	Crack/joint seal	Full-depth repair
	10% Shattered, Med severity	Crack/joint seal	Full-depth repair
	10% Shattered, High severity	Concrete/asphalt overlay	Full-depth repair
	30% Shattered, Low severity	Full-depth repair	Crack/joint seal
	30% Shattered, Med severity	Rehab/reconstruct	Full-depth repair
	30% Shattered, High severity	Full-depth repair	Rehab/reconstruct

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	Dry – No Freeze: Surface Distress				
al al	Distress	Acceptable	Recommended		
National	30% slabs, Patches Low severity	Do nothing	Do nothing		
tic	30% slabs, Patches Med severity	Full-depth repair	Partial depth repair		
la	30% slabs, Patches High severity	Partial depth repair	Rehab/reconstruct		
	50% slabs, Patches Low severity	Do nothing	Do nothing		
	50% slabs, Patches Med severity	Concrete/asphalt overlay	Full-depth repair		
	50% slabs, Patches High severity	Concrete/asphalt overlay	Rehab/reconstruct		
4)	10% slabs, Fault Low severity	Crack/joint seal	Do nothing		
ete	10% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Grinding/grooving		
Concrete	10% slabs, Fault High severity	Grinding/grooving	Slab stabilization/jacking/underseal		
)n	30% slabs, Fault Low severity	Crack/joint seal	Do nothing		
ŭ	30% slabs, Fault Med severity	Slab stabilization/jacking/underseal	Grinding/grooving		
	30% slabs, Fault High severity	Grinding/grooving	Slab stabilization/jacking/underseal		

Concrete Maintenance Treatment Hierarchy

First Treatment Second Treatment

Treatment	Do Nothing	Crack/Joint Seal	Partial Depth Repair
Do nothing	Do nothing	Crack/joint seal	Partial depth repair
Crack/joint seal	Crack/joint seal	Crack/joint seal	Both
Partial depth repair	Partial depth repair	Both	Partial depth repair
Full-depth repair (local)	Full-depth repair (local)	Both	Full-depth repair (local)
Cross-stitching/dowelbar retrofit	Cross-stitching/dowelbar retrofit	Both	Cross-stitching/dowelbar retrofit
Slab stabilization/ jacking/underseal	Slab stabilization/ jacking/underseal	Both	Slab stabilization/ jacking/underseal
PCC/AC overlay	PCC/AC overlay	Both	Both
Grinding/grooving	Grinding/grooving	Both	Both
Rehab/reconstruct	Rehab/reconstruct	Rehab/reconstruct	Rehab/reconstruct

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Concrete Maintenance Treatment Hierarchy

First Treatment

Second Treatment

Treatment	Full-Depth Repair (Local)	Cross-stitching/ Dowelbar Retrofit	Slab Stabilization/ Jacking/Underseal
Do nothing	Full-depth repair (local)	Cross-stitching/dowelbar retrofit	Slab stabilization/ jacking/underseal
Crack/joint seal	Both	Both	Both
Partial depth repair	Full-depth repair (local)	Cross-stitching/dowelbar retrofit	Slab stabilization/ jacking/underseal
Full-depth repair (local)	Full-depth repair (local)	Cross-stitching/dowelbar retrofit	Both
Cross-stitching/ dowelbar retrofit	Cross-stitching/ dowelbar retrofit	Cross-stitching/dowelbar retrofit	Slab stabilization/ jacking/underseal
Slab stabilization/ jacking/underseal	Both	Slab stabilization/ jacking/underseal	Slab stabilization/ jacking/underseal
PCC/AC overlay	Both	Both	Both
Grinding/grooving	Both	Both	Both
Rehab/reconstruct	Rehab/reconstruct	Rehab/reconstruct	Rehab/reconstruct

Concrete Maintenance Treatment Hierarchy

First Treatment

Second Treatment

Treatment	PCC/AC Overlay	Grinding/Grooving	Rehab/Reconstruct
Do nothing	PCC/AC overlay	Grinding/grooving	Rehab/reconstruct
Crack/joint seal	Both	Both	Rehab/reconstruct
Partial depth repair	Both	Both	Rehab/reconstruct
Full-depth repair (local)	Both	Both	Rehab/reconstruct
Cross-stitching/dowelbar retrofit	Both	Both	Rehab/reconstruct
Slab stabilization/ jacking/underseal	Both	Both	Rehab/reconstruct
PCC/AC overlay	PCC/AC overlay	PCC/AC overlay	Rehab/reconstruct
Grinding/grooving	PCC/AC overlay	Grinding/grooving	Rehab/reconstruct
Rehab/reconstruct	Rehab/reconstruct	Rehab/reconstruct	Rehab/reconstruct