PAVEMENT CONDITION INDEX (PCI)

http://compass.astm.org/EDIT/html_annot.cgi?D5340+12#ap00015

PCC AIRFIELDS. (Taken from ASTM D5340-12, Standard Test Method for Airport Pavement Condition Index Surveys)

Blowup (ASTM D5340-12):

Description—Blowups occur in hot weather, usually at a transverse crack or joint that is not wide enough to permit expansion of the concrete slabs. The insufficient width is usually caused by inflation of incompressible materials into the joint space. When expansion cannot relieve enough pressure, a localized upward movement of the slab edges (buckling) or shattering will occur in the vicinity of the joint. Blowups can also occur at utility cuts and drainage inlets. This type of distress is almost always repaired immediately because of severe damage potential to aircraft. The main reason blowups are included here is for reference when closed sections are being evaluated for reopening.

Severity Levels:

At the present time, no significant research has been conducted to quantify severity levels for blowups. Future research may provide measurement guidelines:

	Difference in Elevation	
	Runways and High-Speed Taxiways	Aprons and Other Taxiways
L	< 1/2 in. (< 13 mm)	1/4 < 1 in. (6 to 25 mm)
M	1/2 to 1 in. (13 to 25 mm)	1 to 2 in. (25 to 51 mm)
H	inoperable	inoperable

Note: The elevations are twice the heights used for settlement/faulting. These are preliminary elevations, and subject to change.

L (Low)—Buckling or shattering has not rendered the pavement inoperable, and only a slight amount of roughness exists.
M (Medium)—Buckling or shattering has not rendered the pavement inoperable, but a significant amount of roughness exists.
H (High)—Buckling or shattering has rendered the pavement inoperable.
For the pavement to be considered operational, all foreign material caused by the blowup must have been removed.

How to Count:

A blowup usually occurs at a transverse crack or joint. At a crack, it is counted as being in one slab, but at a joint, two slabs are affected and the distress should be recorded as occurring in two slabs.
Record a blowup on a slab only if the distress is evident on that slab. Severity may be different on adjacent slabs. If blowup has been repaired by patching, establish severity by determining the difference in elevation between the two slabs.

Corner Break (ASTM D5340-12):

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.

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

How to Count:
A distress slab is recorded as one slab if it contains a single corner break, contains more than one break of a particular severity, or contains two or more breaks of different severities. For two or more breaks, the highest level of severity should be recorded. For example, a slab containing both light and medium-severity corner breaks should be counted as one slab with a medium corner break. Crack widths should be measured between vertical walls, not in spalled areas of the crack.
If the corner break is faulted 1/8 in. (3 mm) or more, increase severity to the next higher level. If the corner is faulted more than 1/2 in. (13 mm), rate the corner break at high severity. If faulting in corner is incidental to faulting in the slab, rate faulting separately.
The angle of crack into the slab is usually not evident at low severity. Unless the crack angle can be determined, to differentiate between the corner break and corner spall, use the following criteria. If the crack intersects both joints more than 2 ft (600 mm) from the corner, it is a corner break. If it is less than 2 ft, unless you can verify the crack is vertical, call it a spall.

Longitudinal, Transverse, and Diagonal Cracks (ASTM D5340-12):
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.

Severity Levels:

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

How to Count:
Once the severity has been identified, the distress is recorded as one slab. If the slab is divided into four or more pieces by cracks, refer to the distress type Shattered Slab.
Cracks used to define and rate corner breaks, "D" cracks, patches, shrinkage cracks, and spalls are not recorded as L/T/D cracks.

Durability ("D") Cracking (ASTM D5340-12):
Description—Durability cracking is caused by the concrete's inability to withstand environmental factors, such as freeze-thaw cycles. It usually appears as a pattern of cracks running parallel to a joint or linear crack. A dark coloring can usually be seen around the fine durability cracks. This type of cracking may eventually lead to disintegration of the concrete within 1 to 2 ft (0.3 to 0.6 m) of the joint or crack.

Severity Levels:
L—"D" cracking is defined by hairline cracks occurring in a limited area of the slab, such as one or two corners or along one joint. Little or no disintegration has occurred. No FOD potential.
M—"D" cracking has developed over a considerable amount of slab area with little or no disintegration or FOD potential; or "D" cracking has occurred in a limited area of the slab, such as one or two corners or along one joint, but pieces are missing and disintegration has occurred. Some FOD potential.
H—"D" cracking has developed over a considerable amount of slab area with disintegration or FOD potential.

How to Count—When the distress is located and rated at one severity, it is counted as one slab. If more than one severity level is found, the slab is counted as having the higher severity distress. For example, if low- and medium-durability cracking are located on one slab, the slab is counted as having medium only. If "D" cracking is counted, scaling on the same slab should not be recorded.

Joint Seal Damage (ASTM D5340-12):
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:

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

How to Count:
Joint seal damage is not counted on a slab-by-slab basis, but is rated based on the overall condition of the sealant in the sample unit.
Joint sealer is in satisfactory condition if it prevents entry of water into the joint, it has some elasticity, and if there is no vegetation growing between the sealer and joint face.
Premolded sealer is rated using the same criteria as above except as follows: (1) premolded sealer must be elastic and must be firmly pressed against the joint walls; and (2) premolded sealer must be below the joint edge. If it extends above the surface, it can be caught by moving equipment such as snow plows or brooms and be pulled out of the joint. Premolded sealer is recorded at low severity if any part is visible above joint edge. It is at medium severity if 10 % or more of the length is above joint edge or if any part is more than 1/2 in. (12 mm) above joint edge. It is at high severity if 20 % or more is above joint edge or if any part is more than 1 in. (25 mm) above joint edge, or if 10 % or more is missing.

Rate joint sealer by joint segment. Sample unit rating is the same as the most severe rating held by at least 20 % of segments rated.
Rate only the left and upstation joints along sample unit boundaries.
In rating oxidation, do not rate on appearance. Rate on resilience. Some joint sealer will have a very dull surface, and may even show surface cracks in the oxidized layer. If the sealer is performing satisfactorily and has good characteristics beneath the surface, it is satisfactory.

Patching, Small (Less Than 5 ft2 (0.5 m2)) (ASTM D5340-12):
Description—A patch is an area where the original pavement has been removed and replaced by a filler material. For condition evaluation, patching is divided into two types: small (less than 5 ft2 (0.5 m2)) and large (over 5 ft2). Large patches are described in the next section.

Severity Levels:
L—Patch is functioning well with little or no deterioration.
M—Patch that has deterioration or moderate spalling, or both, can be seen around the edges. Patch material can be dislodged with considerable effort (minor FOD potential).
H—Patch deterioration, either by spalling around the patch or cracking within the patch, to a state that warrants replacement.

How to Count:
If one or more small patches having the same severity level are located in a slab, it is counted as one slab containing that distress. If more than one severity level occurs, it is counted as one slab with the higher severity level being recorded.
If a crack is repaired by a narrow patch (that is, 4 to 10 in. (102 to 254 mm) wide), only the crack and not the patch should be recorded at the appropriate severity level.

Patching, Large (Over 5 ft2 (0.5 m2)) and Utility Cut (ASTM D5340-12):
Description—Patching is the same as defined in the previous section. A utility cut is a patch that has replaced the original pavement because of placement of underground utilities. The severity levels of a utility cut are the same as those for regular patching.

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

Popouts (ASTM D5340-12):
Description—A popout is a small piece of pavement that breaks loose from the surface due to freeze-thaw action in combination with expansive aggregates. Popouts usually range from approximately 1 to 4 in. (25 to 100 mm) in diameter and from 1/2 to 2 in. (13 to 51 mm) deep.

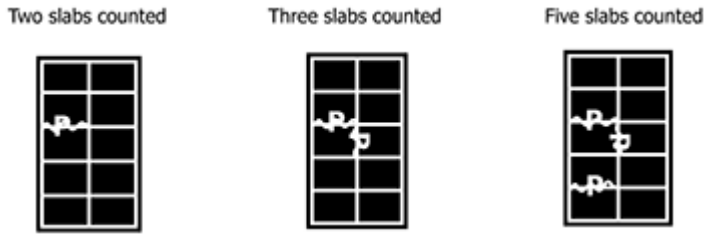
Severity Levels—No degrees of severity are defined for popouts. However, popouts must be extensive before they are counted as a distress; that is, average popout density must exceed approximately three popouts per square yard (per square metre) over the entire slab area.

How to Count—The density of the distress must be measured. If there is any doubt about the average being greater than three popouts per square yard (per square metre), at least three random 1-yd2 (1-m2) areas should be checked. When the average is greater than this density, the slab is counted.

Pumping (ASTM D5340-12):
Description—Pumping is the ejection of material by water through joints or cracks caused by deflection of the slab under passing loads. As water is ejected, it carries particles of gravel, sand, clay, or silt resulting in a progressive loss of pavement support. Surface staining and base or subgrade material on the pavement close to joints or cracks are evidence of pumping. Pumping near joints indicates poor joint sealer and loss of support, which will lead to cracking under repeated loads. The joint seal must be identified as defective before pumping can be said to exist. Pumping can occur at cracks as well as joints.

Severity Levels—No degrees of severity are defined. It is sufficient to indicate that pumping exists.

How to Count—Slabs are counted as follows: one pumping joint between two slabs is counted as two slabs. However, if the remaining joints around the slab are also pumping, one slab is added per additional pumping joint.



Slab Counting Procedure for Distresses

Scaling (ASTM D5340-12):
Description—Surface deterioration caused by construction defects, material defects and environmental factors. Generally scaling is exhibited by delamination or disintegration of paste on the slab surface to the depth of the defect. Construction defects include: over-finishing, addition of water to the pavement surface during finishing, lack of curing, attempted surface repairs of fresh concrete with mortar. Generally this occurs over a portion of a slab. Material defects include: inadequate air entrainment for the climate. Generally this occurs over several slabs that were affected by the concrete batches. Environmental factors: freezing of concrete before adequate strength gained or thermal cycles from certain aircraft. Generally over a large area for freezing, and isolated areas for thermal effects. Typically, the FOD from scaling is removed by sweeping, but the concrete will continue to scale until the affected depth is removed or expended.

Severity Levels:
L—Minimal loss of surface paste that poses no FOD hazard, limited to less than 1% of the slab area. No FOD potential.
M—The loss of surface paste that poses some FOD potential including isolated fragments of loose mortar, exposure of the sides of coarse aggregate (Less than 1/4 of the width of coarse aggregate), or evidence of coarse aggregate coming loose from the surface. Surface paste loss is greater than 1% of the slab area but less than 10%.
H—High severity is associated with low durability concrete that will continue to pose a high FOD hazard; normally the layer of surface mortar is observable at the perimeter of the scaled area, and is likely to continue to delaminate or disintegrate due to environmental or other factors. Routine sweeping is not sufficient to avoid FOD issues, is an indication that high FOD hazard is present. Surface paste loss is greater than 10% of the slab area.

How to Count—If two or more levels of severity exist on a slab, the slab is counted as one slab having the maximum level of severity. For example, if both low-severity crazing and medium scaling exist on one slab, the slab is counted as one slab containing medium scaling. If “D” cracking is counted, scaling is not counted.

Settlement or Faulting (ASTM D5340-12):
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	< 1/4 in. (6 mm)	1/8 < 1/2 in. (3 to 13 mm)
M	1/4 to 1/2 in. (6 to 13 mm)	1/2 to 1 in. (13 to 25 mm)
H	> 1/2 in. (13 mm)	> 1 in. (25 mm)

How to Count:
In counting settlement, a fault between two slabs is counted as one slab. A straightedge or level should be used to aid in measuring the difference in elevation between the two slabs.
Construction-induced elevation differential is not rated in PCI procedures. Where construction differential exists, it can often be identified by the way the high side of the joint was rolled down by finishers (usually within 6 in. (150 mm) of the joint) to meet the low-slab elevation.

Shattered Slab/Intersecting Cracks (ASTM D5340-12):
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.

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

How to Count—No other distress such as scaling, spalling, or durability cracking should be recorded if the slab is medium- or high-severity level since the severity of this distress would affect the slab's rating substantially. Shrinkage cracks should not be counted in determining whether or not the slab is broken into four or more pieces.

Shrinkage Cracking (ASTM D5340-12):
Description—Shrinkage cracking is typically categorized in two forms; drying shrinkage that occurs over time as moisture leaves the pavement and plastic shrinkage that occurs shortly after the pavement is placed and rapid drying of the surface occurs while the pavement is still plastic. Drying shrinkage cracks occur when a hardened pavement continues to shrink as excess water not needed for cement hydration evaporates. They form when subsurface resistance to the shrinkage is present and may extend through the entire depth of the slab. Plastic shrinkage occurs when there is a rapid loss of water in the surface of a recently placed pavement caused by evaporation. High winds, low humidity, and/or high ambient and/or concrete temperatures are contributing factors to evaporation. These cracks can appear as a series of parallel cracks, usually 1 to 3 feet (.3 to .9 meters) apart and do not extend very deep into the pavement's surface. Another form of plastic shrinkage occurs while a pavement is still plastic and can result from overfinishing/overworking the pavement during construction or finishing the pavement while bleed water is on the surface. This results in an increase in mortar and fines and higher water content at the surface, making the immediate surface weak and susceptible to shrinkage. These shrinkage cracks appear as a series of inter-connected hairline cracks, or pattern cracking, and are often

observed over a majority of the slab surface. This condition is also referred to as map cracking or crazing.

Severity Levels—No degrees of severity are defined. It is sufficient to indicate that shrinkage cracking exists.

How to Count—If one or more shrinkage cracks or area of pattern cracking (map cracking) exist on one particular slab, and a FOD hazard or potential is not present, the slab is counted as one slab with shrinkage cracking.

Spalling (Transverse and Longitudinal Joint) (ASTM D5340-12):
Description—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.

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

How to Count—If the joint spall is located along the edge of one slab, it is counted as one slab with joint spalling. If spalling is located on more than one edge of the same slab, the edge having the highest severity is counted and recorded as one slab. Joint spalling can also occur along the edges of two adjacent slabs. If this is the case, each slab is counted as having joint spalling. If a joint spall is small enough, less than 3 in. (76 mm) wide, to be filled during a joint seal repair, it should not be recorded.
Note: If less than 2 ft (0.6 m) of the joint is lightly frayed, the spall should not be counted.

Spalling (Corner) (ASTM D5340-12):
Description—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.

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

How to Count:
If one or more corner spalls having the same severity level are located in a slab, the slab is counted as one slab with corner spalling. If more than one severity level occurs, it is counted as one slab having the higher severity level.
A corner spall smaller than 3 in. (76 mm) wide, measured from the edge of the slab, and filled with sealant is not recorded.

Alkali Silica Reaction (ASR) (ASTM D5340-12):
Description—ASR is caused by chemical reaction between alkalis and certain reactive silica minerals which form a gel. The gel absorbs water, causing expansion which may damage the concrete and adjacent structures. Alkalis are most often introduced by the portland cement within the pavement. ASR cracking may be accelerated by chemical pavement deicers. Visual indicators that ASR may be present include:
(1) Cracking of the concrete pavement (often in a map pattern)
(2) White, brown, gray or other colored gel or staining may be present at the crack surface
(3) Aggregate popouts
(4) Increase in concrete volume (expansion) that may result in distortion of adjacent or integral structures or physical elements. Examples of expansion include shoving of asphalt pavements, light can tilting, slab faulting, joint misalignment, and extrusion of joint seals or expansion joint fillers.
Because ASR is material-dependent, ASR is generally present throughout the pavement section. Coring and concrete petrographic analysis is the only definitive method to confirm the presence of ASR. The following should be kept in mind when identifying the presence of ASR through visual inspection:
(1) Generally ASR distresses are not observed in the first few years after construction. In contrast, plastic shrinkage cracking can occur the day of construction and is apparent within the first year.
(2) ASR is differentiated from D-Cracking by the presence of cracking perpendicular to the joint face. D-Cracking predominantly develops as a series of parallel cracks to joint faces and linear cracking within the slab.
(3) ASR is differentiated from Map Cracking/Scaling by the presence of visual signs of expansion.

Severity Levels:
L—Minimal to no FOD potential from cracks, joints or ASR-related popouts; cracks at the surface are tight (predominantly 1.0 mm or less). Little to no evidence of movement in pavement or surrounding structures or elements.

M—Some FOD potential; but increased sweeping or other FOD removal methods may be required. May be evidence of slab movement or some damage (or both) to adjacent structures or elements. Medium ASR distress is differentiated from low by having one or more of the following: increased FOD potential, crack density increases, some fragments along cracks or at crack intersections present, surface popouts of concrete may occur, pattern of wider cracks (predominantly 1.0 mm or wider) that may be subdivided by tighter cracks.

H—One or both of the following exist: (1) Loose or missing concrete fragments and poses high FOD potential, (2) Slab surface integrity and function significantly degraded and pavement requires immediate repairs; may also require repairs to adjacent structures or elements.