

TYPICAL ASPHALT-SURFACED PAVEMENT DISTRESSES

Following is a description of the most frequently observed asphalt-surfaced pavement distresses, excluding patching, at the evaluated Louisiana airports.



ALLIGATOR CRACKING

Alligator cracking is a load-related distress caused by excessive tensile strains at the bottom of the AC layer or stabilized AC base layer from

repeated aircraft loadings. It typically shows up on the surface as a series of parallel cracks, which eventually interconnect to form a pattern resembling alligator skin.



LONGITUDINAL AND TRANSVERSE (L&T) CRACKING

L&T cracking can be caused by any of the following: 1) separation of pavement at paving lane joints, 2) shrinkage

of AC pavement due to temperature differentials in older or brittle pavements, or 3) reflection cracking from underlying existing cracking in overlaid pavements.



BLOCK CRACKING

Block cracks are interconnected cracks that divide the pavement into approximately rectangular pieces. Block cracking is mainly caused by shrinkage of the asphalt concrete and daily

temperature cycling. It is not load associated. The occurrence of block cracking usually indicates that the asphalt has hardened significantly, and normally occurs over a large portion of pavement area.



RAVELING

Raveling occurs as the coarse aggregate begins to dislodge and produce loose pieces of material, or foreign object debris (FOD).



DEPRESSION

A depression is a pavement surface area that has an elevation slightly lower than that of the surrounding pavement. It can be caused by settlement of the underlying base layers or

soils and is often found in areas where insufficient drainage capacity exists and soils are weakened due to water penetration or where underlying layers were not compacted enough during construction.



SWELLING

Swelling is characterized by an upward bulge in the pavement's surface. A swell may occur as a sharp upheaval over a small area or as a gradual change in elevation over a larger area.

Swelling is usually caused by expansive soils. Additionally, a swell can occur in the surface of an asphalt overlay (over PCC) as a result of a blowup in the underlying PCC slab.

TYPICAL PCC PAVEMENT DISTRESSES

Following is a description of the most frequently observed PCC pavement distresses, excluding patching, at the evaluated Louisiana airports.



CORNER BREAK

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.

The crack defining a corner break extends through the entire thickness of the slab. Corner breaks are usually caused by loss of underlying pavement support in the corner and/or curling stresses in the PCC slab.



LTD CRACKING

Longitudinal, transverse, and diagonal (LTD) cracking divides the slab into two or three pieces and are usually caused by a combination of load repetition, curling

stresses, and shrinkage stresses. 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.



FAULTING

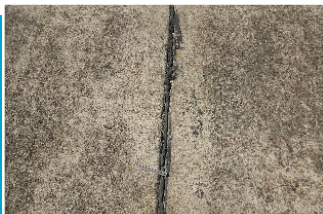
Faulting or settlement is identified by a difference of elevation at a joint or crack due to upheaval or consolidation of the underlying layers. Instability

in load transfer mechanisms, loss of support from underlying layers, or expansive soils in the subgrade are common causes of this type of distress.



SHATTERED SLAB

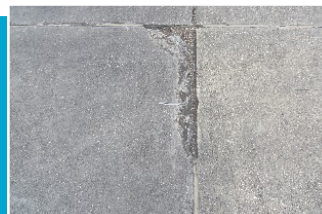
A shattered slab is a PCC slab that is divided into four or more pieces by intersecting cracks. Shattered slabs are typically the result of overloading, inadequate support, or both.



JOINT SEAL DAMAGE

Joint sealant damage is any joint seal condition that allows soil or rocks to accumulate in the joints or infiltration of water.

Stripping of joint sealant, extrusion of joint sealant, vegetation growth, hardening (oxidation) of the filler, loss of bond with the slab edges, and lack or absence of sealant in the joint are all typical forms of joint seal damage.



SPALLING

Spalling, in PCC pavement, is the breakdown of the slab edges in close proximity to the slab joint. Spalling is identified as occurring in the corner or along the

joint of a PCC slab. Spalling is typically caused by the introduction of incompressible material in the joint, weaker pavement at the joint caused by overworking of the pavement during construction, traffic loading, or a combination of these.