



RATINGS + DISTRESSES

SURFACE DISTRESSES

PATCHES AND SEALING

A **patch** is an area of pavement that has been removed and replaced with new material. A patch is considered a defect no matter how well it performs.

Sealed cracks are locations where individual pavement cracks were filled to prevent any further damage to the road surface. The reported average performance life of crack sealant ranges from about 3-8 years.



Surface distresses can be caused by material quality, weather conditions, traffic intensity, or age. RoadWay identifies three main types:



TRANSVERSE AND LONGITUDINAL CRACKING

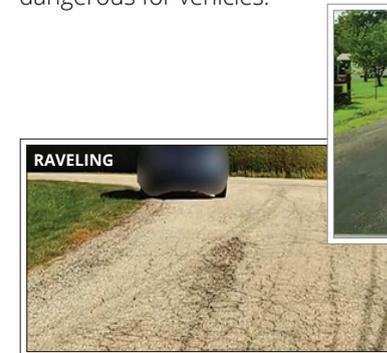
Longitudinal cracks are formed parallel to the pavement centerline. Longitudinal cracks can occur on both asphalt and concrete pavements. They indicate the onset of alligator cracks (in the case of asphalt pavements) and possible structural failure.

Transverse cracks are unconnected cracks that run across a pavement, perpendicular to the direction of the road. They are also known as intralaminar cracks or thermal cracks. Transverse cracks can occur on both asphalt and concrete pavements.

SURFACE DETERIORATIONS

Bleeding is the movement of the asphalt binder in the asphalt pavement to its surface. A thin shiny and reflective film of asphalt binder is formed reducing skid resistance and affecting the visibility of the road. Typically the binder is almost in liquid form. Bleeding is also referred to as flushing.

Raveling is the disintegration of an asphalt road surface due to the dislodgement of the aggregate materials (gravel, sand, and crushed stone). It reduces skid resistance, makes the road surface rough, and exposes the layers underneath to further deterioration. It also results in loose gravel that can be dangerous for vehicles.



RATINGS

Roadbotics' artificial intelligence assesses your roads based on the presence, quantity, and severity of distresses. After identifying the distresses in an image, our algorithms automatically generate a 1-5 score (1=high quality, 5=very poor quality) for that approximate 10-foot (3-meter) section of road.

1-5 Color Ratings

RATING 1 No or minor surface distress

RATING 2 Minor surface damage, no critical issues

RATING 3 Appearance of pervasive distresses

RATING 4 Significant damage or emerging critical failures

RATING 5 Major surface damage and/or critical fatigue issues

HD-PCI Rating Scale

RoadBotics also generates the high-definition pavement condition index (HD-PCI) ratings for all of your road network segments.



FATIGUE CRACKING

Alligator cracks are a form of interconnected cracks that commonly occur on asphalt pavements. They are called alligator cracks as the cracking pattern resembles the scales of an alligator.

Edge cracks are continuous cracks located within 2 feet of the pavement edge and typically occur along unpaved shoulders. As cracks worsen, they start from the edge and spread towards the center. Severe edge cracks tend to look like alligator cracks, however, note that they have a crescent-shaped pattern.



FATIGUE DISTRESSES

Fatigue distresses are typically caused by underlying issues like soil or water. RoadWay identifies three main types:



POTHOLES

Potholes are depressions or hollows of various sizes in the road surface. Potholes occur when a small failure in the pavement is left unrepaired.

PAVEMENT DISTORTIONS

Rutting is a linear, surface depression formed on the road along the wheel path. Ruts, due to their shape, hold water and can cause hydroplaning, leading to safety problems. Severe ruts can lock vehicles in the rutted path and create difficulties for drivers from steering out of them (e.g. when trying to switch lanes). Rutting can occur on asphalt, gravel, and dirt roads.

Shoving is the deflection and bulging of the road surface due to traffic loads. Typically, it occurs parallel to the direction of traffic.

