

## CRACK SEALING

### Why do pavements crack?

Pavements crack in many ways and for a variety of reasons, however, the majority fall into one of the following categories:



#### Block

Age hardening of the asphalt, coupled with shrinkage during cold weather forms regular blocks of cracks.



#### Transverse

These occur perpendicular to the centreline of the pavement and happen when the shrinkage exceeds the tensile strength of the asphalt.



#### Longitudinal

Caused by thermal stress combined with traffic loading. Usually along joints and travel lanes where hot mix density is lower and voids are higher.



#### Reflective

These are caused by other cracks, joints or voids propagating up through an overlay.

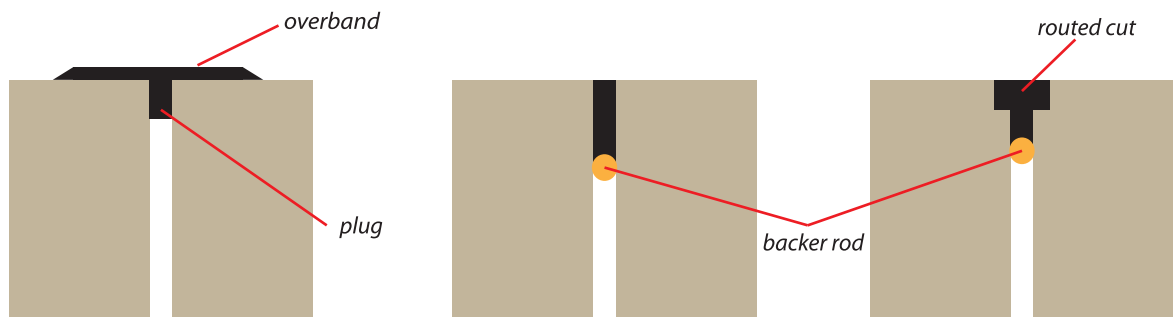
In most cases these cracks start as very small fractures, but quickly widen and multiply as water and incompressible debris ingress into the pavement. This leads to delaminating of the overlay and or the eroding of the sub base. Eventually more stress points will form resulting in continued cracking.

While the initial causes of cracking are difficult to prevent (with the exception of reflective cracking), cleaning the crack and treating it with a waterproof seal is the best solution to minimise further deterioration of the pavement.

### What is crack sealing?

Crack Sealing is the process of creating a flexible, waterproof seal, in and over a crack or joint. This stops water and road debris from entering into the pavement and continuing to open the crack and further erode the sub base. The material used is a hot-applied polymer modified bituminous sealant that has rubber compounds mixed into it to provide flexibility, allowing for expansion and contraction of the pavement.

The three most common types of crack sealing are :



#### Overband

Overbanding is the most common, and cost effective, method used. A 2mm thick band, 50mm wide, is screeded over the crack. While the band provides a large surface area for adhesion, a small amount of material falls into the crack creating a water proof seal.

#### Flush Fill

Flush filling is often used where there are very wide cracks (> 25mm) or on joints between concrete slabs. This treatment is commonly used before an overlay to prevent reflective cracking. In some instances a backer rod is used to avoid excessive sealant use.

#### Route & Seal

Route and seal is best suited to working cracks where further movement is expected. A routing machine is used to cut a reservoir into the pavement. When filled, the increased surface area and larger material volume gives the seal greater flexibility. A backer rod may be used in very deep cracks to minimise material wastage.