Guide to the Visual Assessment of Pavements

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The *Guide to the Visual Assessment of Pavements* is provided as a pocket resource to assist in identifying:

- pavement failures
- possible causes and modes of pavement failures

The following factors may also have a bearing on the failings of the pavement:

- geology, topography and climate
- road geometry and cross-section
- site constraints
- drainage
- underground services
- inspection of sprayed seals
Completing an assessment?

Don’t forget:

- Defect mapping template booklet
- Measuring wheel
- Straight edge
- Smart level
- Wedge (to measure ruts)
- Tape measure
- Camera
- Pencils

Work Safe, Home Safe
Out on site?
Consider the following:

- Project/site safety plan
- Risk assessments
- Work method statements
- Safety equipment
- PPE for day/night
- Traffic control crew
- Approval from relevant Region
- Approved traffic management plans
- Traffic management centre notifications
- Induction/tool box talk
- Stop, Think, Go behaviours
In this guide, pavement failures will be categorised as ‘cracks’ and ‘other defects.’

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Bituminous surfaces

Block cracks (CB)

Ladder cracks
Interconnected cracks forming a series of blocks, approximately rectangular in shape, typically distributed over a large area of pavement.

Cell sizes are usually greater than 200 mm and can exceed 3000 mm.

Assessment Criteria
- Predominant width of crack (mm)
- Predominant cell width (mm)
- Area affected (m²)

Possible causes
- Reflection from underlying joints
- Shrinkage or fatigue of underlying cemented materials
- Ageing and hardening of bituminous surfacing
Shear cracks
Crescent or half moon shaped, cracks commonly associated with shoving, often occurring in closely spaced, parallel group. Most commonly associated with asphalt surfacing.

Assessment Criteria
- Predominant width of cracks (mm)
- Area affected (m²)

Possible causes
- Poor bond between wearing course and underlying layers. Low modulus base courses
- Inadequate thickness of wearing course
- Dragging of asphalt under paver screed during laying, especially at low temperatures
- High stresses due to braking and acceleration movements
**Crocodile crack (CR)**

**Alligator, chicken wire**
Interconnected cracks forming a series of small polygons resembling crocodile skin.

Often confined to wheelpaths.

May have a noticeable longitudinal grain.

Usually signifies the surfacing has reached the end of its design life.

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**Assessment Criteria**
- Predominant width of crack (mm)
- Area affected (m²)

**Possible causes**
- Inadequate pavement thickness
- Fatigue-induced structural cracking
- Inadequate quality of pavement or surfacing materials (e.g. cemented, brittle, aged)
- Lack of compaction in asphalt or cementitious layers
Diagonal crack (CD)

An unconnected crack running diagonally across the pavement.

Assessment Criteria
- Predominant width of crack (mm)
- Length (m)
- Area affected (m²)

Possible causes
- Reflection of a shrinkage crack or joint in an underlying cemented material
- Differential settlements between embankments, cuts or underground service structures
- Construction joint or age hardening of bitumen
- Intrusion of tree roots
Longitudinal crack (CL)

Crack running longitudinally along the pavement. Can occur individually or as series of parallel or echelon cracks. Some limited branching may occur. Often first type of cracking initiated in a wheelpath or rut.

Assessment Criteria

- Width of dominant crack (mm)
- Length of dominant crack (m)
- Spacing (mm)
- Area affected (m²)

Possible causes

Occurring individually

- Reflection of a shrinkage crack or joint in an underlying cemented base
- Poorly constructed joint in asphalt surfacing
- Reflection of joints associated with road widening
- Displacement of joint at pavement widening
Occurring as a series of almost parallel cracks

• Volume change of expansive clay subgrade
• Cyclical weakening of pavement edge
• Differential settlement between cut and fill
• Reflection of cracks in underlying cemented sub-base
**Meandering crack (CM)**

Unconnected irregular crack, varying in direction. Usually occurs individually.

**Assessment Criteria**

- Predominant width of crack (mm)
- Length of crack (m)
- Area affected (m²)

**Possible causes**

- Reflection of a shrinkage crack from bound base
- Settlements associated with underground service or a structure, embankments, or excessive slab length
- Intrusion of tree roots or moisture in pavement formation
- Inadequate slab thickness, unstable or slab settlement
Transverse crack (CT)

Unconnected crack running transversely across the pavement.

Assessment Criteria
- Predominant crack width (mm)
- Spacing (mm)
- Length (m)
- Area affected (m²)

Possible causes
- Reflection of a shrinkage crack or joint in an underlying cemented base
- Construction joint or shrinkage crack (due to low temperature or bitumen hardening) in asphalt surfacing
- Structural failure of cement concrete base
- Settlement due to underground service or structure
- Intrusion of tree roots into pavement formation
**Bituminous surfaces**

**Corrugations (DC)**

Ripples – transverse undulations in the pavement surface or base, closely and regularly spaced, with wavelength ranging between 0.3 m and 2 m.

**Assessment Criteria**
- Maximum depth under 1.2 m straight edge (mm)
- Crest to crest spacing (mm)
- Length of pavement affected (m)

**Possible causes**
- Inadequate material quality to resist heavy vehicle loading
- Local failure in the pavement
- Defective work practice e.g. irregular compaction
- Poor bonding between layers
Delamination (SD)

Peeling, surface lifting, seal break – loss of a discrete section of wearing course layer. Usually, there is a clear delineation of the wearing course and the layer below.

Assessment Criteria
- Thickness of layer(s) removed (mm)
- Area (typical) of individual defects (m²)
- Number of defects

Possible causes
- Inadequate sweeping or tack coat before placement of upper layers
- Seepage of water through cracks in asphalt layer, resulting in breaking of bond between surface and lower layers
- Weak, loose layer immediately underlying seal
- Adhesion of surface binder to vehicle tyres
- Inadequate thickness of asphalt layer
Bituminous surfaces

Defects

Depressions (DD)

Irregular depressions and bulges in the pavement surface.

Assessment Criteria
- Maximum depth under 1.2 m straight edge (mm)
- Area of depression (m²)

Possible causes
- Moisture movement, especially in expansive clay subgrade
- Inadequate drainage
- Inadequate compaction, particularly of base material
- Inadequate quality of pavement materials
- Settlement of trench backfill due to poor compaction or softening caused by leakage from services
Edge Break (EB)

Along the edge of the bituminous surface where unsealed shoulder is and below the level of pavement, resulting in abrasion and shear failure of pavement edge; fretted, broken or irregular.

Assessment Criteria
- Maximum width of surfacing loss (mm)
- Length over which break occurs (m)

Possible causes
- Inadequate pavement width or road alignment which encourages drivers to traffic the pavement edge
- Omission of a shoulder resheet following pavement overlay
- Erosion of shoulder by wind and/or water
- Growth of vegetation at the edge of the seal
Edge Drop-off (ED)

The vertical distance from the surface of the seal at the edge to the surface of the shoulder. Not usually considered a defect if the drop-off is less than 10 to 15 mm.

Assessment Criteria
- Height of drop (mm)
- Length affected (m)

Possible causes
- Inadequate pavement width or road alignment causing vehicles to traffic the pavement edge
- Omission of a shoulder resheet following pavement overlay
- Erosion of shoulder by wind and/or water
- Growth of vegetation at the edge of the seal
Flushed (SF)

Bleeding, fatty, slick, black spot – immersion, partially or completely, of the aggregate into the bituminous binder, causing low texture depth and inadequate tyre-to-stone contact. A potential safety concern due to loss of skid resistance.

Assessment Criteria
- Area affected (m²)
- Percentage (by area) stone immersed (%) 

Possible causes
- Excessive application rate of binder, with respect to stone size and flushing in a previous surfacing
- Excessive prime coat being incorporated into the seal
- Excess binder in underlying surface (patch or flushed area), or oil and fuel spillage
- Penetration of aggregate into base (low strength base)
- Primer seal covered before volatiles in primer binder have evaporated
Patch (PA)

An area of pavement surface where the original has been replaced.

**Expedient patches (PE)** are identified as irregularly sided, usually small patches (a few square metres or less).

**Reconstruction patches (PR)** are usually straight sided.

**Assessment Criteria**
- Area of individual patch (m²)
- Number of patches in area under consideration

**Possible causes of expedient patches (PE)**
- Inadequate compaction may lead to further deformation and distress
- Repair of surface deficiencies

**Possible causes of reconstruction patches (PR)**
- Reconstruction of pavement deficiencies, within surface course, pavement or subgrade
- Excavation for services
Polishing (SP)

Smoothing and rounding of the upper surface of a sealing aggregate, usually occurs in the wheel tracks.
Identified by relative appearance and feel of trafficked and untrafficked areas.
Polished areas will feel relatively smooth and will sometimes be noticeably shiny.
The degree of polishing cannot be quantified by observation.

Assessment Criteria
- Area affected (m²)

Possible causes
- Inadequate resistance to polishing of surface aggregates, particularly in areas of heavy traffic movements, or where high stresses are developed between surface and tyres (e.g. corners, grades)
- Use of naturally smooth uncrushed aggregate (e.g. water-worn gravel)
Bituminous surfaces

Pothole (HO)

A steep sided or bowl shaped cavity extending into layers below the wearing course.

Assessment Criteria
- Depth of pothole (mm)
- Area of pothole (m²)
- Number

Possible causes
- Loss of surface material due to ravelling, stripping and/or delamination
- Moisture entry to base course through a cracked pavement surface
- Load-associated disintegration of base
- Pickup of bitumen wearing surface caused by binder adhesion to tyres
- Poor quality base material
Ravelling (SR)

**Fretting**
Progressive disintegration of the pavement surface by loss of both binder and aggregates.

**Assessment Criteria**
- Area affected (m²)

**Possible causes**
- Deterioration of binder and/or stone or damage by fuel
- Inappropriate asphalt mix or poor mix design
- Inadequate compaction, construction during wet or cold weather
- Use of dirty, dusty or wet aggregates
- Oil and fuel spillages
Rutting (DR)

Longitudinal deformation in a wheelpath.
Length to width ratio - determined using a straight edge laid on the high points - normally greater than 4 : 1.

Assessment Criteria
- Maximum depth (under a transverse 1.2 m straight edge) (mm)
- Length (m)

Possible causes
- Structural overload/inadequate pavement thickness
- Inadequate quality of pavement materials
- Poor quality construction control, particularly compaction and drainage
- Ingress of water into pavement layers
Pumping water is running seepage that emerges from pavement cracks. This pumping water can also carry fines from the base gravel or subgrade. When the running seepage ceases, these fines stain the pavement and are usually named pumping stains.

Assessment Criteria
The severity of this defect cannot be determined by a visual inspection. At a later stage, voids or weak spots may develop within the granular or subgrade layers, as more fines are pumped out. This will affect the pavement strength and integrity. Early intervention and testing is recommended to assess the severity of the issue.

Possible causes
- Leaked water mains that emerge through the pavement cracks
- Surface water that enters/exists the pavement cracks under vehicle loading
- Moisture ingress in the pavement that emerge through the cracks
- Water from cuttings or springs
### Salt blistering (SB)

A formation of white powder, dark black or brown stains on the bituminous surface. It may further develop into cracks or small potholes. This defect is also commonly referred to as an acid reaction defect.

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
<th>(a) Low severity</th>
<th>(b) Medium severity</th>
<th>(c) High severity</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>White powder, dark black or brown stains</td>
<td>Cracks or potholes exposing base gravel; less than 5 m long</td>
<td>Cracks or small potholes that expose the base gravel; more than 5 m long</td>
</tr>
<tr>
<td></td>
<td>Isolated cracks</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Holes in bituminous surface only</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Possible causes:
- Penetrations of acids and salts in either bituminous surface, base, subbase or subgrade
Bulging and horizontal deformation of road surface – generally occurs in areas of high shear stress where braking or acceleration movements occur. Transverse shoving may arise with turning movements.

**Assessment Criteria**
- Maximum depth of bulge under 1.2 m straight edge from high point (mm)
- Area affected (m²)

**Possible causes**
- Inadequate thickness, quality and compaction of pavement materials
- Lack of bond between pavement layers
- Lack of containment/waterproofing of pavement
- Localised softening of asphalt binder due to fuel/oil spillage
Stripping (SS)

**Scabbing, pop-outs**
Loss of bitumen, aggregate or filler from an asphalt layer. Can happen as the loss of individual stones, or as the complete loss of stone within the layer. Stripping can lead to development of potholes.

### Assessment Criteria
- Area affected (m²)
- Percentage of stone throughout affected area (%)

### Possible causes
- Low binder contents
- Poor binder to stone adhesion (dirty or hydrophilic) aggregates, without effective precoating with adhesion agent or wet stone etc.
- Aging or absorption of binder
- Stone deterioration
- Incorrect mix design
- Inadequate rolling before opening the seal to traffic
Concrete surfaces

Block cracks (CB)

Interconnected cracks forming a series of blocks approximately rectangular in shape, commonly distributed over the full pavement. Cell sizes are usually greater than 1 m. The crack pattern may progress from a single or open form to a complete network of interconnected cracks.

Assessment Criteria
- Predominant crack width (mm)
- Predominant cell width (mm)
- Area affected (m²)

Possible causes
- Insufficient slab thickness
- Loss of sub-base or subgrade support
- Subgrade settlement
**Corner crack (CN)**

**Corner break**
A crack extending diagonally from a longitudinal edge to a transverse joint.

**Assessment Criteria**
- Crack width (mm)
- Crack length (m)
- Number of slabs affected

**Possible causes**
- Insufficient slab thickness
- Loss of subgrade or sub-base support
Diagonal crack (CD)

Unconnected crack diagonally across a pavement/slab.

Assessment Criteria
- Crack width (mm)
- Crack length (m)
- Number of slabs affected

Possible causes
- Shrinkage of slab during curing, associated with excess slab lengths or joints sawn too late
- Settlement
- Insufficient slab thickness
- Rocking of slab
Concrete surfaces

**Longitudinal crack (CL)**

**Line crack**
Unconnected crack running longitudinally along the pavement. Can occur individually or as a series of nearly parallel cracks.

**Assessment Criteria**
- Crack width (mm)
- Crack spacing (mm)
- Crack length (m)
- Area affected (m²)

**Possible causes**
- Differential settlement
- Lateral shrinkage associated with excessive slab width
- Longitudinal joint too close to traffic lane
- Longitudinal joint too shallow
- Insufficient slab thickness
Plastic shrinkage crack (CP)

Formed prior to the setting of concrete pavements, cracks typically appear after the finishing of the concrete surface.

Occuring individually or as a series of cracks 50–500 mm spacing. Crack length is usually less than 500 mm.

Located within the slab area; orientation can be transverse or longitudinal.

Crack depth 20–70 mm or mostly less than 50% of total slab depth.

Assessment Criteria
- Crack max width and max depth (mm)
- Crack length (m)
- Number of slab affected

Possible causes
- The shrinkage strains in the concrete exceed the tensile strength during the hydration process
- Slight downhill movement on steeper crossfall or gradient
- In reinforced slabs, cracks may occur due to underlying steel
Meandering crack (CM)

Unconnected, irregularly meandering crack; usually singular.

Assessment Criteria
- Predominant width of crack (mm)
- Crack length (m)
- Number of slabs affected

Possible causes
- Shrinkage of slab during curing associated with excessive slab lengths or joints sawn too late
- Insufficient slab thickness
- Rocking of slab settlement
Transverse crack (CT)

Unconnected crack running transversely across the pavement/slab.

Assessment Criteria
- Crack width (mm)
- Crack spacing (mm)
- Crack length (m)
- Area affected (m²)

Possible causes
- Normal shrinkage
- Shrinkage of slab during curing, associated with contraction joints being sawn too late or excessive slab length
- Rocking
- Insufficient slab thickness
Concrete surfaces

**Edge drop-off (ED)**

Vertical drop from pavement edge to the shoulder.
Not usually considered a defect where the drop is less than 10 mm to 15 mm.

<table>
<thead>
<tr>
<th>Assessment Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height of drop-off (mm)</td>
</tr>
<tr>
<td>Length of edge affected (m)</td>
</tr>
</tbody>
</table>

**Possible causes**

- Inbuilt
- Incorrect road geometry
- Poor shoulder drainage
- Unstable shoulder materials, shoulder wear

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**Defects**
Joint stepping or faulting is a permanent vertical separation of the two slabs on either side of a joint. Faulting may often be accompanied by the pumping of fines from the sub-base/subgrade. Faulting may also occur at the crack.

**Assessment Criteria**
- Difference in elevation 9 mm across the joint or crack
- Number of slabs affected

**Possible causes**
- Inadequate sub-base/subgrade support
- Curling or warping of slabs due to temperature changes
- Rocking of slabs
- Loss of sub-base material owing to pumping
- Moisture movement, especially in expansive clay subgrades
Concrete surfaces

Joint Seal defects (JD)

Loss of seal, joint stripping, joint sealant extrusion – loss and/or cracking of the seal resulting in foreign material in the joints.

Extrusion of sealant leaving mound at joint.

Assessment Criteria
- Percentage (by length) of joint affected

Possible causes
- Ageing and weathering of sealant
- Poor preparation or quality of sealant (e.g. overheating of poured sealant)
- Lack of adhesion of sealant to joint wall
- Poor cyclic tension and compression properties
- Too much sealant in the joint
- Poor shape of sealing joint
- Insufficient sealant in the joint
- Pumping/slab rocking
Repair
An area of slab which has been removed and replaced.

Assessment Criteria
- Area of patch (m²)
- Number of patches (m)

Possible causes
- Correction of surface or structural deficiencies
- Reinstatement after excavation for services
Concrete surfaces

Pothole (HO)

Chuck-hole, punch out
Loss of concrete to a depth in excess of the largest aggregate size. Broken part of a slab, potholes are the result of pavement cracking and disintegration of concrete.

Assessment Criteria
- Depth of hole (mm)
- Area of pothole (m²)
- Number of potholes

Possible causes
- Presence of soft aggregates, clay balls in the mix
- Localised extremely poor quality concrete
- Localised extreme lack of compaction
Pumping water and stains (DP)

Pumping water is running seepage that emerges from pavement cracks. This pumping water can also carry fines from the base gravel or subgrade. When the running seepage ceases, these fines stain the pavement and are usually named pumping stains.

Attributes
The severity of this defect cannot be determined by a visual inspection. At a later stage, voids or weak spots may develop within the granular or subgrade layers, as more fines are pumped out. This will affect the pavement strength and integrity. Early intervention and testing is recommended to assess the severity of the issue.

Possible causes
- Excessive moisture in sub-base (water infiltration through crack or joint or poor subsurface drainage) in combination with a water sensitive sub-base with high fines content.
Rocking is a dynamic phenomenon where there is vertical movement at a joint or crack under traffic, usually due to loss of support caused by pumping, can lead to permanent faulting. The condition is sensitive to subgrade and sub-base moisture conditions.

Assessment Criteria
- Magnitude of movement caused by the passage of a standard axle – cannot usually be quantified.

Possible causes
- Ingress of water and pumping of fines
- Inadequate sub-base/subgrade support
- Differential support under adjacent slabs
**Scaling (SC)**

**Ravelling, disintegration, abrasion, cats heads**
Progressive breakdown of slab surface through loss of mortar, followed by loss of aggregate or loss of aggregate through breakdown, followed by loss of mortar.

**Assessment Criteria**
- Depth of scaling (mm)
- Area affected (m²)

**Possible causes**
- Overworking of the surface during construction
- Abrasion due to traffic
- Inadequate curing and protection of concrete
- Low cement content and/or high water : cement ratio
- Rain-affected surface mortar
Concrete surfaces

Skidding (SK)

Slippery, polished or glassy surface, polished aggregate
Inadequate skid resistance due to surface microtexture or macrotexture, rounded, smooth, polished or glassy appearance.

Assessment Criteria
- Length of road affected (m)

Possible causes
- Naturally polished aggregate
- Spillages, detritus
- Curing compound in microtexture
- Poor construction finishing
- Low-strength mortar worn from surface by traffic
Spalling (LL)

Breakdown or disintegration of slab surface at edges, joints, corners or cracks.

Assessment Criteria
- Maximum depth of spall (mm)
- Length of joint or edge affected (m)

Possible causes
- Infiltration of incompressible materials into joint or crack over working of surface leading to weakened joint edge
- Corrosion of rebars or dowels
- Misalignment of dowels
- Sub-base movement
- Poor quality concrete aggregate
Scour, rills, erosion channel
Steep, irregularly sided, relatively linear feature, commonly in the direction of maximum slope or along a wheelpath.

Assessment Criteria
- Depth of channel (mm)
- Length of road affected (m)

Possible causes
- Concentration of water flows owing to blocked or inadequate road drainage system, rutting and corrugations
- Erodible surfacing materials
Coarse Texture (ST)

Protrusion of very coarse aggregate or rock (particle size usually greater than 75 mm) from the pavement surface, some loose on surface.

Assessment Criteria
- Projection of aggregate, proud of average pavement surface (mm)
- Area affected (m²)

Possible causes
- Attrition or erosion of fines from coarse pavement materials
- Exposure of rock subgrade
Unsealed surfaces

Corrugations (DC)

Ripples
Transverse undulation, closely and regularly spaced with wave lengths less than 1 m.

Assessment Criteria
- Maximum depth under 1.2 m straight edge (mm)
- Crest-to-crest spacing (mm)
- Length of pavement affected (m)

Possible causes
- Inadequate quality of base material for prevailing climatic and traffic conditions. Most common in dry conditions.
Loose materials (SL)

**Bulldust**
Inbound fine or coarse gravel materials on the pavement surface. Can occur as a variable thickness layer (sheet) over the whole surface, or in narrow continuous mounds between wheelpaths or lanes, or between the outer wheel path and table drains.

**Assessment Criteria**
- Thickness of loose material (mm)
- Particle type (dust, sand, gravel).
- Situation, as surface layer (sheet) or mound length of pavement affected

**Possible causes**
- Ravelling of weakly bound pavement materials owing to environment composition (e.g. grading, plasticity) or lack of compaction
- Wind or water transportation of materials onto or away from the roadway surface
Unsealed surfaces

Pothole (HO)

A bowl shaped depression in the pavement. Potholes can have steep or gently sloping sides and be of irregular shape.

Assessment Criteria
- Depth (mm)
- Area of pothole (m²)
- Number of holes

Possible causes
- Ponding of water
- Excessive weakening of pavement by moisture
- Inadequate initial compaction
- Variable quality of paving materials
Rutting (DR)

Longitudinal and relatively smoothly shaped deformation at the wheelpaths. Wet weather ruts tend to be steep sided and reflect the impression of the tyre into the road surface.

Assessment Criteria
- Maximum depth under a 1.2 m straight edge (mm)
- Length of pavement affected (m)

Possible causes
- Inadequate wet strength of subgrade or pavement layer
- Wear by attrition due to traffic or erosion of surface material
- Excessive loose material
- Traffic compaction of pavement or sub-grade
Shoving (DS)

Plastic bulging of pavement surface commonly occurring in association with depression or rutting.

Assessment Criteria
- Depth from high point under a 1.2 m straight edge (mm)
- Area affected (m²)

Possible causes
- Plastic deformation of pavement or subgrade
Visual Index

- reference diagrams and charts to assist in indentifying pavement failures
References

**Visual index: concrete surfaces defects**

Use these diagrams to assist in identifying defects in concrete surfaces.

- **Pothole**
- **Joint seal defect**
- **Longitudinal crack**
- **Meandering crack**
- **Corner crack**
- **Plastic shrinkage crack**
- **Patch**
- **Spalling**
- **Transverse crack**
- **Stepping**
- **Diagonal crack**
Visual index: bituminous surfaces defects - cracks

Use these diagrams to assist in indentifying cracks in bituminous surfaces.

- Meandering
- Transverse
- Longitudinal
- Diagonal

- Block
- Crocodile
- Crescent shaped
Use these diagrams to assist in identifying defects in bituminous surfaces.

Delamination

Polishing

Raveling

Road

Flushing

Stripping

Pothole

Patches

Group of Potholes
Rutting

Shoving

Depression

Corrugation

Edge drop off

Edge break

ROAD
This process is to retain aggregate interlock across joints/cracks, to maximise shear load transfer at concrete joints or cracks, which are considered to have the potential to open under environmental effects and traffic loading.

This process is applicable to joints/cracks which have corroded and for tying kerbs to the pavement.
These photos demonstrate concrete surface longitudinal crack repairs using cross stitching.

Cross stitched crack
The dotted marks are reinforcement bars.

Cross stitching concrete surface repair
For information relating to content printed in this guide
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To obtain copies of this publication please contact the Technical Reference Centre www.tmr.qld.gov.au/trc

The information provided in this resource has been developed as an in-house pocket reference guide for use in training and conducting field investigations. Content is taken from the NAASRA publication, *A guide to the visual assessment of pavement condition, 1987; Austroads Guide to Pavement Technology, Part 5: Pavement evaluation and treatment design, March 2009, 2nd Edition; TMR Pavement Rehabilitation Manual, April 2012; Draft BCC Pavement Rehabilitation Manual, April 2011; Techniques to use on roads by salinity, Australian Stabilisation Industry Association, 2005; Interim Guide to the Maintenance of Concrete Pavements, Road Traffic Authority, 2000; Construction and Material Tips, Part 1 Shrinkage Cracking, Texas Department of Transportation 2006; and Data Sheet: Plastic Shrinkage Cracking, Cement Concrete and Aggregates Australia, 2005.* Photos supplied courtesy of Department of Transport and Main Roads and Austroads. This guide is not an exhaustive reference in identifying all possible pavement defects. For more information refer to the appropriate Department of Transport and Main Roads and Austroads technical publications.