



Transportation System Preservation
Technical Services Program

Pavement Preservation

Pavement Preservation Update

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Pavement Preservation

MTO Preservation Strategies

- Extend the life of the pavement.
- Applied while pavement is still in good condition.
- Maintain the pavement at a high level of service.
 - Crack sealing
 - Microsurfacing
 - Chip Seal
 - Hot mix patching / single lift mill and pave
 - Hot in place Recycling
 - Cold in Place Recycling
 - Dowel bar retrofit, cross stitching, diamond grinding
 - Precast concrete pavement repair



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Crack Sealing

Cost effective preservation treatment typically used to prevent water and debris from entering cracks in the pavement surface.





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Microsurfacing

polymer-modified cold slurry paving system - a mixture of dense-graded aggregate, asphalt emulsion, water and mineral fillers.





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Microsurfacing Design Considerations

- Structurally sound pavements.
- Surface deficiencies (ravelling, oxidation, flushing, polishing).
- Requires surface preparation to address working cracks and localized defects (aggressive sweeping/scraping).
- Dry, warm weather (> 10°C).
- Seals surface
- Restores surface friction
- Rut filling
- Addresses light to moderate flushing
- Quick set - designed to open to traffic





Chip Seals

- Description
 - application of asphalt and aggregate chips rolled onto the pavement
- Purpose
 - seal pavement surface
 - enrich hardened/oxidized asphalt
 - improve surface friction





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Fiber Modified Chip Seal

Description

- a chip seal application incorporating chopped fiberglass strands in the polymer modified emulsion and a covering aggregate layer.
- Purpose
 - Sealing the surface
 - Control reflective cracking





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Hot In-Place Recycling

- The top 35-50 mm of existing pavement is heated and scarified, rejuvenators and/or beneficiating hot mix is added, and the mix is placed.





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HIR Design Considerations

Suitable for pavements exhibiting distresses such as:

- Ravelling and coarse aggregate loss
- Slight to moderate non-working cracks
- Flushing and distortions
- Rutting due to poorly compacted mix
- Weathered, oxidized surfaces

Not suited for pavements:

- Structurally deficient
- Less than 70 mm thick
- Requiring crossfall correction > 1.5 %
- Low in air voids and recovered pen
- Excessively cold patched and crack sealed



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Cold In-Place Recycling

- Cold in-place recycling (CIR) is a pavement rehabilitation method that recycles the existing asphalt surface, adds emulsion, and lays it back down without off-site hauling or processing.
- Cold in-place recycling with Expanded Asphalt (CIREAM) uses expanded (foamed) asphalt instead of emulsion.





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CIR Design Considerations

- Suitable for a wide range of pavement deterioration including:
 - Thermal, fatigue and reflection cracking
 - Rutting due to mix instability
 - Ravelling / coarse aggregate loss
 - Loss of bond between layers
- Requires minimum existing pavement thickness of 100 mm
- Typical treatment depth 75 –125 mm
- Warm, dry weather and curing period required



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Diamond Grinding

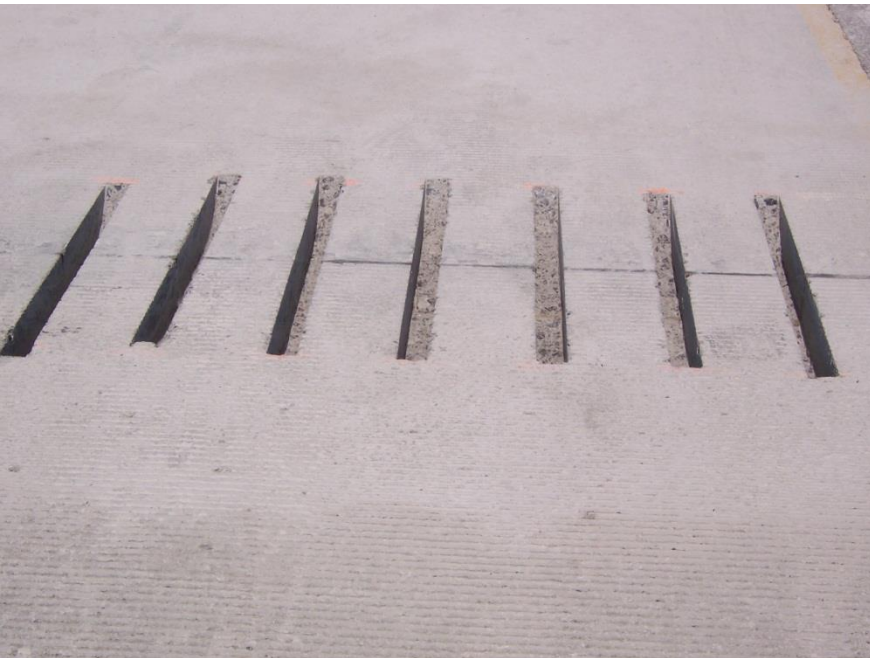




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Dowel Bar Retrofit





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Cross-stitching





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Precast concrete pavement slab repairs





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Thank you!

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