



AUSTROADS



Cold Planing

pavement work tips — no. 5

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Cold planing, or profiling, is controlled milling of pavement surfaces using a revolving drum, having spirally set teeth, incorporated in a heavy self propelled unit. Machines come in various sizes from small machines with 250 mm width of cut, up to large powerful machines of 2.2 m drum width. Most of the larger machines load the milled material directly into trucks.

PRINCIPAL USES

Correcting pavement shape

Taking out ruts, bumps, depressions or other uneven areas of pavement to allow a uniform thickness of new asphalt surface to be placed.

Removing deteriorated asphalt surfacing

Removing old asphalt which is fatty, bleeding, ravelling, cracked or otherwise deteriorated, prior to placing new surface.

Patching

Rapid, neat, removal of pavement materials to controlled depth to expedite pavement patching

Slope and Camber Correction

Changing the slope or crossfall of a pavement.

Edge planing

Removal of asphalt adjacent to kerb and channel or adjoining asphalt surfaces to enable an asphalt overlay to be placed without creating height differences and to produce a smooth riding pavement joint.

Trenching

Cold planing is a quick and efficient process for narrow cuts to take out longitudinal cracks in a pavement or to assist location of services with minimal pavement damage.

Shoulder improvement

Where shoulder materials are to be removed for pavement widening or upgrading, a profiler can remove existing material efficiently with little or no hindrance to existing traffic.

Texturing

Where asphalt resurfacing is to be placed in areas of high shearing stresses, such as roundabouts and intersections, cold planing provides a well textured surface for a strong bond to the new surface. Texturing is also sometimes used on smooth surfaces to improve skid resistance. In such cases, the texture is influenced by set-up of cutting teeth, depth of cut, and machine travel speed.

JOB SITE PROCEDURE

Planning

Determine job requirements — area, depth of cut, etc. and location of services (pit covers and the like).

Choose the right machine for the job. If the machine is too small, extra costs can be incurred in traffic control, asphalt crew waiting time and delays to travelling public. A large machine may not have the manoeuvrability required for small jobs and incur higher machine costs. As a general rule, machines of 500 mm width or less would be limited to jobs of around 1,000 m², machines up to 1 m width to jobs around 2,000 m², and larger jobs best suited to the wider 1.4 to 2.2 m machines.

Determine the owner and disposal of excavated material.

Operation

In addition to manual setting of cutting depth, larger modern machines also provide for automatic control of profile using devices such as stringlines, laser beam, sensing of adjoining pavement or preset onboard computer. Automatic devices should be capable of producing profiled surface levels to a tolerance of ± 5 mm.

Some machines have a further control option of predetermined crossfall from a reference device working from one side of the machine only.

Finishing off

A great deal of cold planing work is done in situations where the excavated area is backfilled with asphalt or other pavement material prior to re-opening to traffic. In some situations the cold planed surface is open to traffic. In such circumstances the following actions are necessary.

Ensure that edges are suitably ramped. Any change in level greater than about 30 mm should have a wedge of asphalt placed so that longitudinal edges have a maximum slope of about 1 in 5, and so that transverse edges have a maximum slope of 1 in 10 on low speed roads, increasing to 1 in 20 for roads with traffic speeds over 75 km/h.

Place suitable signs warning of uneven surface. Planed surfaces can be hazardous to cycles, including motor cycles.

Key Summary

This issue of 'pavement work tips' describes the main uses and techniques involved in cold planing of pavement surfaces

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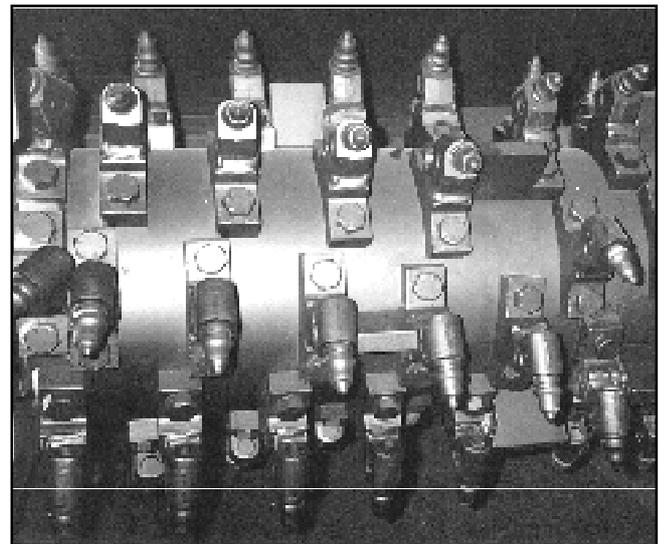


For more information on any of the construction practices discussed in "pavement work tips", please contact either your local AUSTRROADS Pavement Research Group representative or AAPA: tel (03) 9853 3595; fax (03) 9853 3484; e-mail: info@aapa.asn.au

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This edition was prepared by John Rebbechi, in consultation with members of the National Asphalt Research Coordination Group (NARC).



Top: planing freeway surfacing

Centre: (left) planing in suburban street; (right) typical cutting mandrel

Bottom: (left) surface texture; (centre) planing around intersection; (right) planing around service covers

Photos courtesy of Road Services Australia