chipseal compaction using controlled traffic

CHIPSEALING IN NEW ZEALAND
CHAPTER 11: PRACTICE NOTE 1

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Introduction

Using traffic is the most effective way of achieving compaction of the total width of chipseal during the initial set up period (typically up to 48 hours).

This is achieved by:

- progressively moving the traffic across the full width of the new seal
- reducing speeds to between 20km/h and 50km/h.

Compaction achieved through controlled traffic far exceeds the compaction achievable using rollers.

Background

According to *Chipsealing in New Zealand,* section 11.4.1, traffic can be used on site to assist with rolling. Rollers can be used for the initial passes to push the chip into place and then be replaced by traffic.

The management of traffic flows across the width of the seal can continue to bed the chip resulting in a rapid growth in seal strength.

Through this technique early chip loss (as shown below) can be minimised and it allows the use of a chipseal in higher stressed areas.

Moving the traffic across the full width of the new seal

The most effective means of moving traffic across the full width of the new seal is to:

- narrow lane widths by the use of cones
- move these lanes progressively across the full width of the new seal (see diagram on next page).

The frequency at which the traffic is moved back and forward across the seal and the time period this is maintained depends on the traffic volume and the geometry of the site.

Traffic is typically controlled for up to 48 hours after sealing.

This method of compacting should also be used if it rains soon after sealing.

Reducing speeds

The most effective means of reducing speeds over the new seal is to:

- have workers on site
- increase driver awareness of the site by ensuring that there are vehicles with amber flashing lights at all times.

  Note: The lane management used to move traffic across the full width of the new seal also assists with lowering traffic speeds.

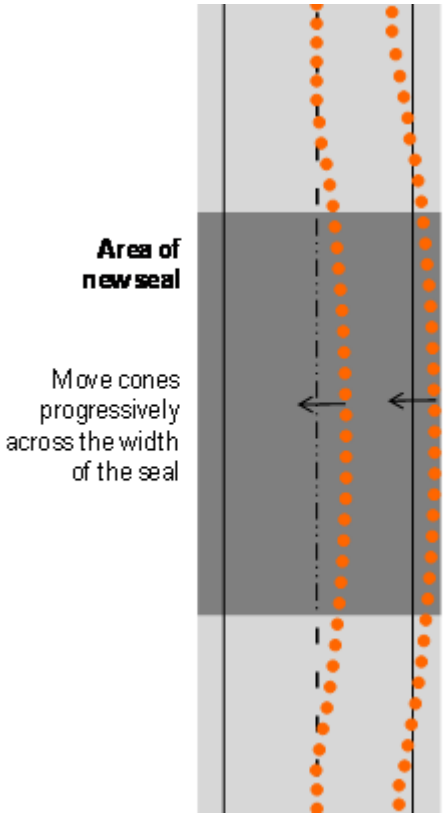
Experience shows that if the vehicles with flashing lights move from the site, the vehicle speeds increase immediately.

Benefits

Using traffic to compact the new seal achieves:

- more effective compaction of the seal
- longer expected seal life
- significant reduction in rework requirements
- significant reduction in customer complaints about flying chips, broken windscreens and bitumen splashes.

The benefits far outweigh the costs.

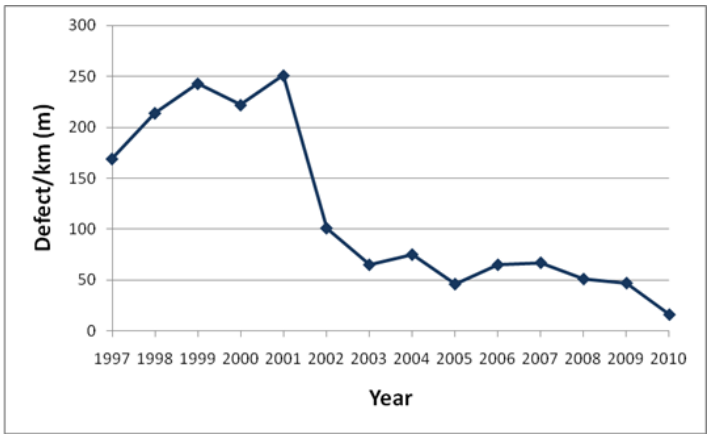


The Whanganui experience

Positive traffic management was introduced in West Whanganui in 2000. Subsequent years show significantly reduced chip loss.

West Whanganui visual condition rating

Length of scabbing per km



Using traffic to compact the new seal for a period following chipsealing has been proven to reduce the chipseal defects of scabbing and stripping by approximately 65%.

This has had major financial benefits for contractors and the road controlling authority.

For further information about the Whanganui experience refer to the following research paper:

Towler J. and McCoy R. (2009). Traffic management for resurfacing in the Wanganui region. *Proceedings NZ Transport Agency & NZIHT 10th Annual Conference,* Rotorua, November 2009.