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# THE PROBLEMS AND ADVANTAGES OF MARKINGS OVER CHIPSEALS: A RETROSPECTIVE OF TEN YEARS RESEARCH

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## ABSTRACT

New Zealand's common road surface type, chipseal, provides a linking theme to approximately fourteen research projects relating to road delineation undertaken by Opus Central Laboratories in the last ten to fifteen years. Much of this research has sought to understand the nature and context of international best practice and adapt it so that it is applicable to the New Zealand situation. The completion of these research projects coupled with a the experience of industry and research by others, provides the opportunity to review this research and draw out the dominant threads that may have been less apparent earlier.

The majority of marking practices and research developed overseas do not focus on chipseal surfaces but on other road surface types that perform in ways different from chipseal. Therefore there are a number of aspects of international best practice that need to be treated with care when considered for application here in New Zealand

This research has found that chipseal has some natural advantages, over some other road surface types, in that its texture assists markings of only modest quality to have acceptable visibility even in the wet. We previously achieved adequate performance (relative to other countries) with basic alkyd paint technology. However as other countries have advanced there are disadvantages posed by chipseal that have made following their lead more difficult.

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- The large texture of chipseals that made modest performance of markings on chipseal fairly readily achieved, also makes high performance is much more difficult to achieve.
  - The paint film thickness, is substantially reduced by the large surface texture of chipseal
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- Both the wear mechanisms of markings and the wear rates of markings are substantially different on chipseal compared with other road surface types,
  - Chipseal surfaces appear to be more variable than bituminous surfaces with respect to marking adhesion and therefore field trials of markings are more variable and less predictable, making product development difficult
  - Retroreflectivity and skid resistance of markings on chipseal are more variable and more difficult to measure,
  - The relative audibility of audio-tactile lines is less effective on chipseal compared with less noisy road surfaces.

The research also shows that identifying the benefits of making existing markings better is difficult to establish.