

Maintaining the effectiveness of audio tactile profiled roadmarkings

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The effective life of audio tactile profiled (ATP) roadmarkings is estimated as 6 to 8+ years, but there are times when the road surface's effective life has expired and a reseal of the road surface is scheduled whilst the ATP roadmarkings still have effective life remaining.

In New Zealand there was no formal advice on techniques for retention of ATP roadmarking through reseal cycles; though two techniques were being practised at a local level:

- "In-lane reseal" where the road surface of the trafficked lane adjacent to ATP roadmarkings is resealed but the non-trafficked shoulder and the ATP roadmarking itself are left without being resealed.
- "Reseal-over" the ATP roadmarking with the intention that the audio/tactile effects of the underlying ATP roadmarking are transferred through the reseal layer and retain sufficient audio/tactile effects.

In order for an informed decision to be made between the two reseal options, and to quantify the useful life of ATPs, a research project was undertaken to establish the relationship of the dimensions of audio tactile profiled (ATP) roadmarkings to the noise and vibration generated inside a vehicle traversing the roadmarkings. This enabled the acceptability of types and profiles of ATP roadmarkings and the minimum distances required for the roadmarkings to be quantified. A second stage then determined the effectiveness of the noise and vibration in alerting the driver.

The driver-response was investigated as a threshold effect via a laboratory-based driving simulation. The accuracy of participants in distinguishing between road-only noise and ATP roadmarking noise was assessed using signal detection theory while the participant completed a distracter task (Stroop task).

The research findings allow noise and vibration levels for any ATP roadmarking and the resultant human response to be calculated from the relationships determined.