

MIN-4652 Use of stickers to change speed limit signs

20 September 2024

Provide advice on the feasibility of using stickers to change the limit posted on existing speed limit signs.

NZ Transport Agency Waka Kotahi (NZTA) response:

Overview

- All road controlling authorities (RCAs) can use stickers to change signs. Stickers are cheaper to purchase than signs, however there are some issues with this approach which need to be taken into account:
 - Stickers generally need replacing more often than signs and are harder to apply in-situ
 - Many signs aren't compatible with stickers due to anti-graffiti coatings and sign sheet material e.g. they won't stick, and could also void sign warranties
 - This replacement effort could negate any cost savings as applying stickers and replacing signs have the same labour and time costs.

RCAs ability to use stickers.

- All RCAs can use overlays on all static road signage including permanent and variable speed limit signs.
- Some RCAs may choose increased sign sizes under the new Rule, requiring new sign(s). RCA engineers would need to decide if sticker overlay on these/other existing sign(s) is appropriate.

Compatibility issues

- Any overlaying depends on sign condition, particularly the clear sheeting on a sign's face. If this sheeting is deteriorating (e.g. sun damage)/looks patchy/loses retro reflectivity the sign would probably need replacing. Bent, pitted, or otherwise damaged signs are also unlikely to be good sticker candidates.
- In factories, sign top layers are often coated with anti-graffiti laminate, making them less receptive to new overlay/stickers. Initial enquiries have also found nearly 100 percent of signs in rural areas are often anti-graffiti coated (due to higher risks of vandalism in remote areas), compared to about 50 percent of signs in urban areas. One Council also reports an average of about 25 percent of signage presenting with buckling or pitting damage at any given time, further reducing sticker compatibility.
- There are also three different sources and types of reflective sign sheeting used across New Zealand, making it difficult to mass produce a single sticker overlay suitable for all signs i.e. the different reflective properties of the sheeting makes them incompatible with one form of overlay.
- Essentially, the difficulties of adhesion to anti-graffiti coating, coupled with the number of clean/undamaged signs and reflective sheeting compatibility issues at any one time likely leaves a relatively small portion of signage compatible with the use of sticker overlay.

Cost and time comparisons

- Costs of stickers:
 - Manufacturing sign overlay stickers is relatively simple in terms of design and printing. One sign manufacturer provided the below estimates for stickers for different roundel (round) sign sizes (GST excluded):
 - 600mm Dia Overlay cost s 9(2)(b)(ii)
 - 750mm Dia Overlay cost s 9(2)(b)(ii)
 - 900mm Dia Overlay cost s 9(2)(b)(ii)
 - 1200mm Dia Overlay cost s 9(2)(b)(ii)
 - The total cost of producing and installing these overlays compared to whole new signs is likely to be lower initially, but only due to the lower cost of a sticker. Installation costs and time are similar, and stickers generally need more frequent replacement than signs themselves. RCAs would need to engage with their individual Network Outcome Contract/maintenance contractors to determine the costs to them of sticking over existing signs. This would also involve identifying what signs would be able to have this treatment.
- Costs of replacing a sign:
 - The same sign manufacturer provided the below estimates for different aluminium roundel sign sheets with an original sticker overlay (GST and labour excluded and note aluminium currently costs approx. s 9(2)(b)(ii) per sq. metre):
 - 600mm Dia Aluminium cost s 9(2)(b)(ii)
 - 750mm Dia Aluminium cost s 9(2)(b)(ii)
 - 900mm Dia Aluminium cost s 9(2)(b)(ii)
 - 1200mm Dia Aluminium cost s 9(2)(b)(ii)
- How do the options compare in terms of time efficiencies:
 - Our enquiries have found the time is the same for both options at least one hour per site, for both sides of two signs, on both sides of a road. The time it takes to clean and apply a sticker to a sign in-situ is more dependent on factors like weather, wind and dust than replacing a sign due to these factors creating adhesion challenges.
 - Even in 'perfect' weather conditions, the person applying the sticker will be up a ladder, applying as much pressure as possible – 10-15 PSI – to make it adhere. By comparison, overlays in factories enable a minimum of 60 PSI to be applied to enable adhesion. Being up a ladder also makes it harder to ensure cleanliness, correct vertical and horizontal alignment and placement of the overlay. Correct placement is important for ensuring road users have no cause to 'question' the authenticity of the sign and the speed or instructions it displays.
 - To avoid the use of a ladder, the sign(s) could be taken off pole(s) i.e. to enable the sign sheet to be 'horizontal'/put in a van/similar for sticker application. However, this would require a similar amount of time and effort – if not the same amount – as simply replacing the sign itself. This technique also assumes available space nearby/in a van for overlay to occur.

- Other sticker risks – shorter life spans and warranty voiding:
 - The shorter life span of a sticker is likely to create more ongoing maintenance needs. This is due to the nature of the material they are made from, and the outdoor environments they are in. A sticker’s lifespan could range from a couple of months to a couple of years, or less. In comparison, a sign that avoids crash or vandalism damage could last 10 years.
 - Signs are also manufactured with strict “process” guidelines to ensure warranties (usually 12 plus years). A sticker over the top of an existing sign could cause the sign to delaminate, risking any sign warranty.
- Other possible solutions – recycling and a managed life-cycle:
 - At least one large sign manufacturer provides a recycling/reskinning programme for signs to ensure they are simply not disposed of.
 - RCAs could also choose to have signage they may take down during reversals stored and/or re-used.

Noted by Minister

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