



How is road width related to harm?

This study analysed publicly available road transport-related datasets to correlate road width and the “standardised social cost of (midblock) crashes” (SSCC) over a range of speed limits.

The work has been carried out because previous studies, using much smaller datasets, have not yielded results consistent with current guidelines, especially Table 5 of the Waka Kotahi “Crash Estimation Compendium”. Neither do those results support most council standards on road width. Furthermore, such predictions are currently only available for rural sealed roads whereas a significant number of people, including many of our most economically deprived, rely on local roads including urban and/or unsealed roads.

Using mapping software, crashes were assigned to roads of various speed limits and widths. The assigned crashes, plus key metadata behind them, were then written out into a spreadsheet and analysed. SSCC was calculated, based on crash severity, using the crash costs in Waka Kotahi’s *Monetised Costs and Benefits Manual* (v1.6, April 2023).

Key findings include: The SSCC on rural roads is several times that on urban roads. With sealed rural roads, SSCC increases with width on roads between 4.5 metres and 8 metres wide, then decreases with width on roads wider than 8 metres. On urban roads with more than a single effective lane, there is no obvious trend in SSCC by width. On unsealed roads, SSCC increases steadily with width, with unsealed roads wider than 5.4 metres having the highest SSCC of any roads.

The road data currently do not readily enable refinements by other important parameters including terrain and the presence of traffic calming. These refinements will be made if/when the data has been refined to enable them. Future research should also examine the suitability of the parameters used, especially SSCC and standardisation by vehicle-kilometres travelled.