



# **Increasing speed limits defies the science - more deaths and pollution expected**

8 July 2024

Simon Kingham, Angela Curl

# Summary

The government is proposing to increase speed limits. Raising speed limits will lead to increased deaths and serious injuries on our roads. In addition, increasing speed limits is likely to worsen air quality and increase greenhouse gas emissions. The evidence suggests that the benefits of estimated time savings are overstated and don't always improve economic productivity. The health impacts of raising speed limits are likely to be significant and wide-ranging, and the costs will be far greater than any benefits.

---

In recent years local authorities have reduced urban speed limits across many of our cities, and expressed [strong support for continuing this policy](#). The New Zealand Transport Agency Waka Kotahi has done the same on some state highways. This action was part of the Road to Zero strategy and was done through [speed management plans](#). The current government is proposing to [reverse this policy direction](#). Submissions on this policy are due on July 11<sup>th</sup>. So what impacts might this change have on population health and wellbeing?

## Deaths and serious injuries

In 2023, [341 people died in road crashes in NZ](#). In around a third of these, [speed was a contributing factor](#), and this proportion rises to over half for people aged 15-29 years.

Deaths and serious injuries (DSIs) are much higher at increased speeds, primarily as a [result of increased stopping distances](#). Broadly speaking, the chances of a pedestrian surviving a crash are around 90% at 30km/h, compared to around 10% at 50km/h.<sup>1</sup>

Analysis of changes in crash rates in Aotearoa New Zealand (NZ) following reductions in speed limits, found notable decreases in deaths and injuries.<sup>2</sup> Similar results have been found in the UK.<sup>3</sup>

## Environmental pollution

Over 2,000 people die each year in NZ from traffic-related air pollution.<sup>4</sup> The optimum speed for minimising emissions is 60-80 km/h.<sup>5</sup> 'Aggressive driving' (speeding, rapid acceleration and braking) also increase emissions<sup>6</sup>, and urban speed limits of 30km/h result in significantly lower emissions than 50km/h whilst having only a 'small effect on total journey times'.<sup>7</sup>

Traffic related noise pollution also has a significant impact on health<sup>8</sup>, and even small reductions in traffic speed can lead to significant improvements in noise e.g. a 6mph (~10kph) decrease in speed can cut noise levels by up to 40%.<sup>9</sup>

## Community wellbeing and inequality

The impacts of speed on other road users are considerable. Even when deaths and injuries do not occur, concerns about speeds can prevent people from walking and cycling in their neighbourhoods. If more people drive because they don't feel safe, especially with young children, then there is extra traffic on the roads further increasing risk of injuries and deaths, and noise and air pollution. Preventing people from walking and cycling contributes to poor health through reduced physical activity.

Communities with slower traffic have better general health and wellbeing.<sup>10</sup> When asked 'if you could do one thing' to reduce health inequalities, Oxford University Professor Danny Dorling said "Implement 20mph [ $\sim$ 30km/h] speed limits where 30mph [ $\sim$ 50 km/h] ones have usually been in place".<sup>11</sup> The reasons were that it is cheap, easily done, and in addition to reducing deaths and serious injuries, especially among children, it brings "wider benefits such as less pollution and stronger communities". He added that it would reduce inequalities as "people tend to be at most risk of being hurt or killed by cars in the poorer parts of towns and cities". This conclusion is likely to be equally important in NZ as we know that rates of injury and death on the roads disproportionately affect Māori, younger people, and those in low-income communities.<sup>12</sup> Research demonstrates that exposure to traffic-related air pollution is worse for people living in lower income areas.<sup>13</sup>

## Global trends

Numerous cities around the world are adopting 30km/h urban speed limits. For example, nearly [30 million people in the UK live in 20mph](#) (30km/h) speed limit areas. There are similar examples across continental [Europe](#), the [USA](#), [South America and Australia](#).

## So why the policy reversal?

The case for raising speed limits relates to time savings and enhanced productivity. However time savings are never as big as expected as much of a [journey is slowing and stopping in traffic](#) and at junctions. Research suggests that lower speeds usually result in very small increases in travel time, especially in urban areas.<sup>14</sup>

There are also questions about how travel time savings are used. Any benefits are based on the assumption that people use time savings to be more productive, which they often don't.<sup>15</sup> In fact, making it easier to travel further and faster encourages people to travel longer distances; a concept called induced demand, which creates more traffic problems.<sup>16</sup> In addition, there is a suggestion that the costs of increased fuel use at higher speeds are greater than any time savings especially at speeds above 80km/h.

The negative health impacts of raising speed limits are likely to be significant and wide ranging, and the costs will be far greater than any benefits.

## What this Briefing adds

- The health impacts of the proposed reversal of earlier speed limit reductions have not been articulated in the consultation document
- The evidence suggests that the benefits of predicted time savings are overstated and won't always increase economic productivity
- The health impacts of raising speed limits are likely to be significant and wide ranging
- The costs of raising speed limits are likely to be far greater than any benefits

## Implications for policy and practice

- Government should re-think any speed limit increases pending a thorough review of the evidence around optimal speed limits
- Members of the public should consider making a submission on this proposed policy change, which are due by 11 July. Details on the [Ministry of Transport's website](#).

### Authors details

[Professor Simon Kingham](#), Te Kura Aronukurangi | School of Earth & Environment, Te Whare Wānanga o Waitaha | University of Canterbury, Ōtautahi | Christchurch.

[Dr Angela Curl](#), Te Tari Hauora Taupori | Department of Population Health, Ōtākou Whakaihi Waka | University of Otago, Ōtautahi | Christchurch.

### Competing interests

From 2018 to May 2024 Simon Kingham was seconded 2 days a week to the Ministry of Transport as their Chief Science Advisor

### References

1. Scott R, Mackie H. Speed/injury risk curves analysis of evidence and considerations for updated curves. Available from: [https://www.bikeauckland.org.nz/wp-content/uploads/2018/09/Mackie-Research-Report\\_Speed-vs-injury-risk.pdf](https://www.bikeauckland.org.nz/wp-content/uploads/2018/09/Mackie-Research-Report_Speed-vs-injury-risk.pdf)
2. Lieswyn J, Koorey G. How do we sell the benefits of lower speeds? 2WalkandCyxcle Conference, Wellington, 2024. Available from: <https://viastrada.nz/sites/default/files/2024-03/JLieswyn-2WC-BenefitsLowerSpds.pdf>
3. Grundy C, Steinbach R, Edwards P, Green J, Armstrong B, Wilkinson P. Effect of 20 mph traffic speed zones on road injuries in London, 1986-2006: controlled interrupted time series analysis. BMJ. 2009 Dec 11;339:b4469-9. <https://doi.org/10.1136/bmj.b4469>
4. Kuschel G, Metcalf J, Sridhar S, et al. Health and air pollution in New Zealand 2016 (HAPINZ 3.0): Volume 1-Finding and implications. Report prepared for Ministry for the Environment, Ministry of Health, Te Manatū Waka Ministry of Transport and Waka Kotahi NZ Transport Agency. 2022 March. Available

from: <https://environment.govt.nz/publications/health-and-air-pollution-in-new-zealand-2016-findings-and-implications/>

5. Metcalfe, J. Effect of speed on emissions and air quality. Report prepared by Emission Impossible Ltd for Waka Kotahi NZ Transport Agency and Auckland Transport. 2023 May. Available from: <https://at.govt.nz/media/1992225/the-effect-of-speed-on-emissions-summary-report.pdf>
6. US Dept of Energy. Many Factors Affect Fuel Economy. Available from: <https://www.fueleconomy.gov/feg/factors.shtml>.
7. Future Transport Research. Urban transport modelling – An investigation into the effects of urban traffic, speed limits and driving style on travel times, fuel efficiency and CO2 and NOx emissions. 2022. Available from: <https://futuretransport.info/wp-content/uploads/2022/05/Urban-Transport-Modelling-2022-05-16.pdf>
8. Hänninen O, Knol AB, Jantunen M, et al. Environmental burden of disease in Europe: assessing nine risk factors in six countries. *Environ Health Perspect*. 2014 May;122(5):439-46. <https://doi.org/10.1289/ehp.1206154>
9. Mitchell P. Speed and road traffic noise, the role that lower speeds could play in cutting noise from traffic. Chatham, Kent, UK: A report commissioned by the UK Noise Association. 2009 Dec. Available from: <http://cfile240.uf.daum.net/attach/023FD13B50EBB0D50C66C8>
10. McCabe K, Schoneman K, Arcaya M. Community Speed Reduction and Public Health: A technical report. Health resources in action. US. 2013. Available from: [https://hria.org/wp-content/uploads/2017/01/TechReport\\_131209.pdf](https://hria.org/wp-content/uploads/2017/01/TechReport_131209.pdf)
11. Dorling D. '20mph Speed Limits for Cars in Residential Areas, by Shops and Schools', in 'If you could do one thing...' Nine local actions to reduce health inequalities. British Academy. 2014 Jan. Available from: <https://www.thebritishacademy.ac.uk/publications/cohesive-societies-local-actions-reduce-health-inequalities/>
12. Environmental Health Intelligence. Road traffic injury mortality [Surveillance Report]. Wellington: Environmental Health Intelligence NZ, Massey University. 2024. Available from: [https://www.ehinz.ac.nz/assets/Surveillance-reports/Released\\_2024/2024-transport-injury-mortality-final.pdf](https://www.ehinz.ac.nz/assets/Surveillance-reports/Released_2024/2024-transport-injury-mortality-final.pdf)
13. Kingham S, Pearce J, Zavar-Reza P. Driven to injustice: Environmental justice and vehicle pollution in Christchurch, New Zealand. *Transportation Research D: Transport and Environment*, 2007; 12, 254-263. <https://doi.org/10.1016/j.trd.2007.02.004>
14. Austroads. Impact of lower speed limits for road safety on network operations. AP-T143/10. 2010. Available from: <https://austroads.com.au/publications/network/ap-t143-10/media/AP-T143-10.pdf>
15. Metz D. The myth of travel time saving. *Transport reviews*. 2008 May 1;28(3):321-36. <https://doi.org/10.1080/01441640701642348>
16. WSP and Rand Europe. Latest evidence on induced travel demand: an evidence review. Report prepared for the UK Dept for Transport. 2018. Available from: <https://www.gov.uk/government/publications/induced-travel-demand-an-evidence-review>



---

**Source URL:**

<https://www.phcc.org.nz/briefing/increasing-speed-limits-defies-science-more-deaths-and-pollution-expected>