

Email sent from Anna Cleary (NZTA) to MoT officials dated 18/03/2024

Subject: Speed docs

The body of the email had no material in scope however, an excerpt of in scope information from one of the attachments titled "Approach to Speed Management 2024" is provided below.

Pages 6-8

Key considerations for developing a new approach to speed management

A key underlying logic that should be considered as part of the setting safe and appropriate speed limits is the rationalising and consistency of speed limits.

When reviewing and implementing speed limits, consideration must be given to adjacent speed limits so that the number of speed limit changes is minimised, as well as ensuring consistency of speed limits along each length of road, and across a network of roads.

Taking a safety led approach vs a compliance led approach

Achieving compliance is not a good indicator of safety performance if the speed limit is set too high. Safety can be substantially improved, even before compliance is achieved. For example, if a speed limit on an undivided road is 100km/h and the mean operating speed is 95km/h then there is 100% compliance, but there is unacceptable high likelihood of a crash resulting in a death or serious injury. In contrast, if the speed limit is reduced align with the SAAS of 80km/h and the mean operating speed drops 10km/h to 85km/h then compliance is now zero, but the mean operating speed has reduced approximately 10%, in turn reducing the chance of death or serious injury from a crash by 30-40%.

Likewise in an urban area, if a speed limit is 50km/h and the mean operating speed is 45km/h then there is 100% compliance, but an unacceptable high likelihood of a crash resulting in a death or serious injury, as the operating speed exceeds the safe system survivability threshold for people outside vehicles. In contrast, if the speed limit is reduced align with the SAAS of 30km/h and the mean operating speed drops 10km/h to 35km/h then compliance is now zero, but the mean operating speed has reduced approximately 20%, in turn reducing the chance of death or serious injury from a crash by 70-80%.

Both examples illustrates that a substantial safety benefit is achievable independent of compliance rates.

In either example, the value of investing in further speed management interventions on the corridor over time to support improved compliance and further reduced mean operating speeds (e.g., safety cameras, infrastructure and design) can be considered in the context of the network as a whole, and where the greatest need and opportunity for further operating speed reductions exists.

The use of 85th percentile travel speed in setting speed limits

One of the oldest criteria for setting speed limits, the 85th percentile speed, is no longer considered fit-for-purpose¹. It is the speed at or below which 85% of drivers travel under free flow conditions (their speed choice is not constrained by vehicles in front of them). Most international jurisdictions including Australia are moving or have already moved away from using the 85th percentile speed.

The approach that limits should be set at, or close to, the 85th percentile speed dates to the early 1940s in the USA (TRB 1998). This assumed that most drivers can make good judgements about 'safe' driving speeds and will choose to drive at 'safe' speeds. There is now a substantial body of evidence to indicate that this approach is not aligned with safety.

As summarised in the WHO Speed management: a road safety manual for decision-makers and practitioners, 2nd edition² the setting of speed limits based on the 85th percentile is documented as being potentially harmful, as evidence shows that it could result in an increase of fatalities or injuries.

Typically, drivers' subjective assessments of risk, and the relationship between speed and risk, are likely to be inaccurate, for the following reasons.

- Although serious and fatal crashes happen every day, they are rare in the experience of individual drivers.
- The personal experience of most drivers convinces them that the speeds at which they usually drive are 'safe'.
- Many people find the objective data on speed risks surprising and counter intuitive.

The appeal of 85th percentile speed limits is that they are, by design, 'acceptable' to the great majority of drivers. If the limits are enforced with a broad tolerance, and not very intensively, not many drivers will be penalised, or even inconvenienced.

The use of the 85th percentile as a proxy for public acceptability has been used historically. This is where on corridors changing the speed limit when the 85th percentile travel speed is close to the proposed speed limit. Because it was assumed the change would be more acceptable by the community and drivers as they are already travelling close to the proposed speed limit. However, it is an unreliable proxy as:

- Many drivers tend to overestimate their actual travel speed over a whole journey.
- Many people find the objective data on 85th percentile travel speeds surprising as they don't believe it reflects their typical experience or journey.

It's just fundamentally wrong to base speed limit policy on the judgements of road users, who are not aware of the many factors of risk in terms of crash risk and crash severity involved. On this basis current speed measured as means or percentiles are not a sound basis or partial basis for

¹ <https://safesystemsolutions.com.au/wp-content/uploads/2022/10/Myth-5-85-percentile-method-works-best-BUSTED.pdf>

² [Speed management: a road safety manual for decision-makers and practitioners, 2nd edition \(who.int\)](#)

the setting of speed limits ... Speed limits should be set on the basis of safety (which is their ultimate purpose), and the community can be educated and incentivised to comply with those limits (personal correspondence from Dr Soames Job to Colin Brodie in April 2021).

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