THE MECHANICS AND POLITICS OF CHANGING A SPEED LIMIT

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ABSTRACT

With a new government pushing a greater emphasis on road safety, attention is increasing on the role that speed plays in our safety record. For both urban and rural settings, there has been a growing clamour by some elected officials, safety advocates, and the general public for greater use of lower speed limits. Yet, at the same time such changes remain polarising, with other people sceptical of their effect on safety and wary about their impact on network efficiency. The relatively cumbersome process of changing existing speed limits has also been cited as a hurdle to implementing fast change (although others might argue that is an important handbrake in a democratic society).

This paper will investigate the current state of play around setting and changing speed limits in New Zealand. A review of research literature, both here and overseas, will summarise the generally observed effects of changing speed limits (often with little other changes to the road environment or enforcement) in terms of both travel speeds and safety outcomes, whilst also identifying some of the caveats and limitations of this evidence. The paper will also explore some of the current challenges with the existing speed limit legislation in New Zealand (e.g. consultation requirements, default speeds, alignment with observed speeds), and debate some common arguments and concerns raised by people about speed limit changes. Finally, an attempt will be made to identify a productive way forward for all interested parties regarding the use of speed limits.

1 INTRODUCTION

A road network needs to have an appropriate balance between providing an **efficient** system for moving people and goods to various destinations, and a **safe** system that protects road users and other people nearby. It also needs to take into account other considerations such as amenity, environment, travel behaviour change, and the overall views of the local community. One of the key inputs to help achieve many of these objectives are the regulatory speed limits on the network.

The new Labour-led government is promoting a greater emphasis on road safety in its transport policy (NZ Government 2018), and attention is increasing on the role that speed plays in NZ's safety record. For both urban and rural settings, there has been a growing clamour by some elected officials, safety advocates, and the general public for greater use of lower speed limits (e.g. Littlewood 2018). Yet, at the same time, such reductions in limits remain polarising, with other people sceptical of their effect on safety and wary about their impact on network efficiency. Previous surveys of public preference for lower speed limits have been relatively muted (Turner *et al* 2014). By contrast, recent proposals to increase some speed limits to 110 km/h, for example, received relatively little public backlash (Wilson 2017).

The relatively cumbersome process of changing existing speed limits, and attempting to comply with subsequent engineering requirements for observed speeds, has also been cited as a hurdle to implementing fast change (although others might argue that is an important handbrake in a democratic society).

This paper will investigate the current state of play around setting and changing speed limits in New Zealand, particularly with regard to the more vexing challenge of lowering speed limits. It will explore some of the current challenges with the existing speed limit legislation in New Zealand, and debate some common arguments and concerns raised by people about speed limit changes. Finally, an attempt will be made to identify a productive way forward for all interested parties regarding the use of speed limits.

2 THE ARGUMENTS FOR LOWER SPEED LIMITS

2.1 The link with safety

The "power" relationship between observed mean speeds and crash outcomes has been well documented previously. Nilsson (2004) confirmed earlier studies of his that found that the injury crash rate changes approximately with the square of the change in mean speed, with even higher exponents (typically about 3-4) valid for serious and fatal injuries. So, assuming that a reduction in speed limits led to even a 1% reduction only in observed mean speeds, one would still expect to see approximately a 4% reduction in fatalities, a 3% reduction in serious injuries, and a 2% reduction in other injuries.

As well as many studies overseas demonstrating good safety outcomes from lower speeds (e.g. ITF 2017), there are a number of NZ studies that also show such effects. For example, Koorey & Frith (2017) investigated the effects of reducing the NZ open road speed limit in 1973 and then subsequently raising it again in 1985. Although the vagaries of the available data at the time made it slightly difficult to tease out all the relative changes in rural vs urban and fatal vs injury casualties, the overall findings indicated the 1973 limit reduction was accompanied by a notable reduction in rural fatalities and injuries (relative to their urban counterparts), while the 1985 limit increase was accompanied by a notable increase in rural fatalities and injuries.

In 2016, Christchurch introduced a 30km/h lower speed zone within a large part of the central city area, as part of the "Accessible City" transport rebuild plan. This has generated some controversy amongst residents and businesses who feel that it is greatly restricting access to and through central Christchurch. However, analysis of crash data two years before and after suggests that

there have been considerable reductions in crash numbers (-25%) and injuries (-36%) since its implementation, despite growing numbers of traffic and people returning to the city (Koorey 2018).

2.2 The effect on vulnerable road users

Many studies of speed limit reductions, particularly in urban areas, have cited the particular benefits to more vulnerable road users such as those walking and cycling. This effect can also manifest itself into seeing increases in the numbers of people using these modes, as a result of reduced traffic speeds, and reduced injury and fatality rates.

An often-cited relationship is the link between impact speed and likelihood of pedestrian death if hit; traditionally the data (based on the likes of Wramborg 2005 or Anderson 1997) suggests that at 30 km/h the likelihood of death is only 10% whereas at 50 km/h the likelihood is closer to 90%. However, more recent research by Rosén *et al* (2011) has identified methodological flaws in the earlier work that resulted in a bias to more severe injuries; also, modern motor vehicle designs and medical care are now somewhat better at minimising the injuries of externally struck people (notwithstanding the fact that the vehicle fleet in New Zealand is relatively old compared with many countries).

Scott & Mackie (2014) analysed more recent pedestrian injury studies and estimated a much lower likelihood of fatality for pedestrians until speeds rise to about 60 km/h (with the caveat that some heavy vehicle impacts or collisions with more vulnerable pedestrian groups may still result in more fatalities at lower speeds). Although the absolute percentages may have come down (see Figure 1), it is clear that the relative fatality risk as speeds go up is still a considerable increase. In the case of typical urban impact speeds, it is pertinent to note that the risk of pedestrian fatality if struck at 50 km/h is still twice that at 40 km/h and five times that at 30 km/h.

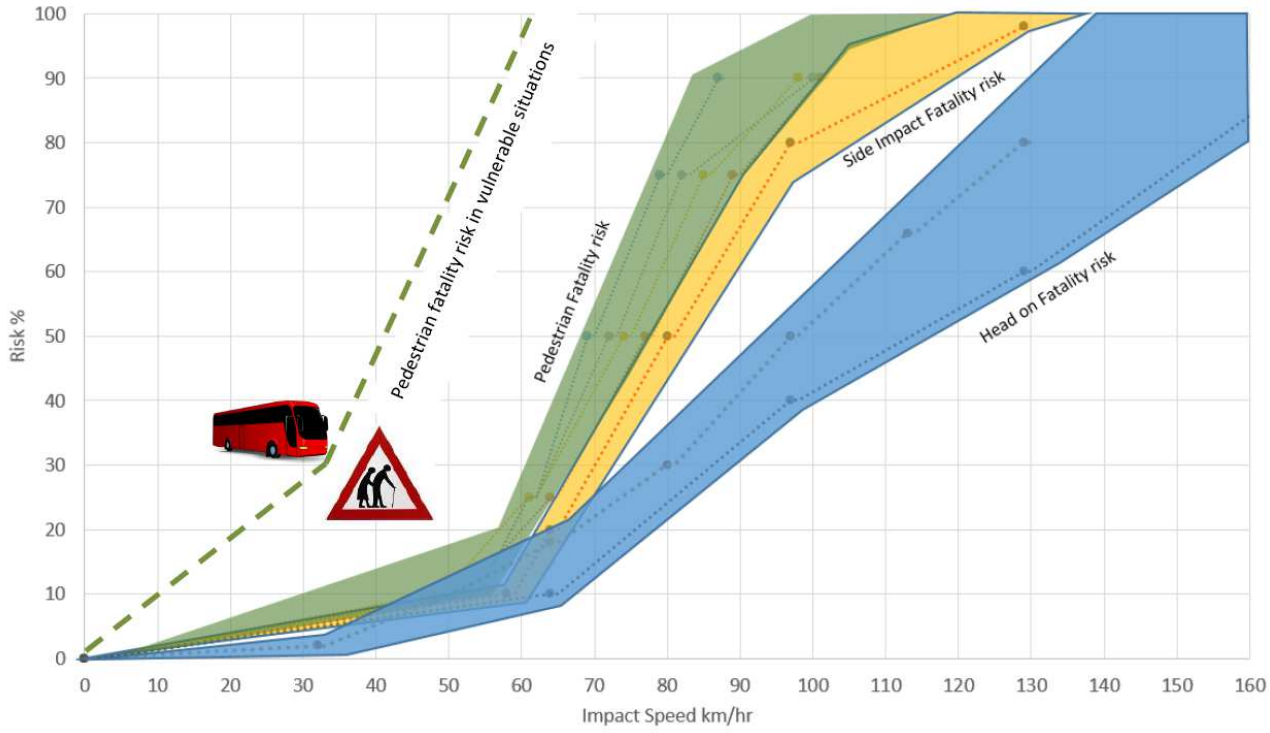

Figure 1: Fatal Injury Risk vs Impact Speed for Pedestrians (Scott & Mackie 2014)

Trumper (2013) compared perceptions of two similar streets in Christchurch, one with a slow zone installed and one left untreated. This was evaluated by interviewing residents and asking them how traffic noise, air pollution from traffic, their safety and the speed of traffic influenced their decisions to walk there. Traffic speed and safety had little to some influence on the average resident when deciding to walk; however, when it came to their children, parents were more protective with regards to the speed of traffic and safety of their children.

2.3 The effects on observed speeds

Koorey & Frith (2017) noted that studies in New Zealand and elsewhere have fairly consistently found small changes in observed mean speeds following a posted speed limit change, in the absence of any change in road environment, enforcement, or road user motivation. For example, a meta-analysis of over 200 speed limit change studies worldwide (Elvik *et al* 2004) found the average observed speed change to be 2.5 km/h for every 10 km/h of posted speed limit change. These may be higher-end estimates of what has happened, owing to publication bias, but they are still real changes happening in real situations.

Other local studies have also found similar average changes per 10 km/h change in limit. For example, Hamilton's *Safer Speed Areas* project introduced 40 km/h speed limits to some 50 km/h residential areas with only some threshold treatments installed on the actual streets, resulting in 0-3km/h changes in mean speeds (Hamilton City Council 2012).

A basic explanation for this is that drivers base their decision on what speed to travel at from a combination of the posted speed limit *(or their assumption of what it is)* and the "environmental speed" of the road (Koorey & Frith 2017 explains the theory in more detail). The latter measure is based on the design of the road (e.g. horizontal curvature, road width, surface texture, traffic calming features) and the surrounding environment (e.g. adjacent land uses, road user activity, frequency of parking, weather, trees and vegetation). The degree to which posted speeds are accepted and adhered to by drivers, rather than being influenced by the environmental speed more, is a function of both the level of enforcement (e.g. presence of traffic police and speed cameras, penalties for speeding) and the degree of compliance (e.g. general societal/cultural norms for respecting laws, perceived appropriateness of the speed limit).

2.4 Other observed impacts of lower speeds

Williams (2013) investigated how lower traffic speeds can result in a range of sustainable transport outcomes. She noted that, while commonly recognised elsewhere in the world, lowering speed limits was not well understood in New Zealand as a mechanism for improvements in active mode use, public health, accessibility, integrated urban form, environmental sustainability and economic development.

While a lot of focus on lower speeds comes from the expected safety benefits of changing existing limits (especially if there is already identified a known safety problem), it's important to remember that there may be other (non-safety) reasons why a local jurisdiction wishes to change speed limits. For example, there may be a desire to improve the attractiveness of a local shopping precinct. A "neighbourhood greenway" cycling route may require a lower speed limit to improve the safety of interactions between drivers and cyclists (Koorey 2012). Another reason may be a desire for consistency of speed limits between similar adjacent roads, even when their safety records vary.

3 THE ARGUMENTS AGAINST LOWER SPEED LIMITS

3.1 The effect on travel time

Anyone with a basic grasp of kinematics will associate going at a slower speed with taking a longer time to travel the same distance. It is not surprising therefore that many people cite the increased travel time from a lower speed limit as having a major impact on network productivity (e.g. Persico 2018). Interestingly, this increased travel time has also been blamed by some commentators for increasing driver fatigue and thus increasing crash risk. While it is hard to deny the laws of physics, many people mistakenly over-estimate the impact of this change based on the relative change in speed limits (e.g. a 20% reduction in the posted speed limit is assumed to lead to a 20% increase in travel time).

Rowland & McLeod (2017) investigated time savings as a motivation for New Zealand drivers' speeding behaviour, and also the effect of education designed to improve people's understanding

of the costs and benefits of speeding. While some drivers surveyed sped to save time, drivers more strongly agreed they chose not to speed due to the safety risk and penalties if caught. Interestingly, respondents tended to overestimate the time savings at high speeds and underestimate the time savings at lower speeds. Most drivers were aware that increasing speed above 100km/h would use more fuel and the majority gave estimates of the fuel savings close to the correct amount.

The reasoning behind why actual time differences are generally overestimated is due to the limited amount of time that one is usually able to travel at the theoretical maximum speed. These delays may arise from road geometric constraints (e.g. tight horizontal curves), other traffic (e.g. urban congestion), point restrictions (e.g. intersections, railway crossings), or section restrictions (e.g. road works, lower speed towns along a journey). In all of these cases, the time travelled through these sections will be unaffected by what the open road limit is. Because sections of road travelled at lower speeds take a longer time to be travelled, they get over-weighted when determining the overall average speed. For example, 100 km driven at 100 km/h followed by 100 km driven at 50 km/h results in an average speed driven over the total length of 66.7 km/h, not 75 km/h as is commonly assumed (see Figure 2). It should be noted too that reducing the maximum speed in the first section to 80 km/h would only reduce the average travel speed in this example by *5* km/h.

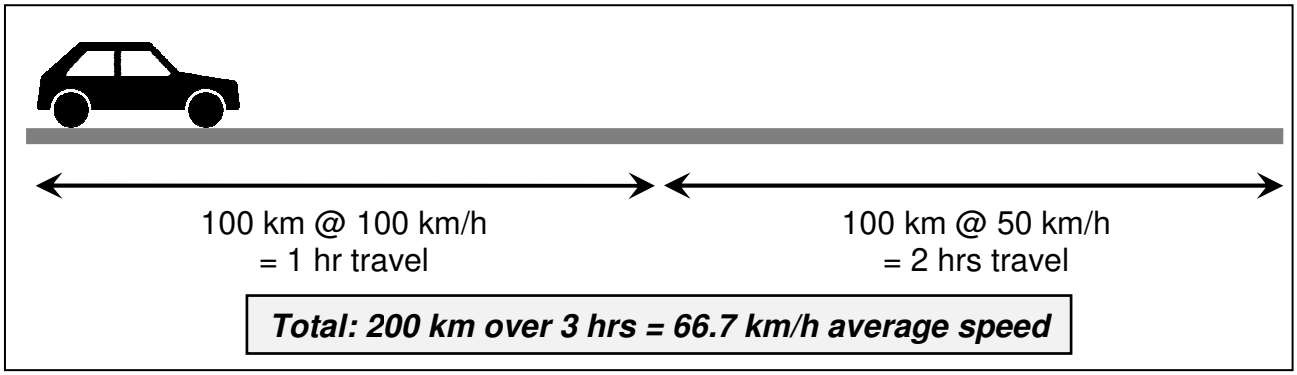

Figure 2: Effect of partly travelling at lower speeds

3.2 The impact of only changing the speed limit

It is often claimed that simply changing posted speed limits in the absence of any other engineering, education or enforcement measure will have no effect on travel speeds (and hence safety). However, as explained in section 2.3, there is still likely to be some influence on observed speeds, albeit less than the change in posted limit (typically 2-3 km/h per 10 km/h change in limit).

Whether it is sufficient alone to just change the speed limit will depend on the site context. For example, if a 50 km/h road already has mean speeds of 43 km/h, then changing the posted speed limit to 40 km/h may also result in similar observed post-implementation speeds of around 40 km/h. However, if the road starts with mean speeds closer to 50 km/h, then additional treatments (e.g. traffic calming) may be required to achieve 40 km/h post-implementation mean speeds. Thus, in both cases, “self-explaining roads” can be achieved.

3.3 Having to “watch the speedo”

An interesting argument raised by some people in regard to both reduced speed limits and reduced speed enforcement tolerances is that drivers will have to concentrate more frequently on their speedometer to ensure that they stay within the prescribed limit. As a result, drivers will have less time to concentrate on the road itself, thus increasing their crash risk. Recent evidence is cited from Western Australia (Bowden *et al* 2017), where drivers using a simulator with varying speed limit tolerances had poorer peripheral object detection and higher workload when the tolerance was stricter, with the suggestion that this may impair driver hazard detection. However, it was also noted that lowering enforcement tolerances reduced the average speed travelled by participants, by over 4 km/h on average when the tolerance was reduced by 10 km/h.

There also appears to be some inconsistency in this argument, in that only some combinations of [speed limit + tolerance] are deemed to require additional scanning of the speedometer. One would have thought that in *any* situation, a driver (having determined what is the maximum acceptable travel speed they are willing to drive at) would need to regularly check that they were being compliant with the current speed restrictions. The advent of more cars with cruise control speed management also negates some of this concern as well.

3.4 Enforcement and "revenue gathering"

Perhaps the most cited concern about enforcement of speed limits by the general public is that it is all part of an exercise designed to collect as much revenue as possible for the Government from speeding fines. That accusation is also often targeted at the Police themselves or local Councils, even though speeding fine revenue does not directly benefit either party.

Some commentators have also felt that the Police focus on speed enforcement has not worked, given that the road safety statistics have worsened in recent times. This ignores the fact that Police can only enforce the speed limits officially designated, and in most cases (as indicated by NZTA's own speed management data) they are set too high.

Van Lamoen (2016) analysed the three summers where a reduced 4 km/h enforcement threshold was in place by the NZ Police. The first summer (2013/14) saw a >20% reduction in the numbers observed speeding, which was matched with a 22% reduction in fatal crashes. The following summer saw lesser reductions, while the third summer (2015/16) saw no improvement. The latter result was attributed to diminishing Police Officer buy-in (e.g. a big drop in <11km/h speeding tickets), the price of petrol being at an historic low, and the lessening role of the 'novelty effect'.

One wonders philosophically whether the general public would prefer (say) a 100 km/h limit with a 4 km/h tolerance, or a 90 km/h limit with a 10 km/h tolerance. The latter is likely to result in lower average speeds (and corresponding safety gains), even though more drivers will probably not be technically complying with the posted limit. Another consideration is whether eliminating the current steep traffic fines for speeding (possibly retaining a basic scheme administration levy) and focusing on penalising via demerit points (and potentially loss of licence) instead may also eliminate the "revenue gathering" argument.

3.5 Other stated arguments

Some people have claimed that increased speed limits in some jurisdictions have led to improved safety outcomes. For example, in the US, changes in default maximum speed limits from 55 mph (88 km/h) to 65 mph (104 km/h) in 1987 and then to 70 or 75 mph (112/120 km/h) have been reported as having reduced fatalities (e.g. Lave & Elias 1994). However, this has typically been largely explained by shifts in traffic from (less safe and lightly enforced) secondary rural roads to (safer but more enforced) interstate freeways now that the latter had higher allowed limits. Once controlled for by road type, traffic volumes and relative speed limit changes, most studies have found clear increases in fatality and injury rates with speed limit increases (e.g. Friedman *et al* 2009).

It is an interesting argument as to whether using differential speed management to encourage people to use safer higher-speed roads (instead of less safe secondary routes) is a useful technique if it helps achieve a network-wide improvement in safety performance. In New Zealand, it is probably of less relevance than other jurisdictions, due to our relatively limited network of alternative secondary routes in many places.

Another interesting argument sometimes cited is that lower speeds will reduce traffic efficiency and worsen congestion (e.g. McLachlan 2018). The basic logic is that traffic travelling at a faster speed allows more vehicles to go past the same point within a fixed time period; however, that overlooks the fact that traffic spacing/density is also affected by vehicle speed (typically vehicles are more closely spaced together as speeds drop). In near-capacity traffic conditions, lowered variable

speeds on motorways are sometimes used to *prevent* traffic flow breakdown. For New Zealand, such fully congested flows are not typically that common away from urban peak hours anyway.

4 CHALLENGES WITH THE EXISTING SPEED LIMIT SETTING PROCESS

While the technical arguments behind changing speed limits, discussed above, are well understood, another challenge at least in New Zealand remains some of the practical issues for roading authorities in trying to make legal changes to existing speed limits (although the new setting speed limit process is somewhat improved over the previous process, as described by Koorey 2011). Some of these issues are discussed below.

4.1 Consultation requirements

The *Setting of Speed Limits Rule* (NZ Govt 2017) imposes certain statutory requirements for consultation on any roading authority wishing to change speed limits. This includes specific requirements to consult with local communities affected, the Police, the Automobile Association and Road Transport Forum NZ (although oddly not with national groups for other modes like walking and cycling). There is also a catch-all to consult with *"any other organisation or road user group that the road controlling authority considers to be affected by the proposed speed limit"*, which is probably interpreted in different ways by different jurisdictions.

To date, it appears that different roading authorities have taken different approaches to how consultation is undertaken; while some have presented whole areas as a single "package" for consultation, others have consulted on each street individually in isolation of each other. It is also not clear how much authorities are taking into account the feedback from different groups of stakeholders. For example, while on an arterial road the views of motorists regularly using that route are very pertinent, for a local residential street they are arguably less important compared with the views of local residents or active mode users along that route.

For a specialist technical issue such as speed limits, it is worth considering how much the process should be so reliant on input from both the general public and elected members. This is not to deny the important role of democracy in making societal decisions, but it does appear that sometimes unsubstantiated concerns are holding up technically sound proposals for speed changes. It may simply be that technical staff have to do a better job of presenting the case to stakeholders, although that also highlights a lack of specialist industry training in this area.

4.2 Default speed limits

New Zealand currently operates on a system of two default speed limits (50 km/h in urban areas and 100 km/h in rural areas), with the ability via the *Setting of Speed Limits Rule* to invoke other limits as required. This approach has been criticised by various observers from a number of perspectives:

- The default limits are deemed as too high for typical roads. For example, in many countries, the default limit for two-lane rural roads would be no more than 80 km/h, while most urban (non-arterial) streets would be 30-40 km/h. NZ Transport Agency's own data has identified that over 80% of the country's roads have calculated "safe and appropriate speeds" (a useful starting indicator for determining speed limits) *below* their currently posted speed limit.
- Institutional inertia (e.g. consultation requirements discussed above) makes it difficult for roading authorities to change large portions of the road network from the default speeds quickly. NZTA's own speed management data initially only highlighted the "top 10%" of the road network warranting speed change, although the latest data now shows the top 20% (NZTA 2018a).
- A focus on a simple two-tier "default value" system makes it hard to have public conversations about using a wider range of speed limits as appropriate. For example, an

international report recommending 70 km/h limits for rural undivided roads was widely panned in NZ (and mistakenly seen as a Government proposal by some), partly out of concern that it might apply to all existing 100 km/h roads (Daly 2018, Quinlivan 2018). It is notable that a survey of NZ Automobile Association members found 87% opposed lowering the open road limit to even 90kmh.

In effect, this situation means that roading authorities have to go to considerable effort to change existing speed limits from the defaults to lower values (especially on a large scale); in some cases, the technical resources or political will to do so are lacking. By contrast, Sweden's default rural speed limit is 70 km/h and authorities must demonstrate that a road has the necessary safety features (e.g. barriers, grade-separated intersections) to justify *higher* speed limits (Vadeby & Forsman 2014).

An interesting consideration is whether a wider range of default limits should be instituted in New Zealand, based on the characteristics of different roads. For example, it is probably inappropriate for any unsealed road to have a posted limit higher than 80 km/h; similarly, urban local (non-arterial) streets could be 40km/h by default.

4.3 Alignment with observed speeds

Currently the *Setting of Speed Limits Rule* requires jurisdictions to select speed limits where mean operating speeds will be less than 10% above the new posted limit (e.g. <44 km/h for a 40 km/h limit, <110km/h for a 100 km/h limit). The requirement is even stricter for a 40 km/h school zone, where the required mean speed when it is operating must be *no more than* 40 km/h (NZTA 2011).

This policy could potentially allow mean speeds to be up to 11 km/h above the posted speed limit (for a 110 km/h road), with the 85th percentile speeds even higher, thus greatly increasing the risk of crashes. At the other end of the spectrum, requiring lower speed roads to have a smaller tolerance (e.g. 30 km/h roads to have a maximum operating speed of <33km/h) makes it harder to introduce these lower speed limits.

Already, concern with meeting these (somewhat arbitrary) operating speed requirements is dissuading some authorities from considering lower speed limits on some streets (particularly if they have limited budget for associated physical speed management treatments). Yet, based on the evidence discussed in section 2.3, a reduction in observed speeds is still likely from a speed limit reduction alone. If the philosophical approach of the exercise is simply to *reduce motor vehicle speeds* (with all the safety benefits that entails), then it should be less relevant how close the final speeds are to the posted limit. For example, if changing a 50 km/h speed limit to 40 km/h results in a reduction in mean speeds from 48 km/h to 45 km/h, is that a failure?

One concern that does need further investigation is whether a greater difference between the posted limit and the environmental speed of a road leads to greater variance across the observed speed distribution. Some studies have suggested that a wider speed distribution leads to less safe outcomes (as summarised in Kloeden *et al* 1997). However, if the speed limit change also leads to a reduction in the mean speed, then the relative safety effect of this may outweigh any potential increase in risk from greater speed variance. This needs to be explored further.

5 A POSSIBLE WAY FORWARD

The above discussion suggests a few approaches that may be of value for successfully implementing speed limit changes; these are described below.

5.1 Start with the "low hanging fruit"

While there is some appeal in creating nation-wide (or at least district-wide) changes to default speed limits, it is probably easier to start with the most "obvious" locations. These may include:

- Busy central and suburban shopping precincts
- Residential areas that are already traffic calmed

- Areas in close proximity to schools, playgrounds and other higher-risk locations.
- Unsealed, narrow and/or winding rural roads

In this way, jurisdictions are more likely to bring the public along the way, by pointing out the inherent dangers of each scenario. Assuming that positive safety results (and other relevant metrics like public support) can be subsequently demonstrated, this provides impetus to then consider more "difficult" locations.

A similar approach may be to "work with the willing" by seeking expressions of interest from communities wanting lower speeds in their area and implementing them first; this approach was successfully done for Hamilton's *Safer Speed Areas* project, which introduced a number of 40 km/h speed limits to selected residential areas based on local feedback (Hamilton City Council 2012).

5.2 Provide common material to pre-empt the concerns

A number of the arguments discussed above (and others) are regularly cited by stakeholders when lower speed limits are proposed; at present it seems that each roading authority has to construct its own case for the proposed changes addressing the concerns raised, with varying degrees of effort and subsequent success.

A far more consistent and cost-effective approach would be for the NZ Transport Agency to prepare comprehensive material that all roading authorities can use to pre-empt the likely concerns. These could include:

- *"Reduced speeds will mean longer travel times"*
- *"Reducing speed limits has no effect on safety"*
- *"Simply changing the posted limit has no effect on speed"*
- *"It's just an excuse for revenue gathering"*

(other common arguments are also discussed in Koorey 2011)

Some material of this nature is starting to be provided on NZTA's website (NZTA 2018b) but needs to cover even more discussion points and be more widely promulgated.

5.3 Use the One Network Road Classification as a speed tool

The One Network Road Classification (ONRC) system divides all of New Zealand's roads into eight categories (from high-volume National roads to low-volume Access streets) based on how busy they are and what they connect to. ONRC was developed by the NZ Transport Agency initially as a mechanism for consistent allocation of maintenance funding nationally; however, its potential as a tool for other corridor management functions is beginning to be recognised. This includes the ability to use the ONRC classifications as a starting point for determining appropriate (or default) speed limits.

For example, it might be expected that most high-volume National routes (typically expressways or motorways) should warrant at least a 100 km/h speed limit. Conversely, generally it will not be appropriate for most urban Access streets to have higher than a 40 km/h limit. By establishing some default speed limits based on the various ONRC categories, a more nuanced approach to setting speed limits can be achieved, while also reducing the effort needed to make a business case for changing some of the existing limits.

5.4 Mix in a few speed increases with the decreases

It may be politically astute to consider how to implement "packages" of speed limit changes that don't appear to be simply about speed reductions *(unfortunately that is where the greatest need for speed reform currently lies in NZ)*. For example, at the same time that a series of local urban streets are being proposed for change down to 40 km/h, a nearby four-lane divided arterial could be proposed to have its limit increased to 60 km/h (as with the speed reductions, it would be

prudent to consider whether appropriate engineering treatments are in place first to safely support such a speed increase).

Sweden adopted a similar approach when rationalising their rural speed limits (Vadeby & Forsman 2014). Their process contained a mixture of speed limit increases and decreases, although in practice there were *seven times as many* decreases as there were increases. While it is not always possible to present this kind of "balanced" package of speed measures, in practice it is a useful way to get across the message of appropriate limits for appropriate roads.

5.5 Try posted limit changes first, then treat where necessary

Greater leeway needs to be given when considering whether a reduction in speed limit will have the desired effect on its own; at present a fairly sceptical approach is taken to whether such measures alone will have any effect on travel speeds (or a sufficiently strong effect to meet the compliance requirements of the *Setting Speed Limits Rule*). If there is doubt, then require some ongoing monitoring, and the ability to introduce additional speed management treatments to help achieve the target speed or to further amend the limit (including possibly reverting to the original limit).

For example, at present there is some resistance to having local authorities trial using 30 km/h permanent or variable speed limits (e.g. around schools), out of concern that the measure won't result in mean traffic speeds close to 30 km/h but it would be politically difficult to come back later and remove such a limit. This seems to be a defeatist argument that doesn't allow the possibility of introducing such a limit to start with, and then introducing additional calming measures later if the speeds haven't dropped sufficiently (and continuing to do so until the desired speeds are achieved).

6 CONCLUSIONS

Overall, the evidence is generally rather compelling that lowering speed limits have considerable benefits for road safety, as well as other positive outcomes for amenity and active travel. Many of the commonly cited concerns about reduced speed limits are not well founded on evidence or of minimal impact.

On this basis, it could certainly be argued that a widespread programme of speed limit reductions would have considerable benefit to our society. However, the political toll of a simple "dictatorial" approach (at least in the short term) may be too much for many elected officials. Therefore, pragmatics may win the day by using many of the techniques from the previous section to wean the sceptical parts of the public onto a lower speed regime. One way or the other, the resulting outcome is likely to be of great benefit to New Zealand.

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