
Submission to the New Zealand Transport Agency

Land Transport Rule: Setting of Speed Limits

16 JUNE 2017

Introduction

The Institution of Professional Engineers New Zealand (IPENZ) is New Zealand's professional body for engineers. Our role is to create greater connection within the industry and across society, and recognition for the key role that engineers play. It's also about building greater credibility so New Zealanders have confidence and trust in the work that engineers do. We have 18,000 members across a range of disciplines.

The IPENZ Transportation Group (the Group) is a Technical Interest Group of IPENZ with a membership of approximately 1,300. Membership of the Group is open to those with IPENZ membership and other individuals with a professional interest in the science, practice and technical aspects of transportation systems and facilities. This submission includes feedback from the Group.

We have provided an overview of our comments below, followed by an Appendix with more detailed feedback.

Overview

IPENZ supports the proposed Rule change. However, we have some concerns about the Land Transport Rule: Setting of Speed Limits (2017) (the Proposed Rule) in its current form. These focus on the need to ensure that, at all stages, appropriate consideration is given to road design, function, use and tolerances, including in relation to the surrounding environment.

Proposal 1

Establish a new speed-setting mechanism that focuses on assisting RCAs to achieve safe and appropriate travel speeds, in particular for areas where there are high benefit opportunities to optimise safety outcomes, economic productivity or both.

We fully support the proposed list of criteria that must be considered by Road Controlling Authorities (RCAs) and the Agency as set out in **section 4.2(2)**. Our three main comments on this proposal are as follows:

- We understand that the Proposed Rule is intended to reflect the Speed Management Guide (the Guide). In order to achieve this intention, we believe it is important for the purposes in the Proposed Rule and the objectives in the Guide to be consistent. We note that, in the purpose section, there is no reference to managing speed according to road function, use, design or the surrounding environment. However, these factors are included in the Guide

objectives. We think these are important considerations that should be reflected in the purpose section of the Rule so that consideration is given to them in all stages of interpreting and applying the Proposed Rule.

- Under **section 4.6**, a RCA may set permanent, holiday or variable speed limits and must aim to achieve “a mean operating speed less than 10% above that speed limit”. We are concerned that the use of a percentage in this context may have unintended consequences for higher and lower speeds in relation to safety, measurement and enforcement. More detail on this is set out in the **Appendix** to this submission.
- While **section 2.4(2)** sets out the information that must be provided to people being consulted on a proposed new urban traffic area, **section 2.4(1)** is very limited in its explanation of what information must be provided to people being consulted on speed limits. We suggest increased clarity in **section 2.4(1)** around what information will be provided.

Proposal 2

Enable the setting of a 110 km/h speed limit on roads where it is safe and appropriate to do so.

While we generally support the proposal to increase the speed limit, we have some reservations about the increase in speed limits to 110 km/h on some motorways. We believe that the safety and environmental implications of this proposal should be carefully considered. In particular, when setting a 110km/h speed limit, it is important to ensure that consideration is given to the road’s design tolerances. An increase in the open speed limit in 1985 was accompanied by a notable increase in rural fatalities and injuries relative to their urban counterparts.¹

The potential environmental impacts of increasing the speed limit need to be taken into account. The link between increased speed and increased emissions was explored in a report prepared by the Otago Medical School.² They conclude that if the average speed of New Zealand vehicles was increased by 4 km/h, we would see an overall increase in vehicle emissions of 4.35% in carbon monoxide (CO), 1.82% in carbon dioxide (CO₂), 2.35% in Nitrogen Oxide (NO) compounds and 5.83% in particulate matter.³ An increase of 10km/h would double these emissions.

Proposal 5

Clarify the grounds upon which an RCA may set a temporary speed limit.

We support a clarification of the grounds upon which RCAs may set temporary speed limits. However, **section 6.1(2)(a)** may not cover situations such as inclement weather or because of an obscured road sign. These more specific situations may or may not fall within the ambit of **section 6.1(2) (a) (ii)**. Therefore, we recommend that a catch-all subsection is included to ensure that the discretionary powers of the RCAs to make temporary speed limits are sufficiently broad.

General comments

Speed Limit Review Provisions

Under section 3.2(7) of Land Transport Rule: Setting of Speed Limits 2003 (the 2003 Rule), RCAs are required to review a speed limit if there is a “significant change in the nature, scale or intensity of land use adjacent to a road” or “a significant change in a road, its environment or its use”. Under the Proposed Rule, there is no requirement for RCAs to undertake a review in those circumstances. We believe this requirement would be consistent with the purpose of the Proposed Rule and with the Guide’s objective to manage speeds having regard to the function, road use and surrounding land use.

¹ Koory G, & Frith W, *Changing Rural Speed Limits: Learning from the Past*, IPENZ Transportation Group Conference, 29-31 March, 2017.

² McLean R, et al, *Bringing You Up to Speed: A Health and Economic Model of the Effects of Raising the Speed Limit on New Zealand State Highways and Motorways from 100km/h to 110km/h*, University of Otago, Wellington, (2012).

³ One of the significant caveats of this study is that they have modelled the increase in speed limit on all motorways, rather than the limited length of motorways currently proposed.

Similarly, under section 3.2(8) of the 2003 Rule, RCAs can review a speed limit if they receive “a written request to do so from a person, organisation or road user group affected by that speed limit”. This ability to request a review does not appear in the Proposed Rule. We note that the involvement of the public and specialists such as traffic engineers and the Group would be helpful to assist RCAs in achieving the purpose of the Proposed Rule.

Non-Motorised Travellers and Road User Groups

While we acknowledge that motor-based travel is the dominate form of travel on New Zealand roads, we would like to underline the importance of including non-motorised travellers such as cyclists and pedestrians in discussions. While the proposed Rule makes reference to any other “road user group”, we would like to recommend that the Agency puts in place mechanisms to ensure a broad range of road user groups are included in any consultation as their views may otherwise be less likely to be heard.

Consultation with Iwi

Under **section 2.3(2) (c)**, any local community that the RCA considers to be affected by the proposed speed limit must be consulted before a speed limit change occurs. However, there is no explicit requirement for RCAs to consult with iwi. While in certain situations they may not be specifically affected, iwi authorities have knowledge about certain areas that RCAs do not have. We believe it is important to ensure that iwi interests are explicitly accounted for in the proposed Rule.

Conclusion

Additional detailed points are set out in the **Appendix** attached.

IPENZ and the Transportation Group appreciate the opportunity to make this submission. We are able to provide further clarification if required. For more information, please contact:

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Appendix

Detailed comments

This Section provides detailed comments and recommendations under the relevant Section headings of the Rule.

General comments

We support the the Proposed Rule change. However, it appears to place significant reliance on the New Zealand Transport Agency's recent Speed Management Guide (the Guide) as the basis for its speed limit determinations. Our concern is that, while the Guide appropriately has a strict focus on safety and efficiency as the key impacts of setting speed limits, it doesn't clearly acknowledge the observed speed effect of changing posted speed limits..

Although it has already received limited feedback and trialing, we feel that the Guide is likely to require further adjustments to its direction and details. It is possible that RCAs may find initial recommendations and data provided by NZTA for setting speed limits are insufficient. We suggest that greater allowance for flexibility in setting speed limits will be required at least in the interim.

It is also not clear whether the Proposed Rule makes it easier to proactively introduce lower speed limits, particularly in response to community feedback. This may constrain its ability to support the aims of the Safer Journeys National Road Safety Strategy. In our view, the ability to reduce existing default 50 km/h and 100 km/h limits has the potential to reduce New Zealand's road crash statistics. While this may not have had the public attention of the ability to introduce 110 km/h speed limits, it is arguably more significant.

Section 1 Preliminary provisions

Under **Section 1.3** we note that the one of the purposes of the Proposed Rule is (b) to *"provide a mechanism for road controlling authorities to set safe and appropriate speed limits for roads in their jurisdictions"*. Secondly, another purpose is to *"encourage road controlling authorities to prioritise roads where achieving safe and appropriate travel speeds where it is likely to deliver the highest benefits in terms of safety outcomes, economic productivity, or both"*.

In contrast, the Guide Objective 1.1.1 is *"to manage speeds that are appropriate for road function, design, safety, use, and the surrounding environment (land use)"*.

One of our concerns is, in addition to safety, for many RCAs it is important not to overlook the role of speed limits on street amenity and in encouraging active modes. We believe that the objective in the Guide captures these interests, and wording similar to 1.1.1 in the Guide should be included as a Purpose of the Proposed Rule.

Recommendation: Amend the Rule Purpose to include the wording of Objective 1.1.1 of the Speed Management Guide.

Section 2 General procedure

As noted in the Overview, under Section 3.2(7) of the 2003 Rule, an RCA was obliged to review a speed limit if there was *"a significant change in the nature, scale or intensity of land use adjacent to a road"* or *"a significant change in a road, its environment or its use"*, but there appears to be no similar requirement for RCAs under the new Rule (for example under the new **Section 2.2**). In addition, under Section 3.2(8) of the 2003 Rule, there was the ability for an RCA to review a speed limit if it received *"a written request to do so from a person, organisation or road user group affected by that speed limit"*, which also appears to have been removed. We consider that these were important checks and balances that should be retained in the Proposed Rule.

Recommendation: Retain previous obligations of RCAs to review speed limits when the road environment significantly changed or when requested by a third party.

We note that in **Section 2.3(2)** the chief executives of the New Zealand Automobile Association Incorporated and the Road Transport Forum New Zealand continue to be explicitly included in the list of persons who must be consulted on proposed speed limits. However, the list does not include other key road user groups, such as motorcyclists, cyclists, and pedestrians. The effects of motorised travel and non-motorised travel are different. Explicit mention of a wide range of road user groups will ensure that future consultations on speed limits adequately capture feedback from active travel modes.

The list of persons in Section 2.3 (2) should also, in our view, include mana whenua. Iwi authorities have knowledge pertaining to some locations that RCAs do not, and consultation will ensure that iwi needs have been appropriately included. For example, there have been situations where settlements were separated by a road installation from adjacent natural features of cultural importance.

Recommendation: Section 2.3 (2) be amended to include a wider range of road user groups and mana whenua in the parties that are consulted when RCAs are reviewing and setting speed limits.

Section 4.2 to 4.4 outline the data now provided to RCAs (by NZTA) to help determine appropriate speed limits. However, **Sections 2.3-2.4** are silent on what information must be made available to parties consulted with; nor is it clear whether any person or organisation can request the information supplied by NZTA at any time.

Recommendation: Clarify what data should be provided during consultations.

Section 3 Categories of, range of, and default speed limits

We strongly support the removal of the definitions for a “rural speed limit” and an “urban speed limit” (previously defined as a speed limit of 100 km/h and 50 km/h respectively) and the principle that different rural and urban roads warrant different limits to the traditional defaults. However, we are thoughtful about consistency in respect of this and the specification in **Section 3.4** of default urban and rural speed limits.

Recommendation: Reconsider the need for specifying default urban and rural speed limits.

Section 4 Permanent, holiday, and variable speed limits

Section 4 appears to deal with two different topics – “permanent, holiday, and variable speed limits” and “speed information”. It is suggested that a separate Section dealing with developing information (4.2) and maintaining information (4.3), be inserted.

Recommendation: A new Section be inserted to separate the two issues of “permanent, holiday, and variable speed limits” and “speed information”.

We note that under **Section 4.3**, the Agency must supply to each RCA information about the safe and appropriate speed for roads within that RCA’s jurisdiction or a RCA may request this information from the Agency. While this information will be publicly available under the provisions of the Local Government Official Information and Meetings Act 1987, we suggest it should be proactively made public so that it is openly accessible to the community.

Under **Section 4.6** a RCA may set permanent, holiday, or variable speed limits and must aim to achieve “a mean operating speed less than 10% above that speed limit”. This is a significant departure from Table SLNZ3 of the 2003 Rule (where the mean operating speeds should seek to match the posted speed limit). It could potentially allow mean speeds to be up to 11 km/h above the posted speed (for a 110 km/h road). Allowing for a mean operating speed limit up to 10% above the posted speed limit for these high-speed roads may allow for speeds significantly higher than the design speed of the road (with the 85th percentile speeds even higher), and hence increase the risk of crashes.

Similarly, requiring lower speed roads to have a smaller tolerance (for example, 30 km/h roads to have a maximum operating speed of 33 km/h) will make it harder to introduce these lower speed limits. It will also rely on being able to detect a 3 km/h difference and this may challenge the margins of error for measuring mean operating speeds, and for enforcement.

Recommendation: RCAs should aim to achieve mean operating speeds that **match** the posted speed limits, to within 5 km/h.

Section 5 Additional procedural steps for certain speed limits

We note that under **Section 5.2** a RCA must obtain the approval from the Agency before setting a 70 km/h or 90 km/h speed limit, whereas this approval is not required for the other speed limits. We do not support this and believe that there should be no difference in the approval process for 70 km/h or 90 km/h speed limits, given the presence of a wide range of speed limits between 10 km/h and 110 km/h. There appears to be an intention to introduce a “60/80/100” speed differentiation. The geometry of some local roads is not suitable for a 60 km/h or 80 km/h regime without additional engineering.

Rather than approval, we believe that consultation by RCAs with the Agency under Section 2.3(2) (g) is a sufficient mechanism for oversight by the Agency.

Recommendation: Approval from the Agency for setting a 70 km/h or 90 km/h speed limits not be required.

Sections 5.1(5), 5.2(5) and 5.3 (5) allow the Agency to remove variable, 70 km/h and 90 km/h, and 110 km/h speed limits that have been set by a RCA, and there is no requirement on the Agency to provide reasons. These clauses should include criteria that must be met by the Agency before it is able to remove these limits. We recommend that the Agency be required to provide reasons for its decisions which is an important natural justice requirement for any public decision-maker.

Recommendation: Sections 5.1(5), 5.2(5) and 5.3 (5) include criteria the Agency must meet before removing these speed limits.

Sections 3.2 and 5.3 provide for setting speed limits at 110 km/h. This is one of the major changes in this Rule and has safety, environmental and economic implications.

In reviewing the publicly available information on this change, we have been unable to find any evaluation of this proposal and its implications. The Regulatory impact of the Proposed Rule describes benefits as reduced journey times and notes that the estimated benefit-cost ratios are marginal for some individual road sections tested. It would have been helpful to receive more detailed information on the evaluations of this change. Similarly on the issue of **safety**, the Document says that the main risk of an increase to 110 km/h travel speeds is that, if there is a crash, the impact speeds could be higher, which could result in greater trauma. Previous evidence has shown that an increase in the open speed limit, as seen in 1985, was accompanied by a notable increase in rural fatalities and injuries relative to their urban counterparts.⁴ In addition, there is no reference in this Document to the potential increase in **emissions**. New Zealand has undertaken under the Paris Agreement to reduce its emissions by 30% below 2005 levels by 2030. We think that this needs to be factored into the proposal.

A report prepared by the Otago Medical School refers to the relationship between increased speed and increased emissions⁵. They have drawn on the Vehicle Emissions Prediction Model (VEPM) that has been developed by the Agency and Auckland Council. They conclude that using an increase of 4 km/h to the average speed of the New

⁴ Koory G, & Frith W, *Changing Rural Speed Limits: Learning from the Past*, IPENZ Transportation Group Conference, 29-31 March, 2017.

⁵ McLean R, et al, *Bringing You Up to Speed: A Health and Economic Model of the Effects of Raising the Speed Limit on New Zealand State Highways and Motorways from 100km/h to 110km/h*, University of Otago, Wellington, (2012).

Zealand motor fleet would result in an overall increase in vehicle emissions of 4.35% increase in CO, 1.82% increase in CO₂, 2.35% increase in NO compounds and 5.83% in particulate matter. (The figures used in the model applied a change of speed from 96.36km/h to 100km/h, as 100km/h was the upper limit of the prediction model). From the shape of the curve in one of their references⁶, it might be reasonable to assume that an increase of 10 km/h would at least double these emission levels.

In addition, it can be expected that with trucks limited to 90 km/h, cars will accelerate and decelerate more frequently and hence the actual emissions would be even higher.

Because these roads are amongst the highest traffic volume roads (both in terms of cars and heavy vehicles), the costs per kilometre of extra fuel and the production of CO₂ (and the other pollutants) will be highest along these routes.

We have searched for information on the safety, environmental and economic implications of this new Rule, (including the New Zealand Transport Agency Research Reports database), and the only source we could only find is the Otago Medical School⁷ report. One of the significant caveats of this study is that they have modelled the increase in speed limit on all motorways (due to data limitations), rather than the very limited length of motorways currently proposed by Government⁸ for increasing the speed limit. Their report concludes, based on the results of their economic model, that there would be a net savings of \$22 million per annum from increasing the speed limit to 110km/hour on New Zealand motorways. They also conclude that applying the same increase on all New Zealand State Highways would result in a net deficit of \$107 million per annum, primarily due to a significant increase in accidents. For the increase of 110km/hour on motorways, their benefits and costs are shown in the following table:

Cost component	\$ per annum
Social costs (crashes)	9.84 m
Vehicle operating costs	12.22 m
Emissions	0.95 m
Time saved	-39.56 m
Fuel tax revenue	-5.12 m
Total cost	-21.67 m

Costs due to increasing the speed limit to 110 km/h all motorways

We are not sure this analysis follows the New Zealand Transport Agency’s methodology for calculating benefit/cost ratios (for example, it is not conventional to include increased fuel tax revenue). However, this Study shows that, overall, there are economic benefits of increasing speed limits if applied on all motorways. We suggest that the Agency’s own benefit-cost analysis should be published – noting the comment in the Document that the estimated benefit-cost ratios are marginal for some individual road sections tested.

⁶ Barth M, Boriboonsomsin K., *Traffic Congestion and Greenhouse Gases*. Access. 2009; 35:2–9.

⁷ McLean R, et al, *Bringing You Up to Speed: A Health and Economic Model of the Effects of Raising the Speed Limit on New Zealand State Highways and Motorways from 100km/h to 110km/h*, University of Otago, Wellington, (2012).

⁸ NZ Transport Agency , *Land Transport Rule Setting of Speed Limits 2017, Frequently asked questions – yellow draft consultation*

Recommendation: *the New Zealand Transport Agency publically release any analysis that evaluates the benefit cost ratios for the individual road sections tested and any quantified analysis of the implications of the Proposed Rule, including impacts on increased emissions.*

While we generally support the proposal to increase the speed limit, we do have some reservations about the increase in speed limits to 110 km/h on some motorways. The de facto 10km/h tolerance means that we would see drivers at 120 km/h on expressways. Furthermore, there would be a significant speed differential with HCVs, which are restricted to 90 km/h, particularly at on-ramps. The modern expressway network, with long distances between ramps and median barriers, can negatively affect the Police's ability to monitor speed. Consideration could be given to allowing use of remote detection systems to address this.

Recommendation: *Raising the speed limit could be complemented by allowing use of remote detection systems (such as point-to-point speed cameras).*

Section 6 Temporary speed limits

As noted in the Overview, section 6.2 provides for a temporary speed limit when there is physical work occurring and 6.3 when there is an unsafe road surface or structure. However, there may be a need to use temporary speed limits to enhance safety and at some rural intersections, or during inclement weather where there may be intermittent surface water, obscured road markings and or signage. We do not believe that the criteria in 6.1(2) (a) captures these type of situations and should be more generalised.

Recommendation: *The criteria on Section in 6.1(2) (a) be broadened to cover the many and various reasons that where it would be in the road user's interests to reduce speeds.*

We welcome the ability for the Agency or Commissioner to remove inappropriate or unnecessary temporary restrictions. The default 30km/h limit for construction activities is frequently used where an alternative higher limit might be considered more appropriate. (For example, leaving signs out after restriction has been removed, or restricting speeds on several kilometres of road where the work site can change but has no other physical restriction). This can cause frustration and erode the effectiveness of speed restrictions at locations of genuine risk.

Section 6.5 provides for an RCA to set a temporary speed limit for special events. This to ensure the special event is safe and appropriate for the numbers and types of road users, including motorcyclists, cyclists, and pedestrians, and for the use the road; and the nature of the special event. While there are no types of special events scheduled, we would like to point out that this may include activities on marae (including tangihanga).

Section 7 Emergency speed limits

The introduction of the ability for RCAs to introduce emergency speed limits, with broad criteria, is fully supported. The current arrangement of having to make a specific emergency Rule lowering speed limits on particular roads is a time-consuming and cumbersome process. It will be beneficial for RCAs to be able to introduce Emergency speed limits promptly and without reference to the Agency.

Section 8 Roads in designated locations

Section 8.2 defines and lists designated locations where RCAs may set a permanent speed limit. We believe this list should include roads in marae and urupā. An example is Taupiri Urupa, adjacent to the Waikato river on SH1, and there are many others.

Recommendation: *In Section 8.2 marae and urupā be included in the list of designated locations for permanent speed limits.*

Section 9 Signs and road markings

Section 9.2 sets out a new requirement to provide repeater signs and we support this. While Schedule 2 sets out the maximum length of road between signs, the Rule provides flexibility for RCAs as they are not obliged to comply with these lengths if the nature of the road is such that a road user would reasonably understand that the speed limit displayed on the last speed limit sign remains the speed limit throughout the whole of that length of road. This concept is supported, encouraging the use of “self-explaining roads”. However, we note that clause 9.2(2)(b) allows this exemption to apply when “*the measured mean operating speed is less than 10% above the speed limit for that length of road*”. As mentioned previously, this allows a road to have notably higher operating speeds than the posted speed, which does not meet the definition of a self-explaining road. It should also be noted that posted speed limit signs can have a slight influence on observed speeds, so regular repeater signs may be necessary to help maintain an appropriate speed for a road section.

Recommendation: *RCAs should only be allowed to ignore repeater sign requirements when mean operating speeds match the posted speed limits, to within 5 km/h.*

Part 2: Definitions

“Mean operating speed” is defined as “*the mean speed of traffic, including all classes of vehicle, measured in a way that is representative of all traffic speeds on the road over a 7-day period*”. This is potentially problematic for several reasons. Firstly, it is not clear whether only free speeds (i.e. not impeded by vehicles in front) are desired. Secondly, “vehicle” is not defined in the Proposed Rule; however, in the Land Transport Act 1998, it is defined very broadly. It is not clear whether it is intended that all of these forms of vehicles (as defined in the Act) be included in the dataset. Finally, a number of sites may have quite different speed profiles throughout the week, which may lend themselves to the use of dynamic (variable) speed limit treatments.

Other issues

With a greater provision for and use of pathways for walking and cycling, we note that there have been numerous queries nationwide as to the status of posted speed limits on pathways and cycleways, both alongside roadways and completely separate from road corridors. It would be helpful if the Proposed Rule clarified the situation regarding the ability to set specific speed limits for pathways and cycleways (notwithstanding the requirement under the Road User Rule for these users to not travel “*at a speed that constitutes a hazard to other persons using the path*”).

Recommendation: *The Rule should clarify the application of posted speed limits on pathways.*