



## Report to Wellington City Council: Middleton Rd speed zone

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### Introduction

Land Transport New Zealand is leading a project to develop policy and procedures for setting speed limits on rural roads, that is, speed zoning. Accordingly, a draft Speed Zoning Policy setting out a number of criteria to help determine the appropriate speed limit has been developed. It is important a method is developed so speed limits on rural roads, when set, are consistent and therefore understandable to drivers, no matter where they are in the country.

### Background

For over fifty years speed limits in New Zealand have been based on the level of development, so road sections with little or no development have had the default rural speed limit, currently 100 km/h.

At changes to the default rural speed limit a derestriction sign as shown in Figure 1 or the 100 km/h sign in Figure 2 can be used. These signs mean the maximum legal speed is 100 km/h, but drivers are required to travel at lower speeds where conditions warrant.

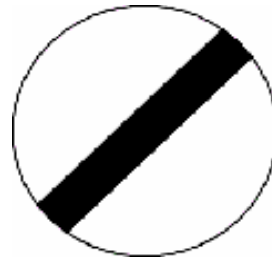


Figure 1:  
Derestriction sign



Figure 2:  
100 km/h sign

When introduced in the 1920s, the derestriction sign specifically signified the end of the urban limit and provided greater emphasis on driving to the conditions. However, as the range of speed limits between the default urban (50 km/h) and rural limits increased, improvements to the highway occurred, and tourist traffic became more prevalent, the use of the 100 km/h sign frequently replaced the derestriction signs.

Consequently 100 km/h signs are now installed in some places where conditions are such that drivers should not travel at 100 km/h, but a number of drivers attempt to do so believing the sign is telling them such a speed is safe and appropriate for the road. There have also been drivers who always drive to their own maximum speed regardless of which of the two rural default speed limit signs are used.

Fortunately, most drivers treat the derestriction or 100 km/h sign as intended and drive to the conditions but because of these different attitudes towards speeds on rural roads there is a considerable spread of vehicle speeds. Drivers entering or crossing the road and other road users, such as pedestrians crossing the road, have difficulty judging vehicle speeds due to large differences in speed. Speed related crashes are also occurring when drivers do not recognise road features that require them to slow down. Specific signs warning of the danger, including advisory speed signs, should be used rather than changing the speed limit. However, where a road continuously requires a driver to drive slower, a lower speed limit may be appropriate.

## **Draft New Zealand Speed Zoning Policy**

To help road controlling authorities determine the safest and most appropriate speed limit on rural roads, Land Transport New Zealand is leading a project to develop policy and procedures. This project has a steering group that has been assisting with the development which includes representatives from:

- Trafinz/TLA: Manakau CC, Dunedin CC
- Trafinz/consultant
- TLA: Thames/Coromandel DC
- Transit NZ national office
- Transit NZ Wellington regional office
- Police
- RTF
- AA
- Ministry of Transport
- Land Transport NZ regional engineers
- Land Transport NZ national office

This project has produced the Draft New Zealand Speed Zoning Policy. Consultation with road controlling authorities and other key stakeholders was conducted in December 2004. The current version of the policy incorporates the comments received from that consultation. Land Transport New Zealand is now testing the procedures to ensure that they produce realistic safe and appropriate speed limits for potential speed zones.

To test these procedures, Land Transport New Zealand requested road controlling authorities to nominate rural roads that may benefit from a lower speed limit. A number of roads across the country have been nominated and are being assessed.

All initial speed zones will be monitored and evaluated by Land Transport New Zealand to enable the speed zoning procedures to be further developed for all road controlling authorities to use. This will ensure the consistent installation of speed zones between road controlling authorities, leading to better acceptance by road users, better compliance and enforcement.

## **Middleton Road**

Wellington City Council identified Middleton Rd as a road that may benefit from a lower speed limit.

Land Transport New Zealand has assessed the road using the criteria proposed in the draft New Zealand Speed Zoning Policy to determine an appropriate speed limit. The speed limit for the speed zone, must be set according to the requirements of the *Land Transport Rule: Setting of Speed Limits 2003*. It will be a permanent speed limit with all the relevant legal ramifications.

### **Recommended speed limit**

The speed limit determined by Land Transport New Zealand as being safe and appropriate for Middleton Rd between the end of the Johnsonville urban traffic area and the end of the Tawa urban traffic area is 70 km/h. Further information about how this speed limit was determined is given below.

This speed limit fits the requirements of the Draft New Zealand Speed Zoning Policy and will therefore meet the requirements of section 3.2(5) of the *Land Transport Rule: Setting of Speed Limits 2003* (Speed Limits Rule).

### **Speed Limit Sign Provisions**

Speed limit signs will be required for speed zones following the requirements of the Speed Limits Rule. This includes repeater signs. However, for Middleton Rd repeater signs are not required as the length of the zone (1.8km) is less than the maximum spacing between repeater signs for a 70 km/h speed limit (2.4km). Of course if it is felt that a reminder is required then repeater signs can still be used.

The Accident Compensation Commission (ACC) believes the concept of speed zoning and the development of procedures to ensure safe and appropriate speed limits are implemented is a worthwhile project. To help with the project it is offering to with funding signs required for the initial speed zones associated with the Land Transport New Zealand testing of the speed zoning procedures. If the council wishes to go ahead and install the above recommended speed limit on Middleton Rd then it should contact Land Transport New Zealand for more information about how to apply for this funding.

### **Determination process**

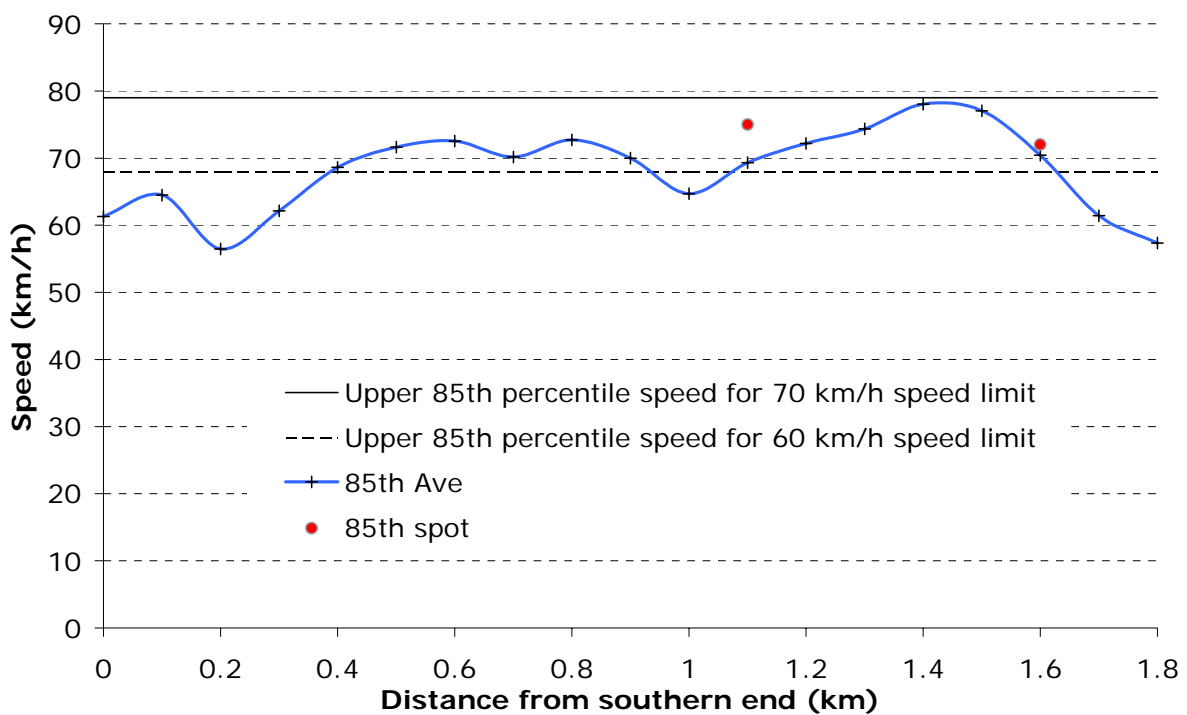
Two processes have been used in the assessment of Middleton Road that follow the procedures within the Draft New Zealand Speed Zoning Policy Version 0.4.0 and the calculation process in Version 0.3.1 of this policy. These policies are available if further information is required.

## 85<sup>th</sup> percentile speed profile

The first process considered was the current operating speeds. In cases where speed zoning is being considered, it is expected the majority of drivers will be selecting their speed based on the conditions. However, there will be some drivers who try to drive at the posted speed limit rather than to the conditions – some of these drivers may even pressure other drivers to drive faster. In these conditions it is generally accepted that the 85<sup>th</sup> percentile driver is driving at the upper end of what is a reasonable speed to drive the road. Anyone driving above this speed is considered to be driving at a speed unacceptable to the majority of drivers and the general public.

Figure 1 shows the 85<sup>th</sup> percentile speed profile for the proposed Middleton Rd speed zone. This figure also shows the upper limit of the 85<sup>th</sup> percentile speed profile for some possible speed limits as proposed in the Draft New Zealand Speed Zoning Policy. If this upper limit is exceeded continuously for 1 km or more, or for more than 20% of the length of the proposed speed zone, the corresponding speed limit is considered inappropriate. In the case of Middleton Rd it can be seen that for a 70 km/h speed limit the upper limit of 79 km/h is not exceeded by the 85<sup>th</sup> percentile speed profile, and the profile only exceeds 70 km/h on two sections of the road. These are almost ideal operating speeds for a 70 km/h speed limit. Alternatively, the profile exceeds the upper limit for the 85<sup>th</sup> percentile speeds for a 60 km/h speed limit over more than 60% of the speed zone. The profile also exceeds 60 km/h for almost 90% of its length. This means if a 60 km/h speed limit is set a wide spread of vehicle speeds is likely and therefore it is unlikely that the safety of the speed zone will be improved.

**Figure 1: 85<sup>th</sup> percentile speed profile and upper limits for possible speed limits for Middleton Rd**



## Calculated speed limit

The calculation method considers the following items in determining the speed limit:

- Frontage development
- Side roads – including level of development
- Curves, particularly large changes in operating speeds between straights and curves
- Seal width
- Roadside hazards including distance from roadside and potential severity
- Method of separating opposing traffic
- Sight distance
- AADT including number of heavy, tourist or agricultural vehicles per day
- Number of vulnerable users (pedestrians, cyclists, horse riders) per day

The Draft New Zealand Speed Zoning Policy gives more information about the rating and relationship of these items. For Middleton Rd the calculated speed limit is 70 km/h, although close to 80 km/h. A general overview of the data used shows a reasonably high volume of traffic mixed with moderate curves, indicating a moderate risk of head on collisions and, in some places, a high risk of severe crashes due to vehicles leaving the road and crashing into the roadside environment.

Due to the 85<sup>th</sup> percentile speeds being within the operational speed requirements a 70 km/h speed limit is considered suitable for this road.