Schedule 1

Speed Limits New Zealand

Guidelines for setting speed limits and procedures for calculating speed limits

Contents

1.0 Introduction

Land Transport Rule: Setting of Speed Limits 2003 specifies the legal procedure for establishing speed limits on public roads. The rule incorporates *Speed Limits New Zealand* as the procedures for calculating the speed limit, and the Land Transport Safety Authority (LTSA) has developed a computer program to assist with this. *Speed Limits New Zealand* (*SLNZ*) supersedes *RTS 17 Guidelines for Setting Speed Limits*.

SLNZ specifies the procedures for calculating a permanent or holiday speed limit, and outlines the policy and principles on which the procedures are based. In the event of a contradiction between Part 1 of the rule and *SLNZ*, the provisions of Part 1 of the rule apply.

Instructions for installing and operating the computer program are included with the program.

1.1 Speed limits policy

The objective of speed limits policy is to balance the interests of mobility and safety by ensuring speed limits are safe, appropriate and credible for the level of roadside development and the category of road for which they are set. They must also be nationally consistent.

Road users are more likely to comply with a speed limit if it is consistent with limits on other roads in the network with similar characteristics, and if limits in general reflect the factors that most influence speed choice. The level of roadside development and the function of a road are the primary determinants of the appropriate speed limit. Consistency is an important aspect of road users' perceptions of a reasonable speed limit and will influence their willingness to comply.

Although road geometry is also a factor in determining a speed limit, it is secondary to roadside development. In situations where the road geometry encourages road users

to travel at a higher speed than the speed limit determined by roadside development, engineering techniques should be used to lower vehicle speeds. When a road in a built-up area primarily serves through traffic, engineering techniques and access controls should be used to provide safety at the higher speeds that will prevail.

1.2 Speed limits calculation

Historically, public road speed limits in New Zealand have been 50 km/h, for roads in urban situations and 100 km/h, for roads in rural areas and motorways. The rule does not change this general principle.

The general principle represents a balance between consistency and safety but, in some cases, the choice between 50 or 100 km/h does not allow the appropriate speed limit to be set for a particular section of road. The rule allows speed limits of 20, 30, 40, 60, 70 or 80 km/h to be set on roads where traffic patterns or road or land use make a speed limit other than 50 or 100 km/h appropriate and safe.

The rule requires road controlling authorities to use *SLNZ* to calculate the speed limit for any public road to ensure consistent application of speed limits policy across the public road network.

SLNZ sets out the method for calculating the speed limit for a section of road from the following information:

- the existing speed limit;
- the character of the surrounding land environment (eg, rural, fringe of city, fully developed);
- the function of a road (ie, arterial, collector or local);
- detailed roadside development data (eg, number of houses, shops, schools, etc.);
- the number and nature of side roads;

- carriageway characteristics (eg, median divided, lane width and number of lanes, road geometry, street lighting, footpaths, cycle lanes, parking, setback of fence line from carriageway);
- vehicle, cycle and pedestrian activity;
- crash data;
- speed survey data.

To review and set a speed limit under the rule, the road controlling authority must:

- calculate the speed limit using *SLNZ*;
- consult with people and organisations affected by the speed limit;
- make a bylaw;
- notify the Director and the Commissioner of Police;
- record the details of the speed limit in a register; and
- erect speed limit signs.

1.3 Speed Limits New Zealand (SLNZ)

SLNZ is the specified method for calculating a speed limit. The calculations can be done either manually, by following the procedures set out in this document, or by using the computer program. As well as calculating speed limits, the output of the computer program can be used to document the speed limit setting process and to maintain records of speed limits required by the rule.

The LTSA will maintain *SLNZ* to reflect changes in the rule that are brought about by changes in speed limits policy or that affect the method of calculating speed limits.

There will be some rare situations when, because of special features or activities along a road or route, *SLNZ* cannot be used or will not produce a sound result. *SLNZ* must always be used with reference to speed limits policy, and in

conjunction with sound engineering judgement, to determine the appropriate and safe speed limit.

2.0 Speed limits policy

Under the rule, permanent and holiday speed limits may be 20, 30, 40, 50, 60, 70, 80 or 100 km/h. The policy for speed limits is set out below.

2.1 Urban speed limit (50 km/h)

The general urban speed limit is 50 km/h. In an urban traffic area, the urban speed limit indicates that drivers can expect to encounter vehicles that are turning, slowing, stopping or parking, pedestrians, cycles and heavy vehicles.

An urban traffic area is land close to or within a town or city. The land will generally appear fully built-up. Land uses include:

- residential;
- commercial;
- industrial;
- educational;
- recreational.

An urban traffic area also includes partly built-up areas:

- in small towns;
- within a metropolitan area;
- on the fringes of a metropolitan area.

Development on the land will generally be close to the roadside property boundary and there may be provision for parking and loading in front of commercial and industrial development. Sealed footpaths, kerb and channel, and landscaped grass areas between the kerb and the property boundary are typical of urban development. The roadside environment will be fully built-up, although access may be restricted.

Road geometry should not encourage higher speeds. Where road geometry tends to promote higher operating speeds than the level of roadside development warrants, engineering measures should be taken to increase the apparent activity on the road. These include narrowing of traffic lanes; marking cycle lanes and parking lanes; installing kerb extensions at pedestrian crossing points and installing roundabouts. Signal linking can also be used to discourage higher speeds.

2.2 Rural speed limit (100 km/h)

The general rural speed limit is 100 km/h.

A rural area is land outside towns and cities. The level of roadside development is at a minimum. Land use includes:

- agriculture;
- market gardening;
- forestry;
- reserves;
- small settlements.

Houses in rural areas will generally be set back some distance from the road. There will be little kerbing and no footpaths unless installed for a specific reason (eg, a school remote from a residential area). Street lighting will generally not be provided but, if present, it will be only at

specific community facilities or used as intersection indicator lighting.

In situations where the safe operating speed is below 100 km/h due to the road geometry or other limitations on the roadway, drivers should be made aware of the need to reduce speed. This can be achieved by means of warning signs, delineation and by the physical nature of the road itself. Using derestriction signs should also be considered as an alternative to using 100-km/h signs. It is not appropriate to install a lower speed limit.

2.3 Arterial route speed limits

Speed limits of 60 and 80 km/h are primarily intended as limits for arterial routes. A 50-, 70- or 100-km/h speed limit may also be appropriate on an arterial route in some circumstances.

The geometric features and general appearance of the road and surrounding development should be consistent along the entire length of the arterial route speed limit.

On a long route (more than 3 km), where the level of development on a short section (less than 1 km) varies from the predominant development along the route, it may be appropriate to install a constant speed limit over the entire route. In this situation it is essential that the specified geometric design criteria are complied with and that traffic responds safely to the posted limit, despite the variation in development.

The minimum recommended length of 1 km for 60- or 80- km/h speed limits on arterial routes, as specified in *Table SLNZ1*, emphasises that these limits are primarily intended for arterial routes that meet consistent standards over a reasonable length of road.

2.4 Speed limits of 20, 30 and 40 km/h

Speed limits of 20, 30 or 40 km/h may be set for local roads or minor collector roads in urban traffic areas where the road is used by motorised traffic and pedestrians or cyclists (eg, shared zones) and a speed limit less than 50 km/h is necessary for safety purposes. Speed limits of 20, 30 or 40 km/h are generally not suitable for roads serving a significant collector or arterial function.

These limits can only be set if the calculated speed limit for the road is 50 km/h and appropriate and safe traffic engineering techniques are applied to ensure that the mean operating speed of motorised traffic is kept to within 5 km/h of the speed limit.

2.5 60-km/h speed limit

A 60-km/h speed limit is an arterial route limit that may apply to roads in urban areas meeting specific design requirements. This speed limit may be appropriate where the roadside is fully developed, if the road geometry and other design features can safely provide for the activity generated by the development, when the traffic is operating at the higher speed.

A 60-km/h limit is only suitable on roads that primarily serve the needs of through traffic, (ie, a high proportion of the traffic should travel along the road for a significant proportion of its length). The road should have consistent geometric features over the whole length of the restriction to reinforce its route function.

Examples of the necessary design features include solid or flush medians, multiple lanes, frontage service roads, well-spaced intersections, restrictions placed on turns at minor intersections, property boundaries set back and linking of signals to discourage higher or lower speeds.

If a proposed 60-km/h speed limit will raise the existing speed limit, the road controlling authority should conduct a safety audit, as recommended in *3.6*, to identify any

deficiencies that require attention to provide a safe environment for all road users.

2.6 70-km/h speed limit

A speed limit of 70 km/h is appropriate in areas of intermediate roadside development, such as small country towns, urban fringe areas, short sections of road in partly built-up areas within a large urban traffic area or areas of single-sided development. It may also be used as a buffer between a 100-km/h and a 50-km/h section, but only if there is sufficient roadside development to make the speed limit reasonable and safe.

2.7 80-km/h speed limit

A speed limit of 80 km/h may be installed in the situations described below.

- On lengths of arterial road through rural land within a large urban traffic area. In this situation, there should be good reason to reduce the speed limit from 100 km/h. Examples include high traffic flows (more than 10,000 vehicles a day) with a significant mix of local and through traffic; frequent turning movements; or considerable cycle, school or pedestrian traffic).

- In rural areas where there is significant activity generated by adjacent land uses, for example, rural selling places or 'lifestyle' blocks.

- In small rural settlements where a 70-km/h speed limit is not warranted, but where local residents are obliged to use the road as part of their daily activity, due to the historical development of the area. An example of this would be where a primary school is across the main road, or along the road from the main part of the settlement.

In all circumstances, an 80-km/h speed limit should not be posted over short lengths of road (see *Table SLNZ1*). The

road should have consistent geometric features over the whole length of the speed restriction to reinforce its arterial route aspect.

2.8 Holiday speed limits

A holiday speed limit applies for a specified period or periods during a year. This may be suitable for locations with large differences in the level of roadside activity at different times of the year. An example is a beach resort that is popular in summer, but only sparsely populated for the rest of the year. Typically, when the level of activity is at its highest, a limit of 50 km/h would be appropriate, while for the remainder of the year the level of activity would justify the rural speed limit.

Because this type of speed limit is applied in unusual circumstances, the normal assessment methods are not fully appropriate. *Appendix I* sets out the method for determining a holiday speed limit.

3.0 Procedures for deciding on a speed limit

The posted speed limit must be safe and appropriate for the type and level of development on the adjacent land, and for the function and use of the road. When reviewing an existing speed limit or deciding the appropriate speed limit for a new road, the rule requires the speed limit to be calculated by following the procedures in *SLNZ*. This involves undertaking surveys and applying the procedures specified in this schedule to the survey data.

3.1 Surveys

Two surveys are required:

- a survey of roadside development (the rating survey); and

- a survey of general road information.

These surveys should be done together in accordance with the instructions in *Section 4.0.* Suitable survey forms are illustrated in *Appendix II* and in the computer program documentation.

For a 60-km/h speed limit, or if there is doubt about traffic complying with any other speed limit, a concealed survey of traffic speeds should be undertaken. Speed surveys should be carried out in accordance with LTSA guidelines on speed survey methods.

3.2 Road environment

Length of restriction

Frequent changes of speed limit along a route should be avoided. Minimum lengths of road for a speed limit must comply with *clause 2.4* of the *Setting of Speed Limits Rule*. *Table SLNZ1* complies with the rule, but specifies longer lengths in some situations as a guide to good practice. Applying these minimum road lengths will avoid having frequent changes in speed limit along a road with varying characteristics. However, these short lengths are not always appropriate, and longer lengths should be applied in some circumstances.

For example, consider a 500-metre section of road that has a calculated speed limit of 70 km/h, with a section of road at either end of it that has a calculated speed limit of 80 km/h. It may be appropriate to extend the 70-km/h section or one of the 80-km/h sections to reduce the number of changes in speed limit along the road. The decision as to which speed limit to extend, if either, will depend on factors such as the type of roadside development, the geometric standards, and the designation and use of the road.

The level of development should be reasonably consistent along the entire length of a speed limit, especially in areas with sparse development. It is not appropriate to install a 500-metre-long, 70-km/h speed restriction in a rural area,

for example, if the only development is located in a 100-metre section of road in the middle of the proposed speed limit. This applies even if the requirement for the average rating is met for the 500-metre length. In these circumstances road users will see no reason for the change in speed limit and compliance will be poor. This will result in a wide variation in operating speeds, which makes judgement of speed and distance difficult for all road users. Such conditions will usually contribute to a reduction in safety, especially for pedestrians and cyclists.

Table SLNZ1 Minimum length of road for a speed limit

Speed limit (km/h)	Nature of road and adjacent speed limits	Minimum length (metres)
50	Urban street, adjacent speed limits 70 km/h or less	500
	Urban fringe, adjacent speed limits greater than 70 km/h	1000
60	Urban arterial route, adjacent speed limits 80 km/h or less	1000
	Other situations	500
70	Partly built up, adjacent speed limits 80 km/h or less	1000
	Other situations	500
80	Arterial route, adjacent speed limits 70 km/h or less	1000
	Other situations	800
100	All situations	2000

Changes in speed limit

Suitable points for changes in speed limit should be ascertained during the rating survey. All boundary points between speed limits must be at, or close to, a point of significant change in the roadside development or the road environment to emphasise the change in speed limit. Appropriate locations include a marked change in the level or type of roadside development, a change in the road geometry, a bridge, a threshold or other feature that affects

speed (eg, a roundabout or a curve). As a guide, the first 200 metres either side of the change in speed limit should meet the appropriate rating for that speed limit. For example, if the proposed speed limit is 50 km/h to the north and 70 km/h to the south of the point where the speed limit changes, the first 200 metres to the north should rate 11 or more and the first 200 metres to the south should rate between 6 and 11.

A threshold treatment may be necessary to reinforce a change in the speed limit where there is no obvious change in the road environment.

When the difference between adjacent speed limits exceeds 30 km/h (for example, a change from 100 km/h to 50 km/h), special treatment may be necessary at the point of change to encourage road users to comply with the reduced speed limit. This may be achieved by installing a threshold or an oversize sign on each side of the road. Alternatively, a buffer zone can provide a transition area, but only when the rating and minimum length criteria are met for the speed limit used in the buffer zone. Whichever treatment is applied, it must be appropriate and encourage a safe response from road users in the transition zone.

Road geometry (60-km/h and 80-km/h arterial route limits)

60-km/h and 80-km/h speed limits are intended primarily for arterial routes.

The road geometry over the length of the route should be consistent, and to an appropriate standard. The geometric features to consider include lane widths, number of lanes, provision of a median, lighting, intersection controls, pedestrian and cycle facilities, signs and markings and the setback of the property boundary from the edge of the roadway. There should be no roadside development features that are inappropriate for the speed limit under consideration.

3.3 Signposting

Signposting must be correct to ensure a speed limit is enforceable and to encourage compliance. The rule requires every road controlling authority to provide, at or near, and no more than 20 metres from, the point on the road where the speed limit changes, a sign to advise drivers of the change in speed limit. The rule allows this small measure of flexibility when erecting the sign to avoid the sign being too close to a driveway, or to a point of restricted visibility. Changes in speed limit are frequently located at a specified distance from a side road. As most road reserves are 20 metres wide, the rule allows 20 metres flexibility in the location of the sign.

Where the operating speeds are high, or the change in speed limit is more than 30 km/h, additional or oversize signs may be appropriate. The *Manual of Traffic Signs and Markings*[1] gives guidance on the sign size appropriate to the location and traffic conditions. Guidance is also given on the lateral placement and visibility requirements. Use of the manual is strongly recommended.

The rule requires repeater signs in all 60-, 70- and 80- km/h speed limit areas as shown in the following table:

Table SLNZ2 Maximum length of road between repeater signs

Speed limit (km/h)	Maximum length of road between signs (km)
60	2.0
70	2.4
80	2.6

[1] *Manual of Traffic Signs and Markings* prepared and published by Transit New Zealand and the Land Transport Safety Authority. Part I: ISBN 0-478-04112-8, Part II: ISBN 0-478-04116-8.

The rule allows (but does not require) a road controlling authority to mark on the road surface alongside any speed limit sign the numerals shown on the sign.

3.4 Operating speeds

The mean speed and the 85th percentile speed on a road should not be significantly greater than the speeds specified in *Table SLNZ3*. On medium- to high-volume roads the standard deviation becomes important, as a road with a narrow distribution of speeds is less hazardous than one with a wide distribution. If operating speeds exceed the values specified in the table, it is likely that additional measures such as engineering, enforcement, education and publicity will be necessary to reduce speeds.

Table SLNZ3 Mean and 85th percentile operating speeds

Speed limit	Mean speed (km/h)	85th percentile speed (km/h)
50 km/h	50	60
60 km/h	60	70
70 km/h	70	80
80 km/h	80	90
100 km/h	100	110

3.5 Crashes

Crash rate comparison

When proposing a speed limit for an arterial route, whether the proposal is an increase or reduction in speed limit, the overall injury crash rate for that section of road should be compared with national data. The overall crash rate includes intersection and mid-block crashes.

An examination of crash rates should be undertaken as a before-and-after study considering existing and future crash rates respectively.

The existing crash rate should be below the 85th percentile of the national crash rate for similar roads. If the crash rate exceeds the 85th percentile for similar roads, additional engineering and enforcement, in conjunction with the change in speed limit, will probably be required to reduce it. This is just as important when reducing the speed limit as when increasing it, because it is unlikely that a reduction in speed limit alone will reduce the crash rate.

To protect the safety of the road in the future, there should be no factors that will result in a worse crash rate after the speed limit is changed. The road should be monitored after the new speed limit is applied and any necessary remedial action taken to ensure the two-year average crash rate remains below the crash rate before the new limit was installed. If the crash rate exceeds the 85th percentile for similar roads with the new speed limit, engineering and enforcement action should be undertaken to reduce the crash rate below the 85th percentile.

The LTSA maintains a database of crash rates for arterial roads and some collector roads. This information is available for crash rate analysis. The comparison with similar roads should include as many of the characteristics listed below as possible, depending on the number of roads available with comparable characteristics. If necessary, the characteristics should be modified slightly to obtain a reasonable sample of similar roads, for example, combining roads with 50- and 60-km/h speed limits or roads serving different functions in the road network.

Road characteristics for comparison of similar roads:

- speed limit (existing and proposed speed limits respectively for before-and-after comparisons);
- type of development along the road (residential, industrial or commercial);
- engineering features (solid median or undivided); and
- function of the road (arterial, collector).

The crash rate comparison is important for proposed speed limits on arterial routes and is recommended practice for all speed limit proposals.

Special crash-type analysis

On arterial routes, when a change in speed limit is proposed, crashes should be analysed to identify crash-types that may be affected by a different speed limit. Data should be analysed for the last two years with particular attention paid to pedestrian, cycle, turning and crossing crashes as the types most likely to be affected by a change in speed limit. Special crash-types should be monitored after the new speed limit is installed, and any necessary remedial action taken to ensure the two-year average crash rate does not increase for any of the identified crash-types.

Special crash-type analysis is important for proposed speed limits on arterial routes and is recommended practice for all speed limit proposals.

3.6 Safety audit

Road controlling authorities are responsible for providing a safe environment for all road users on their roads. This is reflected in *clause 2.5* of the *Setting of Speed Limits Rule*, which requires road controlling authorities to ensure all traffic control devices are safe, effective and appropriate to a new speed limit before it is applied. To ensure this condition of the rule is complied with, a safety audit, appropriate to the location and function of the road, should be conducted. This is particularly important when it is proposed to raise the existing speed limit. Suitable procedures and checklists are provided in Transit New Zealand's *Safety Audit Policy and Procedures*[2] or the Austroads *Road Safety Audit* [3] guidelines.

[2] *Safety Audit Policy and Procedures,* August 1993. Published by Transit New Zealand as a guideline document. ISBN 0-478-04113-6.
[3] *Road Safety Audit*, 2nd Edition 2002. Published by Austroads as a joint Standards Australia and Standards New Zealand handbook, HB43:2001. ISBN 0 85588 589 0.

3.7 Documentation

Good documentation of the speed limit setting procedures must be kept. This allows the speed limit setting process to be audited. It also allows the traffic enforcement agency to provide the courts with full documentation to support a prosecution if this is necessary. Good documentation provides an historical record of the speed limit, which will simplify future reviews of it.

The following information should be retained for all speed limits:

- rating diagrams and general survey information forms;
- plans that show the previous and current restricted areas;
- results of any surveys or studies undertaken in setting or monitoring the speed limit including speed surveys, crash studies and safety audits; and
- correspondence relevant to the speed limit.

The rule requires a register recording all speed limits, other than temporary speed limits, to be kept for the roads under a road controlling authority's control. The register must be available for public inspection. For details, refer to the LTSA guidelines on keeping a speed limits register.

3.8 Monitoring and review

Regular reviews of speed limits should be carried out to ensure they keep pace with changes in the level of development on adjacent land, the use of the road or road geometry. This will ensure a consistent standard is maintained throughout the country. The location, condition and visibility of the signs should also be monitored.

Monitoring should cover six main areas:

- roadside development;
- road environment;

- operating speeds;
- crashes;
- signposting;
- documentation.

4.0 The decision-making process – calculating the speed limit

A rating diagram must be prepared for each section of road under consideration. A general information form must be completed for all arterial and major collector roads and should also be completed for a minor collector or local road if it is the only road being reviewed or if there are matters requiring special consideration for setting the speed limit. The survey forms in *Appendix II* are designed for this purpose. A4-size survey form templates in Microsoft Word format are available from the LTSA.

The following information should be recorded on the survey forms:

- all roadside developments and all side roads intersecting with the road under review;
- roadway features including footpaths, cycle facilities, traffic control devices, curves, thresholds, and crests;
- appropriate speed limit change points;
- all matters that may be of significance to a speed limit.

The survey should extend at least 200 metres in each direction beyond the section of road under consideration. This is to ensure the appropriate boundary point between speed limits is identified and features that may influence sign location are included.

The survey data is used to calculate the average rating, which is then used as an input to a flow chart to determine the appropriate speed limit for the section of road. The average rating has two components, the development

rating and the roadway rating. These are described in the following sections.

4.1 Development rating

Different types of development are allocated the rating values as shown in *Table SLNZ4.* The ratings are based on the expected number of vehicle, pedestrian and cycle movements generated each day. For example, a house is allocated one rating unit and a large shop is given four rating units.

Development ratings are allocated for the road being surveyed (frontage development) and for the first 500 metres of side roads (side road development). For each 100-metre section of road, the development rating sub-total is the sum of the frontage and the side road development ratings. The total development rating is calculated by adding the 100-metre sub-totals for the length of road being assessed for a speed limit.

Frontage development

Table SLNZ4 Frontage development rating units

Development type	Frontage development	Rating units
A	Property or access point (Note 1) with 1 or 2 dwellings (Note 2); church; small hall; playground; beach; sports ground; camping ground; holiday cabins; cycle path or pedestrian way that intersects with the roadway	1
B	Property or access point (Note 1) with 3 or 4 dwellings (Note 2); business or office with fewer than ten employees; small shop; large hall; cinema; small public swimming pool	2
C	Property or access point (Note 1) with 5 or more dwellings (Note 2); business or office with 10 to 30 employees; general store; takeaway shop; bank; service station; cinema complex; hotel; restaurant; large swimming pool	3
D	Business or office with more than 30 employees; large shop; post office; hospital; tertiary education establishment	4
E	Access point (Note 1) serving two or more developments	1 to 4 (Note 3)
F	Primary school or kindergarten	1 for every 15 pupils
G	Secondary school	1 for every 30 pupils

Note 1. An access point includes a private driveway and a public entrance or exit.

Note 2. A dwelling includes a house, a home unit in a block, a semi-detached home unit and a motel unit. Each unit in a block of units counts as one dwelling.

Note 3. When two or more developments other than dwellings, or if dwellings and other developments share a common access point or service road, the correct rating is the greatest of:

(1) the rating for a development type A, B or C according to the number of dwellings served by the access point; or

(2) the highest rating for any one development, other than dwellings, served by the access point; or

(3) the rating determined by treating the access point as a side road and allocating the rating specified in *Table SLNZ5*.

Multiple access points

In most situations where a single development or a small group of developments has more than one access point on

the same road, the development should be rated once only and additional access points ignored. Developments with separate entrance and exit points should also be treated as having only one access point. Examples include service stations, motels, schools and a small group of shops with off-street parking.

However, where a large group of developments, such as a shopping mall or a service road, share more than one access point, it is appropriate to assign a rating to each of them. In these situations a proportional number of the developments should be allocated to each access point, and each one rated as a development type E as described in *Table SLNZ4.*

Separate ratings may be assigned to each access point when there are at least four individual developments or one type D development (as described in *Table SLNZ4*) for each access point. These conditions ensure that the sum of the access point ratings does not exceed the sum of the ratings for the individual developments in the group.

Side road development

The side road development rating is calculated by applying the rating values specified in *Table SLNZ4* to the development on the first 500 metres of a side road and then using *Table SLNZ5* to determine the side road rating. Please note that a school or kindergarten on a side road is rated differently from normal. For each school or kindergarten fronting the first 500 metres of a side road, use half the normal frontage rating (from *Table SLNZ4*) to determine the side road rating from *Table SLNZ5.* If a school or kindergarten is between 500 and 1000 metres from the road being surveyed, use a quarter of the normal frontage development rating.

For example, a side road with seven driveways to single houses and a primary school with 240 pupils within the first 500 metres has a frontage development rating (R) of 7+ (16÷2) = 15. By using the value R=15 in *Table SLNZ5*, the side road development rating is '2', if traffic flow on the side road is less than 4000 vehicles a day and

'3', if traffic flow on the side road is 4000 vehicles a day or more.

Note that a cross intersection is treated as two side roads.

Table SLNZ5 Side road development rating units

Traffic flow on side road (V = vehicles per day)	Side road development rating units according to the frontage development rating (R) on the first 500 m of the side road		
	R < 8	8 ≤ R < 20	R ≥ 20
V < 4000	1	2	3
V ≥ 4000	2	3	4

4.2 Roadway rating

The roadway rating is calculated by adding together the ratings relating to a number of roadway activities – pedestrians, cyclists, parking, geometry, traffic control and use of the road. Different ratings apply, depending on the frequency of activities, the closeness of the activity to through traffic etc. *Tables SLNZ6* to *SLNZ11* show the ratings that apply according to the nature and use of the road. Note that where usage or provision of facilities is different on each side of the road, the rating is the average of the ratings for each side.

Roadway ratings are allocated for each 100-metre section of road and the sub-total is the sum of the ratings for each roadway activity per 100-metre section. The total roadway rating is calculated by adding the 100-metre sub-totals for the length of road being assessed for a speed limit.

The total roadway rating for the length of road under consideration must not exceed the total development rating. (See *4.3 Average rating* for what to do if the roadway rating exceeds the development rating.)

Table SLNZ6 Roadway rating – pedestrians

Pedestrian facilities	**Pedestrian volume less than 200 per day**	**Pedestrian volume 200 per day or more**
Footpaths behind grass berms or no pedestrian access	0	0
Footpaths adjacent to roadway	0	1
No footpath but useable shoulder	1	2
Pedestrians must walk on roadway	1	3

Table SLNZ7 Roadway rating – cyclists

Cycle facilities	**Cycle volume less than 200 per day**	**Cycle volume 200 per day or more**
Cycleway behind berms or fence or no cycle access	0	0
Wide road, cycles clear of moving traffic	0	1
Narrow road, cycles impede moving traffic	1	2

Table SLNZ8 Roadway rating – parking

Parking facilities	**Normally two parked vehicles or fewer per 100 metres**	**Frequent parking on both sides, long duration**	**Frequent parking on both sides, short duration**
Vehicles can park 2 metres from moving traffic	0	0	1
Vehicles park close to moving traffic but do not obstruct it	1	2	3
Parked vehicles obstruct moving traffic, ie, remaining traffic lane 3 metres or less	2	3	4

Table SLNZ9 Roadway rating – geometry

Type of roadway	Alignment		
	Open visibility	Average visibility	Limited visibility
Divided carriageway (solid median or barrier) or one way	0	0	0
4 or more lanes (flush median or undivided)	0	1	1
2 or 3 lanes (flush median or undivided)	0	1	2
1 lane (two way)	3	4	5

Table SLNZ10 Roadway rating – traffic control

Traffic control (Applying to traffic on the road surveyed)	Rating units
Pedestrian crossing	3
'Stop' control	3
'Give Way' control	2
Traffic signals	2
Railway level crossing	1
Traffic islands	1

Table SLNZ11 Roadway rating – use

Type of development	Status of road		
	Local road	Collector road	Arterial road
Residential	2	1	0
Industrial	1	0	0
Commercial	0	0	0
Rural residential	1	0	0
Rural	0	0	0

4.3 Average rating

The average rating is calculated by adding together the total development and roadway rating for the length of road being assessed and then dividing by the number of 100-metre sections of road. However, the total roadway rating must not exceed the total development rating for the length of road being assessed. If the total roadway rating is higher, it must be reduced to that of the development rating.

When using the computer program, enter the number of each type of development and roadway feature onto the screen. The program applies the appropriate rating units and adds and divides the figures to calculate the average rating. If necessary, the program automatically reduces the roadway rating to that of the development rating so the total rating never exceeds twice the development rating. If you choose not to use the computer program, you must apply the correct rating figures according to *Tables SLNZ4* to *SLNZ11* and calculate the average rating value manually.

When the average rating has been determined, the speed limit flow charts shown in *Figures SLNZ1* to *SLNZ4* can be used to determine the calculated speed limit.

4.4 Speed limit flow charts

Figure SLNZ1 shows different surrounding land environments and how they relate to the flow charts for the rural, in-between or urban locations. The process of determining the appropriate speed limit according to the character of the road and the average rating is detailed in *Figures SLNZ2, 3* and *4.* Choose the appropriate flow chart and follow it through to select the speed limit.

For a limited access arterial road, such as a motorway or expressway, in either an urban or rural location use the in-between flow chart shown in *Figure SLNZ3*.

Table SLNZ12 Speed limit flow chart summary table

Average rating (R)	Speed limit (km/h)		
	Rural location	In-between location	Urban location
R ≥ 11	Note 1	50	50
R ≥ 11 with engineering to control mean speed within 5 km/h of the limit	Note 1	Note 2	20, 30 or 40
R ≥ 11 with specific urban arterial features	Note 1	60	60
11 > R ≥ 6	70	70	70
6 > R ≥ 3	80	80	80
R < 3	100	100	Note 1

Note 1. The average rating and level of development is not consistent with the location of this road. Please refer to *Figure SLNZ1* and select the appropriate location according to the surrounding land environment.

Note 2. 20-, 30- or 40-km/h speed limits should only be installed on local roads or minor collector roads in urban traffic areas.

Figure SLNZ1 Rural/In-between/Urban

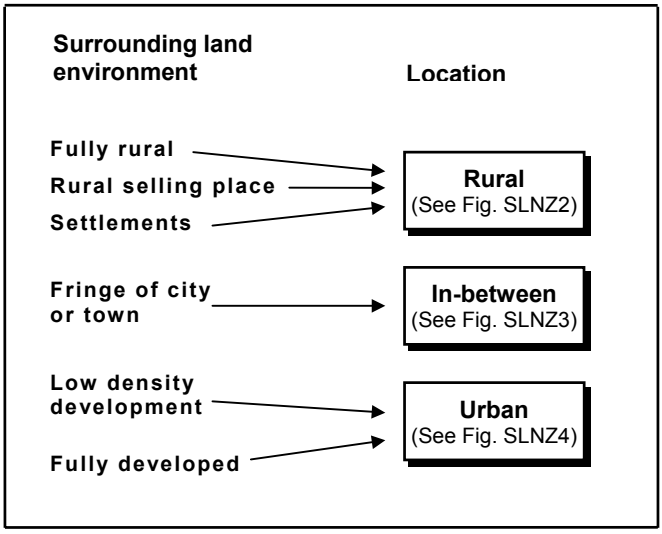
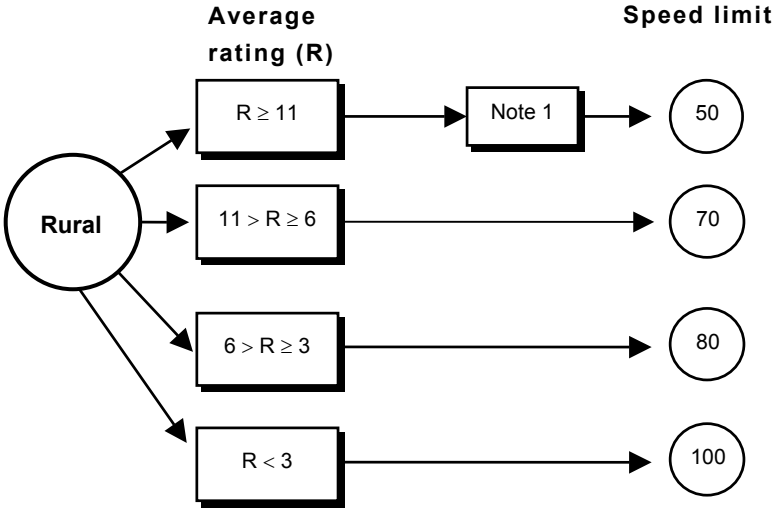


Figure SLNZ2 Speed Limit Flow Chart – Rural



Note 1. The level of development is not consistent with the location of this road. Please check you have used the correct flow chart for the location (see *Fig. SLNZ1).*

Figure SLNZ3 Speed Limit Flow Chart – In-Between

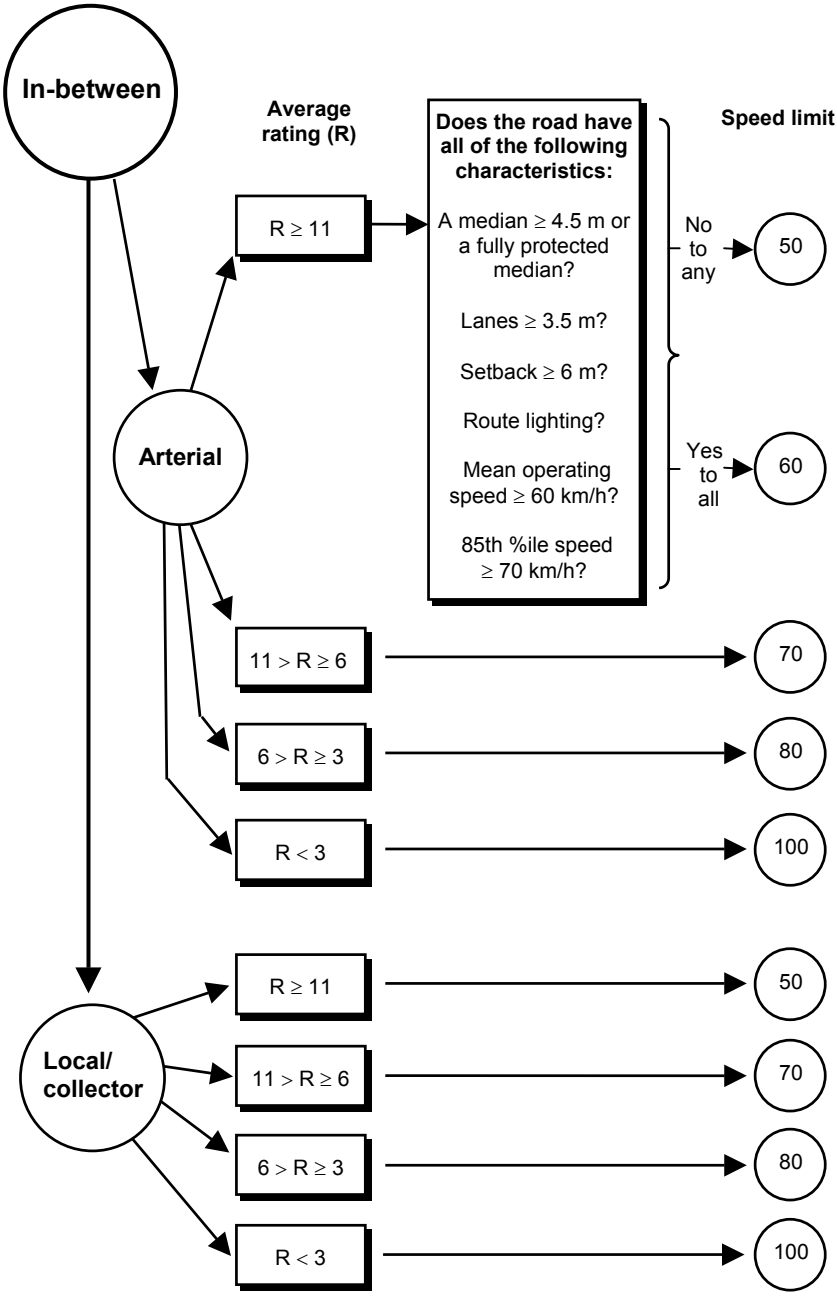
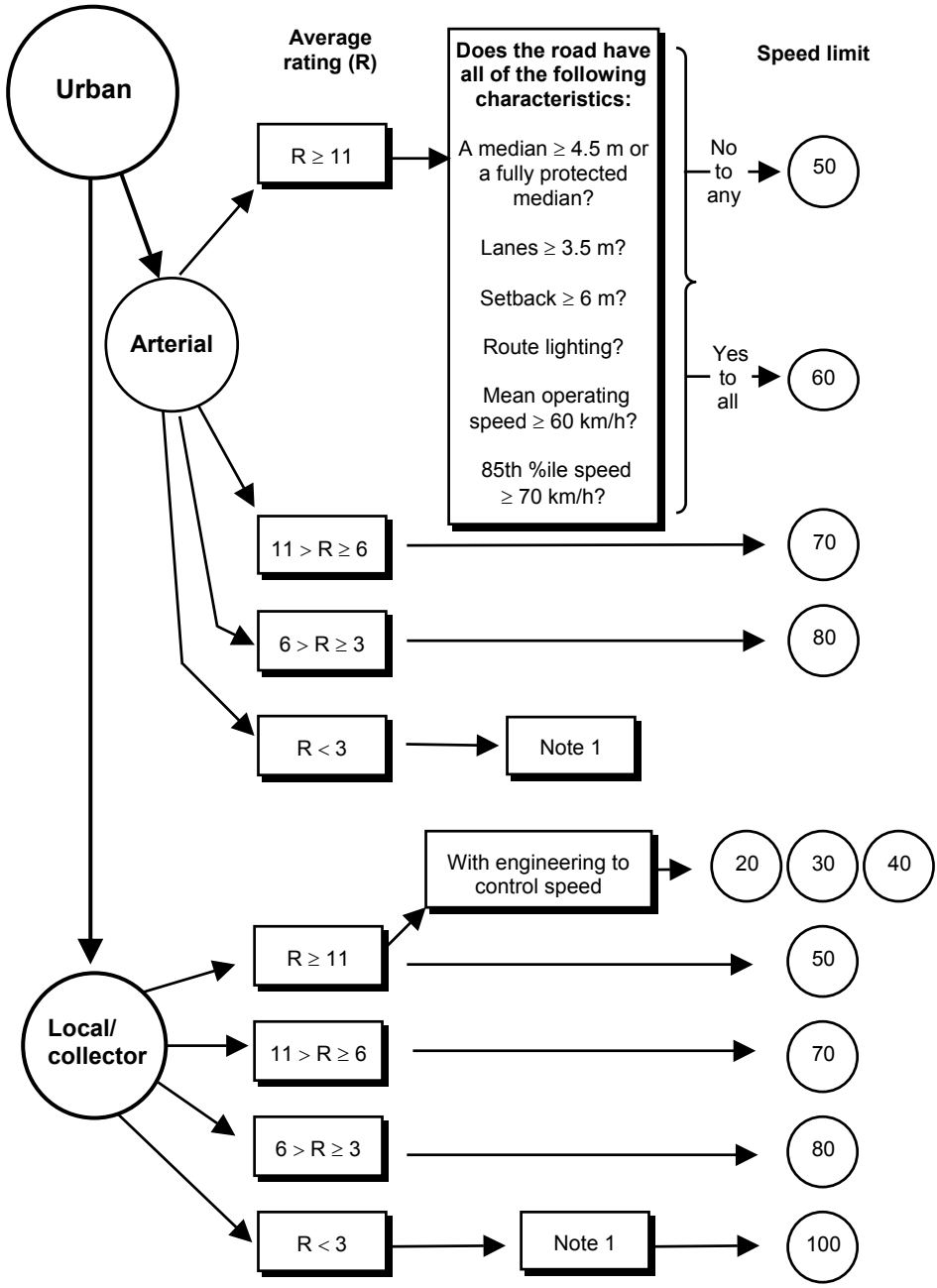


Figure SLNZ4 Speed Limit Flow Chart – Urban



Note 1: The level of development is not consistent with the location of this road. Please check you have used the correct flow chart for the location (see *Fig. SLNZ1*).

Glossary

Arterial road An arterial road is one that primarily serves the function of carrying through traffic. It is a major road in the roading hierarchy for the area and carries the highest volume of traffic. (See also collector road and local road.)

Collector road A collector road serves the function of collecting and distributing traffic in the network. It interfaces between arterial and local roads and carries moderate traffic volumes compared to the other classes of road. (See also arterial road and local road.)

Fully protected median A fully protected median is one that is wide enough to provide a safe area, clear of straight through traffic, for vehicles waiting to turn or cross the median. This usually requires a median width of at least 4.5 metres at the points where traffic turns or crosses.

Local road A local road serves the primary function of providing access to property. It is the lowest classification in the network and carries less traffic than the other classes of road in the area. (See also arterial road and collector road.)

Setback The setback is the distance from the property boundary to the nearest edge of a through traffic lane.

85th percentile (85th %ile) The 85th percentile is the value at which 85% of the sample is included. Only 15% of the sample will exceed the 85th percentile. In speed sample analysis, 85% of the vehicles surveyed will travel at or below the 85th percentile speed. For crash rate comparisons, 85% of roads included in the sample of similar roads will have a crash rate equal to or less than the 85th percentile crash rate.

Appendix I

Holiday speed limits

1. Background

At some locations, traffic conditions require road users, in the interests of safety, to moderate their speed more during holiday periods than at other times. This creates a case for lower speed limits during the holiday periods to assist road users in their choice of speed.

2. Period of application

To maintain a reasonable level of national uniformity, the period during which the lower speed restriction applies will normally be as described below.

- Remote beach and lake resorts justify the application of a lower holiday speed limit during the peak summer holiday season only. This period was traditionally from 20 December to 10 February. However, since the introduction of the four-term school year, this peak holiday time now ends earlier, and a more appropriate period would be from 20 December to 31 January. These dates should apply to all new holiday speed limits or whenever an existing holiday speed limit is reviewed. A holiday speed limit may also apply from the Thursday before Easter until the Tuesday after Easter.

- Summer resorts close to cities and large towns may generate heavy weekend traffic from early December until Easter, in addition to holiday traffic. In such cases, a holiday speed limit may be necessary from 1 December until the Tuesday after Easter, with 70, 80, or 100 km/h, as appropriate, for the remainder of the year.

It is sometimes reasonable to depart from the dates mentioned above if, for example, the location is a popular winter holiday resort or to obtain a reasonably uniform period of application throughout a particular region.

If the holiday speed limit applies to an arterial road, the effect on through traffic must be considered and the period of application should be kept to a minimum.

3. Holiday speed limit

The road must be surveyed during the period the holiday limit will apply. Each bach, house or other dwelling (including a tent or caravan) is rated as one unit. A higher than normal roadway rating is acceptable, but must not exceed two thirds of the total rating. The operating speed of the traffic should be measured during the period of the proposed holiday speed limit and comply with *section 3.4* of this schedule. *Table SLNZ13* shows the necessary rating for a 50-, 70- or 80-km/h holiday speed limit.

Table SLNZ13 Average rating for holiday speed limits

Average rating (R)	Speed limit
$R \geq 9$	50 km/h
$9 > R \geq 6$	70 km/h
$6 > R \geq 3$	80 km/h

A 20-, 30-, 40- or 60-km/h speed limit will not usually be appropriate for a holiday speed limit due to the special engineering features required. However, if a 20-, 30-, 40- or 60-km/h speed limit is being considered for a holiday speed limit, it must comply with the requirements set out in the rule and the standard procedures in *sections 1-4* of this schedule, except for the rating. The normal rating for a 20-, 30-, 40- and 60-km/h speed limit is the same as for a 50-km/h limit, so an average rating of 9 or more is acceptable, as shown for a 50-km/h holiday speed limit in *Table SLNZ13*.

The normal off-season speed limit should be calculated using the standard rating criteria, counting permanently occupied residences only (ie, exclude holiday dwellings and camp sites that are not occupied all year round).

Information that should be documented for a holiday speed limit includes:

- whether the area or road involved forms part of a through route, and why special attention is needed (eg, a main road divides the beach from all the houses);
- results of speed surveys conducted during the holiday period;
- traffic and pedestrian counts and records of crashes or traffic problems that occur during the holiday period;
- reasons for large numbers of people during the holiday period if this is not apparent in the rating diagram (for example, motels, camping grounds or recreational facilities may be located on side roads and generate large numbers of pedestrian movements in what appears an undeveloped area);
- the period over which the holiday speed limit is warranted.

4. Signposting and notification

It is essential that the signs are changed at the beginning and end of the holiday periods. It is also recommended that the changes in speed limits are publicised.

Appendix II

Survey forms

SPEED LIMIT SURVEY FORM (RATING DIAGRAM)

Road Controlling Authority_____**at** _____

Road_____**from** _____**to**_____

Surveyed by_____**Date** _____/_____/_____

TO		DEVELOPMENT RATING			ROADWAY RATING							Total	Notes
		Frontage	Side road	**Sub Total**	Peds	Cyclist	Parking	Geometry	Traffic Control	Use	**Sub Total**		
	1.0												
	0.9												
	0.8												
	0.7												
	0.6												
	0.5												
	0.4												
	0.3												
	0.2												
	0.1												
FROM	0.0												

Average rating between_____**and** _____**equals**_____

GENERAL INFORMATION FORM

Instructions: Circle the answer, tick the box, describe or fill-in data as appropriate

Road controlling authority_____at _____

Road_____from_____to _____

Surveyed by_____Date _____/_____/_____

1. The surrounding land environment is: Fully developed urban ☐
   Low density urban ☐ Urban fringe ☐ Rural settlement ☐
   Rural selling place ☐ Fully rural ☐ Holiday resort ☐
2. The classification of this section of road is: Arterial ☐ Collector ☐
   Local ☐
3. What is the length of road under consideration? _____m
4. What is the current speed limit on the road? _____km/h
5. What are the speed limits on the adjoining road sections? _____ km/h, _____km/h
6. Are there any features that would provide suitable change points between limits?
   Yes / No Describe: _____
7. Is the road divided by a solid or flush median? **Yes / No**
   Solid ☐ Flush ☐
   Note: a median should extend for at least 500 metres.
8. How wide is the median? _____ m
9. Does the median provide sufficient width and turn slots to provide adequate protection for turning and crossing vehicles? **Yes / No**
10. How many lanes? _____What is the typical lane width? _____m
    Note: count only the number of through lanes normally used by drivers.
11. Note any special lanes, eg, cycle lanes: _____

continued

12. What is the setback of the through traffic lanes to the property boundary? _____ m

    Note: If the development is similar on both sides of the road, use the lower value. If development is not balanced, use the setback on the more-developed side.

13. Is there a consistent standard of street lighting? **Yes / No**

14. What is the mean speed _____ km/h and 85th percentile speed _____ km/h for free-running vehicles on this section of road.

15. Examine crash data for the section of road for the previous two years. Note any changes that have occurred that may affect crashes.
    _____

    _____

    Number of injury crashes/100 million vehicle km (two-year average):___

    List any special crash types _____

16. Are there any special traffic conditions or roadside developments that may affect speeds, or require special consideration? Describe:_____
    _____

    _____

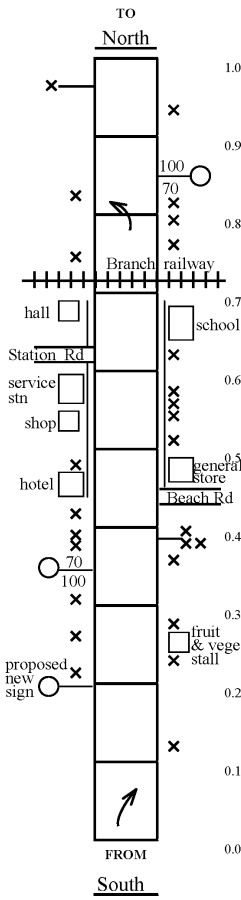
Example of Completed Rating Diagram

SPEED LIMIT SURVEY FORM (RATING DIAGRAM)

ROAD CONTROLLING AUTHORITY Sunny District Council **AT** Gladville

ROAD River Rd **FROM** South **TO** North

SURVEYED BY Eric Jones **DATE** 2 / 10 / 2002



DEVELOPMENT RATING			ROADWAY RATING								
Frontage	Side Road	**Sub Total**	Peds	Cyclist	Parking	Geo-metry	Traffic Control	Use	**Sub Total**	**Total**	Notes
2	-	2	1	-	-	-	-	-	1	3	No development for next 400 m ↑ 10 m seal + shoulder
2	-	2 **(2)**	1	-	-	2	-	-	3 **(1,5)**	5 **(3,5)**	Existing 70/100 sign Rating for 50 m = 3.5
3	-	**3**	1	-	-	2	1	-	**4**	7	Moderate curve, limited visibility. 10 m seal + shoulder 12 m seal & kerbs ↓
7.7	1	**8.7**	-	-	3	-	-	-	**3**	**11.7**	Primary school, 85 pupils. Footpath on both sides of rd between hall/school & shops.
9	-	**9**	-	-	3	-	-	-	**3**	**12**	Peds < 200/day. Short term parking both sides of road between rlwy line and Beach Rd.
8	1	**9**	1	-	3	-	-	-	**4**	**13**	12 m seal & kerbs ↑ 10 m seal + shoulder
6	-	**6**	1	-	-	-	-	-	**1**	7	Existing 70/100 sign
6	-	**6**	1	-	0.5	-	-	-	**1.5**	**7.5**	Occasional parking at fruit stall.
1	-	1	1	-	-	-	-	-	1	2	Proposed sign location for extended 70 km/h limit.
-	-	0	1	-	-	1	-	-	2	2	10 m seal + shoulder Gentle curve, average visibility.
		43.7							**18**	**61.7**	

Average rating between new sign at 0.2 km **and** existing sign at 0.85 km **equals** 61.7÷6.5=**9.5**