SECTION 1

SIGNS INTRODUCTION

August 2010

NZ TRANSPORT AGENCY
WAKA KOTAHI

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1. INTRODUCTION

1.1 GENERAL

Traffic signs are an important part of the roading system. They are provided to aid the safe and orderly movement of traffic and may contain:

- regulatory instructions which road users are required to obey,
- warnings of temporary or permanent hazards which may not be self evident,
- directions and distances to destinations on the road ahead or on an intersecting road,
- an indication of road user services and tourist features/establishments adjacent to the road ahead, or on an intersecting road,
- other information which is likely to be of general interest to road users.

Clear and efficient signing is therefore essential and a road with poor and/or badly maintained signing is an unsatisfactory road in the user's view. To be effective traffic signs must be readily recognised as such, and:

- be co-ordinated with geometric road layout so they are conspicuous by day or night,
- have messages which can be quickly read and understood, and
- be located far enough in advance of the situation to give sufficient time for the road user to take the appropriate action.

To help achieve these goals a combination of message, distinctive shape and colour is used. The message may be either a legend, a symbol, or both. Standardisation of design, colour, shape, size and location helps to ensure that drivers will readily recognise the various classes of traffic signs.

Signs should be erected only where there is a demonstrated need, because unnecessary signs detract from the effectiveness of those that are required. It is most important therefore to ensure that extraneous, non-essential signs, eg. commercial advertising signs, are controlled and do not compete with traffic signs. Refer to the *Land Transport Rule: Traffic Control Devices 2004* (TCD Rule) for details.

When traffic signs are required, only those with approved legends and symbols may be erected. The TCD Rule requires that all traffic signs shall comply with the appropriate description given in *Schedule 1* of the Rule.

The TCD Rule also specifies that only the Director of Land Transport can authorise the erection of non-complying signs.

1.2 TRAFFIC SIGN CLASSIFICATION AND FUNCTION

1.2.1 GENERAL

Traffic signs have been classified by function into five main groups. These are:

- **Regulatory:** General, Parking and Heavy Vehicle
- **Warning:** Temporary and Permanent
- **Guide**
- **Motorist Service**
- **Tourist**
- **General Information**

1.2.2 REGULATORY SIGNS

Regulatory signs, including parking signs, are covered by legislation which makes it illegal for a driver to disobey the sign message.

The TCD Rule makes road controlling authorities responsible to ensure that ***every regulatory sign fully complies*** with the legal requirements regarding dimension, shape, colour/reflectorisation, location and authority for erection.

To facilitate traffic law enforcement ***it is necessary for road controlling authorities to institute formal authorization procedures for regulatory and parking signs***. Refer to the TCD Rule, *Section 2: Role of road controlling authorities*.

Regulatory signs have legal significance and must be readily distinguishable from all other signs. It is not practical to standardise by shape alone and distinction is made by using specific combinations of shape and colour. Figure 1.1 illustrates the principal shape and colour combinations adopted for the regulatory and warning sign groups.

There are two types of regulatory sign:

- **Prohibitory**, and
- **Mandatory**.

(a) Prohibitory Signs

These indicate that a road user ***must not*** take a particular action, eg. the RG-7 NO RIGHT TURN sign.

(b) Mandatory Signs

These indicate that a road user ***must*** take a certain action, eg. the RG-12 TURN LEFT sign.

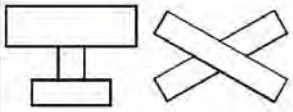
SHAPE	COLOURS			SIGN GROUP
	Legend or symbol	Background	Border	
	Black	White	Red	**Regulatory general** (RG–1 to RG–4, RG–7 to RG–9, RG–15, RG–16, RG23, RG–24)
	White	Red	White	**Regulatory general** (RG–5)
	Red	White	Red	**Regulatory general** (RG–6)
	White	Black	Red	**Regulatory general** (RG–22, RG–27, RG–29) **Regulator heavy vehicle** (RH–1, RH–2 etc.)
	White	Blue	White	**Regulatory general** (RG–10 to RG–13, RG–25, RG–26 etc.)
	Red	Blue	Red	**Regulatory parking** (NO STOPPING—RP–1)
	Red or black	White	Red	**Regulatory parking** (STOPPING RESTRICTION—Clearway, Bus Stop, Taxi Stand, etc.)
	White	Blue	White	**Regulatory parking** (PARKING RESTRICTION—permitted restricted parking.)
	Black	Orange	Black	**Temporary warning** (TW signs)
	Black	Yellow	Black	**Permanent warning** (PW signs)
	Black	White	—	**Permanent warning** (PW–14 and PW–15 RAILWAY CROSSING)

FIGURE 1.1 SHAPE/COLOUR COMBINATIONS FOR SIGNS

SHAPE	COLOURS			SIGN GROUP
	Legend or symbol	Background	Border	
	White	Red	White	**Route marker sign**
 	White	Green	White	**Guide sign**
 	White	Blue	White	**Motorist service sign**
 	White	Brown	White	**Tourist sign**

SHAPE/COLOUR COMBINATIONS FOR SIGNS FIGURE 1.1 (cont.)

1.2.3 WARNING SIGNS

Warning signs inform road users of unusual or hazardous conditions on the road ahead. They have a standard diamond shape, except for a few cases where this is not practical. There are two types of warning sign:

- **Temporary**, and
- **Permanent**.

(a) Temporary Warning Signs

These have black symbols on reflectorised orange backgrounds. A few temporary warning signs do not conform to this general form, eg. the TW-31 STOP/GO paddle.

When necessary a sign combination is formed by supplementing the symbolic sign with an approved word message, on an additional rectangular sign of the same colour.

Standard specifications for the temporary warning sign diamond and supplementary plates are given in Section 5: *TEMPORARY WARNING SIGNS*, Figures 5.1 and 5.2.

(b) Permanent Warning Signs

These have black symbols on reflectorised yellow backgrounds. A few permanent warning signs do not conform to this general form, eg. a PW-14 RAILWAY LEVEL CROSSING - POSITION INDICATOR sign.

When necessary a sign combination is formed by supplementing the symbolic sign with an approved word message, on an additional rectangular sign of the same colour.

Standard specifications for the permanent warning sign diamond and supplementary plates are given in Section 6: *PERMANENT WARNING SIGNS*, Figures 6.1 and 6.2.

1.2.4 GUIDE SIGNS

Guide signs inform road users of the direction and distances to places on the road ahead and/or on intersecting roads. These signs should give road users a directional message clearly and at the correct time. The three main types of guide sign are:

- **Advance Direction**,
- **Intersection Direction**, and
- **Confirmation Direction**.

(a) Advance Direction Signs

These signs are located on the approaches to intersections and indicate destinations on the roads leading away from the intersection.

(b) Intersection Direction Signs

These signs are located at the intersection or the point where drivers must make a turn off the main route. They show:

- the general directions of the roads leading away from the intersection,
- destinations on those roads, and
- distances to destinations, if confirmation direction signs are not provided on the side roads.

(c) Confirmation Direction Signs

These signs are located beyond intersections and reassure drivers that they are travelling towards their intended destination(s). Distances to places indicated are also shown.

Guide signs are fully described and detailed in Section 7: *GUIDE SIGNS*.

1.2.5 MOTORIST SERVICE AND TOURIST SIGNS

(a) Motorist Service Signs

These signs ***may*** be used to identify services which are commonly required by travellers, can be identified by internationally recognised symbols and are located adjacent to the road, or a reasonable distance along side road.

(b) Tourist Signs

These signs ***may*** be used to indicate:

- tourist features,
- tourist establishments,
- major tourist attractions, and
- tourist drives.

NOTE: Normal guide signs rather than tourist signs should be used to direct road users to established tourist areas.

Motorist Service and Tourist signs are fully described and detailed in Section 8: *MOTORIST SERVICE SIGNS* and Section 9: *TOURIST SIGNS*.

1.2.6 GENERAL INFORMATION SIGNS

These signs provide road users with information of general interest such as:

- names of rivers and streams,
- local authority boundaries, and
- other miscellaneous information that may be useful to a traveller.

Guidelines for the provision of General Information signs are given in Section 10: *General Information Signs*.

1.3 SIGN SIZE

1.3.1 GENERAL

As a general rule, sign size is determined by the following factors:

- the type of sign,
- urban or rural situation,
- two lane or a multilane road,
- lateral offset, from a driver's position to the sign, and
- actual vehicle speeds at the sign site.

1.3.2 DIMENSIONS OF SIGNS

These are not generally now detailed in this manual, but may be ascertained by reference to: www.nzta.govt.nz/resources/traffic-control-devices-manual/sign-specifications/

1.3.3 ALTERNATIVE SIZE SIGNS

Most Regulatory and Warning signs also have alternative sizes specified on the above web site.

Please refer to that for details.

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Note:

The appropriate size for the following signs should be determined in the manner descibed below:

(a) RG-5, RG-6 and RG-6R Signs:

Sizes are defined in the detailed specifications for each sign.

(b) Circular Disc RG (Regulatory General) Signs and the RP-1 NO STOPPING Sign:

(i) Urban areas:

1. The minimum allowable sign size is 400 mm diameter. This size shall only be used where:
   - the sign is not primarily intended for motorists, eg. RG-23, RG-24, RG-25, RG-26 signs,
   - the sign is illuminated and used in conjunction with a traffic signal, or
   - physical restrictions of a site do not allow the use of a larger sign.
2. The normal sign size where operating speeds are 50 km/h or less is 600 mm diameter. The only exception is the RG-17.1 KEEP LEFT sign which is a pair of vertically stacked 300 mm discs.
3. 750 mm diameter or larger signs should be used on median-divided roads and where operating speeds exceed 50 km/h.

(ii) Rural areas:

1. The normal sign size is 750 mm diameter.
2. 900 mm diameter signs should be used on median divided roads and where operating speeds are very high.

(iii) Large signs: 1200 mm, or larger, diameter signs should be considered for:

- motorways,
- other high speed roads,
- critical locations where there is a speed limit change, and
- the leading ends of median islands.

(c) Permanent Warning Signs (except CURVE WARNING and CURVE ADVISORY SPEED signs)

(i) Urban areas:

1. The normal sign size is 600 mm × 600 mm.
2. 750 mm × 750 mm or larger signs should be used on median-divided roads and where operating speeds exceed 50 km/h.

(ii) Rural areas:

1. The normal sign size is 750 mm × 750 mm.
2. 900 mm × 900 mm or largersigns should be used on motorways and median-divided roads where operating speeds are very high.

(d) Permanent Curve Warning and Curve Advisory Speed Signs

Sign size is determined by the methods detailed in Appendix A3: *Guidelines for the Installation of Curve Warning and Advisory Speed Signs*.

(e) Guide, Motorist Service, Tourist and General Information Signs

Sign size is determined bythe design rules for each type of sign which define:

- the number of lines of legend allowed on a particular type of sign,
- the symbols required and/or allowed on a sign,
- the clearances between the legend and edges of the sign, and
- border allowances.

Design and layout requirements for these signs are covered in sections 7, 8 , 9 and 10 of this Manual.

1.4 COLOURS

All retroreflective sheeting used for surfacing traffic signs must:

- conform to the colour requirements of the joint Australian/New Zealand standard AS/NZS 1906.1 & 1906.2 : 2007. *Retroreflective materials and devices for road traffic control purposes:* See PART 1: *Retroreflective Materials*, and
- be approved by the NZ Transport Agency.

1.5 LETTERING

1.5.1 ALPHABETS

Two alphabet styles are used for the lettering on signs detailed in this Manual, the Standard Alphabets for Road Signs which are defined AS1744-1975 and the Transport Medium alphabet from the Ministry of Transport, UK.

NOTE: The Transport Medium alphabet is only used for wording on Regulatory Parking signs.

Most alphabets details are given in Appendix A: *Standard Alphabets* and the Series A to Modified E/lower case alphabets are fully detailed in AS 1744-1975.

1.5.2 LETTER SIZE AND STYLE

Letter size and style for the various sign classifications are as follows:

(a) Regulatory and Warning Signs

Letter size and style is defined in the standard details specified for each sign.

(b) Guide Signs

The minimum letter size is specified for each road classin Section 7.1.4 (g). The actual letter size required may be larger and shall be determined for each individual sign by the method given in Section 7.9 of this Manual.

Two letter styles are used on guide signs, Modified Series E/lower case and Series D or E CAPITALS.

The Modified Series E/lower case alphabet is only used for destination/stage names and the Series D or E CAPITALS alphabet is used for all additional information shown on guide signs, ie. directional and/or driver information, street names, etc.

Letter sizes for guide signs are determined by considering the following factors:

- the speed of vehicles approaching the sign,
- the number of lines of legend on the sign,
- the type of font that will be used on the sign, and
- the lateral and vertical position of the sign in relation to a driver.

The requirements for guide sign lettering, alphabet styles, legend layout, and typical sign examples are given in Section 7: *Guide Signs*.

(c) Motorist Service and Tourist Signs

The general layout requirements for Motorist Service and Tourist sign lettering and typical examples are given in sections 8 and 9 of this Manual.

Letter size is determined by sign type and road classification. Letter style shall be Series D CAPITALS, with medium spacing, ie. DM.

(d) General Information Signs

The lay out requirements for General Information sign lettering and some typical example signs are given in Section 10 of this Manual.

1.6 LEGENDS

1.6.1 REGULATORY AND WARNING SIGNS

The legends for these signs are fully defined in the individual sign details.

1.6.2 GUIDE SIGNS

The detailed design rules specify what legend and which symbols may be shown on each particular type of guide sign.

(a) State Highway Guide Signs

The mandatory stage/destination names for use on guide signs for the State Highway roading system have been the subject of a great deal of consultation with many interested parties. The names finally adopted have been chosen on the basis of *"places likely to be known to many drivers and/or shown prominently on most road maps"*.

Stage and destination names have been approved by the Automobile Association and the major tourist organisations. They are considered to be the best combination of place names which will ensure a logical and consistent State Highway signing system for those long distance travellers, strangers to an area and tourists using a road map.

The State Highway roading system is shown in Figures 7.12.1 and 7.12.2.

Stage or destination names for signs at State Highway–State Highway intersections are listed in sections 7.12.1 and 7.12.2.

Only the approved stage and destination names may be used on signs for State Highway–State Highway intersections and, once a stage or destination or another minor /intermediate place name has been introduced, it must be shown on all subsequent guide signs until that place is reached.

(b) Local Authority Road Guide Signs

Local authority road destination names should be determined in terms of the local roading network and the specific guide sign design rules.

Design rules for guide signs limit the numbers of lines of legend on each type of sign. When minor or intermediate place names need to be shown in addition to the approved stage/destination name, and this results in too many lines on a sign, place names should be introduced on a ***"sequential, distance from sign basis"***, up to the maximum allowed. When the first minor or intermediate place is reached it shall be replaced with the next place name in sequence, and so on.

1.6.3 DISTANCES

When distances are shown they should be given as follows:

Distance	Increment	Shown as
Up to 500 metres	50 metre	"xx m"
Between 500 metres and 1 kilometre	100 metre	"xxx m
1 kilometre or more	Nearest kilometre	"xx km"

1.7 LOCATION

1.7.1 GENERAL

The TCD Rule require signs to be located on the near or left hand side of the road wherever practicable. They should be prominently displayed there because this is where approaching drivers will expect to find them. In some special circumstances, however, signs may need to be duplicated on the right side of the road, or mounted over the roadway.

Signs should always be positioned so they do not obscure other signs or restrict a driver's visibility, particularly at intersections.

Signs should not normally be erected in medians unless they refer to traffic travelling in the median lane. A median sign may be required to supplement a similar sign on the left side of the road in some conditions, eg. on very wide roads. In urban situations, where there are wide medians and roadside development, mounting signs in the median may be unavoidable.

At channelised intersections some signs may need to be positioned on traffic islands, and/or the right side of some roadways. They should, if possible, be located within a driver's normal line of vision as they approach the intersection. If this is not practicable, they should be positioned where drivers are most likely to be looking when making their required manoeuvres at the intersection.

Care must be taken, however, to ensure signs never obscure a driver's view of traffic approaching along a conflicting path, or of pedestrians crossing the road.

When it is necessary to have two or more different types of sign at one position, separate signs, located a minimum of ($0.6V_{85}$) m apart should be used. V_{85} is the 85th percentile speed of traffic, in km/h, at the sign location.

As a general rule, only one type of sign should be mounted on each post, except where:

- another of the same size and shape is mounted on the reverse side and is intended to be seen by opposing traffic,
- one sign supplements the other, or
- route or directional signs need to be grouped.

The TCD Rule specifies permitted sign combinations.

When a sign is located in an exposed position, consideration should be given to the use of supports with a frangible or break-away type of construction, for safety reasons.

Any sign located within the *'Clear Zone'* must:

- have a breakaway or frangible support system, or
- be protected by a road safety barrier.
- be re-located to be behind a guardrail erected for another purpose, if that is an appropriate location for the sign.

Where a large sign needs to be positioned in an urban footpath or berm area, the sign and its supports should present a pleasing appearance. Supports should not be erected where pedestrians are likely to walk into them at night.

Structures which completely span a footpath with supports on each side are undesirable. A single post mounting, ie. a flag type sign, should be used in such cases.

Large roadside signs, unusual road layouts and/or difficult adjacent topography may require special location considerations and warrant departures from the general sign positioning rules.

Environmental and aesthetic requirements also need to be carefully considered when locating signs.

Final sign location ***must*** be decided at the actual site, by night and day trial runs in a motor vehicle.

1.7.2 LONGITUDINAL POSITION

(a) Regulatory Signs

Regulatory signs should normally be located at the legally defined position for the sign. If this is impractical, they should be located as close as possible to the position where the prohibitory or mandatory action indicated by the sign must be made. The following regulatory signs must, however, be located within the tolerances specified below:

(i) Speed Restriction Signs: Within ±20 m of their legally defined positions, refer to the *Land Transport Rule: Setting of Speed Limits 2003* for details. *

(ii) STOP and GIVE WAY Signs: Closer than 9 m to the edge of the main roadway.

(b) Warning Signs

Warning signs should be located sufficiently in advance of an unusual or hazardous situation for a driver to react in the appropriate manner. The distance between the sign and the situation should be either:

- the distance required to decelerate from the 85th percentile vehicle speed at the sign location to the speed required at the situation, or
- the distance required to decelerate from the 85th percentile vehicle speed at the sign location to a stop condition, when the sign is an advance warning of a STOP or GIVE WAY control at the next intersection.

Table 1.1 shows the deceleration distances which should be used when locating a warning sign in advance of a stop condition or an unusual or hazardous situation.

(c) Guide, Motorist Service, Tourist and General Information Signs

These signs are positioned according to their function. Specific location details are given in sections 7, 8, 9 and 10 of this Manual.

Speed at sign location V_{85}* (km/h)	Deceleration distance (m), between the sign location and the unusual or hazardous situation, to achieve a speed of:							
	STOP	20	30	40	50	60	70	80
50	60	55	45	30	-	-	-	-
60	80	75	65	50	30	-	-	-
70	100	95	80	70	55	35	-	-
80	120	110	105	95	80	65	40	-
90	140	135	125	115	100	90	70	45
100	170	160	155	145	130	120	100	80
* V_{85} is the 85th percentile speed.								

TABLE 1.1: DECELERATION DISTANCES

1.7.3 LATERAL CLEARANCE

Signs should be positioned as far as practicable away from the edge of the roadway, subject to:

- any maximum and minimum dimensions specified, and
- any constraints on visibility due to roadside obstructions.

Lateral clearance shall be measured from the edge of the sign nearest the road to:

- the kerb line,
- the outer edge of the road shoulder or the nearest lane line, whichever is the critical dimension, or
- the face of the guardrail or the nearest lane line, whichever is the critical dimension.

Lateral clearances for use in the following typical roading situations are:

(a) Kerbed Roads

(i) A minimum of 300 mm where non-mountable kerbs are used.

(ii) Desirably, a minimum of 500 mm where mountable kerbs are used, eg. at traffic islands.

Where the minimum lateral clearance cannot be achieved, the sign mounting height for shall be increased to at least 4.6 m. This is the minimum height for a sign located over a road shoulder or parking lane and it will ensure an adequate vertical clearance to all legal height vehicles.

(b) Un-Kerbed Roads in Urban Areas

For these types of road, and also kerbed urban arterial roads intended for express-way type traffic operations, the lateral clearances specified for roads in rural areas should be used.

(c) Un-Kerbed Roads in Rural Areas

(i) A minimum of 600 mm from the outer edge of the road shoulder, line of edge marker posts or face of guardrail.

(ii) A maximum of 5 m from the nearest lane line.

(d) Kerbed Roads in Rural Areas

A minimum lateral clearance of 500 mm shall be provided where kerbs are used, eg. at channelised intersections.

Figures 1.3 and 1.4 show lateral clearances for typical sign locations.

1.8 MOUNTING HEIGHT

Signs must be located clear of roadside vegetation and be visible to approaching drivers, by day and night. To achieve this, sign mounting heights may need to be varied to suit local site conditions.

Minimum mounting heights are given in Table 1.2.

Figures 1.4 and 1.5 show typical sign mounting details.

TABLE 1.2. SIGN MOUNTING HEIGHTS

Mounting Situation	Minimum Mounting Height (m)
General minimum[1]	1.5
Rural areas[1]	1.5
Urban areas[1,2]	2.0
Over a footpath[3]	2.5
Overhead signs[4]	5.3

Notes:

1. Mounting height shall be measured from the underside of a sign, or the lowest sign in an assembly of signs, to the surface of the adjacent road, trafficable shoulder or top of kerb, whichever is the critical dimension.
2. Mounting heights need to be increased in urban areas to help prevent sign visibility problems caused by parked vehicles.
3. Mounting height shall be measured to the ground surface or footpath immediately beneath the sign.
4. Overhead sign mounting height is particularly important when there is no alternative route for overheight loads. Mounting height shall be measured to the road surface immediately beneath the sign. Overhead sign mounting height my be reduced to *an* ***absolute minimum of 4.6 m*** if the sign is located over an emergency shoulder or parking lane.

1.8A BACKING BOARDS

Backing boards to traffic signs may be justified in extremely rare cases where:

> All other legitimate treatments have been tried, eg larger signs, gating, upgraded delineation, and
> A higher than expected crash rate is still being experienced, and
> The provision of a backing board would cause the sign to stand out against a similarly coloured background, eg foliage, structure, floodlighting.

If a backing board is justified, then it should be unreflectorised white, rectangular and slightly larger than the sign it is fitted to.

1.9 SUPPORTS

1.9.1 LEGISLATIVE REQUIREMENTS

The TCD Rule covers the support and erection of traffic signs, including:

(a) Pole Colour

The TCD Rule specifies the colours to be used for poles at traffic signals, pedestrian crossings and railway level crossings. All other traffic sign poles should be white coloured but, if made of aluminium or galvanised steel, may be left unpainted.

(b) Signs Erected on Other Poles

With the consent of the owner of the pole, a traffic sign may be erected on any telegraph pole, electric-power pole, or other pole.

(c) Signs Erected on Buildings, Walls Or Fences

Where there is no room to erect a traffic sign pole and no other pole is available, signs may, with the consent of the owner, be erected on any adjacent building or wall or fence.

(d) Number of Signs Allowed on One Pole
(Refer to TCD Rule, clause 4.5: *Specific requirements for traffic signs* for full details)

(i) Standard Requirements:

A traffic sign must not be installed with another sign on the same pole or in the same location on the same building, wall or fence, except:

1. as provided in the TCD Rule clauses 9.4(7), 9.4(8), 10.5(2), 11.4(3) and 12.6(4), or
2. if:
   - each sign is installed so that its message is seen only by traffic for which the message is intended, and
   - the shape, size or orientation of any sign does not obscure the sign, or mislead or distract road users from the sign intended to be seen by traffic moving in another direction.

(ii) Traffic Signals:

A road controlling authority may install one or more of the following traffic signs on a pole supporting a traffic signal at an intersection:

1. an RG-17 or RG-17.1 KEEP LEFT sign,
2. an RG-27 TURNING TRAFFIC GIVE-WAY TO PEDESTRIANS sign,
3. an IG-2 TURN LEFT AT ANY TIME WITH CARE sign;
4. a sign prohibiting, absolutely or conditionally, pedestrians, vehicles or classes of vehicle from moving in a specific direction,
5. a sign requiring, absolutely or conditionally, pedestrians, vehicles or classes of vehicle to move in a specific direction,
6. a sign or notice directed solely towards pedestrians and not generally visible to approaching vehicles, warning or advising pedestrians on the use of the traffic signals or of the controlled area,
7. a street name sign.

(iii) Pedestrian Crossings:

No other traffic sign other than a fluorescent, reflectorised orange sign in the form of a disk that is 300 mm or more in diameter shall be erected on a black and white pole installed at a pedestrian crossing.

(iv) Railway Level Crossings:

1. If a level crossing is controlled by a stop sign or give-way sign, a rail access provider may install the following combination of signs on the same pole:
   - an RG-5 STOP or RG- 6 GIVE WAY sign, and
   - a PW-14 *"Crossbuck"* sign, and
   - if appropriate, a PW-59 LOOK FOR TRAINS sign or a PW-15 "__" TRACKS sign, or both.
2. If a level crossing is controlled by traffic signals, a rail access provider may install the following signs on the poles supporting the traffic signals:
   - a PW-14 *"Crossbuck"* sign; and
   - if appropriate, a RG-STOP ON RED SIGNAL or a PW-15 "__" TRACKS sign, or both.

(v) Additional Information Permitted on Traffic Sign Poles

Only a supplementary notice relating to a passenger service, or a monogram or logo not larger than the maximum size specified in the TCD Rule, may be displayed on a pole on which a road controlling authority has installed a traffic sign.

1.9.2 SIGN SUPPORT METHODS

(a) Roadside Signs

Typical methods for supporting roadside-mounted traffic signs are shown in Figures 1.3 and 1.4.

(b) Overhead Signs

Typical methods for supporting overhead traffic signs are shown in Figure 1.5.

(c) Number and Size of Supports

An indication of the size and number of supports required for roadside mounted guide signs, typical mounting details and spacings between posts, is given in Section 7.12: *GUIDE SIGN MOUNTING*.

(d) Frangible Supports

All sign supports likely to be struck by vehicles should be of a frangible or breakaway type construction.

The 2002 American Association of State Highway and Transportation Officials (AASHTO) publication *Roadside Design Guide* discusses the requirements for these types of sign supports in *Chapter 4: Sign, Signal, luminaire Supports, Utility Poles, Trees and Similar Roadside Features*.

The Road Safety Manufacturers Association *Compliance Standard for Traffic Signs: APPENDIX D* illustrates two typical examples of breakaway slip base sign supports.

1.10 ORIENTATION

Except for some parking signs, all traffic signs, including stand mounted temporary warning signs, shall be erected in a vertical plane and oriented at approximately right angles to, and facing, an approaching driver's line of sight.

On curved alignments, sign orientation should be determined by an approaching driver's view of the sign, rather than the alignment of the road at the sign position.

Reflectorised signs must be turned about 5degrees away from the driver's line of sight. Chevron boards need to turned about 10 degrees away. This is to help reduce undesirable specular reflection from reflectorised sign surfaces. Figure 1.2 shows details of how to orientate reflectorised signs correctly on site.

After signs are installed it is good practice to check their performance, by day and night trial runs in a motor vehicle.

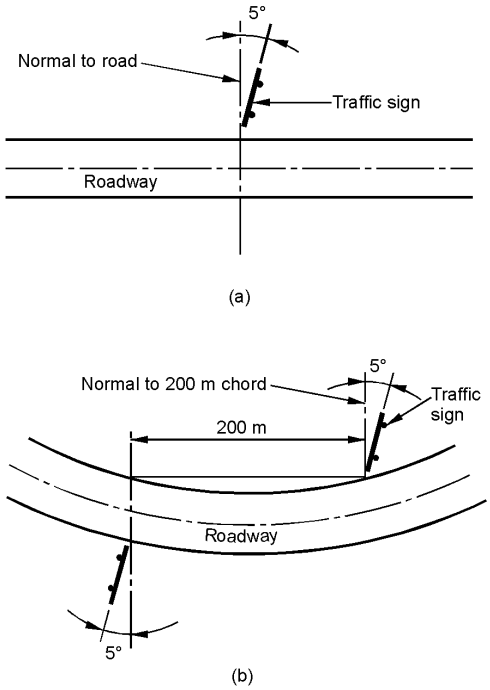

FIGURE 1.2: METHODS OF AVOIDING SPECULAR REFLECTION ON A ROAD SIGN

1.11 CONSTRUCTION

1.11.1 GENERAL REQUIREMENTS

Signs specified in this Manualss hall comply with the requirements of NZTA's *TNZ P/24: Performance Based Specification for Traffic Signs* and the Road Safety Manufacturers Association *Compliance Standard for Traffic Signs, Posts and Fittings*, in respect of:

- materials,
- methods of construction,
- erection, and
- serviceability.

1.11.2 SIGN FACE MATERIALS

All sign face materials shall comply with the day time viewing colour requirements and when retroreflective also the photometric properties and night-time viewing colour requirements of AS/NZS 1906.1:2007 and 1906.2:2007 -

Retroreflective materials and devices for road traffic control purposes.

1.11.3 SIGN PANEL BACKS

Unless otherwise specified sign panel backs should be coloured aircraft grey to Nº 693 as referred to in BS381C or similar. The finish shall be semi-gloss to reduce the effects of specular glare.

1.12 REFLECTORISATION

1.12.1 GENERAL

The TCD Rule specifies:

- which traffic signs need to be reflectorised, and
- the New Zealand Transport Agency must approve, by notice in the Gazette, all reflective materials used on traffic signs. Refer to Traffic Note 12.*

The standard of reflectorisation is not normallyspecified for the signs described in this manual. Road controlling authorities should therefore determine the standard of reflectorisation required for signs on their roads from a consideration of:

- the conspicuity requirements for each type of sign or sign series, and
- the cost effective service life of the various types of sign face materials.

1.12.2 SPECIAL REQUIREMENTS

If the location or function of a sign requires that the standard of sign face reflectorisation should differ from the normal specification, then that may be specified as long as it does not contravene the requirements of the TCD Rule.

1.12.3 REFLECTIVE MATERIALS

(a) General

The photometric performance of red, green, brown and blue reflectorised materials is much lower than that of white and yellow.

The classes of retroreflective sheeting are defined in AS/NZS 1906.1:2007 and 1906.2: 2007. The characteristics and use of the various classes of sheeting are summarised in Appendix B of AS/NZS 1906.1:2007.

Note that these standards may be obtained from

Standards New Zealand
Private Bag 2439, Wellington 6020.
www.standards.co.nz

*Traffic Note 12, along with the latest gazette notice, can be seen on the NZTA web site at http://www.nzta.govt.nz/resources/traffic-notes/docs/traffic-note-12-rev3.pdf

1.12.4 CHOICE OF MATERIAL

Class 1 sheeting will usually be most appropriate for general use on permanent urban and rural road signs which are side mounted, close to the roadway and the required reading distance by approaching motorists does not exceed about 175 metres

Class 1W sheeting should be specified for fully retroreflectorised signs where long distance viewing is necessary, and for signs which are substantially offset, either horizontally or vertically from the driver's line of sight.

Class 2 sheeting has a lower reflective performance than those above and is not normally suitable for use on traffic signs aimed at motorists which could be travelling at speeds of 70 km/h or more.

Note: Class 1 and 1W sheeting normally carries a 10 year or better guarantee, but class 2 sheeting has a more limited life expectancy.

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1.13 INSPECTION AND MAINTENANCE

Regular inspection of all traffic signs should be made under both day and night conditions to ensure that:

- signs remain fully effective for the purposes for which they were installed, and
- maintenance and replacement requirements are regularly assessed.

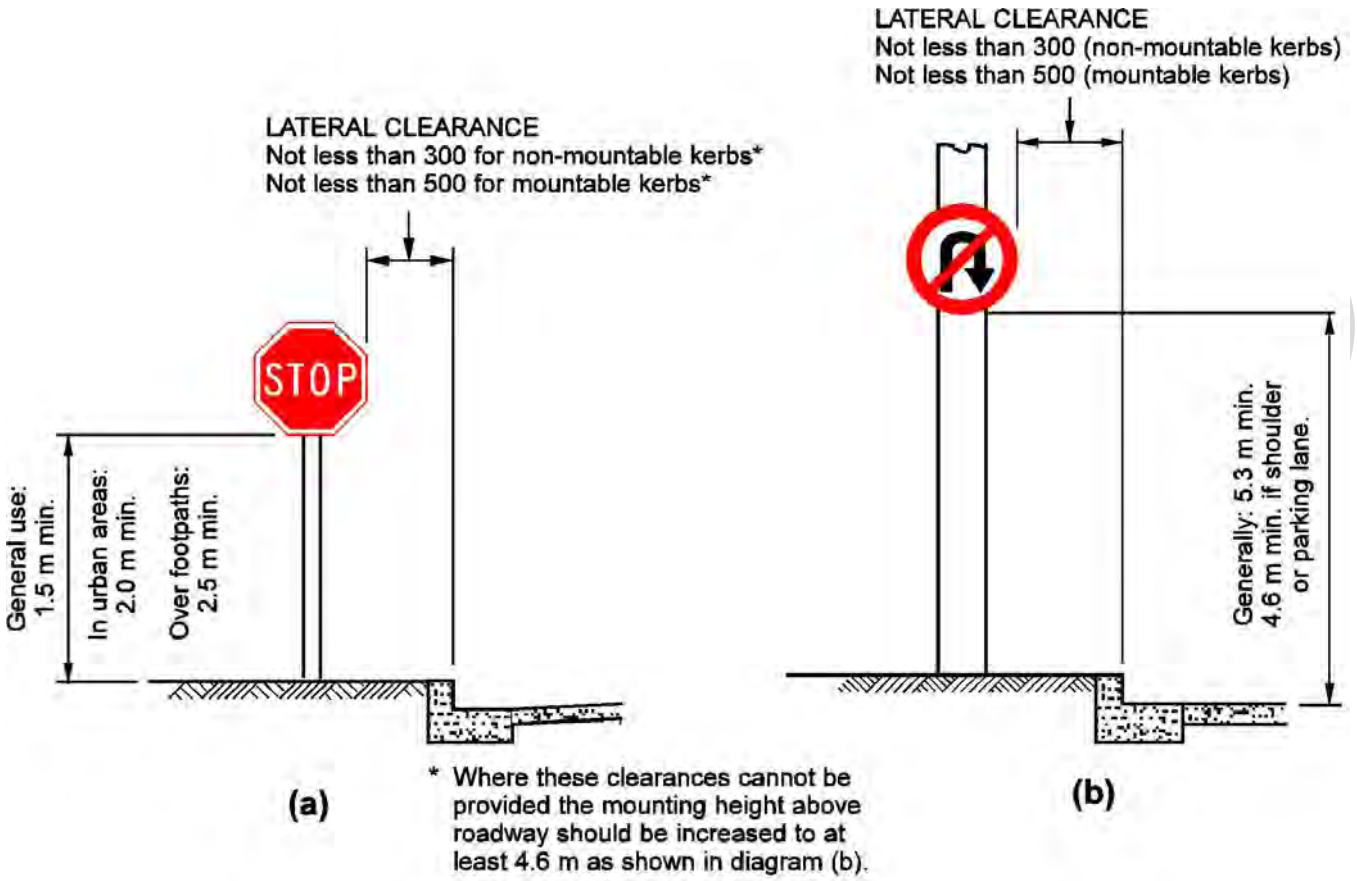
During inspections, particular attention should be given to the following points:

- the need for the sign still exists,
- visibility is not obscured by vegetation,
- the sign has not been vandalised or otherwise damaged,
- the sign is still legible, and
- that retroreflective materials are still effective.

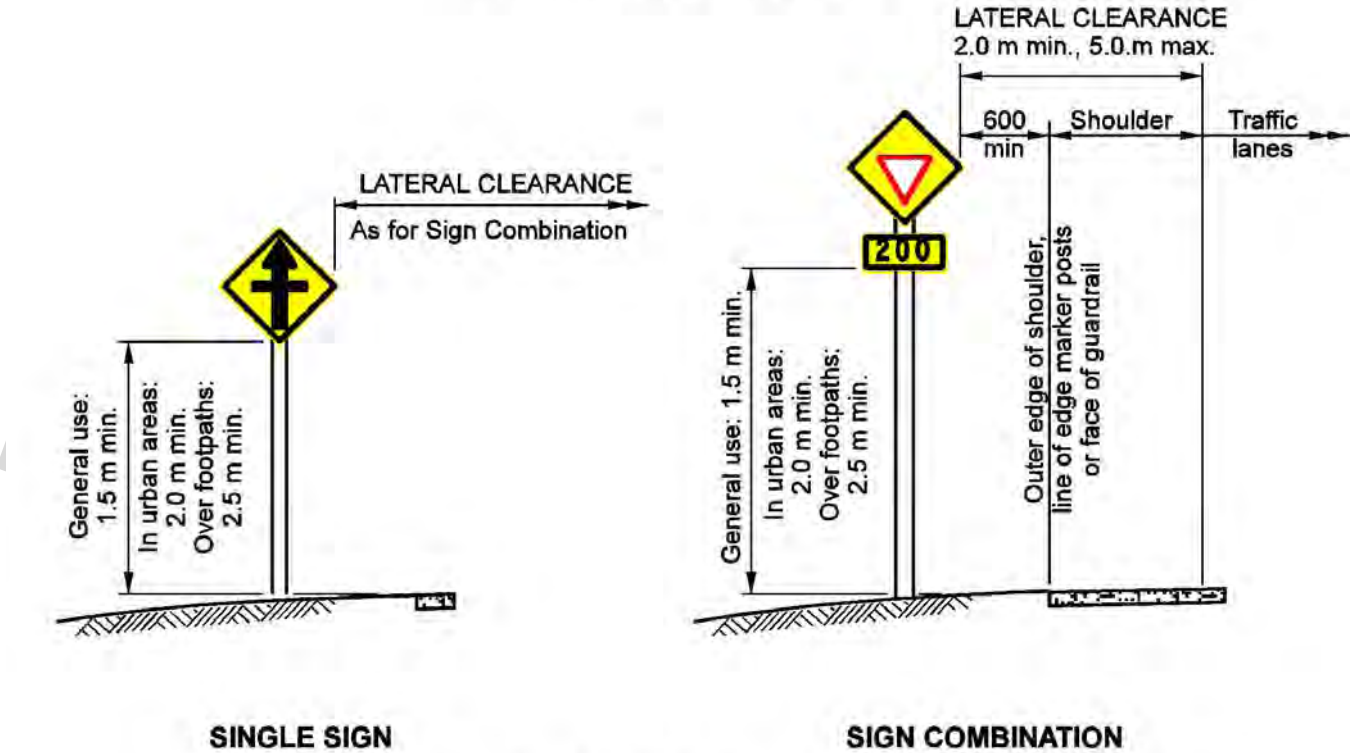
The benefits of a regular sign cleaning programme should also be considered, especially for low mounted signs that are in the splash zone of passing traffic. More cost effective signing can often be achieved through regular cleaning

1.14 TYPICAL SIGN DETAILS

Refer to Figures 1.3, 1.4 and 1.5 on the following pages.



KERBED ROADWAYS

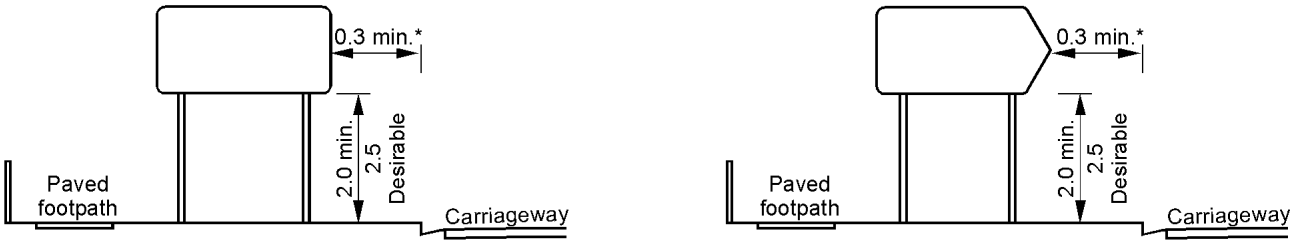


SINGLE SIGN **SIGN COMBINATION**

UN-KERBED ROADWAYS

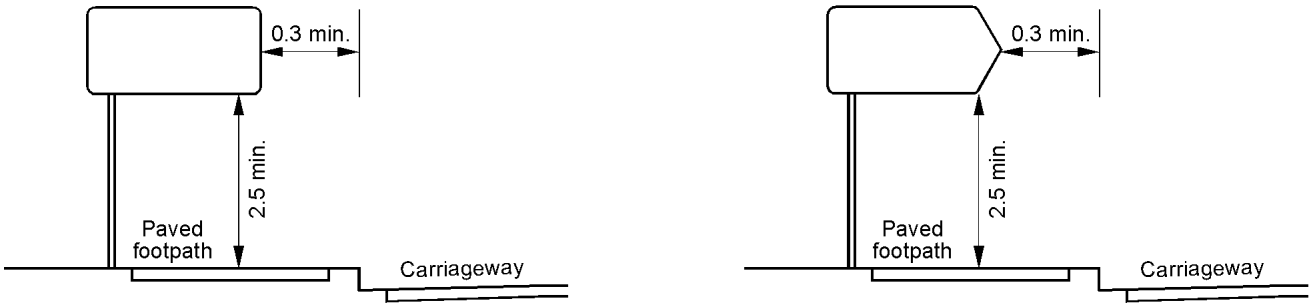
TYPICAL DETAILS FOR ROADSIDE MOUNTED SIGNS (REGULATORY AND WARNING SIGNS) FIGURE 1.3

(a) URBAN LOCATION, SINGLE-POLE SUPPORT.

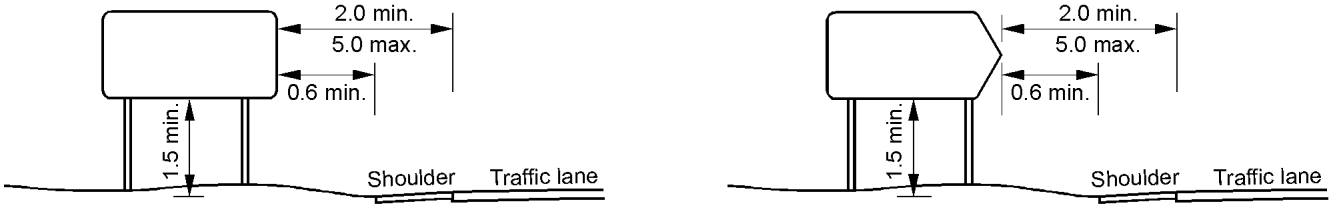


*0.5 min. if located in a median or traffic island

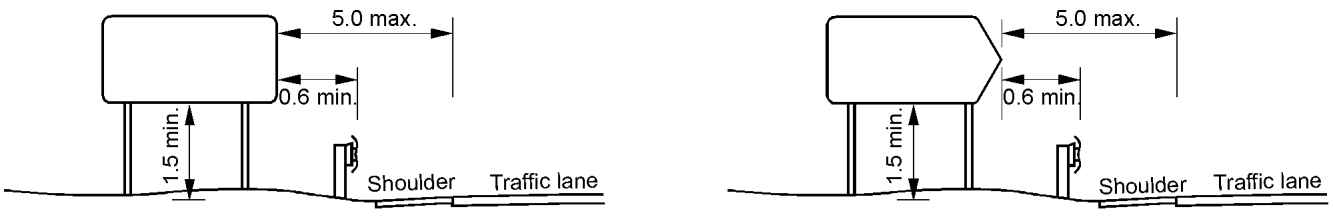
(b) URBAN LOCATION, TWO-POLE SUPPORT.



(c) URBAN LOCATION, OVER A FOOTPATH.

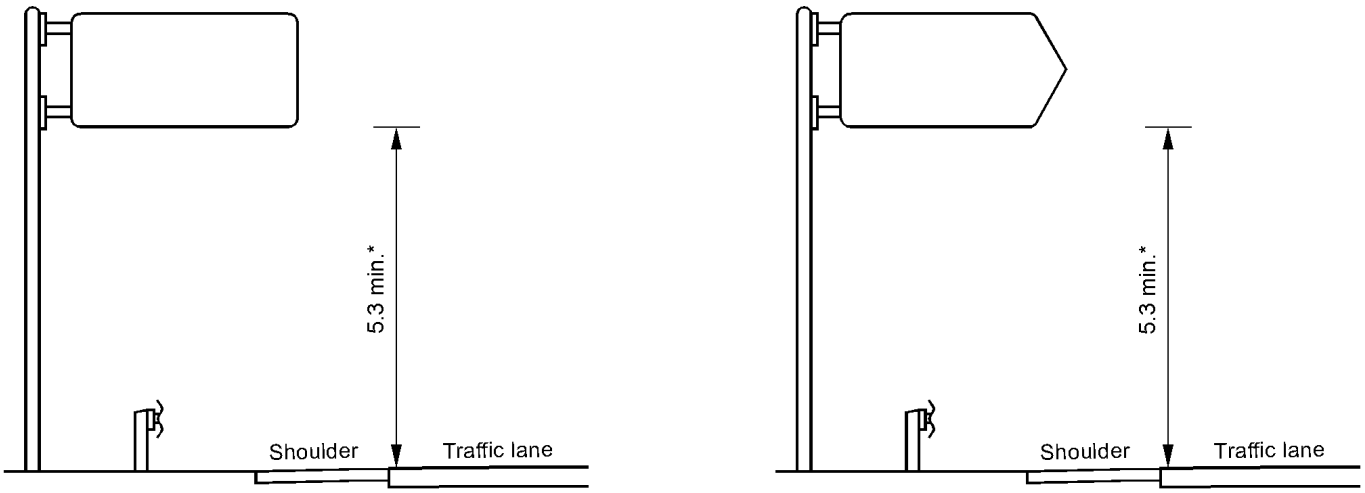


(d) RURAL LOCATION, STANDARD TWO-POLE SUPPORT.



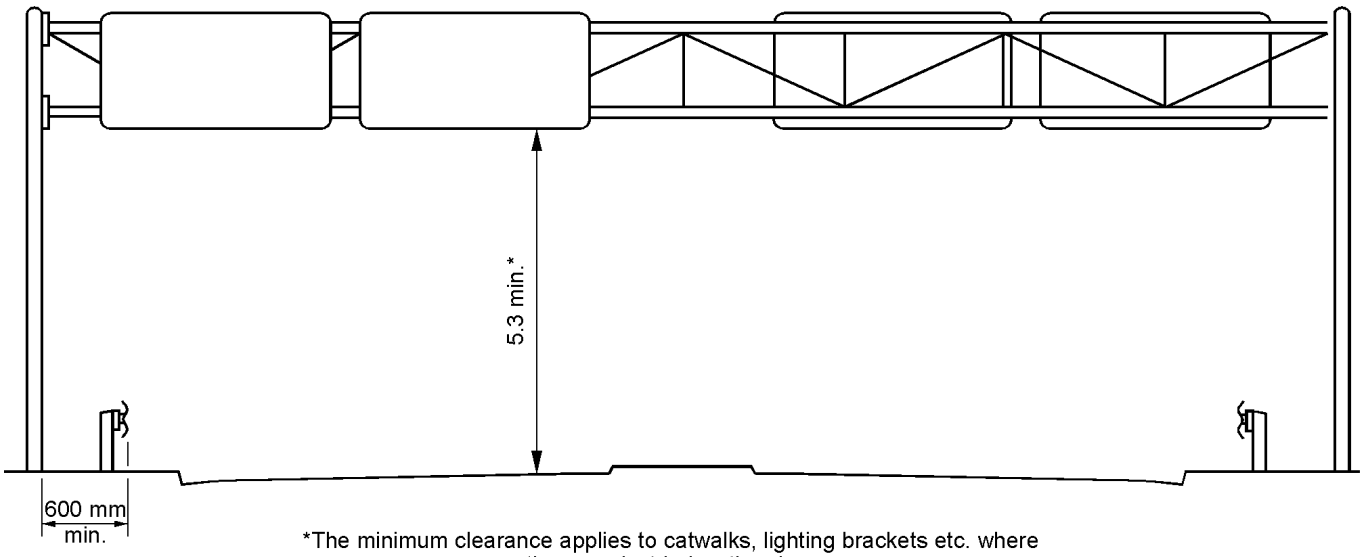
(e) RURAL LOCATION, BEHIND A GUARDRAIL.

FIGURE 1.4 TYPICAL DETAILS FOR ROADSIDE MOUNTED SIGNS (GUIDE, MOTORIST SERVICE AND TOURIST SIGNS)



*Where the sign does not overhang the carriageway the minimum may be reduced to 4.6 m.

(a) CANTILEVER SUPPORT



*The minimum clearance applies to catwalks, lighting brackets etc. where these project below the sign.

(b) GANTRY SUPPORT

Refer also to Transit's Bridge Manual Appendix A3 regarding vertical and horizontal clearances.

TYPICAL DETAILS FOR OVERHEAD MOUNTED SIGNS FIGURE 1.5

1.15 STATE HIGHWAY DUAL NAME SIGNING POLICY

1.15.1 GENERAL

This policy sets out the requirements for the signing of Dual Names on state highway signs and must be read in conjunction with the other relevant sections of this manual.

Only those places and features that have been accorded official dual name status by the New Zealand Geographic Board (NZGB) may be shown on state highway signs.

Dual names may be shown on:

- Guide signs,
- Tourist signs, and
- General information signs.

Application of the principles and details specified in this policy will ensure the consistent addition of dual names on state highway traffic signs throughout New Zealand.

1.15.2 DUAL NAMING CONVENTION

(a) The NZGB convention for identifying dual names is to show the primary name separated from the secondary name with a "/" character, ie. *Primary name/Secondary name*

NOTE: The name sequence is set by NZGB as part of the dual name determination process and cannot be changed for traffic signing purposes.

(b) It is not often possible to show dual names on traffic signs in the NZGB format, even for two short names. The method adopted by Transit to show dual names on traffic signs is to:

- show the primary name in the standard manner and lettering style generally used for that type of sign,
- show the secondary name in *italic CAPITAL* lettering 0.75 times the size of the initial capitals used for the primary name,
- position the secondary name immediately beneath, and horizontally centred on, the primary name.

This method groups the names but distinguishes the primary name from the secondary name and also limits increases in sign size.

(c) Where a secondary name is longer than a primary name, its letter size should be reduced to make its length approximately equal to that of the primary name.

The absolute minimum letter sizes that can be used for secondary names are:

- **Guide signs:** 120 Modified Series E, with condensed letter spacing.
- **Tourist signs:** 100 Series D, with condensed letter spacing.

(d) When letter size reduction cannot reduce the length of a secondary name sufficiently one of the following alternative methods may be employed:

(i) The secondary name may be shown on two lines, if it can be conveniently split in an approved manner.

A Maori secondary name can only be shown on two lines if it can be split in a manner approved by the local Maori groups.

The vertical spacing between the two lines should be 0.5 times the capital letter size of the lettering used for the secondary name.

(ii) The primary name may be centred horizontally above the secondary name which is shown in the minimum permissible lettering size. If necessary, the sign size must be adjusted to accommodate the longest name shown on the sign and to retain the standard edge, symbol, direction arrow spacings and edge clearances.

NOTES:

1. ***The symbols, route markers and distance information associated with a dual name must be vertically centred on the dual name group.***
2. ***The longest name on a sign, primary or secondary, will determine overall sign width.***
3. ***Maori names need to be checked for their correct wording with the Maori organization which has mana whenua status in the area the sign is to be erected. This is particularly important when showing longer names on two lines because the inappropriate breaking of these can alter their meaning and/or interpretation.***
4. ***Maori names may use macrons. All Maori names must be checked with the NZGB for correct presentation. When necessary macrons should span the full width of a lower case letter, half the width of capital letter and be half the lettering stroke width in thickness.***
5. ***The length of a macron over the letter 'I' should be the same as that used for the other vowels.***

1.15.3 GUIDE SIGNS

Refer to Section 7: GUIDE SIGNS for full details of these signs.

(a) Legend

When dual names are added to existing guide signs the number of destinations currently shown may have to be reduced, to keep the amount of destination information shown within the normal maximum number allowed because it will:

- ensure driver's will be able to read, understand and react to the sign message,
- reduce unnecessary increases in the size of sign panels, and
- generally give a more visually pleasing and balanced sign layout.

Dual names are considered to be two separate places and when a dual name is to be shown on existing signs, excess destination name(s) should be removed in the following manner.

(i) Advance Direction (AD) Signs:

All relevant stage names must be shown on AD signs.

Generally, no more than two place names should be shown in any one direction of travel. Therefore, when a dual name is to be shown only one destination should be shown in that direction.

However, when another destination is shown on an existing AD sign the relevant road controlling /local authority needs to be consulted to advise whether the destination name can be removed.

Refer to Section 7.2.4 for full details of determining the legend for AD signs.

A typical example of dual name advance direction sign is shown in Figure 1.6.

FIGURE 1.6: A TYPICAL DUAL NAME AD-4 TYPE ADVANCE DIRECTION SIGN

(ii) Intersection Direction (ID) Signs:

Any place names removed from AD signs must be also removed from the associated ID signs.

Generally, no more than two place names should be shown in any one direction of travel. Therefore, when a dual name is to be shown only one destination should be shown in that direction.

However, when another destination is shown on an existing AD sign the relevant road controlling/local authority need to be consulted to advise whether the destination name can be removed

Refer to Section 7.4.4 for full details of determining the legend for ID guide signs.

A typical example of dual name intersection direction sign is shown in Figure 1.7.

FIGURE 1.7: A TYPICAL DUAL NAME ID-3 TYPE INTERSECTION DIRECTION SIGN

(iii) Confirmation Direction (CD) Signs:

Existing place name(s) removed from AD and ID dual name signs may however remain on CD signs, provided the maximum number of names allowed on this type of sign is not exceeded.

Refer to section 7.5.5 of this manual for the full details of the legend including the limitation on number of destinations to be shown on CD signs.

NOTE: Stage names must not be removed from any guide sign for the purpose of limiting sign size.

A typical examples of dual name confirmation direction sign are shown in Figures 1.8 and 1.9.

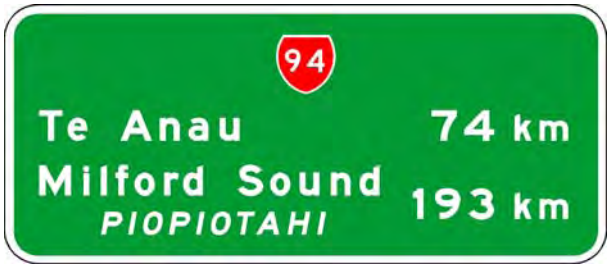


FIGURE 1.8: A TYPICAL DUAL NAME CD-1 TYPE CONFIRMATION DIRECTION SIGN

FIGURE 1.9: A TYPICAL DUAL NAME CD-1 TYPE CONFIRMATION DIRECTION SIGN
(Secondary name longer than primary name)

(iv) Place Name (PN) Signs:

Dual place names should be shown as illustrated in Figure 1.10.

FIGURE 1.10: A TYPICAL DUAL NAME PN-1 TYPE PLACE NAME SIGN

1.15.4 TOURIST SIGNS

(a) General

Refer to Section 9: *TOURIST SIGNS* for full details of these signs.

The general guide sign design principles should be used for the design and layout of tourist signs. Normally, 120 DM and 160 DM lettering is used on A and B size tourist signs. However, when a large amount of legend needs to be shown larger lettering may be required to maintain legibility.

(b) Legend

Where applicable, dual names may be shown on tourist feature/facility signs. Additional directional or driving instruction messages should conform to the normal conventions described in Section 9: *TOURIST SIGNS*.

When a dual name is to be shown on a TS-5 sign consideration should be given to reducing the total number of tourist features/facilities listed on the sign.

All tourist signs must be designed in accordance with the methods detailed in Section 9.8.

The typical sign panel sizes listed in Table 9.2 may be inadequate to show dual names and larger panels will often be required.

(b) LETTERING STYLE AND SIZE

Series D or E lettering is used for tourist feature/facility names. Secondary names shall be shown in Series D or E *italic CAPITAL* lettering, 0.75 times the size as the letters used for the primary name. The slope of Italic lettering should be between 8 and 10 degrees from the vertical.

Refer to Sections 1.15.2 (c) and (d) for adjustment of letter size for longer secondary names.

(c) Sign Layout

Refer to Section 9.8 for typical tourist sign layout details. Generally, the vertical spacing between dual tourist feature/facility names should be equal to 0.5 times the size of capital letters used for the secondary name.

Typical examples of dual name tourist signs are shown in Figures 1.9, 1.10, 1.11 and 1.12.

FIGURE 1.11: A TYPICAL DUAL NAME AD-4 TYPE ADVANCE DIRECTION SIGN

FIGURE 1.12: A TYPICAL DUAL NAME TS-2 TYPE ADVANCE SIGN

FIGURE 1.13: A TYPICAL DUAL NAME TS-2 TYPE
(Secondary name is longer than the primary name)

FIGURE 1.14: A TYPICAL DUAL NAME TS-2 TYPE ADVANCE SIGN
(Secondary name is longer than the primary name)

1.15.5 GENERAL INFORMATION SIGNS

(a) GENERAL

Refer to Section 10: *GENERAL INFORMATION SIGNS* for full details of these signs.

(b) LEGEND

Normally, dual names will only need to be shown on signs indicating land features of the type listed in Section 10.4.

NOTE: This is not an exhaustive list.

(c) LETTERING STYLE AND SIZE

Series B or C CAPITALS lettering is normally used on general information signs.

Secondary names shall be shown in Series B or C *italic CAPITAL* lettering, 0.75 times the size of the letters used for the primary name. The slope of italic lettering should be between 8 and 10 degrees from the vertical.

(d) REFLECTORISATION

General information signs are not normally reflectorised.

If a sign is to be reflectorised Series D lettering must be used, for night time legibility reasons, and this will significantly increase the size of the sign.

(e) LAYOUT

Refer to Section 10.4 for general information sign layout details.

Generally, the vertical spacing between dual names should be equal to 0.5 times the size of capital letters used for the secondary name.

A typical example of a dual name general information sign is shown in Figure 1.11.

FIGURE 1.13: A TYPICAL DUAL NAME IG-14 TYPE RIVER/STREAM SIGN