Advertising signs and road safety: design and location guidelines

RTS 7
Disclaimer

While this document is believed to be correct at the time of publication, the Land Transport Safety Authority, Transit New Zealand and their employees or agents involved in preparation and publication cannot accept any liability for its contents or for any consequences arising from its use. People using the contents of the document should apply, and rely on, their own skill and judgement. They should not rely on its contents in isolation from other sources of advice and information.
In the present age of deregulation and the free market there is an increasing need for enterprises to market themselves in order to compete. Relating this to the road safety environment, this has led to an increasing demand for advertising situated on the roadside targeted at passing motorists and pedestrians. Allowed to go unchecked this demand could result in a proliferation of roadside advertising which could adversely impact on traffic safety as well as on the roadside environment.

At the same time many territorial authorities are preparing or reviewing their district plans under the requirements of the Resource Management Act 1991 and are looking at means of evaluating and controlling the adverse effects of uses such as roadside advertising.

These guidelines provide advice and information on good practice in relation to roadside advertising which is intended to be used by those wishing to erect advertising and those formulating rules to control its effects. A wide range of interested parties have been consulted in compiling these guidelines to achieve a document that should have wide acceptance and should promote on-going consultation through the implementation process.

I would like to thank Transit New Zealand and all those who contributed to the compilation of these guidelines and commend them to you for the benefit of advertisers, road users, and the community as a whole.

Alan Wilcox
Director, Land Transport Safety
1. Introduction

1.1 Scope and objectives

This document is intended as a clear and practical guide to achieving outdoor advertising which is safe and effective from a road safety perspective.

The basic premise of the document is that advertising which is well designed and located to meet its commercial objectives will also be more acceptable in terms of road safety objectives.

The main purposes of these guidelines are to:

- assist local authorities in putting together by-laws or rules for district plans
- assist local authorities in evaluating proposals for roadside advertising
- provide people wishing to erect signs with sufficient information to enable them to achieve a quality result with a minimal adverse effect on adjacent traffic
- assist in achieving a consistency and quality of advertising to benefit both road users and the industry.

There are two major issues that will concern local authorities when dealing with the effects of advertising signs. These are:

- safety issues
- environmental issues.

This document concentrates on dealing with the effects that advertising may have on the safety and efficiency of road traffic and not on its environmental effects. The criteria set out in this guideline are suitable for use in the control of advertising. It should not be used alone to determine whether roadside advertising is acceptable in a given situation.

Those erecting advertising signs will also need to give consideration to the consequent environmental effects. In formulating controls on roadside advertising local authorities will need to give full consideration to environmental concerns and their relevant obligations in terms of the Resource Management Act 1991. In particular, environmental considerations will differ in commercial, residential and rural areas etc. In many instances meeting environmental requirements may be more difficult than meeting safety requirements. To a large extent the characteristics of advertising that are likely to have an adverse effect on traffic are also those that have an adverse effect on the environment.

This document can be used to form the basis of by-laws or district plan provisions but otherwise should be considered alongside any legislation, by-laws or district plan provisions relating to roadside advertising or signs in general.

While this document gives some specific recommendations on advertising, each particular installation should be treated on its own merits having regard to its purpose, its nature and its location.
1.2 Roadside advertising

The document frequently refers to “roadside advertising.” This term is used to include all advertising signs and devices which can or are intended to be seen by road users whether they are motorists, cyclists or pedestrians.

“Roadside advertising” includes advertising that is:

- located within the road boundaries
- located on private property near a road
- permanent or fixed in nature
- temporary or movable in nature
- vehicle-mounted advertising or other advertising on vehicles.

“Roadside advertising” in this context does not include:

- direction and information signs as specified in the Manual of traffic signs and markings [1]
- displays inside buildings that may be visible from a road or other public place.

“Roadside advertising” is not confined to advertisements that are conveyed by means of signs. However, since most such advertising is in a sign format this document refers more specifically to signs, particularly in the advice relating to the design of roadside advertising, than to other devices such as aerial displays, banners, spinners etc.
2. Characteristics of advertising affecting road safety

2.1 Roadside advertising and traffic accidents

From examination of the available accident data and from relevant literature there are four major ways in which the presence of roadside advertising could contribute to traffic accidents:

- by directly distracting or confusing motorists, including contradicting or detracting from the effectiveness of formal traffic signs
- by indirectly distracting motorists from the driving task
- by obstructing visibility, e.g. at intersections or driveways
- by presenting a physical obstruction to vehicles moving on or off the carriageway.

The following paragraphs detail the different characteristics of roadside advertising that make up these contributing factors.

2.2 Characteristics causing direct distraction or confusion

Advertisements can be considered to directly distract or confuse motorists if they convey information to them that is contrary to or competing with information conveyed by legitimate traffic control devices. In this regard they can induce a voluntary but detrimental change in driver behaviour.

More specifically, advertising signs or devices have the potential to directly distract or confuse drivers if they:

- could be mistaken for or confused with a traffic sign
- imitate a traffic sign or traffic control device
- reduce the conspicuity, clarity or effectiveness of a traffic sign or traffic control device. This may be due to the location, appearance or illumination of the advertisement
- give instructions or directions to traffic in the manner of a traffic sign or traffic control device
- invite drivers to move or act contrary to any traffic sign or traffic control device
- invite drivers to turn where there is fast moving traffic
- reflect or emit light of sufficient intensity or in such a manner as to impair or require diversion of a driver's vision
- include reflectors or light sources which at night are likely to imitate a traffic sign, traffic warning or traffic control device.

In general, advertisements with these characteristics are prohibited outright by means of local by-laws or national legislation. Good practice to deal with other instances where direct distraction is likely to occur is dealt with in sections 5.2 to 5.5.

2.3 Characteristics causing indirect distraction

Advertisements can be considered to indirectly distract motorists if they compete for drivers’ attention with information relevant to the driving task. In this regard they may impair driver behaviour particularly in situations where the driving task makes greater demands on drivers.

At the 1990 Australian Road Research Board Conference, Andreassen [2] noted that small signs of a promotional or temporary point of sale type had the potential to cause the most distraction to drivers.
The evidence available in New Zealand supports this hypothesis with signs that are not a normal part of the environment, i.e. that lack “cohesion”, being most frequently cited by motorists as causing them to have an accident. Such signs include garage sale signs, blimps, land agents’ signs, rough hand-painted signs, etc.

There is, therefore, a need to address the extent of the distraction caused by roadside advertising.

Advertisements or devices have the potential to indirectly distract drivers to the extent of creating a safety problem if they:

• contain a message which is illegible, lengthy, hard to understand or titillating
• move or give the appearance of motion, e.g. by use of sequentially flashing lights
• include lights or light sources which flash, revolve, move or vary in intensity
• are variable message signs
• are located where there are high demands on a driver’s concentration on the road conditions
• are located in close proximity to a number of other advertising signs or devices
• form part of a sequence of similar signs with differing messages or parts of a message spread over a relatively short section of road.

Advertisements with these characteristics may be acceptable to some extent or in certain situations. Sections 5.5 to 5.8 of these guidelines cover these circumstances and give advice on conditions under which such advertisements may be displayed.

2.4 Characteristics causing visibility obstruction

In the same manner as other roadside features, advertising may cause a visibility obstruction and a safety hazard if it obstructs or interferes with:

• road users’ view of a road hazard, person or oncoming vehicle on the roadway
• road users’ view of a person or vehicle about to enter the roadway.

The general requirements for maintaining sight distances along the road and at driveways and intersections, therefore, need to be applied to roadside advertising.

2.5 Characteristics causing a roadside obstacle

Advertising signs or devices may create a roadside hazard if they are mounted on substantial rigid supports or vehicles and they are:

• located or proposed to be located in a position accessible to vehicular traffic
• otherwise located where they are likely to be struck by an errant vehicle
• located on a footpath or alongside the road in a position where they are in the normal paths of pedestrians. For example, blind or partially sighted pedestrians are particularly vulnerable to poorly located footpath-mounted signs.

The normal requirements for maintaining adequate clearances between the vehicle carriageway and roadside obstacles or for erecting only lightweight/frangible signs need to be applied.
2.6 Positive effects

Roadside advertising can, however, have a positive effect on road safety. Many drivers who are “at fault” in traffic accidents state that they were looking for an event or business premises at the time. Clear and well-located roadside advertising, e.g. with business addresses, or information signs in many instances could prevent this type of accident. This is a prominent reason for providing information in this document on how to locate, design and erect effective advertising signs.

It is also possible that roadside advertising could be of benefit in reducing boredom on long straight rural roads where there are few demands on drivers.
3. Means of controlling effects of advertising on traffic

3.1 National legislation

A number of Acts and Regulations are relevant in controlling the undesirable characteristics of roadside advertising. These include:

- Regulations 127-130 of the Traffic Regulations 1976 which essentially prohibit the erection of any advertising which is likely to cause direct distraction or confusion
- Section 77 (1) (rr) of the Transport Act 1962 which provides for Regulations to be made to prohibit or restrict the use of reflectorisation on roadside advertising
- Section 684 (15) of the Local Government Act 1974 which permits local authorities to make by-laws to regulate, control or prohibit outdoor advertising
- Section 5 (d) of the Land Transport Act 1993 which allows the Minister of Transport to make rules to control the construction or use of any thing likely to be hazardous to land transport safety
- Section 5 of the Resource Management Act 1991 which obliges local authorities to ensure that the adverse effects of land use activities on the roading network are mitigated, remedied or avoided by means of their district plans or other planning instruments.

3.2 By-laws and district plans

The above legislation not only gives local authorities the power to make by-laws to control roadside advertising but also requires them to address the issue in their district plan or by other means.

Signs on state highways outside urban areas are controlled by the Transit New Zealand signs on state highways by-law 1987/3. The by-law can apply to state highways in urban areas if it is specifically adopted by a territorial local authority to apply in those circumstances.

District plans should recognise that most forms of roadside advertising are legitimate land uses and they should therefore make provision for such advertising without compromising their objectives in controlling adverse effects on safety, amenity and the environment.

In general signs can be adequately controlled by provisions on their number, location, size and form. Control over the content or message on signs should not be necessary in so far as the effectiveness of a sign’s content is optimised by making it clear and legible, and therefore able to be understood without unnecessarily distracting passing motorists.

As stated in the Introduction, each installation needs to be considered on its own merits and any specific controls on advertising will need to be tempered with provisions for the territorial authority or road controlling authority to prohibit the erection or to remove installations which are otherwise not satisfactory from a traffic safety viewpoint.

In formulating proposals to erect new advertising signs, consultation with local authority staff, and Transit New Zealand staff for sites near a state highway, at an early stage is recommended. This will not only clarify local and national requirements but also assist in ensuring that an effective result is achieved.
4. Principles of good sign design and installation

4.1 Introduction to good signing practice

This section of the document refers specifically to advertising signs since they are the most common form of outdoor advertising. Many of the statements and recommendations will apply equally well to other forms of outdoor advertising.

Roadside advertising signs are intended to convey information to passing motorists and pedestrians.

For those in vehicles in particular, roadside advertising must be:

- direct
- simple
- relevant.

Support information is irrelevant and is unlikely to be retained even if it is seen. Often roadside advertising signs can fail in their purpose if they are erected amid many other signs competing for commercial impact where they simply add to the visual clutter. They will also be unsuccessful if their message becomes a confusing array of graphics and words that is incomprehensible to the passers-by.

Comparing the signs in photos 1-4 (see page 22) with those in photos 5-8 (see page 23) illustrates these points.

The following paragraphs give guidelines on locating, designing and constructing outdoor advertising signs to make them effective and to ensure that they do not have a detrimental effect on passing traffic.

4.2 Consultation and compliance with national and local requirements

When a proposal is formulated to erect a roadside advertising sign the first step in the procedure is to establish the bounds of acceptability of the sign by consulting local authority staff and checking on:

- national legislation or Transit New Zealand by-laws
- local district plan requirements and local by-laws.

If the sign is to be located adjacent to a state highway then the Transit New Zealand document *Planning for a safe and efficient state highway network under the Resource Management Act 1991* [3] should be consulted and discussions held with Transit New Zealand staff.

Having established that these national and local requirements can be met, the principles in the following paragraphs can be used to optimise the effectiveness of that sign from both a commercial and a traffic viewpoint.

It is also recommended that, at an early stage in proceedings, the proponent of any roadside advertisement and/or the territorial authority should consult with other parties who have advertising signs or signing needs that relate to the intended installation. This can allow for a collective approach which will often benefit both the advertisers and the motoring public. Directory boards (see photos 18-20 on page 26) provide a good example of this.
4.3 General location and context of the sign

When erecting a sign, first priorities are the choice of its placement in relation to its overall environment and its siting in relation to the adjacent roadway. Once these issues have been determined the detailed design of the sign can be worked out.

Roadside advertising signs will have a greater impact in some environments than in others in terms of both the effectiveness of the message and the intrusiveness or distractiveness of the sign.

For example, a sign in isolation in a rural environment will have a greater impact than the same sign in a commercial environment where it is surrounded by other signs. It will not necessarily have more potential to adversely effect passing motorists as they are less likely to have high demands from the driving task in a rural environment.

4.4 Locational factors affecting the legibility of signs

Signs are only effective if they are legible in the circumstances in which they are seen. Roadside advertising signs must be located in a position which allows the viewer to see, read, comprehend and, in some cases, react to the message in the time that it takes to pass by. Signs in locations that do not permit the viewer time to fully comprehend the message are unsuccessful in several ways:

- they do not fulfil their advertising aim
- they can create a traffic hazard
- they create unnecessary clutter on the roadside.

No matter how well the detailed design aspects of a sign are considered, if the location and context are wrong then the sign will not be successful.

To ensure that a roadside advertising sign can be seen it should ideally be located to present an unrestricted view to the motorist for the minimum distances shown in the table in Appendix 2.1.

Two other relevant factors to consider in locating signs concern the speed at which traffic passes the site of the sign. As travel speed increases:

- a driver’s concentration increases and the point of concentration recedes. This means that signs must be visible from a greater distance on roads with higher operating speeds
- a driver’s peripheral vision decreases as shown in Figure 2.1 in Appendix 2.2.

A consequence of this factor is that signs should be placed as close as possible to drivers’ lines of sight while maintaining the clearances from the roadway recommended in section 5.10.

4.5 Selecting a site

From a traffic viewpoint the major factors that need to be considered in selecting a site are:

- safety
- legibility.

It is also in the interests of those erecting signs to consider the visual impact that the sign is likely to have on the surrounding environment. Indeed, most authorities will have requirements in this regard.
Where possible a site should be chosen so that the sign can be oriented nearly at right angles to
drivers' lines of sight to maximise its legibility. This will also minimise distractive effects by
reducing the need for drivers to turn their heads to see the sign. Signs should be oriented at
approximately 5° away from right angles to drivers' lines of sight to avoid reflections of headlights
from the surface of the sign dazzling drivers and obscuring the message on the sign.

The photographs illustrate both good and bad examples of the above issues.

4.6 Design factors affecting the legibility of signs

In order for any advertisement to communicate a message it must first be seen by the audience for
which it is intended. Seeing takes time and from a moving car there are limits to the detail that can
be discerned and to the scope of the visual field that it is possible to observe.

As previously stated, signs are only effective if they are legible in the circumstances in which they
are seen. If the location and context of a sign are satisfactory it is generally the detailed aspects of a
sign that determine its legibility.

Again some relevant factors concerning travel speed need to be considered in designing the
message on a sign. These are:

- as travel speed increases foreground details begin to fade so signs need to be legible from a
greater distance. Further detail on this effect is given in Appendix 2.2
- as speed increases to 100 km/h a driver can handle and comprehend two events simultaneously.
  If a driver is to perceive more events than this they will have to slow down.

A further major factor to consider is that humans have a greater capacity for assimilating pictorial
material than for text. This is a strong argument for using pictures or symbols on a sign rather than
written words. Many of the photographs show how distinctive and recognisable signs can be when
they incorporate symbols or logos (corporate identification).

4.7 Preparation of the message

The most important aspect of a sign’s message that determines its effectiveness is simplicity.
Refining the message to contain only the essential information is the key to successful message
presentation. Drivers’ capabilities are limited to:

- picking one item of essential information from approximately ten items (syllables, symbols,
  abbreviations) on a sign
- assimilating up to six items of information on a sign where all are essential or of equal
  importance.

4.8 Establishing a sign style

In addition to conveying written and symbolic information a sign can help the viewer identify its
subject by its overall character and style. Careful use of materials, shape, lettering style and colour
can contribute to quick and easy communication of the information provided by the words and
symbols.
Good graphics on roadside advertising signs should meet four criteria. They should:

- express the proprietors' identity
- be appropriate to the type of activity to which the sign relates
- be compatible with the visual character of the surrounding area
- be legible in the circumstances in which they are seen.

A recognisable sign style is a means of establishing a corporate identity particularly for an advertiser with multiple signs. The photographs illustrate some good examples of this.

Such signs can make their message clear at a glance and make a positive contribution to the visual environment.

4.9 Preparing the layout of the sign

Having established the message content and sign style the sign layout then has to be considered. The most important factors to consider are:

- lettering size
- lettering style
- lettering hierarchy
- the background on the sign
- contrast between the message and the background.

4.9.1 Lettering size

The size of the lettering for any words on a sign needs to be increased as the speed of passing traffic increases. This results from the increased distance that vehicles will travel at higher speed during the time that it takes motorists to read and respond to the sign’s message.

On this basis any wording should have minimum letter sizes conforming to those in the table in Appendix 2.3.

4.9.2 Lettering style

Some typefaces are harder to read than others. Words made up of condensed letters which are all capitals are much harder to read than words with upper and lower case letters. The spacings between letters and between words, the thickness of the letters and variations in the thickness of letters also affect legibility. Among the easiest fonts to read are Helvetica and Transport Medium which are commonly used on traffic signs for this reason. They are characterised by lettering that is visually simple, of consistent thickness and lacking decoration.

Examples of good and bad lettering are shown in Appendix 2.4 and illustrated in the photos.

4.9.3 Lettering hierarchy

Legibility is increased when the important parts of the message are given emphasis through increased letter size.
4.9.4 Background on the sign

Legibility is also aided by having a clear background on the sign against which it can be read. This background helps the viewer to isolate the individual message.

A rule of thumb in the sign industry is that the message on a sign should take up no more than the following proportions of the total area of the sign:

- 40% in commercial or industrial areas where there are other competing signs
- 60% in rural or residential areas with few other signs.

4.9.5 Contrast between message and background

The contrast between the message and the background on the sign also affects legibility. The message needs to stand out from the background colour and colours of a similar tone tend to merge into one another particularly from a distance.

4.10 Choosing the sign materials

The materials from which a sign is constructed will affect the style of the sign and its durability. The materials should reinforce the message by contrast or by integration.

In an area where there are several signs the goal should be one of consistent quality rather than uniform materials or appearance.

The most important factors to consider when selecting materials for a sign are:

- appropriateness to the style
- relationship with the surroundings
- durability
- costs (capital and maintenance).

4.10.1 Sign style

The materials chosen will convey their own message which should reinforce the intent of the sign’s style. Examples can be seen in the photographs (see pages 22 to 27).

4.10.2 Relationship with the surroundings

The materials should be chosen for the way in which they relate to the setting. This can be done by integration or by contrast. Integrative signs have forms and colours that are appropriate for their contexts. A contrasting approach aims to emphasise the sign by giving it a prominent location and/or colours and forms that contrast with the surrounding.

It is not essential to use only rustic materials in rural areas and more up-market materials in urban areas to achieve an effective result.
4.10.3 Sign durability

It makes economic sense to match the type of materials used with the intended life span of the sign, e.g. corrugated plastic is ideal for short term signs such as political hoardings. For long term signs it is also important to match the materials used for the different parts of the sign including the message and the background. If colours fade too quickly the sign can quickly become illegible.

4.10.4 Sign costs

It is important to match the initial capital input to the intended life of the sign particularly to avoid higher maintenance or replacement costs in the future.
5. Good practice to minimise the adverse effects of roadside advertising

5.1 Introduction

This section gives more specific information on the characteristics of advertising that can cause distraction and provides guidelines on how to avoid problems with distraction. The last two subsections provide more detail on ensuring that advertising displays do not form an obstruction to visibility or a physical obstruction.

Some of the situations which should be avoided are illustrated in the photographs. Technical details associated with the recommendations given in this section may be found in Appendix 2.

The intent of this section is to alert practitioners to situations in which advertising may have detrimental effects rather than to be prescriptive about where advertising should be prohibited or controlled. Again, each situation needs to be considered on its own merits.

It is worth noting that adverse effects of distraction by roadside advertising are more likely to occur on routes which are higher up in the roading hierarchy, e.g. national routes and arterials. The reason for this is that the higher speeds and higher volumes of traffic on such routes place much greater demands on drivers’ concentration and on the driving task compared with routes lower in the hierarchy.

5.2 Colour of advertising signs and devices

An advertising sign or device should not be displayed or constructed where visible from a roadway if it:

- is coloured red, green, orange, white or yellow in combinations of colours and/or shapes which may be mistaken for a traffic control device (see photo 9 on page 24)
- has red, green, orange, white or yellow in isolation or in combinations of colours and in a location where it is likely to form the foreground or background to or appear alongside a traffic control device of similar colour when viewed by approaching motorists (see photo 14 as an example of this effect)
- contains large areas of red, green or orange display on illuminated signs which at night are likely to cause confusion with traffic control signals or “stop” or tail lights of vehicles.

In many instances such situations will be adequately controlled by the Traffic Regulations 1976.

5.3 Location of roadside advertising

5.3.1 Location in relation to traffic control devices

The location of advertising signs or devices in proximity to traffic control signs or devices also creates the potential to hinder their interpretation by obscuring them or otherwise detracting from their effectiveness (see photos 12 and 14 on pages 24-25). Traffic control signs and devices place additional demands on drivers’ attention and are often located at sites which are hazardous in their own right. Both of these factors make it more likely that distraction by advertising signs will have adverse consequences. To avoid these problems, proposals for advertising should be considered in this context where the advertising is to be located:

- near any intersection
- near any permanent regulatory, parking or warning sign.
Details of instances where this factor may need to be considered are in Appendix 2.5.

Note that on national routes and arterials as defined by the local authority or by Transit New Zealand [3], the erection of advertising should generally be a discretionary activity if it is to be located in the situations given in Appendix 2.5.

Although there are many advertisements close to intersections or traffic control devices that apparently cause no problems, e.g. in central business districts, these locations may still be accident blackspots. Accident blackspots can arise as a result of a lack of driver concentration or excessive demands on drivers at the location. Local authorities should use their discretion to control unnecessary distractions which may be contributing to collisions at these locations even though they cannot be directly attributed to the collisions.

5.3.2 Location/orientation relative to the roadway

The location and orientation of advertising signs in relation to the roadway, and their design, need to be assessed to avoid situations where:

- the sign cannot be read without slowing or stopping the vehicle on the vehicle carriageway or in the path of other vehicles.

5.4 Advertising giving instructions to traffic

In general, advertising can inform drivers of the location of a commercial enterprise and may serve a useful traffic function in doing so, provided the message cannot be confused with a traffic instruction. Again, therefore, advertising signs should not:

- imitate traffic signs
- give instructions to motorists that conflict with any traffic sign or traffic control device
- compete with existing direction signs
- in the case of a sign inviting motorists to turn, be located so close to the turning point that motorists have insufficient time to read the sign, signal and turn safely.

Some examples of advertising signs which are unacceptable in this regard are shown in the photographs.

5.5 Illumination and glare from advertising

There is a need to control the brightness of advertising which is either internally or externally illuminated because of the potential for installations which are too bright to impair the vision of drivers and because of the phenomenon of phototropism. Phototropism is the movement of the eye to fixate on bright points in the field of view.

To avoid the above problems, any advertising signs or devices which are internally or externally illuminated should:

- comply with the maximum luminances given in the table in Appendix 2.6
- have all floodlights or concealed lighting directed solely on to the advertisement and its surrounds
- have any light source shielded so that glare does not extend beyond the advertisement
• with the exception of neon signs, have no light source visible to passing motorists with a light output greater than that of a 65W incandescent bulb.

Further technical information on the brightness and luminance of signs can be found in the publication *Brightness of illuminated advertisements* [4].

### 5.6 Complicated signs

Sections 4.6 to 4.9 explain how to design signs to maximise their effectiveness. These same attributes should also ensure that the sign will not be a distraction to motorists.

Photos 6, 7, 8 and 17 in particular, show examples of signs which are too complicated in terms of being illegible, too long or too hard to understand. They are, therefore, signs which are not fully effective in meeting their commercial objectives as well as providing a significant distraction to motorists who try to read them.
Photographs 1–4: Examples of effective roadside advertising

Clear, simple and distinctive. All at approximately right angles to and clear of the road. Photos 1, 3 and 4 show good use of symbols to define the business. Note though, the “BP” sign obscures visibility of pedestrians at two major accessways, the bottom line on the gondola billboard has too much information and the “Apples” sign in photo 4 is completely overwhelmed.
Photographs 5–8: Examples of poor roadside advertising

Photos 5 and 8 show too many signs, many poorly designed and located. In photo 8 the business has obscured its own signs and obstructed the footpath, even passing pedestrians couldn’t pick out the information they need. Photo 6 shows poor font selection although the font is part of the sign style. Photo 7 shows a footpath-mounted sign that contains too much information and blocks pedestrians’ paths.
Photographs 9–12: Roadside signs which are undesirable

The sign in photo 9 is illegal since it imitates a traffic sign and most of these were quickly removed. Photo 10 illustrates why advertising should not be allowed on the roadway. The sign in photo 11 contradicts the no-stopping restriction and photo 12 shows a sign which is too close to the roadway, detracts from the advisory speed/curve warning and, with the chevron, imitates a traffic warning sign.
Photographs 13–16: Advertising detrimental to traffic safety

The signs in photo 13 can distract drivers for an excessive period and their bottom lines are illegible. In photo 14 the colours of the super graphics on the diary obscure the Stop sign. Photo 15 shows a conglomeration of sandwich boards and other signs located such that it is very difficult to read any one of them and, therefore, in a situation where they could induce a sudden decision to turn at the intersection. The vehicle-mounted signs in photo 16 obscure visibility and block the footpath.
Poor examples of directory boards are shown in photo 17 – too much information, obscuring one another, poorly maintained, no fixed format. A good example is shown in photos 18 and 20 – fixed format but with allowance for corporate identification, relatively simple, easy to locate and legible, while the commercial development is still relatively dense. Photo 19 shows a tidy and tasteful display but with too many panels.
Photo 21 shows an example of super graphics on a vehicle. This example is simple, distinctive and effective. Photo 22 shows a billboard with a long message, lettering in a difficult font and a main message which is far too small to be legible. Photo 23 shows an array of different footpath-mounted signs, e.g. flag, spinner, sandwich board and others, displayed in an orderly manner. Photo 24 shows a wall sign with good style and a simple message but, because all the signs relevant to the business are parallel to the roadway, few passing motorists would see them.
5.7 Animated, flashing and variable message signs

Johnston and Cole [5] report that “it is well known that displays of a novel, intriguing, sensuous, colourful or dynamic (moving) nature... provide a more powerful distraction than familiar or static displays.” For this reason, care is needed when allowing such displays to be located where they are visible to passing motorists. In particular animated or flashing signs should not be used as roadside advertising if they have any of the following characteristics:

- they incorporate a revolving light of any colour. Such devices can also be mistaken for an emergency vehicle, road works, etc.
- they rotate as a whole about any axis other than a vertical one
- the message is more complex than a single word, logo or symbol displayed in any direction at one time
- the operating speed of the passing traffic is 70 km/h or greater.

Variable message signs, which include Trivision signs, are animated signs which have a high potential to distract motorists. Therefore, each installation or proposed installation needs to be scrutinised to ensure that possible distractive effects are minimised. In particular, in addition to the above situations, proposals to erect variable message signs should be carefully assessed in the following situations:

- where they are located close to an intersection, merging or diverging traffic sites or other sites where demands on motorists’ concentration are high (see Appendix 2.5 for further details)
- where each separate display is not static from first appearance to replacement
- where the time to change from one display to the next is greater than two seconds
- where the minimum time for any separate display is less than five seconds.

5.8 Directory boards and density of advertising signs

It is clear that the effectiveness of roadside advertising and also traffic safety will be compromised if there are too many advertising displays on the roadside.

5.8.1 Directory boards

For on-site signs, the overall effectiveness can be optimised by having one well-designed and well-located sign per business premise although this would very rarely happen in practical terms. Similarly, where there are a number of businesses in close proximity or sharing a driveway, it would be more effective for them to share a directory board rather than each erecting their own sign. Successful and unsuccessful examples of such treatments are shown in photos 17 to 20.

5.8.2 Off-site advertising signs

To avoid excessive clutter of roadside advertising signs, it is recommended that territorial authorities and road controlling authorities restrict the erection of off-site advertising. This guideline recognises that this is a practical method of controlling the proliferation of roadside advertising but notes that, provided controls are adequate to ensure orderly and legible displays, there is no reason why an off-site advertising sign should have more of an adverse effect than a similar on-site sign.

Indeed it is likely in many situations in rural areas that off-site advertising in advance of and in close proximity to a site can serve its purpose more safely and effectively than on-site advertising.
Consenting authorities should provide for such situations in areas with speed limits of 70 km/h or more and/or develop policies in relation to provision of official signing for tourist and service activities.

In situations where they are permitted, off-site advertising signs visible from roadways should be erected at the maximum spacings possible to ensure that passing motorists have a chance to assimilate such signs if they so desire. The spacings given in the table in Appendix 2.7 are based on the times taken for motorists to read and assimilate signs of the maximum recommended complexity. These spacings are probably not achievable in many circumstances but, where they are achievable, both advertisers and road users will benefit from the resultant layout.

Attention is also drawn to the policies on signposting on state highways advanced by Transit New Zealand [3].

5.9 Avoiding obstruction to visibility

Advertising devices, like other roadside furniture, must not be located where they will cause an obstruction to visibility for road users using a roadway or wishing to enter or leave the roadway. This means that motorists in particular must be able to see other vehicles, pedestrians, or a hazard on the road in sufficient time to be able to take appropriate evasive action.

In general, visibility problems will not be caused by signs or devices which are:

- less than one metre in height, except where they are likely to obscure children
- entirely more than three metres above the level of the roadway.

Some of the more common situations where there is potential for visibility problems include:

- vehicle-mounted signs
- portable signs placed on footpaths or grass berms
- signs adjacent to driveways particularly of major traffic generators, e.g. service stations
- signs close to intersections or curves in the roadway.

Sight distance requirements are shown in the table in Appendix 2.8 which is based on the requirements in RTS 6 Guidelines for visibility at driveways [6]. Photos 2, 10 and 16 show signs which restrict visibility.

5.10 Avoiding physical obstruction

Advertising devices, like other roadside furniture, can create obstacles either in the normal paths of road users or for vehicles that are out of control and have left the roadway. This problem can be dealt with in two main ways:

- by maintaining adequate lateral clearance between the through traffic lanes and the advertising device, other than portable roadside advertising
- by installing devices that are lightweight or frangible in nature.
“Adequate lateral clearance” can generally be taken to mean:

- more than 1.5 metres from the vehicle carriageway on roads with operating speeds of 60 km/h or less
- more than 3.0 metres from the vehicle carriageway on roads with operating speeds greater than 60 km/h.

Similarly, if advertising is permitted above the roadway in a position where it may interfere with high vehicles or loads:

- an adequate vertical clearance of at least 5.5 metres above the vehicle carriageway must be maintained.

To avoid damage from vehicles, particularly heavy vehicles, parking or passing by:

- no advertising sign or device, whether temporary or permanent, should be located on or above a footpath or berm closer than 500mm to the kerb face or the edge of the vehicle carriageway.

Signs mounted adjacent to footpaths and other public places can obstruct pedestrians and are potentially dangerous to those who are blind or partially-sighted. To overcome these problems:

- no ground floor projecting sign, e.g. lantern sign, horizontal projecting sign, under verandah sign or flag, should be mounted so that any part of it is less than 2.5 metres, and desirably less than 3.0 metres, above a footpath or other public place
- no sign such as a wall sign or vertical projecting sign mounted on a fence, building or similar should project more than 50mm from the building frontage if less than 2.5 metres above ground level.

Note that the above general conditions are not only aimed at preventing vehicles and pedestrians from colliding with the signs but also at preventing vandalism and other damage to the signs.
6. Advertising within the road boundaries

6.1 Introduction to advertising within the road boundaries

In terms of the possible effects on traffic safety and efficiency the difference between roadside advertising on private property and roadside advertising within the road boundaries is that the advertising within the road boundaries will generally be closer to the traffic. The results of this are:

- it will be more intrusive on motorists’ vision
- it is more likely to cause a visibility obstruction
- it is more likely to cause a physical obstruction.

There is clearly an increasing demand for advertising on and above land within the road boundaries. This is seen in the increasing numbers of sandwich boards, spinners, etc. on footpaths and berms, banners above the roadway, vehicle-mounted signs, flags on footpaths and on the carriageway, etc.

This guideline recognises this demand and allows for such advertising at the discretion of the territorial authority or road controlling authority. In allowing for advertising in such locations, this guideline recommends special conditions in addition to the other recommended conditions to limit its adverse effects on traffic. It is envisaged that any particular road controlling authority would make only a strictly limited number of sites or situations available for advertising within the road boundaries.

6.2 Licensing of advertising within the road boundaries

In meeting some of the demand for advertising by leasing or licensing sites within the road boundaries, there is also scope for the road controlling authority to have more control over the design, construction and location of signs and other devices than there would be if the signs were located on private land. This can have a positive effect where good quality advertisements replace others which may be poorly designed or located from a safety viewpoint. There are a number of suggestions that are worth consideration by local authorities in this regard:

- Advertising devices, particularly portable ones, could be permitted within the road boundaries by means of a licensing system whereby the local authority issues a permit for a particular device and a sticker that must be displayed on the device
- Suitable sites could be selected for the erection of long term or permanent advertisements such as billboards, banners and the like. Anchor points for banners could be installed at selected sites, frames erected for billboards, etc
- Revenue for road safety or road maintenance could be raised from the issuing of permits and/or from leasing suitable space on the roadside for advertising purposes.

6.3 General conditions for advertising within the road boundaries

Advertising could be allowed within the road boundaries subject to the following conditions:

- all recommended conditions in section 5 of this guideline should be met
- no advertising device should be permitted on the vehicle carriageway, on any traffic island or extended kerbline within the vehicle carriageway, or at a height of less than 5.5 metres above the carriageway except vehicle-mounted signs that comply with section 6.7.
6.4 Conditions for “portable roadside advertising”

In most situations portable roadside advertising devices are located on or adjacent to the relevant business premise or at the nearest major intersection. In some cases the business itself may be of a transitory nature, e.g. “Open Home” signs used by real estate agents. Portable roadside advertising includes such devices as sandwich boards, vehicle-mounted signs, flags, banners and spinners.

The recommended standard conditions for the use of all portable roadside advertising devices are:

- all recommended conditions in sections 5 and 6.3 of this guideline should be met
- the device should not have any form of illumination or reflectorisation.

6.5 Conditions for the use of footpath–mounted advertising

Where footpath–mounted advertising is allowed by local authorities the recommended conditions applicable to their use include:

- all recommended conditions in sections 5, 6.3 and 6.4 of this guideline should be met
- each sign should be located as close as practicable to the site to which it refers and in no case should be more than 200 metres from the site
- the sign or device should be no larger than 600mm wide by 1000mm high with a maximum base area of 0.45 square metres
- the sign should not obstruct any bus stop, taxi stand, loading zone, parking meter, etc.
- the sign should not reduce the width of any footpath or other pedestrian way useable by pedestrians to less than 2 metres
- the sign should not have any sharp edges, projections or moving parts which may be a nuisance or a danger to pedestrians
- the sign should be constructed so as to be secure against wind gusts.

6.6 Conditions for the use of banners

Although banners are portable advertising devices, in many instances they will be displayed on the business premises to which they relate. In this regard they can be treated in a similar manner to other more permanent displays. This section of these guidelines refers more specifically to situations where banners are strung above the roadway.

It is suggested that local authorities could cater for the demand for banner advertising over the roadway by setting up a small number of specific sites where banners may be erected. The sides of over-bridges may be suitable sites. Approval will be needed from Transit New Zealand where any proposed site is located on a state highway.

Recommended conditions specifically applicable to the erection of banners are:

- that banners and their locations should comply with all the recommended conditions in section 5 of this guideline
- that permitted sites should be chosen in mid-block locations that generally maximise the distance from adjacent intersections and accessways to major traffic generators
- that the anchor points be located and banners be erected to ensure that no banner hangs lower than 5.5 metres above the carriageway at any point
that anchor points be constructed to withstand wind gusts and that banners should not tear or flap in the wind, air holes may be necessary
- that banners should not be erected on roads that form part of designated routes for over-dimension loads
- that banners must not impair the effective operation of signs, signals, street lights or other control devices.

6.7 Conditions for the use of vehicle-mounted signs

Vehicle-mounted signs are another form of roadside advertising that is becoming increasingly common. Vehicle-mounted signs are not only used adjacent to the premises to which they refer but are also seen as super graphics on buses, personalised number plates, purpose-built trailers which are effectively mobile billboards, etc.

Compared with other types of roadside advertising the particular problems with vehicle-mounted signs involve obstruction to visibility and physical obstruction caused by vehicles parked adjacent to business premises (see photo 16 on page 25).

There are currently considerable difficulties in controlling these adverse effects, particularly with advertising on moving vehicles, other than where the vehicle itself or the way it is operated do not comply with the Traffic Regulations 1976. This guideline does not attempt to address the control of advertising on moving vehicles. Otherwise, recommended conditions for the use of vehicle-mounted signs are that:

- they should comply with all other recommended conditions in sections 5, 6.3 and 6.4 of this guideline except that they may be used on vehicles on the vehicle carriageway if other conditions in this paragraph are met
- they should create no more of a physical obstruction or visibility obstruction than the vehicle would without the sign or signs mounted on it
- they should not have any sharp edges, projections or moving parts which may be a nuisance or a danger to pedestrians
- they should be constructed and mounted so as to be secure against wind gusts or when the vehicle is in motion when appropriate
- they must not impair the effective operation of signs, signals, street lights or other control devices
- neither vehicle nor sign must impair the legitimate use and expectation of parking provisions.

6.8 Aerial displays

The recommendation of this guideline is that local authorities discourage the use of these devices in all forms. By their nature they are very likely to cause distraction to motorists and, because they are usually visible from a great distance, it is almost impossible to impose conditions on their use to limit this distraction. An example of these difficulties is the recent trend towards advertising on tethered blimps.
7. Enforcement of provisions for roadside advertising

In order to create an environment of safe and successful roadside advertising, it is necessary to effectively enforce the provisions for that advertising. This should not simply be a matter of implementing and enforcing by-laws and district plan rules to complement national legislation or rules in restricting roadside advertising. It should also involve making positive provision for and facilitating the erection of quality roadside advertising especially where it is replacing poorly maintained or inadequate installations.

Enforcement needs to be strong in relation to “unwanted” advertising whether it is hazardous or simply poorly maintained. Incentives to replace such advertising with well-designed and located signs should be considered. Such incentives could include trade-offs in the allowable area of signage for an improvement in quality.

In many instances local authorities could be pro-active, for example in bringing together groups of businesses with a view to replacing existing conglomerations of signs with directory boards or other orderly display. Such action would be in the interests of those businesses as well as the travelling public.

In relation to vehicle-mounted signs, more effective action by the police and parking wardens in dealing with vehicles which are illegally or dangerously parked would assist in this area.
8. References


9. Acknowledgements

This guideline was compiled by a working group comprised of:

Wayne Osmers  
Land Transport Safety Authority, Christchurch (convenor)

Denise Anderson  
Transit New Zealand, Dunedin

Glenn Bunting  
Hamilton City Council

Errol Christiansen  
Tauranga District Council

John Hannah  
Rotorua District Council

Steve Reddish  
Auckland City Council

Thanks to Lyndon Stokes, Hamilton City Council for compiling Figure 1.1.

Thanks also to the following people from other organisations who provided substantial comments for input into the final document:

Dick Fleming and Fred Gennaoui, Transportation Environment Consultants, Sydney

Paul Drake and Brian Gapes, Outdoor Advertising Association of Australia, Sydney

Howard Penn, Roads and Traffic Authority, Sydney

Craig Mallett and Tom Halliburton, Ministry for the Environment

Peter Constantine, Constantine Planners Ltd., Dunedin

Bob Batty, R. W Batty and Associates Ltd., Christchurch

Duncan Harris, Primesite Outdoor Advertising (1991) Ltd.

Simon Elton, Media Screens Ltd.

Peter McCombs, Traffic Design Group

Vern Warren, Planning Network Services
Figure 1.1 illustrates many of the signs and advertising devices defined in this Appendix. Both figure 1.1 and this Appendix are based on material in Planning for outdoor advertising [8].

**Figure 1.1**

### Advertisement

Any word, letter, model, sign, placard, board, notice, device or representation in the nature of, and employed wholly or partly for the purposes of advertisement, announcement or direction and includes any hoarding or similar structure used or adapted for use for the display of advertisements. An official traffic sign is not an advertisement.

### Advertising sign

A sign displaying an advertisement. An advertising sign (or device) is distinguished from an information sign (or device) by having a style and format unique to the enterprise it refers to while information signs have a standard format for all enterprises of a similar nature.

### Aerial display

Any display of advertising material on or attached to a balloon, blimp, dirigible, or similar device that is tethered to the ground but otherwise free to move, on a hot air balloon, parachute, hang glider or similar, or towed behind an aircraft. Also includes searchlights and laser light displays.

### Animated sign

Any sign that moves, has a message that moves, gives the effect of a moving display or has a moving attachment aimed at drawing attention to the sign. Animated signs include illuminated
animation as well as rotating and flapping signs. Signs incorporating small, loosely attached discs which give a rippling effect when moved by the wind are not considered to be moving signs.

**Banner**
A portable sign usually made of fabric or other flexible material and tied to a structure or strung between two structures.

**Billboard**
An industry term for a sign, often freestanding, consisting of a number of standard-sized poster panels. Types of billboards in New Zealand are bulletins (3 metres by 1.5 metres), posters (6 metres by 3 metres), supasites (12 metres by 3 metres) and spectaculars (vary in size but greater than 12 metres by 3 metres).

**Blimp**
An aerial display in the form of a tethered balloon, usually flown from the business premises that it is advertising.

**Changing message sign**
An animated sign consisting of an overlap of neon tubes changing in sequence.

**Clutter**
Refers to the number of signs and other elements, e.g. overhead wires, traffic signals, power poles, in the environment.

**Community signs**
Signs which relate to churches, schools, civic events, elections, etc. and are frequently temporary. Many are also off-site signs.

**Content**
Refers to the message on the sign, i.e. the advertisement itself.

**Corporate identification**
Large franchise organisations, e.g. McDonalds, Dominion Breweries, have corporate logos and signs which are standardised in content and in structure.

**Directory board**
A board, usually associated with multiple-occupancy sites, which contains a number of individual signs of uniform size, shape and style.

**Direction sign**
A sign which indicates the direction to a service, business or tourist facility. It may be a small or generic sign with a symbol or logo or it may have a more specific advertisement.
Directory sign
Usually refers to a wall-mounted sign which lists the tenants of a building.

Electric sign
Refers to all internally illuminated and neon signs including their animated versions.

Electronic sign
Computer-operated sign — see Variable message sign.

Externally illuminated sign
See Floodlit sign.

Floodlit sign
Signs which are illuminated from an external source (from a spotlight or struts).

Fly posters
Small, repetitive “coming entertainment” posters which are plastered on buildings, walls, bridges, and other public space.

Free-standing sign
A sign that is not mounted on a wall or building. Normally refers to a poster mounted on two posts or a pole sign, and normally a two-sided sign.

Ground-floor projecting sign
A term used to cover under verandah, horizontal projecting, and lantern signs erected on part of a building but at a height of less than 3.7 metres.

Hoardings
The same as a billboard in these guidelines.

Horizontal projecting sign
A sign projecting more than 500mm from the wall on which it is mounted with the longest dimension in a horizontal plane. These are usually mounted at ground floor level. Higher versions are called off-wall or high wall signs.

Illuminated sign
Any sign with a specifically designed means of illumination of the whole or any portion of its face. Includes internally illuminated and externally illuminated (floodlit) signs.
Information sign
An information sign is a traffic sign in a standardised format, as specified in the *Manual of traffic signs and markings* [1], which in some instances may include the name of a commercial enterprise.

Internally illuminated sign
A sign which is illuminated from within, usually by fluorescent lights, but also by neon tubes. Includes ‘back-lights.’

Lantern sign
A squarer version of a horizontal projecting sign.

Low level sign
A small free-standing, identification type sign most often found in office forecourts or in garden industrial zones.

Message
The advertisement itself, i.e. the content of the sign.

Moving sign
An animated sign including flapping and rotating signs.

Neon sign
An illuminated sign consisting of exposed neon tubes.

Off-wall sign
A horizontal projecting sign mounted above ground floor level. Also called high wall signs.

On-awning sign
A sign mounted on the top of a verandah.

On-site/off-site sign
Terms used to make a distinction between signs which are/are not located on the site of the business or activity to which they refer.

Point of sale sign
A sign, usually small, supplied by a product supplier to a retail outlet.

Pole sign
A sign mounted on a pole or poles, often rotating.
Portable roadside advertising
An advertising sign or other device which can be readily moved, e.g. sandwich boards, spinners, banners, vehicle-mounted signs. These signs are usually only on display or intended for display during daylight hours or the hours of business of the relevant establishment.

Poster/poster panel
A poster panel is a panel in one of a number of standard sizes which can be free-standing or mounted on a rigid structure. Posters are paper sheets containing the advertisement that are pasted to the panels and which allow for a regular change of message on the panel. In New Zealand ‘poster’ is also the term used for a 6 metre by 3 metre billboard.

Projecting sign
A sign mounted on a building which projects perpendicular to the wall, including under verandah, horizontal, vertical and lantern signs.

Roadside advertising
Any advertising sign or device which can be or is intended to be seen by road users whether they are motorists, cyclists or pedestrians. May be on public or private property, be temporary or permanent, movable or fixed.

Roof sign
A sign on or above the parapet of a building. A roof sign is also a sky sign.

Rotating sign
A sign where the whole message rotates at a constant speed with no changes to the message.

Sandwich board
A portable two-sided structure which is often located on a footpath.

Sky sign
A sign mounted on or above the parapet of a building.

Spinner
A portable, animated sign usually located on the footpath or on the roadside and usually activated by wind power.

Static sign
A sign where the content and/or the illumination of the content and/or the illumination of the surrounds is constant.
Super graphics
Any large scale application of colour, texture, words or designs to a building or vehicle to the extent that the building or vehicle itself becomes a sign.

Trailer sign
A vehicle-mounted sign mounted on a trailer.

Trivision sign
A sign with a series of three-sided prisms rotating in unison at pre-set timing intervals, usually a few seconds long. It is a variable message sign.

Under-verandah sign
A sign attached to the underside of a verandah and projecting perpendicular to the building.

“Unrelated” sign
A sign with an advertisement that does not relate to the site on which is it located. Also called a promotion or off-site sign.

Variable message sign
An electronic (computer) sign in which the message can be changed in form and/or shape, and/or layout, and/or colour, and/or any other manner. Such signs may be illuminated or otherwise. Variable message signs are animated signs.

Vehicle-mounted signs
Signs which are part of, attached to or mounted on a vehicle which do not relate to the primary function of the vehicle. May form an integral part of the structure e.g. mobile billboards, or paint work, e.g. super graphics on buses, of the vehicle. Does not include signs or devices that use a vehicle to anchor them to the ground.

Vertical projecting sign
A sign with the longest dimension vertical, mounted on and projecting more than 300mm from a building above ground floor level.

Wall sign
Any sign mounted, posted or painted on a wall including all forms of posters.
2.1 Minimum visibility to advertising signs

As noted in section 4.4, advertising signs need to be seen from a sufficient distance to be effective. The minimum visibility distances in the following table are taken from Transit New Zealand [3]:

Table 2.1: Minimum visibility to roadside advertising signs

<table>
<thead>
<tr>
<th>Operating speed (km/h)*</th>
<th>Minimum visibility (metres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>80</td>
</tr>
<tr>
<td>70</td>
<td>105</td>
</tr>
<tr>
<td>80</td>
<td>130</td>
</tr>
<tr>
<td>95</td>
<td>175</td>
</tr>
<tr>
<td>115</td>
<td>250</td>
</tr>
</tbody>
</table>

* Throughout this appendix ‘operating speed’ is intended to refer to the 85th percentile speed of traffic on the particular roadway. Where this speed is not known, the following table may be used in most circumstances to estimate the ‘operating speed’ from the regulatory speed limit.

Table 2.2: Operating speeds and speed limits

<table>
<thead>
<tr>
<th>Operating speed (km/h)</th>
<th>Speed limit (km/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>50</td>
</tr>
<tr>
<td>70</td>
<td>60</td>
</tr>
<tr>
<td>80</td>
<td>70</td>
</tr>
<tr>
<td>95</td>
<td>80</td>
</tr>
<tr>
<td>115</td>
<td>100</td>
</tr>
</tbody>
</table>

2.2 Visual field of drivers travelling at speed

Figure 2.1 illustrates how the width of drivers’ visual fields decrease as their travel speed increases (see section 4.4).

Similarly, drivers’ focusing points recede as travel speed increases. For example, at 65 km/h the closest point of clear vision lies about 25 metres ahead of the vehicle. At 100 km/h a driver can see clearly only that detail which lies between 33 metres and 425 metres in front of the vehicle and within an angle of 40 degrees. It follows that any sign must be able to be read and understood within the time that it takes to travel through this distance which, at 100 km/h, is about 15 seconds.
Note: To make allowances for drivers to move their heads, 15° can be added to both the left and right hand sides of the fields of view.

2.3 Minimum lettering sizes on roadside advertising signs

The following table is based on Transit New Zealand [3] and gives the recommended minimum capital letter heights on roadside signs to ensure that they are legible in different operating situations (refer to section 4.9.1).

<table>
<thead>
<tr>
<th>Operating speed (km/h)</th>
<th>Main message</th>
<th>Lettering height (mm)</th>
<th>Secondary message</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>150</td>
<td>100</td>
<td>75</td>
</tr>
<tr>
<td>70</td>
<td>175</td>
<td>125</td>
<td>90</td>
</tr>
<tr>
<td>80</td>
<td>200</td>
<td>150</td>
<td>100</td>
</tr>
<tr>
<td>95</td>
<td>250</td>
<td>175</td>
<td>125</td>
</tr>
<tr>
<td>115</td>
<td>300</td>
<td>200</td>
<td>150</td>
</tr>
</tbody>
</table>

Note that the lettering heights given for the secondary message are adequate for the main message on a sign with a well-designed message if the traffic is passing without being required to slow or stop. If a sign is located at the site where traffic is being invited to stop, then the lettering in the main message must be the full recommended height.
2.4 Examples of good and bad fonts for advertising signs

Some examples of fonts with good legibility are:

Helvetica
Universe
Paddington
Frankfurter
Tabasco
Optima

Some examples of fonts with poor legibility are:

Mariage
Arcadia
Countdown
Vivante
Linoscript
Piccadilly

2.5 Distances from traffic signs and devices

The distances given in this section relate to section 5.3.1 of the text. They are based on the distances in advance of the feature where either any advance warning signs will be located or where motorists must make a decision in regard to the feature.

To avoid the possibility of advertising hindering interpretation of traffic control devices, proposals for advertising should be considered in this context where the advertising is to be located:

- within 100 metres of an intersection or pedestrian crossing in an urban area
- within 200 metres of an intersection or pedestrian crossing in an area with rural operating speeds
- within 100 metres of a curve with advisory speed and/or chevron signing in an urban area
- within 200 metres of a curve with advisory speed and/or chevron signing in an area with rural operating speeds.

Note that on national routes, arterials and collector roads as defined by the local authority or by Transit New Zealand [3], the erection of advertising should generally be a discretionary activity if it is to be located in the above situations.
2.6 Maximum luminance of illuminated advertising devices

The following table gives the recommended maximum luminances for illuminated or reflective advertising signs. These are the maximums recommended by the United Kingdom Institution of Lighting Engineers [4].

Table 2.4: Maximum luminance of illuminated advertising devices

<table>
<thead>
<tr>
<th>Illuminated area (m²)</th>
<th>Areas with street lighting</th>
<th>Areas without street lighting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 0.5</td>
<td>2000</td>
<td>1000</td>
</tr>
<tr>
<td>0.5 to 2.0</td>
<td>1600</td>
<td>800</td>
</tr>
<tr>
<td>2.0 to 5.0</td>
<td>1200</td>
<td>600</td>
</tr>
<tr>
<td>5.0 to 10.0</td>
<td>1000</td>
<td>600</td>
</tr>
<tr>
<td>Over 10.0</td>
<td>800</td>
<td>400</td>
</tr>
</tbody>
</table>

Note: All luminances in the table are in candelas per square metre.

2.7 Minimum distances between adjacent roadside advertising signs

The following table gives minimum recommended spacings between roadside advertising signs to maximise the effectiveness of the advertisements and to avoid adverse effects on traffic safety.

Table 2.5: Minimum distances between adjacent roadside advertising signs

<table>
<thead>
<tr>
<th>Operating speed (km/h)*</th>
<th>Recommended spacing minimum</th>
<th>Desirable spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>50m</td>
<td>80m</td>
</tr>
<tr>
<td>70</td>
<td>55m</td>
<td>100m</td>
</tr>
<tr>
<td>80</td>
<td>60m</td>
<td>150m</td>
</tr>
<tr>
<td>95</td>
<td>70m</td>
<td>200m</td>
</tr>
<tr>
<td>115</td>
<td>80m</td>
<td>250m</td>
</tr>
</tbody>
</table>

* See table 2.2.

Note: The figures in this table are taken from NAASRA [7]. The recommended minima are the recommended minimum distances between successive traffic warning signs with different messages. The desirable minima are based on the recommended distances between signs requiring decisions, such as advance direction, services or tourist information signs, and the turning-off point.

2.8 Minimum sight distances to maintain safety

The sight distances in the following table are based on those in RTS 6 [5] and must be maintained in all circumstances to ensure that traffic safety is not compromised (see section 5.9). Note that these sight distance requirements relate only to conflicts between vehicles. For driveways crossing a footpath, a 5.0 metre by 2.0 metre visibility splay should be provided (see section 4.4 of RTS 6 [5] and the Building Industry Authority [9]).

Distances are measured between points at a height of 1.15 metres above the level of the roadway, equivalent to the height of a driver’s eyes when seated in a car. Measurements are taken along the centre of the appropriate lane or from a point in the centre of the lane to a point on the driveway or side road 5 metres from the centre of the through lane. RTS 6 should be consulted for further detail.
Table 2.6: Minimum sight distances to maintain safety

<table>
<thead>
<tr>
<th>Operating speed (km/h)*</th>
<th>Local</th>
<th>Collector</th>
<th>Arterial</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>30</td>
<td>70</td>
<td>70</td>
</tr>
<tr>
<td>50</td>
<td>40</td>
<td>90</td>
<td>90</td>
</tr>
<tr>
<td>60</td>
<td>55</td>
<td>115</td>
<td>115</td>
</tr>
<tr>
<td>70</td>
<td>85</td>
<td>140</td>
<td>140</td>
</tr>
<tr>
<td>80</td>
<td>105</td>
<td>175</td>
<td>175</td>
</tr>
<tr>
<td>90</td>
<td>130</td>
<td>210</td>
<td>210</td>
</tr>
<tr>
<td>100</td>
<td>160</td>
<td>250</td>
<td>250</td>
</tr>
<tr>
<td>110</td>
<td>190</td>
<td>290</td>
<td>290</td>
</tr>
<tr>
<td>120</td>
<td>230</td>
<td>330</td>
<td>330</td>
</tr>
</tbody>
</table>

* See table 2.2.
The following Road and Traffic Guidelines are available:

RTS 1 Guidelines for the implementation of traffic control at crossroads (1990)
RTS 2 Guidelines for street name signs (1990)
RTS 3 Guidelines for establishing rural selling places (1992)
RTS 4 Guidelines for flush medians (1991)
RTS 5 Guidelines for rural road marking and delineation (1992)
RTS 6 Guidelines for visibility at driveways (1993)
RTS 7 Advertising signs and road safety: design and location guidelines (1993)
RTS 8 Guidelines for safe kerbline protection (1993)
RTS 9 Guidelines for the signing and layout of slip lanes (1994)
RTS 11 Urban roadside barriers and alternative treatments (1995)
RTS 13 Guidelines for service stations (1995)
RTS 14 Guidelines for installing pedestrian facilities for people with visual impairment (1997)
RTS 17 Guidelines for setting speed limits (1995)

The Guidelines may be purchased from:

Land Transport Safety Authority, Head Office (PO Box 2840, Wellington) or Regional Offices in: Auckland, (Private Bag 106 602), Wellington (PO Box 27 249) and Christchurch (PO Box 13 364).