



**LAND SAFETY FORUM**  
*Te Ope Tautiaki Whenua*

# Outdoor safety signs

**A good practice guide for  
land-based recreation areas  
in Aotearoa New Zealand**

May 2025



The guide was developed with input from:



## Outdoor safety signs: A good practice guide for land-based recreation areas in Aotearoa New Zealand

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**Whāia te iti kahurangi,  
ki te tūohu koe,  
me he maunga teitei**

**Seek the treasure you value most dearly:  
if you bow your head, let it be to a lofty mountain**





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# Introduction

## About the Land Safety Forum and this guidance

The Land Safety Forum Te Ope Tautiaki Whenua (LSF) comprises agencies and organisations that are involved in land safety in Aotearoa New Zealand. This includes land managers, outdoor recreation groups, and organisations involved in search and rescue (SAR). The goal of the LSF is to reduce preventable land safety incidents in outdoor recreation settings through information sharing, collaboration and coordination.

This good practice guidance focuses on land safety signs and how they can be used to give visitors to outdoor spaces the information they need to help them make good decisions. It is relevant to anyone who manages recreation safety signs on public or freehold land in New Zealand and will also be of value to private landholders who are interested in allowing recreation activities on their land.

This guidance is limited to signs that are intended to warn visitors to outdoor land areas in New Zealand of hazards or safety risks. It does not include signs relating to track directions and times, occupational health and safety or non-safety issues, although some of the good practice recommendations may still be of relevance.

This guidance sets out sector-wide good practice that can be developed into internal good practice.

It is intended to complement rather than replace your organisation's policies, risk assessment guidance and brand guidelines, as well as any relevant legislation and standards.

Tip

### Find out more

If you have any questions about this guidance or the role of the LSF, please contact us:

**Email:** [lsf@doc.govt.nz](mailto:lsf@doc.govt.nz)

**Visit:** [www.doc.govt.nz/land-safety-forum](http://www.doc.govt.nz/land-safety-forum)



Mountain bikers and trampers on the Old Ghost Road in the Buller region. Photo: Richard Rossiter [Creative Commons](https://creativecommons.org/licenses/by/4.0/)

## Why has this guidance been developed?

New Zealand has a challenging outdoor environment, with dynamic landscapes and changeable weather. Much of the outdoor recreation that takes place here is in remote, rugged and unmanaged terrain that requires a high level of skill and experience to navigate safely. Some of the people who visit these areas are underprepared.

Safety signs are widely used both in New Zealand and globally to provide visitors to outdoor spaces with knowledge about the hazards and safety risks they may face – and a lack of signs has been cited by coroners as one of the factors contributing to several outdoor recreation deaths in New Zealand. Erecting safety signs is only the first step in managing visitor behaviour though – the messages they contain also need to be read, understood and followed.

Multiple agencies, organisations and other entities are involved in delivering and managing outdoor recreation opportunities in New Zealand, but there is currently no agreed best practice for developing outdoor safety signs. As a result, the types of signs being used and the effectiveness of their messages vary greatly.

This good practice guidance has been developed to support the production of more consistent and effective safety signs across the country.

Much of the information in this guidance have been taken from a 2023 review of the effectiveness of outdoor safety signs by Stephen Espiner and Megan Apse.

Additional resources are listed in **Appendix 1**, but we encourage those who wish to dive deeper into this topic to [read the review](#).



Photo: Sambath Ouch, Truestock

# Do you need a sign?

## The role of signs in visitor safety

It is important that visitors to outdoor spaces are provided with information about any hazards and safety risks so that they can make informed decisions during their visit. However, the growing diversity of visitors to the outdoors, the aversion to risk among many members of the community and the common expectation that visitors should have freedom of choice in the outdoors present challenges for land managers in New Zealand.

Signs have been used for decades as a simple and affordable tool for land managers to communicate critical messages to visitors, but the limitations of signs also need to be recognised.

The effectiveness of a sign will be highly dependent on the nature of the outdoor setting and the characteristics of the people in that setting. People in a wide variety of situations do not respond to warnings directed at them, suggesting a lack of awareness, poor understanding of the messages and/or disbelief about the seriousness of the risk.

So while signs clearly play an important role in communicating safety risks, other approaches should also be considered to help educate and inform visitors about the risks.

This guidance applies to safety signs located both at the hazard site and some distance away (for example, at a trailhead or visitor centre) that warn people about the safety risks before they visit or proceed.



## Other ways to communicate safety risks

Land managers who have identified a hazard or safety risk in a particular area have three options to reduce the risk:

- 1 Remove the hazard or safety risk.
- 2 Remove or restrict visitor access.
- 3 Warn, educate and communicate with visitors to reduce the safety risk.

In any situation where there is a high risk of death, options 1 or 2 should be considered. This guidance relates specifically to option 3.

Safety messages can be targeted at visitors in various ways both before and during their visit.

**Safety campaigns** and providing information via websites and social media can help educate people and raise awareness about the safety risks of visiting an area. This allows land managers to manage visitor expectations and visitors to make decisions before they arrive and are committed to seeing their plans through.

At the site, the **personal communication** of safety information from a credible source is the most effective way to ensure that visitors behave appropriately. However, it is often not practical to employ people to deliver these messages in a comprehensive way.

**Digital safety information** can be provided along trails, allowing real-time communication with visitors. Similarly, the use of **'smart warnings'** via mobile phones and social media can allow messages to be tailored to particular types of visitors or specific conditions that affect the safety risk in an area (for example, rainfall, temperature, river level).

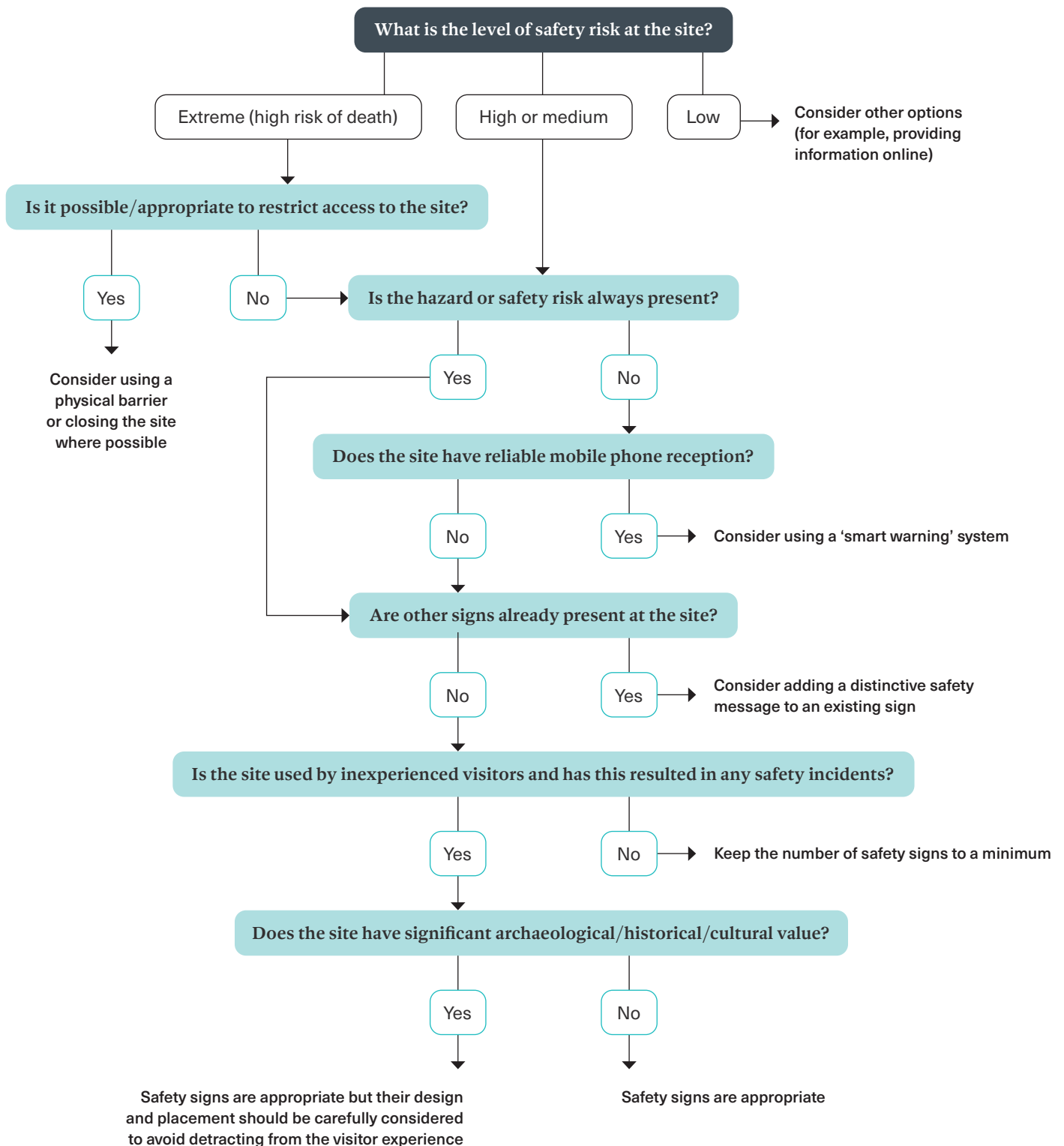
For definitions of some of the terms used in this guidance, see **Appendix 2**.





## Is a sign the best option for the hazard?

The most appropriate way to communicate a safety risk to visitors will depend on the specific characteristics of the site or area, as well as the type of visitor and the experience they are seeking. For example, while signs might be appropriate in popular, highly accessible areas, they may be considered out of place and detract from the experience in more remote settings. The following flowchart has been designed to help you determine if a sign is the best option for the hazard.





# What you need to know before developing a sign

## Understand your visitors

Outdoor recreation is a popular pastime in New Zealand, with large numbers of New Zealanders and international visitors participating each year.

More than 3 million international visitors arrive in New Zealand each year, many of whom will be drawn into the country's outdoor spaces. While most of these visitors come from countries that primarily speak English or have English as an official language, a significant proportion do not – and many New Zealanders have also immigrated from countries that speak different languages. This makes it important to consider possible language barriers when choosing how to communicate safety messages.

To find out more about the makeup of visitors to New Zealand, visit the Ministry of Business, Innovation & Employment's [Tourism Evidence and Insights Centre](#).

Visitors to outdoor recreation settings in New Zealand will also have widely different backgrounds and outdoor experience levels. For example, international visitors and migrants to New Zealand are likely to have grown up in quite different outdoor environments and may underestimate New Zealand conditions or overestimate their own experience and knowledge.

The increasing popularity of and reliance on social media, as well as the perception that smartphones provide a strong safety net, is also drawing people who are less prepared and less experienced into challenging outdoor spaces.

This makes it extremely important that safety messages are of **personal relevance** to a wide range of visitors and **persuasive**.

Guidance on producing accessible outdoor recreation signs can be found in the [Outdoors Accessibility Design Guidelines](#) published by Recreation Aotearoa.

### Producing bilingual signs

When developing any type of sign in New Zealand, it is important to consider whether it is appropriate and desirable to include te reo Māori on the sign or provide the entire sign in te reo Māori as well as English.

Seek advice from your organisation's cultural advisor, te reo experts, and local iwi and hapū, and refer to your organisation's internal sign guidelines and te reo policies and guidance.

Additional support on producing bilingual signage is also provided by [Te Puni Kōkiri](#) and [Te Taura Whiri i te Reo Māori](#).

Tip

## Understand the key elements of effective signs

People in a wide variety of situations fail to respond to warnings directed at them. This may be due to a lack of awareness, poor understanding or the belief that there is little risk to their safety. Effective safety signs will be noticed and read by all visitors to a place *and* be understood and followed. Eye-catching colours or imagery, simple messages and an authentic voice can all help to increase the effectiveness of signs.

### Attract attention

**Red** is almost universally recognised as being associated with danger, hazards and safety risks, while **yellow** is good at attracting people's attention and also contrasts well against darker colours such as are found in forests.

**Orange** can also be effective on signs, though to a lesser degree. Research consistently encourages the use of these bright colours in combination with other sign features when communicating safety information.

The terms **Danger**, **Hazard**, **Warning** and **Caution** help alert people that they need to read a sign.

**Symbols** are useful for communicating across languages, particularly when they are simple, easily recognisable and used with other widely recognised design elements, such as a 'circle slash' for prohibited activities. Symbols are not always consistently understood across cultures though, so words may also be needed.

**Illustrations** and other images are also effective in capturing and retaining attention.

### Use simple messages

Signs with fewer words are more likely to be read – and easier to translate for international visitors. Simple messages that use a mixture of key words and images also allow visitors to read the information quickly, which is particularly important when moving at speed.

Also consider using **novel message formats** (for example, questions, catchy phrases or humour) to attract visitors' attention and help them to remember the information.



Use novel message formats to grab people's attention



Photo: Eric Carlson  
[Creative Commons](#)



Photo: Jonathan Kennett

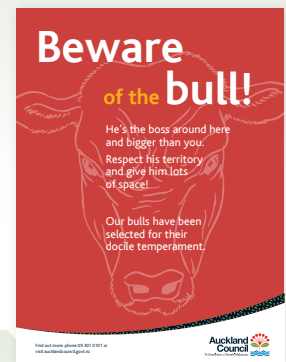


Photo: Auckland Council



Photo: Department of Conservation

## Be personally relevant

Visitors to an outdoor setting often place high value on the sense of freedom it offers and the ability to assess the conditions for themselves, so the introduction of safety signs can be unwelcome.

A visitor's perception of risk, familiarity with the location and/or activity they are doing, and commitment to continuing with or completing the activity will affect whether they pay attention to a safety sign.

People may ignore safety messages because they do not believe the hazard is very serious, so it is important to **emphasise the seriousness of the hazard** in the message. It is also important to consider the user group for an area and to avoid overstating the safety risk, as this leads to messaging fatigue and distrust of other similar safety messages issued by the land manager.

Personal relevance also significantly affects the ways in which people interpret safety messages. For example, it has been found that visitors who are male, young and/or visiting alone are more likely to behave in ways that are considered risky or unsafe. Similar types of people are likely to have similar core beliefs, so it is important to **understand the intended audience** of safety signs so that you can make the messages personally meaningful.

## Consider the context

Outdoor recreation settings are dynamic environments. Factors such as the weather, terrain, presence of visible hazards and number of other signs will all affect the willingness or ability of visitors to follow safety messages, as will who they are visiting with and the number of other people present.

Visitors may ignore safety messages for a variety of reasons, such as to take a shortcut, to get a better view, to take a photograph, or to get close to wildlife or another natural feature. Social trends can also encourage unsafe behaviours – for instance, visitors often seek distinctive or dramatic scenes or carry out activities that are shocking in some way to share on social media. Seeing others go off-trail or into prohibited areas also often encourages people to do the same due to the belief that it is safe to do so.

Visitors can be encouraged to follow safety messages by providing educational signs combined with barriers, signs that warn of penalties and signs that are persuasive.

## Explain the 'why'

Signs that tell visitors what to do, what not to do and the consequences of not behaving appropriately tend to be more effective than signs that demand an action without explaining why.

**Signal words, symbols and graphic messages** can be used to attract attention and show the consequences of ignoring the safety messages. These consequences generally appeal to people's fear of being harmed, with a more serious consequence often leading to greater compliance – although visitors may minimise the seriousness of the safety risk to control their fear.

In situations where there is a lower safety risk, positive messages that appeal to people's desire to do the right thing can be more effective than negative messages.

**User testing** of signs may be useful if compliance is found to be an ongoing issue in a particular area. If it is found that signs are ineffective, out of date or no longer relevant, it will generally be better to replace the signs rather than adding more signs to an area.

### Where there is a lower safety risk:

- ▶ use positive messaging to appeal to people's desire to do the right thing

- ▶ avoid negative messaging, as this tends to be less effective





# The five elements of effective signs

## 1 Colour

Red	Indicates the highest level of hazard
Yellow	Second most effective at indicating risk
Orange	Also effective at indicating risk

## 2 Signal word

Danger	Most effective in combination with red
Warning	Second most effective
Caution	Third most effective

## 3 Symbols and images

Circle slash with symbol	Effective in indicating prohibition
Other symbols	Effective when easy to understand and of cross-cultural relevance
Images and illustrations	More effective than explanatory text if they are easy to interpret

## 4 Tone

Unambiguous	Clear messages that state the safety risks and consequences are most effective
Negative	More effective than positive messages in life-threatening situations
Positive	More effective than negative messages for lower-risk environments

## 5 Language

Appeals to fear	Increases the likelihood of rule-following behaviour
Explanatory	More effective than instructional messages
Targets core beliefs	More effective than generic messages

Land managers should also consider reflecting this hierarchy of colours, signal words and language on their websites and on any signs or bulletin boards at trailheads to help socialise them with visitors to the recreation area.



# How to produce effective safety signs

## Colour

We recommend that the primary colour of safety signs reflects the level of safety risk. The text and symbols on these signs will need to have sufficient difference in brightness from the background colour (contrast) that they can be read under any conditions, particularly in bad weather, under low light and by people with colour blindness.

Useful examples of different types of safety signs can be found in **Appendix 3**.



### Danger signs

*Danger signs should be used where there is a high risk of serious injury or death.*

We recommend using:

**White text on a red background**

Use red for danger signs



### Warning signs

*Warning signs should be used where there is a lower risk of serious injury or a high risk of a less serious injury.*

We recommend using:

**Black text on a yellow background**

Use yellow for warning signs



## Colour examples

Red signs contrast well with the environment



Photo: Bailey-Cooper Photography/Alamy

### Did you know?

Several free online tools are available to check the colour contrast ratio. Aim for a 4.5:1 ratio between colours to ensure that readers with moderately low vision or colour blindness can read the text.

Useful tools include:

- [WebAIM's contrast checking tool](#)
- [Pilestone's colour vision simulator](#)
- [Acquia Optimize colour contrast checker](#)

Tip

Yellow signs stand out in low light



Photo: John Gollop/Alamy



Photo: Jonathan Kennett

Create signs that stand out against the background environment

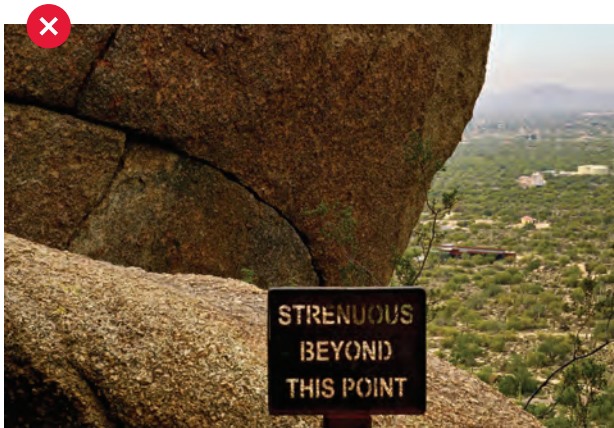


Photo: Kim Grosz/Alamy



Photo: Magdalena Dral/Alamy



## Symbols

Any symbols used on a safety sign should be widely understood so that even international visitors or children who cannot understand the text can understand the safety message.

### Symbol choice

Where possible, use symbols provided in [NZS 8603:2005 Design and application of outdoor recreation symbols](#).

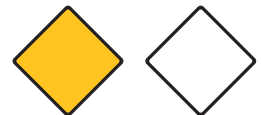
If you need a symbol that is not available in this standard, check with other organisations to see if they have already developed a symbol for the situation. If you need to design a new symbol, test it with other organisations and a range of people of different ages and backgrounds to ensure that it is widely understood.

### Symbol shape

To enable visitors to quickly see the level of risk, we recommend using:



**Triangles**  
to indicate danger



**Diamonds**  
to indicate warnings

### Symbol colour

If the sign consists of a **single symbol**



use a red triangle and white symbol for danger



use a yellow diamond and black symbol for a warning



If the sign consists of a **symbol and text**



use a white triangle and black symbol for danger



use a white diamond and black symbol for a warning



## Symbols continued

The symbols below are included in NZS 8603:2005:



Warning



No Swimming



Falling Rocks



No Mountain Biking



Helicopters



No Fires



High Wind



No Abseiling



No Climbing

### Choosing the right symbol

Where a sign relates to a specific hazard, aim to use a symbol that shows the nature of the hazard so that visitors can quickly understand the risk.

Where a sign is alerting visitors to a more general risk in the environment or to multiple hazards, use a large warning (exclamation mark) symbol to attract attention. Smaller, more specific symbols can then be used alongside the individual hazard descriptions where appropriate.

Tip

## Text

### Signal word

The use of consistent signal words on signs allows the safety risk to be readily identified.

**Danger** ▶ should be used in extreme situations where there is an imminent hazard that could result in serious injury or death.

**Warning** ▶ should be used where there is a potential hazard that could result in serious injury or an imminent hazard that could result in a less serious injury.

### Tone and language

All signs should have clear messages that state the safety risks and consequences. The words and language should be simple so that international visitors and children can easily understand what is being said.

#### **Danger signs should have a negative, authoritative tone.**

They should tell people what not to do and use language that appeals to fear to encourage rule-following behaviour and reflect the high level of safety risk if incorrect actions are taken. Mentioning previous injuries or fatalities in the area can help to highlight the seriousness of the risk.

#### **Warning signs should have a positive tone.**

They should tell people what to do, rather than not what to do, to encourage people to behave appropriately.

Use negative, authoritative messaging on danger signs and positive messaging on warning signs



**Text** continued**Number of messages**

To make it as easy as possible to understand the key message, there should ideally be only:

**One symbol** + **One safety message**  
per safety message per sign

For example:



**No Climbing**

This is particularly important where the viewer is likely to be moving at pace, such as running, biking or driving. The faster the speed, the fewer the words there should be – for example, a maximum of seven words should be used at sites where vehicles are used.

If a sign needs to contain more than one message (for example, to avoid sign overload in an area), different font sizes and styles can be used to create **text hierarchies** that make the key messages stand out more.

Safety signs warning of hazards located some distance away (for example, a sign at a trailhead) do not need to be read quickly and so can contain multiple safety messages for the area.

Tip

Use short, simple messages that are easy to understand



Use text hierarchies and symbols that clearly communicate the hazard to make multiple messages easier to read





**Text** continued**Consistency of messages**

To gain the trust of visitors and be authentic, it is important that safety messages for a given site are consistent across all communication channels (for example, on signs, on a website and communicated verbally by staff).

**Additional information**

In some situations, it may be a good idea to include emergency phone numbers on signs, particularly in places with high numbers of international visitors. GPS coordinates can also be a useful addition in remote areas to assist emergency services.

It can also be helpful to include the name and contact details of the land manager, so that issues can be reported and visitors can better assess how trustworthy the source of the safety information is. If including these details though, ensure that they are likely to remain current for the expected life of the sign or can be easily updated.

**Fonts**

When choosing a font for safety signs, the most important question to ask is 'Is it easy to read?'

Outdoor safety signs should use simple fonts with distinct characters. The space between characters (kerning) is also important, as this can affect the readability of the text.

**Sans serif fonts** are usually most appropriate.



Examples of suitable fonts include:

Aptos

Arial

Calibri

Clearview

Frutiger

Gill Sans

Helvetica

To ensure that outdoor safety signs on walking tracks can be read from a distance, a **minimum font size of 15 mm** should be used. For other areas, the size of the font will need to increase with increasing speed of the viewer, as shown in the table below.

Speed (km/h)	Minimum size (mm)
0–15	<b>15 (walking)</b> <b>25 (biking)</b>
20–30	<b>50</b>
35–40	<b>75</b>
45–60	<b>100</b>
65–75	<b>125</b>
80–90	<b>150</b>
95+	<b>200</b>

▲ Note that these minimum font sizes may need to be increased in certain environments (for example, in a particularly dark area of forest).

**Bold** can be used to make the text stand out more against the background colour. If using a mixture of bold and non-bold, limit the use of bold to more effectively highlight the key messages.

Using a font with a semibold option can be useful where you find that bold is too much but non-bold is not enough.



**Capitalising the initial letter** of each word (for example, Rockfall Risk) can help with letter and word recognition for visually impaired visitors.

Note that ALL CAPS and *italics* are difficult to read, so we recommend that these are used on a maximum of two words for impact.

## Text examples

Avoid using a font that is difficult to read



Using too much bold and italic loses its effectiveness



Having more than two words in all caps makes the text difficult to read



Balance the use of different styles



Photo: Tim Cuff/Alamy



Photo: Geoff Marshall/Alamy



Photo: Tim Cuff/Alamy

## Design considerations with changing safety risk levels

Land managers who are producing safety signs for areas where the safety risks change over time face additional challenges, as signs that do not change according to the conditions are likely to be considered of little or no personal relevance to many visitors much of the time.

We encourage the use of more **dynamic signs** in such areas to indicate the safety risk on a given day or season. In the New Zealand backcountry, this is likely to be signs that can be manually changed both for practical reasons and to preserve the wilderness experience. Closer to built-up areas, options for electronic signs could be considered.

Where dynamic signs are not an option, other **design solutions** could be considered, such as visually separating the information for different seasons where safety risks vary through the year to allow visitors to quickly see the information of relevance to their visit.

**Temporary signs** can also be useful for alerting visitors to a current but temporary hazard or safety risk, such as a flooding risk due to a storm.

Use temporary signs where there is a current but temporary hazard or safety risk



Photo: Tim Cuff/Alamy

Use dynamic signs to show the risk on a given day

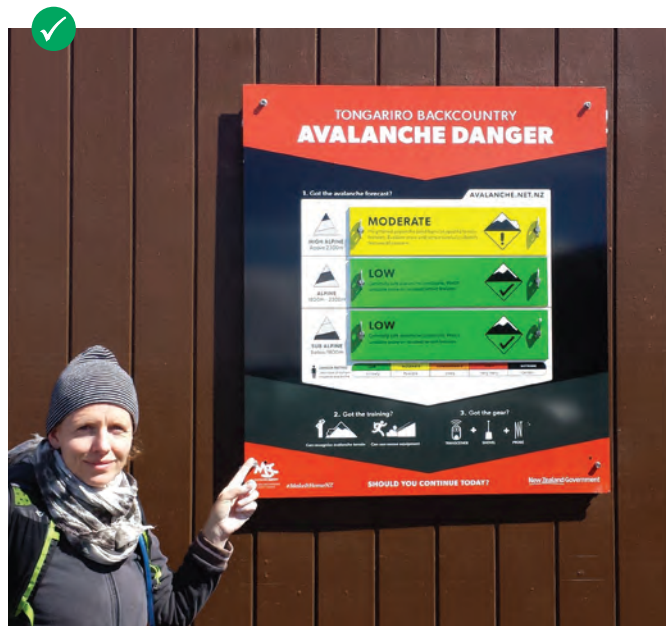


Photo: Mountain Safety Council



Photo: Brian Hartshorn/Alamy



## Sign size and placement

The size of a sign will depend on the amount of information it needs to include and how big that needs to be so that it can be easily read by visitors as they move past it. For further guidance, see the table provided in **Fonts**.

Safety signs need to be clearly visible and easy to read, and ideally close to the hazard they relate to – but it is also important that they do not detract from the aesthetic qualities of a place by unnecessarily blocking a viewpoint or interfering in some other way with the visitor experience. This is particularly important at a significant archaeological or cultural site, where the sign should be placed on the approach to the site rather than within it.

The height of safety signs also needs to be considered. Ideally, the middle of the sign will be at eye level for walkers and the entire sign will be below handlebar height for bikers, so we recommend:

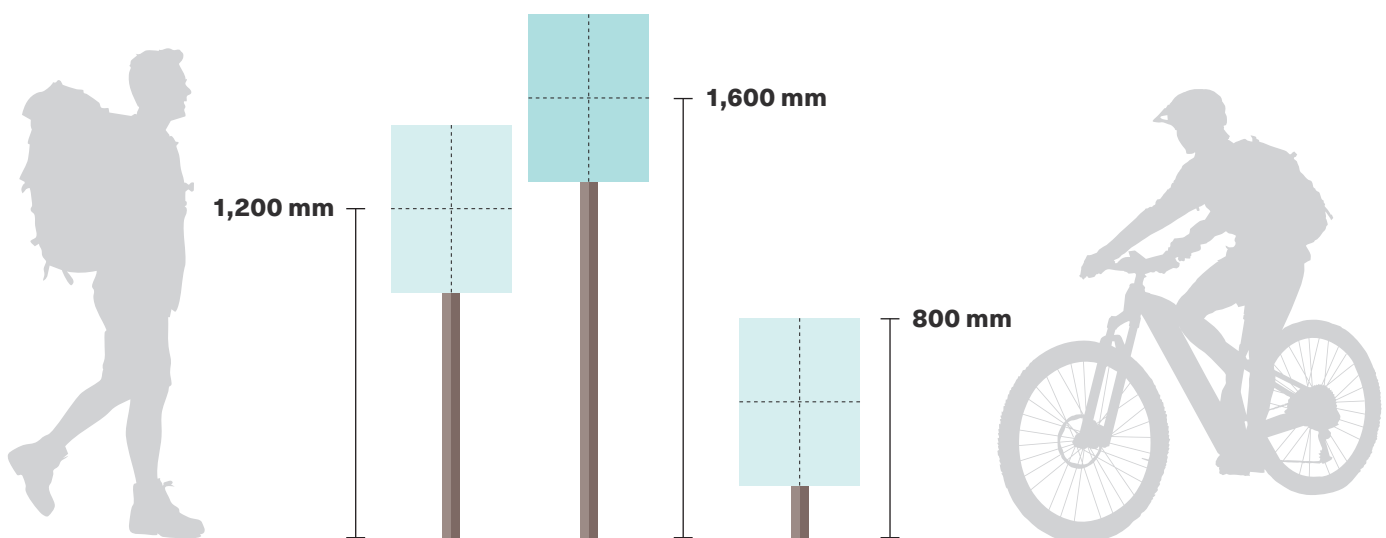
Visitor type	Sign height
Walkers	1,200 – 1,600 mm
Bikers	800 mm

However, this will depend on installation options at the site. Before placing signs in any area, ensure that you have **permission from the landowner**.

Place signs where they are clearly visible but do not detract from the visitor experience



Photo: imagoDens/Alamy



Reference imagery: LJSphotography (walker) and Westend61 GmbH (biker)/Alamy



## Number of signs

In an ideal world, every visitor would understand every hazard they may encounter in an area and take the appropriate precautions. But placing lots of signs in an area may detract from other aspects of the visitor experience. So an area should have enough signs to alert visitors to the key safety risks without overloading the environment.

Where hazards are spread out through the environment, we recommend having a single sign away from the hazard site (for example, at the trailhead) that outlines the safety risks and then a simple safety sign with a short message at each hazard site. However, where multiple hazards occur at the same location, it may be better to combine safety messages onto a single sign so that visitors only need to stop once and the environment is left as untouched as possible.

Where a safety risk is present at multiple places within an area (for example, a rockfall risk along a track), it may be possible to indicate a zone where people need to stay alert rather than repeating the safety message.

With this in mind, we recommend a **maximum of one sign per hazard site**.

Avoid overloading a site with signs



Photo: Paul Andreassen/Alamy

## Sign materials

Conditions in the New Zealand outdoors can be harsh and very changeable. This means that outdoor signs in some areas may be exposed to scorching sunshine and high UV levels interspersed with torrential rainfall and snow, so it is important that the materials used to construct safety signs can withstand these conditions.

If a temporary sign is being installed (for example, for less than 6 months), **corflute or laminated paper** can be used, as these are relatively inexpensive and robust.

For more permanent signs, we suggest the use of:

- **Aluminium Composite Material (ACM) or marine plywood** for signs that will be regularly replaced or are in a milder environment
- a harder-wearing material such as **aluminium** for signs that need to last longer or are in a tougher environment (for example, in an alpine environment, alongside a highway or in an area where kea are present).

The conditions under which a sign is likely to be read also need to be considered. For example, if a sign is likely to be read at night, consider using reflective materials.

## Sign maintenance and review

Outdoor safety signs in New Zealand are likely to require regular checks to ensure that they are still in place and legible. Where the quality of a sign has deteriorated, maintenance will be required – for example, to clear vegetation growing on or around the sign or to remove any graffiti. If a sign has been damaged or completely removed, it will need to be replaced.

The safety risks at a site should also be reviewed regularly to make sure that the safety messages are still appropriate. If the safety risk at a site or the types or numbers of people visiting a site has changed, the type of sign and messages may also need to be changed to ensure that people remain safe (if the risk has increased) or to prevent visitors from becoming distrusting and complacent about other safety signs in the area (if the risk has decreased).

We recommend **annual maintenance and review checks** as a minimum.

# Testing the effectiveness of signs

A wide range of outdoor safety signs can currently be found across New Zealand, but we have only a limited understanding of their effectiveness. This guidance draws on existing knowledge about what makes land safety signs effective, but we encourage land managers to continue to question and test the effectiveness of the signs they use.

## Understanding visitor behaviour at the site

Visitors to outdoor spaces in New Zealand are becoming increasingly diverse, so we need to gain a better understanding of the types of people who are visiting places, including their beliefs and values.

A low-risk method for obtaining information about visitors and their responses to proposed safety signs is through **online surveys**, as these provide an insight into how different visitor types are likely to engage with and respond to signs without exposing them to a dangerous situation – although it should be noted that what people say they would do does not always translate into their actual behaviours.

A more valuable way of improving our understanding of visitor behaviour is to carry out **on-site surveys** of visitors before and/or after their visit. These surveys could ask visitors about existing signs at the site or present visitors with mock-ups of proposed signs to see how they respond.

Where resources are available, **behavioural monitoring** is the best approach for understanding visitor behaviours at a site. This method often uses remote cameras and would ideally capture behaviours both before and after the signs are installed to assess the effectiveness of the signs and the behaviours of visitors.

## Understanding how visitors interact with signs

To stay safe, visitors need to not only notice and read safety signs but also take the necessary actions. Ideally, land managers would understand the views and perspectives of all the people who will be reading a safety sign and the effectiveness of the messages before the sign is installed. But user testing of temporary signs at a site can also be of great value for monitoring visitor interactions and compliance.

It is recommended that land managers consider testing the effectiveness of their safety signs in one of the following ways:

- **Pre-test** a range of sign designs, symbols and messages with relevant visitor types to determine their appeal and clarity.
- **Observe visitor interactions** with the signs at the site, particularly if it is a known visitor safety 'hot spot'.
- **Survey visitors** to better understand:
  - ▶ where they generally obtain information about a site from
  - ▶ their beliefs and attitudes towards the specific hazard(s) at a site
  - ▶ their expectations, awareness, understanding and response to safety signs
  - ▶ their appetite for real-time messaging.
- **Trial novel message formats**, including geo-targeting (sending push notifications to visitors based on their geographic location – for example, sending local avalanche forecasts to visitors to avalanche-prone areas).

It is also important that land managers **record the results** of their assessments so that the information is available for any future reviews of the safety signs. These results could also be applied by other land managers who need to alert visitors to similar hazards in similar places.

# Appendices

## Appendix 1: Additional resources

### Visitor safety in New Zealand

- Bai X, Hu L, Ma Q. 2024. [Can't ignore surrounding shapes: Neural processing mechanisms of safety sign designs](#). Safety Science. 177:106594.
- Espiner S, Apse M. 2023. [The effectiveness of safety signs in outdoor recreation settings: A research synthesis and annotated bibliography](#). A report prepared by Lincoln University for the Land Safety Forum, New Zealand.
- New Zealand Search and Rescue. 2020. [Literature review coronial recommendations \(pertaining to SAR & recreational safety\) 2008–2019](#).
- New Zealand Search and Rescue Council. 2024. [New Zealand Search and Rescue annual report 2023–2024](#).
- Sattler B, Lippy B, Jordan TG. 1997. [Hazard communication: a review of the science underpinning the art of communication for health and safety](#). Submitted to ToxaChemica, International in a subcontract to the Occupational Safety and Health Administration.

### Profiles of visitors to New Zealand

- Ministry of Business, Innovation & Employment. 2025. [Tourism Evidence and Insights Centre](#).

### Sign guidelines

- Blind Low Vision NZ. 2018. [Accessible signage guidelines: braille, tactile and clear print](#). Fifth edition.
- Ministry of Business, Innovation & Employment. 2016. [Acceptable solutions and verification methods for New Zealand Building Code Clause F8 Signs](#).
- Recreation Aotearoa Te Whai Oranga. 2025. [Outdoors Accessibility Design Guidelines](#).

Te Puni Kōkiri. 2025. [Māori-English bilingual signage](#).

Te Taura Whiri i te Reo Māori. 2025. [Bilingual signage](#).

### Legislation

- [Building Act 2004](#)
- [Conservation Act 1987](#)
- [Health Act 1956](#)
- [Health and Safety at Work Act 2015](#)
- [Historic Places Act 1993](#)
- [Land Transport Act 1998](#)
- [Local Government Act 2002](#)
- [National Parks Act 1980](#)
- [Occupiers' Liability Act 1962](#)
- [Plain Language Act 2022](#)
- [Reserves Act 1977](#)

### Standards

- |   |  |
|---|--|
| Design and application of outdoor recreation symbols (New Zealand)    | <a href="#">NZS 8603:2005</a>                                      |
| Road signs (Australia)  | <a href="#">AS 1743:2018</a>                                       |
| Safety signs for the occupational environment (New Zealand)           | <a href="#">AS/NZS 1319:1994</a>                                   |
| Water safety signs, specifications and guidance for use (New Zealand) | <a href="#">AS/NZS 2416.1:2010</a> and <a href="#">2416.3:2010</a> |




## Appendix 2: Glossary of terms

Some of the words and phrases used in this guidance have a specific meaning in relation to outdoor recreation and safety. Definitions of these terms in the context of this guidance are provided below.

<b>Good practice</b>	Recommended actions based on the best information currently available. This differs from best practice, which should be based on rigorous testing and review.
<b>Land manager</b>	Any person or organisation with responsibilities associated with the safety of visitors and management of hazard signs on an area of land in New Zealand. This could include, but is not limited to, a government agency, non-governmental organisation, Trust, iwi or private landowner.
<b>Hazard</b>	A specific feature of the environment that poses a safety risk to visitors.
<b>Risk</b>	The estimated or observed potential for personal danger, harm or loss.
<b>Safety sign</b>	Any sign that is intended to alert people to hazards or safety risks in an area and keep them safe.
<b>Site</b>	The specific place where a hazard or safety risk is present. This contrasts with 'area', which is used to refer to the wider locality within which the site is located.
<b>Visitor</b>	Any person who visits and carries out leisure activities in the New Zealand outdoors.



## Appendix 3: Danger and warning sign examples

<p><b>Danger symbol only</b></p> <p>Red triangle + White symbol</p>	
<p><b>Warning symbol only</b></p> <p>Yellow diamond + Black symbol</p>	
<p><b>Danger symbol with text</b></p> <p>White triangle + Black symbol + White text + Red background</p>	
<p><b>Warning symbol with text</b></p> <p>White diamond + Black symbol + Black text + Yellow background</p>	