



Planning for Extreme Wildfire

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This brief offers an overview of the legislative and planning frameworks relevant to wildfire management in Aotearoa New Zealand to provide insights into how wildfire is managed and integrated into planning processes. It is written for a range of disciplines involved in residential land development and construction, such as natural hazard risk managers, land-use planners and policy makers.

More detailed information can be found in GNS Science report 2022/21 (Forkink et al. 2023).

Key messages

- 1. Aotearoa New Zealand is experiencing an increase in wildfire risk and likelihood of adverse impacts on people, infrastructure and ecosystems. This is driven by hotter and drier summers caused by climate change and rapid development close to wildfire-prone areas.
- 2. Clearer regulatory direction is needed to ensure that wildfire risk receives adequate attention within a complex legislative framework.
- 3. Agencies and sectors should prioritise proactive measures to reduce potential wildfire risk. This aligns with the first principle of the four 'R's of the National Emergency Management Agency (Reduction, Readiness, Response and Recovery).

- 4. Wildfire risk reduction requires collaborative and integrated planning. This involves iwi partners, sectors, agencies and stakeholders at local, regional and national levels working together to align goals and actions to plan for wildfire-related issues.
- Professionals involved in planning and development need access to up-to-date wildfire risk information that can help them plan for and mitigate future events, with guidance appropriately tailored to local risk complexes and planning needs.
- Nationally accepted and consistent terminology and definitions are needed. This will improve stakeholder dialogue and align actions across resource management, building, adaptation and emergencyresponse systems.
- Educational programmes need to be better developed and integrated with climateadaptation initiatives. This will help communities, professionals and other stakeholders learn about wildfire hazards, root causes and strategies to reduce risk.

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Background

The frequency and intensity of wildfires is likely to increase in Aotearoa New Zealand (FENZ 2023), including those classified as 'extreme' wildfires, which are difficult to predict and contain. Wildfires have consequences for people, their property, the economy and ecosystems. For example, in 2017, the Christchurch Port Hills fires burned over 1600 hectares of land, destroying nine homes and damaging five others (AFAC 2017). The event resulted in NZ\$7.9 million firefighting costs and NZ\$18.3 million in insurance claims (FENZ 2023). In 2020, the Lake Ohau, Twizel, fire destroyed 45 homes and burned over 5000 hectares, resulting in NZ\$1.6 million in firefighting costs and NZ\$35.8 million in insurance claims¹ (FENZ 2023). Less than five years later, the February 2024 Christchurch Port Hills wildfire spread over about 650 hectares (FENZ 2024). All of these fires caused large numbers of people to evacuate from their homes (FENZ 2023; Leask and Franks 2024).

Climate change is expected to cause an increase in the number of very high and extreme fire danger days, which could lead to more frequent, larger and more severe wildfire impacts in Aotearoa New Zealand (Melia et al. 2022). Population growth is also projected to increase (Ministry for the Environment 2020) and expansion of development at the rural-urban interface (RUI) may exacerbate socio-economic impacts by exposing more people and assets to the hazard (Ministry for the Environment and Stats NZ 2021).

As the frequency of severe wildfire incidents is projected to increase, it is essential that the designs and locations of today's developments consider and mitigate future risks, including through the consideration of adaptive actions. Further research is needed to help us understand how fire behaviour is changing and what impact this may have on current and future trajectories of development.

Planning constraints and opportunities

A component of the Extreme Wildfire Programme led by GNS Science examined the primary legislative framework and planning processes related to wildfire management, focusing on their impact in the RUI. It identified various constraints and opportunities in wildfire planning through the review of multiple documents, including Acts, secondary legislation, academic publications, planning documents, guidance materials and case studies. From this research, three main themes emerged: wildfire planning inconsistencies, unclear legislative guidance and wildfire planning opportunities.

Wildfire planning inconsistently addressed

- The national legislative framework is complex and does not offer clear directions or tools for planners and other professionals to plan for increasing wildfire risk.
- Wildfire is not consistently considered across the legislation, and this may lead to limited influence in the planning context.

Natural hazard risk is required to be considered in Aotearoa New Zealand land-use planning processes. However, wildfires have historically been overlooked in residential development design and planning, likely because of the perception that large-scale wildfires are not a significant risk to people.

Currently, the focus of natural hazard assessment is on flooding, earthquakes, landslides, tsunami and coastal hazards. These hazards are most likely to be considered due to their recognised potential impacts on human settlements, infrastructure and the natural environment.

Consultations with planning professionals, which were conducted to assist in guiding this study, showed that there is a need and willingness to incorporate wildfire risk management into land-use decision-making processes. However, the successful implementation of such changes at the national, regional and local levels depends on having sufficient resources (such as financial support, information and training) and government support.

Unclear legislative guidance for wildfire risk mitigation

Bringing proactive wildfire risk mitigation into residential planning and development involves navigating multiple sectors and legislative domains. A wide variety of groups and organisations (stakeholders and partners) are involved in wildfire management and residential development, including Fire and Emergency New Zealand (FENZ), emergency-management agencies,

¹ The reported dollar amounts reflect the value at the time of reporting. As of 2025, these numbers would be significantly higher due to the time value of money.

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land-management authorities, iwi, hapū, councils, planners, developers, residents and landowners. These stakeholders and partners have different, and at times competing, concerns and priorities.

For those working at the intersection of development and wildfire risk, the legislative framework is complex, inconsistent and lacks clear direction. The primary legislation for residential development in Aotearoa New Zealand is the Resource Management Act 1991 (RMA) and the Building Act 2004. This includes processes for plan making and implementation and subdivision and residential building design.

Our review identified multiple acts, regulations, strategies and other mechanisms relevant to wildfire planning and risk mitigation. Some legislative mechanisms are shown in Table 1, but other instruments (e.g. policies, community response plans, strategies and FENZ wildfire guidance documents) are outlined in Forkink et al. (2023) (Tables 4.1–4.2).

The RMA, which aims to achieve sustainable management of natural and physical resources, requires that anyone exercising authority under this Act must consider the principles outlined in Te Tiriti o Waitangi. The definition of 'natural hazards' in the RMA does not explicitly include wildfire, but the mention of 'fire' there establishes a link to wildfire management.

The Building Code, regulated by the Building Act 2004, establishes minimum safety standards for buildings to protect against internal fires. However, the Building Act currently lacks provisions for wildfire mitigation.

While councils can use RMA and Building Act tools to manage natural hazards, such as subdivision and building and resource consents, they do not give specific direction for managing development in wildfire-prone areas. Few district plans contain explicit provisions related to wildfire.

FENZ plays a significant role in managing fire risks, with a primary focus on protecting life and property. Although the Fire and Emergency New Zealand Act 2017 does not specifically mention the terms 'wildfire', 'bushfire' or similar, it empowers FENZ to mitigate wildfire risks through local fire plans, through the declaration of prohibited or restricted fire seasons and by offering input on fire bylaws established by local authorities. However, FENZ's recommendations cannot exceed the requirements of the Building Code. **Table 1:** Indicative legislative mechanisms relevantto wildfire planning and risk mitigation with means toaddress fire.

Legislative mechanisms	References to wildfire
Resource Management Act 1991	Strives for sustainable management of natural and physical resources and the management of significant risk from natural hazards. Fire is part of the natural hazards definition but the Act does not specifically address wildfires as a distinct type of natural hazard.
Forests Act 1949	Guides sustainable management of indigenous forest land, including plans for fire protection.
Local Government Act 2002	Promotes social, economic, environmental and cultural wellbeing of communities.
Civil Defence Emergency Management Act 2002	Promotes sustainable management of hazards and enables communities to manage associated risks. Covers 'serious fire' as one of the emergency events that it addresses.
Building Act 2004	Promotes fire prevention and safety measures within buildings, as well as efficient escape routes from them.
Natural Hazards Insurance Act 2023	Reduces impact of natural hazards on people and property; refers to 'natural hazard fire' as "fire occasioned by, through, or in consequence of any other natural hazard" (Part 1 s5).
Climate Change Response Amendment (Zero Carbon) Act 2019	Effects of climate change on wildfire are primarily covered through the requirement to prepare a National Adaptation Plan and climate-change risk assessments.
Fire and Emergency New Zealand Act 2017	Empowers FENZ to mitigate wildfire risks, including through local fire plans.

Wildfire planning opportunities

This study identified the following planning opportunities:

- Explicitly integrate wildfire preparedness and risk reduction strategies into planning policies. This would be a shift from a reactive post-disaster recovery to a proactive planning approach.
- Develop comprehensive wildfire planning and design guidance tools that support plan making and enable decision-makers to make informed decisions. These tools should guide appropriate development with appropriate design features, located in the right place to reduce wildfire risk. Additionally, these tools should be well integrated with other policy and legal frameworks to improve their effectiveness.
- Facilitate collaboration between relevant government agencies and professionals and use effective communication channels to broaden the reach of wildfire considerations.
- Invest in educational programmes and a centralised data portal to facilitate professional training, sharing of information, expertise and best practises. This should be integrated with existing natural hazard and adaptation platforms and data-sharing efforts.
- Make relevant wildfire hazard information easily accessible to partners and stakeholders to ensure that wildfire considerations are fully and consistently addressed and integrated more effectively into building design and planning.

We found that wildfire guidance in Aotearoa New Zealand is limited and fragmented, with inadequate instructions on wildfire planning for new residential developments. It is imperative that consistency and coordination are achieved across the legislated areas reviewed. Creating a comprehensive set of guidance documents and developing a central data portal that provides expertise and information to sectors, agencies and other stakeholders will help achieve this goal. Additionally, specific continuing education modules need to be developed with the support of research. These modules could be provided by professional organisations, such as the New Zealand Institute of Architects, New Zealand Institute of Landscape Architects, New Zealand Planning Institute, Building Engineers Society

and Aotearoa Society of Adaptation Professionals, to support professional development in wildfire risk-management strategies across different settings.

Enhancing wildfire preparedness for existing communities relies on utilising effective communication channels, expertise and appropriate guidance on how to plan for extreme wildfire. Future coordination in professional direction and advice will benefit communities' resilience by supporting wildfire considerations in the built environment.

Collaborative efforts between stakeholders and partners involved in wildfire management are essential to improve coordination. These efforts can highlight trade-offs between management approaches, such as balancing risk reduction with conservation goals for preserving viewscapes or biodiversity.

Where new development is planned, professionals involved in planning developments at the RUI play an important role in decision-making that can improve outcomes for future wildfire risk, particularly at the fringe of urban areas. Furthermore, workshops, educational programmes and land management forums can help inform stakeholders and partners about wildfire-prone areas, hazards, root causes and measures to prevent and mitigate wildfire hazards.

Community programmes can help build community awareness and capacity. Involving communities can help reduce risk by managing the fire fuel environment and human behaviours and may also prepare communities to facilitate rapid emergency response and recovery efforts. Existing FENZ resources and past rural fire research are valuable. However, the changing demographic of urban fringe development and increased intensity of wildfire-related conditions, such as drought and wind, require additional understanding of the constraints and opportunities for better wildfire preparedness.

Conclusion

Planning for wildfire risk must be integrated across sectors involved in residential development, including land-use planning, infrastructure development and climate-change adaptation.

Below are some steps that are recommended based on expert interactions to help stakeholders and partners implement wildfire-mitigation actions.

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Steps for integrating wildfire risk into future residential planning

- 1. Establish a platform for collaboration between stakeholders and partners.
- 2. Prepare a glossary of wildfire-related terminology.
- 3. Strengthen regulatory guidance.
- 4. Map and rate wildfire-prone areas in Aotearoa New Zealand.
- 5. Draft wildfire hazard risk-assessment criteria and methodology.
- 6. Draft guidelines and best practises to reduce wildfire risk in Aotearoa New Zealand.
- 7. Develop and/or refine educational programmes to inform stakeholders and partners.
- 8. Allocate resources to fund wildfire-mitigation actions.

More specific steps and processes must be developed following engagement with each specific group of stakeholders and partners.

An effective communication platform for sharing hazard information and collaboration helps build capacity and capability and enables upskilling across multiple areas of expertise.

Comprehensive decision-making involves combining resources, coordinating efforts and sharing responsibilities. It is especially important to identify and address the specific needs of vulnerable groups to ensure that the necessary resources, infrastructure and support systems for effective wildfire mitigation are in place. This includes engaging with wildfire-mitigation experts to inform land-use planning processes, particularly for housing developments at the RUI.

Proactive wildfire management requires clear legislative direction. This can be accomplished by including wildfires in the RMA definition of natural hazards, requiring wildfire hazard assessments for new developments at the RUI and adopting more rigorous building standards in wildfire-prone areas. The ongoing resource management and climate adaptation reforms provide an opportunity to address this.

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