

Te Aroturukitanga o te Mahere ā-Wae
ki Tāmaki Makaurau

Auckland Unitary Plan Resource Management Act (1991) Section 35 Monitoring

B10.2 Natural hazards and climate change

Summary Report
December 2022



Overview

Auckland is susceptible to a range of natural hazards. Impacts of natural hazards to Auckland include property and content damage, injuries or fatalities, disruption to local and regional infrastructure, damage to the natural environment and natural features, as well as short-term and long-term economic loss and isolation of communities, particularly those in the outlying parts of the region.

Managing the effects of natural hazards and climate change in providing for subdivision, use and development is one of the most significant challenges facing Auckland.

There are a range of factors that make this challenge so significant, namely:

- the extent of Auckland's coastal edge and urban development adjoining the coast
- Auckland's geology and topography
- the location of historic development

- Auckland's rapid population growth and resulting pressure for urban development.

These factors result in pressure to locate development in areas that may be at risk from natural hazards. In addition, climate change has the potential to exacerbate these risks, as well as pose its own risks to people, property, and the environment, such as prolonged heat or impacting groundwater via sea level rise.

Chapter B10.2 Natural Hazards and Climate Change of the Regional Policy Statement (RPS) recognises these challenges. The objectives under B10.2.1 seek that activities are managed so that:



- communities are more resilient to natural hazards and the effects of climate change
- natural hazard risks are not increased in existing developed areas and new risks are not created because of new subdivision, use and development
- the effects of climate change on natural hazards are recognised and provided for
- the functions of natural systems, including floodplains and overland flow paths are protected and maintained.

The purpose of this monitoring report is to examine whether the Auckland Unitary Plan (AUP) is effective and efficient at achieving the outcomes sought under Chapter B10.2.1. The assessment of the AUP provisions is based on the legal requirements that

applied and information available at the time the AUP was developed and adopted in 2016.

Given the complexity and wide scope of this topic, the assessment in the report only provides a broad canvas of the key observations, trends and feedback drawn from the various data sources, which include discussions with relevant council staff, analysis of relevant resource consents, and review of relevant documentation. In many cases, further investigation will be required to understand the extent of highlighted issues. Information, data, and reports from the time period November 2016 until November 2021 have been used to inform this analysis.





Key Findings

Overarching matters

Scope of the AUP provisions

The objectives and policies in Chapter B10.2 refer to all natural hazards in general, however not all natural hazard risks are managed under the AUP. The AUP provisions only apply to:

- coastal erosion
- coastal storm inundation
- flooding
- land instability; and
- wildfire.

The risk from other hazards like earthquakes, tsunamis and volcanic activity are currently managed through other methods, such as identified tsunami evacuation areas and emergency management procedures. In addition, the AUP provisions focus on climate change effects only in relation to the exacerbation of these natural hazards and do not recognise that climate change itself can pose hazard risks. It may be appropriate for the AUP to include provisions that address risk from natural hazards beyond those currently covered.

Responsiveness to change under the AUP

Given the dynamic nature of natural hazards and the effects of climate change, the understanding and extent of risks that the AUP seeks to manage are constantly changing. The AUP cannot be easily changed without going through a statutory process, and as such, it is important for the AUP to have robust provisions and mechanisms in place to ensure risk assessments are based on the latest information for it to be effective in managing risk. This is only partly achieved in the AUP currently and there may be opportunities to include other mechanisms to ensure that the AUP is as responsive as possible to these changes.

Approaches and directives for managing risk

The concept of risk treatment is complex as there are often multiple factors that can influence the risk equation. The AUP provisions do not fully reflect this complexity and instead refer to risk in a generic sense. This makes it difficult to determine whether risk is being created or being increased, particularly in the absence of a clear policy direction on when risk should be 'avoided' instead of only 'mitigated'. Furthermore, almost all relevant activities on land are provided for as permitted or restricted discretionary activities, irrespective of the level of risk present. There are opportunities to improve effectiveness of the AUP by incorporating the complexities of risk management into the provisions, establishing a clearer policy direction on how risk should be managed in different circumstances and for the rules to reflect the degree of risk and where a precautionary approach will apply.

Zoning of land within natural hazard areas

The zone that applies to land indicates what is considered as the appropriate use and development for land and establishes a development expectation for a site. As such, there is inevitably a contest between the presumed development potential provided for by the zone against any loss in potential required through the implementation of separate natural hazard provisions to avoid or mitigate hazard risk. This means that a reduction in anticipated development is not ensured, even when the level of hazard risk warrants it. It may be appropriate to better utilise zoning and/or other development control measures to manage this conflict.

Structure plans

Structure plans provide a critical opportunity to assess the risks to land from natural hazards as part of determining the appropriate form of urban development within an area. There are potential gaps identified with the structure planning process, such as the lack of a strong directive for consideration of all relevant information as part of the assessment, and the fact that subsequent plan changes may not be in accordance with an adopted structure plan. Improving the provisions and requirements that apply for structure plans could add to their effectiveness in achieving the RPS objectives.

Lack of an AUP zone to apply to land that functions as 'green infrastructure'

There is no zone in the AUP that can be applied to land that is intended to function as green infrastructure (i.e. land that is to remain undeveloped to provide space for overflows of stormwater, flood waters and streams in storm events and/or for coastal erosion and coastal processes). In the absence of a specific zone, one of the Open Space zones is usually considered as the most appropriate zone to apply instead. However, this creates a tension with the purpose, management and costs associated with an Open Space zone. A specific zone in the AUP may be appropriate to accommodate and recognise this function.

Identifying and managing activities within natural hazard areas

The AUP provisions focus on managing hazard risk on land or within an identified area potentially subject to natural hazard risk. However, not all situations where a hazard risk assessment is warranted are identified due to limitations with the use of mapping and definitions as identifiers, and due to different interpretations of the relevant plan provisions. Sometimes there may also be risk to people when the activity itself is not located in identified natural hazard areas, such as the inability to safely egress from a site during a flood event due to flooding along the public road. Further consideration may be appropriate to assess how natural hazard risk is identified and managed by the AUP and how to ensure that the relevant provisions are being applied consistently.

Consistency of assessments and quality of information

Under E36.9 of the AUP, applicants are required to provide appropriate technical assessments to support an application for an activity or development that may be subject to or exacerbate natural hazard risk, which the relevant council specialists rely on to undertake their review. The quality and accuracy of these technical assessments vary – in some situations, there has been misleading or not entirely accurate information provided and in others, not all matters that should be considered have been addressed. There are opportunities to provide additional guidance on or strengthening E36.9 requirements, as well as to improve the clarity and directiveness of the AUP to enable assessments to focus on the most relevant and important considerations.



Impact of existing development on hazard risk management

Existing development, which was established prior to the AUP, can add complexity to how risk from natural hazards is managed. There is a lack of clear policy direction for scenarios where it involves existing development that no longer avoids or mitigates hazard risk to the extent required by the AUP. As a result, there are varied outcomes in the assessments undertaken for these scenarios. A clearer policy direction on this matter would assist in improving the effectiveness of the AUP.

Differentiation in risk tolerance

The E36 provisions in the AUP use different activity categories (e.g. ‘more vulnerable’ vs ‘less vulnerable’) as a method to manage risk, with less onerous provisions applying to those activities less sensitive to risk. However, there appears to be confusion on how activities involving both ‘more’ and ‘less’ vulnerable activities should be managed. In addition, this method does not directly align with the outcomes sought under Chapter B10.2, where any risk, regardless of type of land use activity, should be avoided or not increased depending on the situation. Therefore, further evaluation may be warranted to determine whether this approach is clear and appropriate.

Implementing a precautionary approach

The term ‘precautionary approach’ is used in the Policy B10.2.2(6) in the RPS but is not referenced further in the AUP. There is also no AUP definition of what this term means, nor is it clear, based on the current policy and zoning framework, how the AUP supports this policy. Changes to the policy, rule/activity status and zoning frameworks in the AUP may provide a clearer connection with Policy B10.2.2(6).

Risk from multiple hazards

The AUP lacks direction on the management of risk from multiple hazard events occurring at the same time. This is particularly relevant as the impact of climate change on the magnitude, frequency and intensity of natural hazard events are not very well understood. Clarification on how risk from multiple hazards should be managed and whether a precautionary approach should apply in these scenarios would assist in improving the effectiveness of the AUP.

Duration and timeframes of consent

While duration of consent is a matter that can be considered under Policy E36.3(3), there is no clear guidance on when this should apply. Limiting duration is particularly important as an assessment of risk is done at the time consent is sought but hazard risk may change over time. Where appropriate, condition of consent could require a timeframe for review to determine whether that activity is still appropriate. While these options are available, the lack of clear policy direction means that they may not be imposed when it is warranted.

Permitted activities

There are several activities that are provided for permitted activities (i.e. do not require a resource consent) under Chapter E36 of the AUP. There is limited scope to consider all relevant matters that may need to be considered in this instance, and there is no ability to take an 'avoid' approach where it may be warranted. Further evaluation would assist in determining whether permitted activity status is always appropriate in these circumstances.





Effectiveness of AUP hazard-specific provisions

Coastal storm inundation

A review of resource consent data indicates that the management of risk for coastal storm inundation is primarily focused on ensuring developments achieve adequate finished floor levels, and/or using engineering solutions to reduce the impact of a coastal storm event. Potential gaps identified with the relevant provisions affecting the effectiveness of the AUP include:

- The mapping layer for 'Coastal storm inundation 1 per cent AEP plus 1m sea level rise control' in the AUP planning maps is no longer accurate and does not reflect the latest inundation modelling.
- There has been a lack of clear guidance on freeboard allowances (i.e. floor levels above modelled flood levels) for coastal flooding above the modelled water levels to accommodate other factors such as wave-run up and wave overtopping.
- Guidance on design criteria is provided through supporting documentation that sit outside of the AUP and the AUP provisions do not reflect the need for these documents to be considered.

Coastal erosion

A review of resource consent data indicates that management of risk for coastal erosion appears to be primarily dependent on ensuring developments appropriately avoid the risk, ensuring that the features proposed are relocatable if the land does recede or relying on hard protection structures. Potential gaps identified with the relevant provisions affecting the effectiveness of the AUP include:

- There is no mapping of land affected by coastal erosion, with the reliance on the definition of 'coastal erosion hazard area'. Several issues were identified with the definition, including how the definition does not capture all land that may be at risk and how it is unclear if the definition applies to land that lies between mean high-water springs and a cliff top.
- Reliance only on the definition without any mapping means that consent requirements relating to the coastal erosion hazard area are not always identified and assessed accordingly.

Flooding

A review of resource consent data indicates that the risk from flooding is commonly managed by ensuring development is outside of the floodplain or using engineering solutions that include minimum floor levels for buildings and ensuring that floodplains and overland flow paths are not obstructed. Potential gaps identified with the relevant provisions affecting the effectiveness of the AUP include:

- Engineering solutions can be acceptable to maintain the functioning of floodplains and overland flow paths, provided a suitably robust assessment has been undertaken, which may not always be the case.
- There are errors with the flooding-related definitions in Chapter J of the AUP, such as the definition of ‘annual exceedance probability’ and the note attached to the ‘floodplain’ definition.
- The mapping layers in GeoMaps for floodplains and overland flow paths are indicative only. This means that the exact extent of the floodplain or overland flow path may not be immediately clear and therefore an assessment of flood risk is not identified as being required.
- Freeboard requirements are provided through supporting documentation that sit outside of the AUP and the AUP provisions do not reflect the need for these documents to be considered.
- There appears to be a lack of awareness and understanding by plan users of the purpose of the different flooding-related provisions.
- There are no provisions in the AUP which apply to ‘flood prone areas’ and ‘flood sensitive areas’.
- Some activities within floodplains and overland flowpaths are permitted activities, which can have potential impact on flooding dynamics.



Land instability

A review of resource consent data indicates that engineering structures are the most common solutions to address the risk from land instability. Potential gaps identified with the relevant provisions affecting the effectiveness of the AUP include:

- There is no mapping of land which may be unstable, with the reliance on the definition of ‘land which may be subject to land instability’. Several issues were identified with the definition, including how the definition does not capture all land that may be at risk and how it is unclear how slope gradient is measured.
- Relevant rules in Chapter E36 relating to land instability are not being applied consistently as activities can be considered both a permitted and a restricted discretionary activity.
- Assessments for development relying on engineering structures do not always consider all the relevant matters that should be considered, such as maintenance requirements over the lifespan of the structure and the lifespan for which these structures are designed.

Wildfire

There is no definition or AUP maps that identify land that may be a risk from wildfires, nor are there any rules that directly relate to avoiding or mitigating the risk from wildfires. As such, there is a lack of opportunity for this risk to be considered, and a lack of direction on how this risk should be assessed as part of the resource consenting process.





Effectiveness of other AUP provisions

Subdivision in natural hazard areas

Subdivision provisions, including those relating to subdivision in natural hazard areas, are contained in Chapters E38 and E39 of the AUP. Potential gaps identified with the relevant provisions affecting the effectiveness of the AUP include:

- These chapters are complex and contain several different rules, some which overlap. This can cause confusion for plan users and result in rules being applied inconsistently.
- The consequences and impact of subdivision of land that is within one or more natural hazard areas do not appear to be fully appreciated. This outcome may be influenced by the current AUP assessment framework, the lack of a direct mechanism to ensure that future development following subdivision avoids the natural hazard area where possible, and the need for a stronger directive to consider future risk generated by the development opportunities created by the establishment of a new site in a natural hazard area.
- A method to manage natural hazard risk is to impose conditions and consent notices to ensure that only the development that has been assessed as part of the resource consent can be established on newly created sites. However, this method may no longer be utilised due to legal implications, which then compromises the risk assessment framework.

Esplanade reserves

Esplanade reserves and strips play an important role in mitigating the risk from hazards. Potential gaps identified with the relevant provisions affecting the effectiveness of the AUP include:

- Their role in natural hazard risk mitigation does not appear to always be considered when assessing applications for esplanade reserves or for reductions and waivers. This is likely due to the wording of the relevant policies, matters of discretion and assessment criteria.
- Development that precedes subdivision can limit the ability for a 20-metre-wide esplanade reserve or strip to be provided at the subdivision stage as the current riparian and coastal yard requirements at land use stage are usually a lesser width.

Hard protection structures

Hard protection structures are sometimes relied on to mitigate natural hazard risk. Potential gaps identified with the relevant provisions affecting the effectiveness of the AUP include:

- The assessment of applications relating to hard protection structures appears to be inconsistent as not all matters that should be assessed are considered, particularly with regards to ensuring the integrity of these structures during their intended lifespan. This compromises their ability to manage risk as they may not be as effective as intended as time goes by.
- Assessments for existing hard protection structures that require a resource consent retrospectively appear to focus on the fact that a structure is already in place to manage the risk, and that it is not practical to consider alternatives or replace the structure with a more natural mitigation method. This can undermine the intent of the objectives and policies of the RPS to rely less on hard protection structures where possible.

Coastal protection yards and riparian yards

Coastal protection yards and riparian yards require development to be set back from the edge of the coast and rivers for a range of purposes, including natural hazard risk management. Potential gaps identified with the relevant provisions affecting the effectiveness of the AUP include:

- The role of coastal protection yards and riparian yards in natural hazard risk management is outlined in the purpose statement for these standards. However, there is a lack of objectives and policies that directly recognise this role. There is also no link between these provisions (which can be found in the relevant zones) and Chapter E36.



Vegetation alteration or removal

Vegetation can help to mitigate the risk of natural hazards through stabilisation and acting as natural buffers. The alteration or removal of vegetation may exacerbate natural hazard risk. Potential gaps identified with the relevant provisions affecting the effectiveness of the AUP include:

- Not all vegetation that plays a role in natural hazard risk management may be subject to the vegetation alteration and removal provisions found in Chapter E15.
- There is a disconnect between the objectives and policies in Chapter E15 as it relates to the role of vegetation in natural hazard risk management, and there is currently no link between this chapter and the objectives, policies and provisions relating to natural hazards in Chapter E36.

Natural hazards and the Building Act 2004

The Building Act 2004 (Building Act) manages the hazard risk to buildings on land subject to natural hazards. Buildings may require a resource consent under the AUP rules in addition to a building consent. There are potentially gaps resulting from the differences between the requirements under the Building Act and the AUP, particularly in relation to the different timeframes involved and the hazard parameters that apply (e.g. the Building Code and supporting practice notes suggesting design timeframes ranges from at least 5, 15 or 50 years for buildings, whereas the AUP seeks to manage over a 100 year timeframe). These differences may undermine the overall effectiveness and efficiency in the AUP provisions in achieving the RPS outcomes.



Summary of main findings

Where is the plan performing well?

- Relying on mapping layers that sit outside of the AUP maps to identify natural hazard risk has proven successful as this means that these maps can be updated regularly and provide plan users with the most up to date information on risk that the council has.
- Requiring a site-specific analysis to confirm the actual extent of risk on a property, which allows a better understanding of the level of risk present and how risk associated with development on the site is managed.
- Despite some gaps in the understanding of the requirements, the existing assessment framework in the AUP broadly provides sufficient scope so that all the matters that should be considered at risk assessment stage can be considered.

Where is the plan underperforming?

- Some of the issues identified relate to the implementation of the provisions in the AUP. Although there is scope for assessment, this is not always understood or utilised appropriately by plan users.
- The static nature of the AUP means that a plan change is required to make any adjustments to the text of the plan. As such, parts of the plan can become out-of-date.
- There are some gaps with the mechanics of the plan, such as a lack of clear guidance on design criteria, a lack of a suitable zone for green infrastructure purposes, and unclear links between different chapters.

What are the most significant matters limiting the effectiveness of the AUP?

- The provisions in the AUP do not fully reflect the complexity of risk management, which makes it difficult to determine whether risk is being created or being increased in a particular scenario.
- There is a lack of a clear framework that identifies the circumstances where a precautionary approach of avoidance, as opposed to just mitigation, would be the most appropriate management method. The relevant Auckland-wide provisions that manage natural hazard risk also sit independently of the underlying zones and results in an inherent tension between the two sets of provisions.
- There are gaps in how the AUP manages activities in areas subject to natural hazard risk. For example, there are currently no provisions that address 'flood prone areas' or areas that may be subject to wildfire risk, and not all areas that should warrant an assessment are identified.

Recommendations from these findings are not included in this summary report. See the technical report for more detail and recommendations.





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