

# **Appendix 14**

**Regional Policy Statement Chapter 7 Natural Hazards (May 2016)**

## 7 Policies and methods - Natural hazards

### 7.1 Development in natural hazard-prone areas

*The objectives relevant to policy and method package 7.1 are:*

#### *3.13 Natural hazard risk*

#### **7.1.1 Policy – General risk management approach**

*Subdivision, use and development of land will be managed to minimise the risks from natural hazards by:*

- (a) Seeking to use the best available information, including formal risk management techniques in areas potentially affected by natural hazards;*
- (b) Minimising any increase in vulnerability due to residual risk;*
- (c) Aligning with emergency management approaches (especially risk reduction);*
- (d) Ensuring that natural hazard risk to vehicular access routes and building platforms for proposed new lots is considered when assessing subdivision proposals; and*
- (e) Exercising a degree of caution that reflects the level of uncertainty as to the likelihood or consequences of a natural hazard event.*

#### **Explanation:**

This policy is intended to enable the regional and district councils to deal with all natural hazards and areas not explicitly covered in Policies 7.1.2 and 7.1.3.

The policy acknowledges that there are large parts of Northland where natural hazard risk exists<sup>18</sup> but which are not covered by 10-year and 100-year flood hazard areas or coastal hazard. This approach recognises that avoiding risk everywhere is impractical and seeks instead to ensure that development is appropriate to the level of risk faced and the relative vulnerability of different activities.

This policy will enable development to be considered on a site-specific or development-specific, case-by-case basis using standard engineering practices and risk management techniques. These may include:

- ISO 31000: 2009 (Risk Management Standard)
- NZS 9401: 2008 (Managing Flood Risk – A Process Standard)
- NZS 4404: 2010 (Land Development and Subdivision Infrastructure).

The policy also requires decision-makers to exercise a degree of caution that reflects the level of uncertainty with regards to the likelihood or consequences of a natural hazard event. In advance of new flood and coastal hazard areas being identified and mapped, this will help build resilience to the potential impacts of natural hazard events. This is also consistent with Policy 6.1.2.

<sup>18</sup> Refer to Policy 7.1.2 explanation for description of 10-year and 100-year flood hazard areas.

### 7.1.2 Policy – New subdivision and land use within 10-year and 100-year flood hazard areas

*New subdivision, built development (including wastewater treatment and disposal systems), and land use change may be appropriate within 10-year and 100-year<sup>19</sup> flood hazard areas provided all of the following are met:*

- (a) Hazardous substances will not be inundated during a 100-year flood event.*
- (b) Earthworks (other than earthworks associated with flood control works) do not divert flood flow onto neighbouring properties, and within 10-year flood hazard areas do not deplete flood plain storage capacity;*
- (c) A minimum freeboard above a 100-year flood event of at least 500mm is provided for residential buildings.*
- (d) Commercial and industrial buildings are constructed so as to not be subject to material damage in a 100 year flood event.*
- (e) New subdivision plans are able to identify that building platforms will not be subject to inundation and / or material damage (including erosion) in a 100-year flood event;*
- (f) Within 10-year flood hazard areas, land use or built development is of a type that will not be subject to material damage in a 100-year flood event; and*
- (g) Flood hazard risk to vehicular access routes for proposed new lots is assessed.*

#### **Explanation:**

This policy provides the terms and conditions by which new development may occur in identified flood hazard areas<sup>20</sup>. Both the 10-year and 100-year flood hazard areas are addressed. These return periods relate to the annual exceedance probability. The 10-year areas are subject to repeated flooding and present a high risk to life and property because there is at least a 10% chance of flooding occurring every year and they tend to be located around water channels. The 100-year areas are those which would be flooded in a one-in-100-year flood (this equates to a one in 10 chance in a 10 year period) and as such, the chance of flooding is lower in these locations but the extent of these flood areas is larger than 10-year flood hazard areas.

In Policy 7.1.2(a) hazardous substances are those covered by the Hazardous Substances and New Organisms Act 1996. This does not include common household items.

In the 10-year areas, flood depths in 100-year events can be very deep with significant flow velocity, meaning the risks are very high. Most types of built development in the 10-year flood hazard areas are therefore not sustainable due to repeated risk to life, health and property from both floodwater and debris. This is why new built development is required to be of a type that will not be subject to material damage in a 100-year flood event.

Whether “material” damage will occur to land or a structure is likely to require consideration of the circumstances of the subject land – such as what the proposed

<sup>19</sup> All references to 100-year floods include an allowance for the effects of climate change.

<sup>20</sup> Note that policy 7.1.5 refers to locating new regionally significant and critical infrastructure within flood and coastal hazard areas.

use of the land is or is likely to be in the future (as a direct result of the proposal) and the nature of the hazard. In the context of buildings or structures, damage which would affect the structural integrity of the building is likely to be regarded as material. If the building or significant parts of it were rendered unusable by the damage or could not be safely used for its intended purpose, then such damage would be material.

This policy provides flexibility for new subdivision, within flood hazard areas by allowing applicants to demonstrate that building platforms will not be subject to material damage in a 100-year flood event (for example, through an engineer's report (see method 7.1.7(4)). Flood hazard risk to vehicular access routes for new lots is also required to be assessed at the subdivision stage. This will also help district councils determine (under section 106 of the Resource Management Act 1991) whether the land for which consent is sought is suitable for subdivision or whether the hazard risk is too great and the consent should be refused or modified.

Locating new residential, commercial and industrial buildings in 100-year flood hazard areas may be considered appropriate, provided an appropriate level of mitigation is achieved (for example, by minimum freeboard requirements as per NZ Standard 4404: 2010). This mitigation also requires that hazardous substances (such as fuels and pesticides) are not located where they would be inundated during a 100-year flood event. The policy also seeks to prevent worsening of the flood hazard as a result of earthworks, which reduce flood storage, impede flow paths or divert floodwater into neighbouring properties.

### **7.1.3 Policy – New subdivision, use and development within areas potentially affected by coastal hazards (including high risk coastal hazard areas)**

*Within areas potentially affected by coastal hazards over the next 100 years (including high risk coastal hazard areas), the hazard risk associated with new use and development will be managed so that:*

- (a) Redevelopment or changes in land use that reduce the risk of adverse effects from coastal hazards are encouraged;*
- (b) Subdivision plans are able to identify that building platforms are located outside high risk coastal hazard areas and these building platforms will not be subject to inundation and / or material damage (including erosion) over a 100-year timeframe;*
- (c) Coastal hazard risk to vehicular access routes for proposed new lots is assessed;*
- (d) Any use or development does not increase the risk of social, environmental or economic harm (from coastal hazards);*
- (e) Infrastructure should be located away from areas of coastal hazard risk but if located within these areas, it should be designed to maintain its integrity and function during a hazard event;*
- (f) The use of hard protection structures is discouraged and the use of alternatives to them promoted; and*

*(g) Mechanisms are in place for the safe storage of hazardous substances.*

**Explanation:**

Coastal hazards result from the interaction of natural coastal processes with human activities and structures. Coastal hazards can adversely affect the health, wellbeing and safety of people and communities, as well as the local economy. Northland has one of the longest coastlines in the country and a high proportion of our developed areas are within the coastal environment. Locating new development too close to the coast runs the risk of it being adversely affected by coastal hazards such as erosion or inundation by storm surges or tsunami events.

The overall intent of this policy is to give effect to the New Zealand Coastal Policy Statement 2010 (NZCPS) by enabling people to provide for their social and economic wellbeing through appropriate subdivision, use and development within areas potentially affected by coastal hazards.

When implementing this policy, areas potentially affected by coastal hazards should be taken to include:

- Existing coastal hazard 2 areas in district plans; and
- Areas where there is potential for harm to people or damage to property as a result of coastal inundation (including coastal storm surge and wave run-up and tsunami inundation) or erosion by wave action or currents over a 100-year timeframe.

High risk coastal hazard areas are those locations that have been assessed at high or extreme risk from the effects of coastal hazards over a planning horizon of 50 years. These areas are currently identified as coastal hazard 1 areas in district plans.

As required by the NZCPS, this policy seeks to ensure new use or development in areas potentially affected by coastal hazards will not increase the risk of social and economic loss or harm.

In high risk coastal hazard areas, the preferred long-term approach is to move from mitigation to discouraging future development. This is why the policy ensures that new subdivision plans are able to identify that building platforms are located outside high risk areas.

Outside of high risk areas, this policy seeks to ensure new subdivision plans can identify that building platforms will not be subject to inundation and or material damage over a 100-year timeframe. This is to mitigate the damage to buildings from a 1% Annual Exceedance Probability event (storm or tsunami) as well as 100-year incremental coastline change due to erosion.

This policy also encourages redevelopment or changes in land use that can reduce the risks of adverse effects from coastal hazards. This could be achieved through a combination of reducing the likelihood of damage and / or reducing the consequences of a hazard event. The policy also directs that infrastructure should be located away from coastal hazard areas where practicable. However, it recognises that there is a functional need for some infrastructure to be located within hazard areas (such as to service communities). When this occurs, the infrastructure should be designed to maintain its integrity during a hazard event so that its ability to service communities will not be compromised.

#### **7.1.4 Policy – Existing development in known hazard-prone areas**

*In 10-year and 100-year flood hazard areas and coastal hazard areas, mitigation measures to reduce natural hazard risk to existing development will be encouraged. These may include one or more of the following:*

- (a) Designing for relocatable or recoverable structures (when changing existing buildings);*
- (b) Providing for low or no risk activities within hazard-prone areas;*
- (c) Providing for setbacks (from rivers / streams or the coastal marine area);*
- (d) Managed retreat by relocation, removal, or abandonment of structures;*
- (e) Replacing or modifying existing development without resorting to hard protection structures (see Policy 7.2.2); or*
- (f) Protecting, restoring or enhancing natural defences against natural hazards (see Policy 7.2.1).*

#### **Explanation:**

This policy acknowledges that existing development has already occurred within known hazard-prone areas and that the risk to people and property from natural hazard events should be reduced to provide for community safety and wellbeing. This policy describes the types of activities that may help prevent or reduce the risk from hazards, which will help to build community resilience to hazard events.

The policy directly gives effect to Policy 25 of the New Zealand Coastal Policy Statement 2010, which seeks to avoid re-development or change in land use that would increase the risk of adverse effects from coastal hazards. It also encourages re-development or changes in land use that would reduce the risk of adverse effects from coastal hazards, including managed retreat and designing for relocation from hazard events. It is considered that these principles are sound and can be applied to all land which is prone to flood hazards within Northland – not just land subject to coastal hazards.

#### **7.1.5 Policy – Regionally significant infrastructure and critical infrastructure**

*New regionally significant infrastructure and critical infrastructure:*

- (1) Must be designed to maintain, as far as practicable, its integrity and function during natural hazard events; and*
- (2) May be considered appropriate to locate within flood and coastal hazard areas, even if it cannot meet policies 7.1.2 or 7.1.3 provided:*
  - (a) There is a need to be located within the flood hazard and / or coastal hazard area; and*
  - (b) infrastructure providers have demonstrated that the proposed location within the hazard area is the most appropriate (taking into account social, cultural, and economic costs and benefits) to service the needs of the community; and*

(c) *(An engineer's assessment identifies the potential for the infrastructure to exacerbate flood and erosion hazard risk on neighbouring properties, and where the assessment shows that risk will be exacerbated; the assessment must outline ways this risk can be minimised.*

**Explanation:**

Although there are overlaps between what constitutes critical infrastructure and what constitutes regionally significant infrastructure, there are differences. The definition of regionally significant infrastructure encompasses a broader range of facilities, including some that do not meet the Civil Defence Emergency Management Act definition of critical infrastructure (they are not necessarily deemed as being vital to maintain in the event of a natural hazard). The full range of infrastructure should be included here however because of its overall importance for the long-term economic and social wellbeing of Northland.

This policy seeks to ensure that new regionally significant infrastructure and critical infrastructure is designed to maintain its integrity and function during a natural hazard event. This is because this type of infrastructure is often essential to the social and economic wellbeing of communities and so its ability to service communities should not be compromised.

This policy seeks to ensure that this infrastructure is not located in areas subject to significant natural hazard risk – that is, in 10-year and 100-year flood hazard areas and within coastal hazard areas. However, the policy also recognises that in some circumstances, such infrastructure can be located within flood and coastal hazard areas, even if it cannot meet all relevant provisions of the associated policies (such as location of existing related infrastructure, availability of land, economic factors or engineering problems). In these instances, infrastructure providers will need to demonstrate that there is a need for the infrastructure to be located within the hazard area and that the proposed location is the most appropriate to service the community's needs.

Additionally, when such infrastructure is proposed to be located in a hazard area, an assessment must be made to identify the potential for the development to exacerbate flood and erosion hazard risk on neighbouring properties (for example, an assessment of the potential of the development to divert flood flow onto neighbouring properties). This should ensure that any increase in risk to neighbouring properties is minimised.

This policy applies to new regionally significant and critical infrastructure – it does not apply to any upgrades and / or maintenance of existing regionally significant and critical infrastructure.

### **7.1.6 Policy – Climate change and development**

*When managing subdivision, use and development in Northland, climate change effects will be included in all estimates of natural hazard risk, taking into account the scale and type of the proposed development and using the latest national guidance and best available information on the likely effects of climate change on the region or district.*

**Explanation:**

Scientists predict that the expected impacts of climate change will include rising temperatures, sea-level rise, changing rainfall patterns and increased storminess. Climate change is projected to have a significant impact on the risk profile of natural hazards by changing some of the hazard drivers (for example, sea level rise may lead to greater coastal erosion and / or inundation and an increase in high intensity, short duration rain events could lead to more flash floods).

Preparing for climate change now and recognising its potential influence on natural hazard events will help ensure that our communities can continue to provide for their social, cultural and economic wellbeing and become more resilient to the effects of a changing climate. Adapting now will help ensure our economy and infrastructure remains viable and that Northland is less vulnerable to the costs and adverse impacts of a changing climate. The requirement to take into account national guidance and the best available information on the likely effects of climate change on the region or district will ensure that when national guidance is updated / modified, this information will be used rather than relying on a specific requirement / figure that could quickly become out-dated.

**7.1.7 Method – Statutory plans and strategies**

- (1) The district councils shall notify a plan change to incorporate finalised flood hazard maps into district plans in the first relevant plan change following the operative date of the Regional Policy Statement or within two years of the Regional Policy Statement becoming operative, whichever is earlier. Additionally, the district councils shall incorporate new flood and coastal hazard maps into district plans as soon as practicable after such areas have been investigated, defined and mapped by the regional council.*
- (2) In their respective plans, the regional and district councils shall provide objectives, policies, and methods (including rules) to give effect to Policies 7.1.1, 7.1.2, 7.1.3, 7.1.4, 7.1.5 and 7.1.6.*
- (3) District councils shall set out rules in district plans classifying the following as prohibited or non-complying activities:
  - (a) New subdivision proposals that do not comply with policies 7.1.2 and 7.1.3; and*
  - (b) New proposals that do not comply with policy 7.1.2(f).**
- (4) The regional and district councils shall require an engineer's assessment for new subdivision within 10-year and 100-year flood and coastal hazard areas and for new land use or built development within 10-year flood hazard areas and high risk coastal hazard areas.*
- (5) The regional and district councils shall ensure that within the coastal environment:
  - (a) Any new habitable dwelling has a minimum floor level of 3.3m above One Tree Point datum on the east coast and 4.3m above One Tree Point Datum on the west coast. New non-habitable buildings will have a minimum floor level of 3.1m above One Tree Point datum on the east coast and 4.1m on the west coast; and**



*(b) An additional allowance for wave run-up<sup>21</sup> shall be assessed over and above the requirements above for exposed east coast locations where ground elevation is less than 5m above One Tree Point datum, and for exposed west coast locations where ground elevation is less than 6m above One Tree Point datum.*

*(c) Clauses (a) and (b) do not apply to:*

- i) Non-habitable buildings not designed for habitation or commercial use and where the potential impact of the building being materially damaged or destroyed by a coastal hazard event (including the replacement cost) is minor (e.g. pump sheds, car ports, farm sheds and public toilets); and*
- ii) Non-habitable buildings that have a functional need to be located in the coastal marine area (e.g. boatsheds); and*
- iii) Network utility infrastructure.*

*Circumstances where (a) and (b) are not met will be subject to the resource consent process.*

*(6) Before any new areas are zoned or identified in a district plan in ways that enable intensification of use, district councils shall ensure that the risks of natural hazards are assessed.*

*(7) The regional and district councils, when setting out objectives, policies, and methods in regional and district plans, and when assessing resource consent applications, will take into account the latest national guidance and the best available information on the effects of climate change on natural hazards for sea-level rise, drought and storm rainfall intensity.*

*(8) Where buildings occupied by people, animals and / or hazardous substances in 10-year flood areas and high risk coastal hazard areas have been materially damaged or destroyed by a natural hazard event, the regional council (through the relevant regional plan) will require land use consent for the repair or reconstruction of the building. The regional council will limit its discretion in determining the land use consent to avoiding or mitigating natural hazards.*

### **Explanations:**

Method 7.1.7(1) directs the district councils to notify a plan change to incorporate finalised flood hazard maps into district plans within two years of this Regional Policy Statement (RPS) becoming operative. This will be crucial to building community resilience to the risks and impacts of natural hazard events. Additionally, they will be required to incorporate new flood and coastal hazard maps into district plans as soon as practicable after these areas have been defined and mapped by the regional council.

The method differentiates between finalised flood hazard maps and new flood and coastal hazard maps because the regional council has prioritised the process of flood hazard mapping, focusing first on 26 catchments identified as having the highest potential flood risk to life, property, infrastructure and assets. Maps for these 'priority' areas have been produced in consultation with local river liaison committees and local residents, using detailed survey data, hydrology assessments and computer

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<sup>21</sup> The extra height that broken waves reach as they run up the beach and adjacent coastal barrier until the wave energy is expended by friction and gravity.

modelling to determine the likely extent of flooding. It is important that these maps are incorporated into district plans at the first available opportunity.

The regional council will support the district councils when implementing this method through providing technical support and advice. The district councils also need to know that the regional council can stand behind the hazard maps they have produced and have confidence that the maps will be as technically sound as possible.

Method 7.1.7(2) directs the regional and district councils to include provisions in their respective plans to give effect to Policies 7.1.1 to 7.1.6. This primarily means mitigating the adverse effects of new subdivision and development in flood hazard areas and coastal hazard areas – the most ‘at risk’ areas within Northland from natural hazards. It also means directing regionally significant infrastructure and critical infrastructure away from areas most at risk to natural hazards unless there are no reasonable alternative locations.

Method 7.1.7(3) requires the district councils to classify new subdivision, use and development in flood and coastal hazard areas that is likely to result in significant risk to life and property as ‘prohibited’ or ‘non-complying’ activities in district plans. The presumption is that if applicants can demonstrate compliance with the policy provisions, natural hazard risk should be avoided by appropriate design. If they cannot, the development should not proceed.

Method 7.1.7(4) sets out that the regional and district councils must require an engineer's assessment for new subdivision within 10-year and 100-year flood and coastal hazard areas. It will also require an engineer's assessment for new land use or built development within 10-year flood hazard areas and high risk coastal hazard areas.

This will help district councils determine (under section 106 of the Resource Management Act (RMA)) whether the land is suitable for subdivision and the requirement for an engineer's report, for new land use and built development (within 10-year flood hazard areas and high risk coastal hazard areas), will ensure that the development is suitable and will not increase the risk of harm to neighbouring properties.

Method 7.1.7(5) implements Policies 7.1.3 and 7.1.6 by requiring the regional and district councils to include provisions in their relevant plans to ensure a consistent, region-wide approach is adopted to setting minimum floor levels in the coastal environment for habitable dwellings and non-habitable buildings. Additionally, in recognition of their function and/or the potential low impact of some non-habitable buildings being damaged or destroyed by coastal hazard events, this method outlines that certain non-habitable buildings shall be excluded from these requirements.

These minimum floor levels are based on an analysis of sea level data recorded at east coast and west coast sites in Northland. The assessed 1% Annual Exceedance Probability (AEP) storm-tide level above One Tree Point (OTP) datum is 1.8m for the east coast and 2.8m for the west coast. Additionally, these minimum floor levels incorporate:

- i) a projection for sea-level rise of 1 metre by 2115, and
- ii) the relevant freeboard (0.3 or 0.5 m) stipulated in New Zealand Standard

4404:2010 Land Development and Subdivision Infrastructure which covers uncertainty in the 1% AEP storm-tide level, run-up or overtopping from small waves in areas not deemed to be exposed open-cost areas, and wash from moving vehicles.

The 1 metre sea-level rise by 2115 is consistent with the sea-level projections of the 2013 Intergovernmental Panel on Climate Change (IPCC) 5<sup>th</sup> Assessment Report. It is the equivalent to the threshold of 0.8 metres by the 2090s that should at least be considered from the 2008 Ministry for the Environment *Guidance Manual for Local Government: Coastal Hazards and Climate Change*. The 1 metre sea-level rise allowance also covers any small increase in storminess leading to somewhat higher storm surges, and takes into account national guidance and best available information. It does not include any provision for a rise in sea level of an additional several decimetres if the ice-sheets collapse faster than anticipated, as set out in the IPCC 5th Assessment Report.

The appropriate sea-level rise allowance should be reviewed regularly at no longer than 10 year intervals, taking into account national guidance and the best available information on the likely effects of climate change on the Northland region.

How minimum floor levels have been derived:

	East coast	West coast
Assessed 1% AEP sea level	1.8m OTP	2.8m OTP
Allowance for Sea Level Rise (to 2115)	1.0 m	1.0 m
Freeboard (habitable dwellings )	0.5m	0.5m
Freeboard (non-habitable buildings)	0.3m	0.3m

The regional and district councils are also required to ensure that an additional allowance for wave run-up is considered in exposed open east coast locations where ground elevation is less than 5m OTP datum and exposed west coast locations where ground elevation is less than 6m OTP datum. Wave run-up at any coastal locality is quite site-specific, depending on factors such as beach slope, roughness of the beach (sand, gravel or large rocks), wave height, exposure to ocean swell, how close waves can penetrate before breaking and the characteristics of the land above the beach – for example, dunes, cliffs, seawalls, rock revetments, low-lying land or estuarine margins.

Setting minimum floor levels in the coastal environment will ensure that new buildings will be more resilient to coastal hazard events and will give effect to Policy 25 of the NZCPS, which requires councils to avoid increasing the risk of social, environmental and economic harm from coastal hazards, using at least a 100 year planning horizon.

As these are minimum floor levels, the district councils should consider requiring higher minimum floor levels in specific locations if justified including in situations where impacts are likely to have high consequences or where additional future adaptation options are limited. Conversely, if applicants have site specific information/reasons why they consider that these minimum floor level requirements should not apply, they will be required to go through the resource consent process and will need to demonstrate how their development will avoid increasing the risk of social, environmental and economic harm from coastal hazards.

Method 7.1.7(6) implements Policy 7.1.1 by ensuring that natural hazard risk is assessed before areas are re-zoned in ways that enable intensification of use (for example, re-zoning from countryside to residential). This should help ensure that natural hazard risk is minimised and help build community resilience to natural hazard events.

Method 7.1.7(7) requires the regional and district councils to take into account the latest national guidance and best available information on the effects of climate change on natural hazards. The intention of this method is to build resilience to the effects of natural hazards by fully understanding (or as much as possible) the potential influence of climate change on natural hazards. Factoring in climate change 'upfront' is easier than retrofitting development or having to 'mitigate' the effects of events after they have occurred.

Method 7.1.7(8) implements Policies 7.1.2 and 7.1.3. As existing lawfully established activities have protection under section 10 of the RMA, this causes limitations for how the district councils can manage existing development – especially existing development – in areas most susceptible to hazard risk (10-year flood hazard areas and high risk coastal hazard areas).

Regional councils are not restricted in the same way because section 10 of the RMA does not apply to regional plans. To reduce risks to people, property and the wider environment, this method requires the regional council to assume responsibility for evaluating the hazard risk and ensure that the right risk reduction measures are used when buildings are materially damaged or destroyed within high risk hazard areas. To avoid complications due to this overlap with the district councils, the regional council will investigate transferring its functions back to the relevant district council.

#### **7.1.8 Method – Monitoring and information gathering**

*(1) The regional council will investigate and define new 10-year and 100-year flood hazard areas and areas potentially affected by coastal hazards over at least the next 100 years, progressively map them, and make this information available to the district councils for inclusion in district plans and anyone else on request.*

*The regional council, when undertaking its functions under section 30 of the Resource Management Act 1991, will co-ordinate the gathering and collating of research at a regional scale on flooding and coastal hazards (including tsunami) and the effects of climate change on these hazards.*

*(2) The district councils, when undertaking their functions under section 31 of the Resource Management Act 1991, will co-ordinate the gathering and collating of research on natural hazards and their risks and impacts at a district scale. This shall include landslides, stormwater management and rural fire risk.*

*(3) The regional council and district councils should work together to collaboratively establish and maintain an integrated natural hazards database for the region.*

#### **Explanation:**

The first method implements Policies 7.1.2 and 7.1.3. The work that the regional council does around identifying land susceptible to inundation from flooding, as well as inundation and erosion from coastal hazards, is ongoing.

This helps build community resilience and any maps / information developed should be passed on to the district councils (and the wider community) so that the hazard risks can be better managed throughout Northland.

Methods 7.1.8(2) and (3) implement Policy 7.1.1. These methods aim to clarify the respective roles and responsibilities of the regional and district councils for undertaking research and gathering information on natural hazards. These methods acknowledge that the gathering and collating of research can mean as, and when the councils become aware of new information.

This will help ensure that natural hazard management is undertaken efficiently and effectively throughout Northland.

Method 7.1.8(4) sets out that the regional council and Northland's district councils should work together to establish and maintain a natural hazards database for the region. This will help the public and decision-makers understand the risks associated with natural hazards in our region. It will lead to efficiencies in natural hazard management as all councils would be able to access the data and should reduce duplication and effort in hazard management. This should help build community resilience to the impacts of natural hazard events. The councils should collaboratively work out protocols for gathering hazard data, verifying and recording data and presenting it in an understandable form to the public.

#### **7.1.9 Method – Advocacy and education**

- (1) The regional council will initiate, co-ordinate and promote activities that assist communities to build resilience to the effects of natural hazards.*
- (2) The regional and district councils shall raise public awareness of natural hazards, including providing and publicising information on which natural hazards may occur in various locations (including the potential influence of climate change on these hazards) and what people can do to be prepared for hazard events.*
- (3) The regional and district councils shall, in consultation with affected communities, investigate and initiate methods to reduce the risk to existing development on land prone to natural hazards. This may include but not be limited to:*
  - (a) Property acquisition;*
  - (b) Riparian works;*
  - (c) Infrastructure developments or upgrades;*
  - (d) Developing hazard risk reduction strategies;*
  - (e) Use of esplanade reserves and other mechanisms on subdivision to secure setbacks from hazard-prone areas; and*
  - (f) Any other matter identified in Policy 7.1.4.*

#### **Explanation:**

These methods primarily implement Policy 7.1.4 but are applicable to the full suite of policies within Part 7.

Methods 7.1.9(1) and (2) are aimed at building community resilience to natural hazard events.

Method 7.1.9 (3) is targeted at reducing the risk to existing development on hazard-prone land. It gives the regional and district councils a degree of flexibility when managing existing risk. It is anticipated that any strategies will be developed in consultation with affected communities.

## 7.2 General risk reduction policies

*The objectives relevant to policy and method package 7.2 are:*

3.13 *Natural hazard risk*

### 7.2.1 Policy – Role of natural features

*Recognise and protect, restore or enhance natural systems and features that contribute to reducing the impacts of natural hazard events on the built environment.*

#### **Explanation:**

Note, in the coastal environment Policy 26 – *Natural defences against coastal hazards* of the New Zealand Coastal Policy Statement 2010 applies.

Natural features (like sand dunes, beaches, riparian vegetation, floodplains and wetlands) help to avoid and lessen the effects of natural hazard events. For example, coastal dunes help to mitigate the effects of storm surges by acting as natural protection against inundation and erosion, the retention of vegetation cover in upper catchments helps to protect against landslides / land instability, and the protection of wetlands helps to reduce flood risk and river bank erosion.

This policy gives effect to Policy 26 of the New Zealand Coastal Policy Statement 2010 – *Natural defences against coastal hazards*. It requires councils to provide (where appropriate) for the protection of natural features that protect coastal land uses from coastal hazards.

Protecting or restoring natural features often tends to be more economically viable than building and subsequently relying on hard protection structures. This is because engineered approaches have a limited design life and adopting these 'structural' assets can lock in future generations to continued expenditure to maintain, upgrade or replace such protection. In addition, natural features (such as coastal dune systems) often have high levels of natural character, landscape and amenity values, and are central to the protection and enhancement of indigenous biodiversity. Some also contain important archaeological and cultural sites and are of special value to tangata whenua.

This policy is not saying that natural features cannot be developed. Rather, their attributes that contribute to minimising the impacts of natural hazard events should not be compromised by inappropriate development.

## 7.2.2 Policy – Establishing the need for hard protection structures

*Priority will be given to the use of non-structural measures over the use / construction of hard protection structures when managing hazard risk. New hard protection structures may be considered appropriate when:*

- (a) The level of hazard risk reduction that the proposed structural asset is seeking to achieve is appropriate and cannot reasonably be achieved through non-structural options;*

*OR*

- (b) They will provide protection for concentrations of vulnerable existing development and the works form part of a long-term hazard management strategy that represents the best practicable option for the future; and*
- (c) The financial costs of non-structural measures (compared to the costs of the hard protection structure that will achieve the desired level of hazard risk reduction) are too high for the community; and*
- (d) It can be demonstrated that the benefits of mitigation outweigh the adverse effects and that the form and location of the hard protection structure is such that any adverse effects on the environment are minimised.*

Hard protection structures, when considered necessary to protect private assets, should not be located on public land unless there is significant public or environmental benefit in doing so.

### **Explanation:**

This policy promotes the use of non-structural measures (such as beach renourishment and dune restoration) over reliance on new hard protection structures.

This approach is consistent with Policy 25 of the New Zealand Coastal Policy Statement 2010 (NZCPS), which requires councils to discourage hard protection structures and to promote alternatives to them.

While hard protection structures are generally of immediate benefit, they only afford protection up to their design capacity. Reliance on these assets can, over time, increase the consequences of a natural hazard event if the structural measure fails.

This is particularly relevant because climate change is predicted to result in an increase in high intensity short duration storm events, which means that flood events could become larger and more frequent.

Hard protection structures can increase the risk from natural hazards – for example, seawalls can cause localised erosion of the adjacent shoreline. These structures can also cause significant environmental effects and should be considered the least desirable option for natural hazard management. Policy 27(2)(a) of the NZCPS requires councils to ‘focus on approaches to risk management that reduce the need for hard protection structures and similar engineering interventions’.

It should be noted that this policy does not say ‘no’ to hard protection structures, but rather establishes criteria, including looking at long-term costs and benefits, to assist decision-makers to determine when such structures may be considered an appropriate option to mitigate natural hazard risk.



### 7.2.3 Policy – Protection and maintenance of structural mitigation assets

*Impediments to accessing established natural hazard structural mitigation assets for maintenance purposes, and activities that may compromise the integrity or functioning of these assets, will be avoided.*

#### **Explanation:**

Structural mitigation assets include flood management schemes (for example, stopbanks, spillways and flood gates) and coastal hazard protection (such as seawalls or groynes).

These assets play an important role in minimising the risks to life, property and the environment from natural hazard events. Any unauthorised interference with these assets, or inappropriate activity undertaken on these assets, may compromise their purpose and so increase risks to public safety.

Once these assets have been established (especially for flood management schemes), it is important that new or subsequent development does not hinder councils or contractors accessing these works for ongoing maintenance purposes.

### 7.2.4 Method – Statutory plans and strategies

- (1) When setting out objectives, policies, and methods (including rules) in regional and district plans, the regional and district councils shall recognise the role that natural features play in reducing natural hazard risk and provide for their maintenance, protection, restoration and enhancement.*
- (2) The regional council will include objectives, policies, and methods in the relevant regional plan(s) to prevent the clearance of indigenous bush on erosion-prone land and the drainage of wetlands and other natural ponding areas, where such activities will increase the risk of flooding to downstream land.*
- (3) The regional council will include objectives, policies, and methods (including rules) in regional plans to control activities that will dam or divert the natural flow of floodwaters across floodplains (such as stopbanks, bund walls, or artificial levees, filling of land, or siting of structures).*
- (4) The regional and district councils shall give effect to Policy 7.2.2 through objectives, policies, and methods (including rules) in regional and district plans.*
- (5) Regional and district plans will implement Policy 7.2.3.*

#### **Explanation:**

Methods 7.2.4(1) to (3) implement Policy 7.2.1. These methods aim to ensure that natural features are statutorily protected through regional / district plans so that their 'role' in mitigating the impacts / risk from natural hazard events can be maintained. Method 7.2.4(1) gives the regional and district councils a degree of flexibility to generally provide for the maintenance and protection of natural features, whereas methods 7.2.4(2) and (3) are targeted at ensuring that the regional council controls specific activities that can harm / modify natural features and so limit their ability to provide protection from natural hazard events.

For Method 7.2.4(4), hard protection structures can have significant environmental effects and should be considered the least desirable option for natural hazard control, but there are circumstances when they will be appropriate. This method directs the regional and the district councils to include plan provisions within regional / district plans that ensure that new hard protection structures are only undertaken in accordance with Policy 7.2.2.

For Method 7.2.4(5), once structural mitigation measures have been established, it is important that impediments to accessing these structures for ongoing maintenance purposes are avoided. This method directs councils to include plan provisions to ensure ongoing access to these structures, thereby minimising natural hazard risk to individuals and the wider community.