



5 NATURAL HAZARDS

Contents

- 5.1 Introduction
 - 5.1.1 Flooding
 - 5.1.2 Land Instability
 - 5.1.3 Coastal Hazards
 - 5.1.4 Fire
 - 5.1.5 Climate Change
- 5.2 Resource Management Issues
- 5.3 Objectives
- 5.4 Policies
- 5.5 Strategy
- 5.6 Implementation
 - 5.6.1 District Plan Regulatory Methods
 - 5.6.2 Other Regulatory Methods
 - 5.6.3 Other Methods
- 5.7 Anticipated Environmental Results
- 5.8 Rules





5

5.1

NATURAL HAZARDS

INTRODUCTION

Natural hazards are natural events caused by the weather, earth, water or sea (including earthquake, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire or flooding) the action of which adversely affects or may adversely affect human life, property or other aspects of the environment. The Rodney District experiences a range of natural hazards including flooding, land instability, coastal erosion, fire, cyclones, high winds and potential volcanic and earthquake events. Sometimes these hazards may occur independently of each other, but at other times they may be the result of each other.

This chapter of the Plan deals with the four most significant natural hazards within the District:

- (a) Flooding;
- (b) Land Instability;
- (c) Coastal Erosion and Inundation by the Sea
- (d) Fire.

While it is recognised that natural hazards such as volcanic activity, earthquakes, tsunamis, cyclones and high winds can have significant adverse effects, the methods of dealing with them lie outside the scope of the Plan.

It should be noted that there are no rules within this chapter. The rules which apply to this chapter can be found in:

- Chapter 7 - Rural*
- Chapter 8 - Residential*
- Chapter 9 - Business*
- Chapter 10 - Open Space and Recreation*
- Chapter 16 - General Rules*
- Chapter 18 - Urban Land Modification and Vegetation Protection*
- Chapter 23 - Subdivision and Servicing*

Also, in dealing with hazards, regard needs to be had to the Auckland Regional Policy Statement, the Regional Plan: Coastal, and the New Zealand Coastal Policy Statement. The Auckland Regional Council has also prepared a Coastal Hazards Strategy/Coastal Erosion Management Manual. The purpose of this manual is to provide further detail on the way in which all those with an interest in the coast can achieve the outcomes sought by the RMA, Regional Policy Statement and the Regional Plan: Coastal. The manual provides detail on how to avoid coastal hazards and how to mitigate coastal hazards where they exist.

5.1.1

Flooding

Flooding is the main hazard in the District and is the most common reason for the declaration of a civil emergency. It tends to occur more frequently in the larger catchments in winter, because the soils are often saturated and the catchment is near capacity. However, in summer there is a bias towards



smaller catchments flooding after intense rainfall, because the rain does not have time to penetrate the soil.

Within the District there are a number of urban areas which, usually for historical reasons, have development within the 100 year floodplain of adjacent rivers. These areas are subject to flooding and include parts of Helensville, Kumeu-Huapai, Waimauku, Parakai, Kaukapakapa, Taupaki, Warkworth and Waitoki.

Rural floodplains are also subject to modification and require identification.

5.1.2

Land Instability

Land instability is the second most significant natural hazard within the District. The soil formation which is well-known for land instability is the Onerahi Chaos Breccia Formation. However, virtually any slope greater than 1:5 (and 1:7 for Onerahi Chaos Breccia) in the District is potentially subject to land instability to a lesser or greater extent, and therefore, the land instability of any property with this degree of slope needs to be assessed before development can occur. Mass movement can occur at any time of the year after high rainfall. It can also be caused by the careless placement of excavation material or other fill, unsupported excavations and the removal of vegetation cover. In many cases stormwater can also contribute to land slippage by concentrating flows.

5.1.3

Coastal Hazards

The coastal environment is an area of dynamic equilibrium that is constantly changing and adapting to inputs from the sea and land. The result is coastal erosion due to sea and wind action, dune building and dune removal, landslips, and flooding from the sea and estuaries. Coastal erosion is the long-term landwards translation of the coastline.

The east coast beaches tend to be prone to erosion under storm conditions (eg. Omaha, Snells Beach, Algies Bay, Orewa, and most of the beaches on the Whangaparaoa Peninsula). The possibility of natural repair of the system is limited by residential development on the backshore, which has reduced the supply of sediment and changed the dynamics and equilibrium of the foreshore areas. Development of the coastal environment also leads to previously harmless shifts of the dynamic foreshore having unacceptable impact.

There are a number of areas which are prone to inundation by the sea. Historically, large areas of the coast, mainly along the shores of the Kaipara Harbour, were reclaimed. These areas flood frequently, but there is a minimal threat to human life and property. In a number of cases, such as at Point Wells, Manly Beach and Orewa, urban development has occurred in very low-lying areas, which are almost at sea-level or in the case of parts of Stanmore Bay, where development has occurred below sea-level, making them prone to the possibility of inundation. Recently, technical work has highlighted the complex interplay of coastal geometry, bathymetry, tidal effects and climate change and other physical phenomena which requires Councils to take a cautious and prudent approach to new development and mitigation of existing risk.

Flooding also occurs when heavy rainfall coincides with high tides, low pressure weather systems and specific winds which drive the waves inland up estuaries or rivers. The Kaipara and Hoteo Rivers, and the Orewa estuary are



typically affected in these conditions.

It is also recognised that projects carried out outside the District in the Coastal Marine Area, such as the proposed Orewa Beach Reef Project, may assist in reducing coastal hazards. Measures for the protection, enhancement and maintenance of Orewa Beach are particularly important given the historic, recreational and landscape importance of the beach to Orewa.

[\[Amendment 101\]](#)

5.1.4

Fire

Wildfires are caused by lightning strike and human carelessness. Of most concern within the District is human carelessness, especially in forested areas. In the District, there are large areas which are forested with both indigenous and exotic species. The areas of planted forests (both native and exotic) are likely to increase as landowners move away from the traditional pastoral farming into forestry. This will increase the risk of forest fires, especially in late summer and early autumn. In addition, as recreational and visitor use of the larger exotic forest areas such as Riverhead and Woodhill increases, so will the potential for fires.

5.1.5

Climate Change

Over the last few decades, there has been growing concern that human activities, such as forest clearance, reclamation of wetlands, burning off of the land and industrial air omissions, have led to an increase in the atmospheric concentrations of 'greenhouse gases' like carbon dioxide and methane. This is considered likely to cause global warming. The major results of global warming could be a rise in sea level and climate change. The result would be an increase in frequency and probability of a number of natural hazards including: flooding; coastal inundation and erosion (because of sea-level rise); land instability (because of changes in watertable levels and rainfall intensity); drought (because of drier summers); wind hazards; and fires (because of drier summers). This would have a major impact on human activities within or adjacent to hazard areas within the District. To date, no specific scenarios on climate change and sea-level rise have been developed for the District. However, climate change and sea-level rise could have major impacts, especially for low-lying urban areas such as Omaha, Orewa, Parakai and Point Wells.



5.2

Issue 5.2.1

RESOURCE MANAGEMENT ISSUES

Natural events can pose a hazard to people, property, the environment, and the social, economic and cultural wellbeing of communities.

By definition, a natural hazard does not exist unless it affects humans and their property. For example, Mangatawhiri Spit (Omaha), like all spits, is by nature unstable and prone to periodic inundation by the sea. This would not be a hazard if the area did not have residential dwellings on it. The spit would erode and accrete in a cyclical process based on meteorological and tidal conditions. However, because people have built houses on the spit and live on it, the instability and erosion of the northern spit end and the foredunes pose a risk to people's property and potentially to human life.

Flooding and instability

This is the case with other natural hazards in the District, such as flooding and land instability. These are natural processes or events, which are a significant issue only when they impact on people and property. For example, along the Kumeu River, the 100 year flood plain is relatively large. However, flooding is mainly an issue where industrial, commercial and residential land is affected in Kumeu-Huapai, Waimauku, Taupaki and Helensville. Flooding tends to be less of an issue in the rural areas because the impacts tend to be less severe, as fewer structures and people are affected.

Social, economic and cultural well-being

Hazards also pose a risk to the social, economic and cultural wellbeing of people. They often affect whole communities. The damage is frequently great and widespread, disrupting the economic and social life of communities. These costs can be very high. The economic costs are usually easily quantifiable through the loss of production, and the costs of reconstruction or damage repair. As the economic costs can be high, the wider community often bears some of them. For example costs are spread through the wider community for road and service repairs after a hazard event, or for increased produce prices if shortages result.

Social and cultural costs

The social and cultural costs are, however, often not easily measured. These include psychological distress and a sense of dislocation, especially if lives or homes are lost, or community structures are damaged or destroyed. This has implications for the wider community.

In summary, it is the interface between natural processes and humans and their activities that creates the hazard and therefore, the risk. It is this risk and the potential loss of social, economic and cultural wellbeing which creates the resource management issue.



Issue
5.2.2

Inappropriate subdivision, use and development of land can change natural processes, exacerbating natural hazards or creating new risks for humans, property, social, economic and cultural wellbeing; and other aspects of the environment.

Since natural hazards occur only with the interaction of natural processes and human activities, development and subdivision in areas where the interaction can occur may result in a hazard. As the demand for subdivision and development within the District increases, so the potential for natural hazards to be exacerbated is increased, creating an additional risk for existing and new properties.

Changes in natural processes

Changes in natural processes through human activities can exacerbate hazards or create hazards which did not exist before. Humans and property can then be exposed to a hazard in an area which was previously not prone to the hazard, for example:

- (a) The clearance of native vegetation for development, agricultural and other purposes increases the rate of runoff, thus heightening flood peaks.
- (b) Vegetation clearance results in areas being exposed to erosion and land instability, which results in sediment runoff, potentially creating a flooding hazard.
- (c) The destruction of wetlands (by drainage) increases the intensity and rapidity of runoff, causing higher peak levels of flooding.
- (d) Reclamation of mudflats creates a risk of inundation to activities, particularly if these areas remain low-lying.
- (e) Earthworks and other non-point sources of silt increase the sedimentation of waterways, thus increasing flooding.
- (f) Earthworks can result in slopes which are stable becoming unstable.
- (g) Changes in stormwater flows through an increase in impervious surfaces can cause flooding. This is of concern in urban areas such as Stanmore Bay, Manly, Orewa and Omaha, and rural settlements and towns which already experience flooding through historic development within the 100 year floodplain, such as Kumeu-Huapai, Kaukapakapa, Parakai, Taupaki, Waitoki, Helensville and Waimauku.
- (h) Earthworks and development in overland flow paths can cause flooding, which is of concern especially in urban areas.
- (i) Changes in stormwater flow patterns and intensity can cause land instability.

Mitigation measures

Mitigation measures, including protection works, can also exacerbate many natural hazards. For example, seawalls and flood protection banks can provide a sense of security, resulting in more intensive development or activities in areas prone to hazard. However, no protection work is fail-safe. The result is



sometimes an increase in the risk to human life and property, and the effects of natural hazards on social, economic and cultural well being are more severe if the protection works fail. In addition, protection works often create downstream effects which place other communities at risk, and potentially damage or destroy valued natural resources, such as native forests or dune communities. Mitigation measures can cause other adverse effects on the coastal environment. For example, protection works can cause adverse effects on the natural character of the coastal environment, wetlands, lakes and rivers and their margins, amenity values and intrinsic values of ecosystems.

Issues from other chapters

Readers should note that issues from the following chapters are also relevant:

Chapter 7 - Rural

Chapter 8 - Residential

Chapter 9 - Business

Chapter 10 - Open Space and Recreation

Chapter 18 - Urban Land Modification and Vegetation Protection

Chapter 23 - Subdivision and Servicing



5.3

Objective
5.3.1

OBJECTIVES

To avoid the adverse effects of natural hazards on human life, property and the environment and, where this is not possible, to mitigate the effects of natural hazards.

(This objective relates to Issue 5.2.1)

Objective
5.3.2

To avoid natural hazards being exacerbated through changes to natural processes as a result of inappropriate subdivision, development and land use.

(This objective relates to Issue 5.2.2)

Objectives from other chapters

Readers should note that Objectives from the following chapters are also relevant:

Chapter 7 - Rural

Chapter 8 - Residential

Chapter 9 - Business

Chapter 10 - Open Space and Recreation

Chapter 18 - Urban Land Modification and Vegetation Protection

Chapter 23 - Subdivision and Servicing



5.4

Policy

5.4.1

Areas prone to natural hazards

POLICIES

In areas prone to natural events caused by the weather, earth, water, or sea (including earthquake, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire or flooding), sensitive activities should, where possible, be avoided. New subdivision, use and development should be located and designed so that the need for hazard protection works is avoided. Where this is not possible, activities should ensure that any risk of loss of life or injury or environmental damage is minimised through appropriate mitigation measures.

Explanation and Reasons

This policy seeks to achieve Objective 5.3.1.

Wherever possible the approach to the management of natural hazards should be to avoid development and subdivision in hazard prone areas, such as floodplains. This recognises that natural hazards are natural occurrences and that the risk is created by locating activities inappropriately. Recently, technical work has highlighted the complex interplay of coastal geometry, bathymetry, tidal effects and climate change and other physical phenomena which requires Councils to take a cautious and prudent approach to new development and mitigation of existing risk. However, in some instances it is not possible to avoid such locations, especially where activities already exist. In these instances mitigation or remedial measures might be appropriate to reduce the risk. The ability to respond to a civil emergency should also be considered. Because of the potential adverse effects of hard engineering (eg. sea walls), soft engineering techniques (eg. revegetation) should be adopted where they are effective and practical (refer to Policy 5.4.4 on mitigation measures).[Amendment 61]

Policy

5.4.2

Development, subdivision, land use activities

Development, subdivision and land use activities, including:

- (a) **vegetation clearance;**
- (b) **draining of wetlands;**
- (c) **changes in overland flow paths and stormwater;**
- (d) **earthworks; and**
- (e) **land reclamation;**

should be prevented if they are likely to significantly exacerbate any natural hazard on-site or off-site, unless it can be demonstrated that the adverse effects can be mitigated, remedied or avoided.

Explanation and Reasons

This policy seeks to achieve Objective 5.3.2.

Natural hazards are often exacerbated by development, subdivision and land use activities through the clearance of vegetation, increase in impervious surfaces, changes in overland flow paths, earthworks, draining of wetlands and reclamation of land. The adverse effects often occur off-site and downstream of the activities



Policy
5.4.3
Natural systems

(eg. flooding downstream as a result of vegetation clearance). Although there is some understanding of natural processes, it is often difficult to pin-point the exact causes of the changes in the natural systems and therefore, what causes the worsening of the hazard. This is compounded when the changes in natural hazards are the cumulative result of development and activities, and not just the result of a single development or subdivision. Therefore, development, subdivision and land use should be assessed on the basis that they may exacerbate hazards and this should be taken into account when developing sites.

Natural systems should be used, maintained, managed, enhanced or protected where they make a significant contribution to avoiding or mitigating natural hazards, especially:

- (a) indigenous forest, and other vegetation, to limit flooding and erosion;
- (b) wetlands to manage the effects of flooding;
- (c) natural coastal features and beach systems such as sand dunes, saltmarsh and mangroves to limit coastal erosion; and
- (d) natural water bodies and watercourses to prevent flooding.

Explanation and Reasons

This policy seeks to achieve Objectives 5.3.1 and 5.3.2.

Natural systems play an important part in mitigating and avoiding the effects of natural hazards. For example, wetlands absorb water and then release it slowly, thus reducing flood peaks. Indigenous forests and other vegetation reduce rainfall runoff and therefore flood peaks. It is acknowledged that the District's coastline and natural systems, in particular beaches, have been significantly modified. Dunes act as a buffer against the energy of waves and provide a sediment reservoir to replace eroded foreshore sediments. Therefore maintaining, enhancing or using natural systems, such as wetlands, indigenous vegetation, sand dunes and coastal vegetation, and not removing them during development, subdivision and other uses, ensures that the functioning of natural systems can continue, reducing the risk of natural hazards. This decreases the risk created by hazards to property, humans and the environment. By the appropriate enhancing of existing natural systems through restoration and planting, the risk of hazards is also reduced.

Policy
5.4.4
Flood mitigation and coastal
defence works

In the case of flood mitigation and coastal defence works, non-structural methods, such as riparian revegetation, dune stabilisation and beach nourishment, should generally be adopted, in preference to structural methods, such as foreshore protection works (eg. walls, rip rap/gabion baskets and groynes). Structural methods should be permitted only where people, property infrastructure and the environment are subject to unacceptable risk from hazards, the works are the best practicable option, and any adverse effects on the environment are avoided, remedied or mitigated.

Explanation and Reasons

This policy seeks to achieve Objectives 5.3.2.



Structural methods of flood mitigation and coastal defence works can have significant adverse environmental effects, including visual effects and effects on coastal or hydrological processes, and therefore should only be used when a careful assessment has been made of the benefits and costs to communities affected and the environment, and when the risk to humans and property is unacceptable. Non-structural methods such as revegetation should be used to mitigate the adverse effects of natural hazards where they are practical (including financially) and effective. There are specific rules relating to coastal defence and flood mitigation works in all zones Chapter 16 General Rules, section 16.13.

Policy
5.4.5
Precautionary approach

Where there is little information available about the hazard, including the effects of sea level rise and global climate change, a precautionary approach should be taken in avoiding, or mitigating the adverse effects of natural events caused by the weather, earth, water or sea (including earthquake, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire or flooding on development.

Explanation and Reasons

This policy seeks to achieve Objectives 5.3.1 and 5.3.2.

In a number of instances, there is little information about natural hazards. Therefore, it is important that a precautionary approach is taken, especially when dealing with the effects of climate change and the subsequent changes in rainfall patterns and sea level rise, and in relation to geological threats, such as earthquakes and volcanic eruptions.

Policy
5.4.6
Fire risk

Habitable buildings should not be located where they will be at abnormal risk from fire from the surrounding environment.

Explanation and Reasons

This policy seeks to achieve Objective 5.3.1.

Where buildings are located in places inaccessible to fire service vehicles, or close to inflammable vegetation, the risk of significant damage from fire increases markedly. The risks can be lessened through appropriate standards in the Plan.

Policies from other chapters

Readers should note that Policies from the following chapters are also relevant:

- Chapter 7 - Rural*
- Chapter 8 - Residential*
- Chapter 9 - Business*
- Chapter 10 - Open Space and Recreation*
- Chapter 18 - Urban Land Modification and Vegetation Protection*
- Chapter 23 - Subdivision and Servicing*



5.5

STRATEGY

The very nature of natural hazards means that any management strategy needs to take a long term view. A 100 year planning horizon is commonly accepted for hazard assessment. Most buildings constructed of modern materials are likely to last much longer than 100 years. Once buildings are erected and sites developed, there is an expectation and economic necessity to replace buildings on the same site. Therefore, the strategy for managing natural hazards needs to be precautionary, and aim to prevent development in areas which are prone to natural hazards or where hazards could be exacerbated. It needs to control activities which might change natural processes, thus worsening hazards.

The strategy in the District Plan involves a two pronged regulatory approach:

- (a) using development controls in areas where the risk is not easily defined and where the risks are known for the site; and
- (b) using development controls which ensure that the functioning of natural processes is retained.

Non-regulatory methods, such as the provision of information on hazards and the development of catchment management plans, to help communities and developers to take responsibility for not developing in hazardous areas or exacerbating natural hazards, are also used. The Council is involved in encouraging community action groups, providing information, and undertaking appropriate research with other organisations to better understand natural hazard processes.

In dealing with natural hazards the strategy has also had regard to the Auckland Regional Policy Statement, the Regional Plan: Coastal, and the New Zealand Coastal Policy Statement. In dealing with natural hazards the objectives and policies in these documents should be referred to. The Auckland Regional Council has also prepared a Coastal Hazards Strategy/Coastal Erosion Management Manual. The purpose of this manual is to provide further detail on the way in which all those with an interest in the coast can achieve the outcomes sought by the RMA, Regional Policy Statement and the Regional Plan:Coastal. The manual provides detail on how to avoid coastal hazards and how to mitigate coastal hazards where they exist.



5.6

IMPLEMENTATION

5.6.1

District Plan Regulatory Methods

The following District Plan regulatory methods are used in the implementation of the strategy.

5.6.1.1

Zoning

(a) Physical Limitations Zone

In parts of the District land is prone to instability. The Physical Limitations Zone applies in urban areas of the District where physical limitations, such as instability have been identified. In order to ensure that this instability is not exacerbated or created, larger than standard site sizes are required and building coverage is restricted.

(b) Open Space 1 (Conservation) Zone

While this is essentially a recreation zone, many of the areas are esplanade reserves, including foredunes, river margins and lakes. Therefore this Zone is often a buffer against erosion and flooding processes. The activities within this Zone are restricted to those which facilitate access to and interpretation of areas within the Zone.

5.6.1.2

Effects-Based Activity Rules

Effects-based activity rules have been developed in areas where part of a zone is prone to a hazard. The activities permitted by the rules are based on the type and extent of the hazard, as well as the potential of the activity to increase the hazard risk. In some areas no activity may be permitted. In other areas limits might be placed on development activities (eg. density of housing etc).

5.6.1.3

Development Controls

Section 106 of the Resource Management Act 1991 gives the Council the ability to refuse a subdivision consent if the land is likely to be affected by flooding, erosion, falling debris, subsidence or slippage (refer Chapter 23 – Subdivision and Servicing, Rule 23.8.4). A consent may be granted if the Council is satisfied that sufficient provision has been made to avoid, or mitigate hazards, through the District Plan rules, and conditions on resource consents (including requirements for catchment control measures) and works.

Other development controls include:

- (a) Controls on the modification of wetlands (see *Chapter 7 - Rural* and *Chapter 18 - Urban Land Modification and Vegetation Protection*)
- (b) Controls on earthworks and vegetation removal (see *Chapter 7 - Rural* and *Chapter 18 - Urban Land Modification and Vegetation Protection*)
- (c) Controls on maximum site coverage (see *Chapter 8 - Residential*)



- (d) Controls on business activities in areas prone to flooding (see *Chapter 9 - Business*)
- (e) Shoreline yard restrictions (see *Chapter 7 - Rural, Chapter 8 - Residential and Chapter 10 - Open Space and Recreation*).

A site investigation and assessment by suitably qualified persons will be required where any proposed activity is to be located on a site identified in the Land Information Register, or a site where the Council has evidence to suspect that the site may be prone to a hazard. The Council has the ability to place restrictive covenants or consent notices on the Certificate of Title to ensure the implementation of certain conditions of consent in perpetuity.

5.6.2

Other Regulatory Methods

5.6.2.1

Building Act 2004

Section 71 and 72 of the Building Act 2004 requires the Council to refuse to grant a building consent involving the construction of a building or major alterations to a building, where the land is at risk of inundation by the sea, flooding, erosion, avulsion (ie. the sudden removal of land by flooding), falling debris, subsidence, slippage or where the building will accelerate or worsen the natural hazard, unless adequate provision has been or will be made to protect the land, building work or property from the hazard, or the building work will not accelerate, worsen or result in a hazard on the land or other properties and it is reasonable to grant a waiver or modification of the building code. Therefore the Council can use the Building Act to refuse a consent for the erection of new buildings or major alterations to buildings in areas subject to natural hazards, or where the building work could exacerbate the hazard.

[\[Amendment 61\]](#)

5.6.2.2

Bylaws

Bylaws will be used to achieve Objectives 5.3.1 and 5.3.2 (eg. the control of vehicles on beaches, etc.).

5.6.3

Other Methods

In addition to the regulatory approach, the methods to be used to achieve the objectives and policies identified in this section include the following:

5.6.3.1

Land Information Register

Council will maintain the Land Information Register, which contains information on the location and nature of identified or potential:

- (a) areas prone to flooding;
- (b) areas of land instability;
- (c) coastal areas susceptible to erosion;
- (d) areas prone to inundation by the sea.



The Council will allow the public to have access to the register. Applicants will be required to consult the Land Information Register prior to making an application for building consent or resource consent for subdivision or development. Where new information is to be placed on the Land Information Register from Council commissioned reports, the Council will prepare an implementation plan. The implementation plan will include a public information programme and an opportunity for the community to provide feedback to the Council.

5.6.3.2

Catchment Management Plans

Council will prepare, maintain and update catchment management plans for the District, especially in urban areas, in accordance with regional plan requirements. The plans will be used as a basis for identifying urban sites which could be prone to flooding.

Applicants will be required to consult relevant catchment management plans prior to making an application for a building consent or resource consent for subdivision or development.

5.6.3.3

Liaison

Council will liaise with other agencies to gather, collate, share and provide information on known hazards, and develop measures to encourage appropriate land use practices in hazard prone areas.

5.6.3.4

Education

Council will produce brochures and advise the public about any relevant information on natural hazards, their causes and on appropriate development.

5.6.3.5

Community Action Groups

Council will support community action groups promoting sustainable management of natural and physical resources.



5.7

ANTICIPATED ENVIRONMENTAL RESULTS

The anticipated environmental results from the implementation of the above objectives, policies and methods are:

- (a) Harm to human life, property and the environment from natural hazards is avoided, or mitigated.
- (b) Natural hazards are minimised or avoided by appropriate natural resources being protected.
- (c) Natural hazards are not exacerbated and new risks are not created through inappropriate subdivision, development and land use.

5.8

RULES

There are no Rules in this chapter relating to natural hazards. However, there are Rules which are applicable to activities in areas subject to flooding, instability and erosion and which shall be complied with, in the chapters referred to below:

- Chapter 7 - Rural*
- Chapter 8 - Residential*
- Chapter 9 - Business*
- Chapter 10 - Open Space and Recreation*
- Chapter 16 - General Rules*
- Chapter 18 - Urban Land Modification and Vegetation Protection*
- Chapter 23 - Subdivision and Servicing*