

10.1 ISSUES

Natural hazards can pose a risk to the human population however, it is not practicable to expect to totally eliminate the risk posed by natural hazards. Also a number of human activities can increase the degree of hazard for example, alteration of land contours can increase the susceptibility of certain areas to flooding.

While natural hazard events cannot be avoided a number of approaches can be taken to:

- ensure any use, development or protection of land does not increase the likely impact of a natural hazard event; and
- ensure that where the risk of a natural hazard event is high the effects on any use or development of land are avoided or mitigated.

In order to avoid or mitigate the effects of and on development in terms of natural hazard events the following methods will be used:

- Assess the impacts of development within specific at risk areas.
- Require certain standards of development in relation to particular natural hazards.
- Put in place emergency preparedness planning to deal with the effects after an event has occurred. Other measures are not able to totally eliminate risk and the community must be prepared for any event.
- Flood protection works to avoid effects on human populations.

The types of natural hazard events occurring within Carterton District are outlined below:

(a) Flooding:

There are several major rivers within Carterton District which are subject to flooding. The rivers include the Waingawa, Waiohine, Ruamahanga and Mangatarere Rivers.

Flood protection works primarily small stopbanks have been developed in some areas by the Wellington Regional Council.

The Building Act 1991 deals with assessing a building consent on a case by case basis for the mitigation of flood hazards. The District Plan identifies flood prone areas and conditions are placed to avoid adverse effects from flooding.

(b) Coastal Hazards:

The coast is subject to coastal inundation and erosion. Both of these affect the possible use and development of the coastal area. Certain activities can also aggravate these problems.

The possible effects of Tsunami (tidal wave) are not currently recorded to any degree of certainty in terms of risk or the extent of potential environmental damage expected. What is known is that there would be little warning of a tsunami as a result of a local earthquake. The Plan will not specifically deal with tsunami except to the extent that the 60-metre coastal management area may mitigate the effects of any inundation.

Any further development within the coastal area should not result in the hazard being worsened and property needs to be reasonably protected from extreme hazard events. Setbacks will help achieve this.

(c) Seismic Activity:

There are a number of factors which relate to seismic hazard including: liquefaction, ground shaking, slope failure hazard, fault rupture and fire.

Current knowledge suggests liquefaction and slope failure hazard are minor issues within Carterton District and therefore will not be dealt with through the Plan.

The Wairarapa area is subject to different degrees of ground shaking. Information available through the Wellington Regional Council on ground shaking hazards in the Wairarapa has identified most of Carterton District as falling within zone 2 to 4 which are:

"Areas underlain by greater than about 10 metres of Holocene and Pleistocene gravel and sand, and very weak rock expected to have an intermediate ground shaking response... Expected to have an intermediate to high amplification capability."

Short of restricting all development within the District Plan the most sensible means of dealing with this issue is through the structural requirements of the Building Act 1991.

There are a number of faults within Carterton District. For example:

- numerous fault lines in the eastern hills area have been identified
- current mapping and information does not have accurate fault line data.

The Plan does show two faultlines adjacent to the Waingawa River as they are known with precise detail. Seismic hazard affects the type of building construction required and the location and construction of essential services infrastructure and emergency preparedness planning.

The Building Act 1991 deals with the structural design elements required to withstand earthquakes. Civil Defence deals with emergency preparedness. The fault rupture is most critical where they impact upon essential facilities and the storage and use of hazardous substances. Where the precise location of faults is known, the District Plan can minimise the effects on and created by development in terms of controlling essential facilities within a certain buffer area of a known faultline. Individual land developers for other activities will be alerted to the presence of known faults and the decision to build will rest with the applicant.

(d) Wind:

Given the nature of the environment within Carterton District the area is subject to wind. The low-rise nature of development within Carterton does not generally result in wind tunnelling effects. The Building Act 1991 deals with wind as it affects buildings. The Plan will not specifically deal with wind.

(e) Fire:

Fire is a natural hazard that can be created through uncontrolled burn-off and may be exacerbated by certain land use activities. Building standards can help alleviate the effects of fire and emergency services can mitigate the likely effects. To the extent that the effects of fire are dealt with through other means the Plan will not deal with fire.

(f) Volcanic Activity

The possible adverse effects of volcanic activity are not known to any degree of certainty in terms of the risk or the extent of possible environmental damage expected. Civil Defence deals with emergency preparedness. The plan will not deal specifically with volcanic activity.

(g) Snow-fall

Snowfall can have potential adverse effects that the community must be prepared for. The Building Act 1991 deals with the structural design elements required to withstand the load from snowfall. Civil Defence deals with emergency preparedness. To the extent that the adverse effects from snowfall are dealt with through other means the plan will not deal with snowfall.

10.2 OBJECTIVE

10.2.1 Avoid or mitigate the adverse effects of natural hazards on the environment within the District.

10.3 POLICIES

10.3.1 To reduce the potential risk posed by natural hazard events by ensuring that all new structures and activities are located and constructed so as to minimise material damage from natural hazards.

Explanation:

There is a need to ensure that development does not create an increased degree of risk to the community by increasing the severity of a natural hazard event. In addition it

is important that any new development protects itself from the adverse effects of natural hazard events. Particular care needs to be taken in the siting of essential facilities.

10.3.2 To recognise the risk of natural hazard events to existing activities.

Explanation:

Where it is recognised there are risks posed to existing activities consideration needs to be given in any redevelopment to the risk posed by the natural hazard event. For example, the effects of flooding could be minimised through a different floor height. Mechanisms outside the district plan rules may also be appropriate for example, working with the Regional Council on education and determining appropriate levels of risk.

10.3.3 To encourage people to be prepared for the occurrence of natural hazard events through the provision of information and advice.

Explanation:

In addition to other means of protection against the effects of natural hazard events the final step is to be prepared. In order to encourage people to be prepared it is critical that people have the information available to know what actions to take and what supplies will be required. Adequate information needs to be disseminated and the means of disseminating information need to be formulated.

10.4 METHODS

10.4.1 District Plan

- (a) Identify based on current knowledge those areas within the District which are subject to the adverse effects of natural hazard events (refer Appendix 10A).
- (b) Restrict development within certain distances of bodies of surface water in order to act as a buffer and reduce the potential risk posed by flooding.
- (c) Deal with the adverse effects on land subject to natural hazard events through the subdivision approval process.

- (d) Storage of hazardous substances and location of essential facilities within a natural hazard area will require a resource consent to ensure adverse effects will not be created under hazard conditions.
- (e) Use specific criteria to assess the adverse effects of development within the coastal management area.
- (f) Monitor the appropriateness of controls and consider other mechanisms where appropriate.

Reasons

The first step toward dealing with the adverse effects posed by natural hazard events is to identify those areas subject to the influence of natural hazards. The plan identifies areas subject to flooding, faults and coastal hazards. The Council will monitor additional information as it becomes available and consider the need for plan changes as appropriate.

Setbacks from bodies of surface water are included within the natural environment section of the plan for development to assist in minimising the effects of flooding and erosion.

The provisions of section 106 of the Resource Management Act 1991 gives the Council the means of declining a subdivision consent subject to material damage by erosion, falling debris, subsidence, slippage or inundation.

The location of essential facilities and the storage of hazardous substances will be carefully assessed in order to minimise the likely effects on these activities and on the surrounding environment.

Plan provisions enable consideration to be given to the effects on and of activities in the sensitive coastal management area.

10.4.2 Building Controls

- (a) The Council will enforce the provisions of the Building Act 1991 in relation to flooding, seismic design and fire protection.

Reasons

The Building Act enables an assessment to be made on a case by case basis of the effects of natural hazard events on buildings. The Council will use these provisions to ensure the adverse effects of natural hazard events on human activities are avoided, remedied or mitigated.

10.4.3 Annual Plan

- (a) Ensure civil defence proposals appropriately deal with the need to disseminate information to people on the means of dealing with natural hazard events.

Reasons

The first step in being prepared is to have adequate information. The Council is able through the annual plan process to ensure appropriate objectives are developed to achieve the desired outcome.

10.4.4 Other Mechanisms

- (a) Work with the Wellington Regional Council in identifying areas subject to the adverse effects of natural hazards including the effects of climate change where the degree of risk may be increased and an assessment of seismic hazard, in particular accurate mapping of fault lines running through the District.
- (b) Co-operate as appropriate with the Wellington Regional Council who maintain flood protection schemes.
- (c) Assist in the protection of activities from the adverse effects of natural hazards through the acquisition of esplanade land. While esplanade land is primarily taken for other reasons the land can act as a buffer thereby reducing the potential impact of natural hazards.
- (d) The Council will make available through project information memoranda and individual enquiries, information on natural hazards known by and held by the Council.

- (e) Council will enforce the requirements of the Building Act 1991 and the Plan however, the decision as to where to locate the building or structure will rest with the individual, subject to the locational requirements of the Plan.

Reasons

To achieve the best results and avoid, remedy or mitigate the effects of natural hazards the Council and the Wellington Regional Council will co-ordinate their efforts and share information, in particular to achieve accurate maps of the faultlines in the District.

Co-operation on flood management schemes will continue as appropriate with the Regional Council.

The Council has identified significant bodies of surface water where esplanade land should be set aside. The land will help alleviate problems of erosion and instability.

The Council has available to it a number of means of disseminating information on natural hazards. Where hazard information is held by the Council for an individual property the information will be included in the property and land information memorandum processes.

10.5 ANTICIPATED ENVIRONMENTAL RESULTS

The implementation of the policies and methods is expected to result in the following outcomes:

- (a) Avoid adverse effects on development, particularly essential facilities, from natural hazard events including the reduction of the potential risk to development.
- (b) Avoid the adverse effects of development on natural hazard areas.
- (c) The dissemination of information resulting in people being prepared for natural hazard events.

10.6 DISTRICT RULES

The natural hazard areas to which this section applies are identified in Appendix 10A and include faultlines, floodplains and the coastal management area. Refer to the relevant zones for the classification of activities in natural hazard areas and also to the list of discretionary activities in 10.6.3.

10.6.1 PERMITTED ACTIVITIES

Any activity is permitted within a natural hazard area subject to all relevant plan provisions and provided it is not identified as a discretionary activity in section 10.6.3 below.

10.6.2 Conditions for Permitted Activities:**Setback Requirements:**

- (a) Any essential facility shall be setback at least 20 metres from any faultline identified in Appendix 10A and on the Planning Maps.
- (b) Subject to all other conditions within the appropriate zone.

[Refer to the provisions of the coastal management area within the Natural Environment Section].

Explanation:

The plan provisions are designed to ensure the adverse effects of natural hazards are avoided, remedied or mitigated by restricting development within a buffer area subject to natural hazard events. This is to minimise the potential increase of natural hazard events created by the development and to avoid, remedy or mitigate the effects of a natural hazard on any development.

10.6.3 DISCRETIONARY ACTIVITIES

- (a) Any subdivision, except a boundary adjustment or the creation of an esplanade reserve or esplanade strip within any mapped floodplain

- area identified in Appendix 10A and plan maps.
- (b) Any earthworks within any mapped floodplain area where the existing ground level is altered by more than 2.5 metres.
 - (c) Any use or storage of hazardous substances within any mapped flood plain area or within 20 metres of any fault line identified in Appendix 10A and plan maps except for the use and storage of hazardous substances in domestic quantities, fuel in motor vehicles, boats and small engines, agricultural chemicals or in association with any temporary military training activity (Refer to the provisions within Chapter 11, Hazardous Substances And Waste Management).

Note: The use of agricultural chemicals within mapped floodplain areas and within 20 metres of fault lines will be subject to Wellington Regional Council's Air Quality Management Plan in regard to discharges over water.

- (d) Any essential facility within any floodplain area or within 20 metres of any mapped fault line. (Refer to Appendix 10A and plan maps for location).

[Refer to the provisions of the Coastal Management Area within Chapter 13, Natural Environment].

Note: Consultation to be undertaken with the Wellington Regional Council.

10.6.4 Council may have regard to the following matters:

- (a) The requirements of section 106 of the Resource Management Act.
- (b) The nature of the activity and the degree to which the effect on the natural hazard event may be increased.
- (c) Whether mitigation measures have been put in place.
- (d) The probability and possible magnitude of a natural hazard event.
- (e) Any application must demonstrate that the land is not, or is not likely to be, subject to material damage resulting from erosion, falling debris, subsidence, slippage or inundation from any source. The Council may

require the developer to provide technical evidence to demonstrate the

suitability of the land or to undertake works on the land to avoid, remedy or mitigate any such hazards damage.

- (f) Where such land is likely to contain a future dwelling the allotment shall be capable of demonstrating that a suitable building platform can be provided. The Council may require each such suitable building platform to be indicated on a plan and may require the application to be supported by a geotechnical report prepared by a Registered Engineer as to the suitability of the land.
- (g) For any essential facility, whether the applicant can prove, through an engineering design report that any structure will perform safely under hazard conditions for the life of the structure.

Explanation:

An assessment of the effects of and on development in terms of natural hazard events needs to be made at the time an application for resource consent is made. The potential increased risk needs to be assessed as part of the consent.

APPENDIX 10A**Natural Hazard Areas**

The following natural hazard areas are shown on the Planning Maps.

1. FAULTLINES:

- Wairarapa fault
- Masterton fault

Essential facilities and the storage and use of hazardous substances is controlled for 20 metres on either side of the indicated faultline adjacent to the Waingawa River.

Note: Decision D0157 on Submission S0020 from the Wellington Regional Council was to show the Wairarapa Fault on planning maps R4, R5 and R6. This information is available in a digitised format from the Wellington Regional Council however, the scale is sufficiently different from the Carterton District Planning Maps that the Wairarapa Fault is unable to be shown with any accuracy. Council has included the location of the Wairarapa Fault on a separate Planning Map at a scale of 1:250 000.

2. MAPPED FLOODPLAIN AREAS:

- Waiohine River
- Waingawa River
- Ruamahanga River
- Mangatarere River

Development is controlled within 20 metres of these bodies of surface water and 10 metres of any other body of surface water.

3. COASTAL:

- Coastal management area.

Development is controlled within 60 metres of mean high water spring.

Note: Field investigations and discussions with local landowners indicate that the active coastal erosion processes over the past century have been confined to the seaward edge of the first raised beach.

[Refer to the provisions contained within Chapter 13, Natural Environment]