Wanganui District Council
District Plan Review
Phase Five

Section 32 Report

Proposed Plan Change 33
(Flooding Hazard)

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1. INTRODUCTION

1.1 PLAN REVIEW PROCESS

Section 79 of the Resource Management Act 1991 (RMA) requires Council to commence a review of its plans at least every 10 years. Recent amendments to the Act clarify that whole plans need not be reviewed. A Council may choose to review plans in part.

The existing hazard provisions have been developed at different times and under different scenarios. There are some provisions that have been in the Plan since it was first developed but others have been operative for a shorter period of time. Others have been included in recent plan changes, including Land Stability Assessment Areas in Plan Change 25. The intention of the review is not to meet a specific deadline under section 79 but to ensure the provisions in the plan are efficient and effective in managing the resources in the District and ensuring that Council's obligations under the Act are met.

The RMA does not detail how a Council must review its plans. However consideration of the efficiency and effectiveness of existing provisions is considered the first step. Section 32 of the RMA requires Council to carry out an evaluation of options before notifying a proposed plan change. These matters are discussed throughout this report. The efficiency and effectiveness of the provisions in achieving the stated objectives is analysed in this report, as are the various options that were considered.

1.2 STATUTORY AND LEGISLATIVE FRAMEWORK FOR THE REVIEW

1.2.1 Resource Management Act 1991

Section 74 of the RMA requires the Council to change the District Plan in accordance with its functions under Section 31, the purpose of the Act in section 5 and the other matters under sections 6, 7 and 8.

Territorial authorities have the following functions under the RMA:

31 Functions of territorial authorities under this Act

1. *Every territorial authority shall have the following functions for the purpose of giving effect to this Act in its district:*

    a. *The establishment, implementation, and review of objectives, policies and methods to achieve integrated management of the effects of the use, development or protection of land and associated natural and physical resources.*

    b. *The control of any actual or potential effects of the use, development, or protection of land, including for the purpose of –*

i. the avoidance or mitigation of natural hazards

2. The methods used to carry out any of the functions under subsection (1) may include the control of subdivision.

The Council is given these functions for the purpose of promoting the sustainable management of natural and physical resources, which is defined in section *5(2) as:*

In this Act, "sustainable management" means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while:

a. Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

b. Safeguarding the life-supporting capacity of air, water, soil and ecosystems; and

c. Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Further guidance and direction on the way in which resources are to be managed is provided in sections 6, 7 and 8 of the RMA.

1.2.2 National Policy Statements and Environmental Standards

There are no National Policy Statements or National Environmental Standards relevant to this Plan Change.

1.2.3 Regional Policy Statement

In addition, the RMA requires District Plan provisions 'give effect' to the Regional Policy Statement (section 75(3)). The Regional Policy Statement (RPS) is the main vehicle for interpreting and applying the sustainable management requirements of the RMA in a local context, and in this regard, guides the development of lower tier plans, including the District Plan.

The Horizons Regional Council (Horizons) RPS is contained within the Proposed One Plan along with the Regional Plan and Regional Coastal Plan. Section 10 of the Proposed One Plan addresses natural hazards.

The focus of Section 10 is set by Objective 10-1 which states:

> *"The adverse effects of natural hazard events on people, property, infrastructure and the well-being of communities are avoided or mitigated."*

While Objective 10-1 refers to either avoidance or mitigation, Policy 10-2(c) states that avoidance should be preferred to mitigation.

Section 10 of the One Plan also allocates regulatory functions, with joint responsibility for the provision of information, but retains sole responsibility for region wide policies and objectives (including coastal land and activities on the beds of lakes and rivers), and collecting and analysing information regarding regional natural hazards. Whereas Wanganui District Council (WDC) is required to develop objectives, policies and other methods to the control of the use of land to avoid or mitigate natural hazards.

In addition to the allocation of roles and responsibilities, the One Plan also has policies that guide the management of development in flood prone areas, new critical infrastructure and climate change. Key areas include the requirement to use a 200 year return flood event, guidance as to where mitigation may be appropriate, the use of freeboard, and suitable evacuation safe areas.

A specific area located between the Awa, Bates Street, Ridgeway Street and Victoria Avenue is identified in Policy 10-2(ea) which identifies that minimum floor heights, flow and resilient building methods should be considered in this area. This area corresponds to the Arts and Commerce Zone and Riverfront Zone established by Plan Change 21 in Phase 1 of the District Plan Review.

2. PART 1 – PROPOSED PLAN CHANGE

2.1 BACKGROUND RESEARCH

The Operative District Plan already manages the effects of land use on the flood hazard risks, for the Arts and Commerce and Riverfront zones with provisions introduced by Plan Change 21 in Phase 1 of the District Plan Review. These Plan provisions are not part of Plan Change 33, except where specified in this report. The Operative Plan maps have identified the outer extent of a 1 in 50 year and 1 in100 year flood event for a number of years. The extent of a 1 in 200 year flood event was modelled and provided by Horizons and adopted into the Plan in Phase 1 of the Review, but rules were only applied to the Riverfront and Arts and Commerce zones. Since the inclusion of these flood hazard lines in the Plan by Plan Change 21, flood avoidance structures have been constructed at Balgownie and, as a result, the Horizons flood hazard model has been updated and the District Plan maps need to be amended to reflect this.

In addition, relevant appeals to Horizons' Proposed One Plan have been resolved. Chapter 10 requires WDC to do more to manage land use subject to a 200 year flood hazard than under the Operative Plan. Plan Change 33 proposes new objectives, policies and rules and amends some existing Plan provisions, to more appropriately manage land use within areas identified as potentially subject to a 1 in 200 year flood event.

A review of how other territorial authorities in the Region were implementing Section 10 of the One Plan. In addition, a range of best practice material was reviewed in relation to resilient building methods, climate change, and how Civil Defence and Emergency Management integrates with managing flood hazards.

2.2 CONSULTATION AND OUTCOMES

Consultation with a range of stake holders, in accordance with the requirements of Schedule 1, was undertaken as part of formulating the proposed Plan change. This included the Tupoho Working Party, as Tupoho is Iwi with responsibility for matters regarding the lower part of the Awa.

Throughout the process, Council has had on-going dialogue with Horizons regarding their 200 year flood extent model, and how to implement the provisions of Section 10 of the Proposed One Plan.

Initially, wider consultation was undertaken to provide information about the extent of a 200 year flood. This included all affected property owners and occupiers, Iwi, and other stakeholders like network utility operators and sports clubs. Stakeholders were invited to a meeting that both

Wanganui District Council and Horizons Regional Council officers attended. Notes were taken at this meeting and are appended. It was after this point that the information was made available to the general public with the information being distributed on Council's District Plan Review website – Shaping Wanganui.

Draft provisions were mailed out to stakeholders and affected owners and occupiers first, with the general public being given an opportunity through the Shaping Wanganui website to make comment. Further informal dialogue with stakeholders about the draft Plan change has been undertaken and other feedback received.

The following parties were consulted:

Iwi representatives on Council's Governance Working Party.	Monthly update and discussion of the progress through the various topics of Phases 5.
Tupoho Working Party	Discussed at two meetings – June 19 and September 11 2013 and on-going dialogue with members.
Affected owners, occupiers and other stakeholders	Stake holder meeting and provision of link to flood mapping - Tuesday 27 August 2013 – Wanganui Girls College. Meeting notes to attendees Link to GIS, drafts for feedback public meeting with Horizons Draft provisions circulated and feedback sought
Horizons Regional Council	On-going meetings and dialogue
General Public - regular newsletters on Shaping Wanganui & Shaping Wanganui website linked from Council website with feedback invited at all stages	Link on website to proposed flood hazard maps. Feedback sought on draft provisions

2.3 DESCRIPTION OF THE PROPOSED PLAN CHANGE

The purpose of the Plan change is to 'give effect' to the flooding provisions of Section 10 – Natural Hazards of the Horizons One Plan in conjunction with the ten year review of the Wanganui District Plan.

The Plan change includes the identification of the extent of the flood hazard on the Planning maps, and additional objectives, policies and rules

to reduce risk to people and property through managing land use for a 200 year flood event.

Council has adopted the model for the Lower Whanganui Catchment provided by Horizons Regional Council to identify areas at risk of inundation by floodwater. Council is satisfied this information is sufficiently robust and fit for purpose.

These provisions are complimentary to those within Plan Change 21 regarding the treatment of structures for flood resilience in the Arts and Commerce and Riverfront Zones. These provisions are not proposed to be amended by this Plan Change.

Changes to the District Plan text are included as marked up text in Appendix One and amended Planning maps are included in Appendix Two.

3. PART 2 – SECTION 32 EVALUATION

3.1 REQUIREMENT TO MAKE AN EVALUATION

The Resource Management Act 1991 (the Act) requires that when a Council undertakes a plan change that it must produce a report evaluating the proposed provisions. This is known as a Section 32 Report. This report contains an evaluation of the Proposed Plan Change, prepared in accordance with section 32 of the Resource Management Act (as amended 2013).

The evaluation examines:

- the extent to which the objectives of the proposal are the most appropriate way to achieve the purpose of the Act (to promote the sustainable management of natural and physical resources), and
- whether, the provisions are the most appropriate way to achieve the objectives by
    - identifying other reasonably practicable options for achieving the objectives; and
    - assessing the efficiency and effectiveness of the provisions in achieving the objectives; and
    - summarising the reasons for deciding on the provisions; and
- contain a level of detail that corresponds to the scale and significance of the environmental, economic, social and cultural effects anticipated from the implementation of the proposal.

For the purposes of this examination, the evaluation must:

- Identify and assess the benefits and costs of the environmental, economic, social and cultural effects that are anticipated from the implementation of the provisions including the opportunities for –
    - economic growth that are anticipated to be provided or reduced; and
    - employment that are anticipated to be provided or reduced; and
- if practicable, quantify the benefits and costs referred to above; and
- assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions.

3.2 PROPOSED ISSUES

Although not required by the Act, the identification of resource management issues is generally provided for in most District Plans. It provides a base to develop suitable objectives and policies that are relevant to the local circumstances or context.

The following issues are proposed:

IX1 Flood Hazard Risk

Much of the urban area of Wanganui is built upon the banks of the Whanganui River (Te Awa Tupua). Some of the lower lying areas towards the bottom of the catchment, along with some tributaries and drains including Churton Creek and the Matarawa Stream, are prone to occasional flooding putting people and property at risk.

8.1.1 Variety of natural hazards

The Wanganui District is affected by a number of natural hazards*. The most significant ones are flooding, storms, tsunami, erosion and earthquakes. Knowledge of the location and characteristics of natural hazards* and their impacts on surrounding development *and the environment* is far from comprehensive. This along with lack of public awareness hinders the avoidance and mitigation of those hazards

8.1.2 Inappropriate land use in areas at risk of natural hazards

Inappropriate land use and occupation of areas at risk from earthquake, flooding, ponding land instability can cause unnecessary risks for people and property.

Comment

Issue IX1 compliments the two existing Issue statements adopted as part of Plan Change 25. These are not under review, but included for completeness. While the Plan Change focuses solely on the flood hazard in the lower Whanganui River catchment, the Issue identifies that the hazard exists in other parts of the urban area. Suitable information is not yet available to manage these other areas.

Proposed Issue	Relates to Existing Issue/s
Issue IX1	Issue 8.1.1 and 8.1.2

3.3 PROPOSED OBJECTIVES

Objective OX1 Floodwater inundation

Minimise the risk to people and property from floodwater inundation.

Existing Plan Objectives – Not part of Plan Change 33

8.2.1 Informed community of natural hazard risks

A community informed about the potential risks of natural hazards to

people and property in the Wanganui District. ***8.2.2 Avoiding and mitigating natural hazards*** *The risks of natural hazards through inappropriate subdivision and development are avoided or mitigated whilst minimising adverse effects on natural, cultural and ecological values.*	
Comment	The existing relevant Plan Objectives are included for information and completeness only. The following approaches were examined as part of the Plan Change process: <u>Status quo</u> The approach of the Operative District Plan is to identify the 50, 100 and 200 year flood probabilities on the Planning Maps. This information has been superseded by the present model supplied by Horizons. The flood hazard in the Riverfront Zone and Arts and Commerce Zone referred to in the One Plan were addressed in Plan Change 21. Therefore, those zones need not be reviewed. However the remainder of the land subject to inundation from the lower Whanganui is not managed. The One Plan directs Council to "*develop objectives, policies and methods for the control of the use of land to avoid or mitigate natural hazards…*". This requires Council to act. WDC and Horizons have functions under both the Local Government Act 2002 and Civil Defence Emergency Management Act 2002 . Significant resource has been invested in readiness and response actions. These were tested in the recent October 2013 flood and found to be effective in a 1 in 30 year event. However, this does not control landuse as required by Section 10 of the One Plan, and, at best, will only maintain the existing level of risk. <u>Flood defences</u> Flood defences such as flood banks to avoid flooding have previously been considered by the Horizons Regional Council as a part of their 2012-2022 LTP. Stage 1 of a capital works programme has been completed which involved the establishment of structures to prevent inundation from Te Awa along a stretch of riverbank, for up to a 1 in 200 year event. Consultation for the 2012-2022 LTP included requesting feedback from the community regarding the future of the Lower Wanganui Flood Scheme, Stages 2 and 3. Overall, respondents did not favour continuing the development of flood protection works. As a result, Horizons resolved that no funding be allocated for continued flood control measures. However, this position has been signalled for review of later in the LTP.Given the above, reliance on flood defences to protect land from 200 year floods is not a

	current option . Managed retreat Managed retreat in this context is defined as relocating physical structures away from all land identified as being subject to inundation by flood water. In order to provide for a managed retreat, suitable land has to be acquired and services installed. No parties have identified this as an option under consideration, nor has any party provided any funding for this to occur. The effectiveness of managed retreat is questionable as there is no ability to force landowners to move. For example, if a significant flood event damages a building to the extent that it requires demolition, Section 10 would enable land owners to re-instate a lawfully established building of the same use, character, intensity and scale. Existing Objectives Proposed Objective OX1 is more hazard specific than Objectives 8.1.1 and 8.2.2. Their focus includes generally avoiding or mitigating the impact of natural hazards and informing the community about the potential impacts. Given the context described below, a flood specific objective for flooding is considered appropriate, and not inconsistent with the Operative objectives. Insurance/LIMs Amongst considerations around the development of the Plan Change were the implications regarding insurance. Anecdotally, Anzac Parade landowners have had difficulty in securing insurance for flood events. Since the Christchurch earthquakes, insurance companies have increasingly focused on managing risks associated with natural hazards. This has led to increased premiums and insurance being denied to those perceived to be most at risk. Given the extent of flood hazard areas is only slightly modified, it is not anticipated that Plan Change 33 will significantly affect landowners ability to obtain insurance, except for land now shown as subject to inundation that previously excluded. Plan Change 33, provides more specific hazard information than was previously available. Details of projected flood water depth are available for each site from Horizons, who can also supply recommendations for minimum floor height/freeboard. Land Information Memoranda (LIMs) will now, identify the extent potential of flooding, as opposed to the previous generic approach of identifying that a property is generally subject to inundation from a 200 year event. Provision of this information through LIMs is not sufficient to give effect to the objectives and policies of the One

	Plan.
Appropriateness	<u>Avoid, mitigate, minimise</u> Three policy options were investigated during the drafting of OX1, avoid, mitigate, or minimise in terms of a desired long term outcome. The term avoid was considered in the first instance, which is, in part, consistent with Objective 10-1 of the One Plan. The Concise Oxford Dictionary defines the term 'avoid' as follows: *'Avoid 1. Keep away from; refrain from. 2. escape; evade 3. a. nullify b quash.'* Significant existing development is located within the 200 year flood extent. Flood protection and managed retreat are not considered viable, and it is doubtful that the effects of inundation can be completely avoided, given the right to rebuild offered by s.10 RMA. The second option reviewed was 'mitigate' as defined below: *'Mitigate; Make milder or less intense or severe; moderate.'* This may be inappropriate for existing buildings and structures in order to reduce risk. However, Policy 10-2(c) requires avoidance to be preferred. The preferred option, minimise, is defined as follows: *'Minimi[s]e 1. reduce or estimate at, the smallest possible amount or degree 2. Estimate or represent at less than true value or importance. 3. Attain a minimum value'* The term most appropriate is 'minimise'. This identifies that the risk of a flood event damaging people and property can be reduced by either avoidance or mitigation, taking into consideration the type of activity and level of probability. For example, the erection of new buildings in high risk areas must be avoided. However, avoiding risk to existing buildings is not possible and mitigation is more appropriate. This is consistent with Objective 8.2.2. **Conclusion** The proposed Objective OX1 is therefore considered appropriate in terms of meeting the purpose of the Resource Management Act. In particular, people and communities will be able to provide for their health and safety and economic wellbeing through the minimisation of their exposure to the flood hazard.

Proposed objective	**Relates to Existing Objective/s**
Objective OX1	Objectives 8.2.1, 8.2.2

3.4 PROPOSED POLICIES

The following new *policies* are proposed and existing polices amended as included as part of Plan changes 21 and 25 of the as follows:

Relevant Operative Policies (not part of Plan Change 33)

8.3.3 Natural Hazard precautionary approach

Adopt a precautionary approach in relation to use or development affected by potential natural hazards, especially where hazards are not well understood or the effects of natural processes are difficult to assess or where the effect of activities on natural hazards are not well understood.

8.3.8 Floodwaters

In designing earthworks or roadworks any adverse effects of diverting floodwaters should be avoided, remedied or mitigated.

8.3.9 *Utilise alternative flood hazard mitigation techniques within the Riverfront zones.*

~~Alternative techniques, including but not limited to, building design that either protects buildings from inundation or allows quick recovery following inundation. The characteristics of flooding in the Whanganui River are very well understood. Given the history of flooding, data available, including the rainfall and river levels, reliable models have been developed to predict the timing and degree of flood hazard in the Wanganui riverfront area. Therefore, there is sufficient warning time for alternative techniques to mitigate a 1 in 200 year flood event in the Whanganui Riverfront Zone.~~

Comment	The above Policies were included in the Plan by either Plan Change 21 as part of Phase 1 – City Centre and Riverfront, or Plan Change 25 – Natural Hazards. Policy 8.3.3 requires a precautionary approach to decision making, particularly where there is uncertainty or a lack of information. Policies 8.3.7, 8.3.8, and 8.3.10 directly relate to the management of flood hazards. Policy 8.3.8 is included for completeness and is not part of Plan Change 33. A minor amendment to Policy 8.3.9 is made in accordance with Clause 16 1st Schedule RMA. It is included for completeness and is not part of Plan Change 33.
Benefits **Costs** **Effectiveness** **Efficiency**	As Operative policy 8.3.10 was evaluated as part of Plan change 21 and no substantive change is proposed, no additional assessment is deemed necessary. The deletion of Policy 8.3.7 will be assessed with the replacement policies PX1, PX2, PX3, and PX4.

Appropriateness	

Principal Alternative	There are no obvious alternatives to what is generally a 'status quo' approach to most of the existing policies, other than remove all of them from the Plan. This is not appropriate as they have all recently been through a thorough plan change process and rigorous assessment, and would not be consistent with the requirements of the One Plan.

Amended and Proposed Policies

~~8.3.7 Flood hazards~~

~~In relation to flood hazards, avoid subdivision and sensitive or inappropriate new development in areas identified as being inundated by a 1 in 200 year (0.5% AEP) flood event unless flood hazard avoidance or mitigation is achieved.~~

8.3.10 Adopt a 1 in 200 year flood level ~~as the required level of flood hazard avoidance or mitigation for new developments in identified parts of the urban area.~~

Within the area identified as being subject to a 1 in 200 year flood event, different flood hazard avoidance or mitigation methods are required.

Policy PX1 New buildings in flood prone areas

Avoid the erection of new buildings in areas of higher probability of floodwater inundation (Area A) where this may induce or accelerate the impacts of flooding on people and property.

Policy PX2 Reduce risk to existing buildings

Reduce the impacts of floodwater inundation in flood prone areas, by requiring that alterations or additions to existing buildings and structures adopt resilient building methods.

Policy PX3 Hazard Mitigation

Mitigate flood hazard impacts associated with the erection of new buildings and structures within areas of moderate probability of flood water inundation (Area B).

Comment	Policy 8.3.7 was introduced as part of Plan Change 21 and is a generic response to managing flooding in the Riverfront zone. It is proposed that this policy be deleted. The Proposed Plan Change is more specifically focused on compliance with the requirements of the One Plan, and is consistent with the Fact Sheet: Flood Hazard and the One Plan produced as a guidance note by Horizons Regional Council. Proposed policies PX1 to

	PX4 are more specific about the circumstances when mitigation is appropriate and avoidance is necessary. Policy 8.3.10 was inserted into the Plan by Plan Change 21 and related to the Central City and Riverfront areas only. The policy is now proposed to apply more widely, which is consistent with the direction from Section 10 of the One Plan. A minor amendment to Policy 8.3.10 is made in accordance with Clause 16 1st Schedule RMA. Policies PX1, PX2, and PX3 are key for decision making. They have been developed in accordance with the Guidance Note on the flooding hazard produced by Horizons to help implement the provisions of the One Plan. They focus on four areas; new buildings, existing buildings, moderate probability and high probability in terms of flood occurrence. There were two principal alternatives considered. The first was a more restrictive approach where all development within the 1 in 200 year risk area was to be avoided. However, that approach did not recognise the non-linear variation in flood probability. The second approach was the opposite approach where mitigation could be applied to the whole risk area. As with the previous approach, this did not recognise that probability was not the same in all parts of the 1 in 200 year flood risk extent.
Benefits	**Environmental** The policies will, over time, improve the effectiveness of the flood plain as obstructions are reduced. The provisions are neutral with regard to flood defences in that it does not promote or require their establishment. Rather, it seeks only to manage land use in areas with a significant likelihood of flooding. **Economic** Policies PX1 and PX3 prevent loss for new buildings in areas of higher probability of flooding, while supporting the reduction of impacts on existing investment. Further to this, additional development is provided for, subject to the mitigation of impacts arising from inundation, in areas of moderate probability of flooding. The policies promote works to existing dwellings at risk of inundation to mitigate the impacts of flooding. This may result in additional employment and economic activity. Further to this, houses that have had flood mitigation works undertaken may increase in value.
	Social/Cultural The primary social/cultural benefit, when combined with emergency management, is that people in existing buildings/dwellings are enabled to continue the occupation of those buildings and are given options for mitigation of the impacts of inundation. This allows those with strong associations with land, particularly Tangata Whenua, to retain these associations and erect new buildings in areas at moderate risk

	where the impacts are mitigated.
Costs	**Environmental** There are minimal costs to the environment. However, mitigation measures may include raising floor levels which potentially could have a negative effect on amenity. **Economic** The development potential of land affected by the flood overlay will be reduced, particularly the land affected by a higher probability of inundation.
	Social There are no significant social costs. **Cultural** Discussions with Tangata Whenua have revealed that there are several pieces of land on the true left bank of the Whanganui River to the north and south of the Cobham Bridge occupied by marae, kura kaupapa, and land where papakainga development is contemplated. Some of this land is at high risk of inundation from flood waters. It is recognised that this may be seen as a barrier to the development of this land. While this is significant, this reflects the potential harm to people and property from inundation for that land. This is exacerbated by the decision of the community not to fund further flood protection works, particularly in the Putiki area. However, it should be noted that where the effects regarding exposure to risk can be avoided, either by flood protection works or any other means, at least one 'gateway' test is satisfied and development may be able to proceed.
Effectiveness	PX1, PX2 and PX3 are effective in that existing activities are able to reduce the impact of a flood event, new sensitive land uses are avoided in the area of higher probability, and the effects of a significant flood event in areas of low probability are mitigated.
Efficiency	Policies PX1, PX2 and PX3 are considered efficient and existing uses are provided for, subject to mitigation for any significant works. In addition, the establishment of new activities in areas of a high probability is avoided, therefore avoiding cost of repair or replacement after a large flood event. In addition, these policies complement the approaches by Civil Defence and Emergency Management by limiting potential costs of recovery, and minimising the size and complexity of response actions such as evacuation.
Appropriateness	Policies PX1, PX2 and PX3 are the most appropriate to meet Objective OX1 as overall, existing uses are able to reduce the impact of a flood event, new uses are avoided in the area of higher probability, and the effects of a significant flood event in areas of low probability are mitigated.

Risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods	The risk of acting is that either, there is no significant flood over the lifetime of the buildings/activities identified as being subject to a significant event, and therefore the cost of mitigation is unnecessary. In addition, an event exceeding the predicted 200 year event may occur thereby exceeding the design capability of mitigation works. The risk of not acting is that new activities are established or existing activities are expanded in a manner that does not avoid or mitigate the effects of flood inundation within the areas identified. This will increase the risk to people and property, as opposed to minimise it, as required by Objective OX1.

Principal Alternative	The principal alternatives were the 'status quo' with a minimum of controls, and in the Riverfront area only. However, this would not minimise the risk to the remaining parts of the catchment subject to a 1 in 200 year flood event.

Policy PX4 New allotments in floodable areas *Avoid subdivision which creates new allotments on sites within a flooding overlay where future development may increase the exposure of people and property to the impacts of flood inundation.*	
Comment	Policy PX4 seeks to avoid the creation of new development rights within the flood overlays where this would result in more people and property being exposed to inundation by flood water. In approving subdivision there is an implied right to develop. Increasing the number of people and introducing property in these areas increases exposure to risk. There are two alternative approaches examined. The first includes the status quo in that there are no specific controls and management is left to section 106 of the RMA where Council 'may' approve subdivision subject to certain hazards. This does not promote consistent decision making and may result in subdivision that is inconsistent with the provisions for future land use that may apply. The second alternative is a mitigation approach. This provides for subdivision subject to the risk of the hazard being sufficiently mitigated. Again, this may be inconsistent with the provisions that address land use. Also, the consequences of a

	200 year flood event may not be sufficiently mitigated without unintended effects such as diversion of flood flows from raised building platforms, and it is likely that a risk to people will still remain.
Benefits	**Environmental** There are no significant environmental benefits arising from this policy. **Economic** There are no significant employment opportunities arising from this policy. However, it is likely investment will be directed to parts of the Wanganui that are less likely to be interrupted or damaged by flood events.
	Social/Cultural With less new allotments for development, the policy will assist minimise the people and property potentially exposed to floodwater inundation and damage. In particular, the avoidance of disruption to dwellings and lives is significant.
Costs	**Environmental** It is not anticipated that any significant environmental costs will arise from implementing this Policy. **Economic** The cost of avoiding subdivision is the forgoing of development and employment that may otherwise have occurred. However, this is not anticipated to be noticeable, and when balanced against the potential cost of damage or loss, not significant.
	Social/Cultural Maori landowners have aspirations for areas of land, particularly located in the vacitnity of Putiki, to develop papakainga. Some of this land is subject to high and moderate risk of flooding. This may inhibit the ability to partition this land.
Effectiveness	The policy is effective as avoiding the creation of new allotments in the floodable area, minimises the amount of people and property exposed to flooding.
Efficiency	PX4 is efficient in that the expectation of the ability to subdivide and develop land subject to high flood probability is avoided.
Appropriateness	The Policy is considered the most appropriate means to meet Objective OX1 as it looks to prevent additional allotments therefore eliminating the expectation to develop and potentially put additional persons and property at risk of a flood event.
Risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods	The risk of acting is that otherwise indicated in the Pan as being available for development is identified as no longer suitable.

	The risk of not acting is that additional development expectations arise from the creation of new allotments. This would not minimise risk as required by Objective OX1.

Principal Alternative	The principal alternative regarding subdivision is to rely on the general provisions that subdivision is required to address in Section 106 of the Resource Management Act. This can be ad-hoc and inconsistent with the policies addressing land use.

Policy PX5 – Critical infrastructure in floodable areas *Avoid the establishment of new or upgrade of existing critical infrastructure within a flood risk overlay unless;* *a. there is a functional requirement to do so AND;* b. *the infrastructure is constructed or upgraded in a manner that increases the resilience of the infrastructure in the event of a 1 in 200 year flood event.*	
Comment	Policy PX5 looks to improve resilience to and recovery from significant flooding events by avoiding the impacts of flood hazards on critical infrastructure. This will assist any affected community to recover and return to their homes quickly and efficiently with limited interruptions to those services. Other options were considered including no regulation. However, the One Plan identifies critical infrastructure as an area that requires management.
Benefits	**Environmental** There are no benefits to the natural environment, but the physical environment is more likely to be sustained with the improved resilience to flooding provided by this policy. **Economic** The two areas of economic benefit arising from PX5 include the efficient return of services to affected homes and business, and reduced costs to the infrastructure providers for replacement of damaged infrastructure as a result of inundation of flood waters. There are no discernible benefits for employment or growth, other than reduced business interruption.
	Social/Cultural The Policy would allow more efficient recovery by allowing people to return to their homes sooner after a significant flood event which should assist in maintaining community, and

	therefore social and cultural well-being.
Costs	**Environmental** There are no significant costs to the natural or physical environment. **Economic** The Policy may increase the cost to maintain or develop critical infrastructure to an unknown degree. However, the increased resilience to damage from flood hazards, and improved continuity of services balances these costs.
	Social/Cultural There are no significant social or cultural costs.
Effectiveness	The policy is effective in that it reduces the potential consequences from a significant flood event on both people and property.
Efficiency	Policy PX5 is efficient as it provides proactive measures that provide for resilience to damage and minimise potential unscheduled replacement and/or repair costs.
Appropriateness	The policy is the most appropriate means to meet OX1 in that it provides resilience to community's potentially affected by a 1 in 200 year flood event.
Risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the policies, rules, or other methods	The risk of acting is that additional costs may be placed on critical infrastructure providers for an event that does not occur within the lifetime of that infrastructure. The primary risk of not acting is long term outages of critical services to those properties and businesses affected by a flood event.

Principal Alternative	The principal alternative was to not address infrastructure. However, this may reduce resilience of a community and increase the cost and time required for recovery.

3.5 PROPOSED RULES

The following methods have been identified as being suitable for achieving the relevant objectives and policies.

3.5.1 Rules

The following are proposed changes to rules for flooding. Some of the rules will remain unchanged. These rules have proven to be effective in the past in achieving the relevant objectives and policies and it is anticipated that they will continue to do so in the future.

Relevant Operative Rules (not part of Plan Change 33, except that the reasons are proposed to be deleted)

5.7.3 Within the **Riverfront Zone,** *structures** shall be required to meet the following conditions and terms:

f. Flood Hazard Mitigation

New *buildings** and additions to *buildings** are required to be designed and constructed to either:

i. be protected from inundation; or

ii. be able to recover efficiently following inundation.

~~*Reason*~~

~~*Alternative techniques for flood hazard mitigation must be used because conventional flood avoidance structures are considered inappropriate in the riverfront zone*~~

5.5.3 Within the **Arts and Commerce Zone**, structures shall be required to meet the following conditions and terms:

e. Flood Hazard

New buildings and additions to buildings are required to be designed and constructed to either:

(i) Be protected from inundation; or

(ii) Be able to recover efficiently following inundation.

~~*Reason*~~

~~*Alternative techniques for flood hazard mitigation are preferred, but a variety of flood hazard avoidance or mitigation methods may be used in the Arts and Commerce zone.*~~

Comment	The provisions above were introduced as part of Phase 1 – Central City and Riverfront – Plan Change 21.A minor amendment to Rules 5.5.3 and 5.7.3 is made in accordance with Clause 16 1st Schedule RMA and not Plan Change 33. The provisions are consistent with Policy 10-2(ea), which requires resilient building techniques to be applied in this area, as opposed to avoidance

RX1 Permitted Activities

The following are permitted activities (excluding sites within the Riverfront and Arts and Commerce zones) provided they comply with the performance standards:

a. *Earthworks*
b. *Building maintenance and minor works*
c. *Minor upgrades to critical infrastructure.*
d. *New or upgraded non-critical infrastructure*

Comment	The provisions are in addition to any rules within the relevant zones. The permitted activity list identifies a range of low risk activities (subject to compliance with performance standards)

	which will have no effect on flood risk or impact.
Benefits	**Environmental** There are no significant environmental benefits. **Economic** It is not anticipated that significant growth or employment benefits will arise. Enables non-critical infrastructure networks investment in terms of new activities or maintenance or upgrades.
	Social Enables both critical and non-critical infrastructure serving the wellbeing of the community to continue to operate in an effective and efficient manner. **Cultural** Other non-critical infrastructure services will still be available to enable development on Maori land within the flood overlays.
Costs	**Environmental** There are no significant environmental costs. **Economic** Any costs associated with the provisions lie in those activities that are not made as permitted activities. This is more appropriately discussed as part of the rules that do apply.
	Social/Cultural There are no significant social or cultural costs.
Effectiveness	The activities permitted are considered low risk, and therefore do not require management.
Efficiency	The provisions are efficient as enable activities that will not increase risk to people and property, subject to compliance with performance standards.
Appropriateness	The rule is appropriate as the activities are considered to be low risk, and consistent with Objective OX1.

Principal Alternative	The principal alternative is to regulate all activities within the flooding overlays. However, the activities are considered to be low risk, and consistent with Objective OX1.

RX2 Restricted Discretionary Activities

The following are restricted discretionary activities provided they comply with the performance standards:

a. *New buildings and structures in Flood Risk Area B*

b. Additions and alterations to existing building *c. Subdivision to create boundary adjustments or conversion of leasehold to freehold titles* *Council shall restrict it discretion to the following matters:* *i. The establishment of a suitable freeboard above the 200 year flood level on the subject site.* *ii. The provision of, and ability to achieve safe access/egress* *iii. The requirement for and provision of building design features that provide resilience for up to a 200 year flood event* iv. *The avoidance of significant diversion of flood flows as a result of the development*	
Comment	The Rule seeks to provide for lower risk activities within the flood overlays, subject to mitigation of the impacts of flood inundation.
Benefits	**Environmental** The Rule will limit obstructions within the flood plain. **Economic** Development within the flood overlays is still provided for, particularly in the moderate probability area.
	Social People who have invested in property within the flood overlays can still maintain these, subject to suitable mitigation of potential impacts from flooding. **Cultural** Development of Maori land for papakainga is enabled in areas at moderate risk of inundation, where the impacts from flooding are suitably mitigated.
Costs	**Environmental** There are no significant environmental costs. **Economic** There may be additional costs to building to provide for mitigation, including building materials, raising building floor levels.
	Social There are no significant social costs. **Cultural** There may be additional costs to the development of papakainaga in areas of moderate risk of flooding.
Effectiveness	The provision is effective as development is provided for in moderate risk areas where the impacts of flooding is suitably mitigated, and minor works to existing buildings are provided

	for under the same conditions.
Efficiency	The rule is efficient as it enables existing built structures to continue to be maintained and utilised to their full extent, and land with a moderate probability of being inundated to be developed, subject to mitigation.
Appropriateness	The rule is appropriate as it is consistent with PX2 and PX3 which provide for mitigation for existing buildings and enables building in area with a moderate probability of flood inundation, where the impacts of flooding can be mitigated.

Principal Alternative	The principal alternative is to include the erection of new buildings and structures, and alterations and additions to existing buildings within the flood overlays as Permitted Activities. This will not minimise the exposure of people and property to the impacts of flooding either in areas of moderate or high probability of flood inundation.

RX3 Discretionary Activities *The following are discretionary activities:* *a. New or upgraded critical infrastructure* b. *Earthworks that do not comply with performance standard RX5(2)*	
Comment	Rule RX3 focuses on new and upgraded critical infrastructure as these play a significant role in resilience and recovery for the wider community. For example, a significant part of the floodable area of Anzac Parade is State Highway, and disruptions to access have implications for homes in the vicinity and businesses in the District. Earthworks have been included as changes in ground level can affect the volume and direction flood flows onto other property when not managed appropriately. This has the potential to increase damage to some property.
Benefits	**Environmental** In managing changes in ground level, flood flows are more predictable and receiving properties do not receive floodwaters diverted from other properties. **Economic** It is not anticipated that significant employment or growth opportunities will arise. However, it is not anticipated that the provision will have a noticeable impact on economic activity in the District.
	Social/Cultural The avoidance of flood flows from third parties gives security to people in the event of a significant flood. In addition, new or

	upgraded critical infrastructure will be more resilient to flood events, improving recovery.
Costs	**Environmental** It is not anticipated that significant environmental costs will arise. **Economic** While earthworks with changes to floor levels will require resource consent, potentially requiring engineering input, it is not anticipated that a significant amount of works will occur. The cost of new or upgraded critical infrastructure may increase as mitigation measures are required. This must be balanced against the improved service continuity and resilience.
	Social There are no significant social costs. **Cultural** The aspirations of Tangata Whenua with regard to papakainga housing on Maori land in the Putiki area may be made more difficult to achieve. A number of blocks currently adjoin higher risk areas and significant earthworks may be contemplated. This would require resource consent with specialised engineering input, adding to the cost of developing.
Effectiveness	Managing the resilience of critical infrastructure, and also earthworks, will improve resilience of the community and minimise the risk of the hazard for people and property.
Efficiency	The rule is efficient as it promotes resilient infrastructure less likely to be damaged by a future flood event and require repair or replacement.
Appropriateness	Both RX3 a and b are appropriate as infrastructure design to cope with a 200 year flood, and managing earthworks will minimise damage to property, and people's wellbeing.

Principal Alternative	The principal alternative is the non-regulation of both critical infrastructure and earthworks, leaving the diversion of flood waters as a civil matter. However, Policy 10-4 of the One Plan requires Council to manage critical infrastructure within the flood overlay. With regard to earthworks, there is significant potential for increased impact during a flood event if works aren't appropriately managed.

RX4 Non-Complying Activities

The following are discretionary activities:

a. *Subdivision, excluding boundary adjustments or conversion of leasehold to freehold titles.* b. *New buildings and structures in Flood Risk Area A* c. *Activities that do not comply with performance standard RX5(1)*	
Comment	Rule RX4 addresses the higher risk activities within the flood overlays. This includes subdivision to create additional titles, new buildings and structures in the areas of high probability of inundation, and all buildings where the specified minimum floor level is not met. The Rule reflects Policy PX1 in that it avoids the development of new buildings in areas of higher probability of flooding inundation. It also reflects PX4 in that it seeks to avoid the creation of new allotments subject to flooding. Finally, the rule reinforces that new buildings in areas of moderate probability of inundation, and all existing buildings in the flood overlay require suitable mitigation.
Benefits	**Environmental** The Rule helps to avoid new buildings and structures within the flood plain. **Economic** The Rule avoids loss of existing buildings by requiring mitigation works for new or expanded building in areas at moderate risk of flooding.
	Social People do not establish new buildings in the areas identified as being at higher risk of inundation. **Cultural** Damage to people and property on Maori land is avoided.
Cost	**Environmental** There are no significant environmental costs. **Economic** Some land that may have its development potential diminished.
	Social There are no significant social costs. **Cultural** Papakainga type development on Maori land with a higher probability of being affected by flooding are unlikely to be developed.
Efficiency	The Rule is efficient as it minimises the impacts of flooding by preventing the creation of new allotments for development, and the establishment of new buildings in areas of high probability

	of flooding.
Effectiveness	The provision is effective as the result of the provision is that no new property or people are put at risk.
Appropriateness	The Rule is appropriate as it minimises the risk to people and property by avoiding the expectation of development potential.

Principal Alternative	The principal alternative is to mitigate the impacts of flooding rather than avoid them. However, that is inconsistent with PX1 And PX4, and still results in significant impact potential.

RX5 Performance Standards *For all new buildings or additions to existing buildings, the following minimum freeboard level above the 0.5% AEP (200 year event) shall be required:* *a. 0.5 metres for occupied buildings, AND* *b. 0.2 metres for non-habitable buildings* *c. No freeboard will be required for carports and other similar non-enclosed structures* *For earthworks, the finished ground level shall not alter existing ground level when completed.*	
Comment	The performance standards will mitigate the potential effects of flooding for existing buildings and for new and expanded activities in areas with a moderate probability of flooding. The standard avoids undue diversion of flood flows by altering ground levels. The alternative approach is to not regulate floor height, or the effects of earthworks. However, a requirement of the One Plan is the provision of suitable freeboard above the 200 year flood event. In addition, without managing earthworks, and therefore potentially the diversion of flood flows, significant impacts are still possible,
Benefits	**Environmental** The provisions will reduce diversions of flood flows across the flood plain. **Economic** The provision enables the retention of existing investment, while providing for additional works that assist in reducing the impact of a flood event. This may include additional growth in providing mitigation works to affected properties.
	Social/Cultural Specifying suitable and effective mitigation measures allows people to continue to live within their homes and reduce the potential impact of a significant flood event. It also provides for increased safety in areas at moderate risk for new buildings for

	both freehold and Maori land.
Cost	**Environmental** Raising existing buildings may have an adverse effect on amenity in the area. **Economic** Financial cost is associated with mitigating the impact of floods by requiring increased freeboard height. However, the standard only applies to new buildings and additions to existing buildings where located within the flood overlays and cannot be applied to existing buildings.
	Social There are no significant social costs. **Cultural** The building or relocating of new dwellings with a higher freeboard may increase development costs for papakainga.
Effectiveness	The Rule is effective as raising floor heights of new and additions to existing buildings in moderate probability areas, above the 200 year level will significantly mitigate the impacts of flooding. In addition, managing ground levels is effective in avoiding damage caused by diverting flood flows.
Efficiency	The Rule is efficient as it requires mitigation of the impacts of flooding on additions to existing buildings avoiding damage, and enables new buildings to be established in areas of moderate probability where the effects can be mitigated.
Appropriateness	The rule is appropriate in that it assists in significantly reducing the impact of flood damage to property.

Principal Alternative	The principal alternative of not regulating does not minimise risk to people and property. Without a suitable freeboard, sufficient mitigation will not be achieved as provided for by PX2 and PX3, nor will the freeboard requirements of 10-2(d) are not met.

APPENDIX ONE

(Extract from District Plan Chapter 8 – Recognition and Reduction of Hazard Potential)

8 RECOGNITION AND REDUCTION OF HAZARD POTENTIAL

Wanganui District is affected by a number of natural hazards. Parts of the urban area are particularly prone to flooding, while the coast and hill country are affected by land instability and erosion. The District is also dissected by fault lines and is vulnerable to sea level rise and tsunami. The natural hazards occurring within the District have an impact on current and future development. They can cause loss of human life and significant damage to private property, roads and other District assets. They can also cause damage to the natural environment.

In addition to natural events, hazards are associated with hazardous facilities, ie the storage, use and transportation of hazardous substances. These facilities are commonly found in both the rural and urban parts of the District. Hazardous substances, like agricultural sprays, industrial chemicals or fuel, have properties which are, or when in contact with air or water are, potentially flammable or explosive, and toxic. If hazardous facilities are not located appropriately or managed properly, the accidental release of, or loss of control of, hazardous substances can cause short or long term damage to human health and contamination of land, water, air, or damage to ecosystems.

It is recognised that while a hazard may be present, the hazard potential is only realised when there are land use activities, buildings or structures and important natural values in the vicinity of the hazard. It is not possible to eliminate hazards, but it is possible to manage the location, design and operation of land use activities and hazardous facilities to avoid, remedy or mitigate the potential adverse effects of hazards on human life, property and the environment.

The Resource Management Act requires both the Regional and the District Councils to share responsibility for the natural hazards of flooding, subsidence, and seismic, volcanic and tsunami hazards; and for hazardous substances. The Regional Policy Statement further defines the appropriate management responsibilities of local authorities for natural hazards and hazardous substances

8.1 ISSUES

8.1.1 Variety of natural hazards

The Wanganui District is affected by a number of natural hazards*. The

most significant ones are flooding, storms, tsunami, erosion and earthquakes. Knowledge of the location and characteristics of natural hazards* and their impacts on surrounding development *and the environment* is far from comprehensive. This along with lack of public awareness hinders the avoidance and mitigation of those hazards.

8.1.2 Inappropriate land use in areas at risk of natural hazards

Inappropriate land use and occupation of areas at risk from earthquake, flooding, ponding land instability can cause unnecessary risks for people and property

8.1.3 Identification of hazardous substances

Information on the location of *hazardous facilities** and their impact on people and communities and the *environment** is not complete.

Most of the known *hazardous facilities** are located within the urban area of Wanganui. The majority of these are in industrial areas, with other concentrations in commercial areas, eg service stations. Location of *hazardous facilities** in residential areas is increasing. This is associated with home occupations. In the rural areas, agrichemicals are commonly stored on farms.

A number of *sites** within the District have been identified as potentially contaminated, assessed and confirmed as contaminated or formerly contaminated.

Contaminated sites are *sites** where *hazardous substances** occur in concentrations which are likely to pose an immediate or long term hazard to human health or the *environment**. *Sites** of this nature may have been used in the past, or are being used, for industrial processing, storage of *hazardous substances**, or dumping of hazardous wastes. This has implications for the Manawatu-Wanganui Regional Council, Wanganui District Council, land owner, occupier, polluter and neighbouring land owners/occupiers. The Manawatu-Wanganui Regional Council has identified through its Regional Policy Statement the need to prepare a regional inventory of contaminated sites. Wanganui District Council, along with the Manawatu-Wanganui Regional Council, has an active responsibility in contaminated sites' management. Once comprehensive information is available, *Wanganui District Council** may instigate a *Plan** change if appropriate, require redevelopment of the land or initiate other enforcement action.

Part of this *issue** is the recognition and realisation that many of the *methods** used for the disposal of hazardous waste in the past have been inadequate.

Many facilities are either inappropriately sited or unable to cope with the increased levels of waste being deposited. Accordingly, the Wanganui

District has few suitable facilities available for the disposal of hazardous waste and the District lacks a dedicated hazardous waste treatment facility. This is also recognised as a national and regional waste management issue.

Identification and recognition of hazards is an essential part of risk management. Action is required to:

a. Improve the information base regarding hazards in the District, including *natural hazards** and contaminated *sites**.

b. Increase community knowledge and awareness of risks.

c. Establish the level of risk that the community is prepared to accept to guide future *development**.

8.1.4 Reduction of hazardous substances

With respect to *hazardous substances** and facilities, and the risk they pose, the hazard is principally defined by the characteristics of the intrinsic properties of the substances and facilities, eg flammability of chemicals and their storage areas. The risk is defined by the probability of occurrence combined with the potential *effects** of that occurrence.

It is not possible to control the properties of *hazardous substances**. However, it is possible to reduce the hazard potential to protect human life, property and the *environment**.

To reduce hazard potential, the following matters need to be addressed:

a. The location, design and operation of new *hazardous facilities** in environmentally sensitive areas and areas with high concentrations of population.

b. Protection of existing developments in high risk areas.

Coordinate actions between the Manawatu-Wanganui Regional Council and Wanganui District Council having regard to the provisions of the Regional Policy Statement for Manawatu-Wanganui:

a. Contaminated sites – This is an issue where there is dual responsibility between the regional and district councils. The District Council will address contaminated site issues as they arise through resource consent processes and will otherwise liaise with the Regional Council to ensure coordinated responses to this issue.

IX1 Flood Hazard Risk

Much of the urban area of Wanganui is built upon the banks of the Whanganui River (Te Awa Tupua). Some of the lower lying areas towards the bottom of the catchment, along with some tributaries and drains

including Churton Creek and the Matarawa Stream, are prone to occasional flooding putting people and property at risk.

8.2 OBJECTIVES

8.2.1 Informed community of natural hazard risks

A community informed about the potential risks of natural hazards to people and property in the Wanganui District.

8.2.2 Avoiding and mitigating natural hazards

The risks of natural hazards through inappropriate subdivision and development are avoided or mitigated whilst minimising adverse effects on natural, cultural and ecological values.

8.2.3 To ensure that development of the Wanganui Riverfront recognises and mitigates against the potential flood hazard from the Whanganui River.

The Regional Policy Statement states that new structures or activities, or the increase in the scale of an existing structure or activity is not permitted in the Wanganui riverfront area (because this area is likely to be subject to 1 in 200 year flood event) unless the flood hazard is avoided or mitigated.

Conventional flood avoidance structures such as stop banks or walls, or raising ground levels above the flood hazard would be inappropriate in the Wanganui riverfront development area. These methods would result in the loss of the visual and physical connections between the central city area and the Whanganui River. As there are significant buildings and activities established in the riverfront area, and the area has been identified for future development, the conventional techniques alone would not be feasible. For these reasons, in the Wanganui riverfront area, mitigating the risk to life and property, associated with the flood hazard is preferred.

Objective OX1 Floodwater inundation

Minimise the risk to people and property from floodwater inundation.

8.3 POLICIES

8.3.1 Promote improved understanding of natural hazards

Promote improved understanding of natural hazards as development constraints and better knowledge and awareness of the risks to people and property in the Wanganui district.

8.3.2 Protection from Natural Hazards

Avoid or minimise risk of loss of life or injury or environmental damage due to use or development in hazard prone areas.

8.3.3 Natural Hazard precautionary approach

Adopt a precautionary approach in relation to use or development affected by potential natural hazards, especially where hazards are not well understood or the effects of natural processes are difficult to assess or where the effect of activities on natural hazards are not well understood.

8.3.4 Geotechnical report

In assessing resource consents Council will require confirmation, including as appropriate the preparation of a geotechnical report, as to the suitability of the site for subdivision, use or development and that the effects of the hazard shall be avoided, remedied, mitigated.

8.3.5 Land instability

Identify areas susceptible to land instability where assessment of the hazard risk is required before land use or subdivision activities are carried out. Where there is an unacceptable geotechnical risk consent shall be declined.

8.3.6 Contaminated soils (Policy 8.3.6 is subject to appeal)

Ensure that land affected by contaminants in soil is appropriately identified and assessed at the time of being developed and if necessary remediated, or the contaminants contained, to make land safe for human use.

~~**8.3.7 Flood hazards**~~

~~In relation to flood hazards, avoid subdivision and sensitive or inappropriate new development in areas identified as being inundated by a 1 in 200 year (0.5% AEP) flood event unless flood hazard avoidance or mitigation is achieved.~~

8.3.8 Floodwaters

In designing earthworks or roadworks any adverse effects of diverting floodwaters should be avoided, remedied or mitigated.

8.3.9 Flood mitigation within the riverfront zones

Utilise alternative flood hazard mitigation techniques within the riverfront zones

8.3.10 Adopt a 1 in 200 year flood level

Within the area identified as being subject to a 1 in 200 year flood event, different flood hazard avoidance or mitigation methods are required.

8.3.11 Community awareness of hazards

Promote better community knowledge and awareness of risks associated with natural hazards and hazardous facilities

A fundamental requirement of risk management is knowledge about the location and impact of natural hazards and hazardous facilities on people, communities and the environment, and awareness about the degree of risk present.

Traditionally, there is reluctance to identify and recognise hazards as development constraints. This is due to a lack of, or inadequate, knowledge and information, and concern that the identification of hazards can alarm people and reduce the value of properties. However, not recognising the presence of hazards can also lead to increased risks of environmental damage, property damage or loss of life.

Current information about hazards and associated risks is limited and not readily available. Work will be required to extend, update and continuously monitor and review the information available. While it may not be possible to provide definitive or predictive information about hazards and their associated risks, the availability of information should be regarded as a trigger mechanism, or a warning system, for potential land owners and developers.

This policy represents a long term, indirect approach to risk management. It requires resources to be devoted to information gathering and establishing links with the community. There are existing mechanisms which can be tapped into for implementation, eg civil defence activities, use of Project Information Memoranda and Land Information Memoranda etc.

The use of cleaner and safer production guidelines will complement District Plan conditions and terms.

The guidelines will be voluntary and self-regulating. They will be particularly useful for small industrial or commercial operators or home occupations involving the use of hazardous substances.

The approach is also consistent with the requirements of section 35 of the Resource Management Act 1991.

8.3.12 Manage hazardous facilities

Ensure the location, design and management of all new hazardous facilities can meet identified safety standards.

Facilities or activities involving hazardous substances may cause adverse environmental effects when the substances are not adequately controlled and escape into the environment. Such releases, whether accidental or brought about by poor management practices, may cause environmental contamination and damage, and endanger human health, and cause damage to or loss of property.

To avoid, remedy and mitigate potential adverse environmental effects, these facilities and activities need to be located appropriately and managed correctly. The site design, layout and operational management procedures can greatly affect the risks to people and the environment from hazardous facilities.

Due to the high risks and seriousness of potential damage to human life and the environment, specific controls relating to the location, design and management of hazardous facilities are considered necessary and appropriate. Such controls are considered effective in directly influencing the nature and scale of adverse effects and the level of risk presented by hazardous facilities.

PX1 New buildings in flood prone areas

Avoid the erection of new buildings in areas of higher probability of floodwater inundation (Area A) where this may induce or accelerate the impacts of flooding on people and property.

PX2 Reduce risk to existing buildings

Reduce the impacts of floodwater inundation in flood prone areas, by requiring that alterations or additions to existing buildings and structures adopt resilient building methods.

PX3 Hazard Mitigation

Mitigate flood hazard impacts associated with the erection of new buildings and structures within areas of moderate probability of flood water inundation (Area B).

PX4 New allotments in floodable areas

Avoid subdivision which creates new allotments on sites within a flooding overlay where future development may increase the exposure of people and property to the impacts of flood inundation.

PX5 Critical infrastructure in floodable areas

Avoid the establishment of new critical infrastructure within a flood risk overlay unless there is satisfactory evidence to show that critical infrastructure;

a. Will not be adversely affected by a 1 in 200 year flood event
b. Will not cause any adverse effects on the environment in the event of a flood
c. Is unlikely to cause a significant increase in the scale or intensity in the event of a flood
d. Cannot be reasonably located in an alternative location.

8.8 PERFORMANCE STANDARD – FLOOD HAZARD

8.8.1 Within the Arts and Commerce zone and Riverfront zone, structures shall be required to meet the following:

New buildings and additions to buildings are required to be designed and constructed to either:

a. Be protected from inundation; or

b. Be able to recover efficiently following inundation.

RX1 Permitted Activities

The following are permitted activities (excluding sites within the Riverfront and Arts and Commerce zones) provided they comply with the performance standards:

a. Earthworks
b. Building maintenance and minor works
c. Upgrades to critical infrastructure.
d. New or upgraded non-critical infrastructure

RX2 Restricted Discretionary Activities

The following are restricted discretionary activities provided they comply with the performance standards:

a. New buildings and structures in Flood Risk Area B
b. Additions and alterations to existing buildings
c. Subdivision to create boundary adjustments or conversion of leasehold to freehold titles

Council shall restrict it discretion to the following matters:

i. The establishment of a suitable freeboard above the 200 year flood level on the subject site.
ii. The provision of, and ability to achieve safe access/egress
iii. The requirement for and provision of building design features that provide resilience for up to a 200 year flood event
iv. The avoidance of significant diversion of flood flows as a result of the development

RX3 Discretionary Activities

The following are discretionary activities:

a. New critical infrastructure and works to critical infrastructure not provided for as Permitted or Restrcited Discretionary Activities

b. Earthworks that do not comply with performance standard RX5(2)

RX4 Non-Complying Activities

The following are discretionary activities:

a. Subdivision, excluding boundary adjustments or conversion of leasehold to freehold titles.
b. New buildings and structures in Flood Risk Area A
c. New buildings and structures and additions to existing buildings and structures that do not comply with performance standard RX5(1)

8.9 PERFORMANCE STANDARDS

RX5 Performance Standards

For all new buildings or additions to existing buildings, the following minimum freeboard level above the 0.5% AEP (200 year event) shall be required:

a. 0.5 metres for occupied buildings, AND
b. 0.2 metres for non-habitable buildings
c. No freeboard will be required for carports and other similar non-enclosed structures
d. Earthworks shall not alter the finished ground level does not alter the existing ground level when completed.

Definitions

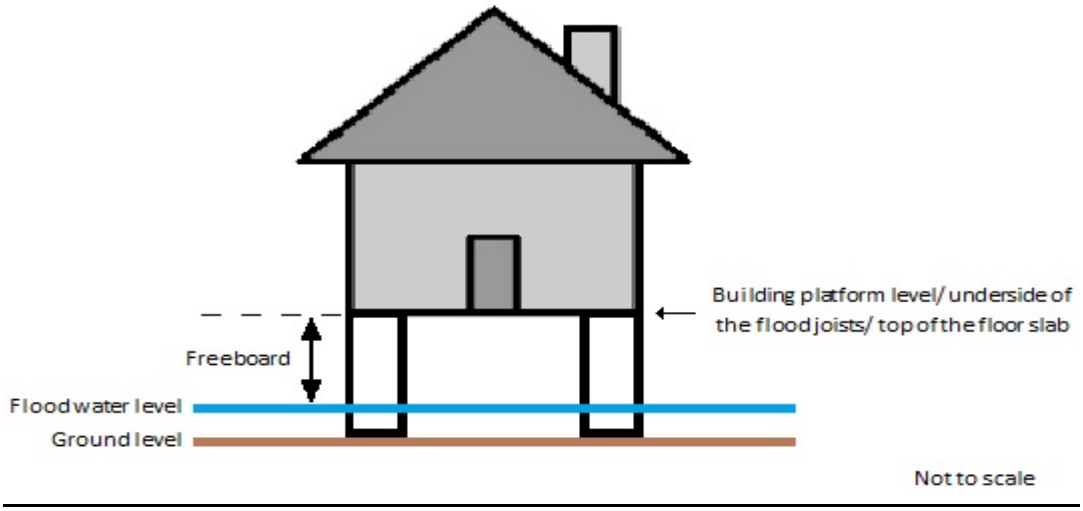
Building maintenance and minor works – With regard to the provisions for Flood Area A and B, means activities required to restore to a good or sound condition after decay or damage with similar materials of buildings and structures. This includes internal refurbishment and internal alteration, and excludes additions to the exterior footprint.

Critical infrastructure - With regard to the provisions for Flood Area A and B, means infrastructure necessary to provide services which, if interrupted, would have a serious effect on the people within the Region or a wider population, and which would require immediate reinstatement. Critical infrastructure includes infrastructure for:
(a) electricity substations
(b) strategic road and rail networks
(c) telecommunications cabinets and cellular service infrastructure

Finished ground level – The level of ground, whether cut or fill, as a result of earthworks.

Existing ground – For the purposes of Rule RX5 means the level of ground when the subject allotment/s were created, and any works permitted by a Building Consent to establish building foundations.

Freeboard - The distance measured from the top of the estimated flood water of the 200 year flood event to the building platform level, or the underside of the flood joists or the top of the floor slab, whichever is applicable as shown below:



Non-habitable structures – With regard to the provisions for Flood Area A and B means any building or structure where people will not sleep or work.

Occupied structures – Buildings or structures where people sleep or employed in work.

Resilient building methods – means methods that will, where appropriate to the building and nature of the hazard, limit damage and aid recovery from a flood event. Such methods include, but are not limited to, raising floor or foundation levels, surrounding a building with flood proof materials, sealing all openings below flood levels, elevating electrical systems, and providing flood water passage.

Safe access – With regard to the provisions for Flood Area A and B, means an area that provides passage from a building to a site that is free from inundation for evacuation or access through flood waters that are no deeper than 0.5 metres and have a velocity of more than 1m/s in a 200 year flood event.

Upgrades – With regard to the provisions for Flood Area A and B, means works to provide for an increase in carrying capacity, efficiency, or security of electricity and telecommunication facilities, utilising existing support structures or structures of a similar scale or character and includes:
(i) the addition of circuits and/or conductors;
(ii) the reconductoring of the line with higher capacity conductors;
(iii) the resagging of conductors;
(iv) the addition of longer more efficient insulators;
(v) the addition of earthwires (which may contain telecommunication lines, earthpeaks and lightning rods);
(vi) the replacement or alteration of an existing telecommunication antenna.
(vii) the widening of existing roads.

Minor upgrading does not include:

(i) an increase in the voltage of the line unless the line was originally constructed to operate at the higher voltage but has been operating at a reduced voltage

100 year flood event – Means the area shown in Flood Area A that identifies the modeled and estimated physical extent of flood waters in an event with an Annual Exceedence Probability (AEP) of 1%

200 year flood event – Means the area shown in Flood Area B that identifies the modeled and estimated physical extent of flood waters in an event with an Annual Exceedence Probability (AEP) of 0.5%

APPENDIX TWO

Proposed Plan Maps