

TAUPŌ DISTRICT COUNCIL

PLAN CHANGE HEARING COMMITTEE

PLANNER'S REPORT FOR PLAN CHANGE 34: - FLOOD HAZARD

FOR HEARING COMMENCING:

23 October 2018

REPORT DATED:

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SUBMITTED BY:

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FOR AND ON BEHALF OF THE TAUPŌ DISTRICT COUNCIL

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1. QUALIFICATIONS AND EXPERIENCE

My name is Sue Mavor. I hold the qualifications of BA (Hons) Town Planning and a post graduate Diploma in Planning Studies from Oxford Brookes University. I have 25 years experience in planning in New Zealand. I have been employed by the Taupō District Council as Senior Policy Advisor since 2013.

I have been involved in the formulation of this plan change since late 2014. At that stage the flood hazard reports by Opus International Consultants Ltd (Opus) had been completed but the extent and details of flood hazard had not been finalised, the plan change had not been formulated, and no consultation had been undertaken.

In preparing this report I have reviewed:

- the Operative Waikato Regional Policy Statement (RPS);
- all original and further submissions to Plan Change34 (PC34); and
- Dr Jack McConchie's evidence which I have relied on for the assessment of technical issues raised in the submissions.

2. INTRODUCTION

This report has been written in accordance with Section 42A of the Resource Management Act 1991 (RMA) to consider all submissions and further submissions received following the public notification of Plan Change 34 – Flood Hazard and to make recommendations on those submissions.

As outlined in further detail below, PC34:

- Updates the flood hazard areas on the District Plan maps showing the areas that will be inundated in a 1% Annual Exceedance Probability (AEP) flood event (including the effects of climate change and tectonic subsidence). These areas are identified as low, medium or high hazard and show the depth of the flood water.
- Introduces new objectives and policies for management of activities within these flood hazard areas.
- Introduces new rules for managing activities within the flood hazard areas.
- Shifts the direction of the District Plan away from a generic assessment of hazards to a risk-based approach. This creates a more enabling regulatory environment for activities in low and medium hazard areas, while providing for more considered decision making in high hazard areas.

In an effort to assist the Commissioners to reach decisions this report discusses the matters raised by submitters and makes broad recommendations as to whether these submissions should be accepted or rejected.

3. PROPOSED PLAN CHANGE

The purpose of PC34 is to update the spatial extent of the flood hazard areas identified on the planning maps and introduce a new risk-based approach (through the introduction of objectives, policies and rules) to address development in flood hazard areas.

The proposed approach to flood hazards involves new objectives, policies and rules for activities within flood hazard areas being inserted into the natural hazards section of the District Plan and the removal of the existing flood hazard rules. Activities and development within the flood hazard areas will not be subject to the broad natural hazard objectives and policies contained in Section 3l of the District Plan and new flood hazard rules will replace those contained in Section 4e.9. Minor amendments will also be made to Rule 4e.2.1 – Foreshore Protection Area and new definitions inserted into Section 10 of the District Plan.

The new objectives relate to keeping people safe and protecting property. The new policies and methods seek to reflect the risk-based approach required by the RPS. The new policies and methods aim to ensure the risk to people's safety and property in the high flood hazard areas is not intensified, and that regulation for those properties within the low and medium flood areas is minimised. The policies and rules cover new buildings, additions to buildings (major and minor), assembly care or community care activities, emergency services activities, subdivision and infrastructure.

The existing flood hazard areas will be removed from the planning maps and replaced with the new flood hazard areas for Lake Taupō, the Hinemaiaia River, the Kuratau River, the Tauranga

Taupō River, the Tongariro River, the Tokaanu Stream and Whareroa Stream which will show areas of low, medium and high flood hazard and the depth of this flooding.

The plan change seeks to address the following existing issues:

- Flooding from several rivers and Lake Taupō pose risks to people’s safety and property;
- The operative District Plan does not identify all of the known flood hazard areas associated with rivers and Lake Taupō;
- New modelling information shows that some of the flood hazard areas in the operative District Plan are no longer expected to be affected by future flood events;
- The flood hazard information in the operative District Plan does not consider the future effects of climate change and tectonic subsidence;
- Recent changes to the RPS now impose a risk-based approach to managing flood hazards which is not mirrored in the operative District Plan;
- The operative District Plan provisions do not provide sufficient control over development in high flood hazard areas; and
- The operative District Plan provisions impose unnecessary regulatory costs on those with a low level of flood risk.

The plan change addresses these issues by:

- Defining areas affected by the flood hazard both spatially, and in relation to the depth of likely inundation. Defended areas are also defined spatially. This knowledge helps people to make better decisions about how to manage the associated risks.
- Introducing flood hazard information into the District Plan, such as the likely effects of climate change and tectonic subsidence, which subsequently provides people making decisions with greater knowledge. Although these effects may not be experienced in the short term, the planning related decisions to create new allotments or establish built structures will extend well into the future (50 to 100 years).
- Shifting the direction of the District Plan away from a generic assessment of hazards to a risk-based approach. This creates a more enabling regulatory environment for activities in low and medium hazard areas, while providing for a more considered decision making in high hazard areas.

Refer to Appendix A – Proposed Plan Change 34 – Flood Hazard for the text of the plan change.

4. STATUTORY FRAMEWORK

Under the RMA, the District Plan is required to give effect to any national policy statement, the New Zealand Coastal Policy Statement, a national planning standard and any regional policy statement. Territorial authorities must also have regard to a number of other regulatory and planning documents when preparing or changing a plan.

This section sets out the broad provisions of the statutory and planning documents which are relevant to PC34. A detailed assessment of the statutory framework is in section 2 and Appendix 1 of the Section 32 Report¹.

4.1 Resource Management Act

The purpose of the RMA as set out in section 5 as *“to promote the sustainable management of natural and physical resources”*. Within the RMA 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 well-being and for their health and safety while...avoiding, remedying, or mitigating any adverse effects of activities on the environment.”*

Through the Resource Legislation Amendment Act 2017 a new subsection (h) was added to section 6 of the RMA. It states that the Council, *“in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for...the management of significant risks from natural hazards.”* It is important to note that this new emphasis on managing the significant risks from natural hazards came into effect after the RPS was made operative, and prior to the notification of PC34. It adds weight to the risk-based approach in the RPS and the proposed provisions in the plan change.

¹. Taupo District Council (2017) Plan Change 34 - Flood Hazard. Section 32 Report

Natural hazard is defined in section 2 of the RMA as being “*any atmospheric or earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landslip, subsidence, sedimentation, wind, drought, fire, or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment*”. The definition of natural hazards is broad and clearly includes flooding.

Section 7 of the RMA requires the Council, in achieving the purpose of this Act, to have particular regard to the effects of climate change. This is relevant in the context of this plan change because the risks from flooding can be exacerbated by climate change which is predicted to increase the intensity and frequency of rainfall and runoff.

Section 31 of the RMA gives the Council the function of 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 of the district. Section 31(1)(b) requires the Council to control any actual or potential effects of the use, development, or protection of land, for the purpose of the avoidance or mitigation of natural hazards. Both regional and district councils have jurisdiction over the control of land use for the purpose of avoidance or mitigation of natural hazards. This subsection requires Council to address the avoidance or mitigation of natural hazards in the District Plan.

Section 35 of the RMA requires the Council to “*gather such information, and undertake or commission such research, as is necessary to carry out effectively its functions under this Act or regulations under this Act.*” Section 35(2) requires Council to “*monitor (a) the state of the whole or any part of the environment of its region or district (i) to the extent that is appropriate to enable the local authority to effectively carry out its functions under this Act.*” This section requires the Council to gather information and hold records of areas subject to natural hazards because of its function of controlling the effects of the use and development of land to avoid or mitigate natural hazards under section 31.

Section 74(1) requires the Council to prepare and change its district plan in accordance with the provisions of Part 2, amongst other things. Section 75(3)(c) states that a district plan must give effect to any national policy statement and any regional policy statement.

The case law from the decision of the Supreme Court in *Environmental Defence Society Inc v New Zealand King Salmon Company Limited* needs to be taken into account when considering these two sections of the RMA. The Supreme Court stated that where planning documents are established (have gone through their formulation process), they can generally be assumed to be in accordance with Part 2 of the RMA. Lower level planning documents (RPS and plans) can concentrate on giving substance to the provisions of plans in the next level up in the hierarchy, rather than decision-makers going back to consider Part 2 of the RMA in the preparation of these documents. Therefore, PC34 needs to give effect to the RPS but because the RPS has been through a formulation process and been prepared in accordance with Part 2, independent consideration over whether PC34 is in accordance with Part 2 of the RMA is not considered necessary. In addition, PC34 deals with a relatively discrete issue in terms of the need to give effect to the RPS, and the RPS is considered to be complete on this matter.

4.2 Waikato Regional Policy Statement

The RPS was made operative in May 2016. It introduces a new risk-based framework for managing natural hazards including planning for defended areas.

Objective 3.24 seeks to ensure that :

the effects of natural hazards on people, property and the environment are managed by:

- a) increasing community resilience to hazard risks;
- b) reducing the risks from hazards to acceptable or tolerable levels; and
- c) enabling the effective and efficient response and recovery from natural hazard events.

The policies that relate to this objective seek to ensure that:

- Natural hazard risks are managed using an integrated and holistic approach (Policy 13.1);
- Subdivision, use and development are managed to reduce the risks from natural hazards to an acceptable or tolerable level (Policy 13.2); and
- The risks associated with high impact, low probability natural hazard events such as tsunami, volcanic eruptions, earthquakes and debris flows are considered (Policy 13.3).

There are a range of implementation methods related to the policies that give direction on how they will be achieved.

The key areas of direction from the RPS for this PC34 are:

- Flooding needs to be managed within a risk-based framework that enables planning responses to be proportionate to the level of identified risk.
- There is a clear direction to avoid creating new intolerable risk, which in the context of this plan change relates to activities in the high risk areas.
- More vulnerable activities need to be carefully planned for to ensure that the risk remains acceptable to the community.
- The importance of infrastructure to be able to be built and maintained with as few regulatory costs as possible is recognised, but this needs to be balanced with the need to minimise the risk to that infrastructure and the community it supports in a future flood event.
- Areas of residual risk should be identified and managed to minimise the residual risk.

There are clear directions in the RPS (section 13) that the Council should plan for a 1% AEP flood event consistent with the direction in the Lake Taupō Erosion and Flood Strategy². There is also support for the flood hazard classification system based on a combination of water depth and velocity.

See Appendix C - Relevant section of the Waikato Regional Policy Statement for the full wording of policies 13.1, 13.2, 13.3 and implementation methods.

5. BACKGROUND

5.1 Relationship to other documents

This plan change has a long history stemming back to the Lake Taupō Erosion and Flood Strategy 2009.

Lake Taupō Erosion and Flood Strategy in 2009.

Taupō District Council and Waikato Regional Council (WRC) adopted the Lake Taupō Erosion and Flood Strategy in 2009. The strategy provides guidance on the management of the erosion and flood hazards around the margins of Lake Taupō. The strategy is based on scientific analysis by Beca (erosion hazards) and Opus (flood hazard).

Importantly in the context of this plan change, the strategy represented the first time that the flood hazard around the margins of Lake Taupō had been assessed. The strategy established an agreed methodology for the assessment of the flood risk. In addition to the static water level record Opus identified the need to incorporate the effects of seiche and the likely future effects related to climate change and tectonic subsidence.

The flood hazard was presented using a risk classification based on a combination of anticipated water depth and velocity. WRC indicated an expectation that this classification approach will be consistently applied throughout the region. It has previously been used by WRC when preparing flood hazard assessment reports for a change to the Thames Coromandel District Plan.

The design flood was set as 1% AEP event. However, the strategy also recognised that wave run up had the potential to pose a risk to some parts of the foreshore. Although the potential effect of wave run up may be related to the lake level the effects of the hazard were different and required a different management approach.

There was extensive community and stakeholder consultation during the development of the strategy. This involved public testing of the scientific analysis and the policy direction through a special consultative process in accordance with the Local Government Act 2002. Significant stakeholders were involved in the process including the hydro electricity operators around the lake, Ngāti Tūwharetoa, infrastructure providers, environmental groups and the Department of Conservation.

² Environment Waikato, Taupo District Council (2009) Lake Taupo Erosion and Flood Strategy

Flood reports

After the development of the Lake Taupō Erosion and Flood Strategy, Opus were engaged by Taupō District Council and WRC to assess, report on and identify the extent of the flood hazards associated with the following waterways:

- Hinemaiaia River;
- Tauranga Taupō River;
- Tongariro River;
- Tokaanu Stream;
- Kuratau River;
- Whareroa Stream; and
- Lake Taupō.

These rivers and the lake were modelled because of their history of flooding and their location next to urban areas where there is a greater level of risk to people and property. There are a number of other waterways within the Taupō District which were not included in the study because they:

- are spring fed and therefore not as susceptible to flood flows;
- have a small catchment area; or
- are located in areas where there are relatively few people, limited property at risk and outside future urban growth areas.

Following two rounds of pre notification consultation with iwi, affected landowners and stakeholders the plan change was formulated. It was publicly notified on 20 October 2017 and further submissions were opened on 4 May 2018.

5.2 Submissions receivedSubmissions

A total of 22 original submissions and 3 further submissions were received. Appendix B contains a summary of the decisions requested, both from the original and further submissions.

The submitters are as follows:

| Submission Number | Submitter name | Submitter Organisation |
|--------------------------|-----------------------|--|
| 1 | Lindsay Fraser | |
| 2 | Roanna Vining | Unison Networks Limited |
| 3 | Richard Kemp | Kemp Family Trust |
| 4 | Ross Baker | |
| 5 | Roderick Brown | Roderick Brown and Tui Brabyn |
| 6 | Tony Houpt | |
| 7 | Richard Hall | Kinloch Marina Ltd |
| 8 | Gilbert Abercrombie | |
| 9 | Leonie Hapeta | |
| 10 | Lesley Vyfhuis | Waikato Regional Council |
| 11 | Diana Marbeck | |
| 12 | Erin Clark | |
| 13 | Andrew Hocken | Grants Motels Ltd |
| 14 | Graeme McCarrison | Spark Trading New Zealand Ltd |
| 15 | George Asher | Hapu of Ngāti Tūwharetoa Ngāti Kurauia |
| 16 | John & Bev Campbell | |
| 17 | Nicola Foran | Trustpower Ltd |
| 18 | Miles Rowe | Mercury NZ Ltd |
| 19 | Martin Meier | Federated Farmers of New Zealand |
| 20 | Peter Steel | Friends of Lake Taupō |
| 21 | Jane Penton | Lakes and Waterways Action Group |
| 22 | Rebecca Eng | Transpower NZ Ltd |

The following made further submissions:

| Further submission number | Further submitter name | Further submitter Organisation |
|---------------------------|------------------------|--------------------------------|
| 24 | Nicola Foran | Trustpower Ltd |
| 25 | Miles Rowe | Mercury NZ Ltd |
| 26 | Rebecca Eng | Transpower NZ Ltd |

There were no late submissions.

5.3 Issues raised

The following issues were raised:

- Support for the plan change and the risk-based approach
- Methodology for flood assessment, climate change and lake level
- Flood hazard on individual properties
- Consultation and iwi and hapu values
- Infrastructure
- Physical protection
- Activities/buildings
- Hazardous substances
- Uninhabited farm buildings
- Definitions
- Impacts on property and property values
- Minor changes
- Management of extreme wave activity

5.4 Report format

The RMA, as amended in October 2009, no longer requires this report to address each submission point but, instead, requires a summary of the issues raised in submissions. Submissions are addressed by grouping them according to the provisions of the proposed plan to which they relate or the matters to which they relate. As a result, the individual submission points are not specifically addressed in the following report but, rather, the issues raised are considered. As outlined above, a full list of the submission points made by both the original and further submitters to the plan change is provided in Appendix B. In order to get a more complete understanding of the issues raised, the main body of this report considers the submissions under the topics outlined in 5.3.

For each issue the report is structured as follows:

- Submitters – lists the submission points
- The issue and submission points – general summary of the issue and main points raised in the submissions.
- Discussion – the reporting planner’s consideration of the submission points for this issue.
- Recommendations and reasons – the recommended approach to responding to the issue and the reasons why the recommended approach is considered appropriate in relation to the RMA.

Appendix D contains a track changes version of the amended plan change provisions that result from the recommendations made in this report.

6. DISCUSSION OF THE ISSUES RAISED BY SUBMITTERS

Issue 1 - Support for the plan change and risk-based approach.

Submitters

The following individuals/organisations submitted and further submitted in support of the plan change and the risk-based approach:

| Submission point no. | Submitter |
|----------------------|--------------------------|
| OS10.1 | Waikato Regional Council |
| OS15.7 | Ngāti Kurauia |
| OS16.2 | Campbell, John & Bev |
| FS25.41 | Mercury NZ Ltd |

| Submission point no. | Submitter |
|-----------------------------|----------------------------------|
| OS16.14 | Campbell, John & Bev |
| OS17.5 | Trustpower Ltd |
| FS25.51 | Mercury NZ Ltd |
| OS17.7 | Trustpower Ltd |
| OS17.11 | Trustpower Ltd |
| OS18.1 | Mercury NZ Ltd |
| FS24.14 | Trustpower Ltd |
| FS24.15 | Trustpower Ltd |
| OS18.12 | Mercury NZ Ltd |
| OS19.2 | Federated Farmers of New Zealand |
| FS24.8 | Trustpower Ltd |
| OS19.3 | Federated Farmers of New Zealand |
| OS19.4 | Federated Farmers of New Zealand |
| OS19.5 | Federated Farmers of New Zealand |
| OS19.6 | Federated Farmers of New Zealand |
| OS19.7 | Federated Farmers of New Zealand |
| OS19.8 | Federated Farmers of New Zealand |
| FS24.1 | Trustpower Ltd |
| OS19.9 | Federated Farmers of New Zealand |
| OS19.11 | Federated Farmers of New Zealand |
| FS24.9 | Trustpower Ltd |
| OS19.12 | Federated Farmers of New Zealand |
| FS24.10 | Trustpower Ltd |
| OS19.13 | Federated Farmers of New Zealand |
| FS24.11 | Trustpower Ltd |
| OS19.14 | Federated Farmers of New Zealand |
| OS19.15 | Federated Farmers of New Zealand |
| OS19.16 | Federated Farmers of New Zealand |
| OS19.17 | Federated Farmers of New Zealand |
| OS19.18 | Federated Farmers of New Zealand |
| OS19.19 | Federated Farmers of New Zealand |
| FS24.2 | Trustpower Ltd |
| OS19.21 | Federated Farmers of New Zealand |
| OS19.22 | Federated Farmers of New Zealand |
| OS19.23 | Federated Farmers of New Zealand |
| OS19.24 | Federated Farmers of New Zealand |
| OS19.33 | Federated Farmers of New Zealand |
| FS25.54 | Mercury NZ Ltd |
| OS19.34 | Federated Farmers of New Zealand |
| FS25.55 | Mercury NZ Ltd |
| OS19.35 | Federated Farmers of New Zealand |
| FS25.56 | Mercury NZ Ltd |
| OS19.36 | Federated Farmers of New Zealand |
| OS21.3 | Lakes and Waterways Action Group |
| FS25.65 | Mercury NZ Ltd |
| OS21.5 | Lakes and Waterways Action Group |
| FS25.66 | Mercury NZ Ltd |
| OS21.6 | Lakes and Waterways Action Group |
| FS25.67 | Mercury NZ Ltd |

The issue and submission points

The matters raised are:

- Support for the plan change and the risk-based approach as it enables targeted management of the risks of flooding and will manage the effects from flood hazards on people, property and infrastructure as is required to give effect to the RPS
- Support 3l.1ii Introduction, policy 3l.2.1(ii), 3l.2.2 Explanation, text before Objectives 3l.2.1 and 3l.2.3, objectives 3l.2.3 and 3l.2.4, policy 3l.2.3(i) and 3l.2.3(iii), 3l.2.3(iv), 3l.2.3(v), 3l.2.3(vi), 3l.2.3(vii), 3l.2.3(viii), 3l.2.3(ix), 3l.2.3(x), 3l.2.4(ii), 3l.2.4(iii), 3l.2.4(iv), 3l.2.4(v), methods 3l.3iii and xv
- Do not use a district plan change to address flood risk as it is counterproductive to Turangi's growth prospects, and places an unnecessary restriction to properties already

facing reducing land values. Instead construct stopbanks where needed as they will increase property values and security

- The plan change needs to recognise that it affects no green field residential environment zoned property on the left bank of the Tongariro River
- The plan change and change to planning conditions imposed on properties are unnecessary as no flooding has occurred in Turangi town area downstream of the State Highway 1 (SH1) Tongariro River Bridge (excluding the Bridge Lodge area).
- Support the plan change as:
 - the provisions protect vulnerable people and places within flood-prone areas;
 - it separates flood hazards from other hazards and so enables targeted management of the risks of flooding;
 - it exercises greater control over the design of development in areas of medium and low flood hazard;
 - there is a specific policy approach to discourage development in high flood hazard areas; and
 - it uses up to date information to accurately delineate flood hazard areas.

Discussion

The operative District Plan recognises a number of natural hazards to which the district is vulnerable. These hazards are discussed individually in Section 31, however two generic objectives (and associated policies), manage all these hazards, including flooding. Flood hazards, relate only to the Tongariro and Tauranga Taupō Rivers and the Tokaanu Stream, and are identified and mapped on the District Plan maps. These flood hazard areas do not specify any details such as water depth, velocity or hazard classification. The rules in the District Plan, (Section 4e.9), require any activity (land use and subdivision) within an identified flood hazard area to be considered as a controlled activity, provided it complies with the underlying environment rules and performance standards and is not identified elsewhere in the District Plan as a discretionary activity. If the proposed activity can not comply with these requirements, a discretionary activity resource consent is required.

There are a number of issues with the approach taken in the operative District Plan to managing activities in flood hazard areas. They are:

- Flooding from Lake Taupō and several rivers (not just the Tongariro and Tauranga Taupo Rivers and the Tokaanu Stream) pose risks to people's safety and property.
- The operative District Plan does not identify all of the known flood hazard areas associated with rivers and Lake Taupō.
- New modelling information shows that some of the flood hazard areas in the operative District Plan are no longer expected to be affected by future flood events.
- The current flood hazard information, in the operative District Plan does not consider the future effects of climate change and tectonic subsidence.
- Recent changes to the RPS now impose a risk-based approach to managing flood hazards. The RMA requires the Taupō District Plan to give effect to this. The risk-based approach is not used in the operative District Plan.
- The operative District Plan provisions do not provide sufficient control over development in high risk flood areas as required under the RPS.
- The operative District Plan provisions impose unnecessary regulatory costs (resource consent application) on those with a low level of flood risk.

These issues are outlined in more detail on pages 7 and 8 of the Section 32 Report.³

One submission states that the District Plan should not manage the development within flood hazard areas as it has not worked in the past, places an unnecessary restriction on properties which are already facing reducing land values and will adversely affect Turangi's growth prospects. Instead stopbanks need to be constructed where needed as they will increase property values and security. The same submission also states that the plan change is unnecessary as no flooding has occurred in Turangi town area downstream of SH1.

The proposed plan change does identify more properties as subject to flood hazard in the Turangi township than the operative District Plan, particularly to the west of the Tongariro River. It also removes all the properties along Te Herekieke Street from the flood hazard area, as shown below.

³ Taupo District Council (2017) Plan Change 34 Flood Hazard Section 32 Report.

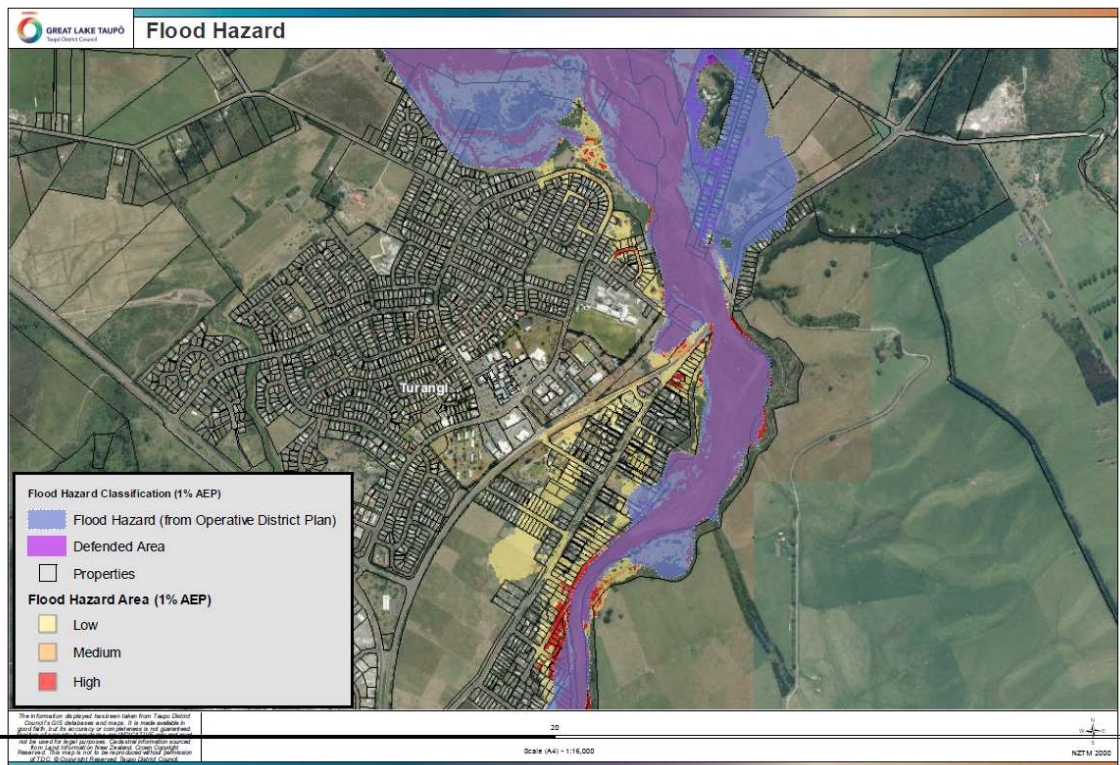


Figure 1. Mapping tool showing the extent of the flood hazard area in the operative District Plan and Plan Change 34 Flood Hazard for Turangi

The plan change does identify properties in Turangi that are subject to flood hazard that were not previously identified as being subject to flood hazard because the flood modelling for the Tongariro River now includes an allowance for climate change. The consequence is that in the future, in the event of a 1% AEP flood, properties that had not previously been flooded (for example in 2004) are likely to be flooded. Some properties in Turangi have had the flood hazard notation removed, like at Herekieke Street, because of recent changes to the stopbanks. The modelling is more sophisticated than the previous modelling so identifies low, medium and high flood hazard instead of a blanket flood hazard. This allows the rules to be tailored to the level of risk and reduce the economic impact on individual property owners.

The shift from generic assessment to a risk-based approach creates a more enabling regulatory environment for activities in low and medium hazard areas, while providing for a more considered decision making in high hazard areas. For example, development in low and medium hazard areas will generally not require a resource consent provided floor levels are built 300mm above the flood level on the site. This planning framework will not unnecessarily restrict development with low and medium flood hazard areas in Turangi and is likely to make appropriate development within these areas easier than it currently is under the operative District Plan.

Meanwhile, PC34 seeks to avoid development (apart from minor additions) within high hazard areas because of the intolerable risk to life and property. The Section 32 Report identifies the economic costs of this approach as:

- Potentially high costs for resource consents for new buildings and major additions in high hazard areas but this should send a signal to avoid new development in these areas.
- Reduced development potential of land in high flood hazard areas.
- May temporarily reduce property values of land in high flood hazard areas, but will reflect the true value of that land over time.
- Some potential for reduction in investment in vacant land in high flood hazard areas but the majority of sites are already developed or rural marginal land. There are only two residential zoned sections that have more than 100m² of high flood hazard that are not already developed that would be suitable for development.
- Costs associated with the plan change.
- Monitoring costs for the Council in ensuring the District Plan is implemented and adhered to.

In summary, while the Section 32 Report identifies the economic costs of this approach for development in the high hazard areas it still concludes that this approach is the most appropriate.

Moreover, this approach is established in the RPS so must be given effect to in PC34. It also should be noted that most of the urban zoned high flood hazard areas have already been developed and that there are only two residential zoned sections that have more than 100m² of high flood hazard that are not already developed that would be suitable for development. In comparison with the operative provisions the plan change reduces regulatory costs and more effectively avoids undesirable development in high hazard areas. For these reasons the provisions are considered to be the best mechanisms for meeting the objectives 3I.2.3 and 3I.2.4.

Overall the risk-based approach is identified in Appendix 8 of the Section 32 Report as being the most appropriate way to achieve the objectives of the plan change.

One submitter seeks relief to the effect that PC34 needs to recognise that it affects no green field residential environment zoned property on the left bank of the Tongariro River. The specific relief the submitter seeks is unclear, as is how it is to be included in PC34.

Recommendations and Reasons

1. It is recommended that the plan change is necessary and that the risk-based approach remains unchanged. Section 6(h) of the RMA requires the Council to manage significant risks from natural hazards. The Section 32 Report has demonstrated that the approach in the plan change is the most appropriate mechanism for this. The RPS (policies 13.1 and 13.2) requires the Council to use a risk-based approach for the management of development within flood hazard areas in the District Plan.

Issue 2 - Methodology

This issue has been divided into three sub-issues, the methodology used by Opus for the flood hazard assessment, the use of climate change provisions in the flood assessment, and the water level of the Lake Taupō.

Issue 2.1 - Methodology for flood assessment

Submitters

The following individuals/organisations submitted and further submitted on the methodology used for the flood assessment for this plan change:

| Submission point no | Submitter |
|----------------------------|-----------------------|
| OS15.1 | Ngāti Kurauia |
| OS15.10 | Ngāti Kurauia |
| FS25.29 | Mercury NZ Ltd |
| OS15.11 | Ngāti Kurauia |
| FS25.30 | Mercury NZ Ltd |
| OS15.14 | Ngāti Kurauia |
| OS15.23 | Ngāti Kurauia |
| FS25.35 | Mercury NZ Ltd |
| OS16.5 | Campbell, John & Bev |
| FS25.42 | Mercury NZ Ltd |
| OS16.10 | Campbell, John & Bev |
| FS25.47 | Mercury NZ Ltd |
| OS20.4 | Friends of Lake Taupō |
| FS25.60 | Mercury NZ Ltd |
| OS20.5 | Friends of Lake Taupō |
| FS25.61 | Mercury NZ Ltd |

The issue and submission points

The matters raised are:

- The Tokaanu Stream and all other waterways entering the Tokaanu Delta and Tokaanu Stream should be included in the flood hazard assessment as these waterways are contributing to a significantly high level of flood risk and hazard.
- Further discussion is required between Ngāti Kurauia, the affected owners and Council on the decisions to:
 - remove defended areas that were affected by flooding from an alternative source to determine the 'real' impact and implications of this decision.
 - remove non-contiguous flood areas from the mapping outputs for the Lake.
 - assume that stopbanks will not be changed over time and engage with Ngāti Tūwharetoa and Ngāti Kurauia land owners directly where their land is utilised or affected by the erection of stopbanks, and
 - remove flooding under 10 cm as it does not pose a risk to people or property in the Tokaanu basin or any other lands where an abnormally high water table has undermined the stability of the land surface and subsurface.
- PC34 and planning conditions imposed on properties are unnecessary as the flood protection works in Turangi will withstand close to a 1% AEP event, (probably a 1.1% AEP event), so what exists is adequate.
- PC34 should not apply the 1% AEP to building areas.
- The proposed river flood levels need to be reconsidered based on an appropriate combined flood occurrence and acceptable lake levels for Lake Taupō not the combination of 100 year floods used by Opus.
- The seiche provisions and climate change flood level changes need to be removed from any set flood level as seiche and flooding are independent events and it is statistically incorrect to combine 100 year flood provisions with 100 year seiche forecasts.

Discussion

Submissions seek the following:

- All other waterways entering the Tokaanu Delta and Tokaanu Stream are to be included in the flood assessment.
- Question the:
 - removal of defended areas that were affected by flooding
 - removal of non-contiguous flood areas from the mapping outputs for the Lake.
 - assumption that stopbanks won't be changed over time
 - Removal of flooding under 10 cm
- PC34 to state that the 1% AEP flood waters in Turangi will be constrained by the flood protection works
- 1% AEP is not applied to building areas.
- The flood levels are incorrect and that inappropriate, unproven and unacceptable provisions for additional flooding resulting from climate change and seiche have been included in the proposed flood levels.
- River flood levels need to be based on an appropriate combined flood occurrence and acceptable lake levels for Lake Taupō.
- Remove seiche and climate change from the flood model as they are independent events and should not be combined with the 100-year flood provisions.

Require all other waterways entering the Tokaanu Delta and Tokaanu Stream to be included in the flood assessment.

Dr McConchie's evidence outlines in paragraphs 132 to 141 how the flood assessment for Tokaanu was undertaken and which waterways were included in the flood modelling for Tokaanu. His evidence explains that the assessment focused on the Tokaanu catchment west of the Tokaanu tail race and its various sub catchments. It did not consider the flood hazard posed by the Omoho, Waimatai and Waihi Streams to the east. He explains that a number of modifications by human activities, interventions and development (including the Tokaanu Power station and tail race, the aqueduct at State Highway 41, State Highway 41 and the bridge over the Tokaanu Stream) have modified the flood plain. Due to a lack of reliable, locally derived flow information for the Tokaanu Stream, he used an alternative methodology for determining the magnitude of various design floods in this area. Because of the preliminary and screening nature of these flood studies, and the fact that the Tokaanu flood model could not be calibrated, the flood estimates for this area and therefore the flood extents, velocities and depth are likely to be conservative. All the waterways

entering the Tokaanu Delta and Tokaanu Stream have been included in the flood assessment for Tokaanu.

The removal of defended areas that were affected by flooding

Section 4 of the Section 32 Report outlines that the RPS requires the Council to identify defended areas (residual risk areas) and control subdivision, use and development within them. Defended areas are those areas that would be at risk of flooding if there was a failure of the stopbanks during a design event. Defended areas were identified and mapped in the plan change for information purposes only. We identified these defended areas by identifying areas that would flood in a 1% AEP flood event if the flood defences (stopbanks) were not there. This was done by comparing an 1% AEP flood without stopbanks in place to flooding with the stopbanks. Some of the defended areas overlapped flood hazard areas so were also identified as flood hazard areas. This is because the flood assessments for the rivers were modelled on a bigger design event (1% AEP plus climate change) than the defended areas (1% AEP). Where the flood hazard areas overlapped defended areas the defended areas classification was removed. This is because these areas are better managed under the provisions related to flood hazard areas, rather than being identified as defended areas (for information only).

The removal of non-contiguous flood areas from the mapping outputs for the Lake.

As outlined in Dr McConchie's evidence the flood model uses a bath tub approach. This meant lower lying areas near Lake Taupō, that were not contiguous with other lake flooding, were shown as flooding. See paragraphs 142 to 149 of Dr McConchie's evidence. As there was no ability for flood water to reach these areas, as areas of higher ground lying between them and the lake, the non-contiguous lake flooding areas were removed.

The assumption that stopbanks will not be changed over time

The flood model identifies flooding that will occur in a 1% AEP design event taking into account climate change and tectonic deformation. The existing stopbanks, which are managed by WRC, were included in the modelling for both flood areas and defended areas. The current stopbanks along the Tongariro River are designed for a 1% AEP not taking into account climate change. The stopbanks along the Tauranga Taupō River are designed for a 2% AEP not including climate change. As the modelling covers a period of 100 years it is probable that over this time these stopbanks will need to be increased in height to cater for increased flood waters from climate change. However, it is not practical or cost effective for WRC to make these increases now to provide for climate change and tectonic subsidence which may not occur for 50 years. Also the community may not wish to fund such increases in stopbanks and there may be physical constraints that prevent the increase in the height of stopbanks. So it is not certain that these stopbanks will be increased to accommodate climate change in the future. Hence the flood assessments were modelled using an assumption that the stopbanks would not be changed over time.

Removal of flooding under 10 cm

The flood model originally identified all flooding including inundation below 10cm in depth. However it was decided that flood waters below 10cm did not pose a risk to people or property, and the identification of such areas may be beyond the resolution of the model. So, the flood hazard identified on the planning maps does not include areas of less than 10cm depth of flooding. This decision was on the basis that the Building Code requires habitable dwellings to have a floor level at least 15cm above the adjacent ground level. All new buildings will, therefore, automatically have a floor level above any flooding below 10cm. Further, flooding below 10cm in depth is unlikely to prevent people from escaping through flood waters during an event and therefore does not affect the safety of people.

The use of 1% AEP for building areas.

The reports modelled a 1% AEP flood, including the likely effects of climate change and tectonic deformation, for the rivers, streams and Lake Taupō. The use of a 1% AEP design event reflects the accepted best practice and is in accordance with the requirements contained in the RPS and the direction around hazard assessment in the Lake Taupō Erosion and Flood Strategy. The use of a 1% AEP design event also recognises that subdivision of land establishes urban land uses that persist for over 100 years, and that buildings are invariably occupied for more than 50 years. The inclusion of climate change, tectonic deformation and seiche is directed by the Lake Taupō Erosion and Flood Strategy for flood assessments.

State that the 1% AEP flood waters in Turangi will be constrained by the flood protection works

The modelling used a 1% AEP flood, including the likely effects of climate change and tectonic deformation for the rivers, streams and Lake Taupō. Therefore, this flood would not be constrained

by the flood protection works as they are designed to withhold a 1% AEP flood, without added climate change or tectonic deformation.

River flood levels should be based on an appropriate combined flood occurrence and acceptable lake levels for Lake Taupō.

Dr McConchie’s evidence addresses the combination of the components of the flood hazard in paragraphs 88 to 97.

In the peer review report National institute of Water and Atmospheric Research (NIWA) stated that the river flooding has been modelled using the design events of a 100-year return period flood with, and without, the effects of climate change, using the 100-year lake-level, (based on historical data), as the downstream boundary. The report states that *“what is not emphasized is that this combination of independent events is much rarer than a 100-year event. In areas near the lake where lake levels have an influence on the extent of river flooding this approach is likely to overestimate flooding from 100-year river floods”*. This has been addressed in section 4.1 of the Peer Review Discussion report⁴ where on page 8 it states that *“it is recognised that a scenario which includes a 100-year lake level and a 100-year flood is potentially extreme, at least in statistical terms. However, it was necessary to adopt a consistent scenario for all the various flood modelling. It should also be noted that the 100-year lake level adopted was that defined simply from the 1980-2014 lake level record. It does not include any of the various factors which are also likely to affect water levels e.g. seiche, subsidence, climate change, waves etc. Consequently, the lake level adopted is actually not likely to be ‘extreme’, at least over the 100-year design period. However, the aim was to be slightly conservative rather than potentially under-estimating the potential flood risk. The difference in lake level between a 10% AEP and 1% AEP scenario (i.e. 14cm) is likely to be within the resolution of the various hydraulic models.”*

As noted by Dr McConchie, in paragraph 93 of his evidence, while a lake level of 357.5m would be a 1% AEP event under current conditions, it may become a 20% AEP event (i.e. 5-year ARI) when seiche and the potential effects of climate change are added.

So, while the methodology used to model the 1% AEP design event for rivers may overestimate the size of flood (as it uses the combination of 1% AEP flood on rivers occurring at the same time as a 1% AEP on the lake) the resulting flood level is likely to be within the resolution of the hydraulic model.

Recommendations and reasons

1. It is recommended that the flood modelling methodology should remain unchanged. The reasons for this are that:
 - the RPS and Lake Taupō Erosion and Flood Strategy require the modelling to use a 1% AEP with climate change, seiche and tectonic subsidence,
 - Utilising a 1% AEP event reflects best practice and mirrors the approach to hazard management in the New Zealand Coastal Policy Statement,
 - the flood model does take into account all waterways entering the Tokaanu Delta and Tokaanu Stream,
 - the river modelling is based on appropriate combined river and lake flood occurrences,
 - the 1% AEP flood used for modelling the Tongariro River will not be totally constrained by the existing stopbanks as it will be a larger flood than they are designed. Modelling of the flood hazard posed by the Tongariro River includes an allowance for climate change and tectonic subsidence, and
 - the methodology used for the identification of defended areas and flood areas is sound.

Issue 2.2 - Climate change

Submitters

The following individuals/organisations submitted and further submitted on whether the methodology should include an allowance for climate change and if so what amount:

| Submission point no. | Submitter |
|----------------------|----------------------|
| OS16.7 | Campbell, John & Bev |
| FS25.45 | Mercury NZ Ltd |
| OS16.11 | Campbell, John & Bev |

⁴ Opus (2015) Peer Review Discussion Report. Taupō District Flood Hazard Studies

| Submission point no. | Submitter |
|----------------------|-----------------------|
| FS25.46 | Mercury NZ Ltd |
| OS20.1 | Friends of Lake Taupō |
| FS25.57 | Mercury NZ Ltd |
| OS20.6 | Friends of Lake Taupō |
| FS25.62 | Mercury NZ Ltd |

The issue and submission points

The matters raised are:

- Methodologies should not provide for climate change.
- Climate change should not be included in the flood estimates as it is premature until there is some indication of what actual climate change will be.
- Methodologies should not provide for climate change as the flood levels for Lake Taupō are controlled by Mercury NZ Ltd.
- The flood levels for Lake Taupō are incorrect and that inappropriate, unproven and unacceptable provisions for additional flooding resulting from climate change and seiche have been included in the proposed flood levels.
- Include climate change as it is standard practice to incorporate a climate change allowance within numerical models used to predict the extent and depth of inundation,
- Reassess climate change assumptions so they take into account the changes to catchment use and vegetation growth that will result from warmer temperatures and more frequent rainfall as more vegetation will reduce runoff and decrease the flood intensity levels.

Discussion

Section 7(i) of the RMA requires the Council to have particular regard to the effects of climate change. Implementation method 4.1.13 in the RPS requires local authorities, through their regional and district plans to recognise and provide for the projected effects of climate change, having particular regard to the projected increase in rainfall intensity, taking into account the most recent national guidance and assuming a minimum increase in temperature of 2.1°C by 2090 (relative to 1990 levels). In 2009 the Lake Taupō Erosion and Flood Strategy established an agreed methodology for the assessment of the flood risk. In addition to the static water level record, Opus identified the need to incorporate the effects of seiche and the likely future effects related to climate change and tectonic subsidence.

Dr McConchie's evidence (paragraphs 103 to 111) outlines the methodology used to include climate change into the flood frequency analysis. He states "*any methodology used must involve a significant level of professional judgement and will result in considerable residual uncertainty*". Dr McConchie's methodology is based on the best available information from Ministry for the Environment, his professional judgement and methodologies used in other areas (Peka Peka to Otaki Expressway).

One submitter stated that climate change assumptions should be reassessed to take into account the changes to catchment use and vegetation growth that will result from warmer temperatures and increased more frequent rainfall as more vegetation will reduce runoff and decrease the flood intensity levels. Dr McConchie explains in paragraphs 120 and 121 of his evidence that any rainfall-runoff model would be simplistic and unlikely to reflect the catchment response under an extreme flood scenario and so could be quite misleading.

Recommendations and reasons

1. It is recommended that the flood modelling should continue to include an allowance for climate change using the methodology outlined by Dr McConchie in his evidence. The reasons for this are that section 7(i) of the RMA and implementation method 4.1.13 of the RPS and key principle 1 of the Taupō Erosion and Flood Strategy require the Council to have regard for and provide for the effects of climate change in accordance with the most recent national guidance.

Issue 2.3 - Lake level

Submitters

The following individuals/organisations submitted and further submitted on the effect the management of the lake level of Lake Taupō has on flooding:

| Submission point no. | Submitter |
|----------------------|-----------------------|
| OS20.2 | Friends of Lake Taupō |
| FS25.58 | Mercury NZ Ltd |
| OS20.3 | Friends of Lake Taupō |
| FS25.59 | Mercury NZ Ltd |

The issue and submission points

The matters raised are:

- The WRC should use the review mechanism for the Mercury NZ Ltd consent to restore the lower “step” lake level management approach for any period identified as at risk from significant flood events or otherwise require a consent change to deliver the flood levels set in the consent.
- The Council communicates the findings of the Opus technical studies to MRP/Mercury and WRC and request that, based on the findings of the Opus study, MRP/Mercury advise if there is any change necessary to their set Consent Lake Level/Occurrence condition, or if MRP/Mercury will continue to manage the lake levels to their consented levels.
- Review of flood levels for Lake Taupō using a whole catchment approach, including the Mercury and Genesis Energy Consents and the use of the Taupō Control Gates by WRC as flood manager.

Discussion

The submissions seek that the Mercury consent for the management of the lake level be reviewed as it is considered that the high lake levels increase flooding. The submissions also seek for both the Mercury and Genesis consents to be used when modelling flood areas.

As Dr McConchie’s evidence explains both the Mercury and Genesis consents have been taken into account in the flood hazard modelling. Dr McConchie has outlined in his evidence, paragraph 80, that the outflow capacity of the Lake Taupō Gates and artificial channel is now significantly greater than the capacity of the natural channel prior to the gate installation in 1941. He also outlines in paragraphs 130 and 131, that the pattern of lake level variation is very similar over the 10 years prior to granting the Mercury consents in 2006 as it was for the 10 years after 2006. He states that *“the dominant control on lake level variation is the inflow regime; not the management decisions relating to flood mitigation or hydro power generation”*.

A review of the Mercury and Genesis Energy resource consents is outside the scope of this plan change.

Recommendations and reasons

1. It is recommended that the flood modelling is not amended as it already includes a whole of catchment approach.

Issue 3 - Flood hazard on individual properties

Submitters

The following individuals/organisations submitted and further submitted requesting that the flood area on their property be reassessed and /or removed:

| Submission point no. | Submitter name | Address |
|----------------------|--|------------------------------|
| OS1.1 | Fraser, Lindsay | 3 Kinloch Esplanade, Kinloch |
| OS3.1 | Kemp, Richard On Behalf Of Kemp Family Trust | 139 Taupahi Road, Turangi |
| OS4.1 | Baker, Ross | 2 Piri Road, Turangi |
| OS5.1 | Roderick Brown | 203 Puanga Street, Tokaanu |

| Submission point no. | Submitter name | Address |
|----------------------|----------------------|--------------------------------------|
| FS25.4 | Mercury NZ ltd | |
| OS6.1 | Haupt, Tony | 6 Kinloch Esplanade, Kinloch |
| OS8.1 | Abercrombie, Gilbert | 9 Kokopu Street, Turangi |
| FS25.5 | Mercury NZ Ltd | |
| OS9.2 | Hapeta, Leonie | 37A Parehopu Street, Kuratau |
| OS11.1 | Marbeck, Diana | 229 Taupahi Road, Turangi |
| OS12.1 | Clark, Erin | 105 Humu Street, Tokaanu |
| FS25.19 | Mercury NZ Ltd | |
| OS13.1 | Grants Motels Ltd | 24 Te Arahori Street, Turangi |
| FS25.20 | Mercury NZ Ltd | |
| OS16.13 | Campbell, John & Bev | 168 Te Rangitautahanga Road, Turangi |
| OS17.3 | Trustpower Ltd | Hinemaiaia B Power Station |

The issue and submission points

Twelve submitters sought changes to the flood hazard identified on their properties. Some submitters outlined why they considered the flood hazard was incorrect, for example because of the physical characteristics of their property, the nature of the mapping (use of 5x5m grid to delineate flooding) or because it had never flooded before. Other submitters just stated that their property should not be included in the flood hazard area but gave no reasons for this.

Discussion

Dr McConchie, in paragraphs 159 to 231 of his evidence, has re-evaluated the flood hazard areas on these properties and has determined the following:

OS1.1 Fraser, Lindsay 3 Kinloch Esplanade, Kinloch. Subject to a site visit to confirm the configuration of the retaining wall and landscape, and assuming that the conditions are as argued by the submitter, the area of low hazard should be removed 3 Kinloch Esplanade. Dr McConchie will confirm the results of his site visit at the hearing.

OS3.1 Kemp, Richard 139 Taupahi Road, Turangi. Subject to a site visit to confirm the two terraces, with distinctly different elevations, the flood hazard mapping should be adjusted so the area of low hazard is removed from the upper terrace, but remain on the lower terrace. Dr McConchie will confirm the results of his site visit at the hearing.

OS4.1 Baker, Ross 2 Piri Road, Turangi. No changes should be made at this time to the flood hazard on this property as shown in the plan change.

OS5.1 Roderick Brown 203 Puanga Street, Tokaanu. No changes should be made at this time to the flood hazard on this property as shown in the plan change.

OS6.1 Haupt, Tony 6 Kinloch Esplanade, Kinloch. Subject to a site visit to confirm the configuration of the retaining wall and landscape, and assuming that the conditions are as argued by the submitter, the area of low hazard should be removed from 6 Kinloch Esplanade, Kinloch. Dr McConchie will confirm the results of his site visit at the hearing.

Dr McConchie, in paragraph 159 of his evidence, recommends that, assuming the same conditions exist, the area of low hazard should be removed from all properties that bound the Kinloch Marina, that is numbers 2, 4 and 5 Kinloch Esplanade, Kinloch. (Numbers 7 & 8 Kinloch Esplanade have already been reassessed through the site assessment report⁵). While there is no submission seeking the flood hazard is amended on these properties it is prudent to do this to ensure the integrity of the flood modelling data. Dr McConchie will confirm the results of his site visit at the hearing.

OS8.1 Abercrombie, Gilbert 9 Kokopu Street, Turangi. No changes should be made at this time to the flood hazard on this property as shown in the plan change.

⁵ Opus (2016) Site-specific flood hazard re-assessments. Taupō District Flood Hazard Studies

OS9.2 Hapeta, Leonie 37A Parehopu Street, Kuratau. No changes should be made at this time to the flood hazard on this property as shown in the plan change.

OS11.1 Marbeck, Diana 229 Taupahi Road, Turangi. No changes should be made at this time to the flood hazard on this property as shown in the plan change. However, if the submitter filled this area and raised the ground level, then the hazard classification should be revised downwards to reflect the shallower depth of inundation during the design event.

OS12.1 Clark, Erin 105 Humu Street, Tokaanu. No changes should be made at this time to the flood hazard on this property as shown in the plan change. However, if any mitigation options are adopted and implemented, the flood hazard could be reassessed, and the maps in the District Plan associated with PC34 updated.

OS13.1 Grants Motels Ltd 24 Te Arahori Street, Turangi. No changes should be made at this time to the flood hazard on this property as shown in the plan change. However, changes may be appropriate following any review of the current flood protection measures, the construction of future measures, or following the capture of more recent LiDAR information.

OS16.13 Campbell, John & Bev 168 Te Rangitautahanga Road, Turangi. No changes should be made at this time to the flood hazard on this property as shown in the plan change. However, changes may be appropriate following any review of the current flood protection measures, the construction of future measures, or following the capture of more recent LiDAR information and the increased duration of the flood maxima series.

OS17.3 Trustpower Ltd Hinemaiaia B Power Station. The boundary of the hydraulic model result for the Hinemaiaia River should be shifted downstream to the location indicated on Figure 12 in Dr McConchie's evidence. This recognises that Trustpower Ltd are responsible for dam safety relating to the Hinemaiaia HEPS, and that their responsibilities are independent of, and in addition to, any provisions in the District Plan.

Recommendations and reasons

1. That the flood hazard areas on
 - 2 Piri Road, Turangi;
 - 203 Puanga Street, Tokaanu;
 - 9 Kokopu Street, Turangi;
 - 37A Parehopu Street, Kuratau;
 - 229 Taupahi Road, Turangi;
 - 105 Humu Street, Tokaanu;
 - 24 Te Arahori Street, Turangi; and
 - 168 Te Rangitautahanga Road, Turangiremain unchanged as inadequate evidence has been provided to demonstrate that the flood hazard modelling is incorrect for these properties.
2. Subject to a site visit to confirm the site characteristics outlined in Dr McConchie's evidence that the:
 - area of low flood hazard on 3 and 6 Kinloch Esplanade, Kinloch be removed and assuming the same conditions exist, from all the affected properties which bound the Kinloch Marina. A recommendation regarding this will be provided by Dr McConchie at the hearing.
 - flood hazard mapping on 139 Taupahi Road, Turangi be adjusted so the area of low hazard is removed from the upper terrace, but remains on the lower terrace. A recommendation regarding this will be provided by Dr McConchie at the hearing.
3. That the boundary of the hydraulic model results for the Hinemaiaia River be shifted downstream so the flood hazard area on the tailrace at Hinemaiaia B power station is removed to more accurately reflect the likely flood hazard during the 1% AEP design flood event in this vicinity.

Issue 4 - Consultation and Iwi and hapu valuesSubmitters

The following individuals/organisations submitted and further submitted on further consultation and consideration of iwi/hapu values:

| Submission point no. | Submitter |
|-----------------------------|------------------|
| OS15.2 | Ngāti Kurauia |
| FS25.22 | Mercury NZ Ltd |
| OS15.3 | Ngāti Kurauia |
| FS25.23 | Mercury NZ Ltd |
| OS15.4 | Ngāti Kurauia |
| FS25.24 | Mercury NZ Ltd |
| OS15.5 | Ngāti Kurauia |
| FS25.25 | Mercury NZ Ltd |
| OS15.6 | Ngāti Kurauia |
| FS25.26 | Mercury NZ Ltd |
| OS15.8 | Ngāti Kurauia |
| FS25.27 | Mercury NZ Ltd |
| OS15.9 | Ngāti Kurauia |
| FS25.28 | Mercury NZ Ltd |
| OS15.13 | Ngāti Kurauia |
| OS15.15 | Ngāti Kurauia |
| FS25.31 | Mercury NZ Ltd |
| OS15.16 | Ngāti Kurauia |
| FS25.32 | Mercury NZ Ltd |
| OS15.17 | Ngāti Kurauia |
| FS25.33 | Mercury NZ Ltd |
| OS15.18 | Ngāti Kurauia |
| FS25.37 | Mercury NZ Ltd |
| OS15.19 | Ngāti Kurauia |
| FS25.38 | Mercury NZ Ltd |
| OS15.20 | Ngāti Kurauia |
| FS25.39 | Mercury NZ Ltd |
| OS15.21 | Ngāti Kurauia |
| FS25.40 | Mercury NZ Ltd |
| OS15.22 | Ngāti Kurauia |
| FS25.34 | Mercury NZ Ltd |

The issue and submission points

The matters raised are:

- That the Council needs to adopt a collaborative process with Ngāti Kurauia hapu, whanau and land owners, and in doing so:
 - develop objectives and policies for risk avoidance, mitigation and to identify tolerable levels of hazard risk;
 - share all information and facilitate more active involvement in the evaluation, impact assessment and innovations that may be related to the issues relevant to Ngāti Kurauia stakeholders;

- clarify what “a two-step engagement process” really means;
- determine the “degree of impact on, or interest from iwi/Maori”;
- develop a clear understanding of the impacts of flooding on Ngāti Kurauia, their values and Taonga;
- develop innovative and effective measures to urgently address the potential and actual impacts of flooding on Ngāti Kurauia hapu, whanau, land owners and property owners; and
- amend objectives 31.2.1, 31.2.3 and 31.2.4 to take into account the social, cultural, spiritual and economic interests and rights of Ngāti Kurauia.

That the plan change must recognise and provide for:

- sections 6(e), 6(f), 6(g), 7(a) and 8 of the RMA;
- the Ngāti Tūwharetoa Iwi Management Plan;
- protection of areas of culturally significant land including waahi tapu, historical occupation, geothermal taonga and fertile soils used for extensive gardening; and
- protection of the environmental, economic, social and cultural well-being of Ngāti Kurauia hapu.

That the Council:

- Implement mitigation measures to ensure that flooding does not displace Ngāti Kurauia from their ancestral lands and taonga.
- Provide a dispensation and/or reward to Maori owners of flood affected land that recognizes the contribution of their land and/or its loss of productive capacity or opportunity cost
- Engage with Ngāti Kurauia to find viable solutions and mitigate the risks not only to our future buildings but more importantly to the mauri (life essence) of Ngāti Kurauia.

Discussion

Ngāti Kurauia have submitted on a number of sections of the plan change. However, the main thrust of their submission is that the Council has not engaged adequately with them to ensure that the social, cultural, spiritual and economic interests and rights of Ngāti Kurauia have been taken into account in the plan change. The relief sought is that the Council meets with Ngāti Kurauia to discuss these issues and seek some resolution.

Taupō District Council and WRC staff attended Ngāti Kurauia’s monthly meeting on Sunday 19th August at the Tokaanu Marae. At the meeting Ngāti Kurauia outlined the importance of freshwater and the effects on freshwater of decisions and legislation since 1897. The main issues are the taking of land by the government since 1897, the raising of lake levels in 1941 and the 1950s and the development of the Tongariro Power Scheme in 1973. This has resulted in loss of traditional land and land north of the marae, which has been inundated and is unable to be used to live on or grow food. It also resulted in the silting up and raising of the water levels in the Tokaanu Stream making the area more susceptible to flooding. Wave action from the, now raised, lake levels has destroyed any access to the traditional land north of the marae. Ngāti Kurauia live with constant flooding and the plan change needs to take account of this history and resulting factors. Council staff agreed to meet with the Ngāti Kurauia Taiao to discuss the issues raised in their submission and to work together to find solutions. Further details of this meeting are in Appendix 7 of the Section 32 Report.

Ngāti Kurauia Taiao and council staff met at a pre hearing meeting on 2 October 2018. Details of this issues discussed and agreements made at this pre hearing meeting will be circulated to submitters and hearings commissioners prior to the hearing.

Recommendations and reasons

Recommendations and reasons will be formulated based on discussions at the pre hearing on 2 October 2018 and will be circulated to submitters and hearings commissioner prior to the hearing.

Issue 5 - InfrastructureSubmitters

The following individuals/organisations submitted and further submitted in submissions on the management of infrastructure in flood areas:

| Submission point no. | Submitter |
|-----------------------------|-----------------------------------|
| OS2.1 | Unison Networks Limited |
| FS24.7 | Trustpower Ltd |
| FS25.1 | Mercury NZ Ltd |
| OS2.2 | Unison Networks Limited |
| FS25.2 | Mercury NZ Ltd |
| FS26.1 | Transpower NZ Ltd |
| OS2.3 | Unison Networks Limited |
| FS25.3 | Mercury NZ Ltd |
| FS26.2 | Transpower NZ Ltd |
| OS7.1 | Kinloch Marina Ltd |
| OS14.1 | Spark Trading New Zealand Limited |
| OS14.2 | Spark Trading New Zealand Limited |
| OS14.3 | Spark Trading New Zealand Limited |
| OS14.4 | Spark Trading New Zealand Limited |
| FS26.3 | Transpower NZ Ltd |
| OS17.2 | Trustpower Ltd |
| FS25.48 | Mercury NZ Ltd |
| OS17.6 | Trustpower Ltd |
| FS25.49 | Mercury NZ Ltd |
| OS17.8 | Trustpower Ltd |
| OS17.9 | Trustpower Ltd |
| OS17.10 | Trustpower Ltd |
| OS17.12 | Trustpower Ltd |
| FS25.52 | Mercury NZ Ltd |
| OS17.13 | Trustpower Ltd |
| FS25.53 | Mercury NZ Ltd |
| OS17.14 | Trustpower Ltd |
| OS17.15 | Trustpower Ltd |
| FS26.3 | Transpower NZ Ltd |
| OS17.16 | Trustpower Ltd |
| OS17.17 | Trustpower Ltd |
| OS18.2 | Mercury NZ Ltd |
| FS24.16 | Trustpower Ltd |
| OS18.7 | Mercury NZ Ltd |
| FS24.17 | Trustpower Ltd |
| OS18.8 | Mercury NZ Ltd |
| FS24.18 | Trustpower Ltd |
| OS18.9 | Mercury NZ Ltd |

| Submission point no. | Submitter |
|-----------------------------|-------------------|
| FS24.19 | Trustpower Ltd |
| OS18.11 | Mercury NZ Ltd |
| FS24.3 | Trustpower Ltd |
| FS26.5 | Transpower NZ Ltd |
| OS18.13 | Mercury NZ Ltd |
| OS18.14 | Mercury NZ Ltd |
| FS24.4 | Trustpower Ltd |
| FS26.6 | Transpower NZ Ltd |
| OS18.15 | Mercury NZ Ltd |
| FS24.5 | Trustpower Ltd |
| FS26.7 | Transpower NZ Ltd |
| OS22.1 | Transpower NZ Ltd |
| OS22.2 | Transpower NZ Ltd |
| FS24.6 | Trustpower Ltd |
| OS22.3 | Transpower NZ Ltd |
| OS22.4 | Transpower NZ Ltd |
| FS25.68 | Mercury NZ Ltd |
| OS22.5 | Transpower NZ Ltd |
| FS25.69 | Mercury NZ Ltd |
| OS22.6 | Transpower NZ Ltd |
| FS25.70 | Mercury NZ Ltd |
| OS22.7 | Transpower NZ Ltd |
| FS25.71 | Mercury NZ Ltd |
| OS22.8 | Transpower NZ Ltd |
| FS25.72 | Mercury NZ Ltd |
| OS22.9 | Transpower NZ Ltd |
| FS25.73 | Mercury NZ Ltd |
| OS22.10 | Transpower NZ Ltd |
| FS25.74 | Mercury NZ Ltd |
| OS22.11 | Transpower NZ Ltd |
| FS25.75 | Mercury NZ Ltd |
| OS22.12 | Transpower NZ Ltd |
| FS25.76 | Mercury NZ Ltd |
| OS22.13 | Transpower NZ Ltd |
| OS22.14 | Transpower NZ Ltd |
| OS22.15 | Transpower NZ Ltd |
| OS22.16 | Transpower NZ Ltd |

The issue and submission points

The matters raised are:

- Policies 3I.2.4(iv) and (v) are not clear and easy to understand. Also, 'infrastructure that is vulnerable to risk' needs to be defined.

- Policy 3l.2.4(v) does not give effect to the National Policy Statement on Electricity Transmission as this requires councils to recognise and provide for the national, regional and local benefits of sustainable, secure and efficient electricity transmission.
- Rules 4e.9.16 and 4e.9.17 do not reflect the range of activities that electricity distribution businesses undertake in relation to their assets. The rules need to also include operation and replacement of infrastructure to provide certainty for infrastructure providers.
- There is inconsistency between the definition of minor upgrading in the plan change and in the network utilities section of the operative District Plan.
- The plan change currently seeks to manage hydro electricity generation activities in flood hazard areas which may constrain this activity. Amend policies 3l.2.3(iii), 3l.2.3(iv), 3l.2.3(v) and 3l.2.4(ii) so they do not apply to buildings associated with hydro electricity generation.
- Rule 4e.9.16 provides for maintenance or upgrading of existing or the construction of new hydro electricity generation activities and buildings that enclose them as a permitted activity. Hydro electricity generation activities are not defined so it is not clear what they are.
- Objective 3l.2.4 is not clear and needs to address flood event less than a 1% AEP.
- The statement about the National Environmental Standards for Telecommunication Facilities 2016, before rule 4e.9.16 is not clear.
- Rules 4e.9.1 to 4e.9.8 are repetitive in them not applying to buildings that are associated with infrastructure.
- Support for policies 3l.2.3(ii), 3l.2.4(i), rules 4e.9.6, 4e.9.13, 4e.9.14 and 4e.9.15.
- Retain the note under rule 4e.9.16 clarifying what electricity transmission activities are.
- Policy 3l.2.4(ii) does not clarify that where a cadastral feature provides an opportunity to site a new building, or major addition to an existing building, either outside the flood area or in a lesser flood hazard then this should be undertaken. Also this policy needs to clearly explain what structural damage means.
- The wording of rule 4e.9.18 is not clear as to when it applies.

Discussion

1. Clarity of policies 3l.2.4(iv) and (v)

Submitters have sought that policies 3l.2.4(iv) and (v) are reworded as they are not clear. Submitters have also requested that 'infrastructure not vulnerable to flood risk' is defined. These policies provide for infrastructure and subdivision for infrastructure where that infrastructure or subdivision is not vulnerable to flood risk or has a functional requirement to be in a flood hazard area. Policy 3l.2.4(v) seeks to avoid infrastructure and subdivision for infrastructure where that infrastructure or subdivision is vulnerable to flood risk. Submitters have suggested wording changes to both policies 3l.2.4(iv) and (v). Adding a comma in policy 3l.2.4(iv) after the words 'subdivision for infrastructure' will make that policy clear. Rule 4e.9.16 outlines that infrastructure not vulnerable to flood risk includes as follows:

- Any maintenance or upgrading of existing or the construction of new:
- below ground infrastructure and buildings that enclose them;
 - stormwater infrastructure and buildings that enclose them;
 - roads;
 - marina facilities and buildings that enclose them;
 - hydro electricity generation activities and buildings that enclose them; or
 - electricity transmission activities.

This makes it clear which infrastructure is 'not vulnerable to flood risk' so no further changes are necessary to policy 3l.2.4(iv). One submitter suggested deleting policy 3l.2.4(v) by addressing the subject matter in policy 3l.2.4(iv). The wording changes suggested for 3l.2.4(v) do not aid clarity. Whether a new definition is needed to be included for 'infrastructure not vulnerable to flood risk' is addressed in section 10 - Definitions of this report.

2. Give effect the National Policy Statement on Electricity Transmission

A further submitter has noted that policy 3l.2.4(v) does not give effect to the National Policy Statement on Electricity Transmission (NPSET). The NPSET requires councils to recognise and provide for the national, regional and local benefits of sustainable, secure and efficient electricity transmission. While a new submission point cannot be bought up in further submissions it is sensible to address this issue to ensure the policy is consistent with the NPSET.

As this policy seeks to avoid infrastructure that is vulnerable to flood risk locating in a flood hazard area it does not recognise and provide for electricity transmission. Hence policy 3l.2.4(v) needs to be reworded as follows:

Avoid infrastructure (and buildings that enclose that infrastructure), and subdivision for infrastructure, that is vulnerable to flood risk and does not have a functional requirement to be in a flood hazard area.

This change recognises the importance of transmission infrastructure and the fact that in some situations it must be located in hazard areas, however that should not preclude avoiding the hazard where possible.

3. Operation and replacement of infrastructure

Submitters sought to have operation and replacement of infrastructure added to rules 4e.9.16 and 4e.9.17 as they consider that the rules do not reflect the range of activities that electricity distribution businesses undertake in relation to their assets. Operation and replacement are provided for in the network utilities section of the existing District Plan. Adding operation and replacement to rule 4e.9.16 will reflect the activities that infrastructure providers carry out and provide consistency within the District Plan. However, rule 4e.9.17 relates to existing above ground infrastructure in a flood hazard area. The addition of operation of this infrastructure to this rule will reflect the activity that is occurring and provide consistency within the operative District Plan. However, the addition of the 'replacement' of above ground infrastructure is not appropriate as a permitted activity. While nothing can be done about existing above ground infrastructure located in flood hazard areas the plan should not encourage the replacement of potentially at risk structures.

4. Definition of minor upgrading

Submitters sought to amend the definition of 'minor upgrading' for rule 4e.9.17. There is already a definition of minor upgrading in rule 4e.14.4 (District Wide Rules for Network Utilities) of the District Plan.

Definition in rule 4e.9.17

For the purpose of rule 4e.9.17 "minor upgrading" means structure improvement, repair and replacement of worn or technically deficient parts of the infrastructure and accessory buildings and structures of similar character and scale.

Definition in rule 4e.14.4

For the purpose of rule 4e.14.4 "minor upgrading" means: an increase in carrying capacity, efficiency or security of electricity and telecommunication lines where this utilises the existing support structures and includes;

- i. the addition of conductors to form a twinned or duplex-pairing;
- 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 of an existing overhead wire with another one or more of similar character and scale.
- vii. the addition or replacement of antennas that meet the requirements of Rule 4e.14.14.

Note: it does not include 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 or the addition of extra lines.

Definition in rules 4b.2.4 and 4h.2.3

As well as the definition proposed in PC34 and the definition in rule 4e.14.4 there is also a definition of minor upgrading in rules 4b.2.4 and 4h.2.3 for existing electricity generation core sites, geothermal steamfields and associated structures in the Rural Environment, the Taupō Industrial Environment and Centennial Industrial Environment.

For the purpose of this rule "minor upgrading" means "Structure improvement, repair and replacement of worn or technically deficient parts of the powerhouse, hydro dams, separation plants, switchyards, intake, control and diversion structures, wells, pipes, tunnels, cables, other equipment and accessory buildings and structures of similar character and scale, and includes associated drilling, earthworks and vegetation removal. Also the extension to existing Buildings and Structures, and the erection of new Buildings and Structures up to 100m² in area and not exceeding the maximum height standard for the Industrial Environment and the erection of any aerial, antennae or communication dish not exceeding 5m² in area located on top of a hydro or geothermal existing structure, subject to compliance with the Noise Performance Standard."

Rule 4e.9.17 applies to all existing above ground infrastructure. If the definition of minor upgrading from rule 4e.14.4 was used for rule 4e.9.17 it would only apply to electricity and telecommunication lines or if the definition from rules 4b.2.4 and 4h.2.3 were used it would only apply to existing

electricity generation core sites, geothermal steamfields and associated structures. Each of these definitions applies to a specific rule and specific types of infrastructure. It is not appropriate to use the definition of minor upgrading that is used in rule 4e.14.4 for utilities to apply to all existing above ground infrastructure in rule 4e.9.17 as the two rules do not apply to the same type of infrastructure. This matter will be addressed through the District Plan Review.

5. Exclusion of hydro electricity generation activities

A submitter has sought that the plan change and in particular policies 3l.2.3 (iii), 3l.2.3 (iv), 3l.2.3 (v) and 3l.2.4(ii) should exclude buildings associated with hydro electricity generation activities and a definition of hydro electricity generation activities is included. This is because hydro electricity generation activities by their very nature need to be located in flood hazard areas so the submitter considers it is not efficient or effective for the Council to control their location in flood hazard areas. Policies 3l.2.3 iii, 3l.2.3 (iv), 3l.2.3 (v) and 3l.2.4(ii) address the:

- design of new buildings, major and minor additions in low and medium flood hazard areas, and
- the design of minor additions to existing buildings in high flood hazard areas.

Rule 4e.9.18 provides for the maintenance, upgrading of existing and the construction of new hydro electricity generation activities and buildings that enclose them as a permitted activity. As a result, no hydro electricity generation activities and buildings will be assessed against policies 3l.2.3 (iii), 3l.2.3 (iv), 3l.2.3(v) and 3l.2.4(ii) as permitted activities do not require a resource consent so do not require an assessment against policies. Policies 3l.2.4(iv) and (v) address the management of infrastructure and buildings that enclose that infrastructure within flood hazard areas. Hydro electricity generation activities come within the definition of infrastructure in the District Plan as they are “facilities for the generation of electricity”. Therefore, policies 3l.2.4(iv) and (v) are relevant for the assessment of any applications for infrastructure activities that do not meet rules 4e.9.16 and 4e.9.17. Any of those applications are assessed under rule 4e.9.18. These policies refer to providing for infrastructure that is not vulnerable to flood risk and infrastructure that has a functional requirement to be in a flood hazard area. Accordingly rule 4e.9.16 states that any operation, maintenance, upgrading of existing, replacement or new hydro electricity generation activities and buildings that enclose them are a permitted activity.

Policies 3l.2.3 (iii), 3l.2.3 (iv), 3l.2.3(v) and 3l.2.4(ii) do not exclude buildings associated with infrastructure as rule 4e.9.18 requires some new above ground infrastructure to be assessed as a restricted discretionary activity. Buildings associated with new above ground infrastructure that is assessed under this rule will be assessed against policies 3l.2.4(iv) and (v) and whichever other policies that are relevant (i.e. of policies 3l.2.3 (iii), 3l.2.3 (iv), 3l.2.3(v) and 3l.2.4(ii)). Therefore, it is not appropriate to exclude buildings associated with infrastructure from policies 3l.2.3 (iii), 3l.2.3 (iv), 3l.2.3(v) and 3l.2.4(ii).

The submitter also seeks the inclusion of a definition of ‘hydro electricity generation activities’ so it is clear what activities are covered by this term in Rule 4e.9.16. They suggest the following definition:

Hydro electricity generation activities means the construction, operation, maintenance and upgrade of structures associated with hydro electricity generation.

It is considered that this definition is not necessary as it does not add clarity to the rule. The rules already provide for the, operation, maintenance, upgrading of existing, replacement and new hydro electricity generation activities and buildings that enclose them.

6. Clarity of objective 3l.2.4

A submitter seeks to amend the wording of objective 3l.2.4 to clarify what the “structural damage” requirement relates to and to clarify that the objective applies to larger flood events (with a lesser AEP than 1%). The suggested wording is “Buildings and infrastructure are located and designed to ensure continued operation and to avoid structural damage to themselves and other infrastructure and property during a flood event with an annual exceedance probability of 1% or less.” The proposed wording does clarify structural damage but could be improved further as follows:

“Buildings and infrastructure are located and designed to ensure continued operation and to avoid structural damage, to themselves and other buildings, infrastructure and property during a flood event with an annual exceedance probability of 1%.”

However, PC 34 is based on flood areas resulting from a 1% AEP flood not a larger flood event so the proposed change, adding the words “or less” after 1%, is not appropriate.

7. Statement about the National Environmental Standards for Telecommunication Facilities 2016 (NESTF)

A submitter sought amended wording for the statement about the NESTF 2016, before rule 4e.9.16 so it clarifies that it only applies to facility operators as defined under the National Environmental Standard and does not apply to all the activities listed in rules 4e.9.16 to 4e.9.18 (such as the National Grid). This text should be amended as follows to provide for this:

The provisions of the National Environmental Standards for Telecommunication Facilities that apply to facility operators prevail where they are applicable to the following infrastructure rules.

8. Formatting of rules for new buildings, minor and major additions

A submitter requested that text should be inserted underneath the heading '4e.9 Flood Hazard Area' stating that rules 4e.9.1 to 4e.9.8 do not apply to infrastructure. This would avoid repeating the text "(excluding those associated with infrastructure)" in each rule. However, each rule should stand alone and be able to be understood when read as a rule. With the use of e-plans rules have to contain all the information that relates to that rule as they will be read alone rather than as a group of rules. Therefore, adding text underneath the rule heading stating that rules 4e.9.1 to 4e.9.8 do not apply to infrastructure is not appropriate.

9. Support for policies and rules

A number of submissions support the retention of policies 3l.2.3(ii), 3l.2.4(i), rules 4e.9.6, 4e.9.13, 4e.9.14 and 4e.9.15. A submission also supports the retention of the note under 4e.9.16 clarifying what electricity transmission activities are. There are other submissions on policies 3l.2.3(ii) and 3l.2.4(i) and rule 4e.9.6 which seek amendments to these policies and rules (see issue 5 - Infrastructure, issue 7 - activities/buildings and issue 9 - uninhabited farm buildings) so these will be addressed under these issues. However as there are no submissions in opposition on rules 4e.9.13, 4e.9.14 and 4e.9.15 and the note under 4e.9.16 clarifying what electricity transmission activities are, these rules and note should remain unchanged.

10. Rewording of policy 3l.2.4(ii)

A submitter sought that policy 3l.2.4(ii) is reworded to clarify:

- that where a cadastral feature provides an opportunity to locate a new building or major addition to an existing building either outside the flood area or in a lesser flood hazard then this should be undertaken;
- what structural damage means; and
- what constitutes a "significant flood event".

The rewording proposed is:

Policy 3l.2.4 (ii) Control the location and design of new buildings and major additions to existing buildings in low and medium flood hazard areas to avoid structural damage to themselves and other infrastructure and property during significant flood events a flood event with an annual exceedance probability of 1% or less.

The rules (4e.9.1, 4e.9.2, 4e.9.4 and 4e.9.5) do not control of the location of a new building or a major addition within the low or medium flood hazard areas. Instead they control the design by requiring the floor level to be raised 300mm above the identified maximum flood level. Therefore, it would be incorrect to include the word 'location' in policy 3l.2.4(ii).

The wording provided to clarify what structural damage means is not necessary as it has been added into objective 3l.2.4 as the result of another submission.

The wording 'significant flood events' is used to refer to a 1% AEP flood as outlined in objective 3l.2.4. The submitter seeks to also include floods with an AEP of less than 1%. As the plan change is based on a flood of maximum of 1% AEP it is not appropriate to extend this policy to apply to floods greater than a 1% AEP flood (i.e. with a probability of less than 1% AEP). So there is no need to amend policy 3l.2.4 (ii).

11. Clarity for rule 4e.9.18

A submitter sought to amend the wording of rule 4e.9.18 to make it clear that rule 4e.9.18 only applies where the activity is not permitted by rule 4e.9.16. The rewording proposed for rule 4e.9.18 is:

"Any new above ground infrastructure (and buildings that enclose them), in any flood hazard area, that does is not permitted by ~~comply with~~ rule 4e.9.16 is a restricted discretionary activity with the matters of discretion restricted to:..."

Rule 4e.9.16 is a list of activities that are identified as permitted activities and there are no listed performance standards. It is clearer to state that rule 4e.9.18 applies to activities that are not specifically permitted by the earlier rule, rather than to infer the requirement to comply with a

standard when none apply. So the suggested wording change to rule 4e.9.18, as outlined above, should be made.

Recommendations and reasons

1. Amend Policy 3I.2.4(iv) by adding a comma after the words ‘subdivision for infrastructure’ as follows:

Provide for, infrastructure (and buildings that enclose that infrastructure), and subdivision for infrastructure, that is not vulnerable to flood risk or has a functional requirement to be in a flood hazard area.

The amended wording of Policy 3I.2.4(iv) and the existing wording of Policy 3I.2.4(v) are clear and ‘infrastructure not vulnerable to flood risk’ is defined in rule 4e.9.16.

2. Amend Policy 3I.2.4(v) as follows:

Avoid infrastructure (and buildings that enclose that infrastructure), and subdivision for infrastructure, that is vulnerable to flood risk and does not have a functional requirement to be in a flood hazard area.

This will ensure that Policy 3I.2.4(v) gives effect to the National Policy Statement on Electricity Generation.

3. Amend rule 4e.9.16 by adding the words operation and replacement to the rule as follows:

4e.9.16 Any operation, maintenance, or upgrading of existing, replacement or the construction of new:

- below ground infrastructure and buildings that enclose them,
- stormwater infrastructure and buildings that enclose them,
- roads,
- marina facilities and buildings that enclose them,
- hydro electricity generation activities and buildings that enclose them, or
- electricity transmission activities

in any flood hazard area is a **permitted activity**.

This will reflect the activities that infrastructure providers carry out and provide consistency within the District Plan.

4. Amend rule 4e.9.17 by adding the word operation to the rule as follows:

Rule 4e.9.17 Any operation, maintenance or minor upgrading of existing above ground infrastructure (and buildings that enclose them), in any flood hazard area is a **permitted activity**.

This will reflect the activity that is occurring and provide consistency within the operative District Plan but will not allow for the ‘replacement’ of above ground infrastructure as a permitted activity as this may encourage the replacement of potentially at risk structures.

5. Retain the existing definition of minor upgrading in rule 4e.9.17 as it is broad enough to be applicable to all existing above ground infrastructure identified in the rule.
6. Retain the existing wording of policies 3I.2.3 (iii), 3I.2.3 (iv), 3I.2.3 (v) and 3I.2.4(ii) as it is not appropriate to exclude buildings associated with hydro electricity generation activities. These policies will not be used to assess hydro electricity generation activities as they are a permitted activity under rule 4e.9.16.
7. Do not include a new definition for “hydro electricity generation activities” as it is not necessary and does not add clarity to the rule 4e.9.16.
8. Amend objective 3I.2.4 as follows:

Buildings and infrastructure are located and designed to ensure continued operation and to avoid structural damage, to themselves and other buildings, infrastructure and property during a flood event with an annual exceedance probability of 1%. This change makes the objective easier to understand.

9. Do not amend the size of flood event that objective 3I.2.4 addresses as the flood hazard assessment has been based on a 1% AEP flood not a larger flood event.
10. Amend the statement about the National Environmental Standard for Telecommunication Facilities 2016, before rule 4e.9.16 as follows:

The provisions of the National Environmental Standards for Telecommunication Facilities that apply to facility operators, where they are applicable, prevail over the following infrastructure rules.

This will clarify that this statement only applies to defined facility operators and the provisions do not prevail over all infrastructure rules.

11. That rules 4e.9.1 to 4e.9.8 remain unchanged in that the words “(excluding those associated with infrastructure)” are retained as rules need to be able to be understood on their own as in e-plans they are read alone rather than as a group of rules.
12. That rules 4e.9.13, 4e.9.14 and 4e.9.15 and the note under rule 4e.9.16 clarifying what electricity transmission activities are, be retained as there are only submissions in support for these rules and text.
13. That policy 3l.2.4 (ii) remains unchanged as the meaning of structural damage is explained in the reworded objective 3l.2.4. The rules do not control the location of new buildings and major additions within the low or medium flood hazard areas and the policy does not apply to floods larger than 1% AEP.
14. That rule 4e.9.18 is amended as follows:

Any new above ground infrastructure (and buildings that enclose them), in any flood hazard area, that ~~does~~ is not permitted by ~~comply with~~ rule 4e.9.16 is a **restricted discretionary activity** with the matters of discretion restricted to:

- a. The location and design of the infrastructure and building.
- b. Whether the infrastructure is a lifeline utility.
- c. Whether the infrastructure can continue to operate during and after a flood event.

This will ensure that it is clear when this rule applies.

Issue 6 - Physical protection

Submitters

The following individuals/organisations submitted and further submitted on physical protection for the management of flooding.

| Submission point no. | Submitter |
|----------------------|----------------------|
| OS13.2 | Grants Motels Ltd |
| FS25.21 | Mercury NZ Ltd |
| OS16.3 | Campbell, John & Bev |
| OS16.6 | Campbell, John & Bev |
| FS25.43 | Mercury NZ Ltd |
| OS16.8 | Campbell, John & Bev |
| OS16.9 | Campbell, John & Bev |
| OS16.12 | Campbell, John & Bev |
| FS25.44 | Mercury NZ Ltd |
| OS16.4 | Campbell, John & Bev |

The issue and submission points

The matters raised are:

- The plan change does not give enough emphasis on the provision of stopbanks or water diversion schemes to prevent the spread of water to low and medium hazard areas in flood events.
- Flood waters need to be able to divert to their lowest point and not be prevented from doing so by roads that are built higher than the ground and act as dams.
- Physical works such as topping up existing and building new stopbanks and the periodic removal of gravels and sediment from the Tongariro River will be more effective at protecting property than the plan change so are preferable to the plan change.
- This plan change will not protect property from flooding unless stopbanks are built near the Flight property in Hirangi Road and along Kohineheke-Crescent Reserve.
- Inadequate and irregular maintenance of stormwater outlets has exacerbated the effects of floods.

Discussion

A number of submitters suggested that physical works, such as topping up existing stopbanks, building new stopbanks, removal of gravels and sediment from rivers, maintenance of stormwater outlets and designing roads so they do not act as a dam, will divert flood waters away from

development areas and so will be more effective at controlling activities in flood hazard areas than the plan change.

Section 6(h) of the RMA requires the Council to manage significant risks from natural hazards and the Section 32 Report has demonstrated that the approach in the plan change is the most appropriate mechanism for this. The RPS (policies 13.1 and 13.2) requires the Council to use a risk-based approach for the management of development and use within flood hazard areas in the District Plan. It is best practice to address risk with a suite of measures. Engineering works should be used where other measures are impractical or ineffective on their own. Currently engineering works are undertaken by WRC with their flood protection works and programmes on the Tauranga Taupo and Tongariro Rivers. PC34 does not prevent engineered works being undertaken where they are deemed appropriate or necessary to supplement the risk management regime established in the plan change.

The Soil Conservation and Rivers Control Act 1941 gives catchment boards (now regional councils) the function to minimise and prevent damage within its district by floods and erosion. Many regional councils operate and maintain flood defence systems (such as stopbanks) along rivers and lakes. In the Taupō District, WRC owns and operates the Tauranga Taupō Flood Protection Scheme and the Tongariro River Flood Protection Scheme. The physical works that WRC undertake to protect communities from the flooding cannot be directed through this plan change. In section 31.3 methods of the District Plan there are already existing methods that enable physical work to be undertaken as follows:

31.3 Methods

viii. Allocation of resources through the Strategic and Annual Plan processes where measures to avoid, mitigate or remedy the effects of natural hazards in public areas, is appropriate.

xii. Structural works to avoid the effects of natural hazards where deemed appropriate and necessary.

No changes are required to the plan change as flooding risk should be addressed through a suite of measures and method xii already provides for engineering works to be undertaken where appropriate and necessary. Furthermore, the decisions that WRC makes regarding the upgrading of their flood protection schemes are made in the context of the Local Government Act 2002. They are influenced by factors such as financial impacts, priorities in other parts of the region and the views of the community. It would be inappropriate for Taupō District Council to be relying on a particular outcome from those processes to manage flood hazards.

Recommendations and reasons

1. That the plan change is not amended as physical works are already identified in the methods section of the natural hazards chapter of the District Plan and the RPS requires the Council to use a risk-based approach for the management of development within flood hazard areas in the District Plan.

Issue 7 - Activities/buildings

Submitters

The following individuals/organisations submitted and further submitted seeking clarity on whether the rules for buildings also apply to activities that are listed in the rules:

| Submission no. | point | Submitter |
|-----------------------|--------------|--------------------------|
| OS10.2 | | Waikato Regional Council |
| FS25.6 | | Mercury NZ Ltd |
| OS10.3 | | Waikato Regional Council |
| FS25.7 | | Mercury NZ Ltd |
| OS10.4 | | Waikato Regional Council |
| FS25.8 | | Mercury NZ Ltd |
| OS10.5 | | Waikato Regional Council |
| FS25.9 | | Mercury NZ Ltd |

| Submission no. | point | Submitter |
|----------------|-------|--------------------------|
| OS10.6 | | Waikato Regional Council |
| FS25.10 | | Mercury NZ Ltd |
| OS10.7 | | Waikato Regional Council |
| FS25.11 | | Mercury NZ Ltd |
| OS10.8 | | Waikato Regional Council |
| FS25.12 | | Mercury NZ Ltd |
| OS10.9 | | Waikato Regional Council |
| FS25.13 | | Mercury NZ Ltd |
| OS10.10 | | Waikato Regional Council |
| FS25.14 | | Mercury NZ Ltd |
| OS10.11 | | Waikato Regional Council |
| FS25.15 | | Mercury NZ Ltd |
| OS10.12 | | Waikato Regional Council |
| FS25.16 | | Mercury NZ Ltd |
| OS10.13 | | Waikato Regional Council |
| FS25.17 | | Mercury NZ Ltd |

The issue and submission points

The matters raised are:

- The rules seek to manage both activities (assembly care activities, community care activities and emergency service activities) and buildings. It is unclear whether the rules for buildings also apply to activities that are listed in the rules.

Discussion

Rules for buildings and activities

Two submitters raised the issue that it was unclear whether the rules for buildings and additions also apply to activities that are listed in the rules.

Policy 13.2 of the RPS requires the Council to manage subdivision, use and development to reduce the risks from natural hazards to an acceptable or tolerable level, including ensuring risk is assessed for proposed activities on land subject to natural hazards. The following implementation methods are relevant:

- Implementation method 13.2.5 requires the Council to ensure that use and development (of habitable structures, significant community infrastructure such as emergency services and lifeline utilities) in high risk flood hazard zones is appropriate and that Council avoids the placement of structures or development where these would be vulnerable to flooding or would place a community at intolerable risk.
- Implementation method 13.2.6 requires the Council to ensure that subdivision, use and development can only occur in a floodplain with an annual exceedance probability of 1% where:
 - appropriate assessment of the risks has been undertaken and these risks will not exceed acceptable levels;
 - any adverse effects of a 1% annual exceedance probability flood event on habitable buildings are avoided or mitigated;

The plan change contains rules that manage the development of new buildings and additions (major and minor) in high flood hazard areas and low or medium flood hazard areas. This is to ensure that the risk to people's safety and property is not intensified in the high flood hazard areas.

The proposed objectives relate to keeping people safe and protecting property. The policies and methods seek to reflect the risk approach outlined in the RPS. They are centred on not intensifying the risk to people's safety and property in the high flood hazard areas. This reflects the approach in the RPS of avoiding increasing the exposure of people and buildings in the high hazard areas. They are based on minimising regulation for those whose properties are within the low and medium

flood hazard areas and ensuring that they are not at risk from flooding by requiring the raising of floor levels above flood levels.

However, this approach would not necessarily work for more vulnerable people such as children at schools, unwell or elderly people in care facilities and activities that need to be able to operate in floods such as emergency services. So a more conservative approach was designed for assembly care or community care activities and emergency services.

Assembly care and community care activities are those where care is provided to people. Assembly care facilities are places such as early childhood education and day care institutions or schools. Community care activities are places such as hospitals, aged care, drug rehabilitation centres or prisons. People involved with these activities are generally vulnerable and so rule 4e.9.10 makes new assembly care and community care activities a non-complying activity in the high flood hazard areas. This will ensure these activities do not locate in the high flood hazard areas and so will ensure that vulnerable people are not put at risk during a flood event. Rule 4e.9.9 provides for these activities to establish within low and medium flood hazard areas as a restricted discretionary activity as this will require that developers demonstrate how vulnerable people will be kept safe during a flood event including the ability to evacuate.

Emergency services are police, fire, ambulance service, coastguard, civil defence and emergency management facilities and welfare centres. It is essential that these activities can continue to operate during a flood event and provide sufficiently for the community. Rule 4e.9.11 makes it a restricted discretionary activity to locate a new emergency service activity in the low and medium flood hazard areas. This will require the developer to demonstrate that the emergency service will have the ability to continue to operate during a flood event. Rule 4e.9.12 makes any new emergency service in a high flood hazard area a non-complying activity as it is unlikely that they would be able to operate during a flood event. This gives effect to the direction in the RPS.

If a new building or an addition to an existing building is required as part of the assembly care, community care or emergency services activity the rules that relate to new buildings and additions to existing buildings will also apply. The rules for new buildings and major additions to existing buildings and the establishment of these activities would require a non-complying activity consent in the high flood hazard area. This is because these activities (erecting a building and operating assembly care, community care or emergency services activity) are not appropriate in the high flood hazard areas as they will intensify the risk to the safety of people and property in the high flood hazard areas. In the low or medium flood hazard area a new building and major addition will be a permitted activity provided the flood level is 300mm above the maximum flood level. The rules for the establishment of the assembly care, community care or emergency services activities are more conservative in the low or medium flood hazard areas so require a restricted discretionary resource consent. This requires developers to demonstrate how vulnerable people will be kept safe during a flood event, including the ability to evacuate, for assembly care and community care activities and to be assessed as part of the resource consent. For emergency services activities it enables an assessment of whether the emergency services will have the ability to continue to operate during a flood event.

Where an assembly care, community care or emergency service activity seeks to establish and construct a new building or an addition to an existing building both the rules for buildings and additions and the rules for assembly care, community care and emergency services activities apply. However, where an assembly care, community care or emergency services activity seeks to establish in an existing building in the flood hazard area only the rules that relate to those activities apply, not those that relate to new buildings. A specific activity rule has been included for these activities because a more conservative approach is required for emergency services and care facilities for more vulnerable people. This is consistent with the approach outlined in the RPS.

No changes need to be made to the plan change as it is clear that the rules for buildings and additions and also the rules for emergency services and care facilities apply, where these activities are established and new buildings or additions are erected in flood hazard areas.

Recommendations and reasons

1. That the plan change is not amended and the separate rules for new buildings, additions to existing buildings and activities that involve vulnerable people and emergency services in flood hazard areas are retained. This is because a more conservative approach is necessary to ensure vulnerable people are kept safe in floods and such activities may locate in existing buildings and to ensure that emergency services can continue to operate during floods.

Issue 8 - Hazardous substances

Submitters

The following individuals/organisations submitted and further submitted about the inclusion of rules for the establishment of hazardous facilities in flood hazard areas:

| Submission point no. | Submitter |
|----------------------|--------------------------|
| OS10.14 | Waikato Regional Council |
| FS25.18 | Mercury NZ Ltd |

The issue and submission points

The matters raised are:

- That the plan change does not adequately address the location, design and management of hazardous substances/ hazardous facilities within flood hazard areas.
- There is no explanation or analysis in the Section 32 Report to indicate why provisions relating to hazardous substances in flood hazard areas are not included in the plan change.

Discussion

Two submitters stated that the plan change does not manage the location and design of hazardous substances within the flood hazard areas. These submissions identify that method 4.2.9 of the RPS allocates to the Council the responsibility for developing objectives, policies and rules for land for the prevention or mitigation of any adverse effect of the storage, use, disposal or transportation of hazardous substances. Also method 13.2.5 of the RPS requires that the District Plan ensure that use and development in high risk flood hazard zones is appropriate. Method 13.2.6(a)(vi) states that subdivision, use and development can only occur in a 1% AEP floodplain where any hazardous substance stored as part of the development, or during the construction, or found on or near to the site, will not create a hazard. The further submitter stated that it is considered good environmental practice to locate hazardous substances and hazardous facilities away from flood hazard areas to avoid the risk of hazardous spills and associated contamination entering waterbodies.

Sections 12 and 13 of the Resource Legislation Amendment Act 2017 amended Sections 30 and 31 of the RMA to remove the control of hazardous substances as an explicit function of councils. This means that the Council no longer has an obligation to regulate hazardous substances in its District Plan. Consequential changes were also made to the Hazardous Substances and New Organisms Act 1996 (HSNO) and the Health and Safety at Work Act 2015 (HSW) in light of this change. This change was made because other legislation controls hazardous substances and in most cases HSNO and Worksafe controls will be adequate to avoid, remedy or mitigate adverse environmental effects (including potential effects) of hazardous substances. Advice from MfE states that the inclusion of hazardous substance controls in plans should be the exception rather than the rule, and included only when a rigorous section 32 analysis shows that these controls are justified.

Under section 31(1)(a) of the RMA the Council has a broad function of achieving integrated management. The Council may use this function to place extra controls on hazardous substance use under the RMA, if existing HSNO or Worksafe controls are not adequate to address the environmental effects of hazardous substances in any particular case (including managing the risk of potential effects on the local environment). HSNO does not specifically address the management of hazardous facilities in flood hazard areas. Therefore the District Plan needs to address this issue.

Section 3m of the District Plan currently controls the use of land to prevent or mitigate any adverse effects of hazardous substances. Section 3m contains an objective and two policies to protect the environment and the health and safety of the community, from the adverse effects of hazardous substances associated with hazardous facilities as follows:

Objective 3m.2.1

Protection of the environment and the health and safety of the community, from the adverse effects of hazardous substances associated with hazardous facilities.

Policies

- i. Ensure that hazardous facilities are appropriately located to avoid or mitigate adverse effects on the environment and unacceptable risks to the environment and community.
- ii. Ensure that hazardous facilities are designed and managed to avoid or mitigate adverse effects and unacceptable risks to the environment and community.

A rule manages the location of any hazardous facility as follows:

4e.13.2 Any hazardous facility located within or immediately adjacent to the Residential Environment, is a discretionary activity.

ASSESSMENT CRITERIA

- a. Location of the hazardous substances and proximity to sensitive areas including:
 - i. Activities and areas involving people;
 - ii. Lakes and waterways;
 - iii. Sites of significance to Tangata Whenua, Outstanding Landscape Areas, Amenity Landscape Areas, Significant Natural Areas and Sites of Historic Value.
- b. Nature and quantity of the hazardous substance on site.
- c. Potential risk and effect on natural ecosystems and the life supporting capacity of land and water.
- d. Site design and management including:
 - i. Site drainage and off-site infrastructure, e.g. stormwater and wastewater drainage systems;
 - ii. Disposal of wastes containing hazardous substances;
 - iii. Spill containment measures;
 - iv. Suitably located vehicle washdown areas;
 - v. Self monitoring and maintenance measures;
 - vi. Risk mitigation and management measures including;
 - vii. A contingency plan which sets out emergency procedures
 - viii. Fire safety and fire water management.
- e. Any adverse effects on the operation and safety of the roading network arising from the transportation of hazardous substances.
- f. Risk of natural hazards to the allotment.
- g. Alternative locations or methods for undertaking the activity.

immediately adjacent to the Residential Environment within the District Plan. Some of the flood hazard areas are within the Residential Environment so in these areas the location and design of hazardous facilities is already managed by rule 4e.13.2. The flood areas in PC34, however cover other zones apart from just the residential environment, primarily the rural environment. So currently hazardous facilities will not be managed within flood hazard areas that are outside the residential environment or not immediately adjacent to the residential environment. Therefore, rule 4e.13.2 needs to be amended to include all flood hazard areas as follows:

4e.13.2 Any hazardous facility located within or immediately adjacent to the Residential Environment or within the flood hazard area, is a discretionary activity.

This will ensure that the District Plan implements method 13.2.6(a)(vi) of the RPS by ensuring that hazardous facilities can only locate within a 1% AEP floodplain where any hazardous substance will not create a hazard.

Recommendations and reasons

1. That existing rule 4e.13.2 is amended as follows:

Any hazardous facility located within or immediately adjacent to the Residential Environment or within the flood hazard area, is a discretionary activity.

This will ensure that the District Plan implements method 13.2.6(a)(vi) of the RPS by ensuring that hazardous facilities can only locate within a 1% AEP floodplain where any hazardous substance will not create a hazard.

Issue 9 - Uninhabited farm buildings

Submitters

The following individuals/organisations submitted and further submitted on the exclusion of uninhabited farm buildings from the building rules in flood hazard areas:

| Submission point no. | Submitter |
|----------------------|----------------------------------|
| OS19.1 | Federated Farmers of New Zealand |
| OS19.10 | Federated Farmers of New Zealand |
| FS24.13 | Trustpower Ltd |
| OS19.20 | Federated Farmers of New Zealand |
| FS24.12 | Trustpower Ltd |
| OS19.25 | Federated Farmers of New Zealand |
| OS19.26 | Federated Farmers of New Zealand |
| OS19.27 | Federated Farmers of New Zealand |
| OS19.28 | Federated Farmers of New Zealand |
| OS19.29 | Federated Farmers of New Zealand |
| OS19.30 | Federated Farmers of New Zealand |
| OS19.31 | Federated Farmers of New Zealand |
| OS19.32 | Federated Farmers of New Zealand |

The issue and submission points

The matters raised are:

- Uninhabited farm buildings:
 - are not vulnerable to flooding,
 - are structurally very sound,
 - seldom have people in them,
 - do not usually have fixtures and fittings, and
 - are not used for essential infrastructure operations
 so they should be excluded from policies 3l.2.3(ii) and 3l.2.4(i), rules 4e.9.1, 4e.9.2, 4e.9.3, 4e.9.4, 4e.9.5, 4e.9.6, 4e.9.7 and 4e.9.8.
- To enable them to be excluded uninhabited farm buildings need to be defined.

Discussion

Two submitters seek that uninhabited farm buildings be excluded from policies 3l.2.3(ii) and 3l.2.4(i), rules 4e.9.1, 4e.9.2, 4e.9.3, 4e.9.4, 4e.9.5, 4e.9.6, 4e.9.7 and 4e.9.8. This is because they are not vulnerable to flooding, are structurally very sound, seldom have people in them, do not usually have fixtures and fittings, are not used for essential infrastructure operations and there is usually a low economic cost if the building fails. To include uninhabited farm buildings in the controls for buildings in flood hazard areas would add unnecessary costs to farmers for seemingly little or no benefit.

The two objectives of the plan change are to keep people safe and to ensure continued operation of buildings and avoid structural damage during floods. The plan change does not distinguish between uses within buildings except for buildings that house vulnerable people and those associated with infrastructure. To start distinguishing between uses within buildings is redundant as any building, can be affected by flooding, resulting in structural damage and subsequent damage to people and buildings downstream from debris, regardless of the activities within the building.

Uninhabited farm buildings are likely to reflect a wide range of different uses from storing hay to housing animals or farming equipment. Those buildings have a value and that value will differ from building to building, however that still means it is important to try and avoid unnecessary damage from future flood events. Unless appropriately designed those buildings could be at risk from substantial damage. Debris from damaged buildings, regardless of whether they are inhabited, has the potential to adversely impact on other buildings or the safety of people. For this reason uninhabited buildings in urban areas are managed and the same is true for rural areas.

The large scale of farms affected by the flooding on the margins of Lake Taupō and the modelled tributaries, means owners are likely to have choices about the location of farm buildings so that hazards can be avoided.

If uninhabited farm buildings are not excluded from policies 3l.2.3(ii) and 3l.2.4(i), rules 4e.9.1, 4e.9.2, 4e.9.3, 4e.9.4, 4e.9.5, 4e.9.6, 4e.9.7 and 4e.9.8 there is no need to define the term ‘uninhabited farm buildings’.

Recommendations and reasons

1. Policies 3l.2.3(ii) and 3l.2.4(i), rules 4e.9.1, 4e.9.2, 4e.9.3, 4e.9.4, 4e.9.5, 4e.9.6, 4e.9.7 and 4e.9.8 are not amended to exclude uninhabited farm buildings. This is because buildings, even if they are empty can have effects downstream (both to people and buildings) if structural damage occurs as a result of flooding.
2. A new definition of uninhabited farm buildings is not added to the definitions section. This is because the term is not used in the plan change so does not need to be defined.

Issue 10 - Definitions

Submitters

The following individuals/organisations submitted and further submitted seeking amendments to the definitions section of the plan change:

| Submission point no. | Submitter |
|----------------------|-------------------|
| OS17.4 | Trustpower Ltd |
| FS25.50 | Mercury NZ Ltd |
| FS26.8 | Transpower NZ Ltd |
| OS18.3 | Mercury NZ Ltd |
| FS26.4 | Transpower NZ Ltd |

The issue and submission points

The matters raised are:

- Certainty is needed as to what infrastructure is included in “infrastructure not vulnerable to flood risk or that has a functional requirement to be in a flood hazard area” as it is used in policy 3l.2.4(iv) and (v).
- The definition of AEP needs to be amended as it’s not easy to understand

Discussion

Definition of infrastructure that is not vulnerable to flood risk or has a functional requirement to be in a flood hazard area

Policy 3l.2.4(iv) provides for infrastructure that is not vulnerable to flood risk or has a functional requirement to be in a flood hazard area. Policy 3l.2.4(v) seeks to avoid infrastructure that is vulnerable to flood risk being located in flood hazard areas. A submitter seeks to ensure that in policy 3l.2.4(iv) the words “infrastructure that is not vulnerable to flood risk or has a functional requirement to be in a flood hazard area” includes hydro electricity generation activities and buildings. So, this is a request for a definition to be added to define “Infrastructure not vulnerable to flood risk or that has a functional requirement to be in a flood hazard area”. The definition proposed is as follows:

- Infrastructure not vulnerable to flood risk or that has a functional requirement to be in a flood hazard area includes, but is not limited to:
- below ground infrastructure and buildings that enclose them;
 - stormwater infrastructure and buildings that enclose them;
 - roads;
 - marina facilities and buildings that enclose them;
 - hydro electricity generation activities and buildings that enclose them;
 - electricity transmission activities; and
 - hydro electricity generation activities means the construction, operation, maintenance and upgrade of structures associated with hydro electricity generation.

It is not necessary to define “infrastructure that is not vulnerable to flood risk or has a functional requirement to be in a flood hazard area”. Rule 4e.9.16 outlines the different types of infrastructure that are not vulnerable to flood risk or that have a functional requirement to be in a flood hazard

area. This rule provides for the maintenance or upgrading of existing hydro electricity generation activities or the construction of new hydro electricity generation activities as a permitted activity.

Definition of Annual Exceedance Probability

The current definition of AEP in the plan change is *“the probability of a certain design flood flow being equalled or exceeded in any year. A 1% AEP design flood flow has a 1% or 1 in 100 chance of being equalled or exceeded in any year.”*

The definition in the RPS is *“the estimated probability of an event occurring in any one year – for example, a 1% annual exceedance probability means an event that has an estimated probability of occurrence of 1 per cent in any one year”*.

The submitter proposes amending the definition so it is clear and aligns with the intent and specific purpose of the PC34. That is, both river flood flows but also the water level of Lake Taupō. The submitter proposes that the definition in the RPS should be used as it is sufficiently broad to cover both river and lake scenarios, and states that the district plan needs to be consistent with RPS.

The amended definition proposed is:

~~Annual Exceedance Probability (AEP) - means the estimated probability of a certain design flood flow being equalled or exceeded an event occurring in any one year. A for example, a 1% AEP means an event that has an estimated probability of occurrence of 1 per cent design flood flow has a 1% or 1 in 100 chance of being equalled or exceeded in any one year.~~

Dr McConchie states, in paragraph 233 of his evidence, that the definition suggested by the submitter (and therefore the RPS definition) is technically incorrect as it does not consider the probability of events greater than the design event also occurring. Dr McConchie, in paragraph 236 of his evidence recommends the existing definition for AEP in the plan change be amended to read:

Annual Exceedance Probability (AEP): The AEP quantifies the probability of a design event being equalled or exceeded in any year. AEPs are generally described as a percentage i.e. the probability x 100. For example, a design flood with the probability of being equalled or exceeded each year of 0.01 is described as the 1% AEP design flood.

He also recommends that a new definition for “design flood” be included in the plan change as follows:

Design flood: The design flood when assessing the flood hazard posed by the major tributaries flowing into Lake Taupō includes the 1% AEP flood assessed using a frequency analysis of the annual flood maxima series (or alternative methodology), and an allowance for the potential effects of climate change over approximately the next 100 years. The design flood when assessing the flood hazard posed by high water levels within Lake Taupō includes the 1% AEP water level assessed using a frequency analysis of the annual lake level maxima series since 1980, an allowance for the potential effects of climate change over approximately the next 100 years, an allowance for the increase in water level caused by seiche; and an allowance for ongoing deformation of the shoreline over the next 100 years.

These definitions need minor rewording to be consistent with the format of the definitions in the District Plan.

Recommendations and reasons

1. That no definition is added for “infrastructure that is not vulnerable to flood risk or has a functional requirement to be in a flood hazard area” as this is not required as it is effectively defined in rule 4e.9.16.
2. That the definition of Annual Exceedance Probability is replaced with the following definition:

Annual Exceedance Probability (AEP): means the probability of a design event being equalled or exceeded in any year. AEPs are generally described as a percentage i.e. the probability X 100. For example, a design flood with the probability of being equalled or exceeded each year of 0.01 is described as the 1% AEP design flood.

The reason for amending the AEP definition is that it is technically correct, more accurately describes the AEP and provides an example to add clarity.

3. That a new definition for Design flood is included in the plan change as follows:

Design flood: means the design flood when assessing the flood hazard posed by the major tributaries flowing into Lake Taupō includes the 1% AEP flood assessed using a

frequency analysis of the annual flood maxima series (or alternative methodology), and an allowance for the potential effects of climate change over approximately the next 100-years. The design flood when assessing the flood hazard posed by high water levels within Lake Taupō includes the 1% AEP water level assessed using a frequency analysis of the annual lake level maxima series since 1980, an allowance for the potential effects of climate change over approximately the next 100-years, an allowance for the increase in water level caused by seiche; and an allowance for ongoing deformation of the shoreline over the next 100-years.

The reason for including a new definition for design flood is that it clearly describes the basic design event used in the flood hazard assessment, which is referred to in the definition of AEP.

Issue 11 - Impacts on property and property values

Submitters

The following individuals/organisations submitted and further submitted in relation to the impacts on property and property values:

| Submission point no | Submitter |
|---------------------|------------------------|
| OS9.1 | Hapeta, Leonie |
| OS16.1 | Campbell, John and Bev |

The issue and submission points

The matters raised are:

- The tennis courts on Parehopu Street, Kuratau should be protected from flooding given their importance as a community asset.
- The approach to managing risks from flooding should recognise the social issues facing Turangi and avoid, as far as possible, exacerbating the devaluation of property values.

Discussion

Protection of the tennis courts on Parehopu Street, Kuratau

It is acknowledged that the tennis court near the beach front in Kuratau is a valuable community asset. The Council may wish to undertake some physical works to ensure that the court is more resilient to flooding in the future. However, that is a matter for the Council to resolve through its asset management planning. PC34 cannot directly influence the presence of the tennis court given its existing use rights, nor can the plan change influence the Council to undertake physical works.

Recognise Turangi social issues and avoid exacerbating the devaluation of property values.

This a complex issue related to the mix of social and economic challenges facing the township of Turangi. The Section 32 Report⁶ has identified that there are economic costs related to the plan change including a potential fall in property values. The scale of any such economic impact will vary between locations and even between individual properties and is likely to change over time.

The application of the risk-based approach in PC34 has enabled Council to reduce some of the negative economic impacts. With the more accurate modelling now available, the plan change will provide landowners and prospective landowners with a more accurate assessment of the likely flooding risks. This means that individuals can more effectively factor in the impacts of the natural hazard when making decisions about property transactions. This is in contrast with the flood hazard areas in the District Plan which simply treat all flood areas the same regardless of the degree of risk.

There will inevitably be some impacts on property values in the Turangi area. However, Council has an obligation under the RMA and the RPS to identify and manage development and use within flood hazard areas. Keeping people and property safe in floods is a greater obligation under the RMA than the potential economic impact on any one individual property owner.

In establishing the provisions to manage the risks, the Council has sought to reduce the compliance costs on individuals where practicable. This is best reflected in the permitted activity status for building in low and medium hazard areas. Practically, this would apply to much of the flood hazard areas within Turangi. Where the risk is greater (high flood hazard areas) the RPS requires the Council to discourage development that increases the exposure of people and buildings to intolerable risks. The non-complying activity status for the erection of new buildings in high flood hazard areas (rule 4e.9.3) allows applicants to obtain a resource consent where they

⁶ Taupo District Council (2017) Plan Change 34 - Flood Hazard. Section 32 Report.

can demonstrate that the development can avoid or mitigate these risks and will keep people and property safe in floods.

The application of a risk-based approach to the flood hazard is considered to be superior to the generic approach currently applied in the District Plan. By providing more sophisticated information around the degree of risk, Council will enable property owners and purchasers to make better informed decisions and reflect the true value of risk within property transactions.

Recommendations and Reasons

1. That no changes are made to PC 34 with regard to protecting property and property values. The plan change has been promoted by Council in response to the overarching obligations in the RMA to manage the risks from natural hazards on use and development and the more specific obligations under the RPS. These obligations are considered to be greater under the RMA than the economic impact on an individual property owner through the reduction in their property value.

Issue 12 - Minor changes

Submitters

The following organisation submitted requesting minor text changes:

| Submission point no. | Submitter |
|-----------------------------|------------------|
| OS17.1 | Trustpower Ltd |

The issue and submission points

The matters raised are:

- Clarity is sought for section 31.1(ii) in the introductory text to ensure that it clearly explains why some areas which can flood, have not been identified as flood hazard areas in the District Plan.

Discussion

Section 31.1(ii) of the plan change outlines the issue of flooding and development within flood hazard areas. The plan change seeks to amend this section to explain which waterbodies were modelled for a 1% AEP flood for the plan change and why other waterbodies that can flood were not included. The paragraph also introduces the concept of defended areas and outlines which defended areas have been mapped. The submitter seeks to amend this text to ensure that it clearly explains why some areas which can flood, have not been identified as flood hazard areas in the District Plan. The submitter seeks the following changes to the text:

Other waterbodies in the district can flood but have not been included in flood modelling and / or identified in the planning maps as flood hazard areas as they:...

The resulting flood hazard areas from flood modelling, for the rivers that have been modelled, have been mapped on the District Plan maps. It is not necessary to include the additional text to state this. It is obvious that if the waterbodies that flood have not been included in the flood modelling then their flood hazard areas cannot be mapped on the District Plan maps.

Recommendations and reasons

1. That the text in the Section 31.1(ii) remains unchanged as the text is clear that if rivers have not been included in the flood modelling their flood hazard areas will not be mapped on the District Plan maps.

Issue 13 - Management of extreme wave activity.

Submitters

The following individuals/organisations submitted and further submitted in relation to the management of effects from extreme wave activity:

| Submission point no | Submitter |
|---------------------|----------------------------------|
| OS15.12 | Ngāti Kurauia |
| FS25.36 | Mercury NZ Ltd |
| OS18.4 | Mercury NZ Ltd |
| OS18.5 | Mercury NZ Ltd |
| OS18.6 | Mercury NZ Ltd |
| OS18.10 | Mercury NZ Ltd |
| OS21.1 | Lakes and Waterways Action Group |
| OS21.2 | Lakes and Waterways Action Group |
| FS25.63 | Mercury NZ Ltd |
| OS21.4 | Lakes and Waterways Action Group |
| FS25.64 | Mercury NZ Ltd |

The issue and submission points

The matters raised are:

- A desire to see the Council carry out further modelling work to better understand the dynamics and potential impacts of extreme wave activity. Add a method to state that this will be done.
- There should be recognition of extreme wave activity to raise community awareness and understanding of the potential risks.
- Controls should be put in place to prevent new buildings and subdivision in areas at risk from extreme wave activity. To achieve this, submitters have sought amendments to the existing rules that control development in the foreshore protection area.
- Additional policies should be added to address development subject to extreme wave activity.

Discussion

Carry out modelling of extreme wave activity

There is an expectation that the Council needs to have a better understanding of the extreme wave activity hazard around the margins of Lake Taupō. Through their investigation⁷ of the flood hazard Opus also identified areas of the lakeshore that could be at risk from extreme wave activity. This was an assessment at a broad scale intended to provide an indication of which areas might be more susceptible. In a memorandum to Council officers⁸, Dr Jack McConchie noted that *“this output is more indicative of potential rather than actual wave run-up but still indicates variability of wave run-up around Lake Taupō”*.

Council has acknowledged that this is a relevant hazard in the district and that it needs to be better understood so that it can be appropriately managed⁹. Further assessment of the risks posed by the hazard will take place through the review of the District Plan. That review process has commenced, with Council undertaking the preparation of a Proposed District Plan, including natural hazards, over the next three years. The natural hazard work stream has been given a high priority as part of the review. Notification of the Proposed District Plan is anticipated in the 2021/22 financial year¹⁰.

There is no need to add a method to state that further modelling work to better understand the dynamics and potential impacts of extreme wave activity will be done as there is already a method in the District Plan (3I.3(iv)), that states that areas subject to the effects of natural hazards will be identified in the District Plan.

⁷ Opus (2014) Taupo District Flood Hazard Study – Lake Taupo Foreshore

⁸ McConchie, Jack (18 August 2015) Memo on Wave run-up

⁹ Taupo District Council (2017) Plan Change 34 - Flood Hazard. Section 32 Report, pages 13 and 14

¹⁰ Taupo District Council (2018) Long-term Plan 2018-28, page 72

Raise community awareness and understanding of the risks of the extreme wave activity

Submitters sought that Council make the landowners and the wider community more aware of the risks posed by the extreme wave activity hazard. The better informed people are of natural hazards the easier it is to make decisions regarding their safety and investment. The challenge posed to Council is how best to do this given the significant uncertainty regarding the spatial extent of the hazard and the degree of associated risk.

Council has taken a pragmatic approach. Information about the work done to date on extreme wave activity has been made available on Council's website, however this is not at a level of detail to identify whether a particular site is affected. Land Information Memoranda, issued by the Council, also alert potential property purchases to the existence of the hazard and direct them to where they can find out more, but limited information. The concept of risks posed by extreme wave activity was also included in the Lake Taupō Erosion and Flood Strategy (2009), which involved widespread community engagement and specific consultation with landowners adjacent to the Lake.

The community is aware of this potential hazard and the currently available information is on Council's website for both existing and potentially new owners of land in the vicinity of the lakeshore. It will be appropriate to identify the hazard in the District Plan once further work has been undertaken to better identify the spatial extent and nature of the hazard.

Control of development in the foreshore protection area and add policies to recognise and manage the potential risk of wave activity.

Submitters sought the inclusion of references to extreme wave activity in PC34 through methods or policies or both. Council's primary concern is that including methods and/or policies related to extreme wave activity is premature as we do not have adequate information to identify the extent and magnitude of the hazard. The introduction of methods and/or policies to address development affected by extreme wave activity without adequate information about the hazard would not meet the tests set out in section 32 of the RMA.

The section 32 assessment by Council in relation to PC34 includes an assessment of the issues related to extreme wave activity¹¹. The conclusion of this assessment is that there is insufficient understanding of the extent of the hazard and the related risks to enable a management regime to be implemented at this time.

The development of PC34 has been focused on addressing the risks associated with the flood hazard. There has been extensive quality assurance of the technical data, including peer review, as well as ongoing consultation with potentially affected landowners over a number of years. Similar quality assurance and peer review work has not been done for the limited modelled data Council has for extreme wave activity. Furthermore, Council has not engaged with landowners about the potential to include extreme wave activity as a hazard in the District Plan. There has not been enough robust analysis or consultation with potentially affected landowners to ensure that Council could meet the tests of section 32 or the consultation requirements of the RMA.

The suggestion by a submitter to amend the existing rule that controls development in the foreshore protection area (rule 4e.2.1) highlights these concerns. The rule effectively makes any building on or above ground within the foreshore protection area a discretionary activity. In practice this area relates to the 20m strip of land from the edge of Lake Taupō. The submitter's proposal is that subdivision is added to this rule to enable an assessment of extreme wave activity risk whenever a new allotment is created near the margins of the Lake.

The first challenge with this approach is that there has been no assessment of the method in relation to section 32. The introduction of subdivision as a discretionary activity could have widespread and potentially unforeseen impacts on land owners that may be out of proportion to the level of risk. By way of example, the subdivision of a large farming block that stretched into the foreshore protection area, into several large lots would automatically become a discretionary activity. This would generate additional assessment, add costs to the preparation of the application and create uncertainty for the landowner and community.

The second challenge with this approach is that there has been no consultation with potentially affected landowners about the nature of the hazard, its potential spatial extent, the nature of the risks and the potential ways to manage those risks. Given that the foreshore protection area

¹¹ Taupo District Council (2017) Plan Change 34 - Flood Hazard. Section 32 Report, pages 13 and 14.

stretches around the entire margin of Lake Taupō this is expected to impact a significant number of people. There would also be unintended impacts on landowners adjacent to other water bodies. The foreshore protection area applies not only to Lake Taupō but any other identified rivers. This would mean that those landowners would have additional controls over their ability to subdivide despite the fact that their properties could not be affected by extreme wave activity on Lake Taupō.

Therefore, the Council does not believe that it is appropriate for the District Plan to identify extreme wave activity as a hazard until additional work has been done to identify the spatial extent and magnitude of the hazard, to understand the nature of the risks and make an assessment of the most appropriate management response. Furthermore, the Council believes that imposing additional methods or policies related to extreme wave activity would be unjustified until such time as the work has been undertaken and the landowners have had an opportunity to be engaged on the issues.

There is the potential to delay PC34 until such time as that work and consultation has been completed. However, Council believes that such a delay would be counterproductive for the following reasons:

- If PC34 is delayed there will be a significant number of properties where flooding is likely in the future but they are not identified in the District Plan. Management of land uses and subdivision on those properties is not possible until PC34 has been progressed.
- Similarly, there are several hundred properties that are shown as being at risk of flooding in the District Plan that would not be included under PC34. Until the PC34 is progressed those landowners are still subject to requirements for a resource consent.

While acknowledging that there is some risk from extreme wave activity, the Council is comfortable that the following mechanisms already in place ensure that those risks can be minimised:

- The foreshore protection area that surrounds the Lake already ensures that any new building is a discretionary activity. In the matters of discretion there is specific reference to the potential for erosion. That allows Council to seek further site specific assessment for any new building closer than 20m to the bed of Lake Taupō.
- All new areas for future residential growth identified in the District Plan are located a sufficient distance from the margins of Lake Taupō to ensure that extreme wave activity will not be a risk.
- The subdivision rules that relate to the Rural Environment make any subdivision below 4 hectares a non-complying activity. This provides an effective constraint on unintended intensification leading to housing being located in areas susceptible to extreme wave activity.
- Finally, section 106 of the RMA provides the Council with the ability to consider the effects of subdivision on natural hazards.

Furthermore, expert advice from Dr McConchie has indicated that there are significant challenges with the data that has been produced to date. More assessment work is required to overcome those challenges, to progress to a point where there is confidence in the modelled results and the spatial extent and nature of the hazard are known. The Council has already commenced a work programme to address that as part of the review of the District Plan. Until the extent and nature of the hazard are understood it would be premature to impose additional methods or policies on landowners. This reflects the need to demonstrate that proposed provisions are the most appropriate way to achieve the purpose of the RMA.

Recommendations and Reasons

1. That no changes are made to PC34 to address the management of the risks associated with extreme wave activity. This is because although Council has recognised this potential and separate natural hazard, it does not have adequate information on the spatial extent and magnitude of the risk and has not engaged with affected landowners about this risk. Until the extent and nature of the hazard are understood it would be premature to impose additional methods or policies on landowners.

7. APPENDIX A – PROPOSED PLAN CHANGE 34 – FLOOD HAZARD

PLAN CHANGE 34 FLOOD HAZARD

In Chapter 3I Natural Hazards, Introduction update 3I.1ii Flooding as follows:

ii FLOODING

Inundation can occur as the result of water flowing over the top of riverbanks and flooding adjoining land; ~~inflows exceeding outflows from the capacity of a lake being exceeded and flooding lakeshore properties; and of properties being located in ephemeral waterways.~~ Settlements adjacent to the Waikato and Hinemaiaia River; the Tauranga Taupō River, the Tongariro Rivers, the Tokaanu Stream, the Kuratau River and the Whareroa Stream and Lake Taupō along with other smaller river systems, for example, the Kinloch, Waitahanui, Hinemaiaia, Tauranga Taupō, Waimarino, Waioitaka, Tokaanu and Kuratau Rivers can be affected by flooding. Other waterbodies in the district can flood but have not been included in flood modelling as they:

- are spring fed so not as susceptible to flood flows, or
- have a small catchment area, or
- are located in areas where there are relatively few people, limited property at risk and outside future growth areas.

In some areas mitigation measures such as stopbanks exist and allow the use and occupancy of the flood plane plain at an acceptable level of risk. These have been identified as defended areas. For the Tauranga Taupō River the defended areas, identified on the planning maps, are defended up to 2% AEP. For the Tongariro River the defended areas, identified on the planning maps, are defended up to 1% AEP. ~~However, activities need to recognise that there is still a hazard when the capacity of the stopbanks is exceeded.~~

Insert the following text before Objective 3I.2.1

The following objectives and policies apply to all natural hazards except flooding. Objectives 3I.2.3 and 3I.2.4 apply to flood hazard areas.

Delete the word “flooding” from policy 3I.2.1ii

Delete the following text “Earthworks may alter the direction and intensity of a flood event by diverting floodwaters or altering drainage functions, while” from the third sentence of the second paragraph under 3I.2.2 Explanation

Insert the following text before Objective 3I.2.3:

Objective 3I.2.3 seeks to keep people safe in a 1% annual exceedance probability flood. Objective 3I.2.4 seeks to keep buildings and infrastructure safe in a 1% annual exceedance probability flood.

OBJECTIVE

3I.2.3 Keep people safe during a flood event with an annual exceedance probability of 1% and ensure that emergency services remain able to operate.

POLICIES

- i. Ensure that communities are informed of the potential flood hazard (including residual risks) that may affect them.
- ii. Avoid locating new buildings (excluding those associated with infrastructure) and major additions to existing buildings (excluding those associated with infrastructure) in high flood hazard areas due to the risk to people’s lives from flood waters and building debris.
- iii. Control the design of new buildings and minor additions in low and medium flood hazard areas to keep people safe.
- iv. Control the design of minor additions to existing buildings in high flood hazard areas. This acknowledges the existing investment on the site but recognises the overriding need to keep people safe.
- v. Control the design of major additions to existing buildings in low and medium flood hazard areas. This acknowledges the existing investment on the site but recognises the overriding need to keep people safe.
- vi. Avoid locating new assembly care and community care activities for vulnerable people in high flood hazard areas.

- vii. Manage the location and design of new assembly care and community care activities for vulnerable people in low and medium flood hazard areas to keep people safe. This includes the ability for people to be evacuated.
- viii. Avoid locating new emergency services in high flood hazard areas.
- ix. Manage the location and design of new emergency services in low and medium flood hazard areas to ensure their ability to operate in a flood event.
- x. Avoid subdivision that creates intolerable risk in high flood hazard areas. The location of building platforms within high flood hazard areas is considered to be intolerable.

OBJECTIVE

- 3l.2.4 Buildings and infrastructure are located and designed to ensure continued operation and to avoid structural damage during a flood event with an annual exceedance probability of 1%.

POLICIES

- i. Avoid locating new buildings (excluding those associated with infrastructure) and major additions to existing buildings (excluding those associated with infrastructure) in high flood hazard areas given the likelihood of structural damage.
- ii. Control the design of new buildings and major additions to existing buildings in low and medium flood hazard areas to avoid structural damage during significant flood events.
- iii. Provide for minor additions to existing buildings in low and medium flood hazard areas in recognition of the investment in the existing buildings and site works.
- iv. Provide for, infrastructure (and buildings that enclose that infrastructure), and subdivision for infrastructure that is not vulnerable to flood risk or has a functional requirement to be in a flood hazard area.
- v. Avoid infrastructure (and buildings that enclose that infrastructure), and subdivision for infrastructure, that is vulnerable to flood risk in a flood hazard area.

Delete the words "such a minimum floor levels in identified flood prone areas" from Method 3l.3iii

Delete method 3l.3xv

Renumber method 3l.3xvi to 3l.3xv

DISTRICT WIDE RULES

Delete the words "flood inundation or" from the assessment criterion d to rule 4e.2.1 (Any building on or above ground within a Foreshore Protection Area is a discretionary activity.) so it reads "d. The potential for erosion from the District's waterways and lakes"

Remove the existing rules in section 4e.9 Flood Hazard Area (rules 4e.9.1 and 4e.9.2) and insert the following:

These rules apply to the flood hazard areas marked on the District Plan maps.

NOTE. There are no rules that apply to the defended areas. These areas are identified on the District Plan maps for information purposes only.

New Buildings

- 4e.9.1 Any new building (excluding those associated with infrastructure) in a low or medium flood hazard area is a **permitted activity** provided the floor level is 300mm above the identified maximum flood level.
- 4e.9.2 Any new building (excluding those associated with infrastructure) in a low or medium flood hazard area which does not comply with the standard in rule 4e.9.1 is a **restricted discretionary activity**, with Council's discretion being restricted to:
- a. The degree to which building, structural or design work to be undertaken can avoid the effects of the flood hazard.

- b. The nature of the activity, its intended uses including whether the use is temporary or permanent and the degree to which people are put at risk as a result of the activity.
- 4e.9.3 Any new building (excluding those associated with infrastructure) in a high flood hazard area is a **non-complying activity**.

Major Additions

- 4e.9.4 Any major addition to an existing building (excluding those associated with infrastructure) in a low or medium flood hazard area is a **permitted activity** provided the floor level of the addition is 300mm above the identified maximum flood level.
- 4e.9.5 Any major addition to an existing building (excluding those associated with infrastructure) in a low or medium flood hazard area which does not comply with the standard in rule 4e.9.4 is a **restricted discretionary activity**, with Council's discretion being restricted to:
- a. The degree to which building, structural or design work to be undertaken can avoid or mitigate the effects of the flood hazard.
 - b. The nature of the activity, its intended uses including whether the use is temporary or permanent and the degree to which people are put at risk as a result of the activity.
- 4e.9.6 Any major addition to an existing building (excluding those associated with infrastructure) in a high flood hazard area is a **non-complying activity**.

Minor Additions

- 4e.9.7 One minor addition to an existing building at the date this rule becomes operative (excluding those associated with infrastructure) in a low, medium or high flood hazard area is a **permitted activity** provided the floor level of the addition is not lower than the existing floor level.
- 4e.9.8 Any minor addition to an existing building (excluding those associated with infrastructure) in a low, medium or high flood hazard area which does not comply with the standard in rule 4e.9.7 is a **restricted discretionary activity**, with Council's discretion being restricted to:
- a. The degree to which building, structural or design work to be undertaken can avoid or mitigate the effects of the flood hazard.
 - b. The nature of the activity, its intended uses including whether the use is temporary or permanent and the degree to which people are put at risk as a result of the activity.

Assembly care or community care activities

- 4e.9.9 Any new assembly care or community care activity in a low or medium flood hazard area is a **restricted discretionary activity** with Council's discretion being restricted to:
- a. The degree to which building, structural or design work to be undertaken can avoid or mitigate the effects of the flood hazard.
 - b. The nature of the activity, its intended uses including whether the use is temporary or permanent and the degree to which people are put at risk as a result of the activity.
 - c. The ability to evacuate during a flood event.
- 4e.9.10 Any new assembly care or community care activity in a high flood hazard area is a **non-complying activity**.

Emergency services activities

- 4e.9.11 Any new emergency service activity in low or medium flood hazard areas is a **restricted discretionary activity** with Council's discretion being restricted to:
- a. The degree to which building, structural or design work to be undertaken can avoid or mitigate the effects of the flood hazard.
 - b. The nature of the activity, its intended uses including whether the use is temporary or permanent and the degree to which people are put at risk as a result of the activity.

- c. The ability of emergency services vehicles to operate from the site during a flood event.

4e.9.12 Any new emergency service activity in a high flood hazard area is a **non-complying activity**.

Subdivision

Note: Refer to the underlying environment rules for subdivision in low and medium flood hazard areas.

4e.9.13 Subdivision of land in a high flood hazard area, is a **restricted discretionary activity** provided that:

- i. building platforms are identified outside high flood hazard areas, and
- ii. recorded through a consent notice on the Computer Freehold Register of the newly created allotments.

With Council's discretion being restricted to:

- a. The design of the subdivision to allow access to the site during a flood event.
- b. The recording of the height of the building platforms through a consent notice.

EXCEPTION:

Rule 4e.9.13 will not apply to subdivision for the purposes of infrastructure, access lots, adjustment of boundaries, or legal protection in perpetuity of Significant Natural Areas.

4e.9.14 Subdivision of land in a high flood hazard area which does not comply with standard i. or ii. in rule 4e.9.13 is a **non-complying activity**.

EXCEPTION:

Rule 4e.9.14 will not apply to subdivision for the purposes of infrastructure, access lots, adjustment of boundaries, or legal protection in perpetuity of Significant Natural Areas.

4e.9.15 Subdivision providing for infrastructure in a high flood hazard area is a **restricted discretionary activity** with Council's discretion being restricted to:

- a. The location and design of the infrastructure and buildings that enclose the infrastructure.
- b. Whether the infrastructure is a lifeline utility.
- c. Whether the infrastructure can continue to operate during and after a flood event.

Infrastructure

The provisions of the National Environmental Standards for Telecommunication Facilities prevail over the following Infrastructure rules.

4e.9.16 Any maintenance or upgrading of existing or the construction of new:

- below ground infrastructure and buildings that enclose them,
- stormwater infrastructure and buildings that enclose them,
- roads,
- marina facilities and buildings that enclose them,
- hydro electricity generation activities and buildings that enclose them, or
- electricity transmission activities

in any flood hazard area is a **permitted activity**.

For rule 4e.9.16 electricity transmission activities mean part of the national grid of transmission lines and cables (aerial, underground and undersea, including the high-voltage direct current link), stations and sub-stations and other works used to connect grid injection points and grid exit points to convey electricity throughout the North and South Islands of New Zealand.

4e.9.17 Any maintenance or minor upgrading of existing above ground infrastructure (and buildings that enclose them), in any flood hazard area is a **permitted activity**.

For the purpose of rules 4e.9.16 and 4e.9.17 "maintenance" means all activities associated with the protective care and monitoring of infrastructure, in order to arrest the processes of decay, structural fatigue, erosion or dilapidation.

For the purpose of rule 4e.9.17 “minor upgrading” means structure improvement, repair and replacement of worn or technically deficient parts of the infrastructure and accessory buildings and structures of similar character and scale.

4e.9.18 Any new above ground infrastructure (and buildings that enclose them), in any flood hazard area, that does not comply with rule 4e.9.16 is a **restricted discretionary activity** with the matters of discretion restricted to:

- a. The location and design of the infrastructure and building.
- b. Whether the infrastructure is a lifeline utility.
- c. Whether the infrastructure can continue to operate during and after a flood event.

DEFINITIONS

Add the following definitions to section 10 of the District Plan

Annual Exceedance Probability (AEP) - means the probability of a certain design flood flow being equalled or exceeded in any year. A 1% AEP design flood flow has a 1% or 1 in 100 chance of being equalled or exceeded in any year.

Assembly care activity - means a building or use where a large degree of care and service is provided. For example an early childhood education and care centre, college, day care institution, centre for handicapped persons, kindergarten, school or university.

Community care activity - means a residential building or use where a large degree of assistance or care is extended to the principal users. There are two types:

- Unrestrained: where the principal users are free to come and go such as a hospital, old peoples home or health camp.
- Restrained: where the principal users are legally or physically constrained in their movements such as a borstal or drug rehabilitation centre, aged care where substantial care is extended, a prison or hospital.

Defended areas - are areas which would normally flood in a 1% AEP flood event but are protected from flooding by a flood protection scheme managed by the WRC.

Emergency services - means Police, Fire, Ambulance Service, Coastguard, Civil Defence and Emergency Management facilities and welfare centres.

High flood hazard area - is the area where floodwaters in a 1% annual exceedance probability flood are likely to significantly impede the manoeuvrability or stability of the average person and damage to property is likely to be widespread and structural, including instances where buildings have been raised above the ‘flood level’. These areas are shown on the planning maps as high flood hazard areas (red). These areas are defined by:

- i) the depth of flood waters exceeds one metre; or
- ii) the speed of flood waters exceeds two metres/second; or
- iii) the flood depth multiplied by the flood speed equals or exceeds one.”

Lifeline Utility - means entities named or described in Part A, or that carries on a business described in Part B of Schedule 1 of the Civil Defence and Emergency Management Act 2002 and their associated essential infrastructure and services.

Low flood hazard area - is the area where floodwaters in a 1% annual exceedance probability flood are unlikely to impede the manoeuvrability or stability of the average person and damage to property is likely to be non-structural and mainly due to inundation and deposition of sediment. These areas are shown on the planning maps as low flood hazard areas (yellow). These are areas where:

- i) the depth of flood waters is one metre or less; or
- ii) the speed of flood waters is one metre/second or less; or
- iii) the flood depth multiplied by the flood speed is less than 0.5.

Major addition - means any addition to the gross floor area that exceeds 15m².

Marina facilities - means boat ramps, jetties, berth poles, access structures, lights, street furniture, facilities associated with water circulation, power and water supply points for berths and security cameras, fencing and gates.

Maximum flood level - is the maximum depth of inundation as a result of either lake or river flooding.

Medium flood hazard area - is the area where floodwaters in a 1% annual exceedance probability flood are likely to start to impede the manoeuvrability or stability of the average person and damage to property is unlikely to be structural provided that weak points such as windows and doors are retained above flood level. These areas are shown on the planning maps as medium flood hazard areas (orange). These are areas where:

- i) the speed of flood waters is greater than one metre/second but equal to or less than two metres/second; or
- ii) the flood depth multiplied by the flood speed is equal to or greater than 0.5 and less than one”

Minor addition - means any addition to the gross floor area that is equal to or less than 15m².

8. APPENDIX B - DECISIONS REQUESTED BY ORIGINAL AND FURTHER SUBMITTERS.

Available under separate cover.

9. APPENDIX C – RELEVANT SECTIONS OF THE WAIKATO REGIONAL POLICY STATEMENT

3.24 Natural hazards

The effects of **natural hazards** on people, property and the environment are managed by:

- a) increasing community resilience to hazard risks;
- b) reducing the risks from hazards to acceptable or tolerable levels; and
- c) enabling the effective and efficient response and recovery from natural hazard events.

Objective 3.24 addresses the following issues:

- 1.1 State of resources
- 1.2 Effects of climate change
- 1.4 Managing the built environment

Objective 3.24 is achieved by the following policies:

- | | |
|---|---|
| 4.1 Integrated approach | 7.1 Interests in the coastal marine area |
| 4.2 Collaborative approach | 9.3 Development Geothermal Systems |
| 4.3 Tāngata whenua | 9.4 Limited Development Geothermal Systems |
| 6.1 Planned and co-ordinated subdivision, use and development | 13.1 Natural hazard risk management approach |
| 6.2 Planning for development in the coastal environment | 13.2 Manage activities to reduce the risks from natural hazards |
| 6.10 Implementing the Coromandel Peninsula Blueprint | 13.3 High impact, low probability natural hazard events |

3.6 Adapting to climate change

Land use is managed to avoid the potential adverse effects of climate change induced weather variability and sea level rise on:

- a) amenity;
- b) the built environment, including **infrastructure**;
- c) **indigenous biodiversity**;
- d) **natural character**;
- e) public health and safety; and
- f) public access.

4.1.13 Incorporating effects of climate change

Local authorities should, and regional and district plans shall, recognise and provide for the projected effects of climate change, having particular regard to:

- a) historic long-term local climate data;
- b) projected increase in rainfall intensity, taking account of the most recent national guidance and assuming a minimum increase in temperature of 2.1°C by 2090 (relative to 1990 levels); and
- c) projected increase in sea level, taking into account the most recent national guidance and assuming a minimum increase in sea level of 0.8m by 2090 (relative to 1990 levels).

4.2.9 Hazardous substances

Regional and district plans shall recognise and provide for the following division of responsibilities when developing provisions for the control of the use of land for the prevention or mitigation of any adverse effects of the storage, use, disposal or transportation of hazardous substances:

a. Waikato Regional Council shall be responsible for developing objectives, policies, rules and other methods for land in the coastal marine area and the beds of lakes and rivers; and

b. territorial authorities shall be responsible for developing objectives, policies, rules and other methods for all other land.

NATURAL HAZARDS

13 Natural hazards

Policy 13.1 Natural hazard risk management approach

Natural hazard risks are managed using an integrated and holistic approach that:

- a) ensures the risk from **natural hazards** does not exceed an acceptable level;
- b) protects health and safety;
- c) avoids the creation of new intolerable risk;
- d) Reduces intolerable risk to tolerable or acceptable levels;
- e) enhances community resilience;
- f) is aligned with civil defence approaches;
- g) prefers the use of natural features over man-made **structures** as defences against natural hazards;
- h) recognises natural systems and takes a ‘whole of system’ approach; and
- i) seeks to use the best available information/best practice.

The relevant objectives are:

- 3.1 *Integrated management*
- 3.2 *Resource use and development*
- 3.3 *Decision making*
- 3.6 *Adapting to climate change*
- 3.12 *Built environment*
- 3.16 *Riparian areas and wetlands*
- 3.21 *Amenity*
- 3.22 *Natural character*
- 3.24 *Natural hazards*

Implementation methods

13.1.1 Risk management framework

Regional and district plans shall incorporate a risk-based approach into the management of subdivision, use and development in relation to natural hazards. This should be in accordance with relevant standards, strategies and plans, and ensure that:

- a) new development is managed so that natural hazard risks do not exceed acceptable levels;
- b) intolerable risk is reduced to tolerable or acceptable levels
- c) the creation of new intolerable risk is avoided;
- d) any intolerable risk as a result of existing use and development is as low as reasonably achievable; and
- e) where intolerable risk remains, the risks will be managed until an acceptable level is achieved.

13.1.2 Define primary hazard zones

Waikato Regional Council will identify **primary hazard zones** in consultation with key stakeholders including but not limited to territorial authorities, **tāngata whenua**, **infrastructure** providers, and affected communities and these shall be recognised and provided for in regional and district plans.

13.1.3 Assess natural hazard risk to communities

Waikato Regional Council will collaborate with territorial authorities, tāngata whenua and other agencies to undertake assessments of coastal and other communities at risk or potentially at risk from natural hazards, and develop long-term strategies for these communities. The strategies will, as a minimum:

- a) include recommendations for any hazard zones that should be applied, including primary hazard zones;
- b) identify risks to the community and existing infrastructure from natural hazards; and
- c) identify options for reducing the risks to the community to an acceptable level and the relative benefits and costs of those options, including taking into account any effects on:
 - i) public access;
 - ii) amenity values; or

- iii) **natural character** (including natural physical processes, **indigenous biodiversity**, landscape and water quality).

13.1.4 Regional natural hazards forum

Waikato Regional Council will establish and co-ordinate a regional natural hazards forum to promote organisational integration and information sharing across jurisdictional and plan boundaries.

13.1.5 Information, education and advocacy

Waikato Regional Council will:

- a) collaborate with:
 - i) territorial authorities to support the collection and analysis of natural hazard risk information;
 - ii) territorial authorities, the Ministry of Civil Defence and Emergency Management, the Waikato Civil Defence and Emergency Management Group and other agencies to develop and implement public education and awareness programmes on natural hazards and their associated risks;
 - iii) agencies involved in the property market, including insurance companies, lending agencies and real estate agencies to promote understanding and awareness of natural hazard risk to properties; and
 - iv) research organisations; and
- b) store all natural hazard risk information that is available and relevant to the Waikato region, and share this information with territorial authorities and other relevant stakeholders; and
- c) advocate for:
 - i) a proactive approach to natural hazard identification in district and regional plans;
 - ii) the use of best practice approaches, including **mātauranga Māori**, to natural hazard identification and management of the associated risks; and
 - iii) a strategic approach to development (including redevelopment) that seeks that any increase in risk from natural hazards (including **residual risk**) is minimised.

Explanation

The Resource Management Act, Local Government Act, Building Act and Civil Defence and Emergency Management Act are all relevant to the management of natural hazard risks. This can lead to uncertainty as local authorities have roles under each Act; however, each Act has a different focus. The management of natural hazard risks within the region should be consistent and should be aligned with civil defence approaches. The respective roles of regional and territorial authorities should be clear to avoid duplication of effort and uncertainty (covered in Chapter 4). This includes functions in relation to natural hazards information for which it is intended the regional council will take a central role through supporting the territorial authorities and centrally storing all relevant information. It is not expected that the regional council will be responsible for assessing or providing natural hazards information at an individual property scale.

There will be situations where the existing risk to life, property or the environment from natural hazards is considered to be intolerable (primary hazard zones). This could be because the risk is considered real within the short term, or because the potential consequences are significant due to the scale or vulnerability of the people, property or the environment at risk. It is not feasible to set region-wide standards for the identification of these areas due to the variability of the region, including the physical environment, and economic, social and cultural factors. It is expected that these areas will be identified on a case-by-case basis, including through the community assessments under Method 13.1.3 and the management of these areas will be tailored to the local situation.

A strategic approach should be taken to natural hazards that avoids the need and demand for ad hoc responses to natural hazard events and recognises that natural hazards are essentially natural events which only really pose a problem when people or development are put at risk. It seeks that assessments are undertaken that consider the appropriate scale (for example, whole community,

catchment or beach), and take into account the full range of effects and values, not just risks to people and property. Typical responses to natural hazards have involved attempts to structurally protect property. These responses often result in adverse effects that are borne by other property owners or the wider community. This policy and methods seek to ensure that where such decisions are made, they are made after full consideration of the relative costs and benefits.

The central concept of the management of natural hazards is the identification and management of activities based on the level of risk to which they are exposed. Avoidance or mitigation of natural hazards is based on risk (the likelihood and consequences of a hazard). Rare events with potentially catastrophic outcomes may have the same level of risk as frequent but low-impact events. Ideally, the risk of both extremes should be managed so as not to exceed an acceptable level. Method 13.1.3 directs regional and district plans to take a risk-based approach to natural hazard management and that the risk to people, the community, property and the environment does not exceed acceptable levels or risk is reduced to tolerable levels. It is expected that district plans will further define what is acceptable and tolerable risk in their community and for particular land uses. For example, residential development in a high risk flood zone is likely to exceed acceptable levels of risk due to the risk to life and property given the nature of the land use. However, the risk to other types of development in the same area, for example farming, may be acceptable. Intolerable risk is where the risk to people, property or the environment cannot be justified.

Assessment of risk should be in accordance with relevant standards and plans including as relevant:

- a) NZS9401:2008 (Flood Risk Management – A Process Standard);
- b) the Waikato Civil Defence and Emergency Management Group Plan; and
- c) ISO 31000: 2009 (Risk Management).

The diagram below provides clarification of the structure of the natural hazard issues, objectives, policies and methods.



Policy 13.2 Manage activities to reduce the risks from natural hazards

Subdivision, use and development are managed to reduce the risks from natural hazards to an acceptable or tolerable level including by:

- a) ensuring risk is assessed for proposed activities on land subject to natural hazards;
- b) reducing the risks associated with existing use and development where these risks are intolerable;
- c) avoiding intolerable risk in any new use or development in areas subject to natural hazards;

The relevant objectives are:

- 3.1 *Integrated management*
- 3.2 *Resource use and development*
- 3.3 *Decision making*
- 3.6 *Adapting to climate change*
- 3.7 *Coastal environment*
- 3.24 *Natural hazards*

- d) minimising any increase in vulnerability due to **residual risk**;
- e) avoiding the need or demand for new structural protection works; and
- f) discouraging hard protection structures and promoting the use of alternatives to them, including natural defences in the coastal environment.

Implementation methods

13.2.1 Control of subdivision within areas of intolerable risk

District plans shall control subdivision to avoid creating demand for new structures within identified **high risk flood zones** and identified primary hazard zones, and areas at high risk of coastal hazard.

13.2.2 Identification of areas of coastal hazard risk and high risk flood zones

District plans shall identify the location of areas:

- a) potentially affected by coastal hazards, prioritising the identification of those areas at high risk; and
- b) affected by high risk flood hazard.

13.2.3 Control of structures within primary hazard zones

Regional plans shall control any use or development of structures within identified primary hazard zones to reduce the risk from natural hazards to an acceptable level over time.

13.2.4 Floodplain management

Regional plans shall:

- a) control activities that divert or discharge flood water, including the importation of cleanfill into floodplains, in order to avoid or mitigate adverse effects of flooding and erosion; and
- b) ensure that an integrated catchment approach to flood management is adopted.

13.2.5 Control of use and development (high risk flood zones and areas of high coastal hazard risk)

Regional and district plans shall ensure that use and development within high risk flood zones and areas of high coastal hazard risk is appropriate, including by avoiding the placement of structures or development where these would be vulnerable to a natural hazard event or would place a community at intolerable risk. These include:

- a) habitable structures;
- b) significant community infrastructure such as hospitals and emergency services; and
- c) **lifeline utilities.**

13.2.6 Control of development within a floodplain or coastal hazard area

Regional and district plans shall ensure that:

- a) Subdivision, use and development can only occur in a floodplain with an annual exceedance probability of 1% (where the floodplain does not match the definition of being a High Risk Flood Zone) or in an identified potential coastal hazard area (not being a High Risk Coastal Hazard) area where:
 - i) appropriate assessment of the risks has been undertaken and these risks will not exceed acceptable levels;
 - ii) appropriate assessment of the likely effects has been undertaken, including the effects of any new structure or fill on the diversion of overland flows or any consequential increased runoff volumes;
 - iii) the creation of a new, or exacerbation of an existing hazard, including those off site, and any adverse effects are avoided, remedied or mitigated;
 - iv) any adverse effects of a 1% **annual exceedance probability** flood event on habitable buildings are avoided or mitigated;

- v) has been designed and located to minimise the level of coastal hazard risk over its intended lifetime; and
 - vi) any **hazardous substance** stored as part of the development, or during the construction, or found on or near to the site, will not create a hazard; or
- b) it is essential infrastructure, and:
- i) it cannot be located elsewhere; or
 - ii) it will not increase the risk of or from natural hazard.

13.2.7 Control of subdivision, use and development (residual risk zones)

District plans shall identify **residual risk zones** and shall control subdivision, use and development within these zones so that **residual risk** is minimised. In doing so, particular regard shall be had to:

- a) the level of service provided by the structural defences;
- b) the physical, environmental and financial sustainability of the structural defences over a period of at least 100 years;
- c) the impact caused by an **overwhelming** or a structural failure of protection works; and
- d) a reduction in the ability of a community to respond to and recover from a natural hazard event.

13.2.8 Control of subdivision, use and development for other natural hazards and associated risk

Regional and district plans shall control subdivision, use and development outside primary hazard zones, high risk flood zones, floodplains and residual risk zones to ensure:

- a) they do not create or exacerbate natural hazard risks elsewhere;
- b) they are appropriate by considering:
 - i) the likelihood that defensive structures or works will be required to protect the activity from the effects of natural hazards;
 - ii) the vulnerability of the activity to the effects of natural hazards;
 - iii) the potential for adverse effects on the wider local and/or regional community; and
- iv) whether or not the development is consistent with a growth strategy or structure plan; and
- c) the role of natural features to avoid or mitigate natural hazards should be recognised and maintained or enhanced.

Explanation

The intention is to reduce the risks to the regional community from natural hazards, recognising that different tools and approaches are required and appropriate in different situations – for example, for **greenfield** sites versus developed sites, for areas facing immediate risk versus those facing medium- to long-term risk, or depending on the particular natural hazard(s) faced in an area. This approach recognises that avoiding risk everywhere is impractical and seeks instead to ensure that development is appropriate with respect to the level of risk faced and the relative vulnerability of different activities. It also recognises that natural hazards are essentially natural events which only pose a hazard because development has occurred within their range and it will generally always be easier and cheaper to avoid development in these areas than manage the risk afterwards. This is especially true given the expected effects of climate change which will change the frequency, intensity and occurrence of weather- and sea level-related natural hazards.

Because existing lawfully established activities have some protection under the Resource Management Act (section 10), there are limitations on how territorial authorities can manage existing development. Regional councils are not restricted in the same way. It is expected that to effectively reduce the risks to people, property and the environment, it will be necessary to manage existing structures within primary hazard zones and, therefore, the regional council needs to take on this role. Territorial authorities will retain functions for structures in relation to matters such as access, daylight requirements, yards, and height restrictions. To avoid unnecessary complications due to this overlap, the regional council will investigate transferring its functions back to the relevant **territorial authority** (refer to section 33 RMA).

Areas of intolerable risk are those areas that have been classified as a High Risk Flood Zone or a Primary Hazard Zone. These are areas where modelling the risks to people and property are likely to be high. Development in these areas will be more tightly controlled in order to reduce the risk from hazards to an acceptable level.

The methods of this policy are predominantly focused towards identified hazard areas, including Primary Hazard Zones, Flood Risk Zones, areas at high risk of coastal hazard and Residual Risk Zones. Method 13.2.8 recognises that there are other natural hazards that may be relevant in particular areas e.g. coastal erosion, coastal flooding or liquefaction risk, and that development in these areas needs to be managed to ensure that the risk from these natural hazards does not exceed an acceptable level.

Policy 13.3 High impact, low probability natural hazard events

*The relevant objective is:
3.24 Natural hazards*

The risks associated with high impact, low probability natural hazard events such as tsunami, volcanic eruptions, earthquakes and debris flows are considered, having particular regard to:

- a) personal health and safety;
- b) damage and/or disruption to essential community services;
- c) the ability of a community to respond and recover; and
- d) civil defence readiness, response and recovery planning.

Implementation methods

13.3.1 Planning for readiness, response and recovery

Local authorities should consider the potential effects of high impact, low probability natural hazard events and address these, including by:

- a) where possible avoiding new development in high risk hazard areas (for example, tsunami run-up areas). Development that may be directed away from such areas could include:
 - i) residential, commercial and industrial uses (especially those involving hazardous materials);
 - ii) lifeline utilities; and
 - iii) emergency services facilities including police, hospital and fire services;
- b) using other land use planning measures where it is not feasible to restrict land uses to open-space uses. These may include controlling the type of development and uses allowed in hazard areas, and avoiding high value and/or high occupancy uses to the greatest degree possible;
- c) for tsunami risk, considering site-specific mitigation measures aimed at slowing, blocking, or redirecting water, or raising structures and habitable areas above the expected level of inundation;
- d) avoiding or restricting the location of facilities such as hospitals, schools and other facilities that may be difficult to evacuate quickly in areas at risk from tsunami, lahars, lava and pyroclastic flows, and debris avalanches;
- e) liaising with civil defence and lifeline utility agencies; and
- f) designing safeguards for critical community networks (for example, water supply).

13.3.2 Advocacy

Waikato Regional Council will advocate for appropriate consideration and recognition of the likely effects of high impact, low probability natural hazard events, including through regional and district plans, structure plans, growth strategies and resource consent processes.

Explanation

It is practically impossible to completely avoid or even manage the risks associated with high impact, low probability natural hazard events such as tsunami, volcanic eruptions, earthquakes and debris flows. To do so would require relocation of the region's low-lying coastal settlements as well as those

around the central volcanic plateau to name but a few. There are, however, practical measures that can be adopted to reduce or mitigate the risk, including by increasing our understanding of these events and where, when and how they may occur, or by increasing our preparedness for such events.

10. APPENDIX D - DRAFT AMENDED PLAN CHANGE PROVISIONS.

Changes proposed are shown by underline for new text and strike through for deleted text.

PLAN CHANGE 34 FLOOD HAZARD

In Chapter 3I Natural Hazards, Introduction update 3I.1ii Flooding as follows:

ii FLOODING

Inundation can occur as the result of water flowing over the top of riverbanks and flooding adjoining land; inflows exceeding outflows from the lake flooding lakeshore properties; and properties being located in ephemeral waterways. Settlements adjacent to the Hinemaiaia River; the Tauranga Taupō River, the Tongariro Rivers, the Tokaanu Stream, the Kuratau River and the Whareroa Stream and Lake Taupō can be affected by flooding. Other waterbodies in the district can flood but have not been included in flood modelling as they:

- are spring fed so not as susceptible to flood flows, or
- have a small catchment area, or
- are located in areas where there are relatively few people, limited property at risk and outside future growth areas.

In some areas mitigation measures such as stopbanks exist and allow the use and occupancy of the flood plain at an acceptable level of risk. These have been identified as defended areas.–For the Tauranga Taupō River the defended areas, identified on the planning maps, are defended up to 2% AEP. For the Tongariro River the defended areas, identified on the planning maps, are defended up to 1% AEP.

Insert the following text before Objective 3I.2.1

The following objectives and policies apply to all natural hazards except flooding. Objectives 3I.2.3 and 3I.2.4 apply to flood hazard areas.

Delete the word “*flooding*” from policy 3I.2.1ii

Delete the following text “Earthworks may alter the direction and intensity of a flood event by diverting floodwaters or altering drainage functions, while” from the third sentence of the second paragraph under 3I.2.2 Explanation

Insert the following text before Objective 3I.2.3:

Objective 3I.2.3 seeks to keep people safe in a 1% annual exceedance probability flood. Objective 3I.2.4 seeks to keep buildings and infrastructure safe in a 1% annual exceedance probability flood.

OBJECTIVE

3I.2.3 Keep people safe during a flood event with an annual exceedance probability of 1% and ensure that emergency services remain able to operate.

POLICIES

- i. Ensure that communities are informed of the potential flood hazard (including residual risks) that may affect them.
- ii. Avoid locating new buildings (excluding those associated with infrastructure) and major additions to existing buildings (excluding those associated with infrastructure) in high flood hazard areas due to the risk to people’s lives from flood waters and building debris.
- iii. Control the design of new buildings and minor additions in low and medium flood hazard areas to keep people safe.
- iv. Control the design of minor additions to existing buildings in high flood hazard areas. This acknowledges the existing investment on the site but recognises the overriding need to keep people safe.

- v. Control the design of major additions to existing buildings in low and medium flood hazard areas. This acknowledges the existing investment on the site but recognises the overriding need to keep people safe.
- vi. Avoid locating new assembly care and community care activities for vulnerable people in high flood hazard areas.
- vii. Manage the location and design of new assembly care and community care activities for vulnerable people in low and medium flood hazard areas to keep people safe. This includes the ability for people to be evacuated.
- viii. Avoid locating new emergency services in high flood hazard areas.
- ix. Manage the location and design of new emergency services in low and medium flood hazard areas to ensure their ability to operate in a flood event.
- x. Avoid subdivision that creates intolerable risk in high flood hazard areas. The location of building platforms within high flood hazard areas is considered to be intolerable.

OBJECTIVE

- 3I.2.4 Buildings and infrastructure are located and designed to ensure continued operation and to avoid structural damage, to themselves and other buildings, infrastructure and property during a flood event with an annual exceedance probability of 1%.

POLICIES

- i. Avoid locating new buildings (excluding those associated with infrastructure) and major additions to existing buildings (excluding those associated with infrastructure) in high flood hazard areas given the likelihood of structural damage.
- ii. Control the design of new buildings and major additions to existing buildings in low and medium flood hazard areas to avoid structural damage during significant flood events.
- iii. Provide for minor additions to existing buildings in low and medium flood hazard areas in recognition of the investment in the existing buildings and site works.
- iv. Provide for, infrastructure (and buildings that enclose that infrastructure), and subdivision for infrastructure, that is not vulnerable to flood risk or has a functional requirement to be in a flood hazard area.
- v. Avoid infrastructure (and buildings that enclose that infrastructure), and subdivision for infrastructure, that is vulnerable to flood risk and does not have a functional requirement to be in a flood hazard area.

Delete the words “such a minimum floor levels in identified flood prone areas” from Method 3I.3iii

Delete method 3I.3xv

Renumber method 3I.3xvi to 3I.3xv

DISTRICT WIDE RULES

Delete the words “flood inundation or” from the assessment criterion d to rule 4e.2.1 (Any building on or above ground within a Foreshore Protection Area is a discretionary activity.) so it reads “d. The potential for erosion from the District’s waterways and lakes”

Remove the existing rules in section 4e.9 Flood Hazard Area (rules 4e.9.1 and 4e.9.2) and insert the following:

These rules apply to the flood hazard areas marked on the District Plan maps.

NOTE. There are no rules that apply to the defended areas. These areas are identified on the District Plan maps for information purposes only.

New Buildings

- 4e.9.1 Any new building (excluding those associated with infrastructure) in a low or medium flood hazard area is a **permitted activity** provided the floor level is 300mm above the identified maximum flood level.
- 4e.9.2 Any new building (excluding those associated with infrastructure) in a low or medium flood hazard area which does not comply with the standard in rule 4e.9.1 is a **restricted discretionary activity**, with Council's discretion being restricted to:
- c. The degree to which building, structural or design work to be undertaken can avoid the effects of the flood hazard.
 - d. The nature of the activity, its intended uses including whether the use is temporary or permanent and the degree to which people are put at risk as a result of the activity.
- 4e.9.3 Any new building (excluding those associated with infrastructure) in a high flood hazard area is a **non-complying activity**.

Major Additions

- 4e.9.4 Any major addition to an existing building (excluding those associated with infrastructure) in a low or medium flood hazard area is a **permitted activity** provided the floor level of the addition is 300mm above the identified maximum flood level.
- 4e.9.5 Any major addition to an existing building (excluding those associated with infrastructure) in a low or medium flood hazard area which does not comply with the standard in rule 4e.9.4 is a **restricted discretionary activity**, with Council's discretion being restricted to:
- c. The degree to which building, structural or design work to be undertaken can avoid or mitigate the effects of the flood hazard.
 - d. The nature of the activity, its intended uses including whether the use is temporary or permanent and the degree to which people are put at risk as a result of the activity.
- 4e.9.6 Any major addition to an existing building (excluding those associated with infrastructure) in a high flood hazard area is a **non-complying activity**.

Minor Additions

- 4e.9.7 One minor addition to an existing building at the date this rule becomes operative (excluding those associated with infrastructure) in a low, medium or high flood hazard area is a **permitted activity** provided the floor level of the addition is not lower than the existing floor level.
- 4e.9.8 Any minor addition to an existing building (excluding those associated with infrastructure) in a low, medium or high flood hazard area which does not comply with the standard in rule 4e.9.7 is a **restricted discretionary activity**, with Council's discretion being restricted to:
- c. The degree to which building, structural or design work to be undertaken can avoid or mitigate the effects of the flood hazard.
 - d. The nature of the activity, its intended uses including whether the use is temporary or permanent and the degree to which people are put at risk as a result of the activity.

Assembly care or community care activities

- 4e.9.9 Any new assembly care or community care activity in a low or medium flood hazard area is a **restricted discretionary activity** with Council's discretion being restricted to:
- d. The degree to which building, structural or design work to be undertaken can avoid or mitigate the effects of the flood hazard.
 - e. The nature of the activity, its intended uses including whether the use is temporary or permanent and the degree to which people are put at risk as a result of the activity.
 - f. The ability to evacuate during a flood event.

4e.9.10 Any new assembly care or community care activity in a high flood hazard area is a **non-complying activity**.

Emergency services activities

4e.9.11 Any new emergency service activity in low or medium flood hazard areas is a **restricted discretionary activity** with Council's discretion being restricted to:

- d. The degree to which building, structural or design work to be undertaken can avoid or mitigate the effects of the flood hazard.
- e. The nature of the activity, its intended uses including whether the use is temporary or permanent and the degree to which people are put at risk as a result of the activity.
- f. The ability of emergency services vehicles to operate from the site during a flood event.

4e.9.12 Any new emergency service activity in a high flood hazard area is a **non-complying activity**.

Subdivision

Note: Refer to the underlying environment rules for subdivision in low and medium flood hazard areas.

4e.9.13 Subdivision of land in a high flood hazard area, is a **restricted discretionary activity** provided that:

- iii. building platforms are identified outside high flood hazard areas, and
- iv. recorded through a consent notice on the Computer Freehold Register of the newly created allotments.

With Council's discretion being restricted to:

- c. The design of the subdivision to allow access to the site during a flood event.
- d. The recording of the height of the building platforms through a consent notice.

EXCEPTION:

Rule 4e.9.13 will not apply to subdivision for the purposes of infrastructure, access lots, adjustment of boundaries, or legal protection in perpetuity of Significant Natural Areas.

4e.9.14 Subdivision of land in a high flood hazard area which does not comply with standard i. or ii. in rule 4e.9.13 is a **non-complying activity**.

EXCEPTION:

Rule 4e.9.14 will not apply to subdivision for the purposes of infrastructure, access lots, adjustment of boundaries, or legal protection in perpetuity of Significant Natural Areas.

4e.9.15 Subdivision providing for infrastructure in a high flood hazard area is a **restricted discretionary activity** with Council's discretion being restricted to:

- d. The location and design of the infrastructure and buildings that enclose the infrastructure.
- e. Whether the infrastructure is a lifeline utility.
- f. Whether the infrastructure can continue to operate during and after a flood event.

Infrastructure

The provisions of the National Environmental Standards for Telecommunication Facilities that apply to facility operators, where they are applicable, prevail over the following infrastructure rules ~~prevail over the following Infrastructure rules.~~

4e.9.16 Any operation, maintenance, or upgrading of existing, replacement or the construction of new:

- below ground infrastructure and buildings that enclose them,
- stormwater infrastructure and buildings that enclose them,
- roads,
- marina facilities and buildings that enclose them,
- hydro electricity generation activities and buildings that enclose them, or
- electricity transmission activities

in any flood hazard area is a **permitted activity**.

For rule 4e.9.16 electricity transmission activities mean part of the national grid of transmission lines and cables (aerial, underground and undersea, including the high-voltage direct current link), stations and sub-stations and other works used to connect grid injection points and grid exit points to convey electricity throughout the North and South Islands of New Zealand.

4e.9.17 Any operation, maintenance or minor upgrading of existing above ground infrastructure (and buildings that enclose them), in any flood hazard area is a **permitted activity**.

For the purpose of rules 4e.9.16 and 4e.9.17 “maintenance” means all activities associated with the protective care and monitoring of infrastructure, in order to arrest the processes of decay, structural fatigue, erosion or dilapidation.

For the purpose of rule 4e.9.17 “minor upgrading” means structure improvement, repair and replacement of worn or technically deficient parts of the infrastructure and accessory buildings and structures of similar character and scale.

4e.9.18 Any new above ground infrastructure (and buildings that enclose them), in any flood hazard area, that is not permitted by ~~does not comply with~~ rule 4e.9.16 is a **restricted discretionary activity** with the matters of discretion restricted to:

- d. The location and design of the infrastructure and building.
- e. Whether the infrastructure is a lifeline utility.
- f. Whether the infrastructure can continue to operate during and after a flood event.

Amend rule 4e.13.2 by inserting the words “or within a flood hazard area” after the words “Residential Environment”.

DEFINITIONS

Add the following definitions to section 10 of the District Plan

Annual Exceedance Probability (AEP) - means the probability of a ~~certain~~ design flood-flow event being equalled or exceeded in any year. AEPs are generally described as a percentage i.e. the probability X 100. For example, a design flood with the probability of being equalled or exceeded each year of 0.01 is described as the 1% AEP design flood. A 1% AEP design flood flow has a 1% or 1 in 100 chance of being equalled or exceeded in any year.

Assembly care activity - means a building or use where a large degree of care and service is provided. For example, an early childhood education and care centre, college, day care institution, centre for handicapped persons, kindergarten, school or university.

Community care activity - means a residential building or use where a large degree of assistance or care is extended to the principal users. There are two types:

- Unrestrained: where the principal users are free to come and go such as a hospital, old peoples home or health camp.
- Restrained: where the principal users are legally or physically constrained in their movements such as a borstal or drug rehabilitation centre, aged care where substantial care is extended, a prison or hospital.

Defended areas - are areas which would normally flood in a 1% AEP flood event but are protected from flooding by a flood protection scheme managed by the WRC.

Design flood – means the design flood when assessing the flood hazard posed by the major tributaries flowing into Lake Taupō includes the 1% AEP flood assessed using a frequency analysis of the annual flood maxima series (or alternative methodology), and an allowance for the potential effects of climate change over approximately the next 100-years. The design flood when assessing the flood hazard posed by high water levels within Lake Taupō includes the 1% AEP water level assessed using a frequency analysis of the annual lake level maxima series since 1980, an allowance for the potential effects of climate change over approximately the next 100-years, an allowance for the increase in water level caused by seiche; and an allowance for ongoing deformation of the shoreline over the next 100-years.

Emergency services - means Police, Fire, Ambulance Service, Coastguard, Civil Defence and Emergency Management facilities and welfare centres.

High flood hazard area - is the area where floodwaters in a 1% annual exceedance probability flood are likely to significantly impede the manoeuvrability or stability of the average person and damage to property is likely to be widespread and structural, including instances where buildings have been raised above the 'flood level'. These areas are shown on the planning maps as high flood hazard areas (red). These areas are defined by:

- i) the depth of flood waters exceeds one metre; or
- ii) the speed of flood waters exceeds two metres/second; or
- iii) the flood depth multiplied by the flood speed equals or exceeds one."

Lifeline Utility - means entities named or described in Part A, or that carries on a business described in Part B of Schedule 1 of the Civil Defence and Emergency Management Act 2002 and their associated essential infrastructure and services.

Low flood hazard area - is the area where floodwaters in a 1% annual exceedance probability flood are unlikely to impede the manoeuvrability or stability of the average person and damage to property is likely to be non-structural and mainly due to inundation and deposition of sediment. These areas are shown on the planning maps as low flood hazard areas (yellow). These are areas where:

- i) the depth of flood waters is one metre or less; or
- ii) the speed of flood waters is one metre/second or less; or
- iii) the flood depth multiplied by the flood speed is less than 0.5.

Major addition - means any addition to the gross floor area that exceeds 15m².

Marina facilities - means boat ramps, jetties, berth poles, access structures, lights, street furniture, facilities associated with water circulation, power and water supply points for berths and security cameras, fencing and gates.

Maximum flood level - is the maximum depth of inundation as a result of either lake or river flooding.

Medium flood hazard area - is the area where floodwaters in a 1% annual exceedance probability flood are likely to start to impede the manoeuvrability or stability of the average person and damage to property is unlikely to be structural provided that weak points such as windows and doors are retained above flood level. These areas are shown on the planning maps as medium flood hazard areas (orange). These are areas where:

- i) the speed of flood waters is greater than one metre/second but equal to or less than two metres/second; or
- ii) the flood depth multiplied by the flood speed is equal to or greater than 0.5 and less than one"

Minor addition - means any addition to the gross floor area that is equal to or less than 15m².

PLANNING MAPS

Make the following changes to the planning maps:

1. Subject to a site visit to confirm the site characteristics outlined in Dr McConchie's evidence remove the area of low flood hazard on 3 and 6 Kinloch Esplanade, Kinloch, and assuming the same conditions exist, from numbers 2, 4 and 5 Kinloch Esplanade, Kinloch, which bound the Kinloch Marina. A recommendation regarding this will be provided by Dr McConchie at the hearing.
2. Subject to a site visit to confirm the site characteristics outlined in Dr McConchie's evidence amend the flood hazard mapping on 139 Taupahi Road, Turangi so the area of low hazard is removed from the upper terrace, but remains on the lower terrace. A recommendation regarding this will be provided by Dr McConchie at the hearing.
3. Move the boundary of the hydraulic model of the Hinemaiaia River downstream and remove the flood hazard area on the tailrace at Hinemaiaia B Power Station.