

## Queenstown Lakes District Proposed District Plan – Stage 1

### Section 42A Hearing Report For Hearing commencing: 13 March 2017

**Report dated: 15 February 2017**

Report on submissions and further submissions  
**Chapter 28 Natural Hazards**

File Reference: Chp. 28 S42A

Contents:

1. Executive summary
2. Introduction
3. Code of conduct
4. Scope
5. Background – Statutory and Non-Statutory Documents
6. Background – Overview of the issues
7. Submissions
8. Analysis
9. Group 1: Relief sought by the Otago Regional Council
10. Group 2: Relief sought regarding specific natural hazards
11. Group 3: *Pro forma* submission points
12. Group 4: Submission points seeking specific changes to the wording of provisions
13. Conclusion

Appendix 1. Recommended revised chapter

Appendix 2. List of Submission points with recommended decision

Appendix 3. Section 32 Report

Appendix 3a Attachment to Section 32 Report: Opus International Consultants Ltd: Review of District Plan Natural Hazard Issues (2012)

Appendix 4. S32AA evaluation of the recommended changes

## 1. EXECUTIVE SUMMARY

- 1.1. It is recommended that the framework and structure of the Proposed District Plan (**PDP**) Natural Hazards Chapter 28 (**Chapter 28**) should be retained as notified, and outlined and supported in the section 32 (**s32**) assessment (see **Appendix 3**).
- 1.2. Several changes to the objectives and policies are considered appropriate, and these are shown in the Revised Chapter attached as **Appendix 1 (Revised Chapter)** to this evidence. A number of substantive changes are proposed as well as minor changes, or wording changes that provide better expression. I have evaluated the appropriateness, benefits and costs of the substantive changes in terms of the requirements of section 32AA of the Resource Management Act (**RMA**) (see **Appendix 4**).
- 1.3. I consider that the recommended changes to Chapter 28 will better meet the purpose of the RMA and are the most appropriate way to achieve the relevant objectives. They are considered more effective and efficient than the equivalent provisions within the notified chapter and the Operative District Plan (**ODP**). I also consider that the amendments are more effective and efficient than the changes sought by submitters that I recommend be rejected.

## 2. INTRODUCTION

- 2.1. My name is Amy Bowbyes, I am employed by the Queenstown Lakes District Council (**Council**) as a Senior Policy Planner. I hold the qualifications of Bachelor of Science and Bachelor of Arts from Victoria University. I have primarily worked for local authorities in policy and district plan administration roles since 2005.
- 2.2. I note that I am not the author of the notified Chapter 28 or the accompanying s32 report.
- 2.3. My current role is Senior Policy Planner, which I have held since February 2015, prior to this I was employed at Council as Senior Policy Planner (fixed term, part-time 20 hours per week) from August 2014.

## 3. CODE OF CONDUCT

- 3.1. Although this is a Council hearing, I confirm that I have read the Code of Conduct for Expert Witnesses contained in the Environment Court Practice Note and that I agree to comply with it. I confirm that I have considered all the material facts that I am aware of that might alter or detract from the opinions that I express, and that this evidence is within my area of expertise, except where I state that I am relying on the evidence of another person.

3.2. I am authorised to give this evidence on Council's behalf.

#### 4. SCOPE

4.1. My evidence addresses the submissions and further submissions received on the notified Chapter 28.

4.2. Although this evidence is intended to be a standalone document and also meet the requirements of section 42 of the RMA (**s42A**), the s32 Evaluation Report (**s32**) is attached as **Appendix 3** for information and reference purposes. The report prepared by Opus International Consultants Ltd (2012) that is referenced in the s32 is attached as **Appendix 3a**.

4.3. Where I recommend substantive changes to provisions, an explanation and reasons for the changes are set out within the body of this report and I have also assessed those changes in terms of s32AA (see **Appendix 4**). The table in **Appendix 2** outlines whether individual submissions are accepted, accepted in part, or rejected, and whether identified further submissions are considered to not be relevant to the primary submission point they accompany.

#### 5. BACKGROUND – STATUTORY AND NON-STATUTORY DOCUMENTS

5.1. The s32 provides an overview of the higher order planning documents that were considered in the preparation of Chapter 28 (see **Appendix 3**). In addition, a more detailed summary of relevant legislation and documents is provided below.

##### **The Resource Management Act (RMA)**

5.2. The RMA and in particular the purpose and principles in Part 2, which emphasise the requirement to sustainably manage the use, development and protection of the natural and physical resources for current and future generations, taking into account the 'four well beings' (social, economic, cultural and environmental) is relevant to issues arising with Chapter 28. While natural hazards do not relate to any matters of national importance in s6, the following s7 matters are relevant and shall be had regard to when preparing and deciding on the chapter:

- i. the efficient use and development of natural and physical resources;
- ii. maintenance and enhancement of the quality of the environment;
- iii. any finite characteristics of natural and physical resources; and
- iv. the effects of climate change.

5.3. Section 31 of the RMA outlines the functions of territorial authorities and includes (s31(1)(b)):

*"the control of any actual or potential effects of the use, development, or protection of land, including for the purpose of-*

*(i) the avoidance or mitigation of natural hazards; [...]."*

- 5.4. In addition to the general responsibility in respect of natural hazards in section 31, territorial authorities also have specific powers in relation to subdivision. Section 106 of the RMA provides that a consent authority "may" refuse to grant a subdivision consent, or may grant a subdivision consent subject to conditions, if it considers that: *"the land in respect of which a consent is sought, or any structure on the land, is or is likely to be subject to material damage by erosion, fallen debris, subsidence, slippage, or inundation from any source"* or *"any subsequent use that is likely to be made of the land is likely to accelerate, worsen, or result in material damage to the land, other land, or structure by erosion, falling debris, subsidence, slippage, or inundation from any source"*.
- 5.5. Section 220(1)(d) provides that a council may impose conditions on subdivision consents for the protection of the land against "erosion, subsidence, slippage, or inundation from any source..."
- 5.6. Also of direct relevance is that 'natural hazard' is defined in s2 of the RMA as *"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 Local Government Act 2002 (LGA)**

- 5.7. The LGA and in particular section 11A(d), which provides that local authorities must have particular regard to the contribution that the avoidance and mitigation of natural hazards makes to its communities and section 14 which emphasises the importance of the social, economic, and cultural interests of people and communities, the need to maintain and enhance the quality of the environment and the reasonably foreseeable needs of future generations.

#### **The Building Act 2004**

- 5.8. Territorial authorities have powers in respect of proposals for buildings on land subject to natural hazard risk under sections 71-74 of the Building Act 2004 (**Building Act**).
- 5.9. Sections 71-74 relate to the approval of building consents where the land on which a building is to be located is subject to a natural hazard (whereby a natural hazard for the purposes of these sections is defined as erosion, falling debris, subsidence, inundation and slippage).

5.10. I consider the above requirements are relevant insofar that territorial authorities have avenues in addition to the District Plan to manage natural hazard risk. Council has sought to approach the potential for overlaps or inconsistencies between Building Act requirements and the PDP by focusing the PDP provisions on land use and subdivision and leaving built form and structures to the Building Act.

### **Iwi Management Plans**

5.11. When preparing or changing a district plan, section 74(2A) of the RMA states that Council's must "*take into account*" any relevant planning document recognised by an iwi authority and lodged with the territorial authority, to the extent that its content has a bearing on the resource management issues of the Queenstown Lakes District (**District**). Two iwi management plans are relevant:

- *The Cry of the People, Te Tangi a Taurira*: Ngāi Tahu ki Murihiku Natural Resource and Environmental Iwi Management Plan 2008 (MNRMP 2008); and
- *Kāi Tahu ki Otago* Natural Resource Management Plan 2005 (KTKO NRMP 2005)

### **Operative Otago Regional Policy Statement (1998) (Operative RPS)**

5.12. Section 75(3)(c) of the RMA requires that a district plan prepared by a territorial authority must "*give effect to*" any regional policy statement.

5.13. The Operative RPS contains a number of objectives and policies that directly relate to natural hazards, as set out below:

#### **Objectives**

*11.4.1 To recognise and understand the significant natural hazards that threaten Otago's communities and features.*

*11.4.2 To avoid or mitigate the adverse effects of natural hazards within Otago to acceptable levels.*

*11.4.3 To effectively and efficiently respond to natural hazards occurring in Otago.*

*11.4.4 To avoid, remedy or mitigate the adverse effects of hazard mitigation measures on natural and physical resources.*

## **Policies**

**11.5.1** *To recognise and provide for Kai Tahu values in natural hazard planning and mitigation.*

**11.5.2** *To take action necessary to avoid or mitigate the unacceptable adverse effect of natural hazards and the responses to natural hazards on:*

- (a) Human life; and*
- (b) Infrastructure and property; and*
- (c) Otago's natural environment; and*
- (d) Otago's heritage sites.*

**11.5.3** *To restrict development on sites or areas recognised as being prone to significant hazards, unless adequate mitigation can be provided.*

**11.5.4** *To avoid or mitigate the adverse effects of natural hazards within Otago through:*

- (a) Analysing Otago's natural hazards and identifying their location and potential risk; and*
- (b) Promoting and encouraging means to avoid or mitigate natural hazards; and*
- (c) Identifying and providing structures or services to avoid or mitigate the natural hazard; and*
- (d) Promoting and encouraging the use of natural processes where practicable to avoid or mitigate the natural hazard.*

**11.5.5** *To provide a response, recovery and restoration capability to natural hazard events through:*

- (a) Providing civil defence capabilities; and*
- (b) Establishing procedures and responsibilities to ensure quick responses to any natural hazard event; and*
- (c) Identifying agency responsibilities for assisting recovery during and after events; and*
- (d) Developing recovery measures incorporated into civil defence plans.*

**11.5.6** *To establish the level of natural hazard risk that threatened communities are willing to accept, through a consultative process.*

**11.5.7** *To encourage and where practicable support community-based responses to natural hazard situations.*

5.14. As the Proposed Regional Policy Statement 2015 (the **PRPS**) has been notified and decisions on submissions have been released (see following section), I have focussed my analysis on the PRPS rather than the Operative RPS. Nonetheless, in my view, for the reasons outlined in the s32 report (**Appendix 3**), Chapter 28 gives effect to this policy framework.

## Proposed Otago Regional Policy Statement 2015 (PRPS)

5.15. Section 74(2)(a) of the RMA requires that a district plan prepared by a territorial authority shall "have regard to" any proposed Regional Policy Statement. The PRPS was notified for public submissions on 23 May 2015 and decisions on submissions were notified on 1 October 2017.<sup>1</sup> The decisions version of the PRPS contains the following provisions that are directly relevant to the management of natural hazard risk.

*[Note that these provisions are copied directly across from the decisions version of the PRPS and show the changes made from the notified version, whereby the changes are shown in ~~strike through~~ and underlining.]*

### **Objectives**

**Objective 4.1 ~~3-2~~**: Risk that natural hazards pose to Otago's communities are minimised.

### **Policies**

#### **Policy 4.1.13-2-1 ~~Identifying natural hazards~~**

Identify natural hazards that may adversely affect Otago's communities, including hazards of low likelihood and high consequence by considering all of the following:

- a) Hazard type and characteristics;
- b) Multiple and cascading hazards;
- c) Cumulative effects, including from multiple hazards with different risks;
- d) Effects of climate change;
- e) Using the best available information for calculating likelihood;
- f) Exacerbating factors.

#### **Policy 4.1.23-2-2 ~~Natural Assessing natural hazard likelihood~~**

Using the best available information, assess ~~Assess~~ the likelihood of natural hazard events occurring, ~~over having regard to a timeframe of no less than 100 years,~~ including by considering:

- a) ~~Hazard type and characteristics~~;
- b) ~~Multiple and cascading hazards~~;
- c) ~~Cumulative effects, including from multiple hazards with different risks~~;
- d) ~~Effects of climate change~~;
- e) ~~Using the best available information for calculating likelihood~~;
- f) ~~Exacerbating factors~~.

#### **Policy 4.1.33-2-3 ~~Natural Assessing natural hazard consequence~~**

Assess the consequences of natural hazard events, including by considering all of the following:

- a) The nature of activities in the area;
- b) Individual and community vulnerability;
- c) Impacts ~~Impact~~ on individual and community health and safety;
- d) Impacts ~~Impact~~ on social, cultural and economic wellbeing;
- e) Impacts ~~Impact~~ on infrastructure and property, including access and services;

<sup>1</sup> Source: ORC website <http://www.orc.govt.nz/Publications-and-Reports/Regional-Policies-and-Plans/Regional-Policy-Statement/Otago-Regional-Policy-Statement-Review/>

- f) Risk reduction and hazard mitigation measures;
- g) Lifeline utilities, essential and emergency services, and their co-dependence;
- h) Implications for civil defence agencies and emergency services;
- i) Cumulative effects;
- j) Factors that may exacerbate a hazard event.

**Policy ~~4.1.43-2.5~~ Assessing activities for natural hazard risk**

Assess activities for natural hazard risk to people and communities, by considering all of the following:

- a) The natural hazard risk identified, including residual risk; ~~and~~
- b) Any measures to avoid, remedy or mitigate those risks, including relocation and recovery methods; ~~and~~
- c) The long term viability and affordability of those measures; ~~and~~
- d) Flow-on effects of the risk to other activities, individuals and communities; ~~and~~
- e) The availability of, and ability to provide, lifeline utilities, and essential and emergency services, during and after a natural hazard event.

**Policy ~~4.1.53-2.4~~ Natural Managing natural hazard risk**

Manage natural hazard risk to people and communities, ~~including~~ with particular regard to all of the following:

- a) The risk ~~posed they pose~~, considering the likelihood and consequences of natural hazard events; ~~and~~
- b) The implications of residual risk, including the risk remaining after implementing or undertaking risk reduction and hazard mitigation measures; ~~and~~
- c) The community's tolerance of that risk, now and in the future, including the community's ability and willingness to prepare for and adapt to that risk, and respond to an event; ~~and~~
- d) The changing nature of ~~tolerance to risk; tolerability and risk; and~~
- e) Sensitivity of activities to risk.

**Policy ~~4.1.63-2.6~~ Avoiding increased natural hazard risk**

~~Manage~~ Avoid increasing natural hazard risk to people and communities, ~~including~~ by both:

- a) Avoiding activities that significantly increase risk including displacement of risk off-site; and
- b) Avoiding activities that increase risk in areas potentially affected by coastal hazards over at least the next 100 years.
- b) ~~Encouraging design that facilitates:~~
  - i. ~~Recovery from natural hazard events; or~~
  - ii. ~~Relocation to areas of lower risk.~~

**Policy ~~4.1.73-2.7~~ Reducing existing natural hazard risk**

Reduce existing natural hazard risk to people and communities, including by all of the following:

- a) Encouraging activities that:
  - i. Reduce risk; or
  - ii. Reduce community vulnerability; ~~and~~
- b) Discouraging activities that:
  - i. Increase risk; or
  - ii. Increase community vulnerability; ~~and~~
- c) Considering the use of exit strategies for areas of significant risk to people and communities; ~~and~~
- d) Encouraging design that facilitates:
  - i. Recovery from natural hazard events; or



- ii. Relocation to areas of lower risk; ~~and~~
- e) Relocating lifeline utilities, and facilities for essential and emergency service, to areas of reduced risk, where appropriate and practicable; ~~and~~
- f) Enabling development, upgrade, maintenance and operation of lifeline utilities and facilities for essential and emergency services; ~~and~~
- g) Re-assessing natural hazard risk to people and communities, and community tolerance of that risk, following significant natural hazard events.

**Policy 4.1.93.2.8 ~~Precautionary~~ Applying a precautionary approach to natural hazard risk**

Where natural hazard risk to people and communities is uncertain or unknown, but potentially significant or irreversible, apply a precautionary approach to identifying, assessing and managing that risk.

**Policy 4.1.93.2.9 ~~Protecting features and systems that provide hazard mitigation~~**

~~Avoid, remedy or mitigate adverse effects on~~ Protect, restore, enhance and promote the use of natural or modified features and systems, which contribute to mitigating the effects of both natural hazards and climate change.

**Policy 4.1.103.2.10 ~~Mitigating natural hazards~~**

Give preference to risk management approaches that reduce the need for hard protection structures ~~mitigation measures~~ or similar engineering interventions, and provide for hard protection structures ~~mitigation measures~~ only when all of the following apply:

- a) Those measures are essential to reduce risk to a level the community is able to tolerate; ~~and~~
- b) There are no reasonable alternatives; ~~and~~
- c) It would not result in an increase in risk to people and communities, including displacement of risk off-site; ~~and~~
- d) The adverse effects can be adequately managed; ~~and~~
- e) The mitigation is viable in the reasonably foreseeable long term.

**Policy 4.1.113.2.11 ~~Hard protection structures~~ Locating hard mitigation measures**

Enable the location of hard protection structures ~~mitigation measures~~ or similar engineering interventions on public land only when either or both of the following apply:

- a) There is significant public or environmental benefit in doing so; ~~or~~
- b) The work relates to the functioning ability of a lifeline utility, or a facility for essential or emergency services.

**Policy 4.1.123.4.3 ~~Lifeline~~ Designing lifeline utilities and facilities for essential or emergency services**

Locate and design ~~Design~~ lifeline utilities, and facilities for essential or emergency services, to:

- a) Maintain their ability to function to the fullest extent possible, during and after natural hazard events; ~~and~~
- b) Take into account their operational co-dependence with other lifeline utilities and essential services to ensure their effective operation.

**Policy 4.1.133.4.4 Hazard Managing hazard mitigation measures, lifeline utilities, and essential and emergency services**

Protect the functional and operational requirements functioning of hazard mitigation measures, lifeline utilities, and essential or emergency services, including by all of the following:

- a) Restricting the establishment of those activities that may result in reverse sensitivity effects; ~~and~~
- b) Avoiding significant adverse effects on those measures, utilities or services; ~~and~~
- c) Avoiding, remedying or mitigating other adverse effects on those measures, utilities or services; ~~and~~
- d) ~~Assessing the significance of adverse effects on those measures, utilities or services, as detailed in Schedule 3; and~~
- d)e) Maintaining access to those measures, utilities or services for maintenance and operational purposes; ~~and~~
- e)f) Managing other activities in a way that does not restrict foreclose the ability of those mitigation measures, utilities or services to continue functioning.

**Policy 4.5.13-8-4 Managing for urban growth and development**

Manage urban growth and development ~~and creation of new urban land~~ in a strategic and co-ordinated way, by all of the following:

[...]

- c) Identifying future growth areas and managing the subdivision, use and development of rural land outside these areas to that achieve all of the following:

[...]

- v.vi. Avoid land with significant risk from natural hazards; [...].

**Definitions:**

**Natural Hazard**

Includes 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.

**Residual Risk**

The risk remaining after the implementation or undertaking of risk management measures.

- 5.16. Chapter 28 was drafted with a focus on formulating an appropriate policy framework (objectives and policies) for the management of natural hazard risk. This exercise took place in the absence of certainty as to the final form of the PRPS and the direction it would set for identifying, managing and mitigating natural hazard risks in Otago.

5.17. The Otago Regional Council (**ORC**) has advised<sup>2</sup> the Council to treat all of the PRPS as being subject to appeal at this time and has confirmed that the following PRPS objectives and policies specifically relating to natural hazards are currently subject to appeals:

- (i) Objective 4.1;
- (ii) Policy 4.1.1 (d);
- (iii) Policy 4.1.3 (f);
- (iv) Policy 4.1.4;
- (v) Policy 4.1.5;
- (vi) Policy 4.1.6;
- (vii) Policy 4.1.7;
- (viii) Policy 4.1.8;
- (ix) Policy 4.1.10;
- (x) Policy 4.1.13; and
- (xi) Policy 4.5.1(c)(iii).

5.18. As such, there remains substantial uncertainty as to the final form of the PRPS natural hazards objective and policies. Once the PRPS appeals are resolved a future plan change or variation to the PDP may be required to give full effect to the new RPS.

5.19. At a broad level, I consider that Chapter 28 has regard to the PRPS by introducing a policy framework that takes a risk-based approach to natural hazards, whereby the degree of risk a natural hazard poses is the primary consideration to inform whether a proposal located on a site that is subject to a natural hazard should be approved. In considering the submissions received on the PDP, I have also had regard to the decisions version of the PRPS. Where possible, within the scope of submissions received, I have considered whether the relief sought would provide an opportunity to increase consistency with the decisions version of the PRPS.

5.20. As a general observation, however, I consider that the PRPS advocates for a more definitive and cautious approach with regard to natural hazard risk than that proposed by the notified Chapter 28 provisions. In particular the PRPS seeks 'avoidance' of development in locations affected by significant hazards while the notified Chapter 28 provisions only require avoidance where risks are intolerable while "acknowledging that this will not always be practicable in developed areas."<sup>3</sup> I understand, that the application of the word 'avoid' throughout the decisions version of the PRPS was the subject of submissions and is now the subject of a subsequent appeal by Dunedin City Council<sup>4</sup> (**DCC**). The PRPS decisions document released

---

<sup>2</sup> Email and attachment from James Adams (ORC Policy Analyst) on 23 January 2017 (11.25am) and email from James Adams to Ian Bayliss on 8 February 2017 (9:54am). Emails available on request.

<sup>3</sup> Redrafted Chapter 28 Policy 28.3.2.1.

<sup>4</sup> See Appeal 84 in relation to the proposed Otago Regional Policy Statement between Dunedin City Council (appellant) and the Otago Regional Council (respondent):

on 1 October 2016 provides reasons for decisions on submissions seeking amendments to the use of the term 'avoid' in various PRPS objectives and policies.<sup>5</sup> Most notably, the decisions document provides the following interpretation of how ORC considers the term 'avoid' should be applied:

*"While the PRPS provisions require the avoidance of certain effects, it does not automatically follow that an activity is prohibited. What is prohibited are adverse effects on particular values. If the adverse effects from that activity on those values can be avoided, then the activity can be undertaken."*

5.21. There is therefore uncertainty as to how the word 'avoid' is to be interpreted in the context of the PRPS, and the appeal process will assist with providing certainty in this regard.

5.22. The s32 analysis<sup>6</sup> prepared by ORC for the PRPS acknowledges that the level of natural hazard risk that is tolerable to communities should not be predetermined, and rather should be determined in consultation with the communities affected by natural hazards. The level of tolerance within the community will inform the threshold for what is considered to pose a 'significant risk'. This is consistent with the approach taken in the notified version of Chapter 28.

5.23. The s32 analysis<sup>7</sup> for the PRPS also acknowledges that technical assistance from ORC will be required to give full effect to the PRPS. I agree and note that in particular, ongoing technical work will need to be undertaken in conjunction with the ORC to update the natural hazards database (discussed in more detail at paragraph 6.3 below).

5.24. I note that Council made submissions on the natural hazards objectives and policies of the PRPS. The following summary is taken from the Statement of Evidence<sup>8</sup> prepared by Matthew Paetz presented for the Council at the PRPS hearing, and seeks to highlight the issues that the decisions version of the PRPS continues to raise for the District:

- As 'significant' risk is not defined, or has not yet been determined, there is uncertainty as to the effect of the objectives and policies relating to natural hazards.
- Whilst QLDC supports the approach of avoiding development in greenfield areas subject to significant hazard risk, QLDC's objectives for reducing urban sprawl and

---

<http://www.orc.govt.nz/Documents/Publications/Regional/RPS/Appeals/ENV-2016-CHC-84%20Dunedin%20City%20Council.pdf>. I note that the Council has joined the DCC appeal as a s274 party in support

<sup>5</sup> See Proposed Regional Policy Statement for Otago: Decisions of Council, section 4.5, pages 16 – 19 <http://www.orc.govt.nz/Documents/Publications/Regional/RPS/Decisions%20of%20Council%20on%20RPS.pdf>.

<sup>6</sup> PRPS s32, page 28, paragraph 3 <http://www.orc.govt.nz/Documents/Publications/Regional/RPS/Proposed%20RPS%20S32%20Evaluation%20Report%2023%20May%202015.pdf>.

<sup>7</sup> PRPS s32, page 30 <http://www.orc.govt.nz/Documents/Publications/Regional/RPS/Proposed%20RPS%20S32%20Evaluation%20Report%2023%20May%202015.pdf>.

<sup>8</sup> Full submission available on request.

improving efficient use of existing urban areas will necessitate further infill within existing urban areas. As such the complete avoidance of natural hazard risk may not be appropriate or achievable.

- The social and economic consequences of 'avoidance' of natural hazard risk are likely to be significant for the District, given that existing development may be within areas of 'significant risk'. It is not possible to fully appreciate the costs and benefits of avoidance strategies without an understanding of what 'significant risk' is, or where these areas may be.
- QLDC seeks an alternative approach that recognises that within urban limits there may be natural hazard risks and these risks need to be appropriately mitigated or reduced to tolerable levels. This could be achieved by widening the scope of notified Policies 3.2.6<sup>9</sup> and 3.2.7<sup>10</sup> and would still achieve the goal of risk reduction.
- Further clarification is sought as to ORC's understanding of what the concept of 'tolerability' means, in particular in regard to the roles and responsibilities of District and Regional Councils in determining a community's 'tolerance' to natural hazard risk. QLDC supports an approach that provides territorial authorities with the responsibility to determine, in conjunction with their community, what their tolerance of natural hazard risk is, and to identify appropriate tools and methods to manage this risk.
- Overall QLDC seeks greater flexibility within the policy approach to enable consideration of hazards by means appropriate for the local context.

5.25. I note that QLDC has joined the PRPS appeal process as a s274 party in relation to the above matters.

### **Strategic Direction – Chapter 3 of the Proposed District Plan**

5.26. The following objective and policy in the notified version of the Strategic Direction Chapter directly relate to natural hazards management:

***Objective 3.2.2.2: Manage development in areas affected by natural hazards.***

***Policy 3.2.2.2.1: Ensure a balanced approach between enabling higher density development within the District's scarce urban land resource and addressing the risks posed by natural hazards to life and property.***

5.27. The hearing of submissions received on the Strategic Direction Chapter of the PDP occurred between the 7th and 23rd of March 2016. One submission point was received regarding the above policy and objective, namely submission point 806.31 (Queenstown Park Limited (**QPL**)).

---

<sup>9</sup> PRPS decisions version Policy 4.1.6.  
<sup>10</sup> PRPS decisions version Policy 4.1.7.

5.28. The submission point<sup>11</sup> seeks the following relief:

*"Either*

- *delete objective [3.2.2.2] and policy [3.2.2.2.1]; or*
- *if retained amend for consistency with the RMA in particular, "addressing" should be replaced with "mitigated".*

5.29. The reasons for the relief provided by the submitter state the following:

*"Clarification required. All land is subject to natural hazards, it is the degree of risk that presents the need to manage development in these areas."*

5.30. Council's Reply prepared by Mr Matthew Paetz<sup>12</sup> recommended that Policy 3.2.2.2.1 remain unchanged, and recommended that Objective 3.2.2.2 be reworded as follows:

**Objective 3.2.2.2:** ~~Manage d~~*Development in areas affected by natural hazards is appropriately managed.*

5.31. This change to Objective 3.2.2.2 is not in response to the changes suggested by QPL, rather it responds to feedback from the Hearings Panel regarding the style used for writing objectives, which was later clarified in a Procedural Minute.<sup>13</sup>

5.32. I consider that Chapter 28 with the incorporation of amendments recommended in this report (and as shown in **Appendix 1**) is consistent with both the notified and reply versions of Objective 3.2.2.2 and Policy 3.2.2.2.1.

## **6. BACKGROUND – OVERVIEW OF THE ISSUES**

6.1. The purpose of Chapter 28 is to provide a policy framework for the management of natural hazard risk throughout the District. Chapter 28 introduces a 'risk-based' policy framework to planning for natural hazards. Broadly speaking, this approach seeks to ensure that the response to any particular hazard is commensurate to the level of risk posed.

---

<sup>11</sup> Replacement Submission 806, page 11, row 4.25.

<sup>12</sup> Strategic Directions Hearing – Recommended Revised Chapter – Reply 07/04/2016.

<sup>13</sup> Paragraphs 6 -10 Fourth Procedural Minute, 8 April 2016.

## Key Issues Identified

### *Section 32 Report*

6.2. The following issues were considered when reviewing the natural hazards provisions of the ODP (these are taken from the s32 attached in **Appendix 3**):

- Existing settlements are subject to natural hazard risk and there is a need to recognise the existence of these hazards when undertaking further development within these settlements.
- In some instances the natural hazard risk is significant, and development that increases this risk or fails to address this risk appropriately should be discouraged.
- Council's knowledge of natural hazards in the District is continually growing as further study is undertaken. Therefore it is important that the approach to addressing natural hazards in the District Plan can easily accommodate new information as it arises.
- Mapping of natural hazards is an important part of how Council manages, communicates and minimises the risk of natural hazards. The only natural hazard that is mapped in the operative and proposed District Plans is flooding.<sup>14</sup> All hazards are mapped in the Council's Natural Hazards Database and compiled for regulatory and information purposes using an on-line geographic information system (GIS).
- Presently there is a lack of acknowledgement that Council is responsible for addressing natural hazards under a number of different pieces of legislation such as the RMA, Local Government Act, Building Act and the Civil Defence and Emergency Management Act. As a consequence, the District Plan is one tool amongst others to manage natural hazard risk.
- Private property rights are a relevant consideration in the wider approach to addressing natural hazard risk. District Plan provisions that are overly restrictive are counter-productive to sustainable management and the continued growth of the District. At the same time natural hazard risks that are overlooked or inadequately managed can impose significant costs on other parties when land is developed.
- The Operative District Plan does not address natural hazards in a comprehensive manner. Some zones have natural hazards as an assessment matter, and others do not, despite being potentially subject to natural hazards. Additionally, there are some assessment criteria that are worded differently across zones meaning there is a potential for an inconsistent approach to the assessment of natural hazards through the resource consent process.

---

<sup>14</sup>

Upon review I have found that both the ODP and PDP maps include a historical flood zone for the Kingston, and Glenorchy townships, and Kinloch. However, I have not identified any other historical flood zones in the ODP (or PDP) maps.

### *Mapping of hazards within the PDP*

- 6.3. An overview of hazards affecting the District is detailed in a report prepared by Opus International Consultants Ltd (2012) (**Appendix 3a**). I note that not all the recommendations of the Opus report have been synthesised into Chapter 28. In particular, the report recommends the mapping of hazards within the District Plan. The issue of whether or not to map hazards was work-shopped with elected members of the Council (**Elected Members**) during the drafting of Chapter 28, and Elected Members indicated that an approach that does not involve mapping was their preference. I understand that this was due to the cost and time implications involved with interrogating and refining the information currently held in the Natural Hazards Database, as well as the Schedule 1 RMA plan change process. Mapping hazards in the PDP would also have resulted in a significant departure from the ODP approach, and the Elected Members were of the view that the current approach should be continued and improved where possible.
- 6.4. Once operative, ongoing review of the efficiency and effectiveness of the PDP, as required by the RMA, may lead to the introduction of subsequent changes to the approach to natural hazards through a plan change, which may in the future result in the introduction of some mapping of hazards.
- 6.5. As discussed in the s32 evaluation for Chapter 28, continuing to use the Natural Hazards Database as the main repository for mapped hazards information has benefits. Most notably it means that the database is able to be regularly updated without the need for a plan change. This means that the database can hold the most up to date hazards information. Given that any relevant hazards information in the database is included in LIM reports, this in my view results in a high level of transparency regarding the natural hazards information held by Council.

### *Tolerability*

- 6.6. Chapter 28 introduces the concept of 'tolerability' to the District Plan. As noted in Chapter 28, this concept has been handed down through the RPS (Policy 11.5.6) and PRPS (decisions version Policies 4.1.5(c) & (d) and 4.1.10(a)).
- 6.7. The concept of 'tolerability' enables the opportunity for a community's tolerance to natural hazard risk to be considered. The s32 evaluation accompanying the PRPS<sup>15</sup> notes that the process for determining 'risk tolerance' is based on community input, resulting in a social benefit in the form of community buy-in. I concur with this view. The s32 also acknowledges that the concept of tolerability creates uncertainty as to how the PRPS will be given effect to, as

---

<sup>15</sup> PRPS s32, page 30  
<http://www.orc.govt.nz/Documents/Publications/Regional/RPS/Proposed%20RPS%20S32%20Evaluation%20Report%2023%20May%202015.pdf>



each territorial local authority within the Otago Region (**Region**) will have varying levels of tolerance to natural hazard risk. This is an important consideration, in particular given that the economic and social impact of natural hazard management will vary throughout the Region, in particular for areas of existing development that are subject to natural hazard risk. In summary, I consider that the concept of 'tolerance' to natural hazard risk is an important addition to the District Plan.

- 6.8. The concept of 'tolerability' is to be considered when determining whether the risk posed by natural hazards is 'significant'. In the absence of maps showing areas of significant risk, 'significance' will be determined on a case-by case basis. As such, Policies 28.3.2.2 and 28.3.2.3 of Chapter 28 are relatively prescriptive in order to give PDP users considerable guidance as to the information requirements and considerations for resource consent applications.

#### *Summary*

- 6.9. In summary, following consideration of the submissions I believe that the above issues remain relevant. The changes I recommend in response to submissions received seek to refine the objectives and policies, rather than fundamentally altering the approach to the management of natural hazard risk proposed by the notified version of Chapter 28.

## **7. SUBMISSIONS**

- 7.1. The RMA, as amended in December 2013, no longer requires a report prepared under s42A or the Council decision to address each submission point but, instead, requires a summary of the issues raised in the submissions.
- 7.2. Ninety-nine submission points and 38 further submission points were received on notified Chapter 28.
- 7.3. A summary of submission points received and a recommendation on whether the submission is recommended to be rejected, accepted, accepted in part or transferred to a future hearing is attached as **Appendix 2**. I have read and considered all submissions, including further submissions.

## **8. ANALYSIS**

- 8.1. I have set out my analysis of the submissions under the following headings:

### **Group 1 – Relief sought by the Otago Regional Council (ORC)**

**Group 2** – Relief sought regarding specific natural hazards

**Group 3** – *Pro forma* submission points

**Group 4** – Submission points seeking specific changes to the wording of provisions

8.2. Where a provision has not been submitted on or where the submission is not accompanied by a clear basis or reasoning, the submission point is unlikely to have been discussed in this report (although recommendations in respect of all submissions received is set out in **Appendix 2**).

## 9. GROUP 1 – RELIEF SOUGHT BY ORC

9.1. Submission points made by the ORC (798) are addressed in turn below.

### Submission points 798.13 and 798.14

Submission point	Changes sought by submitter <sup>16</sup>
798.13; opposed by FS1182.1	ORC notes that objectives and policies are missing relating to avoiding and reducing natural hazard risks and applying a precautionary approach.
798.14; opposed by FS1182.2	ORC requests that Objectives 3.1 and 3.2 and Policies 3.2.6, 3.2.7 and 3.2.8 <sup>17</sup> of the Proposed RPS are reflected in the Natural Hazards section to provide for: <ul style="list-style-type: none"><li>•avoiding natural hazard risk; and</li><li>•reducing natural hazard risk; and</li><li>•applying a precautionary approach to natural hazard risk.</li></ul>

9.2. ORC submit that objectives and policies are missing relating to avoiding and reducing natural hazard risks and applying a precautionary approach to natural hazard risk.

9.3. With regard to risk avoidance, I note that notified PRPS Policy 3.2.6 requires the avoidance of *increased* natural hazard risk, and is in no way an absolute prohibition on avoiding risk. In addition, ORC's decisions on this policy (PRPS decisions version Policy 4.1.6) has amended it to say *manage natural hazard risk*, rather than *avoid increasing risk* as per the notified version. However the policy title remains as notified ("Avoiding increased natural hazard risk") and part (b) of the policy still requires the avoidance of activities that significantly increase risk. In my view the changes introduced to the decision version of the policy to replace "avoid increasing" with "manage" do not significantly alter the requirements of the notified version. These

<sup>16</sup> The numbering of the PRPS provisions in this column refers to the notified numbering which has been subsequently altered through the decisions version of the PRPS that was notified on 1 October 2016.

<sup>17</sup> The decisions version of the PRPS has resulted in the following relevant changes: Objective 3.1 has been deleted; Objective 3.2 has been renumbered as Objective 4.1 with a minor (non-policy) amendment to the issue statement; Policy 3.2.6 has been renumbered as Policy 4.1.6 and the policy has been altered to *manage natural hazard risk* rather than *avoid increasing natural hazard risk*; Policy 3.2.7 has been renumbered as Policy 4.1.7 and minor changes for clarification have been introduced; Policy 3.2.8 has been renumbered to Policy 4.1.8 and minor changes for clarification have been introduced.

provisions are relevant in terms of what the PDP must take into account / give effect to, respectively.

- 9.4. Policy 28.3.2.1 of the PDP provides for instances when avoidance is appropriate. The policy also provides an exception by acknowledging that avoidance may not always be practicable in developed urban areas. Policy 28.3.2.2 of the PDP sets out parameters for instances when subdivision and development should be enabled. These two policies work together to set out how the Plan's objectives in relation to natural hazards will be achieved. In my view, the effect of Policy 28.3.2.2 would be that discretionary (including restricted discretionary where there is a relevant matter of discretion) and non-complying proposals that do not meet the tests contained in the policy could be declined (and in declining the proposal, risk would be appropriately managed).<sup>18</sup>
- 9.5. With regard to risk reduction, Policy 28.3.1.5 directs the following... "*[w]here practicable, reduce the risk posed by natural hazards to the existing built environment and the community.*" The policy framework introduced by Chapter 28 therefore includes risk reduction, but acknowledges that there may be instances reducing risk is not practicable. In my view this is appropriate because it would be unreasonable to require risk reduction when, for instance, the existing risk is low.
- 9.6. Redraft Policy 28.3.2.2 enables proposals that (amongst other considerations) do not... "*[...]accelerate or worsen the natural hazard and/or its potential impacts risk to an unacceptable level.*"
- 9.7. With regard to applying ORC's submission point regarding the precautionary approach, the amendment sought would give effect to PRPS decisions version Policy 4.1.8:

*Where natural hazard risk is uncertain or unknown, but potentially significant or irreversible, apply a precautionary approach to identifying, assessing and managing that risk.*

- 9.8. I note that the PRPS does not define *precautionary approach*. However I understand it to mean that if, at the time a decision has to be made, there is scientific uncertainty about the effects of an activity on the environment but if the effects occur they are expected to be serious or irreversible, the Council may require the proponent of a proposal to provide all available information, decline a resource consent or impose conditions on a consent.

---

<sup>18</sup> I have recommended amendments to Policies 28.3.2.1 and 28.3.2.2. The recommended changes to Policy 28.3.2.1 are discussed in paragraphs 12.47 to 12.51, and those recommended for Policy 28.3.2.2 are discussed in paragraphs 12.52 to 12.57 and shown in **Appendix 1**. In my view, the reasoning above applies to the recommended redrafted versions of the policies.

9.9. PRPS decisions version Policy 4.1.8 is given effect through Policy 28.3.2.3,<sup>19</sup> whereby the onus will be on the resource consent applicant to provide an assessment that requires consideration of risk on a site-specific basis. This, in my view presents an efficient approach.

9.10. I will consider any additional comments presented by ORC at the hearing. However at this time I am unable to support the requested relief.

9.11. **Recommendation:** Reject submission points 798.13 and 798.14; accept FS1182.1 and FS1182.2 as shown in **Appendix 2**.

**Submission points 798.18 and 798.19**

Submission point	Changes sought by submitter
798.18	<p>In respect of proposed rule 28.3.2.2:</p> <p>ORC supports giving clear policy guidance in Policy 28.3.2.2 to help identify where risk is intolerable and therefore when a proposal should be declined. This gives better effect to the natural hazard provisions in the Proposed RPS.</p> <p>However, ORC considers it is not appropriate to have new development occurring where natural hazard risks, and residual risks, are intolerable for the community, now or in the future, even if managed or mitigated (as proposed in Policy 28.3.2.1).</p>
798.19	<p>In respect of proposed rule 28.3.2.1:</p> <p>ORC supports giving clear policy guidance in Policy 28.3.2.2 to help identify where risk is intolerable and therefore when a proposal should be declined. This gives better effect to the natural hazard provisions in the Proposed RPS.</p> <p>However, ORC considers it is not appropriate to have new development occurring where natural hazard risks, and residual risks, are intolerable for the community, now or in the future, even if managed or mitigated (as proposed in Policy 28.3.2.1).</p>

9.12. These submission points by the ORC oppose Policy 28.3.2.1 insofar as the policy leaves open the opportunity for development in locations that have existing development and are subject to intolerable natural hazard risk.

9.13. I note that Policy 28.3.2.2<sup>20</sup> would also apply to the consideration of whether any such development should be approved.

9.14. I also note that, as the parts of the District that have 'intolerable' natural hazard risk have not been identified, we cannot quantify the effect of implementing a strict 'avoidance' policy, such as that sought by the ORC. Taken literally an 'avoid' policy would require a prohibition on such

<sup>19</sup> The recommended changes to notified Policy 28.3.2.3 are discussed in paragraphs 12.59 to 12.64 and shown in **Appendix 1**. In my view, the reasoning above applies to the recommended redrafted versions of the policies.  
<sup>20</sup> Both as notified and redrafted.

development meaning that an application for such a proposal can't even be considered. There is no clear evidence that this approach is justified at this time in my view.

- 9.15. In the event that existing development is found to be within an area of intolerable risk, in my view a policy of avoidance would mean that any further development on that site could not occur, including renewal of existing development. I consider that there should be the opportunity for consideration of renewal if the result is that the natural hazard risk is not significantly increased. This approach would also provide the opportunity to decrease risk by implementing mitigation measures to protect existing development.
- 9.16. It is my view that the policy approach suggested by ORC may mean that all development, including mitigation, would be prohibited in such areas. I note, however, that the use and interpretation of the word 'avoid' throughout the PRPS is subject to an appeal by DCC and QLDC has applied to join the appeal as a s274 party in support of the DCC's position.
- 9.17. Consequently there remains significant uncertainty regarding the application of the PRPS Policies that use the word 'avoid' including most notably PRPS decisions version Policies 4.1.6 and 4.5.1(iii)(v).
- 9.18. I will consider any additional comments presented by ORC at the hearing. However at this time I am unable to support the requested relief.
- 9.19. **Recommendation:** Reject submission points 798.18 & 798.19 as shown in **Appendix 2**.

**Submission point 798.20**

Submission point	Changes sought by submitter
798.20	ORC request Policy 28.3.2.3 is amended to recognise that areas subject to natural hazard risk have ongoing maintenance needs which should not incur additional cost to the wider community.

- 9.20. The submission point requests that Policy 28.3.2.3 is amended to recognise that areas subject to natural hazard risk have ongoing maintenance needs which should not incur additional cost to the wider community.
- 9.21. Policy 28.3.2.2<sup>21</sup> sets out parameters for the grant of consent for subdivision and development on land subject to natural hazards, and (as recommended to be redrafted in **Appendix 1**)

---

<sup>21</sup> Both as notified and redrafted. My recommended changes to notified Policy 28.3.2.2 are discussed in paragraphs 12.52 to 12.58 and shown in **Appendix 1**.

includes that consent should be allowed where the proposed activity does not... "[...] *Require additional works and costs that would be borne by the community public.*"

9.22. I consider that redrafted Policy 28.3.2.2 sufficiently addresses the relief sought and no amendments are necessary.

9.23. **Recommendation:** Reject submission point 798.20 as shown in **Appendix 2**.

## 10. GROUP 2 – RELIEF SOUGHT REGARDING SPECIFIC NATURAL HAZARDS

10.1. Five submission points were received regarding the treatment of particular hazards in the PDP. These submission points are addressed in turn below.

### Submission point 42.3 – Cardrona Gravel Aquifer

Submission point	Changes sought by submitter
42.3 (J, E & ML Russell & Stiassny); opposed by FS1300.3	Include in the Medium Density Zone, or in another appropriate chapter of the proposed Plan: <ul style="list-style-type: none"> <li>(i) Objectives and policies raising the presence of the Cardrona Gravel Aquifer and its potential effect on earthworks and residential development;</li> <li>(ii) A rule requiring specific consideration of earthworks and building with reference to the Cardrona Gravel Aquifer;</li> <li>(iii) The requirement for engineering assessment and notification of any applications involving development in areas likely to be significantly impacted by the Cardrona Gravel Aquifer.</li> </ul>

10.2. J, E & ML Russell & Stiassny request that provisions acknowledging the presence of the Cardrona Gravel Aquifer be introduced, including a rule framework for earthworks and residential development on land potentially affected by the aquifer.

10.3. Plan Change 49: Earthworks to the ODP was made operative on 30 June 2016 and introduced a new Earthworks Chapter (Chapter 22) to the ODP. The chapter is likely to be introduced to the PDP in the same format and with the similar content as in the ODP through Stage 2 of the District Plan Review, as far as it applies to the geographic area being reviewed through the district plan review.<sup>22</sup>

10.4. Specifically, ODP Chapter 22<sup>23</sup> includes the following provisions that have relevance to the Cardrona Aquifer:

<sup>22</sup> See memorandum of counsel filed by Queenstown Lakes District Council on 23 November 2016 <http://www.qldc.govt.nz/assets/Uploads/Planning/District-Plan/Hearings-Page/Memorandums/General/S0001-QLDC-ScottS-Memorandum-Regarding-Approach-to-Stage-1-and-Stage-2-28631695-v-1.pdf>

<sup>23</sup> ODP Chapter 22 Earthworks Policies: [http://www.qldc.govt.nz/assets/OldImages/Files/District\\_Plan/District\\_Plan\\_Volume\\_1/Section-22-Earthworkws/22-Earthworks-July-2016.pdf](http://www.qldc.govt.nz/assets/OldImages/Files/District_Plan/District_Plan_Volume_1/Section-22-Earthworkws/22-Earthworks-July-2016.pdf)

- i. Reference to the 'Cardrona Alluvial Ribbon' in the Chapter Purpose 22.1 (paragraph 6).
- ii. Objective 6: *Maintain or improve water quality of rivers, lakes and aquifers.*
- iii. Policy 6.2: *Avoid earthworks adversely affecting water aquifers including the Hawea Basin, Wanaka Basin, Cardrona alluvial ribbon and Wakatipu Basin aquifers and other lesser aquifers.*
- iv. Rule 22.3.2.3 requires Restricted Discretionary activity consent for activities that do not comply with one or more Site Standards, including Site Standard 22.3.3(v):

**22.3.3(v) Water bodies**

- (a) *Earthworks within 7m of the bed of any water body shall not exceed 20m<sup>3</sup> in total volume, within one consecutive 12 month period.*
  - (b) *Any material associated with earthworks activity shall not be positioned within 7m of the bed of any water body or where it may dam, divert or contaminate water.*
  - (c) *Earthworks shall not:*
    - (i) *cause artificial drainage of any groundwater aquifer;*
    - (ii) *cause temporary ponding of any surface water.*
- v. Rule 22.3.2.3(b) sets out the following matters in respect of which Council has reserved discretion over:
- (i) *The nature and scale of the earthworks*
  - (ii) *Environmental protection measures*
  - (iii) *Remedial works and revegetation*
  - (iv) *The effects on landscape and visual amenity values*
  - (v) *The effects on land stability and flooding*
  - (vi) *The effects on waterbodies*
  - (vii) *Noise.*

10.5. Maps C2<sup>24</sup> and C3<sup>25</sup> of the Otago Regional Council Water Plan 2015 show the extent of the Cardrona Gravel Aquifer and the Cardrona Alluvial Ribbon Aquifer.

10.6. It is my view that, despite ODP Chapter 22 making specific reference to the Cardrona Alluvial Ribbon Aquifer (and not the Cardrona Gravel Aquifer), the policies and relevant rules would also apply to the Cardrona Gravel Aquifer. This is reflected in the scope of Rule 22.3.3(v)(c)(i) (above), which refers to *any* groundwater aquifer.

---

ODP Chapter 22 Earthworks Rules:

[http://www.qldc.govt.nz/assets/OldImages/Files/District\\_Plan/District\\_Plan\\_Volume\\_1/Section-22-Earthworkws/22-Earthworks-RULES-July-2016.pdf](http://www.qldc.govt.nz/assets/OldImages/Files/District_Plan/District_Plan_Volume_1/Section-22-Earthworkws/22-Earthworks-RULES-July-2016.pdf)

<sup>24</sup> Web reference: <http://www.orc.govt.nz/Documents/Publications/Regional/Water/Map%20C2.pdf>

<sup>25</sup> Web reference: <http://www.orc.govt.nz/Documents/Publications/Regional/Water/Map%20C3.pdf>

10.7. It is my view that the ODP Chapter 22 provisions, once incorporated into the PDP through Stage 2 of the District Plan Review, will be appropriate to address the matters raised by Russell & Stiassny, as earthworks causing artificial drainage of the aquifer will be considered through the resource consent process. ODP Chapter 22 does not impose a rule framework for the development associated with the earthworks, and in my view this would not be necessary, as it is the earthworks exposing the aquifer which is the issue.

10.8. In my view no amendments are necessary to Chapter 28. I am also of the view that it is appropriate for the rules relating to earthworks affecting an aquifer to be located in the earthworks chapter, rather than Chapter 28. The submitter will have the opportunity to submit on the relevant ODP Chapter 22 provisions through the Stage 2 notification process.

10.9. **Recommendation:** Reject submission point 42.3; accept FS1300.3 in part as shown in **Appendix 2.**

#### Submission point 564.1 – Bible Stream

Submission point	Changes sought by submitter
564.1 (Glenorchy Community Association Committee)	The ORC and QLDC update the Otago Natural Hazards Database with flooding information on the Bible Stream and remove any flood classification that is incorrect, in particular any mitigation work.

10.10. The Glenorchy Community Association Committee seeks that the ORC and the Council update the Otago Natural Hazards Database with flooding information on Bible Stream and remove any flood classification that is incorrect, in particular relating to any mitigation work.

10.11. I note that the database is proposed to be kept outside of the PDP to retain the ability to update it without the need for a plan change. I therefore consider that the submission point is not in scope of the District Plan Review.

10.12. **Recommendation:** Reject submission point 564.1 as shown in **Appendix 2.**

#### Submission points 849.1, 849.2 and 465.1 – Fire risk

Submission point	Changes sought by submitter
849.1 (Otago Rural Fire Authority); supported by FS1125.1	The submitter requests that the District plan better reflects the high fire danger associated with living in areas such as Mt Iron and the Queenstown Redzone by allowing the residents to remove flammable vegetation within the "Priority Zones" as identified in the "FireSmart homeowners manual published by the NRFA.



849.2 (Otago Rural Fire Authority)	The submitter requests that the District plan better reflects the high fire danger associated with living in areas such as Mt Iron and the Queenstown Redzone by identifying and mitigating vegetation fire risk in the building planning process.
465.1 (Leigh Overton)	The inclusion of some detail relating to the level of fire risk in this District and the need for this matter to be recognized as being important when considering planning and development.

10.13. These submission points from the Otago Rural Fire Authority and Leigh Overton relate specifically to fire risk in the District. Chapter 28 acknowledges fire risk as a natural hazard affecting this District (see 28.2), whereas it is not specifically acknowledged as a natural hazard in the ODP hazard provisions. It is also noteworthy that the PRPS (notified and decisions version) includes fire in its definition of *natural hazard*, which directly aligns with the definition of *natural hazard* in section 2 RMA.

10.14. As mentioned above, it is not proposed to introduce hazard mapping in the PDP maps. However, I agree that fire hazard information will need to be introduced to the Natural Hazards Database. Combined with the acknowledgement of fire risk as a natural hazard in Chapter 28, this will result in fire risk being treated in the same manner as other known natural hazards present in this District.

10.15. I understand that the 'Red Zones' mentioned in the Otago Rural Fire Authority's submission point 849.2 are the parts of the District where fires and fireworks are strictly prohibited. These locations are shown on the Fire Permits pages of the QLDC website.<sup>26</sup> In order for these areas to be specifically considered for inclusion on Planning Maps or introduced to the Natural Hazards Database, the rationale and basis for the physical extent of the Redzone areas would need to be interrogated so as to be defensible. It is my view that the introduction of fire hazard information to the Natural Hazards Database would be appropriate once such an interrogation has occurred.

10.16. As also mentioned above, the Natural Hazards Database will sit outside the District Plan (and will not be incorporated by reference), so it can be updated without the need for a plan change / Schedule 1 process. This means that the most up-to-date hazards information can be made available to the public without delay. I acknowledge that this approach provides less certainty and does not afford affected parties to contest the veracity of hazard information in the Natural Hazards database that may constrain development through a Schedule 1 or appeal process. However, on balance the dynamic nature of hazard information and the challenges of keeping abreast of new information through plan changes make a non-statutory approach the most appropriate approach in my view.

10.17. I note that changes to rural provisions were considered in Hearing Stream 02 that balance the need for vegetation retention versus managing fire risk.

---

<sup>26</sup> Web reference: <http://www.qldc.govt.nz/services/permits/fire-permits/>

10.18. **Recommendation:** Reject submission points 849.1, FS1125.1, 849.2 and 465.1 as shown in **Appendix 2.**

## 11. GROUP 3 – PRO FORMA SUBMISSION POINTS

11.1. Thirty-three submission points were received from a number of submitters seeking the following identical relief (my numbering added):

*"[1] Reconsider the extensive number of hazard related policies,  
[2] remove unnecessary tautology and  
[3] ensure they are focussed on significant hazards only".*

11.2. Specifically, these submission points are as follows:

- 632.67 (RCL Queenstown Pty Ltd, RCL Henley Downs Ltd, RCL Jacks); supported by FS1097.639; opposed by FS1217.68,<sup>27</sup> FS1219.68, FS1252.68, FS1277.71, FS1316.67, FS1275.241, FS1283.181.
- 633.21 (IHG Queenstown Ltd and Carter Queenstown Ltd); opposed by FS1139.22 and FS1191.21.
- 672.35 (Watertight Investments Ltd).
- 636.13 (Crown Range Holdings Ltd).
- 643.17 to 20 (incl) (Crown Range Enterprises).
- 688.12 to 15 (incl) (Justin Crane and Kirsty Mactaggart).
- 693.18 to 21 (incl) (Private Property Limited).
- 694.26 to 29 (incl) (Glentui Heights Ltd).
- 696.35 to 38 (incl) (Millbrook Country Club Ltd).
- 700.4 to 7 (incl) (Ledge Properties Ltd and Edge Properties Ltd).
- 702.15 to 18 (incl) (Lake Wakatipu Stations Limited).
- 724.3 (Queenstown Gold Ltd).

11.3. In response to the first and second parts of the requested relief, I have considered the number of policies contained in Chapter 28 and whether there is an issue with repetition.<sup>28</sup> In my view the natural hazard related policies in the ODP are too few, such that they offer limited guidance or certainty to Plan users.

11.4. For clarity, the ODP natural hazards objectives and policies are listed below:

---

<sup>27</sup> This submission has been withdrawn. The Council received notice of the withdrawal on 19 January 2016.

<sup>28</sup> 'Tautology' is defined by the Oxford Dictionary as '[t]he saying of the same thing twice over in different words, generally considered to be a fault of style.'

#### 4.8.3 Objectives and Policies

- Objective 1:** *Avoid or mitigate loss of life, damage to assets or infrastructure, or disruption to the community of the District, from natural hazards*
- Policy 1.1:** *To increase community awareness of the potential risk of natural hazards, and the necessary emergency responses to natural hazard events.*
- Policy 1.2:** *To continually develop and refine a hazards register in conjunction with the Otago Regional Council, as a basis for Council decisions regarding subdivision and building development.*
- Policy 1.3:** *In conjunction with the Otago Regional Council to continually assess the need for additional protection measures either through the District Plan or as protection works.*
- Policy 1.4:** *To ensure buildings and developments are constructed and located so as to avoid or mitigate the potential risk of damage to human life, property or other aspects of the environment.*
- Policy 1.5:** *To ensure that within the consent process any proposed developments have an adequate assessment completed to identify any natural hazards and the methods used to avoid or mitigate a hazards risk.*
- Policy 1.6:** *To discourage subdivision in areas where there is a high probability that a natural hazard may destroy or damage human life, property or other aspects of the environment.*
- Policy 1.7:** *To avoid or mitigate the likelihood of destruction or damage to residential units and other buildings constructed or relocated into flood risk areas.*

11.5. The ODP therefore contains a total of 1 objective and 7 policies that relate to natural hazards, whereas Chapter 28 of the PDP has a total of 3 objectives and 14 policies. Chapter 28 of the PDP does not contain an 'Implementation Methods', 'Explanation and Principal Reasons for Adoption' or an 'Environmental Results Anticipated' section. Aspects of these sections of the ODP have been synthesised into the objectives and policies in Chapter 28 of the PDP, in particular within Objective 28.3.3, and Policies 28.3.3.1 and 28.3.3.2 to 28.3.3.4.

11.6. No submissions were received seeking the reinstatement of the ODP natural hazards 'Implementation Methods', 'Explanation and Principal Reasons for Adoption'<sup>29</sup>, and 'Environmental Results Anticipated'<sup>30</sup> sections of the ODP.

11.7. The PDP policies give specific consideration to infrastructure (Policies 28.3.1.1 and 28.3.2.5), which is not acknowledged in the ODP. They also seek to provide detailed guidance regarding matters that will be considered when determining whether or not consent should be granted

---

<sup>29</sup> The 'Implementation Methods' and 'Explanation and Principal Reasons for Adoption' sit within provision 4.8.3 of the ODP.

<sup>30</sup> Provision 4.8.4 of the ODP.

(Policy 28.3.2.2) and the information requirements that will inform any decision (Policy 28.3.2.3). In my view this suite of policies is necessary and appropriate to provide Plan users with adequate certainty across a range of foreseeable hazard scenarios.

11.8. I will consider any further information the submitters present at the hearing to further furnish the basis for the relief sought, including specifically which objectives and/or policies the submitters consider should be truncated or merged. However without any specific details I am unable to support the relief sought in the first and second parts of the submission point.

11.9. In response to the third part of the relief sought, neither the ODP, the PDP, the RPS or the PRPS define what constitutes 'significant risk' and this would be determined on a case-by-case basis. In my view it is not practical to establish levels of risk with adequate certainty in the drafting of a district plan as natural hazard risks can vary in significance greatly, depending on their type, frequency or likelihood of occurring, the extent of potential consequences and the likely range of activities that result from a given development. As such, in my view it is better that the 'significance' of a risk is informed by the assessment required by redrafted Policy 28.3.2.3, and the grant of consent should be determined by the application of redrafted Policy 28.3.2.2 and any other relevant Chapter 28 policies.

11.10. I consider the method proposed by the PDP, which provides for the significance of risk to be determined on a case-by-case basis, is appropriate in the absence of District Plan maps which map a full range of likely known levels of risk. The community's tolerance is also a factor in determining the significance of risk. This approach also enables the specific risk profile of any proposal to be considered against the type and severity of natural hazard(s) present. This approach also in my view implements the precautionary approach, thereby giving effect to the decisions version of PRPS Policy 4.1.8.

11.11. **Recommendation:** Reject submission points 632.67 (RCL Queenstown Pty Ltd, RCL Henley Downs Ltd, RCL Jacks), 633.21 (IHG Queenstown Ltd and Carter Queenstown Ltd), 672.35 (Watertight Investments Ltd), 636.13 (Crown Range Holdings Ltd), 643.17 to 20 (incl) (Crown Range Enterprises), 688.12 to 15 (incl) (Justin Crane and Kirsty Mactaggart), 693.18 to 21 (incl) (Private Property Limited), 694.26 to 29 (incl) (Glentui Heights Ltd), 696.35 to 38 (incl) (Millbrook Country Club Ltd), 700.4 to 7 (incl) (Ledge Properties Ltd and Edge Properties Ltd), 702.15 to 18 (incl) (Lake Wakatipu Stations Limited), 724.3 (Queenstown Gold Ltd) as shown in **Appendix 2.**

11.12. **Recommendation:** Reject further submission point FS1097.639; accept further submission points FS1217.68, <sup>31</sup> FS1219.68, FS1252.68, FS1277.71, FS1316.67, FS1275.241, FS1283.181, FS1139.22 and FS1191.21 as shown in **Appendix 2**.

## 12. GROUP 4 – SUBMISSION POINTS SEEKING SPECIFIC CHANGES TO THE WORDING OF PROVISIONS

12.1. A number of submission points seek various changes to the wording of objectives and policies. Rather than group these points into themes, I respond to them by objective/provision in turn below, commencing at the start of Chapter 28.

### 28.1: Purpose

Submission point	Changes sought by submitter
805.66 (Transpower NZ Ltd)	The District is recognised as being subject to multiple hazards and as such, a key issue is ensuring that when development is proposed on land potentially subject to natural hazards, the risk is managed or mitigated to <u>acceptable</u> <del>tolerable</del> levels. In instances where the risk is <u>unacceptable</u> <del>intolerable</del> , natural hazards will be required to be avoided.

12.2. Transpower's submission states that 28.1 is supported with amendments, and the reasons accompanying the submission point state the following:

*"The introduction to the Natural Hazards Chapter acknowledges that avoidance of natural hazards is preferable, but mitigating effects may be the only feasible option for certain activities such as regionally significant infrastructure. In addition, mitigating effects of natural hazards can be costly and avoiding effects may not always be possible."<sup>32</sup>*

12.3. The reasons provided do not, in my view, provide any specific explanation for the relief sought. The reason for introducing the term 'tolerable' is set out in paragraphs 6.6 to 6.8. I will consider any further information or reasoning the submitters present at the hearing to further inform the basis of the relief sought. However, at this time I am unable to support the requested relief.

12.4. **Recommendation:** Reject submission point 805.66 as shown in **Appendix 2**.

### 28.2: Natural Hazard Identification

Submission point	Changes sought by submitter
383.1 (QLDC)	Add the following sentence at the end of the second paragraph: "This is likely to increase with climate change".

<sup>31</sup> This submission has been withdrawn. The Council received notice of the withdrawal on 19 January 2016.

<sup>32</sup> Submission 805, pp 35-36.

12.5. I consider that recognition of the likely effects of climate change is an appropriate inclusion to this section of the Chapter. I also note that the change would be consistent with proposed Strategic Directions Objective 3.2.4.8.1: *Respond positively to Climate Change*.

12.6. **Recommendation:** Accept submission point 383.1 as shown in **Appendix 2**, with the recommended amendments to provision 28.2 shown in **Appendix 1**.

**28.3.1 Objective: The effects of natural hazards on the community and the built environment are minimised to tolerable levels**

Submission point	Changes sought by submitter
433.100 (Queenstown Airport Corporation <b>(QAC)</b> ); supported by FS1097.386 and FS1117.187.	The effects of natural hazards on the community and the built environment are <u>appropriately managed</u> . <del>minimised to tolerable levels.</del>
768.25 (Z Energy, BP Oil NZ & Mobil Oil NZ <b>(Oil Companies)</b> )	The effects of natural hazards on the community and the built environment are <u>avoided, remedied or mitigated</u> <del>minimised to tolerable levels.</del>

12.7. Both submission points seek an alternative to the use of the term 'minimised'. The Oil Companies submission notes that the plain meaning of 'minimise' means to... "...reduce to the smallest level (of effect) possible, when the policy approach is actually to address effects to tolerable levels (which may or may not be equivalent to minimising the effects depending on the circumstances)."<sup>33</sup>

12.8. I agree that use of the word *minimise* would be open to varying interpretations and does not inaccurately articulate the intent of the objective.

12.9. I note in this regard that the decisions version of PRPS Objective 4.1 uses the term *minimise: Risk that natural hazards pose to Otago's communities are minimised*. However, the term is used in the PRPS in the context of 'minimising risk, rather than 'minimising effects'. Also of relevance is that Section 31 RMA includes *the avoidance or mitigation of natural hazards* as a territorial local authority function.

12.10. In my view, substituting the word *minimised* with *avoided or mitigated* would provide greater certainty regarding the intent of the objective. In my view no consequential changes at the policy level would be necessary to implement the amended objective.

---

<sup>33</sup> Submission 768, p16, para 3.

12.11. I do not consider that it is necessary to include a policy to 'remedy' the effects of natural hazards (as suggested by the Oil Companies), and would question whether such a requirement could be practically achieved.

12.12. The QAC submission<sup>34</sup> refers to paragraphs 4.56 and 4.57 of their submission for the reasons for the relief sought. These paragraphs do not however provide any specific rationale for removing the term 'minimised', other than giving a general statement that the notified provisions are too vague and require further clarity and certainty. I consider that the recommended changes to replace *minimised* with *avoided or mitigated* would provide greater certainty and ensure alignment with Council's functions under the RMA.

12.13. QAC is also of the view that terms such as 'intolerable' should be avoided because tolerance is difficult to quantify and depends on circumstances.<sup>35</sup>

12.14. As discussed at paragraphs 6.6 to 6.8 it is my view that inclusion of the concept of 'tolerability' in the natural hazards policy framework is appropriate, for the very reason that it enables circumstance to be considered in determining the level of risk. Use of the concept of tolerability is consistent with the decision version of the PRPS, in particular Policy 4.1.5, which requires that, in the management of natural hazard risk, particular regard is had to a community's tolerance to risk and the changing nature of risk (amongst other considerations).

12.15. I consider that notified Objective 28.3.1 could be further improved by applying to natural hazard *risk*, rather than *effects*. This further acknowledges that Chapter 28 takes a risk-based approach to natural hazards and increases alignment with the decision version of PRPS Objective 4.1. There is no clear submission seeking this change, but my recommendation is based on achieving consistency with the language used within the chapter and with that of the PRPS.

12.16. **Recommendation:** Accept in part submission point 768.25 and reject submission point 433.100 as shown in **Appendix 2**, with the recommended amendments to notified Objective 28.3.1 shown in **Appendix 1**.

---

<sup>34</sup> Submission 433, p26, row 1.  
<sup>35</sup> Submission 433, paras 4.56, 4.57.

**28.3.1.1 Policy: Ensure assets or infrastructure are constructed and located so as to avoid or mitigate the potential risk of damage to human life, property, infrastructural networks and other parts of the environment**

Submission point	Changes sought by submitter
433.101 (QAC); supported by FS1097.387; opposed by FS1117.148.	Ensure assets or infrastructure are constructed and located so as to avoid or mitigate the potential <u>adverse effects of natural hazards, including the risk of</u> <del>risk of</del> damage and to human life, property, infrastructural networks and other parts of the environment.
719.145 (NZ Transport Agency (NZTA)); supported by FS1341.26, FS1342.17 & FS1097.697.	<u>Where practicable, E</u> ensure assets or infrastructure are constructed and located so as to avoid or mitigate the potential risk of damage to human life, property, infrastructural networks and other parts of the environment.
805.67 (Transpower NZ Ltd (Transpower))	Ensure assets or infrastructure are constructed and located so as to avoid or mitigate the potential risk of damage to human life, property, infrastructural networks and other parts of the environment, <u>to the extent practicable, whilst acknowledging the locational, technical and operational requirements of regionally significant infrastructure.</u>
806.194 (QPL)	Either delete "or other parts of the environment", or refine this statement to better define "other parts of the environment".

12.17. The submission points from the NZTA and Transpower seek amendments to Policy 28.3.1.1 that acknowledge that infrastructure is not always able to be located outside of areas affected by natural hazard risk.

12.18. I note that notified Policy 28.3.2.5 recognises that *"some infrastructure will need to be located on land subject to natural hazard risk"* and both the NZTA and Transpower have submitted in support of notified Policy 28.3.2.5<sup>36</sup> as shown in **Appendix 2**.

12.19. Transpower provide the following reasons for the specific relief sought in submission point 805.67:

*"[...] the objective should acknowledge that effects of natural hazards may not be able to be completely avoided or mitigated. The policy needs to acknowledge the locational, operational, and technical requirements of regionally significant infrastructure such as the National Grid This will also assist with giving effect to the NPSET.*

<sup>36</sup> As shown in **Appendix 2**, all primary submissions received on notified Policy 28.3.2.5 support the policy without modification. Further submissions FS1097.389 and FS1117.149 oppose the primary submission from QAC (433.103), but only insofar as the QAC submission relates to Plan Change 35. In my view the further submissions are not relevant to natural hazards policy.



*All components of the National Grid are designed and constructed to withstand all natural hazard events in accordance with Civil Defence Emergency Management legislation. These include a 1:2,500 year earthquake event as well as flooding and significant snow and storm events that are likely to occur during the design working event of the asset component (minimum 50 years). Durability and resilience are critical criteria that are taken into account.<sup>37</sup>"*

12.20. A definition of Regionally Significant Infrastructure was recommended for inclusion in the PDP during the Hearing of submissions received on PDP Chapter 3: Strategic Direction of 7 – 23 March 2016.<sup>38</sup>

12.21. Amendments to the definition were subsequently recommended through the Council Reply<sup>39</sup> to the Energy and Utilities Chapter 30, considered in Hearing Stream 05, with the following changes recommended (shown underlined):

*Regionally Significant Infrastructure means:*

- a) Renewable electricity generation facilities, where they supply the National Grid and the local distribution network and are operated by and electricity operator; and*
- b) Electricity transmission infrastructure forming the National Grid; and*
- c) Electricity Distribution Lines identified on the Planning Maps; and*
- d) Telecommunication and radio communication facilities\*; and*
- e) Key centralised Council infrastructure, including water reservoirs, and wastewater treatment plants; and*
- f) Roads classified as being of national or regional importance; and*
- g) Queenstown and Wanaka airports.*

*\* As defined by the Resource Management (National Environmental Standards for Telecommunication Facilities) Regulations 2008*

12.22. It is my view that, given the importance of regionally significant infrastructure for the District, the relief sought by submission point 805.67 is appropriate for the reasons set out in the s32AA evaluation in **Appendix 4**. I consider that the recommended changes would also result in the acceptance in part of the relief sought by NZTA, as the revisions introduce the words *to the extent practicable* to the policy, as sought by NZTA.

12.23. I consider that the relief sought by QPL to delete "other parts of the environment" is appropriate as this component of the notified policy lacks definition and its application would therefore be uncertain. The notified s32(1)(b) evaluation (see **Appendix 3**)<sup>40</sup> considers the suite of notified

---

<sup>37</sup> Submission 805, page 36, row 2.

<sup>38</sup> Strategic Directions Hearing – Recommended Revised Chapter – Reply 07/04/2016.

<sup>39</sup> District Wide Hearing 05 – Recommended Revised Energy and Utilities Chapter 30 – Reply 22/09//2016.

<sup>40</sup> Page 14.

Policies 28.3.1.1 to 28.3.1.5 applying to natural hazard risk to the *community* and the *built environment* and the s32 analysis does not provide assistance with determining the intended application of *other parts of the environment*.

12.24. In my view the relief sought by QAC is not appropriate as it would not assist with achieving redrafted Objective 28.3.1 or notified Objective 28.3.2, which specifically seek to address risk, rather than *adverse effects* as sought by the submitter.

12.25. **Recommendation:** Accept submission point 805.67 and 806.194; accept in part submission point 719.145; reject submission points 433.101 and FS1097.387 as shown in **Appendix 2**, with the recommended amendments to notified Policy 28.3.1.1 shown in **Appendix 1**.

**28.3.1.2 Policy: Restrict the establishment of activities which have the potential to increase natural hazard risk, or may have an impact upon the community and built environment**

Submission point	Changes sought by submitter
621.107 (Real Journeys); 669.21 (Burgess); 712.15 (Bobs Cove Developments)	Restrict the establishment of activities which have the potential to increase <u>significant</u> natural hazard risk, <del>or</del> <u>which</u> may have an impact upon the community and built environment.
768.27 (Oil Companies); supported by FS1287.138	Restrict the establishment of activities which <del>have the potential to</del> increase natural hazard risk <u>beyond tolerable levels, including where they <del>or</del> will may have an intolerable</u> impact upon the community and built environment.
806.195 (Queenstown Park Ltd)	Restrict the establishment of activities which have the potential to increase natural hazard risk, or may have <u>an adverse and significant</u> impact upon the community and built environment.

12.26. The relief sought by Real Journeys (621.107) is not accompanied by any reasons<sup>41</sup> relating to the specific changes sought.

12.27. Burgess (669.21) and Bobs Cove Developments (712.15) state the following identical reasons<sup>42</sup> for the relief sought:

<sup>41</sup> Submission 621.107: p5.

<sup>42</sup> Submission 669.21: p6, row 2; Submission 712.15: p4.

*"There are widespread areas in [sic] identified on Council's hazard database as being subject to at least some natural hazard risk (for example the lowest risk categories of liquefaction risk). It would be inefficient and unjustified for all resource consents in such locations to be required to assess natural hazard risks. A more practical approach is to focus on the avoidance or mitigation of significant natural hazard risk."*

12.28. In response to these comments, I note that the Council's Natural Hazards Database sits outside the PDP and is not incorporated by reference. This means that the Database cannot be used as a trigger for resource consent. However, I consider that applications for discretionary (including restricted discretionary that include a relevant matter of discretion) and non-complying activities, in identified hazard areas could assess natural hazard risks in accordance with the policies in Chapter 28. The recommended changes to notified Policy 28.3.3.1 (discussed below in paragraphs 12.69 -70) will further clarify the status of the Database in the context of resource consent decisions. The rationale for keeping the Database external to the PDP is explained in paragraphs 6.3 to 6.5 above.

12.29. It is my view that the policy framework of Chapter 28, which takes a risk-based approach, is appropriate such that it provides sufficient flexibility that the specific nature of a proposed activity can be considered against the type, frequency and likely consequences of natural hazard present, which then determines the level of risk posed.

12.30. The decisions version of PRPS Policy 4.1.6 seeks that natural hazard risk is managed by *"[a]voiding activities that significantly increase risk including the displacement of risk off-site [...]"* (my emphasis added).

12.31. As mentioned above at paragraph 5.20, the use of the term 'avoid' in the PRPS is subject to appeals. However, it is relevant that the above PRPS policy seeks to address *significant* increases in risk. In my view amending Policy 28.3.1.2 of the PDP to apply to activities that significantly increase risk would increase alignment with the PRPS. In addition, confirming that *tolerability* is a factor in determining the significance of risk (as sought by the Oil Companies (768)) in my view would also increase alignment with the PRPS (as discussed in paragraphs 6.6 to 6.8 above). On this basis I support the relief sought in part through the introduction of the amendments to notified Policy 28.3.1.2 shown in **Appendix 1**.

12.32. **Recommendation:** Accept in part the relief sought by 621.107, 669.21, 712.15, 768.27, FS1287.138 and 806.195 as shown in **Appendix 2**.

**28.3.1.3 Policy: Recognise that some areas that are already developed are now known to be at risk from natural hazards and minimise such risk as far as possible while acknowledging that landowners may be prepared to accept a level of risk**

Submission point	Changes sought by submitter
768.28 (Oil Companies); supported by FS1287.139	Recognise that some areas that are already developed are now known to be at risk from <u>the effects of</u> natural hazards and minimise such risk as far as possible <u>practicable</u> while acknowledging that landowners may be prepared to accept a level of risk.

12.33.I consider that the change sought to replace the word *possible* with *practicable* would generally improve the policy. In my view, the change acknowledges that minimising risk 'as far as possible' may be read to mean minimising risk so that it is negligible, which in my view is not the intent of the policy (or the overarching objective) and would be very difficult to achieve in practice.

12.34.The recommended wording shown in **Appendix 1** further revises the wording to focus the policy on natural hazard risk, rather than the 'effects of natural hazards', as sought by the submitter. I consider this element the recommended revised policy to be a minor non-substantive change to improve the way it is articulated and to increase consistency with the language used throughout Chapter 28.

12.35.**Recommendation:** Accept in part the relief sought by 768.28 and introduce a minor non-substantive amendment as shown in **Appendix 1**.

**28.3.1.4 Policy: Allow Public Bodies exercising their statutory powers to carry out natural hazard mitigation activities**

Submission point	Changes sought by submitter
806.196 (Queenstown Park Ltd)	Allow Public Bodies <u>the regional and district council</u> exercising their statutory powers to carry out natural hazard mitigation activities, <u>while recognising the need to mitigate potential adverse effects that may result from hazard protection works.</u>

12.36.I consider that the first part of the relief sought is acceptable as the term 'public body' is not defined and is therefore unclear. Replacing the term with 'Regional and District Council' provides greater clarity and certainty.

12.37. I consider that the second part of the relief sought is also an appropriate addition to the policy as it acknowledges that adverse effects can result from hazard protection works and mitigation of those effects may be warranted.

12.38. As an additional minor amendment I also consider that replacement of the word "Allow" with "Enable" would improve the policy, as it more accurately articulates the role of the District Plan, as shown in **Appendix 1**. I consider this change to be a minor non-substantive change.

12.39. **Recommendation:** Accept relief sought by submission point 806.196 as shown in **Appendix 1**.

**28.3.2 Objective: Development on land subject to natural hazards only occurs where the risks to the community and the built environment are avoided or appropriately managed or mitigated**

Submission point	Changes sought by submitter
621.108 (Real Journeys); 669.22 (Burgess); 712.16 (Bobs Cove Developments)	Development on land subject to <u>a significant</u> natural hazards only occurs where the risks to the community and the built environment are <u>satisfactorily</u> avoided or appropriately managed or mitigated.
806.197 (Queenstown Park Ltd)	Replace Objective 28.3.2 with Objective 4.8.3 of the operative Plan

12.40. With regard to Real Journey's submission point 621.108, I note that the submitters have not provided any reasons for the relief sought. However they have reserved the opportunity to expand on the reasons at the hearing.<sup>43</sup> I am not able to accept the relief sought in the absence of specific reasons. The conclusions I reach below regarding the Burgess and Bob's Cove submissions provide my recommended response to the Real Journey's submission at the present time.

12.41. Burgess and Bobs Cove Developments provide the following reasons:

*"There are widespread areas in [sic] areas identified on Council's hazard database as being subject to at least some natural hazard risk (for example the lowest risk categories of liquefaction risk). It would be inefficient and unjustified for all resource consents in such locations to be required to assess natural hazard risks. A more practical approach is to focus on the avoidance or mitigation of significant natural hazard risk."<sup>44</sup>*

<sup>43</sup> Submission 621, page 5.

<sup>44</sup> Submission 669; page 6, row 3; Submission 712, page 4, row 5.

12.42. The submitters provide no evidence or clarification as to what 'significant natural hazards' means, nor do they provide information regarding a method to give effect to the objective (for example, no maps are provided showing the areas that are subject to 'significant natural hazards'). In the absence of this information I am unable to support the requested relief.

12.43. In my view, limiting Objective 28.3.2 to applying to 'significant natural hazards' would significantly constrain the objective. At the policy level, a framework for the treatment of 'significant risk' is provided (within both the notified and recommended redrafted versions of Policy 28.3.2.1). In my view the objective should apply broadly to all natural hazards, and focussing the objective on significant hazards would result in the objective (and underlying policies) being silent on the treatment of proposals subject to lower levels of natural hazard risk. In my view this approach would not be appropriate and would not give effect to either the notified or decisions version of PRPS Objective 4.1.

12.44. Submission point 806.197 proposes that the objective is replaced with Objective 4.8.3 of the ODP, which directs the following:

*"Avoid or mitigate loss of life, damage to assets or infrastructure, or disruption to the community of the District, from natural hazards."*

12.45. I consider that notified Objective 28.3.2 improves upon the operative objective as the thrust of notified Objective 28.3.2 is on natural hazard risk. Applying the objective to *the built environment* and *the community* provides a clearer scope for the objective, rather than the reference to *assets or infrastructure, or disruption to the community* in the ODP. In addition, the word *disruption* in Objective 4.8.3 of the ODP is vague and difficult to measure. It is also unclear how one could 'mitigate loss of life'.

12.46. **Recommendation:** Reject submission points 806.197, 621.108, 669.22 & 712.16.

**28.3.2.1 Policy: Seek to avoid intolerable natural hazard risk, acknowledging that this will not always be practicable in developed urban areas**

Submission point	Changes sought by submitter
433.102 (QAC); supported by FS1097.388 and FS1117.188	<u>Avoid significant</u> <del>Seek to avoid intolerable</del> natural hazard risk, acknowledging that this will not always be practicable in developed urban areas.
768.31 (Oil	Seek to avoid intolerable <u>effects from</u> natural hazard risk, acknowledging that this will not always be practicable in developed <del>urban</del> areas.

Companies); supported by FS1287.141	
---	--

12.47. QAC's submission point 433.102 seeks the avoidance of 'significant' natural hazard risk, with the following reasons provided in Section 4.57 of submission 433:<sup>45</sup>

*"The Proposed Plan should avoid the use of terms such as "intolerable", where the level of tolerance is difficult to quantify and dependant on circumstance. The provisions should also clearly identify that they are seeking to manage natural hazards effects."*

12.48. I note that the decisions version of PRPS Policy 4.1.6 seeks the avoidance of activities that significantly increase risk. In addition PRPS Policy 4.5.1 seeks the avoidance of land with significant risk from natural hazards. In my view the amendment sought by QAC is appropriate in the context of these higher order policies, which refer to *significant* risk, rather than *intolerable* risk. The amendments sought to replace *tolerable* with *significant* would therefore, in my view, increase alignment with the relevant policies of the decisions version of the PRPS. In my view, tolerance is a factor in determining the significance of risk, as discussed above in paragraph 12.31 and reflected in the recommended changes to Policy 28.3.1.2 shown in **Appendix 1**.

12.49. I consider that the relief sought by the Oil Companies in submission point 768.31 is appropriate as it widens the policy to apply to all developed areas. If the term 'urban' remained in the policy, then it may raise the question as to whether the policy would apply to settlements outside the Urban Growth Boundaries (**UGBs**). I note that the term 'urban' is not defined in Chapter 2: Definitions of the PDP, however the term *Urban Development* is defined. The wording of the definition, as recommended in the Strategic Directions Reply<sup>46</sup> is as follows:

*"Urban Development: Development that by its scale, intensity, visual character, trip generation and/or design and appearance of structures, is of an urban character typically associated with urban areas. Development in particular Special Zones (namely Millbrook and Waterfall Park) is excluded from the definition."*

12.50. It is my view that it is appropriate for the policy to apply to all zones where development is contemplated, and as such I consider that deletion of the word 'urban' to widen the policy to apply to 'developed areas' is appropriate in achieving notified Objective 28.3.2.

---

<sup>45</sup> Submission 433, p11.

<sup>46</sup> Web Reference – same as previous

12.51.**Recommendation:** Accept relief sought by submission point 433.102, FS1097.388, FS1117.188; accept in part submission 768.31 and FS1287.141 as shown in **Appendix 2**.

**28.3.2.2 Policy: Allow subdivision and development of land subject to natural hazards where the proposed activity does not:**

- **Accelerate or worsen the natural hazard and/or its potential impacts.**
- **Expose vulnerable activities to intolerable natural hazard risk.**
- **Create an unacceptable risk to human life.**
- **Increase the natural hazard risk to other properties.**
- **Require additional works and costs that would be borne by the community.**

Submission point	Changes sought by submitter
768.32 (Oil Companies); supported by FS1287.140	Allow <del>Enable</del> subdivision and development of land subject to natural hazards where the proposed activity does not: <ul style="list-style-type: none"> <li>•Accelerate or worsen the <u>risks associated with the</u> natural hazard and/or its potential impacts.</li> <li>•Expose vulnerable activities to intolerable <del>natural hazard risk</del> <u>consequences from natural hazards</u>.</li> <li>•Create an unacceptable risk to human life.</li> <li>• Increase the natural hazard risk to other properties <u>to unacceptable levels</u>.</li> <li>• Require additional works and costs that would be borne by the community.</li> </ul>
621.109 (Real Journeys); supported by FS1097.615; 669.23 (Burgess); 712.17 (Bobs Cove Developments)	Allow subdivision and development of land subject to <u>significant</u> natural hazards where <del>the proposed activity</del> <u>it</u> does not: <ul style="list-style-type: none"> <li>• Accelerate or worsen the natural hazard <u>risk</u> <del>and/or its potential impacts</del>.</li> <li>• Expose vulnerable activities to intolerable natural hazard risk.</li> <li>• Create an unacceptable risk to human life.</li> <li>• <del>Increase the natural hazard risk to other properties</del>.</li> <li>• Require additional works and costs that would be borne by the <u>public community</u>."</li> </ul>
806.198; supported in part by FS1160.11; 806.199 (Queenstown Park Ltd)	Allow subdivision and development of land subject to natural hazards where the proposed activity does not: <ul style="list-style-type: none"> <li>• Accelerate or worsen the natural hazard and/or its potential impacts <u>to an unacceptable level</u>.</li> <li>• Expose vulnerable activities to intolerable natural hazard risk.</li> <li>• Create an unacceptable risk to human life.</li> <li>• Increase the natural hazard risk to other properties <u>to an intolerable level</u>.</li> <li>• Require additional works and costs that would be borne by the community."</li> </ul>

12.52. The submitters request various changes to the policy and I recommend incorporating a number of the changes sought, as shown in **Appendix 1**.

12.53. Regarding the Oil Companies submission point 768.32, I agree that the word "Enable" better reflects the role of the District Plan and I support this change. I also agree that bullet 1 of the



notified policy should be amended to apply to natural hazard risk, rather than 'potential impacts'.

12.54. In a similar vein, I agree with the change to bullet point 5, sought by submitters 621.109, 669.23 and 712.17 as it focusses the policy on natural hazard risk. I also agree that it is appropriate to replace the word "community" with "public".

12.55. However, I do not agree that this policy should only apply to land that is subject to significant natural hazards (refer to the discussion in paragraphs 11.9 - 11.10 and 12.43 above).

12.56. I consider that the bullet point regarding natural hazard risk to other properties is appropriate and should not be deleted. I note that the notified and decisions version of PRPS Policies 4.1.6 and 4.1.10(c) specifically refer to displacement of risk off-site and a number of other PRPS policies<sup>47</sup> refer generally to natural hazard risk to *people and communities* and do not differentiate between risk within or beyond a site.

12.57. The submission points from the Oil Companies and QAC seeking that the policy be amended to add the qualifiers to bullet points 1 and 4, in my view provide for a pragmatic approach where proposals that increase risk can be contemplated if the increase in risk is low. This is also consistent with the approach in redraft Policy 28.3.1.2, and in my view still gives effect to redraft Objective 28.3.1 and Objective 28.3.2, which provide flexibility for consideration of community tolerance and risk management to be considered.

12.58. **Recommendation:** Accept in part the relief sought by submission points 768.32, FS1287.140, 621.109, FS1097.615, 669.23, 712.17, 806.198, FS1160.11 and 806.199 as shown in **Appendix 2**, with the recommended amendments to notified Policy 28.3.2.2 shown in **Appendix 1**.

**28.3.2.3 Policy: Ensure all proposals to subdivide or develop land that is subject to natural hazards provide as assessment covering:**

- **The type, frequency and scale of the natural hazard.**
- **The type of activity being undertaken and its vulnerability to natural hazards.**
- **The effects of a natural hazard event on the subject land.**
- **The potential for the activity to exacerbate natural hazard risk both in and off the subject land.**
- **The potential for any structures on the subject land to be relocated.**
- **The design and construction of buildings and structures to mitigate the effects of natural hazards, such as the raising of floor levels.**

---

<sup>47</sup> See redrafted version of Policies 4.1.4, 4.1.5, 4.1.7 and 4.1.8. Also of note is that the overarching PRPS Objective 4.1 refers to risk to Otago's *communities*.

- **Site layout and management to avoid the adverse effects of natural hazards, including access and egress during a hazard event.**

Submission point	Changes sought by submitter
806.200 (Queenstown Park Ltd)	Amend to recognise that the level of assessment should be commensurate with the level of potential risk.
768.33 (Oil Companies); supported by FS1287.142	Changes to the final bullet point as follows: [...] • Site layout and management to <u>avoid manage or mitigate</u> the adverse effects of natural hazards to a tolerable level of risk, including <u>with respect to</u> access and egress during a hazard event.
621.110 (Real Journeys); 669.24 (Burgess); 712.18 (Bobs Cove Developments)	Ensure <u>new subdivision or land development</u> all proposals to subdivide or develop land that is <u>at threat from a subject to significant natural hazards risk (identified on the District Plan Maps) is assessed in terms of</u> provide an assessment covering: • The type, frequency and scale of the natural hazard <u>and the effects of a natural hazard event on the subject land</u> . • The <u>type of activity being undertaken and its vulnerability of the activity in relation to the</u> natural hazards. • <del>The effects of a natural hazard event on the subject land.</del> • The potential for the activity to exacerbate <u>the</u> natural hazard risk <del>both in and off the subject land.</del> • <del>The potential for any structures on the subject land to be relocated.</del> • The <u>location</u> , design and construction of buildings and structures to mitigate the effects of natural hazards, <del>such as the raising of floor levels.</del> • <del>Site layout and m</del> <u>Management techniques that</u> to avoid or <u>minimise</u> the adverse effects of natural hazards; <del>including access and egress during a hazard event.</del>

12.59.I recommend incorporation of the relief sought by Queenstown Park Limited (806.200), which will ensure that the level of assessment is commensurate with the level of risk. I consider that this change acknowledges that there is a spectrum of risk, and it would be onerous to require a highly detailed assessment for a proposal that is low risk.

12.60.With respect to submission points 621.110, 669.24 & 712.18, I agree with much of the relief sought (which I discuss below in more detail). However, I do not agree with the approach to the policy applying only to 'significant' natural hazard risk identified on Planning Maps as risk is to be considered on a case-by-case approach. In my view this is consistent with applying the precautionary approach and gives effect to the decision version of PRPS Policy 4.1.8.

12.61.I agree with the relief sought by submission points 621.110, 668.24 & 712.18 in respect of the bullet points 1, 2 and 3, and consider that they articulate these elements of the policy in a more organised and succinct manner.

12.62.With regard to the amendments to bullet point 4, requested by submission points 621.110, 668.24 & 712.18, I consider that risk beyond the subject land should remain a consideration and note that this approach is consistent with the decisions version of PRPS Policy 4.1.6. I

have, however suggested minor non-policy changes to improve the wording of this phrase, as shown in **Appendix 1**.

12.63. With respect to bullet points 6 and 7, I agree with the changes sought by submission point 768.33 and agree in part with submission points 621.110, 668.24 & 712.18. The recommended revised wording is shown in **Appendix 1**. In my view the changes provide greater flexibility for avoidance, management or mitigation, which is consistent with achieving notified Objective 28.3.2

12.64. **Recommendation:** Accept the relief sought by submission points 768.33, FS1287.142 and 806.200; accept in part the relief sought by submission points 621.110, 669.24 & 712.18, as shown in **Appendix 2**, with the recommended amendments to notified Policy 28.3.2.3 shown in **Appendix 1**.

**28.3.2.4 Policy: Promote the use of natural features, buffers and appropriate risk management approaches in preference to hard engineering solutions in mitigating natural hazard risk.**

Submission point	Changes sought by submitter
768.34 (Oil Companies)	Delete.

12.65. The submitter correctly highlights that hard engineering solutions are often used to mitigate natural hazard risk. It is my view that the policy seeks the consideration of the use of alternatives to hard engineering solutions in the first instance, and that if an alternative solution is not able to be used, then hard engineering can be considered as a tool for mitigating natural hazard risk.

12.66. I note that the decisions version of PRPS Policy 4.1.10 and Policy 11.5.4(d) of the Operative RPS also place parameters around the use of hard protection structures for mitigation of natural hazard.

12.67. Rather than deleting the policy, it is my view that it should be amended to promote alternatives to hard engineering solutions *where practicable*.

12.68. **Recommendation:** Accept in part the relief sought by submission point 768.34 and incorporate the change shown in **Appendix 1**.

**28.3.3.1 Policy: Continually develop and refine a natural hazards database in conjunction with the Otago Regional Council, (as a basis for Council decisions on resource consent applications or plan changes and for the assessment of building consents).**

Submission point	Changes sought by submitter
768.36 (Oil Companies)	Delete.

12.69. The submitter correctly points out that as the Natural Hazard Database sits outside the PDP, and would be able to be updated without the need for a plan change. In my view the policy should be amended to acknowledge that the database should not itself be a basis for decisions; rather it should be a consideration.

12.70. In practical terms, the information held within the database is used to initially highlight the presence of a natural hazard. The hazard is then able to be interrogated in greater detail through the implementation of recommended redrafted Policy 28.3.2.3, which lists the information to be provided in the hazard assessment for a particular resource consent application. It is the detailed hazards assessment(s) considered through the resource consent process that would form a basis for Council decisions, rather than the database itself. I therefore recommend that notified Policy 28.3.3.1 is amended so that the word "basis" is replaced with "consideration", as shown in **Appendix 1**.

12.71. **Recommendation:** Accept in part the relief sought by submission point 768.36 and incorporate the change shown in **Appendix 1**.

**Submission points supporting various provisions of the notified version**

12.72. A number of submission points support various proposed objectives and provisions of the notified Chapter 28 with no further comment provided by the submitter. These points are listed in **Appendix 2** and are not discussed in further detail as the submissions do not seek further relief. For instances where I do not recommend changes in the Recommended Revised Version in **Appendix 1**, I recommend these submission points be accepted.

**Submission points rejecting various provisions of the notified version**

12.73. I recommend that submission points that request deletion of a notified Chapter 28 provision but that do not provide any reasons or rationale for the requested change, and have not been otherwise submitted on, be rejected. These submissions are shown in **Appendix 2**.

### 13. CONCLUSION

- 13.1. On the basis of the analysis set out within this evidence, I recommend that the changes within the Recommended Revised Chapter in **Appendix 1** be accepted.
- 13.2. The changes will improve the clarity and administration of the PDP; contribute towards achieving the objectives of the PDP and Strategic Direction goals in an effective and efficient manner and give effect to the purpose and principles of the RMA and the functions of the Council and a District Plan in relation to natural hazards.



**Amy Bowbyes**  
**Senior Planner**  
**15 February 2017**

## Appendix 1. Recommended Revised Chapter

# NATURAL HAZARDS 28

Key:

Recommend changes to notified chapter are shown in underlined text for additions and ~~strike through text~~ for deletions. Appendix 1 to s42A report, dated 15 February 2017.

## 28 Natural Hazards

### 28.1 Purpose

The purpose of this chapter is to provide a policy framework to address natural hazards throughout the District. The District is recognised as being subject to multiple hazards and as such, a key issue is ensuring that when development is proposed on land potentially subject to natural hazards, the risk is managed or mitigated to tolerable levels. In instances where the risk is intolerable<sup>1</sup>, natural hazards will be required to be avoided. Council has a responsibility to address the developed parts of the District that are subject to natural hazard risk through a combination of mitigation measures and education, to lessen the impacts of natural hazards.

### 28.2 Natural Hazard Identification

Natural Hazards that exist in the District include:

- Flooding and inundation
- Erosion and deposition (including landslip and rockfall)
- Land instability
- Earthquakes and liquefaction
- Avalanche
- Alluvion<sup>2</sup>, avulsion<sup>3</sup> and subsidence
- Tsunami / seiche<sup>4</sup>
- Fire

The District is located in an inland mountainous environment and as such can also be exposed to climatic extremes in terms of temperature, rain and heavy snowfall. This is likely to increase with climate change.

Comment [AB1]: 383.1

Council holds information in a natural hazards database which has been accumulated over a long period of time by both the Council and the Otago Regional Council. The database is continually being updated and refined as new information is gathered. Given the ongoing updates occurring, with the exception of flooding information, which has historically been mapped, Council has decided not to map natural hazards as part of the District Plan. This decision has been made due to the fact the

<sup>1</sup> The concept of risk 'tolerability' is derived from the Otago Regional Council's Regional Policy Statement, which provides additional guidance as to the management of natural hazards.

<sup>2</sup> Increase in the size of a piece of land due to deposits by a river.

<sup>3</sup> Abandonment of a river channel and the formation of a new channel.

<sup>4</sup> Oscillation of water due to earthquake shaking

# NATURAL HAZARDS 28

maps may quickly become out of date as new information becomes available. Council will rely upon the hazards database in the consideration of resource consents and building consents.

The database is readily available to the public through the Council website and at Council Offices.

Additional to the Resource Management Act, Council has obligations to address hazards under other legislation such as the Building Act 2004, the Civil Defence and Emergency Management Act 2002 and the Local Government Act 2002. In particular the provisions of the Building Act provide Council with the ability to refuse to issue a building consent in certain circumstances where a property is subject to natural hazards. As such, Council uses the provisions in the District Plan as just one tool to address natural hazard risk.

## 28.3 Objectives and Policies

**28.3.1 Objective – ~~The effects of~~ The risk posed by natural hazards on to the community and the built environment are minimised ~~is avoided or mitigated to a tolerable levels.~~**

**Comment [SG2]:** Consistency within policies in chapter

**Comment [SG3]:** 768.25

**Comment [AB4]:** 768.25

### Policies

28.3.1.1 Ensure assets or infrastructure are constructed and located so as to avoid or mitigate the potential risk of damage to human life, property ~~and~~ infrastructural networks ~~and other parts of the environment~~ to the extent practicable, whilst acknowledging the locational, technical and operational requirements of regionally significant infrastructure.

**Comment [SG5]:** 806.194

**Comment [SG6]:** 805.67

28.3.1.2 Restrict the establishment of activities which ~~have the potential to~~ significantly increase natural hazard risk, ~~including where they will have an intolerable or may have an impact upon the community and built environment.~~

**Comment [AB7]:** 805.67, 806.194, 719.145.

**Comment [AB8]:** 621.107, 669.21, 712.15, 768.27 and 806.195

28.3.1.3 Recognise that some areas that are already developed are now known to be ~~at risk from~~ subject to natural hazards ~~risk~~ and minimise such risk as far as ~~possible~~ practicable while acknowledging that landowners may be prepared to accept a level of risk.

**Comment [AB9]:** Additional minor non-substantive change to improve wording.

28.3.1.4 ~~Allow~~ Enable Public Bodies the Regional and District Council exercising their statutory powers to carry out natural hazard mitigation activities, ~~while recognising the need to~~ mitigate potential adverse effects that may result from natural hazard mitigation works.

**Comment [AB10]:** 768.28

**Comment [AB11]:** Minor non-substantive change to improve wording

28.3.1.5 Where practicable, reduce the risk posed by natural hazards to the existing built environment and the community.

**Comment [AB12]:** 806.196

**28.3.2 Objective - Development on land subject to natural hazards only occurs where the risks to the community and the built environment are avoided or appropriately managed or mitigated.**

### Policies

28.3.2.1 ~~Seek to avoid intolerable~~ Avoid significant natural hazard risk, acknowledging that this will not always be practicable in developed ~~urban~~ areas.

**Comment [AB13]:** 433.102, 768.31.

28.3.2.2 ~~Allow~~ Enable subdivision and development of land subject to natural hazards where the proposed activity does not:

**Comment [AB14]:** 768.32.

- ~~Accelerate or worsen the natural hazard~~ ~~and/or its potential impacts~~ risk to an unacceptable level.
- Expose vulnerable activities to intolerable natural hazard risk.
- Create an unacceptable risk to human life.
- Increase the natural hazard risk to other properties to an unacceptable level.
- Require additional works and costs that would be borne by the ~~community~~ public.

**Comment [AB15]:** 768.32, 621.109, 669.23 & 712.17, 806.198, 806.199



# NATURAL HAZARDS 28

- 28.3.2.3 Ensure all proposals to subdivide or develop land that is subject to natural hazards risk provide an assessment ~~covering~~ that meets the following information requirements, ensuring that the level of detail of the assessment is commensurate with the level of natural hazard risk:
- The type, frequency and scale of the natural hazard and the effects of a natural hazard on the subject land.
  - The vulnerability of the activity in relation to the natural hazards.
  - The effects of a natural hazard event on the subject land.
  - The potential for the activity to exacerbate the natural hazard risk both within and off beyond the subject land.
  - The potential for any structures on the subject land to be relocated.
  - The location, design and construction of buildings and structures to mitigate the effects of natural hazards, such as the raising of floor levels.
  - ~~Site layout and m-~~ Management techniques to avoid that manage or mitigate the adverse effects of natural hazards risk to a tolerable level, including with respect to access ingress and egress during a natural hazard event.

**Comment [AB16]:** 621.110, 668.24 & 712.18

**Comment [AB17]:** 806.200

**Comment [AB18]:** 621.110, 668.24 & 712.18

**Comment [AB19]:** 621.110, 668.24 & 712.18

**Comment [AB20]:** Minor non-substantive change to improve wording

**Comment [AB21]:** 621.110, 668.24 & 712.18

**Comment [AB22]:** 621.110, 668.24, 712.18 & 768.33. Additional minor non-substantive changes to improve wording

28.3.2.4 ~~Promote~~ Where practicable, promote the use of natural features, buffers and appropriate risk management approaches in preference to hard engineering solutions in mitigating natural hazard risk.

**Comment [AB23]:** 768.34

28.3.2.5 Recognise that some infrastructure will need to be located on land subject to natural hazard risk.

28.3.3 **Objective - The community's awareness and understanding of the natural hazard risk in the District is continually enhanced.**

## Policies

- 28.3.3.1 Continually develop and refine a natural hazards database in conjunction with the Otago Regional Council, (as a basis consideration for Council decisions on resource consent applications or plan changes and for the assessment of building consents).
- 28.3.3.2 Ensure the community has access to the most up-to-date hazard information available.
- 28.3.3.3 Increase the community awareness of the potential risk of natural hazards, and the necessary emergency responses to natural hazard events.
- 28.3.3.4 Monitor hazard trends and changes in risk and consider action should risks become unacceptable.

**Comment [AB24]:** 768.36

## 28.4 Other Relevant Provisions

### 28.4.1 District Wide Rules

**Comment [AB25]:** Minor, non-substantive changes to increase consistency with other PDP Chapters.

Attention is drawn to the following District Wide chapters. All provisions referred to are within Stage 1 of the Proposed District Plan, unless marked as Operative District Plan (ODP).

1 Introduction	2 Definitions	3 Strategic Direction
4 Urban Development	5 Tangata Whenua	6 Landscapes
24 Signs (18 ODP)	25 Earthworks (22 ODP-Operative)	26 Historic Heritage

## NATURAL HAZARDS 28

Operative)		
27 Subdivision	29 Transport (14 ODP Operative)	30 Energy and Utilities and Renewable Energy
31 Hazardous Substances (16 ODP Operative)	32 Protected Trees	33 Indigenous Vegetation
34 Wilding Exotic Trees	35 Temporary Activities and Relocated Buildings	36 Noise
37 Designations	Planning Maps	

### 28.5 Information Requirements

Development proposals affected by, or potentially affected by, natural hazards as identified in Council's natural hazards database will require an accompanying assessment of natural hazards effects commensurate to the level of risk posed by the natural hazard. Council holds natural hazard information that has been developed at different scales and this should be taken into account when assessing potential natural hazard risk. It is highly likely that for those hazards that have been identified at a 'district wide' level, further detailed analysis will be required.

## **Appendix 2. List of Submitters and Recommended Decisions**

Appendix 2 to the Section 42A Report for Chapter 28 - Natural Hazards

Original Point Number	Further Submission No	Submitter	Lowest Clause	Submitter Position	Submission Summary	Planner Recommendation	Transferred	Issue Reference
19.1		Kain Fround		Support	Support.	Accept in Part		Group 4
42.3		J, E & ML Russell & Stiassny		Other	Include in the Medium Density Zone, or in another appropriate chapter of the proposed Plan: (i) Objectives and policies raising the presence of the Cardrona Gravel Aquifer and its potential effect on earthworks and residential development; (ii) A rule requiring specific consideration of earthworks and building with reference to the Cardrona Gravel Aquifer; (iii) The requirement for engineering assessment and notification of any applications involving development in areas likely to be significantly impacted by the Cardrona Gravel Aquifer.	Reject		Group 2
42.3	FS1300.3	Wanaka Trust		Oppose	That the submission be refused insofar as it seeks amendments to chapter 8. That the submission be refused insofar as it seeks amendments to any part of the plan requesting the inclusion of provisions relating to the Cardrona Gravel Aquifer	Accept in Part		Group 2
564.1		Glenorchy Community Association Committee		Other	The ORC and QLDC update the Otago Natural Hazards Database with flooding information on the Bible Stream and remove any flood classification that is incorrect, in particular any mitigation work.	Reject		Group 2
849.1		Otago Rural Fire Authority		Not Stated	The submitter requests that the District plan better reflects the high fire danger associated with living in areas such as Mt Iron and the Queenstown Redzone by allowing the residents to remove flammable vegetation within the "Priority Zones" as identified in the "FireSmart homeowners manual published by the NRFA.	Reject		Group 2
849.1	FS1125.1	New Zealand Fire Service		Support	Allow. The Commission supports the preventative mitigation of fire risk to property and life through providing for as a permitted activity the ability for property owners and occupiers to remove flammable vegetation. This is particularly important where property is located outside of a reticulated water network.	Reject		Group 2
849.2		Otago Rural Fire Authority		Not Stated	The submitter requests that the District plan better reflects the high fire danger associated with living in areas such as Mt Iron and the Queenstown Redzone by identifying and mitigating vegetation fire risk in the building planning process.	Reject		Group 2
805.66		Transpower New Zealand Limited	28.1 Purpose	Other	support with amendments. Amend introduction to: The District is recognised as being subject to multiple hazards and as such, a key issue is ensuring that when development is proposed on land potentially subject to natural hazards, the risk is managed or mitigated to <u>acceptable</u> tolerable levels. In instances where the risk is <u>unacceptable intolerable</u> , natural hazards will be required to be avoided.	Reject		Group 4
383.1		Queenstown Lakes District Council	28.2 Natural Hazard Identification	Other	28.2: Add the following sentence at the end of the second paragraph: "This is likely to increase with climate change".	Accept		Group 4
798.15		Otago Regional Council	28.2 Natural Hazard Identification	Support	ORC supports the QLDC's approach of providing hazard mapping in its hazards database, and rules in the District Plan to manage natural hazards. All known natural hazards should be identified in that database and made publicly available. This will enable the use of best information for decision making about those hazards.	Accept		Group 1
465.1		Leigh Overton	28.3 Objectives and Policies	Other	The inclusion of some detail relating to the level of fire risk in this District and the need for this matter to be recognized as being important when considering planning and development.	Reject		Group 2
465.1	FS1125.2	New Zealand Fire Service	28.3 Objectives and Policies	Support	Allow. The identification and highlighting of fire risk in a District is supported by the Commission. Awareness of fire risk is a preventative mitigation measure. Specific reference to fire risk in the objectives and policies of 28.3.3 is supported.	Reject		Group 2
632.67		RCL Queenstown Pty Ltd, RCL Henley Downs Ltd, RCL Jacks	28.3 Objectives and Policies	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
632.67	FS1219.68	Bravo Trustee Company	28.3 Objectives and Policies	Oppose	The submitter opposes this submission and considers that operative provisions as they relate to the Jacks Point zone provide the most appropriate and effective controls to provide for sustainable resource management within Jacks Point. The submitter considers the re-zoning of open space land referred to as OSCR in submission 632 is inappropriate and would result in significant adverse effects that have not been quantified or assessed. The submission does not promote or give effect to Part 2 of the Act. Matters raised in the submission do not meet section 32 of the Act. Are not the most appropriate method for achieving the objectives of the Proposed District Plan having regard to its efficiency and effectiveness, and taking into account the costs and benefits.	Reject		Not relevant to natural hazard policy

Appendix 2 to the Section 42A Report for Chapter 28 - Natural Hazards

Original Point Number	Further Submission No	Submitter	Lowest Clause	Submitter Position	Submission Summary	Planner Recommendation	Transferred	Issue Reference
632.67	FS1252.68	Tim & Paula Williams	28.3 Objectives and Policies	Oppose	The submitter opposes this submission and considers that operative provisions as they relate to the Jacks Point zone provide the most appropriate and effective controls to provide for sustainable resource management within Jacks Point. The submitter considers the re-zoning of open space land referred to as OSCR is inappropriate and would result in significant adverse effects that have not been quantified or assessed. The submission does not promote or give effect to Part 2 of the Act. Matters raised in the submission do not meet section 32 of the Act. Are not the most appropriate method for achieving the objectives. The submitter seeks the submission be disallowed.	Reject		Not relevant to natural hazard policy
632.67	FS1277.71	Jacks Point Residents and Owners Association	28.3 Objectives and Policies	Oppose	Opposes. Believes that the rezoning will have cumulative adverse effects on landscape values, creating potential lightspill effects in the absence of specific measures to avoid such effects, and will not maintain the character and amenity values of the residential environment. Seeks that the submission be disallowed.	Reject		Not relevant to natural hazard policy
632.67	FS1316.67	Harris-Wingrove Trust	28.3 Objectives and Policies	Oppose	Submission be disallowed	Accept		Group 3
632.67	FS1097.639	Queenstown Park Limited	28.3 Objectives and Policies	Support	Reconsidering the extensive number of hazard related policies, removing unnecessary tautology and ensuring they are focused on significant natural hazards only would reduce complexity.	Reject		Group 3
632.67	FS1275.241	"Jacks Point" (Submitter number 762 and 856)	28.3 Objectives and Policies	Oppose	Opposes. Agrees that the submission is opposed as it will not enable the efficient and effective development of the JPZ land in respect of which Jacks Point has an interest. Seeks that to the extent that the submission may inadvertently oppose the JPZ as notified as it affects land in which the submitter Jacks Point has an interest, and is inconsistent with submissions 762 and 856 in relation to land in which the submitter Jacks Point has an interest, disallow the submission.	Reject		Not relevant to natural hazard policy
632.67	FS1283.181	MJ and RB Williams and Brabant	28.3 Objectives and Policies	Oppose	Reject submission	Accept		Group 3
663.21		IHG Queenstown Ltd and Carter Queenstown Ltd	28.3 Objectives and Policies	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
663.21	FS1139.22	Carl & Lorraine Holt	28.3 Objectives and Policies	Oppose	Seek that the whole of submission 663 be disallowed.	Accept in Part		Group 3
663.21	FS1191.21	Adam & Kirsten Zaki	28.3 Objectives and Policies	Oppose	Seeks that the whole submission be disallowed. - For the general reasons stated by the Submitters in their primary submission, specifically 5.7 - 5.11. - The decisions version of PC50 ( currently subject to appeal before the Environment Court) was sought in the alternative to the retention of high density residential zoning in the Submitters' primary submission. - The Council through PC50 appropriately assessed and determined (in a section 32 sense) the (inter alia) efficiency and effectiveness of the provisions of PC50 in relation to the Submitters' land and the balance of the Beach Street Block, particularly in relation to bulk, site coverage and height. - Town Centre zoning and requested amendments to that zoning for the Beach Street Block in parts and as a whole are inconsistent with Part 2, relevant provisions of superior planning instruments and the Operative and Proposed District Plans.	Accept in Part		Group 3
672.35		Watertight Investments Ltd	28.3 Objectives and Policies	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
798.12		Otago Regional Council	28.3 Objectives and Policies	Support	ORC supports the purpose of Natural Hazards as set out in Section 28.1, in particular, ensuring that when development is proposed on land potentially subject to natural hazards, the risk is managed or mitigated to tolerable levels. In instances where the risk is intolerable, natural hazards will be avoided.	Accept		Group 1
798.13		Otago Regional Council	28.3 Objectives and Policies	Oppose	ORC notes that objectives and policies are missing relating to avoiding and reducing natural hazard risks and applying a precautionary approach.	Reject		Group 1
798.13	FS1182.1	Z-Energy Ltd, BP Oil NZ Ltd, Mobil Oil NZ Ltd	28.3 Objectives and Policies	Oppose	Objectives and policies are missing relating to avoiding and reducing natural hazard risks and applying a precautionary approach. Amend the Natural Hazards section to reflect Objectives 3.1 and 3.2 and Policies 3.2.6, 3.2.7 and 3.2.8 of the Proposed RPS and to provide for <ul style="list-style-type: none"> <li>•Avoiding natural hazard risk; and</li> <li>•Reducing natural hazard risk; and</li> <li>•Applying a precautionary approach to natural hazard risk.</li> </ul>	Accept		Group 1
798.14		Otago Regional Council	28.3 Objectives and Policies	Oppose	ORC requests that Objectives 3.1 and 3.2 and Policies 3.2.6, 3.2.7 and 3.2.8 of the Proposed RPS are reflected in the Natural Hazards section to provide for: <ul style="list-style-type: none"> <li>•avoiding natural hazard risk; and</li> <li>•reducing natural hazard risk; and</li> <li>•applying a precautionary approach to natural hazard risk.</li> </ul>	Reject		Group 1

Appendix 2 to the Section 42A Report for Chapter 28 - Natural Hazards

Original Point Number	Further Submission No	Submitter	Lowest Clause	Submitter Position	Submission Summary	Planner Recommendation	Transferred	Issue Reference
798.14	FS1182.2	Z-Energy Ltd, BP Oil NZ Ltd, Mobil Oil NZ Ltd	28.3 Objectives and Policies	Oppose	Objectives and policies are missing relating to avoiding and reducing natural hazard risks and applying a precautionary approach. Amend the Natural Hazards section to reflect Objectives 3.1 and 3.2 and Policies 3.2.6, 3.2.7 and 3.2.8 of the Proposed RPS and to provide for <ul style="list-style-type: none"> <li>•Avoiding natural hazard risk; and</li> <li>•Reducing natural hazard risk; and</li> <li>•Applying a precautionary approach to natural hazard risk.</li> </ul>	Accept		Group 1
433.100		Queenstown Airport Corporation	28.3.1 Objective 1	Other	That the objective is amended as follows: <b>Objective 28.3.1</b> The effects of natural hazards on the community and the built environment are <u>appropriately managed, minimised to tolerable levels.</u>	Reject		Group 4
433.100	FS1097.386	Queenstown Park Limited	28.3.1 Objective 1	Support	The functional and operational constraints of significant infrastructure should be a relevant consideration. However, and policy recognition should not be limited to existing infrastructure and should include new infrastructure.	Reject		Group 4
433.100	FS1117.187	Remarkables Park Limited	28.3.1 Objective 1	Support	The functional and operational constraints of significant infrastructure should be a relevant consideration. However, and policy recognition should not be limited to existing infrastructure and should include new infrastructure.	Reject		Group 4
524.46		Ministry of Education	28.3.1 Objective 1	Support	Retain	Accept in Part		Group 4
600.106		Federated Farmers of New Zealand	28.3.1 Objective 1	Support	Objective 28.3.1 is adopted as proposed.	Accept in Part		Group 4
600.106	FS1034.106	Upper Clutha Environmental Society (Inc.)	28.3.1 Objective 1	Oppose	The Society OPPOSES the entire submission and seeks that the entire submission is DISALLOWED.	Reject		Group 4
600.106	FS1209.106	Richard Burdon	28.3.1 Objective 1	Support	Support entire submission	Accept		Group 4
636.13		Crown Range Holdings Ltd	28.3.1 Objective 1	Not Stated	Related to Policy 28.3.1.2 Objective 28.3.2 Policy 28.3.2.2 Policy 28.3.2.3: Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
768.25		Z Energy Ltd, BP Oil NZ Ltd and Mobil Oil NZ Ltd	28.3.1 Objective 1	Support	Retain without further modification.	Accept in Part		Group 4
433.101		Queenstown Airport Corporation	28.3.1.1	Other	Amend the policy as follows: <b>Policy 28.3.1.1</b> Ensure assets or infrastructure are constructed and located so as to avoid or mitigate the potential <u>adverse effects of natural hazards, including the risk of risk-of damage</u> and to human life, property, infrastructural networks and other parts of the environment.	Reject		Group 4
433.101	FS1097.387	Queenstown Park Limited	28.3.1.1	Support	The functional and operational constraints of significant infrastructure should be a relevant consideration. However, and policy recognition should not be limited to existing infrastructure and should include new infrastructure.	Reject		Group 4
433.101	FS1117.148	Remarkables Park Limited	28.3.1.1	Oppose	Oppose all amendments to definitions that are inconsistent with Plan Change 35. Oppose all amendments to any provisions that seek to impose controls in addition to those proposed under Plan Change 35. Oppose all amendments that seek to place additional restrictions on existing urban zones such as the Remarkables Park Zone. Oppose all amendments that seek to undermine or circumvent the Plan Change 35 and Lot 6 NoR proceedings that are currently before the Environment Court. Oppose all amendments that seek to enable urban activities on airport land where such activities are constrained on land adjoining or near the airport (Frankton and Remarkables Park). Oppose all amendments that seek to reduce open space or buffer areas between the airport and adjoining urban zones. Oppose all amendments that seek to constrain any existing development opportunity within the Remarkables Park Zone. Any amendments or provisions supported/opposed by QAC that seek to achieve any of the outcomes set out above be rejected.	Reject		Not relevant to natural hazard policy
635.43		Aurora Energy Limited	28.3.1.1	Other	Support in part Retain Policy 28.3.1.1	Accept in Part		Group 4
719.145		NZ Transport Agency	28.3.1.1	Not Stated	Amend Policy 28.3.1.1 to read as follows: <u>Where practicable,</u> ensure assets or infrastructure are constructed and located so as to avoid or mitigate the potential risk of damage to human life, property, infrastructural networks and other parts of the environment.	Accept in Part		Group 4
719.145	FS1341.26	Real Journeys Limited	28.3.1.1	Support	Allow relief sought to the extent that is does not undermine or prevent the relief originally sought by Real Journeys (unless otherwise agreed through the submission process)	Accept in Part		Group 4
719.145	FS1342.17	Te Anau Developments Limited	28.3.1.1	Support	Allow relief sought to the extent that is does not undermine or prevent the relief originally sought by Te Anau Developments (unless otherwise agreed through the submission process)	Accept in Part		Group 4
719.145	FS1097.697	Queenstown Park Limited	28.3.1.1	Support	Support the intent of the submission for the reasons provided in QPL's original submission.	Accept in Part		Group 4

Appendix 2 to the Section 42A Report for Chapter 28 - Natural Hazards

Original Point Number	Further Submission No	Submitter	Lowest Clause	Submitter Position	Submission Summary	Planner Recommendation	Transferred	Issue Reference
768.26		Z Energy Ltd, BP Oil NZ Ltd and Mobil Oil NZ Ltd	28.3.1.1	Support	Retain without further modification.	Reject		Group 4
805.67		Transpower New Zealand Limited	28.3.1.1	Other	Support with amendments. Amend policy: Ensure assets or infrastructure are constructed and located so as to avoid or mitigate the potential risk of damage to human life, property, infrastructural networks and other parts of the environment, <u>to the extent practicable, whilst acknowledging the locational, technical and operational requirements of regionally significant infrastructure.</u>	Accept		Group 4
806.194		Queenstown Park Limited	28.3.1.1	Oppose	Oppose/amend. Either: • Delete "or other parts of the environment"; or • Refine this statement to better define "other parts of the environment"	Accept		Group 4
621.107		Real Journeys Limited	28.3.1.2	Not Stated	Amend policy 28.3.1.2 as follows: Restrict the establishment of activities which have the potential to increase significant natural hazard risk, or which may have an impact upon the community and built environment.	Reject		Group 4
643.17		Crown Range Enterprises	28.3.1.2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
669.21		Cook Adam Trustees Limited, C & M Burgess	28.3.1.2	Other	Amend policy 28.3.1.2 as follows: 28.3.1.2 Restrict the establishment of activities which have the potential to increase <u>significant</u> natural hazard risk, <del>or which</del> may have an impact upon the community and built environment.	Reject		Group 4
688.12		Justin Crane and Kirsty Mactaggart	28.3.1.2	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
693.18		Private Property Limited	28.3.1.2	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
694.26		Glentui Heights Ltd	28.3.1.2	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
696.35		Millbrook Country Club Ltd	28.3.1.2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
700.4		Ledge Properties Ltd and Edge Properties Ltd	28.3.1.2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
702.15		Lake Wakatipu Stations Limited	28.3.1.2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
712.15		Bobs Cove Developments Limited	28.3.1.2	Other	Amend policy 28.3.1.2 as follows: 28.3.1.2 Restrict the establishment of activities which have the potential to increase <u>significant</u> natural hazard risk, <del>or which</del> may have an impact upon the community and built environment.	Reject		Group 4
768.27		Z Energy Ltd, BP Oil NZ Ltd and Mobil Oil NZ Ltd	28.3.1.2	Not Stated	Amend Policy 28.3.1.2 as follows: Restrict the establishment of activities which <u>have the potential to</u> increase natural hazard risk <u>beyond tolerable levels, including where they or will may have an intolerable</u> impact upon the community and built environment.	Accept		Group 4
768.27	FS1287.138	New Zealand Tungsten Mining Limited	28.3.1.2	Support	That the submission be insofar as it seeks amendments to chapters 3 and 6, and policy suites 28.3.1 and 28.3.2	Accept		Group 4
806.195		Queenstown Park Limited	28.3.1.2	Other	Amend as below: <i>Restrict the establishment of activities which have the potential to increase natural hazard risk, or may have <u>an adverse and significant</u> impact upon the community and built environment.</i>	Reject		Group 4
635.44		Aurora Energy Limited	28.3.1.3	Other	Support in part Retain Policy 28.3.1.3	Accept in Part		Group 4
768.28		Z Energy Ltd, BP Oil NZ Ltd and Mobil Oil NZ Ltd	28.3.1.3	Oppose	Amend Policy 28.3.1.3 as follows: Recognise that some areas that are already developed are now known to be at risk from <u>the effects of</u> natural hazards and minimise such risk as far as <del>possible</del> <u>practicable</u> while acknowledging that landowners may be prepared to accept a level of risk.	Accept		Group 4

Appendix 2 to the Section 42A Report for Chapter 28 - Natural Hazards

Original Point Number	Further Submission No	Submitter	Lowest Clause	Submitter Position	Submission Summary	Planner Recommendation	Transferred	Issue Reference
768.28	FS1287.139	New Zealand Tungsten Mining Limited	28.3.1.3	Support	That the submission be insofar as it seeks amendments to chapters 3 and 6, and policy suites 28.3.1 and 28.3.2	Accept		Group 4
806.196		Queenstown Park Limited	28.3.1.4	Other	Amend as below  Allow <del>Public Bodies</del> the <u>regional and district council</u> exercising their statutory powers to carry out natural hazard mitigation activities, <u>while recognising the need to mitigate potential adverse effects that may result from natural hazard protection works.</u>	Accept		Group 4
768.29		Z Energy Ltd, BP Oil NZ Ltd and Mobil Oil NZ Ltd	28.3.1.5	Support	Retain without further modification.	Accept		Group 4
524.47		Ministry of Education	28.3.2 Objective 2	Support	Retain	Accept		Group 4
600.107		Federated Farmers of New Zealand	28.3.2 Objective 2	Support	Objective 28.3.2 is adopted as proposed.	Accept		Group 4
600.107	FS1034.107	Upper Clutha Environmental Society (Inc.)	28.3.2 Objective 2	Oppose	The Society OPPOSES the entire submission and seeks that the entire submission is DISALLOWED.	Reject		Group 4
600.107	FS1209.107	Richard Burdon	28.3.2 Objective 2	Support	Support entire submission	Accept		Group 4
621.108		Real Journeys Limited	28.3.2 Objective 2	Not Stated	Amend objective 28.3.2 as follows: Development on land subject to a significant natural hazards only occurs where the risks to the community and the built environment are satisfactorily avoided or appropriately managed or mitigated.	Reject		Group 4
635.45		Aurora Energy Limited	28.3.2 Objective 2	Other	Support in part Retain Objective 28.3.2	Accept		Group 4
643.18		Crown Range Enterprises	28.3.2 Objective 2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
669.22		Cook Adam Trustees Limited, C & M Burgess	28.3.2 Objective 2	Other	Amend objective 28.3.2 as follows: Development on land subject to <u>a significant</u> natural hazards only occurs where the risks to the community and the built environment are <u>satisfactorily</u> avoided or appropriately managed or mitigated.	Reject		Group 4
688.13		Justin Crane and Kirsty Mactaggart	28.3.2 Objective 2	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
693.19		Private Property Limited	28.3.2 Objective 2	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
694.27		Glentui Heights Ltd	28.3.2 Objective 2	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
696.36		Millbrook Country Club Ltd	28.3.2 Objective 2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
700.5		Ledge Properties Ltd and Edge Properties Ltd	28.3.2 Objective 2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
702.16		Lake Wakatipu Stations Limited	28.3.2 Objective 2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
712.16		Bobs Cove Developments Limited	28.3.2 Objective 2	Other	Amend objective 28.3.2 as follows: Development on land subject to <u>a significant</u> natural hazards only occurs where the risks to the community and the built environment are <u>satisfactorily</u> avoided or appropriately managed or mitigated.	Reject		Group 4
724.3		Queenstown Gold Ltd	28.3.2 Objective 2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
768.30		Z Energy Ltd, BP Oil NZ Ltd and Mobil Oil NZ Ltd	28.3.2 Objective 2	Support	Retain without further modification.	Accept		Group 4
806.197		Queenstown Park Limited	28.3.2 Objective 2	Other	Replace Objective 28.3.2 with Objective 4.8.3 of the Operative Plan. Operative Plan has a focus on avoiding, remedying or mitigating hazards which is preferred.	Reject		Group 4
433.102		Queenstown Airport Corporation	28.3.2.1	Other	Amend the policy as follows: <b>Policy 28.3.2.1</b> <del>Avoid significant. Seek to avoid intolerable natural hazard risk, acknowledging that this will not always be practicable in developed urban areas.</del>	Reject		Group 4



Appendix 2 to the Section 42A Report for Chapter 28 - Natural Hazards

Original Point Number	Further Submission No	Submitter	Lowest Clause	Submitter Position	Submission Summary	Planner Recommendation	Transferred	Issue Reference
433.102	FS1097.388	Queenstown Park Limited	28.3.2.1	Support	The functional and operational constraints of significant infrastructure should be a relevant consideration. However, and policy recognition should not be limited to existing infrastructure and should include new infrastructure.	Reject		Group 4
433.102	FS1117.188	Remarkables Park Limited	28.3.2.1	Support	The functional and operational constraints of significant infrastructure should be a relevant consideration. However, and policy recognition should not be limited to existing infrastructure and should include new infrastructure.	Reject		Group 4
635.46		Aurora Energy Limited	28.3.2.1	Support	Retain Policy 28.3.2.1	Accept in Part		Group 4
768.31		Z Energy Ltd, BP Oil NZ Ltd and Mobil Oil NZ Ltd	28.3.2.1	Oppose	Amend Policy 28.3.2.1 as follows: Seek to avoid intolerable <u>effects from</u> natural hazards <u>risk</u> , acknowledging that this will not always be practicable in developed urban areas.	Accept		Group 4
768.31	FS1287.141	New Zealand Tungsten Mining Limited	28.3.2.1	Support	That the submission be insofar as it seeks amendments to chapters 3 and 6, and policy suites 28.3.1 and 28.3.2	Accept		Group 4
798.19		Federated Farmers of New Zealand	28.3.2.1	Oppose	ORC supports giving clear policy guidance in Policy 28.3.2.2 to help identify where risk is intolerable and therefore when a proposal should be declined. This gives better effect to the natural hazard provisions in the Proposed RPS. However, ORC considers it is not appropriate to have new development occurring where natural hazard risks, and residual risks, are intolerable for the community, now or in the future, even if managed or mitigated (as proposed in Policy 28.3.2.1).	Reject		Group 1
806.198		Queenstown Park Limited	28.3.2.1	Other	Support/Amend as below: <i>Allow subdivision and development of land subject to natural hazards where the proposed activity does not: Accelerate or worsen the natural hazard and/or its potential impacts to <u>an unacceptable level</u>. Expose vulnerable activities to intolerable natural hazard risk. Create an unacceptable risk to human life. Increase the natural hazard risk to other properties <u>to an intolerable level</u>. Require additional works and costs that would be borne by the community.</i>	Accept in Part		Group 4
806.198	FS1160.11	Otago Regional Council	28.3.2.1	Support	Partial Support. Supports this in so far as where the community will tolerate sensitive activities in areas with natural hazard risk, QLDC is able to consider all relevant matters in making a decision on such activities giving effect to the Regional Policy Statement. Would support QLDC identifying areas in the district plan where sensitive activities such as residential development should be prohibited due to a significant level of natural risk that is intolerable.	Accept in Part		Group 4
621.109		Real Journeys Limited	28.3.2.2	Not Stated	Amend Policy 28.3.2.2 as follows: Allow subdivision and development of land subject to significant natural hazards where the proposed activity it does not: <ul style="list-style-type: none"> <li>Accelerate or worsen the natural hazard risk and/or its potential impacts.</li> <li>Expose vulnerable activities to intolerable natural hazard risk.</li> <li>Create an unacceptable risk to human life.</li> <li>Increase the natural hazard risk to other properties.</li> <li>Require additional works and costs that would be borne by the public community.</li> </ul>	Accept in Part		Group 4
621.109	FS1097.615	Queenstown Park Limited	28.3.2.2	Support	Support the intent of the submission for the reasons stated in QPL's primary submission.	Accept in Part		Group 4
643.19		Crown Range Enterprises	28.3.2.2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
669.23		Cook Adam Trustees Limited, C & M Burgess	28.3.2.2	Other	Amend Policy 28.3.2.2 as follows: Allow subdivision and development of land subject to <u>significant</u> natural hazards where <del>the proposed activity</del> it does not: <ul style="list-style-type: none"> <li>Accelerate or worsen the natural hazard <u>risk</u> and/or its potential impacts.</li> <li>Expose vulnerable activities to intolerable natural hazard risk.</li> <li>Create an unacceptable risk to human life.</li> <li><del>Increase the natural hazard risk to other properties.</del></li> <li>Require additional works and costs that would be borne by the <u>public</u> community.</li> </ul>	Accept in Part		Group 4
688.14		Justin Crane and Kirsty Mactaggart	28.3.2.2	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
693.20		Private Property Limited	28.3.2.2	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
694.28		Glentui Heights Ltd	28.3.2.2	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
696.37		Millbrook Country Club Ltd	28.3.2.2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3

Appendix 2 to the Section 42A Report for Chapter 28 - Natural Hazards

Original Point Number	Further Submission No	Submitter	Lowest Clause	Submitter Position	Submission Summary	Planner Recommendation	Transferred	Issue Reference
700.6		Ledge Properties Ltd and Edge Properties Ltd	28.3.2.2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
702.17		Lake Wakatipu Stations Limited	28.3.2.2	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
712.17		Bobs Cove Developments Limited	28.3.2.2	Other	Amend Policy 28.3.2.2 as follows: Allow subdivision and development of land subject to significant natural hazards where <del>the proposed activity</del> it does not: <ul style="list-style-type: none"> <li>Accelerate or worsen the natural hazard <del>risk and/or its potential impacts</del>.</li> <li>Expose vulnerable activities to intolerable natural hazard risk.</li> <li>Create an unacceptable risk to human life.</li> <li><del>Increase the natural hazard risk to other properties</del>.</li> <li>Require additional works and costs that would be borne by the <del>public community</del>.</li> </ul>	Accept in Part		Group 4
768.32		Z Energy Ltd, BP Oil NZ Ltd and Mobil Oil NZ Ltd	28.3.2.2	Not Stated	Amend Policy 28.3.2.2 as follows <del>Allow</del> <u>Enable</u> subdivision and development of land subject to natural hazards where the proposed activity does not: <ul style="list-style-type: none"> <li>Accelerate or worsen the <u>risks associated with the</u> natural hazard and/or its potential impacts.</li> <li>Expose vulnerable activities to intolerable <del>natural hazard risk consequences from natural hazards</del>.</li> <li>Create an unacceptable risk to human life.</li> <li>Increase the natural hazard risk to other properties <u>to unacceptable levels</u>.</li> <li>Require additional works and costs that would be borne by the community</li> </ul>	Accept in Part		Group 4
768.32	FS1287.140	New Zealand Tungsten Mining Limited	28.3.2.2	Support	That the submission be insofar as it seeks amendments to chapters 3 and 6, and policy suites 28.3.1 and 28.3.2	Accept in Part		Group 4
798.18		Otago Regional Council	28.3.2.2	Oppose	ORC supports giving clear policy guidance in Policy 28.3.2.2 to help identify where risk is intolerable and therefore when a proposal should be declined. This gives better effect to the natural hazard provisions in the Proposed RPS. However, ORC considers it is not appropriate to have new development occurring where natural hazard risks, and residual risks, are intolerable for the community, now or in the future, even if managed or mitigated (as proposed in Policy 28.3.2.1).	Reject		Group 1
806.199		Queenstown Park Limited	28.3.2.2	Other	Support/Amend as below: <i>Allow subdivision and development of land subject to natural hazards where the proposed activity does not: Accelerate or worsen the natural hazard and/or its potential impacts to <u>an unacceptable level</u>. Expose vulnerable activities to intolerable natural hazard risk. Create an unacceptable risk to human life. Increase the natural hazard risk to other properties <u>to an intolerable level</u>. Require additional works and costs that would be borne by the community</i>	Accept in Part		Group 4
621.110		Real Journeys Limited	28.3.2.3	Not Stated	Amend Policy 28.3.2.3 as follows: Ensure new subdivision or land development all proposals to subdivide or develop land that is at threat from a subject to significant natural hazards risk (identified on the District Plan Maps) is assessed in terms of provide an assessment covering: <ul style="list-style-type: none"> <li>The type, frequency and scale of the natural hazard and the effects of a natural hazard event on the subject land.</li> <li>The type of activity being undertaken and its vulnerability of the activity in relation to the natural hazards.</li> <li><i>The effects of a natural hazard event on the subject land.</i></li> <li>The potential for the activity to exacerbate the natural hazard risk both in and off the subject land.</li> <li>The potential for any structures on the subject land to be relocated.</li> <li>The location, design and construction of buildings and structures to mitigate the effects of natural hazards, such as the raising of floor levels.</li> <li>Site layout and m Management techniques that to avoid or minimise the adverse effects of natural hazards, including access and egress during a hazard event.</li> </ul>			Group 4
643.20		Crown Range Enterprises	28.3.2.3	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3

Appendix 2 to the Section 42A Report for Chapter 28 - Natural Hazards

Original Point Number	Further Submission No	Submitter	Lowest Clause	Submitter Position	Submission Summary	Planner Recommendation	Transferred	Issue Reference
669.24		Cook Adam Trustees Limited, C & M Burgess	28.3.2.3	Other	Amend Policy 28.3.2.3 as follows: Ensure <u>new subdivision or land development</u> all proposals to subdivide or develop land that is <u>at threat from a subject to significant</u> natural hazards <u>risk (identified on the District Plan Maps) is assessed in terms of provide an assessment covering:</u> <ul style="list-style-type: none"> <li>• The type, frequency and scale of the natural hazard <u>and the effects of a natural hazard event on the subject land.</u></li> <li>• The <u>type of activity being undertaken and its vulnerability of the activity in relation to the</u> natural hazards.</li> <li>• <u>The effects of a natural hazard event on the subject land.</u></li> <li>• The potential for the activity to exacerbate <u>the</u> natural hazard risk <u>both in and off the subject land.</u></li> <li>• <u>The potential for any structures on the subject land to be relocated.</u></li> <li>• The <u>location</u>, design and construction of buildings and structures to mitigate the effects of natural hazards, <u>such as the raising of floor levels.</u></li> <li>• <u>Site layout and m Management techniques that to avoid or minimise</u> the adverse effects of natural hazards, <u>including access and egress during a hazard event.</u></li> </ul>	Accept in Part		Group 4
688.15		Justin Crane and Kirsty Mactaggart	28.3.2.3	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
693.21		Private Property Limited	28.3.2.3	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
694.29		Glentui Heights Ltd	28.3.2.3	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
696.38		Millbrook Country Club Ltd	28.3.2.3	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
700.7		Ledge Properties Ltd and Edge Properties Ltd	28.3.2.3	Oppose	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
702.18		Lake Wakatipu Stations Limited	28.3.2.3	Not Stated	Reconsider the extensive number of hazard related policies, remove unnecessary tautology and ensure they are focused on significant natural hazards only.	Reject		Group 3
712.18		Bobs Cove Developments Limited	28.3.2.3	Other	Amend Policy 28.3.2.3 as follows: Ensure <u>new subdivision or land development</u> all proposals to subdivide or develop land that is <u>at threat from a subject to significant</u> natural hazards <u>risk (identified on the District Plan Maps) is assessed in terms of provide an assessment covering:</u> <ul style="list-style-type: none"> <li>• The type, frequency and scale of the natural hazard and the effects <u>of a natural hazard event on the subject land.</u></li> <li>• The <u>type of activity being undertaken and its vulnerability of the activity in relation to the</u> natural hazards.</li> <li>• <u>The effects of a natural hazard event on the subject land.</u></li> <li>• The potential for the activity to exacerbate <u>the</u> natural hazard risk <u>both in and off the subject land.</u></li> <li>• <u>The potential for any structures on the subject land to be relocated.</u></li> <li>• The <u>location</u>, design and construction of buildings and structures to mitigate the effects of natural hazards, <u>such as the raising of floor levels.</u></li> <li>• <u>Site layout and m Management techniques that to avoid or minimise</u> the adverse effects of natural hazards, <u>including access and egress during a hazard event.</u></li> </ul>	Accept in Part		Group 4
768.33		Z Energy Ltd, BP Oil NZ Ltd and Mobil Oil NZ Ltd	28.3.2.3	Oppose	Amend the final bullet point of Policy 28.3.2.3 as follows and otherwise retail the policy without further modification. <ul style="list-style-type: none"> <li>• Site layout and management to <u>avoid manage or mitigate</u> the adverse effects of natural hazards <u>to a tolerable level of risk</u>, including <u>with respect to access</u> and egress during a hazard event.</li> </ul>	Accept		Group 4
768.33	FS1287.142	New Zealand Tungsten Mining Limited	28.3.2.3	Support	That the submission be insofar as it seeks amendments to chapters 3 and 6, and policy suites 28.3.1 and 28.3.2	Accept		Group 4
798.20		Otago Regional Council	28.3.2.3	Oppose	ORC request Policy 28.3.2.3 is amended to recognise that areas subject to natural hazard risk have ongoing maintenance needs which should not incur additional cost to the wider community.	Reject		Group 1
806.200		Queenstown Park Limited	28.3.2.3	Other	Support/Amend as below: Amend Policy 28.3.2.3 to recognise that the level of assessment should be commensurate with the level of potential risk.	Accept		Group 4
768.34		Z Energy Ltd, BP Oil NZ Ltd and Mobil Oil NZ Ltd	28.3.2.4	Oppose	Delete.	Reject		Group 4
806.201		Queenstown Park Limited	28.3.2.4	Support	Support. Retain.	Accept		Group 4
433.103		Queenstown Airport Corporation	28.3.2.5	Support	Retain the policy as notified.	Accept		Group 4

Appendix 2 to the Section 42A Report for Chapter 28 - Natural Hazards

Original Point Number	Further Submission No	Submitter	Lowest Clause	Submitter Position	Submission Summary	Planner Recommendation	Transferred	Issue Reference
433.103	FS1097.389	Queenstown Park Limited	28.3.2.5	Oppose	Oppose all amendments to definitions that are inconsistent with Plan Change 35. Oppose all amendments to any provisions that seek to impose controls in addition to those proposed under Plan Change 35. Oppose all amendments that seek to place additional restrictions on existing urban zones such as the Remarkables Park Zone. Oppose all amendments that seek to undermine or circumvent the Plan Change 35 and Lot 6 NoR proceedings that are currently before the Environment Court. Oppose all amendments that seek to enable urban activities on airport land where such activities are constrained on land adjoining or near the airport (Frankton and Remarkables Park). Oppose all amendments that seek to reduce open space or buffer areas between the airport and adjoining urban zones. Oppose all amendments that seek to constrain any existing development opportunity within the Remarkables Park Zone. Any amendments or provisions supported/opposed by QAC that seek to achieve any of the outcomes set out above be rejected.	Reject		Not relevant to natural hazard policy
433.103	FS1117.149	Remarkables Park Limited	28.3.2.5	Oppose	Oppose all amendments to definitions that are inconsistent with Plan Change 35. Oppose all amendments to any provisions that seek to impose controls in addition to those proposed under Plan Change 35. Oppose all amendments that seek to place additional restrictions on existing urban zones such as the Remarkables Park Zone. Oppose all amendments that seek to undermine or circumvent the Plan Change 35 and Lot 6 NoR proceedings that are currently before the Environment Court. Oppose all amendments that seek to enable urban activities on airport land where such activities are constrained on land adjoining or near the airport (Frankton and Remarkables Park). Oppose all amendments that seek to reduce open space or buffer areas between the airport and adjoining urban zones. Oppose all amendments that seek to constrain any existing development opportunity within the Remarkables Park Zone. Any amendments or provisions supported/opposed by QAC that seek to achieve any of the outcomes set out above be rejected.	Reject		Not relevant to natural hazard policy
719.146		NZ Transport Agency	28.3.2.5	Support	Retain	Accept		Group 4
768.35		Z Energy Ltd, BP Oil NZ Ltd and Mobil Oil NZ Ltd	28.3.2.5	Support	Retain without further modification.	Accept		Group 4
805.68		Transpower New Zealand Limited	28.3.2.5	Support	Retain policy: Recognise that some infrastructure will need to be located on land subject to natural hazard risk.	Accept		Group 4
805.68	FS1159.4	PowerNet Ltd	28.3.2.5	Support	PowerNet supports this submission point and seeks that the policy be retained as notified.	Accept		Group 4
806.202		Queenstown Park Limited	28.3.2.5	Support	Support. Retain.	Accept		Group 4
524.48		Ministry of Education	28.3.3 Objective 3	Support	Retain	Accept		Group 4
768.36		Z Energy Ltd, BP Oil NZ Ltd and Mobil Oil NZ Ltd	28.3.3.1	Oppose	Delete.	Accept in Part		Group 4
806.203		Queenstown Park Limited	28.5 Information Requirements	Other	Neutral.No specific changes sought.	Accept in Part		Group 4

## Appendix 3. Section 32 Report



# Section 32 Evaluation Report

## Natural Hazards

### Contents

Section 32 Evaluation Report: Natural Hazards .....	2
1. Strategic Context .....	2
2. Regional Planning Documents .....	2
3. Resource Management Issues .....	6
4. Purpose and Options .....	7
5. Scale and Significance Evaluation .....	12
6. Evaluation of proposed Objectives S32 (1) (a).....	13
7. Evaluation of the proposed provisions S32 (1) (b) .....	14
8. Efficiency and effectiveness of the provisions.....	17
9. The risk of not acting. ....	17
References .....	17

# Section 32 Evaluation Report: Natural Hazards

## 1. Strategic Context

Section 32(1)(a) of the Resource Management Act 1991 requires that a Section 32 evaluation report must examine the extent to which the proposed objectives are the most appropriate way to achieve the purpose of the Act.

The purpose of the Act demands an integrated planning approach and direction:

### *5 Purpose*

*(1) The purpose of this Act is to promote the sustainable management of natural and physical resources.*

*(2) In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural well-being and for their health and safety while—*

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

*(b) safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and*

*(c) avoiding, remedying, or mitigating any adverse effects of activities on the environment.*

Addressing natural hazards within the District Plan is required to enable people and communities to provide for their well-being and health and safety, and also to ensure effects arising from natural hazards are addressed in terms of section 5(2)(c).

## 2. Regional Planning Documents

The District Plan must *give effect* to the Operative Regional Policy Statement and must *have regard* to a Proposed Regional Policy Statement. The Operative Regional Policy Statement 1998 contains a number of references to natural hazards in its Objectives and Policies:

### **Objectives**

*11.4.1 To recognise and understand the significant natural hazards that threaten Otago's communities and features.*

*11.4.2 To avoid or mitigate the adverse effects of natural hazards within Otago to acceptable levels.*

*11.4.3 To effectively and efficiently respond to natural hazards occurring in Otago.*

*11.4.4 To avoid, remedy or mitigate the adverse effects of hazard mitigation measures on natural and physical resources.*

### **Policies**

*11.5.1 To recognise and provide for Kai Tahu values in natural hazard planning and mitigation.*

*11.5.2 To take action necessary to avoid or mitigate the unacceptable adverse effect of natural hazards and the responses to natural hazards on:*

*(a) Human life; and*

*(b) Infrastructure and property; and*

*(c) Otago's natural environment; and*

*(d) Otago's heritage sites.*

*11.5.3 To restrict development on sites or areas recognised as being prone to significant hazards, unless adequate mitigation can be provided.*

*11.5.4 To avoid or mitigate the adverse effects of natural hazards within Otago through:*

- (a) Analysing Otago's natural hazards and identifying their location and potential risk; and*
- (b) Promoting and encouraging means to avoid or mitigate natural hazards; and*
- (c) Identifying and providing structures or services to avoid or mitigate the natural hazard; and*
- (d) Promoting and encouraging the use of natural processes where practicable to avoid or mitigate the natural hazard.*

**11.5.5** *To provide a response, recovery and restoration capability to natural hazard events through:*

- (a) Providing civil defence capabilities; and*
- (b) Establishing procedures and responsibilities to ensure quick responses to any natural hazard event; and*
- (c) Identifying agency responsibilities for assisting recovery during and after events; and*
- (d) Developing recovery measures incorporated into civil defence plans.*

**11.5.6** *To establish the level of natural hazard risk that threatened communities are willing to accept, through a consultative process.*

**11.5.7** *To encourage and where practicable support community-based responses to natural hazard situations.*

The proposed changes to the District Plan give effect to these parts of the operative RPS, by synthesising the objectives and policies through the provisions.

It must be noted that the Otago Regional Council ["ORC"] is currently in the process of reviewing the RPS 1998. In May 2014 the ORC published and consulted on the RPS 'Otago's future: Issues and Options Document, 2014' ([www.orc.govt.nz](http://www.orc.govt.nz)). The Proposed RPS was released for formal public notification on the 23 May 2015.

Some of the relevant provisions of the Proposed RPS are as follows:

**Objective 3.2: Risk that natural hazards pose to Otago's communities are minimised**

**Policy 3.2.1: Identifying natural hazards**

*Identify natural hazards that may adversely affect Otago's communities, including hazards of low likelihood and high consequence.*

**Policy 3.2.2: Assessing natural hazard likelihood**

*Assess the likelihood of natural hazard events occurring, having regard to a timeframe of no less than 100 years, including by considering:*

- (a) Hazard type and characteristics;*
- (b) Multiple and cascading hazards;*
- (c) Cumulative effects, including from multiple hazards with different risks;*
- (d) Effects of climate change;*
- (e) Using the best available information for calculating likelihood;*
- (f) Exacerbating factors.*

**Policy 3.2.3: Assessing natural hazard consequence**

*Assess the consequences of natural hazard events, including by considering:*

- (a) The nature of activities in the area;*
- (b) Individual and community vulnerability;*
- (c) Impact on individual and community health and safety;*



- (d) *Impact on social, cultural and economic wellbeing;*
- (e) *Impact on infrastructure and property, including access and services;*
- (f) *Risk reduction and hazard mitigation measures;*
- (g) *Lifeline utilities, essential and emergency services, and their co-dependence;*
- (h) *Implications for civil defence agencies and emergency services;*
- (i) *Cumulative effects;*
- (j) *Factors that may exacerbate a hazard event.*

**Policy 3.2.4: Managing natural hazard risk**

*Manage natural hazard risk, including with regard to:*

- (a) *The risk they pose, considering the likelihood and consequences of natural hazard events; and*
- (b) *The implications of residual risk, including the risk remaining after implementing or undertaking risk reduction and hazard mitigation measures; and*
- (c) *The community's tolerance of that risk, now and in the future, including the community's ability and willingness to prepare for and adapt to that risk, and respond to an event; and*
- (d) *The changing nature of tolerability and risk; and*
- (e) *Sensitivity of activities to risk.*

**Policy 3.2.5: Assessing activities for natural hazard risk**

*Assess activities for natural hazard risk, by considering:*

- (a) *The natural hazard risk identified, including residual risk; and*
- (b) *Any measures to avoid, remedy or mitigate those risks, including relocation and recovery methods; and*
- (c) *The long term viability and affordability of those measures; and*
- (d) *Flow-on effects of the risk to other activities, individuals and communities; and*
- (e) *The availability of, and ability to provide, lifeline utilities, and essential and emergency services, during and after a natural hazard event.*

**Policy 3.2.6: Avoiding increased natural hazard risk**

*Avoid increasing natural hazard risk, including by:*

- (a) *Avoiding activities that significantly increase risk, including displacement of risk off-site; and*
- (b) *Encouraging design that facilitates:*
  - (i) *Recovery from natural hazard events; or*
  - (ii) *Relocation to areas of lower risk.*

**Policy 3.2.7: Reducing existing natural hazard risk**

*Reduce existing natural hazard risk, including by:*

- (a) *Encouraging activities that:*
  - (i) *Reduce risk; or*
  - (ii) *Reduce community vulnerability; and*

- (b) *Discouraging activities that:*
  - (i) *Increase risk; or*
  - (ii) *Increase community vulnerability; and*
- (c) *Considering the use of exit strategies for areas of significant risk; and*
- (d) *Encouraging design that facilitates:*
  - (i) *Recovery from natural hazard events or*
  - (ii) *Relocation to areas of lower risk; and*
- (e) *Relocating lifeline utilities, and facilities for essential and emergency service, to areas of reduced risk, where appropriate and practicable; and*
- (f) *Enabling development, upgrade, maintenance and operation of lifeline utilities and facilities for essential and emergency services; and*
- (g) *Re-assessing natural hazard risk, and community tolerance of that risk, following significant natural hazard events.*

**Policy 3.2.8: Applying a precautionary approach**

*Where natural hazard risk is uncertain or unknown, but potentially significant or irreversible, apply a precautionary approach to identifying, assessing and managing that risk.*

**Policy 3.2.9: Protecting features and systems that provide hazard mitigation**

*Protect, restore, enhance and promote the use of natural or modified features and systems, which contribute to mitigating the effects of both natural hazards and climate change.*

**Policy 3.2.10: Mitigating natural hazards**

*Give preference to risk management approaches that reduce the need for hard mitigation measures or similar engineering interventions, and provide for hard mitigation measures only when:*

- (a) *Those measures are essential to reduce risk to a level the community is able to tolerate; and*
- (b) *There are no reasonable alternatives; and*
- (c) *It would not result in an increase in risk, including displacement of risk off-site; and*
- (d) *The adverse effects can be adequately managed; and*
- (e) *The mitigation is viable in the reasonably foreseeable long term.*

**Policy 3.2.11: Locating hard mitigation measures**

*Enable the location of hard mitigation measures or similar engineering interventions on public land only when:*

- (a) *There is significant public or environmental benefit in doing so; or*
- (b) *The work relates to the functioning ability of a lifeline utility, or facility for essential or emergency services.*

**Objective 3.4: Good quality infrastructure and services meet community needs**

**Policy 3.4.3: Designing lifeline utilities and facilities for essential or emergency services**

*Design lifeline utilities, and facilities for essential or emergency services, to:*

- (a) *Maintain their ability to function to the fullest extent possible, during and after natural hazard events; and*

- (b) *Take into account their operational co-dependence with other lifeline utilities and essential services to ensure their effective operation.*

**Policy 3.4.4: Managing hazard mitigation measures, lifeline utilities, and essential and emergency services**

*Protect the functioning of hazard mitigation measures, lifeline utilities, and essential or emergency services, including by:*

- (a) *Restricting the establishment of those activities that may result in reverse sensitivity effects; and*
- (b) *Avoiding significant adverse effects on those measures, utilities or services; and*
- (c) *Avoiding, remedying or mitigating other adverse effects on those measures, utilities or services; and*
- (d) *Assessing the significance of adverse effects on those measures, utilities or services, as detailed in Schedule 3; and*
- (e) *Maintaining access to those measures, utilities or services for maintenance and operational purposes; and*
- (f) *Managing other activities in a way that does not foreclose the ability of those mitigation measures, utilities or services to continue functioning.*

**Objective 3.7: Urban areas are well designed, sustainable and reflect local character**

**Policy 3.7.1: Using the principles of good urban design**

*Encourage the use of good urban design principles in subdivision and development in urban areas, as detailed in Schedule 6, to: [...]*

- (c) *Reduce risk from natural hazards, including by avoiding areas of significant risk; [...]*

**Objective 3.8: Urban growth is well designed and integrates effectively with adjoining urban and rural environments**

**Policy 3.8.1: Managing for urban growth**

*Manage urban growth and creation of new urban land in a strategic and co-ordinated way, by: [...]*

- (c) *Identifying future growth areas that: [...]*

- (iv) *Avoid land with significant risk from natural hazards; [...]*

Generally speaking, the proposed RPS advocates for a more cautious approach with regard to natural hazards than the Proposed District Plan, seeking to avoid development where a significant hazard exists. Therefore there is not strict alignment between the Proposed RPS and the Proposed District Plan on this matter. QLDC will be making a submission to the ORC on this matter, considering that the proposed ORC approach is overly risk averse and does not adequately account for the District's limited urban land resource and strong population growth (whilst noting that QLDC supports the notion, as expressed by the ORC, that development should not proceed where intolerable risk is present that cannot be adequately mitigated). An important matter relates to how "significant risk" is defined – there may be situations where significant risk is presented, and mitigation can be achieved to adequately address the risk (presuming 'significant' does not necessarily imply 'extreme' or 'intolerable' risk).

Notwithstanding the above, the proposed provisions have regard to the proposed RPS.

### 3. Resource Management Issues

The resource management issues set out in this section have been identified from the following sources:

- Review of District Plan Natural Hazard Issues, Opus International Consultants (2012) – see Section 10 of this report for the weblinks to the Opus Report and attachments.
- Monitoring and review of Operative District Plan

- Consultation with the Otago Regional Council
- Legislative changes

The Issues are:

- Existing settlements within the District are subject to natural hazards. There is a need to recognise the existence of these hazards when undertaking development within existing settlements.
- In some instances the natural hazard risk is significant and development should be discouraged.
- Council’s knowledge of natural hazards in the District is continually growing as further study is undertaken, including that in conjunction with the Otago Regional Council. Therefore it is important that the approach to addressing natural hazards in the District Plan can easily accommodate new information as it comes to light.
- Mapping natural hazards is an integral part of how Council manages, communicates and minimises the risk of natural hazards. The only natural hazard that is mapped in the operative and proposed Plans is flooding. All other hazards are mapped within Council’s hazard database.
- Lack of acknowledgement that Council is responsible for addressing natural hazards under a number of different pieces of legislation such as the Resource Management Act, the Local Government Act, the Building Act and the Civil Defence and Emergency Management Act. As a consequence, the District Plan is
- Private property rights are a relevant consideration in the wider approach to natural hazards. Providing provisions that are overly restrictive is counter-productive to sustainable management and the continued growth of the District.
- The operative Plan does not address natural hazards in a comprehensive manner. Some zones have natural hazards as an assessment matter, and others do not, despite being potentially subject to natural hazards. Additionally there are assessment criteria that are often worded differently across zones meaning there is a potential for an inconsistent approach to the assessment of natural hazards through the resource consent process.

#### 4. Purpose and Options

The purpose of this chapter is to promote the sustainable management of the District with respect to natural hazards. Council has a responsibility under Section 31(1)(b) of the Act to address natural hazards:

**“31 Functions of territorial authorities under this Act**

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

- b) the control of any actual or potential effects of the use, development, or protection of land, including for the purpose of—*
  - (i) the avoidance or mitigation of natural hazards”*

Furthermore, this reflects the intent of the proposed Strategic Directions Chapter as follows:

*Objective 3.2.2.2 To manage development in areas affected by natural hazards.*

*Policy 3.2.2.2.1 Ensure a balanced approach between enabling higher density development within the District’s scarce urban land resource and addressing the risks posed by natural hazards to life and property.*

Determining the most appropriate methods to resolve the natural hazard issues identified will enable the Plan to give effect to relevant parts of the Strategic Directions Chapter through the management of development in areas affected by natural hazards, and ultimately meet the purpose of the Act.

## **Broad options considered to address issues**

Four broad options were considered to address the issues:

**Option 1: Status quo / no change:** Retain the current chapter and varying assessment criteria throughout the Plan.

**Option 2 (Recommended) : Retain and improve:** Retain the existing approach to managing natural hazards – that is no rules (excluding flooding) using natural hazards as a trigger for needing resource consent. Instead focus on ensuring there is a consistent approach to how hazards are dealt with in the Plan and a consistent framework for the assessment of resource consents that includes natural hazard risk consideration as a matter for control / discretion.

**Option 3: Hazards database referred to in Plan but remains external to Plan:** This is the approach that is being used elsewhere including in the Proposed Auckland Unitary Plan. The approach requires a 'catch all' rule that requires consent if a site is shown as being subject to natural hazards in Council's natural hazards database. The database remains external to the Plan.

**Option 4: Retain and improve plus map all hazards in Plan.** This approach builds on Option 2 but also requires all hazards to be mapped in the Plan and use the presence of the mapped hazards as a trigger for consent.

The costs and benefits of these options are evaluated in the table below:

	<b>Option 1: Status quo/ No change</b>	<b>Option 2: Retain and Improve</b>	<b>Option 3: Hazards Database External to Plan but referred to in Plan.</b>	<b>Option 4: Retain and Improve Plus map all hazards in Plan</b>
<b>Costs</b>	Does not address all the identified issues nor address the lack of consistency in terms of assessment criteria across various zones.	<p>Requires additional hazard information gathering.</p> <p>Requires focus on zoning to ensure activities potentially susceptible to natural hazards e.g. subdivisions or new dwellings are subject to resource consent to enable consideration of natural hazards.</p> <p>Requires use of s71 of the Building Act 2004 for natural hazards to be considered for proposals that do not have a resource consent trigger. Therefore the responsibility for addressing hazards would be shared by the Building Consent process, as well as the Resource Consent process. This may result in uncertainty (perceived or otherwise) as to how s71 of the Building Act is applied.</p>	<p>Requires additional hazard information gathering.</p> <p>Potentially ultra vires as Plan relies upon external information to trigger need for resource consent which has not been subject to first schedule process.</p>	<p>Requires additional hazard information gathering.</p> <p>Council does not currently have all natural hazards mapped for the entire District and to the same level of detail. Significant cost would be required to get natural hazards mapped.</p> <p>Potential increased Plan publication costs with a separate series of hazard maps likely to be required.</p> <p>As new hazard information comes to hand plan changes would be required.</p>

<p><b>Benefits</b></p>	<p>Retains the established approach which parties are familiar with.</p>	<p>Retains established approach but improves where necessary for clarity and to assist implementation.</p> <p>Keeping natural hazard information outside of the Plan ensures that the best available information is used when assessing and managing the risk from natural hazards.</p> <p>Currently the hazards information held within the Natural Hazards database is at varying scales. Considerable further work would be required to update that information (i.e. so it has a high level of certainty) such that it could be mapped in the District Plan. This adds further weight to the argument that the information in the Hazards database should remain external to the Plan.</p> <p>Avoids a requirement for the Plan Change process to update natural hazards information, as the information sits outside the Plan. The process for updating the hazards information is therefore more nimble.</p> <p>It must be noted that this approach is a departure from the approach outlined in the Opus Report commissioned in 2012, which recommended the mapping of hazards within the Plan. For the reasons outlined above it is recommended that the mapped information remains external to the</p>	<p>Ensures the most up to date information is used to trigger the need for resource consent.</p> <p>Keeping natural hazard information outside of the Plan ensures that the best available information is used when assessing and managing the risk from natural hazards.</p>	<p>This approach would allow a suite of rules to be linked to hazard maps, providing a high degree of certainty.</p>
------------------------	--	---	---	--

		<p>Plan. The Opus Report was also commissioned during the 'rolling review' of Plan provisions. However, since 2012, the approach to reviewing the District Plan has shifted to being a 'full review' (albeit it notified in 2 stages). The 'full review' process has created opportunities to consider methods for addressing hazards that were not considered in 2012.</p> <p>Provides the opportunity to acknowledge the fact that in this District there are areas of existing development that were established prior to our current understanding of natural hazards, and have subsequently been identified as being within hazard-prone areas. For new development in these areas, this approach enables consideration to be given to options for risk mitigation, rather than a policy of avoidance, which could otherwise be used for greenfield developments (and through application of s106RMA).</p>		
<b>Ranking</b>	<b>3</b>	<b>1</b>	<b>2</b>	<b>2</b>



## **5. Scale and Significance Evaluation**

The level of detailed analysis undertaken for the evaluation of the proposed objectives and provisions has been determined by an assessment of the scale and significance of the implementation of the proposed provisions in the Natural Hazards Chapter. In making this assessment, regard has been had to the following, namely whether the objectives and provisions:

- Result in a significant variance from the existing baseline.
- Have effects on matters of national importance.
- Adversely affect those with specific interests, e.g, Tangata Whenua.
- Involve effects that have been considered implicitly or explicitly by higher order documents.
- Impose increased costs or restrictions on individuals, communities or businesses.

In this case both the scale and significance are high given the level of occurrence of natural hazards within the District, and the potential effects associated with them.

## 6. Evaluation of proposed Objectives S32 (1) (a)

The purpose of the Act is to promote the sustainable management of natural and physical resources. Council is required to undertake an evaluation of the proposed objectives of the proposal.

<i>Objective</i>	<i>Appropriateness</i>
Objective 28.3.1 – The effects of natural hazards on the community and the built environment are minimised to tolerable levels.	<p>Existing built areas of the District are subject to natural hazards. As such it is appropriate to ensure the effects of natural hazards on these communities are minimised to tolerable levels. This approach recognises that avoidance is not always possible and in the context of the Queenstown Lakes District minimising effects to tolerable levels is a more appropriate approach.</p> <p>The concept of tolerability is introduced through the proposed RPS.</p>
Objective 28.3.2 –Development on land subject to natural hazards only occurs where the risks to the community and the built environment are avoided or appropriately managed or mitigated.	<p>Whilst recognising existing built areas of the District are subject to natural hazards, that does not mean that further development in those areas is ‘a given’. In considering development proposals on land subject to natural hazards it is appropriate to allow development where the risks can be avoided or appropriately mitigated. This recognises that in some locations in the District ‘avoidance’ is not an option, and that mitigation can be an appropriate approach to address the natural hazard risk. It also recognises the importance of existing settlements to the District and the need to consolidate development in these areas rather than allow ongoing expansion.</p> <p>Section 5 of the Act requires District Plans to balance competing environmental, economic and social matters. This objective seeks to give effect to the Act by addressing natural hazard risk in a balanced manner, and acknowledging that in this District it will not always be practicable to avoid risk.</p> <p>This objective also sets the framework for a risk-based approach, whereby the level of risk informs the extent to which the hazard needs to be addressed and the resultant planning response.</p>
Objective 28.3.3 –The community’s awareness and understanding of the natural hazard risk in the District is continually enhanced.	<p>This objective recognises the fact that the District has a high exposure to natural hazards and in some locations existing developed areas are subject to natural hazard risks. In some instances the risk is mitigated to a degree, however ensuring the community is aware of these risks is an appropriate way to further mitigate the risk and to enable the community to be ‘in readiness’ for a natural hazard event. This also links with Council’s obligations under other Acts such as the Civil Defence and Emergency Management Act.</p>

The above objectives are considered to be the most appropriate methods of achieving the purpose of the Act, as they identify and give direction as to how natural hazard issues are to be addressed.

## 7. Evaluation of the proposed provisions S32 (1) (b)

(See also Table of options in Section 5 above.)

Objective 28.3.1 –The effects of natural hazards on the community and the built environment are minimised to tolerable levels.

Objective 28.3.2 –Development on land subject to natural hazards only occurs where the risks to the community and the built environment are avoided or appropriately managed or mitigated.

Objective 28.3.3 –The community's awareness and understanding of the natural hazard risk in the District is continually enhanced.

<b>Proposed Provisions</b>	<b>Costs</b>	<b>Benefits</b>	<b>Effectiveness and Efficiency</b>
<p>Policies:</p> <p>28.3.1.1 to 28.3.1.5</p>	<p><b>Environmental</b> Physical works undertaken to mitigate or minimise natural hazard risk can in themselves have adverse environmental effects (e.g visual).</p> <p><b>Economic</b> There may be costs associated with undertaking developments in a manner that minimises natural hazards that are additional to typical development costs such as importation of fill material to increase floor levels.</p> <p>There may be instances where the risk is 'intolerable' and cannot be appropriately mitigated.</p> <p><b>Social and Cultural</b> There is the potential for activities necessary for the protection of existing settlements from natural hazards to have impacts on cultural values through land disturbance or the disturbance of items of cultural or historic value.</p>	<p><b>Environmental</b> Development will not occur in locations where the natural hazard risk is intolerable.</p> <p>Enables appropriate responses for existing settlements that are exposed to known hazards, balancing the need to address risk whilst acknowledging that there may be an acceptance of a level of risk in some cases. Over time, as existing settlements continue to be developed and/or redeveloped their resilience to the risks associated with hazards will increase.</p> <p><b>Economic</b> Providing a policy framework that allows for natural hazard mitigation provides for greater certainty for Plan users.</p> <p>Reducing the risk natural hazards pose to the existing built environment.</p> <p>Avoids unnecessary costs created by activities that increase the effects natural hazards may or can have on the community.</p> <p><b>Social and Cultural</b> Avoidance or mitigation of the social costs of natural hazard events on communities.</p>	<p>Council has a role to play in ensuring the risks of natural hazards on the community and the built environment are of a nature that is 'tolerable'. This includes restricting the establishment of activities that have the potential to increase the effects natural hazards can have on the community and built environment of the Queenstown Lakes District. It would be neither effective nor efficient to not acknowledge the natural hazard risk that the District is subject to.</p>

<b>Proposed Provisions</b>	<b>Costs</b>	<b>Benefits</b>	<b>Effectiveness and Efficiency</b>
<p>Policies 28.3.2.1 to 28.3.2.5</p>	<p><b>Environmental</b> New approaches to building (such as raising floor levels) to address natural hazard risks could have consequences in terms of changes of built form or heights of structures in existing developed areas.</p> <p><b>Economic</b> Land that is discovered to be unsuitable for development due to natural hazard risk will have potentially a decreased market value.</p> <p>Undertaking development in a manner that mitigates natural hazard risk may reduce the total development 'yield' of a property.</p> <p><b>Social and Cultural</b> It may be that parts of existing settlements are unsuitable for further development, or in a worse case scenario need to be abandoned.</p>	<p><b>Environmental</b> Development can occur on existing zoned land, subject to appropriately addressing natural hazards issues, providing for compact urban form.</p> <p>Promoting the use of natural features in addressing natural hazard risk provides for a less modified landscape.</p> <p>Using sites in a manner that recognises their limitations in natural hazards terms (micro-siting) can ensure land is used in an appropriate manner.</p> <p><b>Economic</b> Using natural features and buffers to address natural hazard risk requires less investment than hard structures.</p> <p>Acknowledges that there will be instances where infrastructure will need to be located on land subject to natural hazard risk.</p> <p><b>Social and Cultural</b> Addressing natural hazards ensures the existing cultural and social fabric of the District is appropriately protected. This includes the protection of sites with heritage or cultural value, where achievable.</p>	<p>Given that parts of the District are subject to natural hazards but also subject to high growth there is the need to adequately balance the need for development against natural hazard risk. It is recognised that there are areas of the District that are subject to natural hazards to the extent that the sites are unsuitable for development. It is also recognised that on other sites subject to natural hazard risk there are mechanisms available to provide mitigation of that risk and Council seeks to encourage mitigation. It is considered this approach provides an appropriate balance between the efficient use of land and effective management of natural hazard risk through avoidance or mitigation, and thereby gives effect to s31(b)(i)RMA – Functions of Territorial Authorities.</p>
<p>Policies 28.3.3.1 to 28.3.3.4</p>	<p><b>Environmental</b> None</p> <p><b>Economic</b> The collection of information regarding natural hazards has costs. Council will seek to share these with the Otago Regional Council.</p> <p>Those undertaking developments will</p>	<p><b>Environmental</b> Compiling and maintaining a natural hazard database helps ensure Council has the most up-to-date natural hazard information available to assist with making sound resource management decisions. As the database sits outside the District Plan it is able to be updated as new information comes to hand.</p> <p>The database will contain information at differing</p>	<p>Council has a responsibility not only to address hazards in the District Plan, but also to gather the information necessary to effectively manage natural hazards and share this information with the public. This is required to ensure the residents of the District can effectively plan for natural hazard events through being aware of the potential risks posed by hazards. It also enables those contemplating development</p>

<b>Proposed Provisions</b>	<b>Costs</b>	<b>Benefits</b>	<b>Effectiveness and Efficiency</b>
	<p>have to undertake investigations into the natural hazard context of their site.</p> <p>Monitoring natural hazards requires ongoing investment by Council.</p> <p>There are costs associated with publishing and disseminating material on natural hazards and making natural hazard information available on Council's website.</p> <p>Funding may not be available for the collection of information.</p> <p><b>Social and Cultural</b> People may have to adopt new or enhanced behaviours to ensure they are adequately prepared for a natural hazard event.</p> <p>Making people aware of natural hazard risks without appropriately communicating the level of risk could create an unnecessary climate of 'fear'.</p>	<p>scales, so should be used primarily as a basis for more in depth, site specific analysis. Such an analysis would consider the specific nature and scale of any proposal when determining the resultant level of risk. This approach therefore enables any proposal to be considered on its own specific merits through the resource consent process.</p> <p><b>Economic</b> Monitoring natural hazard trends enables Council to be proactive in managing natural hazard risk and potentially reducing the costs of an event through preparation.</p> <p>Making natural hazards information available to the public enables those contemplating development to be aware of the potential costs of development in terms of natural hazards mitigation which can be factored in to project budgeting.</p> <p><b>Social and Cultural</b> Enhancing the community's awareness of natural hazards can help ensure the community is prepared for a natural hazard event.</p> <p>A natural hazards database can assist Council in planning for natural hazard events.</p>	<p>to be aware of the potential natural hazards that will need to be addressed through the development process, in both Resource Consent and Building Consent processes.</p>

## **8. Efficiency and effectiveness of the provisions.**

The above provisions are drafted to specifically address the resource management issues identified with the current provisions, and to enhance those provisions that already function well. A number of areas of the existing chapter have been revised to aid the readability of the Plan by keeping the provisions concise and targeted. Further to this, natural hazards assessment criteria in various chapters will be removed, and a consistent matter of discretion relating to natural hazards will be introduced that references the natural hazards objectives and policies.

Through the inclusion of additional objectives and policies the natural hazard provisions of the Plan are strengthened and enable a more consistent consideration of natural hazards within the Plan than the current Plan provisions allow. The revised provisions also provide guidance to those preparing or considering resource consent applications.

## **9. The risk of not acting.**

The changes proposed here-in broadly seek a continuation of the current approach to natural hazards. However, the proposed changes would introduce stronger, more targeted policies and a more co-ordinated approach as to how the Plan, combined with other methods available to the Council, addresses natural hazard risk.

Some of the risks associated with not reviewing the operative natural hazards provisions are that:

- The current provisions do not give clear guidance as to the information requirements for development requiring resource consent due to the presence of natural hazards;
- The operative policy framework is not sufficiently targeted;
- References to natural hazards occur throughout the operative Plan in an ad hoc manner;
- There is little acknowledgement of the fact that the District has areas of existing development within hazard-prone areas, and the opportunity for mitigation must be able to be considered as an option.

It is considered that there is sufficient information available on which to base the above evaluation.

Council will continue to gather natural hazards information in conjunction with the Otago Regional Council and as such will continue to add to the depth and breadth of information in the hazards database. This information can be used in decision making processes and will also inform future Plan reviews.

## **References**

Queenstown Lakes District Council - Review of District Plan Natural Hazard Issues, Opus International Consultants Ltd (2012) - [link](#)

**Appendix 3a. Attachment to s32 Report - Opus International Consultants Ltd Report: Review of District Plan Natural Hazard Issues(2012)**



**Queenstown Lakes District Council  
Review of District Plan Natural Hazard  
Issues**





# Queenstown Lakes District Council Review of District Plan Natural Hazard Issues

Prepared by

.....  
Shane Roberts  
Team Leader – Resource Management &  
Strategic Planning

.....  
P Brabhakaran  
Technical Principal  
Geotechnical Engineering & Risk

Reviewed by

.....  
Penny Lemon  
Planner

Approved for  
Release By

.....  
Shane Roberts  
Team Leader – Resource Management &  
Strategic Planning

Opus International Consultants Ltd  
Dunedin Office  
Opus House, 197 Rattray Street

Private Bag 1913, Dunedin 9054  
New Zealand

Telephone: +64 3 471 5500  
Facsimile: +64 3 474 8995

Date: October 2012  
Reference: 6CM091.00

Report No: GER 2012 / 57  
Status: Final Draft

## **Contents**

<b>1</b>	<b>Introduction.....</b>	<b>1</b>
<b>2</b>	<b>Scope of Study.....</b>	<b>1</b>
<b>3</b>	<b>The Queenstown Lakes District .....</b>	<b>1</b>
<b>4</b>	<b>Natural Hazards .....</b>	<b>3</b>
<b>5</b>	<b>Legislative and Policy Context.....</b>	<b>9</b>
<b>6</b>	<b>District Plan Provisions – Other Plans .....</b>	<b>16</b>
<b>7</b>	<b>Recent Learnings.....</b>	<b>19</b>
<b>8</b>	<b>Management of Natural Hazards Risk .....</b>	<b>21</b>
<b>9</b>	<b>Toolbox.....</b>	<b>26</b>
<b>10</b>	<b>Recommendations.....</b>	<b>28</b>

## **Appendices**

- Appendix 1: Queenstown Lakes District Plan – Summary of Natural Hazards Provisions**
- Appendix 2: Queenstown Lakes District Plan – Comparison of Natural Hazards Assessment Criteria**
- Appendix 3: District Plan Review Summary Table**
- Appendix 4: Hazard Maps**

## **1 Introduction**

Opus International Consultants have been engaged by the Queenstown Lakes District Council to undertake a review of the natural hazards provisions in the district plan, with a view to ensuring that they reflect best practice in managing the effects of natural hazards on the built environment and community.

It is recognised that significant natural hazards exist in the district and significant amounts of land currently zoned for development lies within areas subject to potential risk from these hazards.

Compilation on an updated hazards register was completed by Opus in 2001, and it is understood that this is being added to with new information as they become available. A study to manage the risks from these hazards was also completed by Opus (2002) and including consideration of the legislative context and recommendations on actions to manage the risk to the community.

The recent 2010-2011 earthquakes in Canterbury have highlighted the effects natural hazards have on the urban environment and the community. It is important that learnings from these events help inform best practice.

## **2 Scope of Study**

The study can be broken into three key phases. The first stage is the collection of information known to exist relevant to the topic. During the course of the study, new information, such as the TAG report emerged, which has been reviewed and relevant issues incorporated into the final report. This stage also included obtaining all relevant hazard data from the Otago Regional Council.

The second stage of the project involved the analysis of the information collected in terms of the planning and legislative responsibilities, as well as from a technical perspective in terms of review of updated hazard data and how this relates to the various zoning parameters around the District.

The third stage has involved formulating recommendations on terms of the district plan provisions that may be appropriate, including assessment criteria. We have also included a number of recommendations in terms of further study required to better assess natural hazards. Without a full understanding of the extent of natural hazards in the district, providing for them in the district plan becomes an exercise in precautionary planning.

## **3 The Queenstown Lakes District**

The Queenstown Lakes District Council is a territorial local authority (TLA) located in the southern part of the South island, New Zealand. It has a land area of 8,705 km<sup>2</sup> not including its large lakes (Lakes Wanaka, Hawea and Wakatipu). The District does not have any coastline and is located in an inland environment which results in hot summers and cold winters. It has an estimated resident population of 28,700 (June 2011 estimate).

The major rivers in the district include the Rees, Dart, Shotover, Kawerau and Clutha / Matau Au. All of these rivers and lakes mentioned above form part of the Clutha Matau / Au catchment.

The western part of the district includes the main divide of the Southern Alps and features steep, heavily glaciated peaks.

The District is well known for its scenic quality and is a significant destination in terms of the New Zealand tourist industry. In addition to the passive pursuits such as sightseeing, the district is well known for providing for active pursuits and adventure tourism based upon the region's lakes, rivers and mountains. Snow sports are particularly prevalent in the winter months.



***Illustration 1 - Queenstown Lakes District – Typical Scene***

The District has seen recent periods of rapid growth with large residential and commercial developments occurring in and around the centres of Queenstown / Frankton, Arrowtown and Wanaka. Outside of these main centres, development has occurred in places such as Jack's Point, Glenorchy, and Makarora.

It is this context of semi alpine to alpine conditions, climatic extremes and dynamic river systems, the Queenstown Lakes District Council is required to manage natural hazards in its District Plan and cope with the pressures of (at times) rapid development.

## **4 Natural Hazards**

### **4.1 Natural Hazards Context**

Queenstown Lakes District is located in an area of semi alpine to alpine conditions, climatic extremes and dynamic river systems. It is also located close to the major tectonic plate boundary between the Australasian and Pacific plates, characterised by the major Alpine Fault located to the west of the district. As such the district is susceptible to a range of natural hazards.

The relevant natural hazards can be grouped in terms of the 'trigger' for those hazards; being either climatically triggered or earthquake triggered.

The primary climatically triggered hazards are:

- Flooding
- Snow and Avalanche
- Alluvial Fans
- Landslides
- Rural fire

The primary earthquake induced hazards are:

- Fault rupture
- Ground shaking
- Liquefaction
- Earthquake induced landslides
- Tsunami / Seiching

We have then evaluated the severity of the consequences of each of these hazards in terms of the potential for damage or loss of life. This then enables us to develop a framework for the 'treatment' of these hazards in a planning context.

Climatic triggered hazards such as snowstorms and avalanches are frequent and are actively managed by various authorities and the ski field operators and are not discussed in this report.

### **4.2 Compilation of Hazards**

The Queenstown Lakes District Council had its original hazards register compiled by Woodward-Clyde (1998) in Part I of the Hazards Register compilation. However this did not provide any information on the nature or degree of hazard.

This hazards register was reviewed by Opus (2002) for the Council in Part II of the Hazards Register study and updated in the priority areas with the latest information available at the time. In addition, Opus reviewed and categorised the various hazards in the priority areas so that the risk from these hazards can be better understood. Opus also added a provisional liquefaction susceptibility map based on the local geology of the area to highlight the liquefaction hazards in the district. The hazard layers were also provided in a form of Geographical Information System shape files and integrated into the Council

records, enabling the hazard information to be readily made available to the community such as through Land Information Memoranda (LIM) or queries. Recommendations were made to carry out specific studies to assess the natural hazards in the district. These have not been carried out as yet.

Since the 2002 study, hazard information prepared by others has been added to the hazards register. This includes primarily additional flood information, landslide information from Tonkin & Taylor, and regional earthquake hazards and Alluvial Fan information from Otago Regional Council.

The principal natural hazards affecting the urban areas in the district are flooding, landslides, alluvial fans and earthquakes (fault rupture, ground shaking, landslides, liquefaction and tsunami / seiching). Other hazards such as snow storms are not covered in this report. The state of knowledge of these principal natural hazards is discussed in this section.

### **4.3 Flood Hazards**

Flood hazards are a significant hazard in the Queenstown Lakes District. Flooding is relatively frequent and affects the townships, and hence has been considered in more detail than other hazards.

The primary flooding risk in Queenstown Lakes District giving rise to a significant risk is lake level rise which can affect the main town centres of Queenstown, Frankton, Wanaka, Glenorchy and Kingston.

Flood hazard maps have been prepared for the various urban areas of the district which show flood prone areas based on historical flood events (Opus, 2002).

The Risk Management study report (Opus, 2002) recommended that there would be benefit in refining the flood hazard in areas of high risk, and preparing and presenting hazard maps with several return periods would facilitate better understanding of the risks by the community. This will also provide a correct understanding that the flood hazard varies gradually across the area, rather than flood hazard on side of the line and no hazard on the other side.

The principal consequence from a flooding event is property damage. This is because these events usually have a long 'lead in' time of heavy rain which gives communities time to react and take measures to preserve life (by moving away from susceptible areas). These events are also relatively frequent so there is a community awareness of the relevant risks and measures that need to be taken.



#### 4.4 Alluvial Fans

Alluvial fans are a common feature of the mountains of the Queenstown Lakes District.

Alluvial-fan landforms develop where a steep gully emerges from its confines onto a flatter valley floor, or at locations where sediment accumulates in response to changes in stream gradient and/or width. Primarily formed by intense, heavy rainfall, the overall development of these features is episodic, often spanning time scales of decades to centuries. Flooding events can be unpredictable and hazardous on alluvial fans, potentially involving fast-moving sediment-laden floods or slurry-like flows of debris which can break out from existing streams and forge new, sometimes unexpected paths. Sediment-laden floods or flows are damaging and destructive, and pose a threat of injury or death to people. Less serious hazards include floodwater inundation, sediment erosion or build-up, which may cause damage to land and infrastructure (Otago Regional Council 2011).

Studies of the alluvial fan hazards have been carried out by Opus for Otago Regional Council, and these are not part of the Queenstown-Lakes Hazards Register. Identification and mapping of these hazards now provides a valuable resource for planning for the hazards from alluvial fans in the district.



*Illustration 2 - Destruction of residential areas built on Alluvial Fan at Matata*

#### 4.5 Landslides

Landslides are a potentially destructive hazard in the Queenstown Lakes District, particularly because they are not as well defined as other hazards and also because there a number of different types of landslides which have different characteristics.

The original hazards register showed extensive areas identified as susceptible to landslides, but did not characterise the areas in terms of their characteristics. The landslides in the priority areas identified by the Council were reviewed and characterised (Opus, 2002). The characterisation is reproduced in Table 1. Further details of the characteristics of these landslides are presented by Opus (2002).

The characterisation is important as it provides the basis for assessment of the risks associated with these landslides which are so widespread in the district. Unfortunately the landslide hazards that have been recently captured and added to the Council's GIS database haven't been characterised, and hence the consequences of the landslide is not known. Also the accuracy of the landslide zones from the original landslide zoning needs to be verified as recommended by Opus (2002). We recommend that the landslides in the priority urban areas zoned for intensive development be assessed, characterised and mapped.



*Illustration 3 - Recent Rockfall impacts on SH6 (Drift Bay development visible in the background)*





**Illustration 4 - Potential Impact of Landslide Run-out on Urban Development**

The Queenstown Lakes District also has steep slopes as shown in Illustrations 1 & 3. Therefore there is a potential for first time slides in storm or earthquake events (as discussed in the section below). The potential for 'first time' slides should also be considered and mapped.

#### **4.6 Rural Fire**

Rural fire can be a significant hazard given the climatic extremes in the district particularly the warm temperatures in summer. Other districts have considered and mapped the potential for rural fires by considering the type of vegetation and exposure to sun, for example Wellington Region.

We recommend that the potential for rural fire in the priority areas be considered. This will help inform the community and target measures to mitigate the risks to development.

#### **4.7 Earthquake Hazards – Active Fault Rupture**

Earthquakes can involve the surface rupture of the active faults as observed during the 4<sup>th</sup> September 2012 Darfield Earthquake. Fault rupture events are a destructive event that can cause property damage.

Known active faults in the district is the Cadrona Fault system that crosses Albert Town and Hawea. These are mapped in the QMAP for Wakatipu at 1:250,000 scale and are included in the Council's hazards database (Opus, 2002). The faults are indicated to be active and concealed, which means their locations are not known with a good level of accuracy.

#### **4.8 Earthquake Hazards – Ground Shaking**

Earthquakes are associated with ground shaking causing damage to the built environment. Earthquakes such as from the rupture of the Alpine Fault can give rise to significant ground shaking in the district and this could be further amplified by the lake and alluvial sediments that are present.

The New Zealand loadings code for earthquakes, NZS 1170.5 (Standards New Zealand, 2004) provides a basis for assessment of ground shaking for design of buildings and other structures. The basin edge effects around the lakes may give rise to further enhanced ground shaking as has been observed in past earthquakes. Also topographical amplification can lead to amplification of ground shaking as observed in recent earthquakes including the 22<sup>nd</sup> February 2011 earthquake in Christchurch. However, research into these effects is at an early stage at the present time.

#### **4.9 Earthquake Hazards – Liquefaction**

Liquefaction commonly occurs in loose sands and silts that are saturated, when they are exposed to severe ground shaking. Liquefaction can cause severe property damage as in the Canterbury earthquakes.

There has been no systematic study of the liquefaction hazards affecting the Queenstown Lakes District at a district or local level using information on the ground conditions in the area. A provisional liquefaction susceptibility map based on the local geology was included by Opus (2002) in the risk management study for Queenstown Lakes District to highlight the potential risks to the community from liquefaction, and recommended that a specific liquefaction hazard study be carried out for the priority areas in the district. No further study has been carried out as yet.

A seismic hazard study was carried out for Otago Regional Council (Opus, 2005) for the entire Otago Region. This included a liquefaction hazard map, again based on the regional geology of the area. This map is now included in the Queenstown Lakes hazards database. Although the district level map (Opus, 2002) better represents the liquefaction hazards in Queenstown being at a larger scale, both these maps highlight the risks in the district and region as a whole from liquefaction, but are not suitable for use at a local level.

A liquefaction hazard study using local information on the ground conditions is recommended as a basis for managing the risks to the community and built environment from liquefaction hazards. The study should include mapping of the potential for ground damage from liquefaction, because of the severity of ground damage which causes damage to the built environment (Brabhakaran, 2010).

#### **4.10 Earthquake Hazards – Landslides**

Earthquake induced landslides are potentially very destructive events that can cause a high loss of life when the landslide coincides with a populated area. Earthquake induced landslides are often first time slides that are not located in areas of existing landslides.

Earthquake induced landslides and rock fall caused significant damage to the built environment and lifelines in the Port Hills area of Christchurch during the 2010-2011 Canterbury earthquakes. More severe landsliding in steep terrain was observed by one of the authors of this report (P Brabhakaran) during his reconnaissance to the Sichuan province of China after the 2008 Wenchuan Earthquake (Yu et al, 2009). Landslides caused extensive loss of life in this earthquake including the deaths of thousands of people in the Beichuan city alone.

The Queenstown Lakes District has steep terrain with moderate to steep slopes, see Illustration 1 & 2. Therefore there is the potential for significant earthquake induced landslides in the district. We therefore recommend that an earthquake induced landslide hazard study be carried out to provide the basis for mitigating the risk to the community from this hazard.

#### **4.11 Tsunami and Seiching**

There is potential for tsunami due to large landslides triggered by earthquakes. These can cause severe damage to the built environment along the edge of the lakes in the district (Opus, 2002).

There is also the potential for seiching in the lakes due to ground shaking affecting the water bodies present in the lake. This can also lead to flooding of properties along the lake shores.

These hazards need to be studied after studies to map earthquake induced landslides, so that the hazard can be better understood.

## **5 Legislative and Policy Context**

### **5.1 New Zealand Legislation relating to Natural Hazards**

Natural Hazards in New Zealand are managed in terms of the provisions set out under four principal pieces of legislation:

- Resource Management Act 1991
- Building Act 2004
- Civil Defence Emergency Management Act 2002
- Local Government Act 2002

Other peripheral legislation relating to natural hazards includes:

- Local Government Official Information and Meetings Act 1987
- Environment Act 1986
- Conservation Act 1987
- Soil Conservation and Rivers Control Act 1941
- Land Drainage Act 1908
- Forest and Rural Fires Act 1977

The relevant legislation, purpose in terms of natural hazards, and accompanying definition of Natural Hazard are summarised in Table 1.

The Queenstown Lakes District Council is required to carry out functions of each of these pieces of key legislation. Obviously there is some commonality across these definitions but also some differences. This has been recognised by the TAG report and it has been

recommended that further work should be undertaken on the alignment of the definition of natural hazards across all relevant legislation.

**Table 1 - Legislation and Purpose in terms of Natural Hazards**

Statute	Purpose	Definition of Natural Hazard
Resource Management Act 1991 (Part 2, Section 5)	To promote the sustainable development of natural and physical resources. <u>Sustainable management</u> 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 <u>social, economic and cultural well-being</u> and for their <u>health and safety</u> .	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.
Building Act 2004 (part 1, Section 3)	To provide for the regulation of building work, the establishment of a licensing regime for building practitioners, and the setting of performance standards for buildings to ensure that – a) <u>people who use buildings can so do safely and without endangering their health</u> ; and b) buildings have attributes that contribute appropriately to the <u>health, physical independence, and the well-being</u> of the people who use them; and c) people who use a building can escape if it is on fire; and d) buildings are designed, constructed and able to be used in ways that promote <u>sustainable development</u> .	Erosion (including coastal erosion, bank erosion, and sheet erosion); falling debris (including soil, rock, snow and ice); subsidence; inundation (including flooding, overland flow, storm surge, tidal effects and ponding); and slippage.
CDEM Act 2002 (part 1, Section 3)	To improve and promote the <u>sustainable management</u> of hazards (as that term is defined in the Act) in a way that contributes to the <u>social, economic, cultural and environmental well-being and safety</u> of the public and also to the protection of property.	Something that may cause, or contribute substantially to the cause of, an emergency.
LGA 2002, (Part 1, Section 3)	Provides for local authorities to play a broad role in promoting the <u>social, economic, environmental and cultural well-being</u> of their communities, taking a <u>sustainable development</u> approach.	No definition.

From Saunders 2012

## **5.2 Queenstown Lakes District Plan**

The current District Plan features three main volumes - 1A & 1B Operative Plan and 2 Proposed Changes. These volumes are accompanied by a series of planning maps.

The plan does not have a separate methods section on Natural Hazards, but rather features Natural Hazards as a District Wide Issue. This section lists the issues, objectives and policies for a number of natural hazards, with commentary on some but not all of the hazards listed at the beginning of the chapter.

A summary of natural hazards provisions from the plan in tabular form is attached in Appendix 1. Appendix 2 provides a comparison of Natural Hazards Assessment Criteria in the Plan.

In terms of the principal areas of zoning in the plan (Rural, Residential, Townships and Town Centres) and the policy frameworks around them natural hazards are largely absent. The Township Zone does mention flooding as an issue and also discusses natural hazards at policy 9.1.4. The Rural and Residential zones have no objectives or policies relating to natural hazards.

The focus of the plan in terms of the specific mention of the types of natural hazards mentioned in the natural hazards section is almost exclusively limited to flooding where there are a number of provisions / rules etc. Elsewhere the generic term 'natural hazards' is referred to particularly as assessment criteria.

In the subdivision section of the plan there is comparatively comprehensive set of assessment criteria, with a two tiered approach – a set of overarching assessment criteria that refer to natural hazards in a generic sense; then a more directive set of criteria that refer to specific hazards with specific criteria (flooding, instability, subsidence and contamination<sup>1</sup>). We suggest this could be elaborated on as knowledge increases about other hazards. We have also suggested a series or provisions (based on those used elsewhere) to control rural fire.

## **5.3 Regional Policy Statement for Otago (1998)**

The Regional Policy Statement for Otago (RPS) provides an overview of the resource management issues of the region. The RPS features a chapter on Natural Hazards which establishes the objectives and policies for Natural Hazards within the Otago Region. Following the 2009 amendments to the RMA District Plans now must give effect to the regional policy statement.

---

<sup>1</sup> Contamination is not a natural hazard

## **Objectives**

11.4.1 To recognise and understand the significant natural hazards that threaten Otago's communities and features.

11.4.2 To avoid or mitigate the adverse effects of natural hazards within Otago to acceptable levels.

11.4.3 To effectively and efficiently respond to natural hazards occurring within Otago.

11.4.4 To avoid, remedy or mitigate the adverse effects of hazard mitigation measures on natural and physical resources.

## **Policies**

11.5.1 To recognise and provide for Kai Tahu values in natural hazard planning and mitigation.

11.5.2 To take action necessary to avoid or mitigate the unacceptable adverse effect of natural hazards and the responses to natural hazards on:

- (a) Human life; and
- (b) Infrastructure and property; and
- (c) Otago's natural environment; and
- (d) Otago's heritage sites.

11.5.3 To restrict development on sites or areas recognised as being prone to significant hazards, unless adequate mitigation can be provided.

11.5.4 To avoid or mitigate the adverse effects of natural hazards within Otago through:

- (a) Analysing Otago's natural hazards and identifying their location and potential risk; and
- (b) Promoting and encouraging means to avoid or mitigate natural hazards; and
- (c) Identifying and providing structures or services to avoid or mitigate the natural hazard; and
- (d) Promoting and encouraging the use of natural processes where practicable to avoid or mitigate the natural hazard.

11.5.5 To provide a response, recovery and restoration capability to natural hazard events through:

- (a) Providing civil defence capabilities; and
- (b) Establishing procedures and responsibilities to ensure quick responses to any natural hazard event; and

(c) Identifying agency responsibilities for assisting recovery during and after events; and

(d) Developing recovery measures incorporated into civil defence plans.

11.5.6 To establish the level of natural hazard risk that threatened communities are willing to accept, through a consultative process.

11.5.7 To encourage and where practicable support community-based responses to natural hazard situations.

## 5.4 Functions under the RMA

The Queenstown Lakes District Council has the responsibility under the Resource management Act to perform a number of specific functions in relation to natural hazards (emphasis added):

*Section 31 – Functions of territorial authorities under this Act*

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

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

*(i) the avoidance or mitigation of natural hazards*

*Section 35 – Duty to gather information, monitor and keep records*

*(1) Every Local authority shall 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).*

*(2) Every local authority shall monitor –*

*(a) The state of the whole or any part of the environment of its region or district to the extent that is appropriate to enable the local authority to effectively carry out its functions under this Act.*

*(3) Every local authority shall keep reasonably available at its principal office, information which is relevant to the administration of policy statements and plans, the monitoring of resource consents, and current issues relating to the environment of the area...*

*The information to be kept by a local authority under subsection (3) shall include -*

*(j) Records of natural hazards to the extent that the local authority considers appropriate for the effective discharge of its functions.*



## 5.5 QLDC Documents

In addition to the Statutory Planning documents mentioned above the Council has produced a number of other non-regulatory statements and strategies which are of relevance to natural hazards.

“Learning to Live with Flooding: A Flood Risk Management Strategy for the communities of Lakes Wakatipu and Wanaka (October 2006)” discusses the use of the raising of floor levels (retrospectively) as an option but dismisses this idea due to uncertainty:

*Considering the above, the inevitability for superdesign events occurring, and the lack of knowledge of maximum possible lake level and duration, further raising floor heights in the District Plan is not seen as a valid means of reducing flood risk. Implementation of flood sensitive design is seen as a viable alternative to a District Plan requiring the retrospective or current raising of floor heights. (Flood Risk Management Strategy October 2006)*

“A Growth Management Strategy for the Queenstown Lakes District (2007)” mentions natural hazards as a ‘first principle’ for planning for growth:

*“Principle 1 – Growth is located in the right places*

*1d Growth of the smaller outlying towns (such as Hawea, Hawea Flat, Luggate, Glenorchy, Kingston, Makarora and Cardrona) is to be encouraged to a point where critical mass for affordable servicing is reached and an appropriate range of local services and employment can be supported.*

*1i New development avoids areas of recognised hazards (e.g. floodplains, instability) and development within known hazard areas is managed so that hazards are not exacerbated.”*

## 5.6 Otago Regional Council Studies

The Otago Regional Council has undertaken or commissioned a number of studies into natural hazards in the Queenstown Lakes area, including the following:

- Otago Alluvial Fans – High Hazard Fan Investigation (August 2012)
- Natural Hazards in the Cardrona Valley (December 2010)
- Natural Hazards at Glenorchy (May 2010)
- Natural Hazards at Makarora (April 2007)

These studies contribute to the understanding of natural hazards in the Queenstown Lakes District and also the Hazard Register.

Other relevant documents include the Otago Regional Flood Protection Bylaw and Regional Plan – Water for Otago

## 5.7 Quality Planning Website

The Quality Planning Website discusses a risk based approach to planning for natural hazards based on four principles:



Gathering accurate natural hazard information:

Ensuring natural hazards are identified and mapped in an appropriate manner is an essential 'starting point' for addressing natural hazards.

Planning to avoid natural hazards before development and subdivision:

This involves utilising the knowledge once hazard data has been gathered, to create a regulatory framework that discourages development in hazard prone areas or require mitigation (if possible).

Taking a risk-based approach in areas already developed or subdivided:

Where land has either already been zoned or subdivided a decision needs to be made in risk based terms about what is an appropriate response. This could include further plan changes to limit further intensification of development.

Communicate risk of hazards in built-up areas:

Finally, where development has occurred in areas already urbanised often the best approach is the provision of information. The guidelines the QLDC have put out on flooding in Queenstown and Wanaka are examples of this.

One of the most difficult problems concerning natural hazards is dealing with urban areas where buildings are constructed on, or close to, a particular hazard, such as an active fault, floodway, or landslide. The ideal approach in this situation would be to avoid further development in high-risk areas, to limit existing-use rights to rebuilding (i.e. replacement buildings can only be the same scale and density as those existing), and to limit the use of buildings. Non-regulatory methods can actively discourage people rebuilding and encourage them to move elsewhere.

The most realistic approach, however, is to accept the status quo whilst ensuring that:

- any further development and use of buildings is consistent with the level of risk posed; and
- district plan maps clearly show hazard zones.

Non-regulatory approaches, such as hazard education and engagement programmes, also ensure that landowners and building occupiers are made aware of the hazard, and of the probability of hazard events occurring. Hazard education initiatives must reflect the complex socio-economic nature of communities; therefore programmes need to target a range of at-risk groups, and may require a mix of approaches.

The principles recognise that a different planning approach is needed for an area that has not been developed than for an area that has been developed or subdivided (or where there is an expectation to build). These principles are underpinned by a risk-based approach.

## 6 District Plan Provisions – Other Plans

### 6.1 Methodology and Summary

We have reviewed a number of other District Plans from around the country to get a good geographic spread as well as looking at some of those Districts that are known to be particularly hazard prone, and also looking at a variety of hazards to assess if different mechanisms are used to treat different hazards in a planning context. The content of these plans is summarised in the table attached in [Appendix 3](#). The table lists the relevant plan, the hazards identified in the issues/objectives/policies section of that plan, then indicates where in the plan the rules relating to natural hazards are located, before then indication which natural hazards have specific rules relating to them.

Our findings can be summarised as:

- The number of hazards identified is wide ranging;
- Flooding is a common issue across all districts;
- Plans generally did not have rules to address all of the hazards identified as an issue in their district;
- All plans used mapping linked to rules; and
- Overall what can be best described as ‘active’ hazards are dealt with well across the country – these are hazards such as flooding, coastal erosion, landslides. Other, less active hazards such as seismic hazards were less prevalent in terms of methods to deal with them. This is congruent with the current situation in the Queenstown Lakes District.

### 6.2 Whakatane District Plan

The WDP has performance standards relating to a number of natural hazards:

- Flooding / Inundation
- Fire Hazard
- Falling Debris
- Coastal Hazards

In particular the approach to Coastal Hazards is comparatively thorough and includes a comparatively lengthy activity table for coastal hazard areas.

The WDP also addresses the following through ‘Other Methods’

- Land Instability
- Seismic Hazard
- Sea level rise and climatic conditions
- Wind Zones
- Coastal Erosion Hazards

### 6.3 Auckland Council District Plan (Rodney Section)

The ADPRS addresses the four most significant natural hazards in the Natural Hazards section, which are:

- Flooding
- Land instability
- Coastal erosion and inundation by the sea
- Fire

The plan also specifies a 'strategy' for dealing with natural hazards.

*The strategy in the district plan involves a two-pronged regulatory approach*

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

In terms of implementation the plan uses a range of regulatory methods:

- Zoning: Zones are identified 'Physical Limitations Zone' where the land is subject to instability.
- Effects Based Activity Rules: Where part of a zone is subject to a hazard effects based activity rules have been adopted. In some areas no development may be permitted, in others limits may be placed (e.g. density of housing).
- Development Controls: This includes the provisions of section 106 but also general bulk and location provisions e.g. site coverage.
- Other regulatory methods promoted include the provisions of the Building Act 2004, Bylaws. Non regulatory methods include LIMS, Catchment Management Plans, Liaison, Education and Community Action Groups.

### 6.4 Rangitikei District Plan

The Rangitikei District Plan identifies two Natural Hazard Areas which are shown on the District Plan Maps. Depending on the Natural Hazard Area (1 or 2) and the performance criteria for that Hazard Area, activities may require resource consent.

Generally speaking, any new buildings or structures in these Hazard Areas require resource consent as a restricted discretionary activity. We observe that the matters over which discretion is restricted are quite broad.

### 6.5 Timaru District Plan

The Timaru District Plan covers natural hazards under the General Rules section. The plan sets out that all household units and residential activities are constructed with a floor height that ensures the risk of flood waters rising to that level shall not exceed 0.5% in any year, with an exception provide for small (up to 20%) extensions to existing dwellings.

The plan also has some controls over Coastal Hazards based on the 100 year coastal erosion setback in the Regional Coastal Environment Plan.

## **6.6 Ashburton District Plan**

The Ashburton District Plan sets out specific hazard provisions are provided for each zone, rather than District Wide rules.

In the residential zone new buildings are required to be 150mm above the 1 in 200 year flood event level. It is noted that Council don't hold this information rather it has to be sourced from ECan or a 'suitably qualified expert'.

Setbacks are also required from stopbanks and waterways.

It also noted no new 'huts' are permitted at a number of the settlements at hut river mouths e.g. Rakaia. This is a good example of natural hazard avoidance.

No rules are included regarding Coastal Hazard issues.

## **6.7 South Wairarapa Combined Plan**

The South Wairarapa Combined District Plan addresses natural hazards as a district wide issue.

Planning Maps show both 'Flood Hazard Areas' and 'Flood Alert Areas' as well as mapping known fault lines. Activities within these areas are subject to performance standards and any structure over 15 m<sup>2</sup> in area requires resource consent.

These activities are restricted discretionary and limited to a few matters of discretion.

## **6.8 Western Bay of Plenty District Plan**

The Western Bay of Plenty District Plan relies upon a range of methods to control Natural Hazards. Planning maps identify a number of hazard area (Coastal protection (both secondary and primary risk), floodable areas and areas of potential instability. If an activity is undertaken in one of these overlay areas then it may or may not require resource consent. Activities that require consent can range from restricted discretionary activity through to prohibited activity for any subdivision in the primary risk coastal protection area.

## **6.9 Waikato District Plan**

The Waikato District Plan uses a range of methods to address natural hazards. The plan identifies flood risk areas, but rules on activities in flood risk areas are not limited to those areas identified on planning maps. This is also supported by an explanation in the general rules section that indicates that the hazard areas shown on planning maps are not exhaustive.

The Plan features a definition of flood risk area which is defined as "Means the land shown on the Planning Maps, and other land that is subject to more than minor flood hazards."

Other hazards identified in the plan include coastal hazards and areas at risk from mine subsidence or land instability.

## **6.10 Invercargill City District Plan**

The Invercargill City District Plan covers natural hazards in a district-wide manner, in relation to flooding and storm surge. Areas of flooding are well mapped and the plan also indicates areas that have previously flooded but now protected by flood protection works; and does not control land use in these areas.

## **7 Recent Learnings**

There have been a number of recent developments following the Canterbury earthquakes that have implications for how natural hazards will be managed into the future in New Zealand. These are discussed below.

### **7.1 Report for the Minister for the Environment's Resource Management Act 1991 Principles Technical Advisory Group ("TAG Report")**

The TAG report, released on 5 July 2012 is a stocktake of the current Sections 6 and 7 of the Resource Management Act 1991. In particular it proposes a total revamp of these sections of the Act, and in terms of Natural Hazards recommends that natural hazards are 'elevated' to a Section 6 'sustainable management principle' that must be 'recognised and provided for by 'managing the risks associated with natural hazards'.

Another key recommendation was to make it explicit that Regional Councils will have the lead function in managing all of the effects of natural hazards and there should be a combined regional and district natural hazards plan. Territorial authorities would retain their current natural hazards functions. It is recommended that the combined regional and district natural hazards plan is required to be operative within 3 years of the legislation being enacted.

The TAG report also advocates amending Section 106 to expressly include liquefaction and lateral spreading, and also relate back to the definition of natural hazard in Section 2 of the act, rather than hazards / events specified in Section 106.

Obviously some of these recommendations are triggered by the recent 2010-2011 Canterbury earthquakes and its consequences.

### **7.2 Canterbury Fact Finding Project**

The report considered how liquefaction and lateral spreading hazards were dealt with in the zoning and development of:

- Part A: The eastern suburbs of Christchurch from 1977 to 22 Feb 2011
- Part B: Brooklands, Kaiapoi and Kairaki/The Pines from 1977 to 4 Sept 2012

This project assessed the extent to which information on liquefaction and lateral spreading hazards were known and incorporated into planning and development processes in the eastern suburbs of Christchurch.

The main findings of the study were as follows:



- a) Most of the current residential zoning was introduced between 1968-72;
- b) One area (Bexley South) was zoned for partial residential use in 1991 however no documented evidence on liquefaction / lateral spread hazards was produced or considered at that time.
- c) Information on liquefaction and lateral spreading was not evident in the Christchurch planning context until 1977 when a generic technical report was produced by the Regional Planning Authority on the direction and extent of new urban growth in greater Christchurch.
- d) The first known district plan to specifically incorporate mitigation to address potential liquefaction was the private plan change for the new Pegasus Town in 2000.

### **7.3 Lessons from the 2008 Wenchuan Earthquake, China**

The 2008 Wenchuan Earthquake of Richter Magnitude 8 caused extensive landslides and widespread damage and loss of life in the Sichuan Province of China. The New Zealand Society for Earthquake Engineering sent a team to study the effects of the earthquake and bring back learnings for New Zealand. One of the authors of this report (P Brabhakaran) was part of the team. The observations and lessons are presented by Yu et al (2009). Landslides and fault rupture caused extensive damage to buildings and lifelines. Some landslides such as in Beichuan City buried large sections of the city including a school and caused extensive loss of life, see Illustration 5. The scale of these landslides is such that it would not be practical to design buildings for these landslides. One of the key learnings from the earthquake is the need to better understand and map the potential for these hazards in our urban areas, and use them for land use planning so that areas of severe hazard can be avoided.



***Illustration 5 - Parts of Beichuan City, China destroyed by Large landslides triggered by the 2008 Wenchuan Earthquake***

## **7.4 Ground Performance in the Canterbury Earthquakes**

The extensive liquefaction and lateral spreading in Christchurch and Kaiapoi, and extensive rock falls and landslides in the Port Hills, triggered by the Canterbury earthquakes caused extensive damage to the built environment. While some of these developments had occurred before the phenomenon of liquefaction was well understood, some developments, particularly in eastern Christchurch had occurred after liquefaction was well known and understood after historical earthquakes particularly in Japan and even locally in the 1901 Cheviot, 1968 Inangahua and 1987 Edgecumbe earthquakes.

Clearly this is an area that needs to be considered in land use planning, because avoidance of the most vulnerable areas, where possible, would be the most economical and sustainable approach to ensure the resilience of future development. Also there is a need to use building foundation types and standards that are resilient to liquefaction in areas of existing development of future development where building is liquefaction prone areas in unavoidable. Earthquake induced landslides are more difficult and costly to mitigate earthquakes need to be learnt and applied to urban planning throughout New Zealand. The IPENZ Land Use Task Force considered that the lessons from the Canterbury earthquakes need to be learnt and applied to urban planning throughout New Zealand. This led to initiatives to change the RMA as a mechanism to implement these learnings.

## **7.5 Marlborough District Council**

Marlborough District Council (Unitary Authority) had carried out planning for urban growth to the southeast of the existing township. After the Canterbury earthquakes, they appreciated the importance of considering the effects of natural hazards such as liquefaction. A study of the liquefaction and geotechnical hazards (Opus, 2012) highlighted that these areas were not suitable for urban growth, and hence were excluded from the urban growth plan.

The Council is investigating other areas with a potentially lesser susceptibility to liquefaction before identifying alternative areas for its urban growth strategy. This is a significant step forward in urban land use planning in New Zealand.

## **7.6 Department of Building and Housing**

The Department of Building and Housing (2011) in its recommendations for future development has suggested a level of geotechnical investigation as being appropriate to investigate liquefaction hazards for land proposed for development.

# **8 Management of Natural Hazards Risk**

## **8.1 Risk Management Philosophy**

The effective management of the risks to the built environment associated with natural hazards requires consideration of design standards of buildings and structures as well as planning measures. While design codes are effective in designing for hazards such as earthquake ground shaking, it is less effective or cost effective in designing for significant natural hazard consequences such as earthquake induced landslides, liquefaction induced lateral spreading. In some cases it is not practical to design for them – such as large

landslides triggered by earthquakes. And in some cases it is not cost effective or sustainable – such as on and susceptible to liquefaction and lateral spreading. This is evident in the categorisation of some areas as “Red Zones” in Christchurch, where the government has offered to buy the land. In such cases land use planning can be quite a powerful tool especially for future development. In other situations, such as in flooding, land use planning or district plan rules setting floor levels have been a proven way to minimise the losses when buildings have to be located into flood prone areas.

Therefore, land use planning and district plan rules are a very useful and powerful way to mitigate future risks from natural hazards, without the needs for extensive additional costs.

## 8.2 Natural Hazards and Land Use

Given the sheer number of discrete zones in the Queenstown Lakes District Plan, we have undertaken a ‘grouping’ of zones to simplify our analysis and also to provide for a simpler framework. The zones have been grouped around four main land uses, with a fifth capturing some of the more specialist zones:

- Residential
- Rural & Rural-Residential
- Commercial
- Industrial
- Other

The groupings were formulated by assessing the ‘description’ and ‘anticipated environmental results’ of each zone.

**Table 2 – Zoning Groupings**

Predominant Activity	Zone
Residential	Community Facility Sub-Zone Kingston Village Special Zone (South of Kingston) Low Density Residential Zone High Density Residential Zone Meadow Park Zone (Arrowtown) Medium Density Residential Sub-Zone Mount Cardrona Station Special Zone (Cardrona) – creation of a ‘village’ Penrith Park Zone (Wanaka) Quail Rise Zone Queenstown Heights Low Density Residential Sub-Zone Remarkables Park Zone Residential Arrowtown Historic Management Zone Resort Zone (Milbrook, Jacks Point and Waterfall Creek) Rural Visitor Zone (Cecil Peak, Walter Peak, Cardrona, Blanket Bay, Arthurs Point, Arcadia Station, Windermere) Three Parks Zone (Wanaka) – but also commercial and business subzones. Township Zone (Hawea, Luggate, Albert Town, Makarora, Glenorchy, Kingston and Kinloch) Visitor Accommodation Sub-Zone



Rural & Rural-Residential	Gibbston Character Zone Rural General Zone Bendemeer Zone (Lake Hayes) Rural Lifestyle Zone Rural Residential Zone
Commercial	Arrowtown Town Centre Zone Corner Shopping Centre Zone Frankton Flats Zone (Shopping Centre/mixed use) Remarkables Park Zone Resort Zone Queenstown Centre Zone Wanaka Town Centre Zone
Industrial	Ballantyne Road Mixed Use Zone (Wanaka) Business Zone (ie. light industrial) Industrial Zone
Other	Hydro Generation Zone Open Space Zone Queenstown Airport Mixed Use Zone Ski-Area Sub-Zone

The grouping of these land uses forms the basis for the mapping of natural hazards in relation to land uses. Some of the critical natural hazards – liquefaction, flooding and landslides are shown against the combined land use map showing areas zoned for intensive development. Intensive development for these purposes is land zoned for residential, industrial or commercial purposes. This illustrates the impact of the known hazards on areas zoned for development. This is essentially a combination of QLDC zoning data with hazard information. The maps attached in [Appendix 4](#) illustrate this.

The hitherto unidentified hazards such as earthquake induced landslides and tsunami / seiche will also have an impact on these areas zoned for existing or future development.

### 8.3 Classification of the Natural Hazards Consequences to Different Land Uses

We have classified the consequences of different natural hazards in the Queenstown Lakes District to different land uses in order to understand the risks and hence help define a way forward to mitigate risks. This is shown on Table 2. This is based upon the table developed in 8.2 with the addition of ‘critical infrastructure’ which is not a zone as such, but a land use that requires some consideration particularly in natural hazards planning.

Table 2 - Natural Hazard Consequences to Different Land Uses

		LAND USE					
		CONSEQUENCES OF EVENT	RURAL RESIDENTIAL	INDUSTRIAL	COMMERCIAL	RESIDENTIAL	CRITICAL INFRASTRUCTURE
ADDRESS BY:	CONTROL RULES TO MITIGATE	Very Low					
		Low Minor Damage	Flooding Fault Rupture. Liquefaction	Flooding			Flooding
	Medium Property Damage	Landslides EQ Landslides Lateral Spreading		Flooding Liquefaction	Flooding Fault Rupture Liquefaction	Liquefaction	
	AVOIDANCE	High Structural Damage	Erosion River/Alluvial Fan Debris Flows	Fault Rupture Landslides Liquefaction/Lateral Spreading Erosion/Alluvial Fan	Fault Rupture Landslides Liquefaction/Lateral Spreading Erosion/Alluvial Fan	Liquefaction/Lateral Spreading Erosion/Alluvial Fan	Fault rupture landslides Erosion/alluvial fan
		v. High Loss of Life		EQ Landslide. Debris	EQ Landslides. Debris	Landslides EQ Landslides. Debris	EQ Landslides. Debris

Table 3 illustrates a framework for understanding the consequences of different natural hazards to different land uses. Depending on the consequences, hazards can be mitigated through education, district plan rules or avoidance through land use planning. This depends on the effects on the particular natural hazard as well as the intensity of land use of vulnerability of the land use to that hazard.

### 8.4 Education

Education and providing information is an effective way to mitigate low impact hazards or in low intensity land use situations. This would also be useful where there is existing development.

This requires good information of the hazards (hazard mapping) and the consequences and potential voluntary mitigation measures the community can take. This also requires the information to be made readily available and public education campaigns through talks and seminars.

This may be an effective technique for flood hazards, liquefaction or fault rupture in low intensity rural areas or for critical infrastructure where the effects can be tolerated and repaired after the event. For example road flooded for few hours or cracking of road surface from liquefaction induced subsidence.

### 8.5 District Plan Rules

District Plan rules can be an effective technique for mitigating hazards where the consequences are moderate and the frequency is low.

Examples for this approach would be to specify floor levels in areas prone to flooding to mitigate the extent of losses as already used in the District Plan, or requiring building foundations of houses to be designed to be tolerant of moderate subsidence of the ground due to liquefaction. This is also valuable for development in existing developed areas – for example for infill housing.

## **8.6 Avoidance**

Avoidance is most effective for areas of new growth where the natural hazard effects are severe. This would apply to land use zoning where there is a severe potential for landslides or severe liquefaction induced lateral spreading, with a significant probability of occurrence.

Avoidance can be practiced at three levels depending on the land use and the nature and extent of the hazard.

- Level 1 Land Use Planning (Macro) – extensive hazardous areas can be avoided by zoning the land prone to those hazards for less intensive land use such as rural farming or parks.
- Level 2 Land Use Planning (Medium) – District Plan rules can stipulate that smaller extents of severe hazards, perhaps localised liquefaction lateral spreading or slope hazard from nearby hillside, can be mitigated by making use of these areas within a township or sub-division for open areas with no building or car parking. A good example is the use of river flood prone areas in the Hutt City for car parking and mobile markets.
- Level 3 Land Use Planning (Micro) – stipulate and encourage development to avoid areas of high hazard by micro-siting buildings in safer parts of land parcels, with more hazard prone areas used for open space or parking.

## **8.7 Criteria for Land Use Planning**

We consider that it is important that the District Pan sets out clear criteria for land use planning. Such a framework will ensure that Council initiated land use changes or private plan changes take into consideration the framework when developing and putting forward plan changes. This will avoid unreasonable expectations of land owners putting up private plan changes or even Council officers not taking into consideration the hazards when development plan changes in the future.

Flooding is a common hazard across districts around New Zealand, and is a relatively frequent hazard. As such best practice measures to manage flood risks to the community have been developed. A draft protocol for Managing Flood Risk has been published by the Centre for Advanced Engineering (2005), building on the Floodplain Management Planning Guidelines (Opus, 2001).

The Risk Management Study (Opus, 2002) recommended a number of further studies and as such a large amount of work has gone in to identifying flood hazard areas and developing treatments for these. A prime example of this are the floor level requirements in the district plan for those communities adjoining Lake Wakatipu at Glenorchy, Kingston, Queenstown and Frankton.

Other hazards such as Fault Rupture have also had best practice planning guidelines developed by the Ministry for the Environment in 2003. Follow up studies found that whilst there was some support for these guidelines the issues were too difficult to resolve and the recommendations of the report have not been implemented by Councils except in a few locations (GNS 2005).

## **9 Toolbox**

### **9.1 The Need for a Framework**

Based on our framework (Table 3) for considering natural hazards in land use planning we suggest there needs to be an overarching or district wide natural hazards section in the plan. Whilst some hazards are well understood and have a suite of plan methods to control them, others are less well understood, if at all.

The framework for considering natural hazards in land use planning looks at the intensity of the land use, the particular types of hazards that can affect that land use in the District, and the consequences of those hazards. For example a flood event in a rural area is likely to cause less damage in dollar terms than in a commercial area.

In order for this type of approach to work, more study is required in terms of investigations into natural hazards, particularly those which could have catastrophic impacts upon life and property. Given the topography of the Queenstown Lakes District landslides are an example of natural hazards where more investigation is required.

### **9.2 The Need for a Consistent Approach**

The other main finding is there is a need for a consistent approach in the plan as to how natural hazards are dealt with. At present some zones such as those of a commercial or industrial nature are not subject to natural hazard controls apart from floor levels with respect to flooding; furthermore in a number of situations no consideration of natural hazards is required at all; even if there is a known risk. As further hazard studies are undertaken, a site that may have previously thought of as 'low risk' from a natural hazard may actually be at 'high risk'. Having assessment criteria 'at the ready' for all zones is preferable to having to undertake a plan change each time an additional risk comes to light.

Another gap we see in the plan is in terms of the utilities provisions in the plan the plan provisions are largely centred around mitigating the effects on the installation of utilities. There is no mention or requirement for these to be considered in terms of the natural hazards context of the site they are to be located in. Given infrastructure is critical in the period following a natural hazard event requiring the installation of such structures to be resilient is critical. We suggest there needs to be policy recognition in the plan of this as sometimes providing resilience may bring with it an environmental trade off – for example a pumpstation may need to be located in a highly visible site to avoid flood risk.

### **9.3 District Plan Methods**

As previously mentioned the current subdivision section of the plan has the most comprehensive set of assessment criteria. We suggest this could be expanded and

adopted as a framework for assessing resource consent applications (subdivision and land use).

The subdivision assessment criteria currently mention:

- Flooding and inundation
- Erosion, falling debris, slope instability or slippage
- Landfill<sup>2</sup> and subsidence
- Contaminated sites<sup>3</sup>
- Land filling or excavation<sup>4</sup>

Hazards not addressed in the subdivision section are

- Liquefaction
- Rural Fire
- Fault Rupture
- Ground Shaking
- Tsunami / Seiche

As additional information is gathered about these additional hazards, an appropriate set of assessment criteria should be developed.

#### **9.4 Rural Fire**

Rural Fire, whilst perhaps not always a natural phenomenon, is an issue in the Queenstown Lakes District. As such we have provided some brief comments on this issue. We note the plan currently has forestry as a discretionary activity in the rural zone, with a number of assessment criteria focussing on spread of wildings, landscape values, ecological values and maintenance / harvesting related effects. None of these make any particular reference to fire risk.

The Whakatane District Plan uses a combination of methods that may be worth considering:

- the need to submit a plan to Council showing the location of access roads and fire breaks (permitted activity rule);
- rules requiring setbacks of forestry from residential properties / places of assembly and vice versa, or lots zoned for residential activity;
- quite separately to forestry issue the plan also requires any dwelling that is not served with a water supply that is accessible to the NZ Fire Service to provide at least 5,000 litres of water at all times. This does not necessarily need to be a tank.

The Matamata-Piako District Council has taken the different approach of mapping a 'High Fire Risk Bush and Fire Hazard Buffer' along the edge of high risk areas e.g. Kaimai Ranges. Resource consent is required to erect a habitable building within this buffer.

---

<sup>2</sup> Not a natural hazard

<sup>3</sup> Not a natural hazard

<sup>4</sup> Not a natural hazard

There is the potential to adopt some industry 'best practice' matters, such as firebreak width as a district plan performance standard, in order to have control over

We suggest that fire hazard is not exclusively a natural hazard issue (given it is often unfortunately human triggered) and is perhaps better addressed by some adjustments to the rules in the plan regarding forestry, and rules in the plan for residences that do not have a water supply available to the NZFS. We took a supplementary look at other plan provisions around forestry and whilst setbacks from areas of forestry were common (e.g. Invercargill, Wairarapa Combined, Timaru) it was unclear if these are for amenity or safety purposes or a combination of both. Whilst our search was not exhaustive Whakatane and Matatmata - Piako examples were both found of the forest fire issue being dealt with in a hazard context rather than a straight 'land use' context.

## **10 Recommendations**

1. Information gathering. In order to comprehensively plan for natural hazards in the Queenstown Lakes District Plan further information needs to be gathered, particularly:

### Liquefaction:

- Bring together currently available ground information;
- Assess and map hazards based on this information; and
- Map consequential ground damage.

### Landslides / Earthquake Induced Landslides:

There is no information on these currently available and given they can be potentially catastrophic it is important they are mapped, particularly given the steep terrain that exists in close proximity to a number of the major settlements in the Queenstown Lakes District.

### Tsunami / Seiche

Following the mapping of landslides and earthquake induced landslides, it would be prudent to consider the potential for tsunami and seiching as the major townships in the District are alongside lakes.

We do note changes to the RMA in terms of the TAG report may influence how information gathering is undertaken (potential for combined regional and district natural hazards plan) however further engagement with the Otago Regional Council would be beneficial in terms of coordination of data collection.

2. District Plan Format: There needs to be a consistent approach to how natural hazards are addressed in the Queenstown Lakes District Plan. We have identified a number of gaps and inconsistencies in the plan in terms of natural hazards. Given that natural hazards are a 'district wide' issue having 'district wide' natural hazards rules would address current plan inconsistencies. This issue should be considered when the structure of the 'second generation plan' is being considered particularly due to the 'emergent' nature of some hazards.

3. The subdivision section of the plan has a comparatively thorough set of assessment criteria in terms of natural hazards. This could equally be applied to land use consents in a situation where a site is subject to a known hazard. This would be contingent on having a comprehensive set of natural hazards data (see 1 above) and revising / adding to the assessment criteria accordingly.

4. Council should consider the use of Natural Hazards Maps in its 'second generation plan'. It should be noted all plans examined in section 6 of this report had some or all hazard data shown on planning maps. Some plans (for example Invercargill) map some hazard data e.g. flooding in a regulatory sense, while other data e.g. liquefaction is mapped for 'information purposes'.

5. Council should consider structuring the District Plan Natural Hazard Rules in terms of the framework outlined in Table 3 above. The framework could also be a useful tool for assessing natural hazard provisions of private plan changes.

6. For known hazard sites, the plan could encourage 'micro siting' of developments on the part of the site that is less hazard prone or the activity presents a low level of risk e.g. carparking.

7. Rather than addressing rural fire through the natural hazards section it could be better addressed through adjustments to the plan rules regarding plantation forestry and residential activity standards.

## **References**

Becker, J, Saunders, W, & Van Dissen, R (2005) "Planning for the development of land on or close to active faults: A study of the adoption and use of the Active Fault Guidelines." Institute of Geological & Nuclear Sciences science report 2005/16

Minister for the Environment (2012) "Report of the Minister for the Environment's Resource Management Act 1991 Principles Technical Advisory Group."

Opus (2002) "Queenstown Lakes District Council – Hazards Register Part II Stage 2 Risk Management Study Report (Volumes 1 & 2)"

Opus (2011) "Blenheim Urban Growth Study – Geotechnical Evaluation – Preliminary Geotechnical Appraisal"

Opus (2012) "Blenheim Urban Growth Study – Geotechnical Evaluation – Site Investigations Factual Report"

Otago Regional Council & Queenstown Lakes District Council (2006) "Learning to Live with Flooding: A Flood Risk Management Strategy for the communities of Lakes Wakatipu and Wanaka"

Otago Regional Council (1998) "Regional Policy Statement for Otago"

Otago Regional Council (2012) "Otago Alluvial Fans – High Hazard Fan Investigation"

Otago Regional Council (2012) "Hazard Data"

Queenstown Lakes District Council (2007) "A Growth Management Strategy for the Queenstown Lakes District"

Resource Management Act 1991

Saunders, W (2012) "Innovative Land Use Planning for Natural Hazard Risk Reduction in New Zealand." PhD Thesis, Massey University

St Clair, M & McMahon, D (2011) "Canterbury Fact Finding Project: Consideration of liquefaction and lateral spreading hazards in the zoning and development of: Part A: The eastern suburbs of Christchurch from 1977 to 22 Feb 2011, Part B: Brooklands, Kaiapoi and Kairaki/The Pines from 1977 to 4 Sept 2010"

Yu, J, Yong, P, Reid, S, Brabhakaran, P and. Meng, P (2009). The Ms 8.0 Wenchuan Earthquake of 12 May 2008 Reconnaissance Report. NZSEE Bulletin. Vol. 43. Issue 1.





## Appendix 4. Section 32AA Evaluation

# Appendix 4

## Section 32AA evaluations in relation to Chapter 28 Natural Hazards

This evaluation assesses the costs, benefits, efficiency, and effectiveness of the various new (and, where of substance, amended) policies and rules that are being recommended in the s42A report.

The relevant provisions from the revised chapter are set out below, showing additions to the notified text in underlining and deletions in ~~strike-through~~ text (ie as per the revised chapter). The section 32AA assessment then follows in a separate table underneath the provisions.

<b>Recommended amendments to notified Objective 28.3.1</b>	
<b>28.3.1</b>	<b>Objective – <del>The effects of</del> <u>The risk posed by</u> natural hazards <del>on</del> <u>to</u> the community and the built environment <del>are minimised</del> <u>is avoided or mitigated</u> to a tolerable levels.</b>

<b>Appropriateness (s32(1)(a))</b>
<p>The changes are more appropriate in achieving the purpose of the RMA than the notified version because:</p> <ul style="list-style-type: none"><li>• Replacement of the word 'effects' with 'risk' reinforces that Chapter 28 takes a risk-based approach to natural hazard management and increases alignment with the decisions version of PRPS Objective 4.1. No consequential changes are required at the policy level, as the notified policies use the concept of risk, rather than effects.</li><li>• Replacement of 'minimised' with 'avoided or mitigated' provides greater certainty as to how the objective is intended to be applied and achieves clearer alignment with Council's functions regarding natural hazards outlined in s31 RMA. No consequential changes are required at the policy level.</li></ul> <p>The proposed changes result in a more directive objective that is clearer in its intent and about the outcome being sought. It is therefore considered to be more appropriate in achieving the purpose of the RMA than the notified version.</p>

**Recommended amendments to notified Policy 28.3.1.1**

**28.3.1.1** Ensure assets or infrastructure are constructed and located so as to avoid or mitigate the potential risk of damage to human life, property ~~and~~ infrastructural networks and other parts of the environment ~~to the extent practicable, whilst acknowledging the~~ locational, technical and operational requirements of regionally significant infrastructure.

Costs	Benefits	Effectiveness & Efficiency
<ul style="list-style-type: none"> <li>The recommended change will enable greater flexibility for regionally significant infrastructure, which results in a relaxation of the notified policy. This may reduce the ability for proposals for regionally significant infrastructure on land subject to natural hazards to be declined.</li> </ul>	<ul style="list-style-type: none"> <li>The meaning of the phrase 'and other parts of the environment' is vague and may be open to varying interpretations. Deletion of the phrase removes this ambiguity.</li> <li>The recommended amendments increase alignment with notified Policy 28.3.2.5 which recognises that "<i>some infrastructure will need to be located on land subject to natural hazard risk</i>".</li> <li>A definition of the term Regionally Significant Infrastructure has been recommended to be introduced to the PDP.<sup>1</sup> The definition provides clarity as to the application of the term and enables the recommended changes to the policy to only apply to infrastructure that falls within the definition.</li> </ul>	<ul style="list-style-type: none"> <li>The recommended changes increase the effectiveness and efficiency of the policy as they remove a part of the policy that is vague and increase consistency with other relevant policies in Chapter 28.</li> </ul>

<sup>1</sup> The recommended definition of Regionally Significant Infrastructure was introduced through the Strategic Directions Hearing – Recommended Revised Chapter – Reply 07/04/2016, with subsequent amendments recommended through the District Wide Hearing 05 – Recommended Revised Energy and Utilities Chapter 30 – Reply 22/09//2016.

**Recommended amendments to notified Policy 28.3.1.2**

**28.3.1.2** Restrict the establishment of activities which ~~have the potential to significantly~~ increase natural hazard risk, ~~including where they will have an intolerable or may have an impact~~ upon the community and built environment.

Costs	Benefits	Effectiveness & Efficiency
<ul style="list-style-type: none"> <li>The recommended replacement of the words "<i>have the potential to</i>" with the word "<i>significantly</i>" will result in a relaxation of the notified policy, which may weaken the ability for proposals on land subject to natural hazards to be declined.</li> </ul>	<ul style="list-style-type: none"> <li>The recommended amendment that targets the policy to activities that <i>significantly increase</i> natural hazard risk increases alignment with the decisions version of PRPS Policy 4.1.6 (a)(noting, however that the avoidance approach advocated by that policy is subject to appeals and therefore remains uncertain at this stage).</li> <li>The recommended changes provide a less restrictive approach to the consideration of proposals on land subject to natural hazard risk when compared to the notified version. The recommended changes therefore provide greater flexibility for proposals on land subject to natural hazards to be considered favourably if the increase in risk is low and tolerable. This in turn acknowledges that proposals that do not significantly increase risk</li> </ul>	<ul style="list-style-type: none"> <li>The recommended changes to the policy are more effective and efficient as they increase the policy's alignment with the decisions version of the PRPS and with other policies within Chapter 28.</li> </ul>

	<p>can be considered favourably.</p> <ul style="list-style-type: none"> <li>• The recommended changes acknowledge that the community's tolerance to natural hazard risk is a relevant consideration. This recommended change also increases alignment with recommended Policy 28.3.1.3 which acknowledges that <i>"landowners may be prepared to accept a level of risk."</i> Furthermore, the recommended change gives effect to the decisions version of PRPS Policy 4.1.5(c), which states that particular regard will be had to <i>"the community's tolerance of [...] risk, now and in the future, including the community's ability and willingness to prepare for and adapt to that risk, and respond to an event [...]."</i></li> </ul>	
--	---	--

**Recommended amendments to notified Policy 28.3.1.4**

**28.3.1.4** ~~Allow~~Enable public bodies the Regional and District Council exercising their statutory powers to carry out natural hazard mitigation activities, while recognising the need to mitigate potential adverse effects that may result from natural hazard mitigation works.

<b>Costs</b>	<b>Benefits</b>	<b>Effectiveness &amp; Efficiency</b>
<ul style="list-style-type: none"> <li>Adverse effects resulting from natural hazard mitigation works undertaken by territorial authorities (TAs) will need to be mitigated, which may incur additional time and financial costs for TAs.</li> </ul>	<ul style="list-style-type: none"> <li>The recommended changes clarify which public bodies the policy applies to, which provides greater certainty regarding its application.</li> <li>Recognises that adverse effects can arise as a result of natural hazard mitigation works carried out by TAs, and recognises that resultant adverse effects should be mitigated.</li> </ul>	<ul style="list-style-type: none"> <li>The recommended changes increase the effectiveness and efficiency of the policy as they provide acknowledgement that adverse effects can arise from mitigation works undertaken by TAs, and confirm that any such adverse effects may need to be limited through the implementation of mitigation measures.</li> </ul>

**Recommended amendments to notified Policy 28.3.2.1**

**28.3.2.1** ~~Seek to avoid intolerable~~ Avoid significant natural hazard risk, acknowledging that this will not always be practicable in developed ~~urban~~ areas.

<b>Costs</b>	<b>Benefits</b>	<b>Effectiveness &amp; Efficiency</b>
<ul style="list-style-type: none"> <li>None identified.</li> </ul>	<ul style="list-style-type: none"> <li>Increases alignment with the decisions version of PRPS Policies 4.1.6 and 4.5.1, which refer to '<i>significant risk</i>', rather than '<i>intolerable risk</i>'.</li> <li>Removing the word 'urban'</li> </ul>	<ul style="list-style-type: none"> <li>The recommended changes increase the effectiveness and efficiency of the policy as they increase consistency with the language used in other policies in Chapter 28 and clarify the correct application</li> </ul>

	<p>clarifies that the policy applies to <i>any</i> developed areas. This clarifies the intended meaning and application of the notified version of the policy. During the drafting of the notified policy the implications of the introduction of urban growth boundaries to the PDP (and the consequential application of the word 'urban' though the PDP definition of <i>urban development</i><sup>2</sup>) may not have been sufficiently considered.</p>	<p>of the policy.</p>
--	---	-----------------------

<b>Recommended amendments to notified Policy 28.3.2.2</b>
<p><b>28.3.2.2</b> <del>Allow</del> <b>Enable</b> subdivision and development of land subject to natural hazards where the proposed activity does not:</p> <ul style="list-style-type: none"> <li>• Accelerate or worsen the natural hazard <del>and/or its potential impacts</del> <u>risk to an unacceptable level</u>.</li> <li>• Expose vulnerable activities to intolerable natural hazard risk.</li> <li>• Create an unacceptable risk to human life.</li> <li>• Increase the natural hazard risk to other properties <u>to an unacceptable level</u>.</li> <li>• Require additional works and costs that would be borne by the <del>community</del> <u>public</u>.</li> </ul>

<b>Costs</b>	<b>Benefits</b>	<b>Effectiveness &amp; Efficiency</b>
<ul style="list-style-type: none"> <li>• The recommended addition of the words "<i>to an acceptable level</i>" will result in a relaxation of the notified policy, which may reduce the ability for proposals on land subject to natural</li> </ul>	<ul style="list-style-type: none"> <li>• The recommended changes focus the policy on natural hazard risk, thereby increasing consistency with other policies in Chapter 28 and confirming that the policy framework takes a risk-based approach to the</li> </ul>	<ul style="list-style-type: none"> <li>• The recommended changes increase the effectiveness and efficiency of the policy as they increase consistency with the language used in other policies in Chapter 28 and increase alignment with the decisions version of the</li> </ul>

<sup>2</sup> Strategic Directions Hearing – Recommended Revised Chapter – Reply 07/04/2016.



hazards to be declined.	<p>management of the adverse effects caused by natural hazards.</p> <ul style="list-style-type: none"> <li>The recommended changes that introduce the words '<i>to an unacceptable level</i>' increase alignment with the decisions version of PRPS Policy 4.1.6, which only addresses activities that significantly increase risk. It is therefore, implicit that proposals that increase risk can be contemplated so long as the increase in risk (within and beyond the site) is at an acceptable level. This provides a pragmatic approach to natural hazard risk management.</li> </ul>	PRPS.
-------------------------	--	-------

<b>Recommended amendments to notified Policy 28.3.2.3</b>	
<b>28.3.2.3</b>	<p>Ensure all proposals to subdivide or develop land that is subject to natural hazards <u>risk provide an assessment covering that meets the following information requirements, ensuring that the level of detail of the assessment is commensurate with the level of natural hazard risk:</u></p> <ul style="list-style-type: none"> <li>The type, frequency and scale of the natural hazard <u>and the effects of a natural hazard on the subject land.</u></li> <li>The vulnerability <u>of the activity in relation to the</u> natural hazards.</li> <li><del>The effects of a natural hazard event on the subject land.</del></li> <li>The potential for the activity to exacerbate <u>the</u> natural hazard risk both <u>within and off beyond</u> the subject land.</li> <li>The potential for any structures on the subject land to be relocated.</li> <li>The <u>location</u>, design and construction of buildings and structures to mitigate the effects of natural hazards, such as the raising of floor levels.</li> <li><del>Site layout and m</del>Management techniques <u>to avoid that manage or mitigate the adverse effects of natural hazards risk to a tolerable level, including with respect to access ingress and egress during a natural hazard event.</u></li> </ul>

<b>Costs</b>	<b>Benefits</b>	<b>Effectiveness &amp; Efficiency</b>
--------------	-----------------	---------------------------------------

<ul style="list-style-type: none"> <li>The recommended amendments to the final bullet point of the policy to replace the word "<i>avoid</i>" with "<i>manage or mitigate natural hazard risk to a tolerable level</i>" will result in a relaxation of the notified policy. This will result in a less stringent requirement for site management, and may reduce the ability for proposals on land subject to natural hazards to be declined.</li> </ul>	<ul style="list-style-type: none"> <li>The recommended changes seek to improve the way the policy is articulated so that the information requirements are more clearly laid out. The changes will assist with ensuring that the policy is correctly applied.</li> <li>Requiring the level of detail of the assessment to be commensurate with the level of natural hazard risk provides greater flexibility than the notified version of the policy, and will mean that proposals that result in a low level of risk can provide less detailed assessment information. This, is a pragmatic approach that further confirms the risk-based policy framework of Chapter 28.</li> </ul>	<ul style="list-style-type: none"> <li>The recommended changes are more effective and efficient than the notified version as they articulate the policy in a clearer manner and enable greater flexibility for proposals that result in a low level of risk.</li> </ul>
---	--	---