

**HORIZONS REGIONAL COUNCIL
PROPOSED ONE PLAN GENERAL HEARING**

CHAPTER 10 NATURAL HAZARDS

**SPEAKING NOTES OF PHILLIP PERCY FOR THE PRESENTATION OF
OFFICERS REPORTS TO THE HEARING PANEL**

8 JUNE 2009

1. The following are speaking notes for the presentation of officers reports to the One Plan General Hearing Panel hearing Chapter 10, Natural Hazards. These notes are intentionally brief and only to assist in focussing the presentation on the key points of Chapter 10, the officer reports, submissions and evidence that have been prepared to date. These notes do not take the place of or supersede the evidence or reports that I have prepared to date and have been prepared only to assist the Panel during my presentation.

Introductions

2. The following people will be making presentations today:
3. Phillip Percy – Reporting officer for Natural Hazards chapter
4. Peter Blackwood - Manager, Investigations and Design at Horizons. Mr Blackwood prepared expert evidence on flood hazard and will present a summary of that evidence today.

Format of officer presentations

- Brief introduction to natural hazards and management (PP)
- Summary of Natural Hazards chapter as notified (PP)
- Summary of key recommendations made in response to submissions (PP)

- Description of pre-hearing and caucusing processes that occurred prior to hearing (PP)
- Summary of the supplementary report prepared post caucusing (PP)
- Presentation of flood hazard technical evidence (PB)

Brief introduction to natural hazard management

5. While the Panel will already be familiar with natural hazards and management principles, I would like to very briefly summarise what natural hazards are and the way in which they are managed in New Zealand.
6. What are natural hazards?
 - Natural hazards are created when people and property are located in areas that are susceptible to the effects of natural events.
 - Does not include hazards derived from human actions (chemical spills, warfare, etc)
 - Requires consideration of risk. Risk definition from CDEM Act means 'the likelihood and consequences of a hazard'.
7. Managing natural hazards
 - Avoidance of a hazardous area is most effective management method.
 - Mitigation is otherwise required.
 - Risk is addressed in four main ways. Reduction, readiness, response and recovery.
8. Legislation
 - Cross-over between two key acts.
 - Civil Defence and Emergency Management Act 2002
 - § Focussed on all hazards
 - § Covers all of the 4 R's

- § Key mechanism is the Civil Defence Emergency Management Group Plan (s48 of the CDEM Act)
- Resource Management Act 1991
 - § Specific direction to regional councils and territorial authorities to manage natural hazards (sections 30 and 31)
 - § An RPS must state the local authority responsible for managing natural hazards or any group of natural hazards in the region (s62)
 - § Focus of RMA is largely on 'reduction' by way of managing land use in a way that avoids or mitigates natural hazards.
- Further discussion on the relevant legislation can be found in section 4.2.2 (pg29) of my officers report.

Summary of Natural Hazards chapter as notified

9. Chapter 10 identifies from the outset in Issue 10-1 that development can exacerbate natural hazards by placing more people, property and infrastructure at risk. The focus of the Chapter from this point on is one of managing new development such that natural hazards are avoided or mitigated.
10. Issue 10-1 also identifies that climate change and sea-level rise are likely to result in a change to the hazardousness of areas as the frequency and/or severity of natural events changes.
11. The chapter therefore focuses on managing development to avoid or mitigate hazards both now and in the future.
12. The chapter has only one objective (Objective 10-1), that being to avoid or mitigate the adverse effects of natural hazard events on people, property, infrastructure and communities.
13. S62 of the RMA requires that the POP state who is responsible for managing natural hazards in the region. Policy 10-1 achieves this by allocating responsibilities to the regional council,

territorial authorities or both depending on the core responsibilities of those organisations under the RMA.

- a. Both the regional council and TAs are responsible for raising public awareness of the risks of natural hazards.
 - b. The regional council is responsible for managing activities in the CMA and in the beds of lakes and rivers.
 - c. TAs are responsible for managing land use in all other areas. Given that TAs are responsible for land use management, the policy specifically instructs TAs to identify areas that are known to be prone to flooding so that these areas can be specifically managed.
14. Flooding is a significant hazard for the region, largely as a result of many of the settlements being built on floodplains and close to rivers. Flooding is a relatively frequent event in the Region and historical impacts from flooding has seen extensive flood management works put in place to limit the risk and impacts of more frequent flood events.
15. Policy 10-2, as notified, is focussed on preferably avoiding development in areas that flood, particularly floodways which both pose a flood risk but are also important for managing flood impacts on other areas. The approach to managing development in areas susceptible to flooding is to avoid developing in those areas unless effects on the risk to human life, property and infrastructure can otherwise be avoided (the words used in the policy are 'will not cause any of the following effects...').
16. This is a strong statement that development in floodable areas is generally to be avoided unless there is essentially no increased risk to human life, property and infrastructure. This approach also avoids having to address the 'residual risk' associated with mitigating the hazard.
17. Recognising that exceptions will need to be made to the avoidance approach where structures or activities have to be located in such an area because they must be located there in order to function, Policy 10-3 provides a path through Policy 10-2.
18. Establishing critical infrastructure, being those pieces of expensive and vital infrastructure such as wastewater treatment plants, in hazardous areas is discouraged by Policy 10-4. Note that this policy refers to all natural hazards, not just flooding.

19. With the focus on flood hazard management in Policies 10-2 and 10-3, other natural hazards are addressed in Policy 10-5. These are dealt with a lesser preference for avoidance than in Policy 10-2, through the reference to mitigation of effects if avoidance is not practicable.
20. Climate change and sea-level rise are specifically addressed in Policy 10-6. A 'precautionary approach' is specified in recognition that information on the influence of climate change and sea-level rise on natural hazard events may be limited or incomplete.
21. Four methods are proposed, largely focussed on developing and disseminating information to both the public and to territorial authorities to assist them in their hazard management roles.

Summary of key issues in submissions.

22. For the purposes of this presentation, I will focus on the key areas of concern to submitters. Those areas are:

- § The preference for avoidance over mitigation when managing flooding (primarily Policy 10-2)
- § Lack of clarity in the mapped areas in Schedule I.
- § The management of new critical infrastructure.
- § Addressing climate change and sea level rise.

Avoidance approach

1. Chapter 10 as notified adopted a strict avoidance approach for management of flood hazard. Submitters, particularly Palmerston North City Council (submitter 241) and Landlink (submitter 440), raised significant concern about the focus on avoidance in Policy 10-2(b). PNCC submitted that a range of factors involved in determining the appropriateness of development needed to be considered and that mitigation of hazards may be an appropriate response.
2. Simply referring to mitigation of flooding does not account for the residual risk and would therefore be a significant move away from a strict avoidance approach of the proposed Plan.
3. Residual risk will be discussed by Mr Blackwood, but can be summarised as the risk that remains despite mitigation measures being in place. An example is the risk that a stopbank

may fail during a flood event. Mitigation measures do not provide for complete elimination of the flood risk.

4. PNCC referred to the combination of avoidance and mitigation approach adopted recently by Horizons by reference to the Regional Council resolution (SP 27-075) which outlined the policy position in respect of the flood risk and avoidance/mitigation options for sites identified in the PNCC Urban Growth Strategy. Through discussions with Mr Blackwood and submitters (including PNCC), this general approach was considered to be an appropriate amendment to Policy 10-2(b) and I therefore made recommended changes to Policy 10-2(b).
5. In terms of scope for these changes, the Panel has received a joint memorandum from David Murphy (PNCC) and myself outlining that we are comfortable that PNCC's submission provides the scope to make the recommended changes to Policy 10-2(b).

Clarity of Schedule I maps

6. Submitters raised concerns about the clarity of the maps in Schedule I. The primary concern was the labelling of the mapped floodways as 'floodable areas', which submitters suggested could result in confusion.
7. This was resolved by recommending that the floodways were relabelled accurately.

New critical infrastructure

8. Two key concerns were raised by submitters in relation to Policy 10-4. The first was that the wording 'no reasonable alternative' meant that developments such as PNCC's proposed second bridge over the Manawatu River was able to be challenged on the grounds that there were reasonable alternative locations. This issue was relevant to the establishment of all critical infrastructure and so I recommended that the 'no reasonable alternative' phrase was replaced with reference to there being a functional requirement for the infrastructure to be located in a hazardous position.
9. Vector Gas also sought changes to this policy by way of inclusion of a requirement that critical infrastructure could be allowed where the effects of the infrastructure on the hazard or the effects of the hazard on the infrastructure are addressed. After discussions with Mr Blackwood I recommended changes to Policy 10-4 to identify that where critical infrastructure needed to be located in hazardous locations, the effects were to be avoided or mitigated.

10. The second area of concern – what infrastructure was included in the definition of ‘critical infrastructure’. On reading submissions, it appeared that several submitters thought that the term critical infrastructure was also used in the context of the Infrastructure, Energy and Waste chapter of the POP.
11. The critical infrastructure term is only used in Chapter 10 and Policy 10-4 is intended to be a ‘discouraging’ policy rather than an enabling policy. The intention is that critical infrastructure should preferably not be located in areas subject to natural hazard events.
12. In response to the Panel’s question (ii) about whether the Glossary term ‘critical infrastructure’ needs to refer only to new infrastructure, I do not believe it needs to. Policy 10-4 specifically relates only to ‘new’ critical infrastructure. The Glossary term only needs to define what critical infrastructure actually is.

Climate change and sea level rise

13. Policy 10-6 relates to managing climate change and sea level rise. Several of the TAs requested more specificity in what was involved in taking a ‘precautionary approach’ for managing the effects of climate change and sea level rise.
14. Primary role of policy is to make it clear that a precautionary approach is to be applied where information on the implications of climate change and sea level rise are uncertain.
15. Article 3 of the United Nations Framework Convention on Climate Change refers to the precautionary approach.

The Parties should take precautionary measures to anticipate, prevent or minimize the causes of climate change and mitigate its adverse effects. Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing such measures, taking into account that policies and measures to deal with climate change should be cost-effective so as to ensure global benefits at the lowest possible cost. To achieve this, such policies and measures should take into account different socio-economic contexts, be comprehensive, cover all relevant sources, sinks and reservoirs of greenhouse gases and adaptation, and comprise all economic sectors. Efforts to address climate change may be carried out cooperatively by interested Parties.

16. I suggest that a precautionary approach involves the following:

- Local authorities should not avoid addressing the potential effects of climate change and sea-level rise on the grounds that there is insufficient or incomplete scientific knowledge.
 - The completeness and adequacy of information will need to be considered on a case by case basis.
 - Responses to proposals will need to reflect the information available and the potential risk involved.
 - Development and provision of hazard information is important to enable effective management. This is achieved through methods.
17. Margins are factored into flood hazard modelling to account for climate change, as has been described in Mr Blackwood's evidence. On-going improvements in information about natural hazards is occurring, for example the recently completed tsunami hazard study.

Planning review

18. A planning review of Chapter 10 (incorporating recommended changes) was completed prior to my planning report being published.
19. These changes include some re-working to provide for better readability, and other changes to improve linkages between provisions. Perhaps the most significant change resulting from the planning review was the incorporation of Policy 10-3 into Policy 10-2. This was in recognition that Policy 10-3 only related to Policy 10-2 and would therefore be more appropriately integrated into that policy.
- 20.

Key changes to provisions

Issue 10-1

21. Include clarification that natural hazard events can impact on all 'well-beings' and on the natural and physical resources communities rely on. Not just people and infrastructure.
22. Separate (b) into two to reflect different topics being addressed.

Objective 10-1

23. Remove limitation to economic well-being – change more accurately reflects issue by addressing all well-beings.
24. Re-word to improve readability and certainty.
25. Include cross-link to Issue 10-1

Policy 10-1

26. Clarify that floodways and floodable areas are to be shown on planning maps in district plans. Supports recommended change to Anticipated Environmental Results.
27. Include cross reference to Issue 10-1 and Objective 10-1

Policy 10-2(a)

28. Addition of direct reference to the Regional Council and TAs to reinforce roles as specified in Policy 10-1.
29. Remove 'generally' to limit ambiguity in policy and to recognise support for protection of floodways as expressed in submissions (PNCC, Landlink, Chris Teo-Sherrell).
30. Add 'functional constraint' exception in order to combine Policies 10-2 and 10-3.
31. Replace 'development' with 'structures or activities' to remove uncertainty about what 'development' means.
32. Replace 'avoid' with 'prevent' to be more grammatically correct.

Policy 10-2(b)

33. Addition of direct reference to the Regional Council and TAs to reinforce roles as specified in Policy 10-1.
34. Add 'functional constraint' exception in order to combine Policies 10-2 and 10-3.
35. Replace 'development' with 'structures or activities' to remove uncertainty about what 'development' means.
36. Enable mitigation as an option by adding a 'residual inundation' limit. Limit based on the NSW Floodplain Development Manual. Focus is on ensuring that flood water depth and

velocity in the event of a mitigation measure failure or overtopping poses no significant risk to human life.

37. New definition of 'residual inundation' added to the Glossary.
38. Enable listed effects to be avoided or mitigated rather than just avoided to reflect that the residual risk is primarily addressed through the residual inundation limits.
39. Combining of points (i) and (ii) to improve readability.
40. Re-wording of points (iii) and (iv) to improve readability and remove repetition.
41. Addition of a note that the policy does not apply to new critical infrastructure because this is dealt with specifically by Policy 10-4.
42. Addition of a cross reference to Issue 10-1 and Objective 10-1.

Policy 10-3

43. Deleted and incorporated into Policy 10-2.

Policy 10-4

44. Addition of direct reference to the Regional Council and TAs to reinforce roles as specified in Policy 10-1.
45. Reworded to improve readability.
46. Replacement of 'no reasonable alternative' with a functional constraint exception.
47. Addition of a requirement that the effects of the natural hazard event on the infrastructure are avoided or mitigated.
48. Addition of a list of flooding-specific effects that have to be avoided or mitigated. Specific effects are listed to provide a degree of certainty for decision-makers.
49. Addition of a cross reference to Issue 10-1 and Objective 10-1.

Policy 10-5

50. Addition of direct reference to the Regional Council and TAs to reinforce roles as specified in Policy 10-1.
51. Addition of a cross reference to Issue 10-1 and Objective 10-1.

Policy 10-6

52. Addition of direct reference to the Regional Council and TAs to reinforce roles as specified in Policy 10-1.
53. Removal of the word 'unsustainable' in relation to hill country.
54. Replace 'efforts' with 'activities' to use terminology more relevant to the RMA.
55. Removal of 'storm surge' because it is not an activity – it is a natural phenomenon.
56. Addition of a cross reference to Issue 10-1 and Objective 10-1.

Methods

57. Re-word introductory statement to improve readability and accuracy.
58. Changes to wording and addition of method numbering system to provide consistency throughout the POP.
59. Changes to cross-references to relevant policies to improve accuracy.

Anticipated Environmental Results

60. Changes to cross-references to relevant policies to improve accuracy.
61. Include an additional indicator of district planning maps identifying hazardous areas.

Schedule I

62. Re-word map titles to accurately reflect names of floodways.
63. Replace floodable area labels with floodway labels.
64. Break Taonui Basin Floodway map into several maps so that they are at a better scale for readability.

Description of pre-hearing and caucusing processes that occurred prior to hearing.

65. Pre-hearing meetings and discussions were held with a number of submitters to explore opportunities for addressing matters raised in submissions. Useful meetings to explore the change to mitigation in Policy 10-2 were held with representatives of the TA collective and general agreement to the approach was reached.
66. Evidence in relation to Chapter 10 was submitted by:
- David Murphy (PNCC)
 - David Le Marquand (Transpower New Zealand Ltd)
 - Lisa Hooker (Airways Corporation of NZ)
 - John Philpott (Landlink Ltd)
67. Only Mr Murphy and Mr Philpott raised issues in relation to my recommended changes.
68. Separate caucusing meetings held with both. I would like to emphasise that this was a very worthwhile process and wish to express my appreciation to all parties involved.
69. Caucusing meeting reports have been provided to the Panel.
70. Significant post-caucusing discussions held with both experts to work towards the set of changes to Policy 10-2 as recommended in my supplementary evidence. Agreement to these changes was reached with Mr Murphy and Mr Philpott.
71. Mr Murphy wishes to make some additions to Policy 10-2(b), which he will cover when he presents his evidence to the Panel.
72. Mr Philpott recommends in his evidence that the Taonui Basin Floodway map in Schedule I be amended to more accurately reflect the roles the different parts of the 'floodway' play in flood management. This change was not agreed to during caucusing and will be presented to the Panel by Mr Philpott when he presents his evidence.

Summary of the supplementary report prepared post caucusing.

73. Due to the significant progress made during the caucusing and post-caucusing discussions, I prepared supplementary evidence and an additional tracked changes document to reflect the areas where agreement was reached.

Key changes to Policy 10-2(b)

74. Clarify that 'likely to be inundated' should be determined assuming that there are no flood mitigation measures in place.

75. Incorporate the earlier-recommended 'residual inundation' definition into the wording of the policy.

76. Reinforce that avoidance or mitigation of the 0.5%AEP flood event is the minimum level of achievement required for occupied structures and activities.

77. Addition of an exception for development that has protection to at least the 0.2% AEP flood. This is primarily to enable infill development within those parts of Palmerston North city that are protected by large stopbanks.

78. Specification that development in other areas can be enabled in two circumstances:

- a. Where flood mitigation measures have minimal risk of failure, or
- b. Where the residual inundation levels/velocities meet the specified limits.

79. Clarify that the residual inundation levels are to apply to occupied structures and access from occupied structures only – not all land. Primary intent is to ensure people in their homes or workplaces can stay there and remain safe and that emergency services can reach people safely.

80. To summarise – in areas that are very well protected from flooding development can occur. In areas that are less well protected, development can occur provided the residual risk is managed. In areas that are not protected or do not achieve the residual inundation limits, development is unlikely to be appropriate (unless there is a functional constraint).

Panel's questions

81. The Panel raised questions in relation to the scope for recommended changes and six other questions.

Scope for recommended changes

82. The Panel raised concerns about whether there is sufficient scope in submissions for the recommended changes.
83. The Panel has been provided with the joint memo from David Murphy and I in relation to scope for the changes to Policy 10-2(b), 10-3 and 10-4. To summarise, PNCC's submission provides significant scope for amendment to these provisions.
84. Landlink's submission requested changes to Policies 10-2(b) and 10-3, including deletion of those policies as an option.
85. In relation to Policy 10-4, the submission of Vector Gas Ltd provides further scope for the inclusion of wording in the policy referring directly to managing the effects of critical infrastructure development.
86. Recommended changes to Policy 10-2(a) are within the scope of submissions made by PNCC, Landlink and Chris Teo-Sherrell, all of whom support the protection of floodways to varying degrees. Mr Teo-Sherrell specifically requests that there is an 'absolute restriction' on residential development in floodways. The recommended changes reinforce the intention of the policy to prevent development in these areas unless there is a functional constraint.
87. Technical experts Mr Blackwood and Mr Philpott both agree with this approach for all floodways except the Taonui Basing Floodway.
88. Mr Philpott recommends changes to the map in Schedule I. I consider this is a better approach than weakening the policy for all floodways. The issue is that the Taonui Basin could be mapped to more accurately define those areas that are strictly floodway, leaving the remainder of the area to be addressed as 'floodable area'.
89. The Landlink submission which Mr Philpott is presenting in relation to seems to strongly support the 'protection' of floodways. But it does not appear to provide sufficient scope to amend the Taonui Basin map to make it more accurate. It may therefore be most appropriate to address changes to the Taonui Basin map by way of a variation.
90. Recommended changes to Policy 10-6 to refer directly to the Regional Council and TAs is simply reinforcing the roles as set out in Policy 10-1. It is making it clear to POP readers who is responsible for implementing the policy. Regional Councils and TAs are the organisations

responsible for controlling land use and it therefore seems appropriate that the policy is clear in this.

91. Overall, the recommended changes are either within the scope of submissions or are changes to clarify the originally proposed plan.

Question (i)

92. The concept of residual risk was put forward in the submission of PNCC, specifically in reference to the Regional Council resolution. Residual inundation was a term created to relate residual risk to actual inundation limits.

Question (ii)

93. The Glossary term 'critical infrastructure' describes what that infrastructure is. The Policy specifies that it is only new critical infrastructure that is of relevance to the policy.

Question (iii)

94. Refer to earlier discussion during in relation to what is involved in taking a precautionary approach.

Question (iv)

95. My reading of Mr Hainsworth's submission, which raises the suggestion of a long-term planning forum, is that such a forum is necessary in response to the POP trying to address natural hazards single-handedly. I don't necessarily agree with this interpretation. The POP sets out some over-arching direction on management of natural hazards which require local authorities to respond by controlling land use in their respective areas. Granted there is a lag in changes to district and regional plans to respond to the new POP policies and there may be developments that 'slip through the cracks' in the interim. However I am not sure that a non-statutory forum would resolve this problem as it wouldn't have any 'teeth'.
96. The Civil Defence and Emergency Management Act requires management of natural hazards by local authorities and lifeline providers. These groups are already interacting via the Civil Defence Emergency Management Group and may be the most logical place to establish a long-term hazards forum.
97. Discussions with Shane Bayley, Civil Defence Emergency Management Officer at Horizons, confirms that a long-term planning forum for hazard management would be valuable. To this end Mr Bayley will be putting the suggestion to a Civil Defence Emergency Management

Group workshop on the 16th of June. One benefit of implementing such a forum via the CDEM Group is that it will take into account all hazards rather than just natural hazards.

98. I will report back to the Panel on the outcome of the HEM Group workshop in my closing report.

Question (v)

99. The use of the word 'subsidence' in the CDEM Group Plan encompasses land slippage and other forms of earth movement. Much of the work related to mapping and hazard investigation will be undertaken in conjunction with the CDEM Group Plan and consistency between the two is appropriate.

100. I am not aware of the word 'subsidence' being used elsewhere in the POP, however 'slipping' is used in the Land chapter.

101. S106 of the RMA includes a mix of terms: '*erosion, falling debris, subsidence, slippage...*'. None of those terms are defined individually in the RMA.

102. While the POP is an RMA document and should use terms consistent with the RMA where possible, my preference is to maintain the close relationship with the CDEM Group Plan terminology to promote a consistent approach to hazard management.

Question (vi)

103. Mr Blackwood has significant experience in coastal hazards and will explain the distinguishing factors of storm surge in comparison with other inundation-generating events.

Presentation of flood hazard technical evidence

104. Presentation of technical evidence by Mr Blackwood.

Phillip Percy

8 June 2009