

**IN THE MATTER** of the Resource Management Act 1991

**AND**

**IN THE MATTER** of Hearing 27: Natural Hazards & Climate Change  
of the Proposed Waikato District Plan

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**STATEMENT OF EVIDENCE OF JAMES GARY BEBAN AND SARAH NERINE GUNNELL**

**For the Waikato Regional Council**

**DATED 15 April 2021**

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## 1. Introduction

1.1. This evidence has been prepared jointly by James Gary Beban and Sarah Nerine Gunnell on behalf of the Waikato Regional Council (WRC).

1.2. James Beban is a Director of Urban Edge Planning and has 16 years of experience as a resource management planner. James holds a Bachelor of Science Degree (Hons) from Victoria University, Wellington, which was completed in 2002. James specialises in land use planning for natural hazards and has co-authored a number of research papers and best practice guidance on this matter. These include:

- National guidance on risk-based planning – GNS publications
- National guidance for land use planning for tsunami – GNS publication.

1.3. James has also been involved in the preparation of a large number of natural hazard plan changes including:

- Plan Change 42 – Mangaroa River and Pinehaven Stream Flood Hazards - Upper Hutt City Council
- Proposed Natural Hazards and Coastal Hazards Chapters – Porirua City District Plan
- Proposed Natural Hazards and Coastal Hazards Chapters – Wellington City District Plan
- Proposed Natural Hazards and Coastal Hazardous Chapters – Waimakariri District Plan.

1.4. Sarah Gunnell has over 13 years of experience as a resource management planner, and is currently a Senior Planner with Urban Edge Planning, with a focus on land use planning for natural hazards. She has a Master of Resource and Environmental Planning (Hons) from Massey University, and Master of Science (Geography) with a coastal specialisation from the University of Auckland. She is currently an Intermediate member of the New Zealand Planning Institute. She has previously been employed by GNS Science, where her work included delivery of:

- National guidance for land use planning for tsunami.
- Research and guidance on land use planning for slope instability (including the application of an Annual Individual Fatality Risk metric).

- Research into the application of the risk-based approach in the Bay of Plenty Regional Policy Statement.
- Workshops on the translation of science into land use planning.

1.5. We confirm that we both have read the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2014 and that we have complied with it when preparing this report. Other than when we state that we are relying on the advice of another person, this evidence is within our area of expertise. We have not omitted to consider material facts known to us that might alter or detract from the opinions that we express.

## **2. Scope of evidence**

- 2.1. Our evidence is given on behalf of Waikato Regional Council (WRC).
- 2.2. The submission made by WRC addressed a number of aspects of the Proposed Waikato District Plan (PWDP) that relate to the management of natural hazard risk and climate change, both in support and opposition, with numerous amendments requested. These were to ensure that the proposed provisions were aligned with the Waikato Regional Policy Statement (WRPS), in particular Chapter 13 Natural Hazards.
- 2.3. We were not involved in the preparation of the WRC submission, dated 22 September 2020, or in the preparation of the further submission, dated 14 December 2020.
- 2.4. We have read the following documents in the preparation of this evidence:
- Draft Waikato District Plan Natural Hazards and Climate Change Chapter
  - Waikato Regional Council Submission
  - Waikato Regional Council Further Submission
  - Section 32 report – Natural Hazards
  - Section 42A report Hearing 27B – Objectives, Policies, and General Submissions
  - Section 42A report Hearing 27C – Flood Hazards
  - Section 42A report Hearing 27D – Coastal Hazards
  - Section 42A report Hearing 27E – Subsidence, Liquefaction, and Other Hazards

- Section 42A report Hearing 27F – Fire, Climate Change, and Definitions
- 2.5. Our evidence reinforces the WRC submission and reflects our professional opinions as resource management practitioners, with expertise in the area of natural hazards management.
- 2.6. The focus of our evidence is on:
- Ensuring that risk is avoided in high risk areas and managed in lower risk areas;
  - The inclusion of “natural hazard sensitive land uses” to better enable assessment of changes in risk profile associated with changes in land use;
  - Residual risk in Defended Areas is adequately considered in policy and decision-making;
  - Recognition of low probability, high consequence natural hazard events; and
  - Ensuring a consistent approach to various use and development outcomes through the policy and rule framework.

### **3. Summary of evidence**

- 3.1. WRC is supportive of the risk-based approach taken by the PWDP, including the need for mitigation and adaptation in areas subject to natural hazards that have already been developed, in order to reduce existing risk.
- 3.2. Overall, WRC seeks amendments to better reflect and more clearly identify the outcome sought for the district in relation to natural hazard risk, being that development is avoided in areas of high risk, and is managed in areas of lower risk. This also provides for better recognition of high consequence, low probability natural hazards (e.g. tsunami, liquefaction), residual risk and climate change.
- 3.3. It is noted that there is a high degree of overlap between the provisions that address high risk flood hazard areas, and areas at high risk from coastal hazards. As much as possible in the following evidence the submission points are addressed in relation to the s42A report that the recommendations have been predominantly discussed under.

#### **4. Hearing 27B - Objectives, Policies and General Submissions**

- 4.1. WRC is generally supportive of the amendments proposed by the Reporting Officer that seek to improve cross referencing, and relocation of provisions to improve navigation of the plan.
- 4.2. WRC provided data and technical input as well as made a comprehensive submission in relation to the proposed District Plan maps. We accept the recommendations made by the Reporting Officer, and note that WRC continues to work with Waikato District Council (WDC) in relation to this matter.
- 4.3. WRC sought clarification of whether high hazard areas are to be considered as primary hazard zones, which are areas considered by the WRPS as situations where the existing risk to life, property, or the environment from natural hazards is considered to be intolerable. Policy 13.1.2 of the WRPS states that WRC will help to identify primary hazard zones in consultation with key stakeholders and affected communities, and these shall be recognised and provided for in regional and district plans.
- 4.4. The Reporting Officer rejected the inclusion of any reference to primary hazard zones into the PWDP, taking the position that the WRPS has sufficient information about the use of the terms associated with 'hazard risk' and that it is not necessary to duplicate the WRPS. WRC maintains its position that it would like to see amendments to the PWDP to clarify the relationship between the high hazard areas as identified in the PWDP and primary hazard zones as defined in WRPS, to aid in the implementation in of the WRPS. This approach is consistent with the WRPS Implementation Practice Note, which is attached as Appendix 1 to this evidence.
- 4.5. The WRC submission sought a number of amendments to strengthen consideration of low probability, high likelihood natural hazards. While it is agreed with the Reporting Officer that the amendments proposed to Paragraph 7 of the Introduction section by WRC change the intent of the statement, WRC reiterates that it is misleading to state that less frequent natural hazards in the Waikato District may not need a district plan response. For example, land use planning can have an active role in managing tsunami hazard. An example of this is provided by the proposed District Plan of Porirua City Council in the Wellington Region, where probabilistic modelling has enabled the identification of high, medium and low risk tsunami inundation zones. The relief sought is that new Policy 15.2.1.6A is accepted as proposed.
- 4.6. Amendments were also sought to ensure that activities in all areas at potential high risk from hazards are able to be adequately assessed, not just in those areas that are currently identified

and mapped by the PWDP. This is in recognition that there are areas in the district where it is known that there is a degree of risk present, but formal modelling, assessment and identification has yet to be undertaken (e.g. local catchment flooding that has not been modelled and therefore not mapped), and to ensure that development is not permitted to occur without some degree of assessment of the natural hazard risk posed, and taking into account the projected effects of climate change. WRC's submissions on this point, including amendments to Policies 15.2.1.1, 15.2.1.2 and 15.2.1.6, have been rejected.

- 4.7. We do not agree with the Reporting Officer that where these areas are not identified by the technical reports upon which the s32 report is based there is no scope for a regulatory response in the District Plan. It is considered that the same approach that has been applied to liquefaction and land instability, where scientific information on those areas susceptible to these hazards is lacking, can be applied to enable consideration of risk outside of mapped areas. As further research is conducted and areas at risk from natural hazards are identified, these can be introduced in to the District Plan and maps through a Schedule 1 process.
- 4.8. WRC seeks the relief that the proposed amendments to Policies 15.2.1.1, 15.2.1.2 and 15.2.1.6 be accepted, to ensure that plan users understand that there are areas outside of those identified in the PWDP that may be subject to a high level of risk, and that where these areas are known to Council, that a higher degree of assessment will be required.
- 4.9. The management of residual risk in Defended Areas is a key issue for WRC, to ensure that natural hazard risk is not increased to unacceptable or intolerable levels. WRC's submission sought to include residual risk as an economic challenge under Section 1.4.2.3. This is in recognition of the costs and tenure of defences associated with Defended Areas. This was rejected by the Reporting Officer who considers that 'residual risk' is encompassed by 'natural hazards'. While residual risk is a form of natural hazard risk, it is not in and of itself a natural hazard. The overriding public perception is that development in Defended Areas is at low, or no, risk. However, the social and economic consequences of a failure in natural hazard defences can be severe, as demonstrated by the failed stopbank in Edgecumbe in 2017. WRC seeks that the amendments to Section 1.4.2.3 are accepted.
- 4.10. It is noted that the amendments sought in relation to planning for future growth to give greater effect to Policy 13.2(e) and (f) of the WRPS that refer specifically to the avoidance and discouragement of the use of protection works were accepted in part, to include the following wording in Chapter 1.5.2(b) (planning for future urban development): "the future demand for

protection works associated with natural hazard risks or an increase of the level of service for existing infrastructure is taken into account”. WRC supports this recommendation.

- 4.11. WRC submitted to change Policy 15.2.2.2 so that ‘consideration of’ community response plans was required, as opposed to ‘awareness of’. The Reporting Officer rejected the submission point on the basis that the intent of the policy was to encourage people to be aware of community response plans, rather than imposing any regulatory requirements. Community response plans can provide valuable information on evacuation routes, congregation points and designated civil defence centres, and WRC maintains that the stronger directive of ‘consideration of’ is appropriate. This will also help to achieve Objective 15.2.1 – Resilience to natural hazard risk while strengthening the relationship between Civil Defence actions and RMA planning.

## **5. Hearing 27D - Coastal Hazards**

### Natural Hazard Sensitive Land Uses

- 5.1. A key submission point by WRC was the inclusion of a definition and policies addressing ‘natural hazard sensitive land uses’ in areas identified as being subject to high risk from coastal inundation and erosion (as well as flooding). Natural hazard sensitive land uses are those activities that are significantly impacted by natural hazard events, either because they contain vulnerable populations, or because they have a post-disaster function. WRC considers that the inclusion of policy direction which more specifically manages activities that are more sensitive to natural hazards, and where people are more susceptible to the effects associated with natural hazard events, will increase resilience and may better enable effective and efficient response and recovery from natural hazard events (Objective 3.24 of the WRPS).
- 5.2. It is WRC’s position that by including consideration of land uses that are sensitive to natural hazards, this provides a more directive and comprehensive approach to the management of natural hazard risk. While the proposed objectives and policies of the PWDP include consideration of people’s safety, well-being and property, the rules concentrate on managing the construction of new buildings and additions to existing buildings. While it is noted that matters of discretion for Rules 15.7.2 RD1 and 15.8.2 RD1 include consideration of the “adverse effects to people and property and overall vulnerability from the establishment of the new buildings or additions to an existing building...”, there are no rules that explicitly give effect to Policy 15.2.1.2 to require the consideration of the effects of a change in land use to an activity that is more sensitive to natural hazards. This means that under the current rule framework an existing residential dwelling in a High Risk Coastal Area could be converted into a childcare



centre as a permitted activity (provided no additions were proposed), without the need to consider the corresponding increase in natural hazard risk.

- 5.3. In response to the further submissions received on this matter, WRC considers that a compromise may be to remove residential activities, including papakaainga and home stays, from the definition of 'natural hazard sensitive land use. This will ensure that activities that are most sensitive to the impacts of natural hazards, including retirement villages and childcare facilities, are not established in areas at risk from natural hazards without appropriate consideration of the social, cultural and economic effects.
- 5.4. The relief sought is that new Policies 15.2.1.2A and 15.2.1.2B and new non-complying rules (NC4) at 15.9.3 and 15.10.3 (and 15.5.4 in relation to the High Risk Flood Area) are accepted. It is noted that if the panel choose to accept the WRC submission in relation to this matter, an amended definition of 'natural hazard sensitive land use' will also need to be accepted, as discussed in Section 8.30 of this evidence, in relation to the s42A report for Hearing 27F.

#### Infrastructure and Utilities

- 5.5. The topic of infrastructure and utilities in areas subject to natural hazards was split across Hearing 27B (Objectives, Policies and General) and Hearing 27D (Coastal). Council's Reporting Officers have sought to reject all submissions made by WRC on this matter. However, an important policy gap has been identified where Policy 15.2.1.4 provides for new infrastructure and utilities in areas subject to significant risk from natural hazards, and Policy 15.2.1.5 provides for existing infrastructure and utilities in all hazard areas. However, there is no policy provision for new infrastructure and utilities in all natural hazard areas beyond those where a significant risk is identified, which appear to be enabled through the current rule framework in the notified provisions of Chapter 15, including under Rule 15.4.1 P5 in the Flood Plain Management Area and Flood Ponding Areas, and Rules 15.7.1 and 15.8.2 in the Coastal Sensitivity Areas (Erosion, Open Coast, Erosion and Inundation).
- 5.6. However, further to this point, WRC submitted that a new restricted discretionary rule should be included at 15.7.2 and 15.8.2 to address the construction of new infrastructure and utilities including associated earthworks in the coastal sensitivity areas, and the permitted activity rules at 15.7.1 P3 and 15.8.1 P3 be amended so that they do not apply to new construction.
- 5.7. In response, the Reporting Officer firstly rejected the inclusion of the term infrastructure into the rule framework, explaining that it was specifically excluded from Chapter 15 due to the

broad nature of the definition in Chapter 13. The definition of 'utility' in Chapter 15.14 was specifically developed so that certain utilities can be provided for with the rules for Chapter 15. WRC accepts this position, and that associated earthworks can be managed by the underlying zone rules.

- 5.8. Further to this point, the Reporting Officer is of the position that the construction of new utilities in the coastal sensitivity areas does not pose a high risk as these areas are currently not at risk. The Reporting Officer further notes that feedback from the utilities service providers on the draft Proposed District Plan was that prior to the development of any new utilities, the risk to the development is fully assessed. Whilst I expect that utilities providers will indeed undertake a full cost benefit analysis of the proposed locations of new infrastructure, by permitting new infrastructure in coastal areas sensitive to the future impacts of climate change and sea level rise, WDC is basically saying that this type of activity is appropriate in these areas. This is not a precautionary approach as directed by Policy 15.2.3.3, and does not give effect to Objective 15.2.1. It is pertinent to avoid the legacy issues that we are currently dealing with at the coastal edge. Therefore, it remains the position of WRC that a restricted discretionary activity status is more appropriate for new utilities in the Coastal Sensitivity Areas, and that the wording of new rule proposed should be accepted, with the following amendment to remove the word 'infrastructure', and the reference to earthworks:

*~~"New infrastructure and utilities, including any associated earthworks."~~*

...

3. *the management or regulation of other people and property required to mitigate natural hazard risks resulting from the location of the ~~infrastructure~~ utilities."*

- 5.9. Related to this matter, WRC also sought that Policy 15.2.1.3 be amended to include the term 'critical community infrastructure'. No recommendations on this submission point were found in the Hearing 27 s42A reports. However, it is considered that the definition for 'utility' adequately covers those services sought to be covered by the term 'critical community infrastructure'. Given this, and in light of the discussion above in relation to the terms infrastructure and utilities, it is considered that the submission point is adequately addressed by Policy 15.2.1.4, and Rules 15.9.2 D5 and 15.10.2 D4, and this point is no longer pursued.

### Beach Nourishment and Dune Stabilisation

- 5.10. WRC sought new rules to provide for beach nourishment and dune stabilisation in the Coastal Sensitivity Areas and High Risk Coastal Areas as a permitted activity subject to activity specific conditions, and a discretionary activity where these conditions are not achieved. The proposed wording for new definitions for these activities were also suggested, to distinguish between the earthworks provisions, and those relating to beach nourishment and dune stabilisation. The amendments were sought to ensure that maintenance and enhancement of natural defences will be promoted through the plan in accordance with Policy 13.2(f) of the WRPS and Policy 15.2.1.7 of the PWDP.
- 5.11. The Reporting Officer rejected the proposed rules and definitions, and noted that beach nourishment of any significant scale would be a restricted discretionary activity under the applicable earthworks rules. She suggested that any new rules for these activities should be considered through a resource consent process as a controlled activity at a minimum.
- 5.12. WRC is in agreement with this suggestion, and notes that the Waikato Regional Coastal Plan regulates beach nourishment below Mean High Water Springs (MHWS) as a controlled activity. Therefore, the relief sought is that appropriate matters of control are drafted to support beach nourishment and dune stabilisation as controlled activities.

### Hazardous Facilities

- 5.13. WRC sought new rules for hazardous facilities that would make them a discretionary activity in Coastal Sensitivity (Erosion and Open Coast) and (Inundation) Areas and High Risk Coastal Hazard (Erosion) and (Inundation) areas. The Reporting Officer has accepted the proposed amendments, which WRC supports.

### Further Submissions

- 5.14. WRC lodged further submissions in opposition to the submissions made by Vianney Friskney and Dominic Friskney (submission point 2077.1) who sought the deletion of Section 15.8 (Coastal Sensitivity Area (Inundation)) in its entirety, Maria Timmermans (submission point 2063.2) who sought the deletion of Section 15.9 (High Risk Coastal Hazard (Erosion) Area) in its entirety, and Sally Lark (submission point 2111.1) (High Risk Coastal Hazard (Inundation) Area) who sought the deletion of Section 15.10 in its entirety. We are in agreement with the

recommendation of the Reporting Officer to reject these submissions, as it is necessary to impose regulatory controls in these areas to achieve Objectives 15.2.1 and 15.2.3.

- 5.15. WRC lodged a further submission in opposition to the submissions by Federated Farmers (submission points 2173.63 & 68) and others who sought to amend Rules 15.9.1 P1 and 15.10.1 P1 to remove the requirement for a farm building within the High Risk Coastal Hazard (Erosion) and (Inundation) Areas to have no floor. WRC agrees with the position of the Reporting Officer that the requirement for buildings to have no floor restricts the use of the buildings, and will ensure that they are not used for more vulnerable activities such as residential accommodation. The economic aspect to the requirement is also noted, as the financial investment (and therefore exposure) for a building with no floor will be considerably reduced.
- 5.16. It is also appropriate to restrict the floor area of additions to any buildings (not just habitable buildings) that can occur as a permitted activity under Rule 15.8.1 in the Coastal Sensitivity Area (Inundation) to ensure that risk is not unacceptably increased by the permitted standard, and that adequate assessment of any building greater in area that this can occur. WRC agrees with the Reporting Officer's recommendation to reject the submissions by Maria Timmermans, Federated Farmers, and Steve and Jan Godley in this matter.
- 5.17. WRC lodged a further submission in opposition to the submission by Rangitahi Limited (submission point 2115.7) that would permit the construction of, and additions to, buildings and associated earthworks in the High Risk Coastal Hazard (Erosion) Areas where the activities are in accordance with technical reports approved by council through resource consents. WRC agrees with the rationale and recommendation of the Reporting Officer to reject the submission by Rangitahi Limited.
- 5.18. WRC lodged a further submission opposing the submission by Federated Farmers (submission point 2173.67) that sought to amend Rule 15.9.2 D3(1) so that the rule only applies to habitable buildings in the High Risk Coastal Hazard (Erosion) Area, and non-habitable buildings are excluded. WRC agrees with the Reporting Officer's recommendation that the rule as proposed is appropriate, and gives effect to Policies 15.2.1.1 and 15.2.1.2, which seek that any increase in risk to people's safety, wellbeing and property is avoided.
- 5.19. The Reporting Officer has recommended that Rule 15.9.2 D3(b) be amended to remove the requirement for the building to be constructed on a suspended timber floor to address an anomaly in the rules where a non-habitable building may need to be assessed under a more stringent consenting pathway. The change will provide for buildings that require a floor at

ground level, such as a garage, as a discretionary activity, while still having to demonstrate that the building is relocatable. WRC is supportive of the proposed amendment.

5.20. WRC lodged further submissions opposing the submissions by Brent Fowler (submission point 2005.1), Hayden Vink (submission point 2168.2) and Jason Vink (submission point 2168.12), that sought for Rule 15.10.3 to be amended to allow for building in a High Risk Coastal Hazard (Inundation) Area as a restricted discretionary activity. The recommendation of Council’s Reporting Officer was to amend the rule as follows:

*15.10.2 Discretionary Activities*

<i>Activity</i>	
<i>D7</i>	<i>Construction of a new building or additions to an existing building, not provided for in Rule 15.10 P1-P2 or Rule 15.10.1 D2-D5</i>

5.21. The High Risk Coastal Hazard (Inundation) Area is an area where coastal inundation risk is already evident under current coastal conditions and sea level, with the risk expected to increase as sea level rises. It is the opinion of the Reporting Officer that the construction of new buildings or additions to existing buildings can be effectively regulated as a discretionary activity, which will allow for a full range of mitigation options to be considered, and risk to be avoided. WRC strongly disagrees with this position and finds it to be inconsistent with the ‘avoid’ directive of Policy 15.2.1.1 which states:

*Policy 15.2.1.1 – New development in areas at significant risk from natural hazards*

*(a) Avoid new subdivision, use and development where they will increase the risk to people’s safety, well-being and property in the following areas identified as being at significant risk from natural hazards:*

*(i) High Risk Flood Area;*

*(ii) High Risk Coastal Hazard (inundation) Area;*

*(iii) High Risk Coastal Hazard (Erosion) Area.*

5.22. These areas have been identified as such because they pose a risk to people’s safety, well-being and property, and a non-complying status is appropriate to signal that new subdivision, use and development in these areas is not anticipated. A non-complying pathway will still allow for the

consideration of activities under the gateway test of s104D, where it can be demonstrated that an increase in risk will not occur. However, it would generally be expected that activities within a high risk area would increase risk to people's safety, well-being and property to some degree.

- 5.23. Further, the proposed amendment is inconsistent with the rule framework that provides for the replacement and relocation of an existing building within the same site where there is no increase in the ground floor area of the building (Rule 15.10.2 D2(1)(a)). The proposed amendment would allow for a building of any size to be constructed in any location within a High Risk Coastal Hazard (Inundation) Area, making Rule 15.10.2 D2(1)(a) obsolete. It will also be inconsistent with Rule 15.9.3 NC1, that is not proposed to be amended, where the construction of a new building or additions to an existing building in the High Risk Coastal Hazard (Erosion) Area is to be assessed as a non-complying activity.
- 5.24. It is the position of WRC that the recommendation by the Reporting Officer will not adequately give effect to s6(h) of the RMA, being the management of significant risks from natural hazards, and it is requested that Rule 15.10.3 be retained as notified.
- 5.25. Further, WRC also opposed the submission by Tainui Hapu Environmental Management Committee and Tainui o Tainui Charitable Trust (submission points 2097.6 & 7) that sought to amend Rule 15.7.2 to permit developments that meet the criteria for restricted discretionary activities in the Coastal Sensitivity Area (Erosion) and (Open Coast) and Rule 15.10.3 to permit new buildings in the High Risk Coastal Hazard (Inundation) Area when an appropriate adaptive management plan is in place. In relation to the submission on Rule 15.7.2, it is the opinion of WRC that a restricted discretionary status is appropriate, as there would need to be an assessment of the adequacy of measures proposed to address the matters of discretion, which a permitted activity status would not allow for. The proposed changes to Rule 15.10.3 are inconsistent with Policy 15.2.1.1. While the Reporting Officer has rejected the submissions, she has invited further evidence on how the adaptive management planning framework would work within a permitted activity framework. It strongly reiterated that the position of WRC is that development should be avoided in high risk areas, as it does not meet the sustainable development purpose of the RMA or provide for s6(h) matters.

## **6. Hearing 27C - Flood Hazards**

### **15.1 Introduction**

6.1. WRC sought to amend paragraph 10 of the Introduction to provide greater clarity around how high flood risk areas have been identified. This suggested change has been supported by the Reporting Officer, and we are in agreement with the position that she has reached on this matter.

### **15.1 Introduction - Further submission**

6.2. WRC's further submission opposed the submission from Dilworth Trust Board (submission point 2162.2) and Ports of Auckland (submission point 2139.2) seeking the deletion of that part of the definition of Flood Ponding Area applying outside of the planning maps. This is due to there being areas that experience ponding in a 1% AEP rainfall event that have not been mapped within the District Plan. This submission position by WRC has been supported by the Reporting Officer, and we are in agreement with the position that she has reached on this matter.

### **15.2 Objectives and Policies**

#### **Policy 15.2.1.10**

6.3. WRC sought changes to Policy 15.2.1.10 to allow for a change in land use activities in the Defended Areas. It is recognised that the Defended Areas are a lower hazard area by the virtue of the flood defence measures. The majority of these requested changes have been rejected by the Reporting Officer. WRC has further recommended a change to the rule framework to allow for a more considered assessment within the defended area (see paragraphs 6.39 - 6.43) . WRC is of a view that if this amended rule framework is accepted, with the associated Matters of Discretion, then WRC can accept the findings of the Reporting Officer in relation to Policy 15.2.10.

#### **Policy 15.2.1.12**

6.4. WRC sought extensive changes to Policy 15.2.1.12. Several of the requested changes pertaining to removing the reference to Waikato and Waipa River have been accepted and we are in agreement with the Reporting Officer on this matter.

6.5. However, there remain several areas where we are in disagreement with the recommendations of the Reporting Officer. The main area of disagreement relates to WRC's position and request

to extend the scope of the policy beyond just buildings and to also include the consideration of subdivision which may be located within the 1% AEP Floodplains.

- 6.6. The Reporting Officer has stated that this suggested change is not supported as this policy is intended to only apply to buildings. Method 13.2.6 of the WRPS applies to subdivision, use and development in the 1 % AEP Flood Extent, and requires a detailed consideration of the levels of risk and how on-site and off-site effects are being addressed. By limiting the consideration of the proposed policy to buildings only, there would be no policy direction within the District Plan that would apply to subdivisions within the 1% AEP Ponding Area. This would result in a potential policy gap, meaning that the District Plan is not giving full effect to Method 13.2.6 of the WRPS. Expanding the policy to include subdivisions is the most effective and efficient way to give effect to Method 13.2.6 of the WRPS and ensures there is consistent consideration of both - the process which create building platforms (subdivisions) and the construction of buildings themselves.
- 6.7. It is important to note that from a practical implementation perspective it is often more appropriate to provide for and integrate flood mitigation measures at the subdivision stage as opposed to when future dwellings are constructed. This is often a requirement under Section 106 of the RMA, and by broadening Policy 15.2.1.12 to include subdivision, it provides helpful context and guidance to resource consent planners around what physical measures are expected in a subdivision to manage the associated flood risk from developing in a 1% AEP Floodplain.
- 6.8. WRC also seeks to replace the word 'reduce' at the beginning of the policy with the word 'mitigate'. While the overall net effect is likely to be the same, ensuring floor levels are above the 1% AEP floodplain is a form of mitigation. Furthermore, the word mitigate is consistent with the wording in Method 13.2.6 (iv) of the WRPS and section 31(1)(b)(i) of the RMA. While this is not a significant issue for WRC, it is considered that the word mitigate better aligns with the intended outcome that the increased floor levels are achieving as well as the wording in the WRPS and the RMA.
- 6.9. WRC is also seeking to include the consideration of 'natural hazard sensitive land uses' to the policy. 'Natural hazard sensitive land uses' are those activities that are significantly impacted by natural hazard events, either because they contain vulnerable populations, or because they have a post-disaster function. These land use activities are distinct in their nature and it is



important that additional consideration is given to the change in risk that occurs, when these activities are established within areas impacted by natural hazards.

- 6.10. It is important to recognise the nuance that is being sought by the requested change to the policy. This requested change would provide for the consideration of the change in use of existing buildings, rather than just the construction of new buildings. This assists with closing a loophole, where activities could seek to establish themselves in existing buildings (for example a childcare centre, which may not require the construction of a new building), as a permitted activity, without the need to consider the corresponding natural hazard risk.
- 6.11. The Reporting Officer considers that if this policy is required then this is not the correct position for the policy response.
- 6.12. The relief sought by WRC is to include references to subdivision and to natural hazard sensitive activities into this policy, as outlined above. This will ensure that the policy comprehensively addresses all activities that could occur in the 1% AEP floodplain and flood ponding areas. The requested broadening of the policy ensures that the district plan does not remain silent on subdivision and natural hazard sensitive activities. I disagree with the Reporting Officer and I believe that it would assist plan users by having all activities relevant to the 1 % AEP floodplain and flood ponding areas in the one policy.
- 6.13. WRC proposes the wording for Policy 15.2.1.12 to be as follows (recognising and including the changes suggested by the Reporting Officer):

*Policy 15.2.1.12 - Managing flood risk for subdivision, use and development located in the 1% AEP floodplain and flood ponding areas*

*(a) Mitigate the potential for flood damage to buildings located in 1% AEP floodplains and flood ponding areas by ensuring that the minimum floor level of building development is above the design flood levels / ponding levels in a 1% AEP flood event, plus an allowance for freeboard, unless:*

- (i) the building is of a type that is not likely to suffer material damage during a flood; or*
- (ii) the building is a small-scale addition to an existing building; or*
- (iii) the risk from flooding is otherwise avoided, remedied or mitigated.*

- (b) The establishment of new natural hazard sensitive activities and changes of use to accommodate natural hazard sensitive land uses are assessed and mitigations are provided to ensure that risks to people and property are managed to acceptable levels.*

Policy 15.2.1.13

6.14. WRC sought amendments to Policy 15.2.1.13 to recognise that structures can also have an impact on flood storage capacity, overland flows, runoff volumes. The policy as currently worded only recognises the impact of filling. WRC recognises that the inclusion of buildings into Policy 15.2.13 is somewhat awkward as it is principally worded to address earthworks. Furthermore, it is recognised that some of the concerns raised within the submission are addressed in Policy 15.2.1.15, and therefore WRC is no longer seeking a change to Policy 15.2.1.13.

Policy 15.2.1.14

6.15. WRC sought amendments to Policy 15.2.1.14 pertaining to hazardous facilities. The report officer has suggested two alternative policies in relation to the submissions received. WRC preference is for the following policy wording:

*Policy 15.2.1.14 – Hazardous substances located within floodplain and flood ponding areas*

- (a) Ensure that the location, and storage of hazardous substances within areas affected by natural hazards are managed to prevent unacceptable risks to people, property, infrastructure or the environment.*

6.16. This wording ensures a consistent approach to hazardous facilities in all natural hazard areas. We also consider that this preferred policy wording is consistent with Methods 13.2.6, 13.2.8 and 13.3.1 of the WRPS.

Policy 15.2.1.15

6.17. WRC supported Policy 15.2.1.15 and sought a number of amendments to assist with the clarity of this policy. For the most part these recommendations (or variations thereof) have been accepted by the Reporting Officer and WRC is in agreement with the recommended changes.

6.18. Within the original submission, WRC sought to change the policy so that the Waikato Stormwater Management Guideline and the Regional Infrastructure Technical Specifications were not codified in the policy via reference. The Reporting Officer has rejected this submission point. WRC is now of a position that it is comfortable if these guidelines and specifications are referenced in the policy, and therefore there is no disagreement with the Reporting Officer on this point.

#### **15.4 Flood Plain Management Area and Flood Ponding Areas**

##### **Rule 15.4.1**

6.19. WRC sought the removal of P7 from Rule 15.4.1. This rule would provide for earthworks to create a building platform as a permitted activity, and the only standard that would need to be complied with would be the height of these earthworks as identified in Rule 15.4.1 P1(a). WRC's recommendation has been rejected by the Reporting Officer on the basis that the displacement effects of flood waters are addressed by the Building Act 2004 process.

6.20. WRC disagrees with the Reporting Officer on this matter. The proposed rule as it is currently worded is open to interpretation as to what constitutes a building platform. Does it include the drive on access, outside amenity area (to allow for paved patios, and low level decking), or is it just the area primarily under the dwelling? Given the openness of this rule for interpretation, there is the potential for large areas of earthworks to occur on sites, which could displace floodwaters or increase flood depths on surrounding properties.

6.21. I would also note that such an open rule for filling for building platforms appears to be contrary to the outcomes sought under Policy 15.2.1.13, which specifically seeks to control filling of land within the 1% AEP flood plain and flood ponding areas to ensure that adverse effects on flood storage capacity, overland flows, and run-off volumes on surrounding properties and infrastructure are avoided or mitigated. The permitted activity status does not allow for this policy direction to be achieved.

6.22. It is WRC's position that it would be appropriate for this rule to be removed and for earthworks within the 1 % AEP flood plain and flood ponding areas to be controlled by Rule P8. It is considered that the limits prescribed in P8 allow for an appropriate level of earthworks to occur on the site, but not at a level that would prevent the directive of Policy 15.2.1.13 being achieved.

- 6.23. I also note that WRC's position on this matter does not prevent buildings from being a permitted activity within 1% AEP floodplain and flood ponding areas (i.e. WRC position does not fundamentally change the framework of the District Plan). If an applicant wanted a building to be permitted, and they did not want to trigger the need for resource consent for earthworks under Rule P8, they could look at alternative foundation design such as placing the building on piles.
- 6.24. WRC sought further controls for permitted activities under Rule 15.4.1 to ensure that the impacts of structures on the function of the 1 % AEP floodplain and flood ponding areas can be managed. Upon further review, it has become apparent that this could be difficult to achieve within the context of the existing rule framework. It is also recognised that the proposed changes sought to the earthworks provisions as outlined above, would go some way towards addressing this submission point, as earthworks are likely to have a significant impact on maintaining the function of the 1 % AEP floodplain and flood ponding areas. As such, this submission point is no longer pursued given the removal of Rule P7 that WRC is seeking.

#### Rule 15.4.3

- 6.25. WRC sought the addition of two new discretionary activities under Rule 15.4.3 pertaining to 'emergency or critical community service activities' and 'natural hazard sensitive activities'. These recommendations have been rejected by the Reporting Officer. For the reasons outlined below WRC is still seeking the addition of these rules to the framework.
- 6.26. The proposed rule framework as notified is outlined below
- Rule 15.4.1 – P1 - allows for the construction of new buildings as a Permitted Activity where the condition for minimum floor level is met.
  - Rule 15.4.3 - D1 – provides for buildings as a Discretionary Activity where rule 15.4.1 is not complied with.
- 6.27. The proposed approach means that all new buildings are permitted, if they meet the minimum floor level. However, due to the nature of emergency service facility, and natural hazard sensitive activities, there needs to be a wider consideration beyond whether the building is above the 1% AEP flood level. In particular, consideration needs to be given to
- the evacuation of these buildings

- the ability to access the community post disaster (particularly important for emergency facilities and health care facilities)
- the general health and well-being of occupants (for example children and rest homes contain vulnerable communities).

The current framework does not provide for these considerations and in some instances, even if the building is above the 1% AEP flood level, it may not be appropriate for these activities to be established in a flood zone.

- 6.28. International experience has also shown that people, who would otherwise have been safe from a natural hazard event, will put themselves in harm's way if there is an immediate threat to family. This is particularly relevant for children, where parents will attempt to collect them and return them to their home during a natural hazard event (for example a number of parents died trying to rescue their children from the tsunami zones in Japan, even though the children had been safely evacuated). By having an elevated consent status for natural hazard sensitive activities and emergency service facility (and a supporting Policy 15.2.1.12), this allows for a more robust consideration around the risk and appropriateness of these activities being established within the 1 % AEP floodplain and flood ponding areas.
- 6.29. It is also recognised that the proposed rule framework as notified does not allow for the consideration of change in use in existing buildings. The proposed new rules sought by WRC would allow for the consideration of the conversion of existing buildings, within the 1 % AEP flood plain and flood ponding areas, where these buildings may not have been designed for the natural hazard risk.
- 6.30. In seeking this relief, WRC considers that the proposed additional rules would give effect to Policy 13.2 and Method 13.2.6 of the WRPS. In particular, the proposed framework would allow for the consideration of the risk associated with establishing more sensitive activities within the 1 % AEP flood plain and flood ponding areas, and would allow for a determination of whether this risk is acceptable.
- 6.31. On the basis of the above, WRC is still seeking the inclusion of the following discretionary activity rules:

### 15.4.3 Discretionary Activities

Activity	
D4	Emergency service facility
D5	Natural hazard sensitive land uses

#### Rules 15.4 - Further Submissions

6.32. WRC made a further submission against the relief sought by Federated Farmers (submission point 2173.38) opposing their request to provide for all accessory buildings within the Flood Plain Management Area or in a Flood Ponding Area as permitted activities. The reason for this opposition is that generally speaking, accessory buildings and farm buildings without floors, are less substantial buildings and are likely to contain activities that are less vulnerable to the impacts of flooding than those with floors. Rule P4 allows for accessory buildings and farm without floors as a permitted activity, with no conditions pertaining to minimum floor levels. This is considered appropriate by WRC due to the nature of the activities in these buildings. If this rule was expanded to allow for floored accessory buildings and farm buildings to be constructed in the Flood Plain Management Area or Flood Ponding Area, without any consideration of the flood hazard, then there is the potential for significant impacts on future activities within these buildings. It is WRC position that the wording of Rule P4 as notified should remain unchanged. We note that this is the position of the Reporting Officer and, therefore, we agree with her recommendation.

6.33. WRC opposed the submission point from Dilworth Trust Board (submission point 2161.9) pertaining to amending Rule 15.4.2(a) to only relate to the mapped extents of the Flood Plain Management Area or the Flood Ponding Area. This submission point has been rejected by the Reporting Officer and WRC agrees with this position and supports the proposed revised rule wording as outlined in paragraph 273 of the officer's report.

#### 15.5 High Risk Flood Area

6.34. WRC sought the retention of the High Risk Flood Areas as notified with some minor changes. We recognise that the Reporting Officer has largely accepted WRC submissions on these matters and we support the position reached by the Reporting Officer.

6.35. Within the submission, WRC sought the inclusion of a new permitted activity condition to Rule 15.5.1 P1. This has been rejected by the Reporting Officer due to not being able to measure

compliance with the suggested standard. We have been unable to clarify this permitted activity condition further and therefore no longer seek to include this standard to the rule framework.

6.36. WRC recognises that new buildings, and additions to existing buildings within the High Risk Flood Area, are non-complying activities. However, WRC is still seeking to include natural hazard sensitive land uses as non-complying activities. This is to address those instances where there may be a conversion of an existing building to accommodate or establish one of these more vulnerable activities.

6.37. The proposed WRC rule wording that WRC is seeking is as follows:

*15.5.4 Non-Complying Activities*

<i>Activity</i>	
<i>NC4</i>	<i>Natural hazard sensitive land uses</i>

Further Submissions

6.38. WRC made a further submission that opposed those submissions that sought to relax the rule framework in relation to buildings. We recognise that the Reporting Officer has largely accepted WRC's submissions on these matters and we support the position reached by the Reporting Officer.

**15.6 Defended Areas**

6.39. WRC sought further controls within the Defended Areas, where there is residual risk arising from stopbank failure. The Reporting Officer has largely rejected the proposed changes that were sought, but identified within their report that no rule wording was put forward for consideration.

6.40. The rule framework as it is currently worded has a significant shortfall. Within the Defended Area, all activities are permitted, unless they are otherwise identified as a restricted discretionary or discretionary activity. However, only certain activities have been identified as restricted discretionary or discretionary, including:

- Subdivisions that create new allotments (RDIS).
- Construction of new buildings within 50m of the toe of the stopbank (DIS); and

- Earthworks within 50m of the toe of the stopbank (DIS).

6.41. The inclusion of subdivisions that create vacant allotments, shows that there is a clear intent to ensure that development within the Defended Areas is designed to manage the residual risk. This is supported by the wording of Policy 15.1.1.10, which seeks to control subdivision, use and development within the mapped Defended Areas. The issue is that the rule framework as it is currently worded only addresses subdivision but not development and use as intended by the policy. This creates a loophole in that buildings can be constructed, without the need for consideration of the residual risk in these areas. This technically can allow for intensification in these areas with little or no consideration of this risk. This does not apply to subdivisions though, which can only proceed with the consideration of the residual risk.

6.42. This is however a relatively easy issue to address. This can be addressed by adding a new restricted discretionary rule to 15.6.2. This rule could be as follows:

*15.6.2 Restricted Discretionary Activities*

<b>Activity</b>		<b>Matters of Discretion</b>
<i>RD2</i>	<i>New Buildings (excluding accessory buildings or farm buildings)</i>	<p><i>Discretion is restricted to:</i></p> <p><i>(a) The actual level of service provided by the structural defence and associated flood protection works, including any change in the level of service anticipated due to climate change and sea level rise;</i></p> <p><i>(b) The impact of any planned improvements, maintenance or upgrading on the residual risk;</i></p> <p><i>(c) The effect of groundwater levels and variability in ground conditions on stop-bank security at and adjacent to the site to be developed;</i></p> <p><i>(d) The likely depth and duration of flooding as a result of a breach or overtopping event or flood ponding;</i></p> <p><i>(e) The location of the subdivision, including services such as wastewater, water supply and roading/access (including escape routes), in relation to potential breakout points (failure zone);</i></p>



		<p><i>(f) The adverse effects to people and property and overall vulnerability from potential failure or overwhelming of the structural defences and associated flood protection works relevant to the proposed new building(s);</i></p> <p><i>(g) Potential for the development to transfer/increase flood risk/residual risk to neighbouring properties;</i></p> <p><i>(h) Any additional mitigation measures proposed or site features which reduce residual risk (e.g. natural high ground; evacuation plan).</i></p>
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6.43. This proposed rule will ensure that there is a consistent approach for subdivision and new buildings (both which result in increased risk in the Defended Areas), thereby closing the loophole that exists in the rule framework and ensuring that the rule framework gives full effect to Policy 15.1.1.10. It is also considered that the proposed framework strikes an appropriate balance by allowing for lower impact activities to still be permitted (such additions to existing buildings and accessory and farm buildings), while also still managing the resulting risk.

6.44. WRC has also sought to have a new discretionary activity rule added for hazardous facilities in the Defended Area. This has been rejected by the Reporting Officer on the basis that the Defended Area is a lower hazard area, and therefore the provisions need to be more enabling in recognition of this. WRC agrees that the Defended Area is a lower hazard area, but only due to the defence that is provided by stopbanks. If these were overwhelmed or suffered a structural failure, then there is the potential for significant flooding.

6.45. As previously identified, the policy pertaining to Defended Areas seeks to control subdivision, use and development within the mapped Defended Areas. However, these intended outcomes are unlikely to be achieved by the proposed rule framework. Hazardous facilities, by their nature, have the potential to have significant adverse environmental, social and economic effects on the wider environment if they are impacted by natural hazard events. It is therefore considered appropriate that there are adequate land use planning considerations for these activities within the Defended Areas.

6.46. This approach would be consistent with Method 13.2.7 of the WRPS which requires the consideration of the impact from the overwhelming or structural failure of protection works on

activities. To appropriately address this issue, WRC amends its submission from requesting hazardous facilities to be a discretionary activity, to now requesting them to be a restricted discretionary activity. The proposed rule wording that would recognise this change would be as follows:

*15.6.2 Restricted Discretionary Activities*

<i>Activity</i>		<i>Matters of Discretion</i>
<i>RD3</i>	<i>Hazardous Facilities</i>	<p><i>Discretion is restricted to:</i></p> <p><i>(a) The actual level of service provided by the structural defence and associated flood protection works, including any change in the level of service anticipated due to climate change and sea level rise;</i></p> <p><i>(b) The impact of any planned improvements; maintenance or upgrading on the residual risk;</i></p> <p><i>(c) The effect of groundwater levels and variability in ground conditions on stop-bank security at and adjacent to the site to be developed;</i></p> <p><i>(d) the likely depth and duration of flooding as a result of a breach or overtopping event or flood ponding;</i></p> <p><i>(e) The nature of the hazardous materials stored on the site, and the resulting impacts if they were inundated;</i></p> <p><i>(f) Any additional mitigation measures proposed or site features which reduce residual risk (e.g. natural high ground; evacuation plan).</i></p>

**7. Hearing 27E - Land Subsidence, Liquefaction and Other Hazards**

- 7.1. The WRC submission supported the requirement to consider land instability and liquefaction risk but queried how plan users were going to identify that land was susceptible to liquefaction without the need for expert assessment.
- 7.2. WRC agrees with the recommendations of the Reporting Officer in relation to liquefaction hazard. In particular, the proposed approach to mapping of liquefaction hazard areas and the

proposed wording of the required amendment is considered to adequately manage liquefaction risk based on the current state of knowledge.

- 7.3. It is also agreed that there is not scope to consider WRC's submission in relation to stormwater management in areas subject to risk of land instability in the coastal environment.

## **8. Hearing 27F – WildFire, Climate Change, and Definitions**

### **Wildfire**

- 8.1. WRC sought to expand Policy 15.2.1.18 to allow for a wider consideration of matters associated with wildfire risk. For the large part these have been accepted by the Council within the s42A report and we support these amendments.
- 8.2. Originally, WRC sought a wider consideration of development under this policy as opposed to just residential development as outlined in the notified, and subsequently amended policy. However, WRC accepts the rationale provided in the s42A report that for the most part, this policy will have implications for the rural environments, where residences and communities are geographically isolated, and there is generally a greater risk of wildfire.
- 8.3. WRC would, however, caution against the consideration of insurance as a risk mitigation tool. This is identified in both the s32 and s42A report as a justification for not expanding the policy to consider all development forms. Insurance does not mitigate the risk (i.e. it does not prevent or limit the damage of fire). Rather it is a risk transfer mechanism, whereby the potential financial risk of damage from a wildfire is transferred to a third party. WRC does not consider this point to be fatal to the rationale to not widening the policy consideration, but wanted to raise it to assist the Commissioners with their decision making.

### **Climate Change**

- 8.4. WRC sought to amend the layout of objectives pertaining to climate change. The Reporting Officer has accepted this recommendation. As a result Objective 15.2.3 will not follow Objective 15.2.1, which will improve the readability of the chapter.

### **Policy 15.2.3.1**

- 8.5. Policy 15.2.3.1 is critical for the consideration of sea level rise scenarios on new subdivision and development. WRC has sought a number of changes to this policy, to strengthen the consideration of the impacts of sea level rise on future subdivision and development. While

several of the recommended changes have been accepted, several have been rejected. This aspect of the evidence will concentrate on the rejected aspects and WRC's position on these.

8.6. The proposed wording to Policy 15.2.3.1 that was sought is as follows:

*Policy 15.2.3.1 - Effects of climate change on new subdivision, use and development*

*(a) Ensure that ~~adequate allowances are made for~~ the projected effects of climate change are reflected through dynamic adaptive options in the design and location of new subdivision, use and development including new urban zoning throughout the district, including undertaking assessments where relevant that provide for:*

*(i) the projected increase in rainfall intensity, as determined by national guidance, but being not less than 2.3°C by 2120;*

*(ii) the projected increase in sea level, where relevant, as determined by national guidance and the best available information, but being not less than 1m by 2120;*

*(iii) in respect to new urban zoning, stress testing under the RCP 8.5 scenario for rainfall [1] and RCP 8.5H+ for sea level rise [2]; and*

*(iv) in respect to the coastal environment, increases in storm surge, waves and wind*

*(v) the ability for natural systems to respond and adapt to the projected changes included in (i) to (iv) above*

*(vi) a consideration of regionally specific vertical land movement.*

8.7. The Reporting Officer does not support the replacement of the phrase “adequate allowances are made for”, with the more prescriptive approach of “are reflected through dynamic adaptive options”. The rationale for this rejection is that the proposed change reduces the readability of the policy and reduces the flexibility of the response in the resource consent process.

8.8. WRC disagrees with this position. The term ‘adequate allowances are made for’ is vague and provides little clarity on what constitutes adequate. However, dynamic adaptive options are a recognised response to sea level rise and other climate change risks. Dynamic adaptive options

include such measures as dwellings being relocatable when sea level rise thresholds are met, the trigger for the installation of natural systems to buffer the impacts of natural hazards, dwellings being able to be raised to address increased flood depths etc. Dynamic adaptive responses are recognised as best practice in relation to natural hazards that change as a result of climate change and should be reflected within the policy. It is WRC's view that the amendment sought provides greater clarity to applicants on the type of measures and responses that should be considered when designing new subdivisions and development in areas that could potentially be impacted by natural hazards that are impacted by sea level rise.

- 8.9. The Reporting Officer rejects the inclusion of the word 'use' in the opening body of the policy as well as the inclusions of 'new urban zoning'. However, the rationale for this is not clear to WRC. In paragraph 108, the Reporting Officer states that 'use' is not needed to be included in the policy, due to it relating to permanent changes to land. However, the rationale for not providing for future rezoning is due to subdivision, use and development being covered by the policy.
- 8.10. It is WRC's position that the inclusion of the word 'use' in the policy is important, as some activities may not be appropriate in areas subject to the potential impacts from climate change, including sea level rise and increased flood depths.
- 8.11. WRC also seeks to include a reference to 'new urban zoning' in the opening statement of the policy. This is because subdivision, use and development is a function of the underlying zone. The inclusion of future urban zoning in the policy, just makes it clear to any future private plan change applicants that the various rainfall and sea level rise scenarios need to be considered within their respective s32 assessments. This is consistent with the MfE guidance on this matter (which is non-statutory) and brings this guidance into a statutory context.
- 8.12. Natural systems are an important buffer to reduce the impacts of sea level rise and other climate change impacted hazards. However, for these buffers to work effectively, they need space to move and adjust. For example, dune systems are very effective at reducing the impacts from wave damage. However, as the sea level rises, they need space to migrate inland to continue to provide this protection. The same applies to gravel storm berms, and wetlands. The inclusion of natural systems into the policy will ensure that these features are considered and provided for in the design of future subdivision, use and development.
- 8.13. WRC retains a preference for vertical land movement to remain within the policy. However, we seek a change to the relief being sought to this being a site specific consideration. Vertical land

movement can occur as a result of tectonic plate interactions, local land instability, and localised subsidence and can have a significant impact on the rates of sea level rise (for example the rate of sea level rise in Wellington is twice the national average due to tectonic subsidence). The inclusion of this point in the policy directs parties to directly consider this matter when projecting the impacts of climate change.

8.14. Given the other findings the Reporting Officer has made in respect to other submissions, WRC proposes the following policy wording:

*Policy 15.2.3.1 - Effects of climate change on new subdivision, use and development*

*(a) Ensure that the projected effects of climate change are reflected through dynamic adaptive options in the design and location of new subdivision, use and development including new urban zoning throughout the district, including undertaking assessments where relevant that provide for:*

*(i) the projected increase in rainfall intensity, as determined by national guidance in the event of temperature rise of not less than 2.3°C by 2120;*

*(ii) the projected increase in sea level, where relevant, as determined by national guidance and the best available information, but being not less than 1m by 2120;*

*(iii) in respect to new urban zoning, stress testing under the RCP 8.5 scenario for rainfall [1] and RCP 8.5H+ for sea level rise [2]; and*

*(iv) in respect to the coastal environment, increases in storm surge, waves and wind*

*(v) the ability for natural systems to respond and adapt to the projected changes included in (1) to (iv) above*

*(vi) a consideration of site specific vertical land movement.*

Policy 15.2.3.2

8.15. WRC sought minor changes to Policy 15.2.3.2. These changes have been rejected by the Reporting Officer.

8.16. WRC sought to have point (a) expanded to include the specific wording “and considering applications for subdivision, use and development.” These changes clarify that the policy applies to both resource consent applications and plan changes. It is WRC’s reading that the requested changes are consistent with the intent of the policy, through the virtue of point (ii) of the policy which encourages the consideration of measures to reduce greenhouse gases within new subdivision, land use and development.

8.17. Given the above view WRC proposes the following wording to Policy 15.2.3.2.

*Policy 15.2.3.2 - Land use planning and climate change*

*(a) Increase the ability of the community to adapt to the effects of climate change when considering plan changes and applications for subdivision, use and development by:*

*(i) ensuring the potential environmental and social costs of climate change, including effects on indigenous biodiversity (inland migration), historic heritage, Maori Sites and Areas of Significance, mahinga kai, public health and safety, public access to the coast and waterway margins, and the built environment are addressed.*

*(ii) Encouraging the incorporation of sustainable and lower greenhouse gas emissions design measures within new subdivision, land use and development, including:*

*(A) low impact, stormwater management, urban design and green infrastructure;*

*(B) of relocatable buildings and structures in areas potentially at risk due to sea level rise or increased flood levels;*

*(C) efficient water storage and use that is resilient to drought;*

*(D) provision of renewable energy generation; and*

*(E) transferring to activities with lower greenhouse gas emissions.*

*(iii) providing ongoing monitoring of changes to the environment due to climate change; and*

*(iv) facilitating community discussion on adaptive pathways to manage the risks associated with climate change and incorporating them, where appropriate, into the district plan through plan changes.*

Policy 15.2.3.3

8.18. WRC sought minor changes to Policy 15.2.3.3 pertaining to the precautionary approach. The first change is that they sought a timeframe of considering the impacts of climate change of at least 100 years, as opposed to limiting the considerations to up to 100 years. It is important to recognise that planning decisions can have longer term implications, well beyond the 100 years currently provided for in the policy. The rationale for rejecting this amendment is due to the uncertainty associated with the climate change science, and the 10 year life of the district plan. It is accepted that the climate change science is rapidly changing as our understanding of the impacts from climate change on the natural system becomes more refined. However, climate change will not stop in 100 years, resulting in continued impacts on future generations. It is important that land use planning decisions extend beyond the 100 year timeframe to ensure that future legacy issues from land use planning decisions made in the next 10 years do not unduly impact these future generations. Given this is a precautionary policy, it is therefore considered important that the timeframe of 100 years is not a ceiling of consideration, but rather a starting point for planning for climate change impacts.

8.19. The second change was to implicitly include land use changes into the policy (i.e. rezoning of land). The rationale in the s42A report for rejecting this submission point was that the inclusion does not add value to the policy as subdivision, use and development place no limits on the consideration of future controls. I agree with the Reporting Officer on this matter, but feel the intent of the change may have been lost in translation. The officer is correct in their view, if the suggested change was in relation to applications. However, the change is intended to also cover rezoning of land. In this regard, we have suggested the following alternative wording to make this clearer:

*Policy 15.2.3.3 - Precautionary approach for dealing with uncertainty*

*(a) In areas throughout the district likely to be affected by climate change over at least the next 100 years, adopt a precautionary approach towards rezoning of land, new subdivision, use and development which may have potentially significant or irreversible adverse effects, but for which there is incomplete or uncertain information.*



### Policy 15.2.3.5

8.20. WRC sought to amend Policy 15.2.3.5(c) so that it aligns more closely to the WRPS. The suggested change has been accepted by the Reporting Officer, with some further refinement to the wording. WRC are supportive of the amended wording provided by the Reporting Officer.

### Definitions

8.21. WRC sought to have all definitions in Chapter 15 moved to Chapter 13. This recommendation has been supported by the Reporting Officer.

8.22. WRC sought for the definition of an 'Emergency Facility' to be amended to include critical community facilities that have a post-event emergency response and recovery function as follows:

*Emergency or critical community service facility*

*Means a fire station, ambulance station, police station or an emergency co-ordination facility that functions as a critical community facility utilised for emergency response and recovery.*

8.23. The Reporting Officers considers that the proposed additional wording would narrow the scope of the definition and make it unworkable. WRC accepts this position.

8.24. WRC further sought that the definition of 'Risk Assessment' be expanded. The proposed definition is simplistic and does not outline matters that should be considered within an assessment. The proposed wording put forward by WRC provides more clarity on the matters than needs to be considered within an assessment. The proposed wording is consistent with the WRPS and is considered to assist with ensuring the appropriate risk assessments are received in response to the policy, rule and information requirements set out in the Natural Hazards Chapter.

8.25. The proposed wording that has been sought is as follows:

*Risk Assessment*

*A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that together could*

*potentially harm exposed people, property, services, livelihoods and the environment on which they depend.*

- 8.26. WRC proposed to include an additional definition for 'Natural Hazard Sensitive Land Use' to ensure that these activities are not provided for in areas identified as being at a high risk from natural hazards. The wording proposed by WRC is an amendment of the notified definition of 'sensitive land use' in the PWDP (*Sensitive Land Use - Means an education facility including a childcare facility, waananga and koohanga reo, a residential activity, papakainga building, rest home, retirement village, travellers' accommodation, home stay, health facility or hospital*).
- 8.27. As outlined above, the Reporting Officer rejected the requested inclusion of 'natural hazard sensitive land uses' in the s42a reports for 27B, 27C and 27D. Consequentially the inclusion of a definition for 'natural hazard sensitive land uses' was rejected as well. As noted above, it is WRC's position that enabling the consideration of the sensitivity of land uses will enable a more comprehensive assessment of risk, particularly when considering a change in use. To support this framework, it is appropriate that a definition for natural hazard sensitive land uses is provided.
- 8.28. However, upon reflection, WRC recognises that the inclusion of residential and similar activities may be too restrictive within the framework of the proposed District Plan, and consideration of these activities is also enabled to a degree through the rules relating to the construction of buildings. If the Panel decides to accept the WRC's submission on the inclusion 'natural hazard sensitive land uses' then it is WRC position that the definition could be refined to as follows:

*Natural Hazards Sensitive Land Uses*

*Means any educational facility (including a childcare facility, waananga, and koohanga reo), rest home, retirement village, travellers accommodation, health facility or hospital.*

- 8.29. WRC also sought that for those areas that have been identified and mapped as high risk in the coastal environment<sup>1</sup>, the definitions are amended to enable a site-specific investigation to be utilised, as provided for by the proposed District Plan in relation to flood hazards and the 1% AEP floodplain extent. This was rejected by the Reporting Officer. However, WRC considers that by providing for risk to be determined at a site-specific scale, the uncertainty that may be

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<sup>1</sup> High Risk Coastal Hazard (Erosion) Area, High Risk Coastal Hazard (Inundation) Area, Coastal Sensitivity Area (Erosion), Coastal Sensitivity Area (Inundation), Coastal Sensitivity Area (Open Coast)

present in the local, district or regional level assessments is addressed, while allowing a pathway for property owners to more accurately define the area at risk, and seeks that the original submission point is accepted to enable site-specific investigations to be undertaken by property owners.

## 9. Conclusion

9.1. Overall, WRC would like to commend WDC on its approach to managing natural hazards in the PWDP. The submission and evidence points discussed above seek to ensure that the risk-based approach proposed is applied consistently across the natural hazards addressed by the PWDP.

9.2. Key outcomes WRC seek include:

- Gaps in the policy and rule framework are addressed.
- Greater consideration of residual risk in Defended Areas.
- Providing for risk to be assessed in areas not identified in the District Plan or maps, but where it is known that risk exists.
- Providing for beach nourishment and dune stabilisation activities, and the landward movement of beach systems.
- Enabling the consideration of the sensitivity of different land uses to the impacts of natural hazards, in order to ensure that changes in land use are adequately assessed.
- Strengthened consideration of the effects of climate change.

James Beban



Sarah Gunnell



15 April 2021

## Appendix 1 – RPS Practice Note

### Waikato Regional Policy Statement – Implementation Practice note on Natural Hazards

<b>Date</b>	<b>20 March 2019</b>
<b>Purpose</b>	To help interpret and assist in the implementation of The Waikato Regional Policy Statement Chapter 14 Natural Hazards, and related aspects of Chapter 4 Integrated Management and Chapter 6.2 Development in the Coastal Environment.
<b>Legal Status</b>	This practice note has no legal weight in the interpretation of the WRPS.
<b>Review Date</b>	<b>February 2020</b>

#### Background

Waikato Regional Council's Regional Policy Statement (WRPS) was made operative in May 2016. The WRPS provides an overview of the resource management issues of the region, and the policies and methods to achieve integrated management of natural and physical resources.

Note: Currently WRPS method 4.1.13 (b) and (c), do not match the latest guidance provided by MfE in their publication "Coastal Hazards and Climate Change: Guidance for Local Government. WRC recommends that Local authorities adopt the allowances for sea level rise and climate change set in the 2017 MfE guidance document in preference to the values set in this WRPS method.

#### RMA

Section 6 of the RMA requires territorial authorities and regional councils to recognise and provide for the management of significant risks from natural hazards as a matter of national importance. Section 7 RMA requires territorial authorities and regional Councils to have particular regard to the effects of climate change.

Section 30 gives regional councils the function of controlling the use of land, the control of the effects of the use, development or protection of land in the coastal marine area and the control of the beds of water bodies for avoiding or mitigation natural hazards.

Section 31 gives territorial authorities the function of the control of the actual or potential effects of the use, development or protection of land for the avoidance or mitigation of natural hazards.

Section 62 requires the Regional Policy Statement to state the local authority responsible for the control of the use of land to avoid or mitigate natural hazards or groups of natural hazards.

Section 106 gives consenting authorities the ability to refuse or put conditions on a subdivision consent if there is a significant risk from natural hazards.

## **New Zealand Coastal Policy statement 2010 (NZCPS)**

The overarching goal of the NZCPS Coastal Hazard objective and policies is to manage coastal hazard risks so that the likelihood of them causing social, cultural, environmental and economic harm is not increased. Objective 5 of the NZCPS is that coastal hazards/climate change are managed by locating new development away from risk areas, consider managed retreat for existing development and protect or restore natural defences. Policies include:

- to adopt a precautionary approach to use and management of coastal resources potentially vulnerable to effects of climate change to avoid harm to communities.
- to identify areas potentially at risk over the next 100 years.
- to avoid increasing risk of harm, avoid redevelopment that increases risk, encourage redevelopment that reduces risk (adaptive management).
- to discourage hard protection structures while acknowledging they may be the only practicable means to protect important infrastructure although at a social and environmental cost.
- to promote long term risk reduction strategies including removal/relocation.
- to promote the use of natural defences against coastal hazards.

## **Waikato Regional Policy Statement 2016 (WRPS)**

The WRPS objective 3.24 is to manage the effects on communities and the environment by increasing community resilience, reducing risk and enabling recovery from hazard events.

Associated policies include:

- that coastal development occurs in a way that provides for setbacks, allows for the potential of sea level rise including landward migration of coastal habitats, and avoids increasing risk in coastal area.
- that a natural hazard risk management approach be taken that ensures risk does not exceed acceptable, prefers use of natural features over manmade structures for defence and use best available information/practice.
- that development has regard to development principles including that it should be appropriate with respect to projected climate change effects and be designed to allow adaptation to these changes.

Methods include:

- requiring that new development along the coast be set back enough to avoid natural hazards.
- Regional plans identify circumstances where existing development should be relocated and include provisions for relocation.
- Developing additional primary hazard zone provisions and controls on development.
- WRC to provide a Regional Hazards forum, and store all natural hazard information.

NB In this respect:

- The Regional Hazards Forum has been underway since 2012.
- WRC has initiated a Natural Hazards meta-database that aims to incorporate information held at WRC and also at TA's.
- An online Natural Hazards Portal is being built to provide all relevant and available natural hazard information. The Natural Hazards metadata base will be added to the portal over time.

## Ministry for the Environment (MfE) Guidelines 2017

The 2017 MfE Coastal Hazards and Climate Change guidance for Local Government differs from previous guidance in that it attempts to deal with uncertainty by promoting a dynamic adaptive pathways planning approach. This approach involves the community in setting trigger points where a change in management direction as a response to hazards and risk is required. WRPS references to long term community strategies are such an adaptive pathways planning approach.

### Recommended Overall Approach to Natural Hazard Planning in the Waikato Region

1. Hazard Information collection – WRC and territorial authorities to continue to collect required hazard data, focussing priority on communities at comparatively higher risk within the Region or District. WRPS 13.2.2 tasks District Councils with this. WRC to provide storage of all hazard data on the WRC database accessible to TA's. WRC to continue to organise Regional Hazards forum meetings.
2. Risk Assessment Methodology- WRC, in consultation with the territorial authorities, will compile a consistent methodology to be applied across the Region for assessing risk (including residual risk) at a regional and district planning scale. It is anticipated this methodology will be progressively implemented based on risk priority.
3. RMA Sections 6 and 106 implications for current resource consent applications – until the risk assessment methodology has been completed, TA's will need to adopt a risk management approach that considers the information available and gives effect to WRPS and NPS objectives and policies. Where information is uncertain, in accordance with RMA, adopting the precautionary approach will be required.
4. Policy Framework development through Regional Plan Review process – WRC will develop objectives, policies and rules as part of the plan review process. Part of the Section 32 analysis will include investigating the potential for transfer of the regional function relating to the management tool of controlling land uses within Primary Hazard Zones to territorial authorities (the ability to extinguish existing use rights).
5. Long Term community plan development (WRPS Method 13.1.3) – WRC and territorial authorities to collaborate in developing adaptive management strategies with potentially affected communities focussing priority on communities at comparatively higher risk within the Region or District.

### High Risk Flood Zones

WRPS: Policy - 4.1, 13.2 Method - 13.2.1, 13.2.2, 13.2.5, 13.2.6, 13.2.8, 4.1.13
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#### Recommended Practice

High Risk Flood zones are defined in WRPS where the depth of flood water exceeds 1m, speed exceeds 2m/s or depth multiplied by speed exceeds one for an event that is more frequent than a 1% AEP. High Risk Flood zones also need to provide for effects of climate change (4.1.13).

To identify High Risk Floods zones, WRC recommends a risk based approach is undertaken due to the practical implications of applying this definition to an entire district. This would require:

- In a small number of areas where 2-dimensional modelling with Climate Change is available, the WRPS definition of a High Risk Flood Zone can be literally applied.
- Comprehensive modelling (using the WRPS definition of a High Risk Flood Zone and incorporating climate change) should be undertaken for areas at higher risk, such as existing development areas and future development areas where 2-dimensional modelling with Climate Change is not available.
- For areas outside of the 2-dimensional modelling, other guidance (such as 1D extent mapping, broad-scale hazard zones, information from previous events) should be used to identify areas where any development or zoning changes would require a comprehensive assessment of flood hazard and subsequent risk. The flood hazard susceptible to these areas would be used as a 'red flag' that would require any application for development resource consent/rezoning to provide comprehensive flood and other hazard assessment. Sea level rise needs to be incorporated into flood modelling for tidally influenced rivers and climate change scenario impact on rainfall frequencies.

## High Risk Coastal Hazards

WRPS: Policy - 6.2 Method - 6.2.3, 6.2.4, 13.2.2, 13.2.5, 13.2.6, 4.1.13
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### Recommended practice

The WRPS does not define what 'areas at risk of coastal hazards' means. Climate Change and sea level rise must both be considered to current best practice levels. *Note: WRC can assist territorial authorities in helping to define what may be an area at risk from coastal hazards. WRC's ability to assist on this method is dependent on resourcing and staff capacity in the Regional Hazards and Coastal Science teams, and will need to be assessed on a case by case basis.*

- Territorial authorities should use updated 2017 MfE guidance figures for sea level rise and climate change.
- Use the Coastal Inundation Tool (<http://coastalinundation.waikatoregion.govt.nz/>) as a rough guide to indicate areas potentially affected.
- Undertake more site specific hazard analysis and assessment with communities prioritised based on the degree of risk indicated by risk assessment.
  - MfE coastal hazard guidelines (2017) recommend that a range of sea level scenarios be considered depending on development type, and a 100 year timeframe. For existing developments the guidelines suggest a minimum of 1m be used for habitable buildings until an adaptive pathways plan is compiled. For new developments the guidelines suggest using a minimum of 1.36m for intensification and that a full dynamic pathways assessment be undertaken before it proceeds. (<http://www.mfe.govt.nz/publications/climate-change/coastal-hazards-and-climate-change-guidance-local-government/>).
- Determine location and extent of any coastal setback appropriate for development. These lines will potentially need to change as a consequence of sea level rise.

Note: Regional Plan review process is required to identify the circumstances where existing development should be relocated – this needs to be aligned with long term community strategies and will involve consultation.

## Residual Risk zones

WRPS: Policy - 13.2, 6.2 Method - 13.2.7, 13.2.8, 4.1.13, 6.2.3, 6.2.4

### Recommended practice

'Residual risk zones' must be identified by Territorial Authorities through their district plans, and plans will control subdivision, use and development within these zones so that 'residual risk' is minimised (13.2.7). 'Residual risk' is defined as the risk associated with existing natural hazard structural defences such as stopbanks and seawalls, including the risk of a failure of defence or of a 'greater than design event' occurring. Note that changes in climatic factors and sea level rise will potentially affect the extent of residual risk zones. Identification and mapping of such areas will both inform communities of the benefit the defence structures provide and define an area where additional site specific assessments and controls may be required to assess and manage residual risk.

- a) *Identification and mapping – WRPS 13.2.7 'District plans shall identify residual risk zones'*

To identify residual risk zones, district plans should identify the areas that would be potentially affected by a structural failure of a defence. WRC recommends using either a modelled 'pre scheme' assessment and/or other existing assessment (i.e. assessment used to determine a direct benefit rating) to identify areas that benefit from a structural defence.

Some uncertainty in identifying residual risk zones is likely, therefore identification and mapping of residual risk zones by Territorial Authorities is recommended to be a collaborative process between the Territorial Authority and WRC Regional Hazard Team.

All areas that benefit from the structural defence (residual risk zone) should be classified as a 'Defended Area' and are to include the designed level of service (an event annual exceedance probability AEP) of the defence structure (i.e., 'Defended Area of a XX% AEP design event of the XX River/Watercourse').

Mapping of the Defended Area can be undertaken using two options:

1. 'As mapped' residual risk area showing the property boundary along with the mapped hazard/defended area.
2. By property, based on the amount of coverage affecting the property.

WRC suggests Option 1, showing the actual benefit area relative to the property, is preferable. However, there may be practical reasons a territorial authority may require the use of Option 2. Removing 'erroneous' data that does not significantly



alter the intent of 13.2.7 due to modelling artefacts and/or limitations of the data shall be at the discretion of the territorial authority and WRC.

- b) *WRPS (13.2.7) Control and minimise risk – ‘District plans shall... control subdivision, use and development within these zones so residual risk is minimised, having regard to...*
1. *The level of service provided by the structural defences.*
  2. *Physical, environmental and financial sustainability of the structural defences over a period of at least 100 years.*
  3. *Impact caused by an overwhelming or structural failure of protection works.*
  4. *Reduction in the ability of a community to respond to and recover from a natural hazard event.*

Territorial authorities have discretion as to how they choose to control and minimise risk through District Plans. District Plan controls within these identified ‘residual risk zones’ will be supported by the Natural Hazards Risk Assessment Methodology (when available). This methodology will identify what (new) development in the defended area would require more detailed natural hazard risk assessments, to manage the residual risk as well as risks arising from other hazards.

The intent of the Natural Hazards Risk Assessment Methodology is to only require more detailed risk assessments for development that is likely to have higher risk should the protection structure fail or be overwhelmed. Development that is likely to require a more detailed natural hazard risk assessment may include:

- a) Any development within 20m of a structural defence
- b) Residential, commercial or Industrial subdivision within an existing or new zone.
- c) Aged care or other sensitive uses.
- d) Commercial and industrial uses involving hazardous materials.
- e) Lifeline utilities.
- f) Emergency service facilities including police, hospital and fire service.

9.3.

- c) *Residual Risk, Long Term Community Strategies (WRPS 13.1.3) and Low probability events (13.3)*

Long term community strategies (WRPS Method 13.1.3) need to consider and address the implications of allowing development in residual risk zones.

Consideration of management response to natural hazard risk including residual risk and risk associated with low probability events is to be included in a community strategy. These strategies will be developed in collaboration with stakeholders such as CDEM (including Emergency Services), and in residual risk zones/defended areas will need to address:

- Evacuation plans (key component to managing residual risk)

- Residual Risk change due to potential change in Level of Service a structural defence provides in the future.

## Long Term Community Strategies

WRPS: Policy - 13.1, 6.2 Method - 13.1.3, 6.2.4

### Recommended practice

Method 13.1.3 requires WRC to “collaborate with territorial authorities, tangata whenua and other agencies to undertake assessments of coastal and other communities at risk or potentially at risk from natural hazards, and develop long-term strategies for these communities. The strategies will, as a minimum:

- a) Include recommendations for any hazard zones that should be applied, including primary hazard zones
- b) Identify risks to the community and existing infrastructure from natural hazards
- c) Identify options for reducing risks to the community to an acceptable level and the relative benefits and costs of these options, including taking into account any effects on:
  - i. Public access.
  - ii. Amenity values.
  - iii. Natural character (including natural physical processes, indigenous biodiversity, landscape and water quality)”.

In practice these strategies will also need to cover emergency response requirements under CDEM Act, and reflect adaptive pathways management – setting trigger levels for when options such as managed retreat become appropriate due to level of risk. Issues and options should also consider possible future changes to level of service for structural defences. The Natural Hazards Risk Assessment Methodology will assist this process.

## Primary Hazard Zones

WRPS: Method - 13.1.2, 13.1.3, 13.2.1, 13.2.3, 12.2.8

### Recommended practice

Primary Hazard Zones (PHZ) are areas in which the risk to life, property or the environment from natural hazards is intolerable. This could be because the risk is considered real within the short term planning horizon, or because the potential consequences are significant due to the scale or vulnerability of the people, property or the environment at risk. PHZs are expected to be used as a last resort only and where all other risk management regimes have failed.

- Where PHZs are identified, WRC has control of the use of structures in these zones (4.2.10 and 13.2.3).
- District plans are also required to avoid creating demand for new structures in identified PHZs (13.2.1).
- Primary Hazard zones will be progressively identified over time through District risk assessments based on a risk assessment methodology being developed by WRC, and then incorporated into the Regional and District Plans.

Once a policy framework is developed through the Regional Plan Review, a transfer of functions can be investigated to give territorial authorities additional tools to manage land use activities.

WRPS Method 13.1.2 directs the Regional Council to identify Primary Hazard zones in consultation with key stakeholders including affected communities. However this identification requires the outcome of the risk assessment and community strategies to be available, which in turn requires hazard information and a risk assessment methodology to be available. As the information and the risk assessment methodology is not all available, identification of Primary Hazard Zones for Regional Plan purposes will be progressive rather than instantaneous.