Planning Provisions for Debris Flow Risk Management on the Awatarariki Fanhead, Matatā

Updated Section 32 Evaluation Report
Prepared for Whakatāne District Council

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Summary

In May 2005, heavy rainfall resulted in a debris flow in the Awatarariki stream in Matatā. It caused significant damage to land, buildings and road and rail infrastructure. While there were no deaths or injuries, the destructive force of this natural hazard was such that deaths could easily have occurred.

After the event, the causes of the debris flow were assessed, and a range of options were identified for an appropriate way forward.

Initially, the Whakatāne District Council decided to establish an engineered Debris Flow Control System in the catchment to protect houses on the Fanhead. However, this system proved not to be viable and the Whakatāne District Council decided to pursue planning-based options.

In 2015, the Whakatāne District Council completed a hazard and risk assessment for debris flows on the Awatarariki Fanhead[1]. The assessment identified the risks to life and property on parts of the Fanhead as being high. Risk is the combination of the likelihood of the event occurring and the consequence for life and property.

Under the Regional Policy Statement natural hazard policy, the Whakatāne District Council is required to take steps to reduce this high risk to a lower level (medium, or lower if practicable).

The Whakatāne District Council developed the Awatarariki Debris Flow Risk Management Programme to manage risks from future debris flow.

The most effective measure to reduce risk under this programme is a managed retreat which includes a proposal to enable relocation of houses for owners of property in the high risk area. A detailed business case to support funding of this was approved by District, Regional and Central Government in 2019. The managed retreat proposal has now been substantially implemented with 75% of sales and purchases settled or unconditional.

Despite the managed retreat proposal, the resource management approach for managing debris flow risks on the Awatarariki Fanhead area needs to be changed to appropriately recognise and address the significant risk from debris flow hazards that has been identified.

Therefore, changes to the Operative Whakatāne District Plan have been proposed under Plan Change 1, including:

- Identifying an Awatarariki Debris Flow Policy Area on the planning maps, including a “high risk”, “medium risk”, and “low risk” areas;
- Rezoning the high risk area from “Residential” to “Coastal Protection Zone”;
- Prohibiting all activities in the high risk area, other than those that relate to transitory recreational use of open space;
- Making any new activities and intensification of existing activities in the medium risk area subject to a resource consent application where natural hazard risk is assessed in

[1] The area affected by the debris flow event has been referred to as the “fanhead” in most of the documents associated with the Plan Changes. However, this is incorrect in geomorphic terminology. Technically the affected area should be referred to as the “fan”, with the term “fanhead” restricted to the fan apex where the stream channel leaves the escarpment.

deciding whether to grant or refuse resource consent, and what conditions might be imposed.

Because of existing use rights, changes to the District Plan are only effective in managing new development or redevelopment. However, a regional rule is not excluded from applying to existing use rights and can be used to remove existing residential activities that are subject to high risk. Therefore, changes to the Regional Natural Resources Plan, to introduce such a rule, are also proposed under Plan Change 17.

Changes to the Operative Regional Natural Resources Plan include:

- Adding new objectives and policies that set the intention to reduce the natural hazard risk on the Awatarariki Fanhead from high risk to at least a medium risk level;
- A rule prohibiting residential activities on identified residential sites within the high risk area with effect after a specified date (31 March 2021).

To initiate this process, the Whakatāne District Council requested that Bay of Plenty Regional Council change the Regional Natural Resources Plan. The Regional Council accepted the request.

Proposed Plan Change 1 was publicly notified for submissions on Tuesday 19 June 2018. Eight submissions and four further submissions were received.

Proposed Plan Change 17 was publicly notified on 19 June 2018. Eight submissions and two further submissions were received.

Submissions were heard at a public hearing from 2 to 4 March 2020 and the hearing panel of independent commissioners released their combined decision on 1 April 2020[2].

The decision approved the Plan Changes with minor amendments, being assessed as the most appropriate for achieving the purpose of the RMA and for giving effect to the higher-order instruments.

[2] Report and Decisions of the Hearing Commissioners, 26 March 2020

1.0 Overview

1.1 Purpose

This report has been prepared to fulfil the obligations of the Whakatāne District Council (WDC) to prepare an evaluation report under section 32 of the Resource Management Act 1991 (RMA) for a Plan Change to the Operative Whakatāne District Plan (District Plan).

The report also fulfils the requirement to explain the purpose of, and reasons for, and to provide an evaluation report for a request to change the Bay of Plenty Regional Council's (BOPRC) Operative Regional Natural Resources Plan.

WDC is required to carry out an evaluation of whether any objective is the most appropriate means of achieving the purpose of the Resource Management Act 1991 (RMA) when preparing a Plan Change.

The evaluation must also have regard to the efficiency and effectiveness of policies, rules and other methods in considering whether they are the most appropriate means of achieving the objective.

The evaluation must consider the benefits and costs associated with each policy, rule or method and the risk of acting or not acting if there is uncertain or insufficient information on the subject matter of the provisions.

This report should be read together with the Whakatāne District Plan and Regional Natural Resources Plan, and the Proposed Plan Changes.

1.2 Background

The location of Matata and extent of the Awatarariki Fanhead and associated catchment is shown on the Maps in Appendix 1.

A severe rainfall event on 18 May 2005 triggered several large debris flows in the Awatarariki, Waitepuru and Ohinekoao stream catchments at Matatā.

The debris flow in the Awatarariki Stream at Matatā caused significant damage to land, buildings, and road and rail infrastructure on the Awatarariki Fanhead. While no injuries or deaths occurred, it is evident that the destructive force of the debris flow was such that this could easily have been an outcome.

After the event, the causes of the debris flow were assessed, and a range of options were identified for an appropriate way forward. Details of this process up until the time the plan changes were publicly notified are set out in Appendix 2, with the main elements summarised below.

The options identified were:

- "Retreat" – removal of existing dwellings that would be in the path of potential future events.
- "Dam Options" - debris detention in the stream catchment with a flood channel on the Fanhead;

- “Fanhead Options” - directing debris flows with a flood channel on the Fanhead.

A cost benefit analysis was undertaken, which concluded that the debris dam and debris flood channel option offered the greatest net benefit to the community of Matatā and the protection of existing dwellings. In August 2005, WDC adopted a debris dam and debris flood channel option as the preferred mitigation measure for the Awatarariki catchment. In assessing the preferred mitigation measure, consideration was given to the protection of existing dwellings and the desire of residents to continue to live in the area.

Following consultation with the community, the preferred option was confirmed by WDC in December 2005 and a process of design development followed. This included:

- Technical assessments and reports to develop and refine the preferred option (January 2005 – May 2009);
- Community consultation (May 2009);
- Recommendations on final concept (June 2009);
- Independent technical reviews (2009 – 2010).

During the design development, a range of designs for debris detention structures in the upper catchment were presented to the Matatā community for consultation. The community expressed concerns about the structures proposed, including impact on the environment, and cost and affordability. In addition, Iwi expressed concerns about potential flooding impact of a dam on culturally important sites in the upstream catchment.

The community feedback resulted in the preferred engineering design being a flexible ring net proposal in the upper catchment with deflection bunds and raised building platforms on the Fanhead. This proposal sought to minimise the environmental and cultural concerns raised by the community.

The proposal is described in a 2009 report by Tonkin and Taylor Ltd[3]. The proposed debris flow control system was to comprise:

- A flexible barrier net constructed within the catchment that would retain approximately half of the design debris flow event (100,000m^3);
- A spillway to direct the remaining damaging debris flow material to the coastal strip and away from the town;
- The control of flows on the Fanhead using 1.5 m high berms and raised building platforms.

An overall plan of the proposed Debris Flow Control System is included in Appendix 3.

Independent technical reviews of the debris flow control system proposal during the detailed design phase raised concerns about the durability and stability of the ring net structure. Ultimately, these concerns could not be satisfactorily resolved through the final design.

An independent review of the project occurred in 2012[4]. The recommendation of the review was that WDC should take no further action to implement the debris flow control system proposal. Later in 2012, the WDC, following re-evaluation of lower catchment solutions, resolved that there were no viable engineering solutions to manage the debris flow risk to people and properties on

[3] Report Whakatāne District Council Debris Flow Control System Awatarariki Stream, Matatā

[4] Review of Awatarariki Catchment Debris Control Project, Alan Bickers, June 2012

the Awatarariki Fanhead that met community engagement outcomes, engineering viability, or feasibility, and decided to pursue non-structural planning-based options.

In 2013, WDC commissioned hazard and risk assessments for landslides and debris flows at Ōhope, Whakatāne and Matatā. The assessment identified the loss-of-life and property damage risks on the Awatarariki Fanhead as being high[5].

Work also commenced on investigating planning options to manage landslide and debris flow risks. An Issues and Options Paper[6] was published and submissions were sought. Strategies for managing risk on the Awatarariki Fanhead, including retreat from high risk areas were also the subject of community consultation through a discussion document[7].

This work was put on hold until new natural hazard policies under the Regional Policy Statement (RPS) became operative and provided guidance to territorial authorities on how they should manage natural hazard risk, including the determining of acceptable risk levels.. The Natural Hazards provisions of the RPS became operative in 2016.

At the beginning of 2015, the WDC formed a Consensus Development Group (CDG), which included six landowners, to investigate all options. From this, WDC developed the Awatarariki Debris Flow Risk Management Programme.

The Awatarariki Debris Flow Risk Management Programme is a unified approach comprising eleven work streams to manage the loss-of-life and property damage risks from future debris flows within the Awatarariki Stream catchment.

Ten workstreams were identified by the CDG:

1. Review hazard and risk modelling;
2. Property valuations;
3. Alternative escape routes;
4. Early warning systems;
5. Review rates and rates remissions;
6. Right turning hazard;
7. Voluntary managed retreat;
8. Building Act determination;
9. District Plan Change;
10. Legal quality assurance.

Voluntary managed retreat promotes a concept of incentivising owners of properties in a natural hazard area that have been assessed as having an unacceptable loss-of-life risk, and for which no viable risk mitigation options exist, to relocate out of harm's way.

[5] Quantitative Landslide and Debris Flow Hazard Assessment Matatā Escarpment, Tonkin and Taylor Ltd, November 2013

[6] Landslide and Debris Flow Hazard Management Issues and Options, Boffa Miskell Ltd, July 2013 Prepared for Whakatane District Council

[7] Draft Awatarariki Fanhead Strategy Issues and Options, February 2014

A detailed business case to support funding of the voluntary managed retreat proposal was negotiated through District, Regional and Central Government[8] with approval to commence property purchases being given in July 2019.

Workstream 11 was added when the limitations of solely a District Plan Change in reducing high loss of life risk were fully understood.[9].

It is recognised that 'voluntary managed retreat' would change to 'managed retreat' (i.e. its voluntary nature would cease) if the Regional Council exercised its powers to extinguish existing use rights through a new regional plan rule.

In accordance with the Regional Policy Statement, the resource management approach for managing debris flow risks on the Awatarariki Fanhead area needs to be changed to appropriately recognise and address the significant risk from debris flow hazards that has been identified to loss of life, and damage to buildings and structures, and to provide for more appropriate low risk activities in the area subject to high natural hazard risk. This is the purpose of the proposed plan changes.

1.3 Scope of Plan Changes

The proposed Plan Changes are to both the Operative Whakatāne District Plan and the Operative Regional Natural Resources Plan.

The proposed changes described below incorporate the amendments made by the Hearings Commissioners.

1.3.1 Changes to the Operative Whakatāne District Plan

The proposed plan change will identify the risk areas on the planning maps, remove residential zoning from the high risk area and establish rules to appropriately manage activities in the risk areas.

The proposed plan change includes:

- Identification of the Awatarariki Debris Flow Policy Area on Planning Map 101A, including a "high risk", "medium risk" and a "low risk" area;
- Rezoning the high risk area from "Residential" to ""Coastal Protection Zone";
- Recognition of debris flow hazards in the assessment criteria for natural hazards;
- A new policy that recognises the debris flow risk assessment methodology applied to the Awatarariki Fanhead;
- A new policy that sets the intention to reduce the overall natural hazard risk on the Awatarariki Fanhead from high risk to at least a medium risk level;
- A new rule that makes activities a Prohibited Activity in the high risk area, other than specified activities that relate to transitory recreational and other low risk use of open space;

[8] Debris Flow Risk: A way forward for the Awatarariki Stream fanhead, Draft Indicative Business Case 16 August 2017

[9] Under section 30(1)(c)(iv) of the Act, the Regional Council has the function to control land use for the avoidance or mitigation of natural hazards. The Act allows the Regional Council to exercise that function in such a way as to override any existing use rights available under section 10(1) of the Act. See further discussion in Report Sections 2.10 and 2.11

- A new rule that all activities in the medium risk area are subject to a Restricted Discretionary resource consent process where natural hazard risk will be assessed as part of the determination of whether to grant or refuse resource consent, and what conditions might be imposed;
- Information that cross references pertinent provisions in the Regional Natural Resources Plan;
- Inclusion of additional definitions of terms.

The proposed change to the Whakatane District Plan is included in Appendix 7.

Changes to the Whakatāne District Plan were proposed under Part 1 of Schedule 1 to the Resource Management Act (RMA): Preparation and change of policy statements and plans by local authorities.

The proposed change to the Whakatane District Plan is included in Appendix 7. This includes the amendments made by the Hearings Commissioners' decision.

1.3.2 Changes to the Operative Regional Natural Resources Plan

The proposed plan change will add a new issues-based section to the Regional Natural Resources Plan to specifically address Debris Flows on the Awatarariki Fanhead at Matatā. The proposed plan change has been amended to include this issue.

The new section includes:

- Objectives and policies that recognise the debris flow risk assessment methodology applied to the Awatarariki Fanhead and sets the intention to reduce the natural hazard risk on the Awatarariki Fanhead from high to at least a tolerable (medium) risk level;
- A rule that prohibits residential activities on identified residential sites within the high risk area after 31 March 2021;
- Inclusion of additional definitions of terms.

Changes to the Regional Natural Resources Plan were proposed under Part 2 of Schedule 1 to the Resource Management Act (RMA): Requests for changes to policy statements and plans of local authorities and requests to prepare regional plans.

To initiate this process, WDC requested that BOPRC "adopt" the plan change. However, BOPRC decided to "accept" the plan change based on advice that having WDC continuing to lead the regional plan change process as part of its overall Programme would better promote integrated management[10][11].

The proposed change to the Regional Natural Resources Plan is included in Appendix 8. This includes the amendments made by the Hearings Commissioners' decision.

[10]Report To: Regional Direction and Delivery Committee, 20 February 2018 Request for Plan Change: Debris Flow Risk Management on the Awatarariki Fanhead, Matatā.

[11] Minutes of the Regional Direction and Delivery Committee Meeting held in Mauao Rooms, Bay of Plenty Regional Council Building, 87 First Avenue, Tauranga on Tuesday, 20 February 2018

2.0 Resource Management Act Policy Direction

2.1 Purpose and Principles

In carrying out a section 32 analysis, an evaluation is required of how the proposal achieves the purpose and principles contained in Part 2 of the RMA. Section 5 sets out the purpose of the RMA, which is to promote the sustainable management of natural and physical resources.

Sustainable management 'means managing the use, development, and protection of natural and physical resources to enable people and communities to provide for their social, economic and cultural wellbeing and for their health and safety, while -

- sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and
- safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and
- avoiding, remedying, or mitigating any adverse effects of activities on the environment'.

In achieving this purpose, councils also need to recognise and provide for the matters of national importance identified in section 6, have particular regard to other matters referred to in section 7 and take into account the principles of the Treaty of Waitangi under section 8.

2.2 Section 6 Matters of National Importance

Section 6(h) requires that persons exercising functions and powers under the RMA shall recognise and provide for the management of significant risks from natural hazards as a matter of national importance. This matter is directly relevant to the assessment of the plan change.

Section 6(h) was included as a matter of national importance under the Resource Legislation Amendment Act 2017. The amendment is aimed at providing greater national consistency and guidance to improve the way that natural hazards are planned for and managed[12]. Although, the catalyst for the amendment was the Canterbury earthquakes of 2010 and 2011, the provision relates to the management of all hazards.

The Awatarariki Fanhead has a significant risk from debris flow and section 6(h) requires WDC to recognise and provide for the management of this risk.

Section 6(e) requires that persons exercising functions and powers under the RMA shall recognise and provide for the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga.

The pan-tribal cultural assessment undertaken in relation to the proposed debris dam originally proposed as a mitigation option and outlined in the Background section of this report, identified sites and areas with significant cultural values in this area[13]. The assessment found that structures built within the catchment to hold back debris had the potential to destroy burial caves

[12] Improving Our Resource Management System – Discussion Document – February 2013

[13] Tangata Whenua of Te Awa o Te Atua Cultural Impacts Assessment Of Resource Consent Applications For Matatā Township Recovery Works by Whakatāne District Council & Others And Te Awa o Te Atua (Matatā Lagoon) Rehabilitation Works by Department of Conservation 8 January 2007

in the sides of the stream valley. The overall preference, as an outcome of those pan-tribal cultural assessments, was for dwellings on the Fanhead to retreat from the flowpath of future debris and flood flows, thereby avoiding the need for any works in the stream catchment and risk to the burial caves in the sides of the stream valley.

2.3 Section 7 Other Matters

Section 7(a) of the RMA requires persons exercising functions and powers under the RMA to have particular regard to Kaitiakitanga. Kaitiakitanga has been given effect throughout the process of recovery from the debris flow events at Matata. The cornerstone of this was the preparation of pan-tribal CIA addressing the effects of a series of regeneration projects for each affected catchment. For Awatarariki, inputs from Iwi Maori have occurred at each successive stage of policy development, including pre-notification consultation and submissions.

Section 7(b) of the RMA requires persons exercising functions and powers under the RMA to have particular regard to the efficient use and development of natural and physical resources. This matter is directly relevant to assessment of the plan change.

Investigation of options for management of debris flow risk on the Awatarariki Fanhead has identified that voluntary managed retreat is the most efficient long-term outcome for the community. Structural or engineered options, if they could be proven to be technically feasible, would place an unreasonable burden on the community due to the high capital and maintenance cost.

Section 7(i), which refers to the effects of climate change, may also be relevant to assessment of the plan change given that debris flow events are the result of extreme rainfall (RPS Policy NH 7A). High rainfall is a prerequisite for a debris flow to be generated[14]. Predicted climate change, resulting in significantly higher frequency and intensity of rainfall events, increases the potential for debris flows in the future.

The hazard assessment identifies that several authors have assessed a link between rainfall intensity and debris flow initiation. However, given the recognised importance of other factors such as local topographic, climatic and geological controls on debris flow initiation, this approach alone has limited applicability to the derivation of a recurrence interval for debris flows.

2.4 Section 8 Treaty of Waitangi

All persons exercising functions and powers under the RMA must take into account the principles of the Treaty of Waitangi (Te Tiriti o Waitangi).

In this regard, consultation with Tangata Whenua has occurred at all critical stages of WDC's management response to the debris flow risk. Active steps have been taken to protect sites of significance identified through a pan-tribal cultural impact assessment.

From this, it is understood that retreat of dwellings from the Fanhead is the preferred risk management strategy as it will mitigate adverse effects on those sites of significance.

[14] 7.2.1 Quantitative Hazard Assessment, Matatā Escarpment T&T Ref. 29115, Whakatane District Council, November 2013

2.5 Section 30 Functions of Regional Councils

The control of the use of land for the avoidance or mitigation of natural hazards is a function of regional councils under the RMA.

2.6 Section 31 Functions of District Councils

The control of any actual or potential effects of the use, development, or protection of land, for the avoidance or mitigation of natural hazards is a function of district councils under the RMA.

2.7 National Instruments

There are no National Policy Statements or Environmental Standards that are directly relevant to assessment of the proposed plan changes, other than the New Zealand Coastal Policy Statement.

The government indicated that an NPS on managing risks from natural hazards was to be developed in 2018[15]. This has not eventuated to date.

2.8 Existing Uses/Activities

2.8.1 District Plans – Certain existing uses in relation to land protected

Section 10(1) of the RMA provides that land may be used in a manner that contravenes a rule in a district plan or proposed district plan if both:

- the use was lawfully established before the rule became operative or the proposed plan was notified
- the effects of the use are the same or similar in character, intensity and scale.

This provision is often referred to as “existing use rights”.

Under section 10, existing use rights do not apply to:

- activities that have been discontinued for a continuous period of more than 12 months after the new rule became operative or the proposed plan was notified.
- reconstruction, alteration of, or extension to, any building that increases the degree to which the building fails to comply with any rule in a plan or proposed plan;
- use of land controlled for the purposes specified in s30(1)(c)[16].

Because of existing use rights, changes to the District Plan are only effective in managing new development or redevelopment where effects of the use are not the same or similar in character, intensity and scale.

[15] RLAB Departmental Report No. 1 Additional information for Select Committee (11 August 2016)

[16] The control of the use of land by a Regional Council for purposes including the avoidance or mitigation of natural hazards

2.8.2 Regional Plans - Certain existing lawful activities allowed

A Regional Plan rule is not subject to "existing use rights".

Section 20A of the RMA provides that certain existing lawful activities are allowed until a rule in a regional plan becomes operative that requires those activities to obtain resource consent.

An activity may continue from the time that the rule takes legal effect in accordance with section 86B if it were lawfully established and the effects of the activity are the same or similar in character, intensity, and scale to those before the rule took legal effect (section 20A (1)). That would include rights that have been confirmed through the issue of an Existing Use Certificate pursuant to section 139A.

Once the rule becomes operative, the activity can only continue if the person carrying on the activity has applied for the necessary resource consent within six months after the date the rule became operative and the application has not been decided or any appeals have not been determined (section 20A (2)).

As the proposed regional plan rules will prohibit residential activities on identified residential sites within the high risk area after a specified date, there will be no ability to apply for resource consent. No resource consent application can be made for a prohibited activity[17].

2.9 Section 85 - Environment Court May Give Directions in Respect of Land Subject to Controls

Section 85(1) of the RMA states that an interest in land shall be deemed not to be taken or injuriously affected because of any provision in a plan unless otherwise provided under the Act.

Despite this the RMA also provides under section 85(2) that

> *"any person having an interest in land to which any provision or proposed provision of a plan or proposed plan applies, and who considers that the provision or proposed provision would render that interest in land incapable of reasonable use, may challenge that provision or proposed provision on those grounds—*
>
> *(a) in a submission made under Schedule 1 in respect of a proposed plan or change to a plan; or*
>
> *(b) in an application to change a plan made under clause 21 of Schedule 1."*

The Environment Court, if it is satisfied that the provision makes any land incapable of reasonable use and places an unfair and unreasonable burden on any person who has an interest in the land, may direct the local authority to do whichever of the following the local authority considers appropriate:

> *"…*
>
> *(i) modify, delete, or replace the provision in the plan or proposed plan in the manner directed by the court:*
>
> *(ii) acquire all or part of the estate or interest in the land under the Public Works Act 1981, as long as—*

[17] RMA Section 87A(6)

(A) the person with an estate or interest in the land or part of it agrees; and

(B) the requirements of subsection (3D) are met; …

Section 85 (3D) limits the direction to acquire land to situations where the land was acquired before the provision was publicly notified and the provision remained substantially the same.

Section 85 enables landowners at Matatā, on appeal, to seek directions from the Environment Court on the reasonableness of the provisions proposed by the plan changes and their impact on their interests as landowners.

The proposed plan changes, as they are intended to apply in the high risk zone, will remove existing use rights for activities that would be significantly and adversely affected by a debris flow event. The risk assessment concludes that the high risk debris flow area should not be occupied due to the high risk should there be another debris flow event of similar scale to that in 2005.

In these specific circumstances, given the loss of life risk from future debris flow events, the proposed controls are not considered to render the land incapable of reasonable use as they appropriately serve the statutory purpose of promoting sustainable management of natural and physical resources.

Notwithstanding, it is recognised that PC17 introduces the additional element of requiring existing dwellings to be vacated. The Voluntary Managed Retreat package provides a formal commitment by the Council to acquire land which enables the burden on landowners to be alleviated.

2.10 New Zealand Coastal Policy Statement 2010 (NZCPS)

Section 75(3)(b) requires a District Plan or Regional Plan to give effect to the NZCPS.

The Awatarariki Fanhead is within the "Coastal Environment[18]" as defined by the NZCPS. The coastal environment extends inland to the crest of the escarpment at this location[19].

The debris flow in this case causes "*inundation of the coastal environment*"[20] and the at-risk residential development is in the coastal environment, although the physical drivers and processes that cause a debris flow are not within the coastal environment. The subject area is also susceptible to coastal hazards (coastal erosion, tsunami).

In that regard, the plan changes are broadly consistent with NZCPS policies that encourage change in land use where that would reduce the risk of adverse effects from coastal hazards[21].

Although not the reason for retreat from the affected area, retreat also has the potential to promote restoration of natural character[22], provide public open space[23], and to provide walking access to and along the coast[24].

The proposed plan changes are therefore consistent with the NZCPS.

[18] NZCPS Policy 1: Extent and characteristics of the coastal environment

[19] As delineated on the Operative Bay of Plenty Regional Policy Statement, Map 25

[20] Policy 24 Identification of coastal hazards 1d.

[21] Ibid Policy 25: Subdivision, use, and development in areas of coastal hazard risk

[22] Ibid Policy 14: Restoration of natural character

[23] Ibid Policy 18: Public open space

[24] Ibid Policy 19: Walking access

2.11 Regional Policy Statement

2.11.1 Natural Hazards

An analysis of the Regional Policy Statement on natural hazards (objective, policies and methods) as it applies to the Awatarariki Fanhead is included in Appendix 6.

The Regional Policy Statement includes a risk-based approach to natural hazard management[25].

The Regional Policy Statement imposes a duty on city and district councils within the region for land use planning, susceptibility mapping and detailed risk assessment for "extreme (prolonged or intense) rainfall hazard" that can result in landslides, debris flows/floods (flooding).

Accordingly, the District Plan must give effect to the Regional Policy Statement through:

- Identifying areas susceptible to natural hazards;
- Assessing natural hazard risk;
- Managing natural hazard risk.

Risk is classified by a three-category risk management framework[26]:

- High natural hazard risk being a level of risk beyond what should be tolerated.
- Medium natural hazard risk being a level of risk that exceeds the Low level but does not meet the criteria for High risk.
- Low natural hazard risk being the level of risk generally acceptable.

Of relevance is the requirement in high risk natural hazard zones to reduce the level of risk to medium (and lower, if reasonably practicable)[27].

Policy NH12A of the RPS requires risk assessments to be undertaken in the context of District or Regional Plan development, and specifically recognises the application of risk reduction measures to existing uses. This is reinforced by Method 23B which is to investigate options for addressing existing use or development subject to high or medium risk and apply the most appropriate non-regulatory and/or regulatory risk-reduction measures.

Policy NH 14C: Allocation of responsibility for land use control for natural hazards identifies that the Bay of Plenty Regional Council, city and district councils are responsible for specifying objectives, policies and methods, including any rules, for the purpose of the control of the use of land for the avoidance of risk from natural hazards. The policy identifies that city and district councils have the primary responsibility for developing any natural hazard rules. However, the policy has the following footnote which identifies circumstances where the Regional Council may intervene:

> "*Under section 30(1)(c)(iv) of the Act, the Regional Council has the function to control land use for the avoidance or mitigation of natural hazards. The Act allows the Regional Council to exercise that function in such a way as to override any existing use rights available under section 10(1) of the Act. The allocation of responsibilities under this policy does not remove the right of the Regional Council to exercise its functions and powers in*

[25] BOPRC RPS Policy NH 1B: Taking a risk management approach

[26] Ibid Policy NH 2B: Classifying risk

[27] Ibid Policy NH 3B: Natural hazard risk outcomes

that regard. Should it choose to do so, any such provisions will be subject to a plan or plan change process under Schedule 1 to the Act."

The policy recognises that the Bay of Plenty Regional Council has the power to set land use rules, including conditions of resource consent, to address natural hazard risk to existing land uses and to address natural hazard risk on all land in the coastal marine area.

The proposed debris flow hazard management provisions for the Awatarariki Fanhead give full effect to the RPS natural hazard policies.

2.11.2 Precautionary Approach

The Introduction to the RPS addresses the "Precautionary approach" and the circumstances where this approach should be taken[28].

The relevant provision is included in the Introduction to the BOP RPS as follows:

> *"The ability to manage activities can be hindered by a lack of understanding about environmental processes and the effects of activities. Therefore, an approach which is precautionary but responsive to increased knowledge is required. It is expected that a precautionary approach would be applied to the management of natural and physical resources wherever there is uncertainty, including scientific, and a threat of serious or irreversible adverse effects on the resource and the built environment. It is important that any activity which exhibits these constraints is identified and managed appropriately."*

The precautionary approach underpins the risk assessments that support the plan changes. The Plan Changes address a situation where there is uncertainty, including scientific uncertainty, and a threat of irreversible adverse effects, and therefore the RPS requires a precautionary approach to be taken.

2.12 Regional Natural Resources Plan

The Regional Natural Resources Plan (RNRP) identifies the Regional Council functions under Section 30(1)(c)(iv) – Control of the use of land including objectives, policies, methods and rules in regional plans for the avoidance or mitigation of natural hazards.

A regional council can control the use of land for the avoidance or mitigation of natural hazards under a regional plan rule. Existing use rights do not apply to land uses controlled by a regional plan and are therefore able to be extinguished through a specific regional rule[29].

2.13 Iwi Planning Documents

The following Iwi Planning Documents and associated provisions are considered relevant to this topic:

[28] Ibid Section 1.7

[29] Section 10 (4)(a) RMA Certain existing uses in relation to land protected

Iwi Management Plan	Relevant Provisions
Ngāti Rangitihi Iwi Environmental Management Plan	The mana of Ngāti Rangitihi is upheld, developed and recognised. Ngāti Rangitihi is an active participant in the decision-making processes of statutory bodies that affect the interests of Ngāti Rangitihi. Bay of Plenty Regional Council and Territorial Authorities will, in consultation with Ngāti Rangitihi, identify and provide opportunities for the practical experience of kaitiakitanga by iwi and hapū. Bay of Plenty Regional Council, Territorial Authorities and statutory bodies with responsibilities in the environment will ensure that matters of significance to Ngāti Rangitihi are identified during the preparation of plans, taken into account, and where appropriate, provided for. Bay of Plenty Regional Council will consult with Ngāti Rangitihi regarding reviews and changes to the Regional Policy Statement, regional plans and matters that are of importance to Ngāti Rangitihi. Ngāti Rangitihi shows leadership in protecting its relationship with the rohe including places of significance, customary resource areas and water bodies. Consultation be undertaken by applicants, statutory authorities and proposers with Ngāti Rangitihi. Natural hazard management is an important role of Councils, Civil Defence and other agencies. Bay of Plenty Regional Council will co-ordinate the management of natural hazards throughout the Region by setting standards and ensuring consistently among Territorial Authorities. Place of Significance 148 – Kaokaoroa battle site and urupa.
Wahi Tapu Sites of Ngāti Awa	Site 299 Te Awatarariki – According to the ancestors of Ngāti Awa there are three taniwha of legend that live there. They are taniwha Kiore, Tuna and Tohora. Site 319 Te Kaokaoroa – This was the scene of a great battle between the Government forces and Tairawhiti reinforcements. The battle raged for three days, and involved over 800 men, several of which were members of Te Tawera. Ngāti Hikakino and Ngāti Rangihouhiri lost many warriors in this historic battle.

In 2007, a Cultural Impact Assessment[30] was completed for the full suite of regeneration works for Matatā that followed the debris flow events. This was a joint assessment prepared by Ngāti Awa, Ngāti Rangitihi, and Ngāti Tūwharetoa.

At the time the CIA was prepared, a 17m high debris dam was proposed to mitigate debris flow effects from the Awatarariki Stream on the township. This proposal was not supported. Reasons

[30] Cultural Impacts Assessment of Resource Consent Applications for Matatā Township Recovery Works by Whakatāne District Council & Others; 8 January 2007

for this included visual effects, the risk of inundation of burial caves, cost impact on the community, a request for other measures in the upper catchment to be explored further, and consideration to be given to an alternative which would require homes in the lower Awatarariki catchment to retreat from the Fanhead and the path of future debris and flood flows.

Following further investigation, conditional support was provided by the three Iwi to a lower level debris flow control system with a flexible barrier net, based on assurances that the risk to cultural sites and other effects from the works could be appropriately managed.

The proposed plan changes are generally consistent with the above matters.

3.0 Other Statutory Policy Direction

3.1 Local Government Act

Under the Local Government Act 2002, the avoidance or mitigation of natural hazards is one of the core services that councils must have "particular regard to".

3.2 Building Act

As a building consent authority under the Building Act 2004, the WDC must refuse to grant building consent if land is subject, or is likely to be subject, to a natural hazard, or if the building will accelerate, worsen or result in a natural hazard on the land or on any other property.

Building consent may be issued on land subject to, or potentially subject to, a natural hazard where the above criteria are satisfied, and it is reasonable for the Council to grant a waiver from one or more provisions of the New Zealand Building Code.

3.2.1 Dangerous Buildings

In 2006, the District Council applied to the Department of Building and Housing for a determination on the appropriateness of Dangerous Building notices it issued under the Building Act on eight houses affected by the 2005 debris flow on the Awatarariki Fanhead.

A "dangerous building" is one where in the ordinary course of events, the building is likely to cause injury or death to any persons in it or to persons on other property. Where a dangerous building notice has been issued, no person may use or occupy the building.

The Department of Building and Housing determination concluded that the eight houses were not dangerous because the storm event that would trigger another debris flow was less than a 200-year event and could not be said to occur "in the ordinary course of events"[31].

This determination has been superseded by the 2015 risk assessment and a further determination by the Ministry of Business, Innovation and Employment in 2016, as detailed below.

3.2.2 New Building Work

WDC has refused to grant waivers under the Building Act which would allow new building work on land on the Awatarariki Fanhead which is subject to high risks from future debris flow hazards.

WDC's decisions were confirmed by the Ministry of Business, Innovation and Employment (MBIE) in 2016[32]. The MBIE determination accepts that the high-risk area of the Awatarariki Fanhead is subject to a natural hazard as defined under the Building Act and that building work has the potential to worsen the hazard through mobilisation of buildings during a debris flow. The granting of a waiver to allow new building work was not found to be reasonable because of the high life safety risk and the inability to mitigate that risk.

[31] Determination 2006/119

[32] Determination 2016/034

Based on this determination, WDC can reasonably expect to be supported by MBIE in refusing other similar waivers in the same circumstances that would allow new buildings or extensions of existing buildings within the Awatarariki Fanhead area that is subject to high risk from debris flow. Based upon this determination (or the principles which underpin that determination) it is expected that no new building work that increases risk will be able to be undertaken within the high risk area of the Awatarariki Fanhead.

Commented [JF1]: That increases risk. Other new building work eg replacement of a solid fuel heater would be permitted

3.3 Civil Defence Emergency Management Act 2002

One of the purposes of the Civil Defence Emergency Management Act 2002 (CDEMA) is to encourage and enable communities to achieve acceptable levels of risk by:

(i) identifying, assessing, and managing risks; and

(ii) consulting and communicating about risks; and

(iii) identifying and implementing cost-effective risk reduction; and

(iv) monitoring and reviewing the process.

All persons exercising functions in relation to the development and implementation of civil defence emergency management plans under this Act may be cautious in managing risks even if there is scientific and technical uncertainty about those risks.

Every regional council and every territorial authority within that region must unite to establish a Civil Defence Emergency Management Group and establish a Group Plan.

Land use risk reduction policies within a CDEM Group Plan should be linked to a Regional Policy Statement, then down to regional and district plans.

The CDEM Group Plan Goals include:

> "Goal 1: Reducing risk from hazards in the Bay of Plenty to acceptable levels
>
> Reducing the risk posed by hazards is a key element of CDEM. It is not possible to completely remove risk but the Bay of Plenty CDEM group will work with communities and key stakeholders to reduce risk to acceptable levels by:
>
> - Increasing our knowledge about the risks facing the Bay of Plenty.
> - Ensuring information about our hazards and risks is easily available and understandable.
> - Assisting in determining acceptable levels of risk and using this to influence policies such as long term plans, the regional policy statement, city, district and regional plans.
> - Ensuring that risks are proactively and responsibly managed.[33]"

The related "Reduction" objectives[34] are:

- Objective 1a - Improve the understanding of hazards within the Bay of Plenty, and their associated likelihood and consequences;

[33] Bay of Plenty Civil Defence Emergency Management Group Plan, 2012-2017 Version 2 p3.

[34] Ibid p4

- Objective 1b - Undertake long term, strategic reduction of the risks from hazards through collaborative planning with CDEM stakeholders;
- Objective 1c - Continue to develop an understanding of the levels of risk acceptable to communities.

The plan changes are consistent with the CDEMA and the Bay of Plenty CDEM Group Plan.

3.4 Local Government and Official Information and Meetings Act 1987 (LGOIMA)

Under section 44, a person may apply to a territorial authority for the issue of a Land Information Memorandum (LIM) in relation to matters affecting any land in the district.

The matters that must be in a LIM include:

> *"(a) information identifying each (if any) special feature or characteristic of the land concerned, including but not limited to potential erosion, avulsion, falling debris, subsidence, slippage, alluvion, or inundation, or likely presence of hazardous contaminants, being a feature or characteristic that—*
>
> *(i) is known to the territorial authority; but*
>
> *(ii) is not apparent from the district scheme under the Town and Country Planning Act 1977 or a district plan under the Resource Management Act 1991".*

This means that any person requesting a LIM for land within the hazard zones must be provided with information relating to debris hazards.

Hazard areas do not need to be included in the District Plan for the LGOIMA hazard provisions to apply.

3.5 Treaty of Waitangi Settlement Acts and Statutory Acknowledgement Areas

Three Settlement Acts relating to iwi within the Whakatāne District have been enacted, which include Matatā within the area of interest:

- Ngāti Awa Settlement Act (2005);
- Ngāti Tūwharetoa Settlement Act (2005);
- Ngāti Mākino Claims Settlement Act (2012);

Statutory acknowledgements are statements in Treaty of Waitangi settlements between the Crown and iwi partners that are intended to recognise the mana of iwi partners in relation to identified sites and areas. Statutory acknowledgements are an acknowledgement by the Crown of the cultural, spiritual, historic and traditional association of an iwi partner with each statutory site and area.

Consent authorities, the Environment Court and the Heritage New Zealand Pouhere Taonga are required to have regard to statutory acknowledgements when determining whether the relevant

iwi may be adversely affected by the granting of a resource consent for activities within or adjacent to, or impacting directly on the statutory area.

The specific sites referred to in Statutory Acknowledgements are shown on the District Plan Map[35].

Te Kaokaoroa Historic Reserve, an urupa located on Kaokaoroa Street, is identified in the Ngāti Awa Settlement[36]:

> *"Te Kaokaoroa Reserve is sacred to several hapū of Ngāti Awa including Ngai Te Rangihouhiri II, Ngāti Hikakino, and Te Tāwera, because it commemorates a great battle between Government forces and the Tairawhiti force along Te Kaokaoroa o Toroa coastline in 1864.*
>
> *…*
>
> *Te Kaokaoroa Reserve is the resting place of Te Rangi-i-paea, a chief of Ngāti Hikakino, who was killed at the battle of Te Kaokaoroa. Many unnamed dead of Ngai Te Rangihouhiri II, Ngāti Hikakino, Te Tāwera, and other hapū of Ngāti Awa were buried at this site by Hori Kawakawa and other Ngāti Awa chiefs. Hoera-tama-titahi, chief of the Ngāti Porou contingent that was part of the Tairawhiti Force, also lies buried at Te Kaokaoroa.*
>
> *Te Kaokaoroa is therefore the repository of many kōiwi tangata. Urupā are the resting places of Ngāti Awa tipuna and, as such, are the focus of whānau traditions. Urupā and wāhi tapu are places holding the memories, traditions, victories, and defeats of Ngāti Awa tipuna, and are frequently protected in secret locations.*
>
> *The mauri of Te Kaokaoroa Reserve represents the essence that binds the physical and spiritual elements of all things together, generating and upholding life. All elements of the natural environment possess a life force and all forms of life are related. Mauri is a critical element of the spiritual relationship of Ngāti Awa whānui to Te Kaokaoroa*."

The reserve is recognised for purposes relating to standing and notification under the Resource Management Act and the Historic Places Act including a requirement that relevant consent authorities forward summaries of resource consent applications to the Ngāti Awa governance entity.

Specific redress that indirectly relate to the Awatarariki Fanhead environs are identified as:

- **Ngāti Awa -** A Joint Advisory Committee is to be established over the Matatā Scenic Reserve and the Matatā Wildlife Refuge Reserve. This committee will be made up of equal numbers of members nominated by Ngāti Awa and the Department of Conservation.
- **Ngāti Tuwharetoa -** Joint Advisory Committee will be established over the Matatā Scenic Reserve and the Matatā Wildlife Refuge Reserve. This committee will be made up of equal numbers of members nominated by Ngāti Tuwharetoa (Bay of Plenty) and the Department of Conservation.

The proposed plan changes do not conflict with the identified outcomes in the Settlement Acts.

[35] Whakatāne District Plan Map 101B

[36] Ngāti Awa Claims Settlement Act 2005Schedule 13 Statutory acknowledgement for Te Kaokaoroa Historic Reserve

4.0 Resource Management Issues Analysis

4.1 Existing Environment

The Awatarariki Fanhead comprises an area of approximately 7 ha with access from Arawa and Richmond Streets to the local street network.

The Awatarariki Stream passes through the Fanhead, flowing through a sediment basin to Te Awa o Te Atua (Matatā Lagoon) which was restored following the debris flow event in 2005. Historically, the Rangitāiki and Tarawera Rivers flowed to the sea at this location. Immediately to the north is the Te Awa o Te Atua Beach (Matatā Beach) and the coastal reserve.

Large boulders and other material from the debris flow in 2005 are clearly evident in the area. An initial clean-up of the area was proposed as part of a proposal for stream works and lagoon restoration in 2006. The Environment Court decision on the Awatarariki Stream and Lagoon restoration appeals specifically excluded the general clearance and removal of debris from the Clem Elliot Drive area on the basis that the works could have an adverse impact on Koiwi (human remains). The Court also had concerns about the works having no clear hazard mitigation benefit and of enabling construction in an area at risk from future debris flows[37].

At the time the Plan Changes were prepared, sixteen houses were located in the high risk area on the Fanhead with a further 18 vacant sections. Since that time, 25 properties have been acquired by the Council under the Voluntary Managed Retreat Programme. 11 houses have been removed.

State Highway 2 and the East Coast Main Trunk Railway passes though the Fanhead adjacent to the stream exit point from the escarpment. The plan change proposals have no bearing on or implication for the East Coast Main Trunk Railway, nor its operation.

4.2 Susceptibility and Risk from Debris Flows on the Awatarariki Fanhead

4.2.1 Quantitative Risk Assessment

Susceptibility and risk from debris flows on the Awatarariki Fanhead have been carefully studied and assessed in a series of peer-reviewed reports undertaken since the May 2005 event.

The assessments that support the proposed plan changes are:

- Quantitative Landslide and Debris Flow Hazard Assessment Matatā Escarpment November 2013[38]

[37] Environment Court Decision 035/2009 Para 35, 61 and 67

[38] Tonkin & Taylor Ltd Ref: 29115 https://www.Whakatāne.govt.nz/about-the-council/council-projects/debris-flow-and-landslide-hazards

- Supplementary Risk Assessment Debris Flow Hazard Report, Matatā, Bay of Plenty, July 2015[39]
- Peer Review: Awatarariki debris-flow-fan risk to life and retreat-zone extent, November 2015[40]

The Supplementary Risk Assessment Debris Flow Hazard Report and Peer Review are included in Appendix 4.

There are uncertainties in the reporting caused by the limited records of past events and the consequent difficulty in assigning return periods to event magnitudes (i.e. how often debris flows are likely to occur and how big they are likely to be). Assessments have been based on a combination of computer modelling, aerial photography and geospatial plotting of individual boulders, as well as professional insights from recognised independent experts in the field of geological science on issues that are not readily quantified in modelling.

The assessments identify that a debris flow is a significant threat to life and property due to the presence of large boulders and trees in the debris flow, combined with the volume, density, and velocity of the flow.

The levels of uncertainty and threat risk mean that a precautionary approach has been adopted for the identification of a high risk area. A precautionary approach is appropriate in that it ensures the level of risk is not underestimated.

The high risk area is the area where loss-of-life risk significantly exceeds levels that are generally acceptable, both internationally and nationally[41].

The area susceptible to debris flows outside the high risk area is not free of risk from debris flows. Debris flow events could result in loss of life and damage to property outside of the high risk area. WDC also has a duty to control development in areas where the risk is assessed as being greater than low.

The extent of the area susceptible to damage from a debris flow (yellow area), the area subject to high risk (within the black dashed lines) and the area subject to medium risk (within the dashed red line) is shown on the plan provided by the Peer Review[42].

The high, medium and low risk areas are shown on the Map in Appendix 5.

4.2.2 Regional Policy Statement - Methodology for Risk Assessment

Change 2 (Natural Hazards) was incorporated into the Regional Policy Statement (RPS) and become operative on 5 July 2016. Change 2 inserted natural hazards provisions into the operative Bay of Plenty Regional Policy Statement. The change guides those preparing regional, city and district plans and considering resource consent applications in managing land use and associated activities according to their level of natural hazard risk. This includes the requirement to undertake risk assessment at the time of plan development.

Policy NH 8A of the Regional Policy Statement requires that a risk assessment be undertaken. “Appendix L” sets out a “default methodology” to be used to assess risk.

[39] Tonkin & Taylor Ltd Ref: 29115.2000

[40] M.J. McSaveney, T.R.H. Davies

[41] Annual loss of life risk modelled at greater than 10^{-5} but considered to be higher due to limitations of the model

[42] Peer Review: Awatarariki debris-flow-fan risk to life and retreat-zone extent - M.J. McSaveney, T.R.H. Davies 17 November 2015

Appendix L allows use of a default methodology in the RPS or use of a recognised risk assessment methodology included in a regional, city or district plan or recognised in the consideration of a resource consent application. This may include risk assessment methodologies incorporated in regulations or industry codes of practice. In this case, the assessment of risk has been undertaken using the Australian Geomechanics Society, 2007. Landslide Risk Management, Australian Geomechanics (AGS 2007). This is a recognised risk assessment methodology (RRAM) in the RPS Natural Hazard Risk Assessment User Guide.

The landslide risk management framework presented in AGS (2007) divides the risk management process into the following three elements:

- *Risk analysis*: where the nature of the hazard is assessed, and the numerical value of risk estimated;
- *Risk assessment*: where value judgments are made as to whether the calculated risks are acceptable, tolerable or intolerable/unacceptable;
- *Risk management*: where risk mitigation measures are assessed and implemented.

The Quantitative Risk Assessment undertaken by Tonkin and Taylor covers the risk analysis element of the AGS 2007 framework[43]. The risk analysis methodology[44] in the framework includes:

- Scope definition;
- Hazard analysis:
    - Landslide characterisation,
    - Analysis of frequency.
- Consequence analysis:
    - Characterisation of consequence scenarios.
    - Analysis of probability and severity of consequence.
- Risk Estimation.

Risk assessment and risk management elements then follow the RPS Natural Hazards framework,

This AGS 2007 methodology is proposed to become part of the regional and district plan policy framework by reference under Schedule 1 to the RMA. Part 3 of Schedule 1 to the RMA provides for the incorporation of documents by reference in plans and proposed plans. Under these provisions, referenced documents have legal effect as if part of the plan. The procedures for this include requiring a certified copy of the document to be made available for inspection in the Council office, and public notification to allow for comments to be made[45].

Comments made by the public on the AGS 2007 methodology are set out in Section 5.6 Consultation on Material Included by Reference[46].

[43] 3.3.2 AGS (2007) Risk Management Framework in Tonkin & Taylor Ltd Ref: 29115 https://www.Whakatāne.govt.nz/about-the-council/council-projects/debris-flow-and-landslide-hazards

[44] From Figure 2: Abbreviated flowchart for Landslide Risk Management. Ref: AGS (2007a, 2007c)

[45] Schedule 1, Clause 34

[46] Under clause 34, Schedule 1 to the Resource Management Act 1991, material that is proposed to be incorporated by reference in a plan change must be made available for comment prior to notification of the plan change.

4.3 Technical Assessment of Debris Flow Management

GHD Limited was engaged by BOPRC in June 2018 to undertake a review of the geotechnical hazard and risk assessments carried out for the debris flow hazards on the Awatarariki Fanhead[47].

The review, completed in October 2019, was primarily for the purpose of determining whether prohibiting residential activity in Proposed Plan Change 17 was in excess of what is necessary to reduce the risk from high to medium or lower if reasonably practicable.

The review concluded that the geotechnical hazard and risk assessments undertaken by Tonkin and Taylor were robust, that in the circumstances a cautious approach was not unreasonable[48], and that the assessments were undertaken in accordance with industry best practice[49].

The report also concluded that it could be technically feasible to specifically assess each individual property taking into account the probability of spatial impact, temporal probability and vulnerability of the individual, and to implement a staged or progressive strategy of risk management based on the assessed level of risk.

The GHD Review was subject to a further policy and planning assessment[50]. This assessment concluded that the appropriate scale for managing natural hazard risk under the RPS is the 'natural hazard zone' that defines areas within hazard susceptibility areas on the basis of similar contiguous land uses. The assessment also concluded that attempting to undertake risk assessment at individual property scale would lead to a need for detailed planning regulation to ensure the risk assessment remained valid over time. Such detailed regulation was considered inappropriate and impractical.

Evidence given to the Commissioner Hearing by the author of the Tonkin and Taylor assessment was that a property specific risk assessment was unrealistic and would not materially change the risk assessment for the natural hazard zone.

4.4 Relationship to other Areas Subject to Landslide and Debris Flow Risk

WDC has completed hazard and risk assessments for landslides at Ōhope and Whakatāne and landslides and debris flow at Matatā.

WDC has undertaken debris flow and debris flood hazard mitigation works on the Waitepuru Stream, the Waimea Stream, and the Ohinekoao Stream. Flood mitigation improvement works have also been undertaken on the Awatarariki Stream downstream of the State Highway 2 road bridge. These completed works have been considered in the landslide and debris flow risk assessments for Matatā.

Landslide risks at Ōhope, Whakatāne and Matatā will be the subject of future plan changes to include more appropriate objectives policies and rules to manage risk. The Council is currently in the process of formulating plan changes that will be notified in mid-2021.

[47] Technical Assessment - Debris Flow Management – GHD, 31 October 2019.

[48] Ibid p1 Executive Summary

[49] Ibid p9 Conclusions

[50] Planning and Policy Assessment of the GHD Technical Assessment of Debris Flow Risk Management – Enfocus 28 November 2019

In the meantime, the risk assessment findings are being applied to the control of development under the operative hazard zone provisions for Ōhope and Whakatāne, and in other locations, through WDC's powers under the Building Act and Resource Management Act.

It is evident that for landslide risk, unlike the debris flow risk on the Awatarariki Fanhead, there are structural or engineering solutions that can be applied to reduce those risks to acceptable levels.

4.5 Effectiveness and Efficiency of Operative District Plan Provisions

4.5.1 Objectives and Policies

The Operative District Plan contains objectives, policies and rules relating to the management of hazards, including "falling debris and debris flow" hazards.

The District Plan objective is to manage subdivision, use, development and protection of land to avoid or mitigate the adverse effects of natural hazards on the life and wellbeing of people, and significant environmental values[51].

Any development in an identified hazard area requires resource consent where the risk to life and property must be assessed in each case.

4.5.2 Planning Maps

The majority of the land on the Awatarariki Fanhead at Matatā is zoned "Residential".

Some natural hazard areas are identified on the Planning Maps including the "NHaz4" area for falling debris and debris flows. However, at present, this identification is limited to areas at Whakatāne and Ōhope and no such hazard areas are identified at Matatā.

At the time the District Plan was publicly notified, WDC had not completed the assessment of landslide and debris flow risks at Matatā. This is explained in an advice note in the District Plan document (including on the face of the planning maps)[52][53], which says that it is likely that the District Plan maps and rules that control land use and subdivision in areas affected by landslide and debris flow hazards will need to be changed once the landslide and debris flow risk assessment has been completed.

Further, the objective and policy framework within the District Plan was developed prior to-Change 2 (Natural Hazards) to the operative Regional Policy Statement. In time, WDC will update its other natural hazards provisions to give effect to the Regional Policy Statement.

4.5.3 Land Use Rules

Under the Operative District Plan rules for the Residential Zone on the Awatarariki Fanhead, residential use is a permitted activity.

[51] Objective Haz 1

[52] Planning Map 101B

[53] 18.2.6 Falling Debris and Debris Flows

There is no rule in the District Plan that restricts the use of land on the Awatarariki Fanhead to manage risk from debris flows.

Existing use rights apply to any activity that contravenes a rule in a District Plan if the use was lawfully established and the effects of the use are the same or similar in character, intensity, and scale to those existing before the rule came into effect.

This means that any new hazard controls in a District Plan cannot be applied retrospectively and the current residential activities and buildings can continue on the land even though they may be contrary to District Plan rules.[54].

While this is the case, following the Ministry of Business, Innovation and Employment (MBIE) determination in 2016, it is unlikely a waiver would be given to allow a building consent to be issued for a new residential dwelling.

4.5.4 Subdivision Rules

There is a general subdivision standard in the District Plan[55] that requires each lot to contain a building platform that is located to *avoid* natural hazard events such as inundation, falling debris, and subsidence.

This criterion applies to an application for a "controlled activity" in the Residential Zone where no hazards are shown on the planning maps. Normally, such an application must be granted consent, but may be subject to conditions.

However, under section 106 of the Resource Management Act[56] the WDC may refuse subdivision consent in circumstances where *there is a significant risk from natural hazards*.

This means that where a subdivision is unable to provide building platforms that avoid a natural hazard, WDC is within its powers to refuse to grant subdivision consent, including when it is a controlled activity under the District Plan.

Based on the information WDC has about the debris flow hazard risks affecting the Awatarariki Fanhead and the inability to adequately mitigate the hazard through physical measures, it is highly unlikely that WDC could grant consent to any subdivision on the Awatarariki Fanhead.

4.6 Voluntary Managed Retreat Strategy

WDC has no legislative powers to compulsorily acquire land to enable retreat from high risk hazard areas. Current legislative powers only enable compulsory acquisition of land for public works and for heritage sites. While advocacy to change legislation to provide for such a power is possible, this was considered to be highly uncertain and unlikely to provide any timely resolution of issues at Matatā.

Acquisition of hazard-prone land has been mandated by central government in the past. Examples include Little Waihī village at the southern end of Lake Taupō in 1846 and 1910; Franz Joseph in 1993; Aoraki Mount Cook village in 2004; and the Port Hills red zone in Christchurch where owners of properties exposed to a very high boulder roll risk were paid to retreat from the hazard following the Canterbury earthquakes.

[54] It is noted, however, that existing uses are subject to regional plan rules - See RMA Section 10(4)(a)

[55] Rule 12.3.1.1 d

[56] S106 Consent authority may refuse subdivision consent in certain circumstances

Given the functions and obligations it has to manage risk from natural hazards, that District Plan rules cannot effectively reduce the risk on the Awatarariki Fanhead; and the stress and financial burden property owners and occupiers face, WDC has developed a voluntary managed retreat strategy (VMR). This strategy involves the provision of financial assistance to affected property owners to leave the high risk area.

The financial assistance proposed purchase of affected properties based on their current market value, ignoring the debris flow risk. The financial assistance includes additional contributions towards legal expenses for the sale of each property and purchase of a new property, a contribution to relocation costs (where applicable), mortgage break fees (where applicable), updated valuations prior to any formal offer being made, optional valuations by a second independent party, and an appeal process by which WDC is bound.

WDC considers that this solution offers an effective way for property owners to relocate away from the high natural hazard risk and fairly recognises the private burden of cost that accrues.

The funding needed to support the voluntary managed retreat strategy was negotiated between local, regional and central government, supported by a comprehensive Indicative Business Case[57].

The funding discussions culminated in a Memorandum of Understanding (MoU) recording agreement between the Crown, BOPRC and WDC to fund the cost of the Awatarariki Managed Retreat programme at an estimated cost of $15.058M. Following the MoU being agreed, property owners have been invited to participate in an acquisition process that involves:

- New property valuations by a valuer appointed by the District Council;
- A property valuation by a valuer selected by the property owner and paid for by the District Council;
- Peer review of all valuations by an independent valuation expert engaged by the District Council to ensure the methodology used by the valuers complied with NZ Valuation Standards;
- An opportunity for valuations to be contested through mediation.
- A second opportunity to contest valuations through arbitration by an arbitrator nominated by the President of the NZ Institute of Valuers; and
- Acceptance of an acquisition offer at any stage during the process.

An independent Acquisition Panel reviews each Agreement of Sale and Purchase prior to an Agreement being made unconditional.

At the date of this report, the status of the Awatarariki Managed Retreat Programme is as follows

- 34 properties (32 owners);
- 25 properties settled or unconditional (74%);
- 4 properties not settled or unconditional;
- 1 offer declined;
- 3 properties not entered process;

[57] Debris Flow Risk: A way forward for the Awatarariki Stream fanhead, Draft Indicative Business Case 16 August 2017

- 1 property working towards Māori reservation[58].

The land acquired under the voluntary managed retreat strategy is intended to be set aside for future public use.

A project has recently been commenced by the Council to develop an open space plan for the land where houses have been removed from the Awatarariki Debris Flow High Risk Area. The programme includes a high level of community engagement, with the engagement element of the programme spanning approximately four months.

Future activities could include those associated with passive recreational use, including access, walkways, fencing, and landscape development. Some of the land not in WDC ownership could be used as a commemorative area for the battle of Kaokaoroa.

4.7 Issues Summary

WDC has a statutory responsibility to manage natural hazards in areas that are subject to significant risk.

The Awatarariki Fanhead area is known to be subject to debris flows. Part of the area has an overall high risk classification under the RPS risk scale.

WDC has an obligation under the RPS to take steps to reduce high hazard risk at least to medium levels, and to reduce medium risk to be as low as reasonably practicable. In doing so, it must apply a precautionary approach.

Given the inadequacy of engineering solutions the only way to meet this obligation is to reduce the potential consequences of a debris flow event through land use planning mechanisms.

WDC proposes that current land uses on the Awatarariki Fanhead be subject to managed retreat. WDC's preference is for managed retreat to be voluntary and achieved through the purchase of affected properties at the current market value, ignoring debris flow risk.

A voluntary managed retreat programme has been established for the high risk area. This programme is substantially implemented with 75% of properties acquired. Work is proceeding on planning for the future use of the acquired land as public open space.

While the District Plan does not yet identify the debris flow risk on the Awatarariki Fanhead, the current situation is that it is unlikely that any new subdivision or building could be allowed to occur on the land, as this would not comply with provisions of the Resource Management Act and Building Act. Under these provisions, debris flow hazard risk can be managed so that it does not increase.

No District Plan provisions can ensure a reduction of risk because existing use rights continue to apply. Only a rule in a Regional Plan can remove existing use rights and reduce risk by terminating existing residential activities in the high-risk debris flow area.

Regardless of the voluntary managed retreat proposal, debris flow risk associated with existing and future development needs to be managed under the District and Regional Plans. This relates to:

[58] Email: Jeff Farrell, 4 August 2020

- Managing the risk that could remain inside the high-risk area if there were incomplete take up of the voluntary managed retreat strategy;
- Managing the risk that remains in areas affected by debris flows in the medium risk area.

5.0 Consultation

Under clause 3(1) of Schedule 1 to the RMA, local authorities are required to consult the Minister for the Environment, local authorities who may be affected by the plan, and the tangata whenua of the area who may be so affected, through iwi authorities.

5.1 Ministry for the Environment

Ministry for the Environment personnel attended project team meetings by invitation and provided comments on draft assessments and plan change documentation.

5.2 Bay of Plenty Regional Council

The WDC presented three times to the elected representatives of the BOPRC on the WDC Awatarariki Debris Flow Risk Management Programme. Consultation also occurred with policy staff of BOPRC to discuss matters relating to Regional Policy Statement compliance and matters relating to the proposed plan change. BOPRC staff provided comment on draft assessments and plan change documentation, including advice on aligning the plan change with the re-issued RNRP.

5.3 General Community Engagement on Debris Flow Hazard Management in Matatā

A summary of key decisions, actions and engagement since the 2005 debris flow event is included in Appendix 2.

5.4 Consultation on Proposed Plan Changes

In addition to the engagement that occurred since the debris flow in 2005, consultation with the directly affected parties in the high and medium risk areas, the wider Matatā area, and Iwi, occurred during August, September and October 2017.

Drop in days for the property owners and occupiers in the high and medium risk areas were held at St Joseph's church hall on 15, 21, and 25 August 2017. These open days were well attended, with 28 people from the high and medium risk areas attending.

A drop-in-day was also held for the owners and occupiers of properties in Matatā on 13 September 2017. Eight people took the opportunity to attend this drop in day.

A review of the comments made during consultation meetings with the people with properties in the high risk area of the Awatarariki Fanhead falls into two groups of interests.

One group of interests generally accepted that the risk to life and property is high, and that Council should advance the issue to let them move on with their lives. This group wanted the Voluntary Managed Retreat Package to be advanced as soon as possible. For some, the indicative offer needed further work to make it acceptable to them. This group had less interest in the details of the proposed Plan Changes because they saw the Voluntary Managed Retreat Package as largely addressing the issue.

The other group of interests do not support the Council and its approach to managing the debris flow hazard at Awatarariki. This primarily stems from 12 years of decisions and actions by WDC that they consider to be inappropriate. Most of this group do not believe that the risk assessments undertaken by Council and its consultants, including peer reviews, are credible. Some in this group indicated an acceptance of the risk and expressed a wish to be able to be allowed to live with the risk.

For this latter group, the decision by WDC to request a change to the Regional Plan, when previously this was not proposed, has increased their dissatisfaction with the process. Several expressed the view that initiating the Regional Plan Change was "closing the back door" before they had a chance to escape.

A view common to both groups is the focus on the Voluntary Managed Retreat Package being concluded as expeditiously as possible, and an acceptable offer being made.

Consultation with Ngāti Awa, Ngāti Rangitihi, and Ngāti Rangitihi Raupatu Trust provided an initial indication of support for retreat from the high risk area. Consultation with Ngāti Tūwharetoa ki Kawerau will continue to be initiated.

Ngāti Hinerangi Trust, representing the owners of 21, 23, 25, 27 and 29 Clem Elliot Drive, 106, 108, and 110 Arawa Street, and 2 and 4 McPherson Street, were consulted separately given that Council has for some time worked with this group to enable their aspirations for that property, as a commemorative site for the battle of Kaokaoroa.

Consultation with Kiwirail identified that while most works can be carried out under the current railway designation, there is an efficiency benefit in ensuring that the District Plan rules provide for the retention, maintenance and enhancement of the existing line.

5.5 Advice from Iwi Authorities

Under clause 4A of Schedule 1 to the RMA local authorities are required to:

- provide a copy of any draft policy statement or plan to any iwi authority previously consulted under clause 3 of Schedule 1 prior to notification;
- allow adequate time and opportunity for those iwi authorities to consider the draft and to supply advice; and
- have particular regard to any advice received before notifying the plan.

Section 32(4A) requires evaluation reports prepared in relation to proposed policy statements and / or plans to include summaries of:

- all advice received from iwi authorities concerning the proposal; and
- the response to that advice, including any proposed provisions intended to give effect to the advice.

The following is a summary of the advice received from iwi authorities specific to the draft / proposed provisions evaluated within this report:

5.5.1 Ngāti Awa

Ngāti Awa have repeated their preference for retreat from the lower Awatarariki catchment as stated in their 2009 addendum to a joint Cultural Impact Assessment undertaken alongside Ngāti Rangitihi and Ngāti Tūwharetoa ki Kawerau. It is acknowledged that the Whakatāne District Council endeavoured to find an engineering solution to manage the debris flow hazard. There was also concern expressed for the residents of the Awatarariki Fanhead, and Te Rūnanga o Ngāti Awa considers that the voluntary managed retreat option will bring certainty to the affected families and the wider community.

Ngāti Awa have indicated they wish to submit on each of the plan changes once they are notified.

These comments are consistent with the plan change, and it is considered that no further changes are required.

5.5.2 Ngāti Rangitihi

Te Mana o Ngāti Rangitihi Trust supports the comments made by Ngāti Awa relating to the Regional and District planning provisions proposed.

The Trust have also indicated that they wish to submit once the plan changes are notified.

Following these comments, no further changes are required.

5.5.3 Ngāti Tūwharetoa ki Kawerau

Ngati Tuwharetoa ki Kawerau support in principal the proposed plan changes for planning provisions in the regional and district plans for the Awatarariki Stream Fan-head at Matata and reserved our right to submit when the plan is notified.

Following these comments, no further changes are required.

5.5.4 Mataatua District Māori Council

A hui was held with Chairman Maanu Paul and Secretary David Potter at Whakatāne District Council on the 11th of September 2017. Also in attendance were Alice Kranenburg, Shane McGhie and Jeff Farrell from Whakatāne District Council and Martin Butler from Bay of Plenty Regional Council. Formal comments were received on the 4th of December 2017, and these align closely with the kōrero at the earlier hui.

Mr Paul and Mr Potter gave detail of historical murupara (debris flow) events and said that they couldn't see any alternative but to retreat from the Awatarariki Fanhead. They cited climate change leading to more heavy rainfall events, which could increase the likelihood of more devastating murupara in the future. They have explicitly stated their support for the private plan change request to retreat from the Fanhead.

Mr Paul and Mr Potter commented that much of the Awatarariki catchment has been converted from bush to farmland. However, it is Whakatāne District Council's understanding the Awatarariki catchment is small and steep, and predominantly in bush cover so is unsuitable for farming. The land use within the Awatarariki catchment has been fully considered in the risk assessment and does not change the need for, or form of the proposed plan changes.

Comments were also made about identifying the active Awatarariki, Waimea and Waitepuru geological faults dissecting Matatā, and including any homes within 20 metres of these faults in the retreat. Because of the discrete nature of the identified hazard, as well as the urgency relating to the high risk to life, these plan changes are limited to addressing debris flow hazard on the Awatarariki Fanhead. Other hazard issues affecting the District will be addressed in the future.

5.6 Consultation on Material Included by Reference

The proposed plan changes refer to the Australian Geomechanics Society - Landslide Risk Management 2007 risk assessment methodology (AGS 2007).

Under clause 34, Schedule 1 to the Resource Management Act 1991, material that is proposed to be incorporated by reference in a plan change must be made available for comment prior to notification of the plan change. Any comments made must be considered by both Councils.

AGS 2007 was made available for comment by the public on 1 May 2018 with a closing date for comments on Tuesday 22 May 2018.

Comments were made by four parties. The comments received by the Councils primarily concerned the readability and relevance of the AGS 2007 document. These comments are summarised in the table below.

The comments were considered jointly by the Councils with the responses and actions also set out in the table below.

Comment Summary	Response	Action Taken
The AGS 2007 document is extremely challenging for laypeople to read and understand. The implications of the document should be understood by all parties involved in the process.	It is acknowledged that the AGS 2007 document is complex and may be difficult for laypeople to read and interpret. The AGS 2007 document was prepared by experts in the field of geomechanics specifically to provide guidance to government regulators and geotechnical practitioners. The value of referencing a technical document like the AGS 2007 in the District Plan includes providing greater clarity on the intent of the plan while avoiding cluttering the plan with too much detail.	An additional summary text is included in the District Plan Change Documentation (Section 32 Report) to help explain the main principles applied in the AGS 2007 document and its relevance to the plan change.
Further time should be provided to fully consider the information in the AGS 2007 document.	Notification of the proposal to reference the AGS 2007 document was required by clause 34 of Schedule 1 to the Resource Management Act 1991 (RMA). Pre-notification and consultation on the document before the proposed plan is notified is intended to give	Sufficient time (90 days) was provided to consider the information in the AGS 2007 document in the submission period for the proposed plan changes.

Comment Summary	Response	Action Taken
	interested parties a lead-in time to understand the off-plan material intended to be incorporated by reference. There will soon be an additional, substantive opportunity to respond to the inclusion of reference to the AGS 2007 document in the plan changes when the proposed changes themselves are notified for submissions.	
The Councils should provide funding for an independent planner to assist affected residents to interpret the document and its implications for the plan change process.	Given the complexity of the technical and planning issues it is agreed that assistance should be made available by the Council to affected people. This should extend to the Plan Changes as a whole and not be limited to the AGS 2007 document.	The Whakatane District Council appointed independent planning expertise to assist affected people who live in Matata to understand the implications of the Plan Change, including AGS 2007. Three independent planners were made available to provide guidance on the process and requirements for making an effective submission but not to provide legal advice or any other substantive input concerning the merits of the case.
Environmental conditions in Australia are very different to NZ and the relevance of the AGS 2007 document is therefore questioned.	Although New Zealand is a signatory to the international standard 'Risk Management - Principles and Guidelines' (AS/NZS ISO 31000:2009), it does not have its own formal system of assessing landslide and debris flow risk. The methodology published in 2007 by the AGS is now generally followed in New Zealand when a quantitative assessment is required. The applicability of the AGS 2007 document to the situation at Matata has been determined by an expert geotechnical practitioner, and the risk assessments have been extensively peer-reviewed.	No
The risk framework in the document is inconsistent with the BOP Regional Policy Statement.	The Regional Policy Statement requires the level of natural hazard risk to be determined using the	No

Comment Summary	Response	Action Taken
	methodology set out in Appendix L. Appendix L allows the use of a 'default methodology' in the RPS or use of a Recognised Risk Assessment Methodology (RRAM) included in a regional, city or district plan or recognised in the consideration of a resource consent application. This may include risk assessment methodologies incorporated in Regulations or industry codes of practice. The AGS 2007 document is a RRAM listed in the RPS Natural Hazard Risk Assessment User Guide. This RRAM is proposed to become part of the regional and district plan policy framework through Schedule 1 Plan Change processes	
WDC has not previously referred to, nor disclosed any reliance upon the AGS 2007 document in its assessment of hazards and risks.	The AGS 2007 document has been referenced in all Council documentation since 2013 when landslide and debris flow hazards and risk have been assessed. This includes the following information published and made available to residents at Matatā from 2013: • Managing Debris Flow and Landslide Hazards from the Matatā Escarpment Summary Debris Flow and Landslide Risk Study and Management Options July 2013; • Quantitative Landslide and Debris Flow Hazard Assessment Matatā Escarpment November 2013; • Supplementary Risk Assessment Debris Flow Hazard Matatā, Bay of Plenty July 2015.	No

5.7 Submissions on Proposed Plan Changes

Submissions on the Plan Changes are appended to and summarised in the Section 42A Report (Section 5) and summarised in the Commissioner Panel Decision (Section 8).

Submissions opposing the Plan Changes raised concerns in relation to:

- Inconsistency with higher order statutory instruments;
- Lawfulness and Council functions;
- Inappropriate use of the Australian Geomechanics Society Landslide Risk Management (AGS 2007) document;
- Assessed level of risk being imprecise and/or overstated;
- Insufficient consideration of alternatives and lesser interventions, including warning and evacuation, catchment management, and risk acceptance;
- Restriction on the reasonable use of land;
- Prohibited activities being a disproportionate response;
- Removal of existing use rights.

Several submissions in support were also received.

A submission by Te Runanga o Ngati Awa supported the strategy of moving people out of harm's way but promoted further engagement with Council over the reserve area in which koiwi from the Matata area have been reinterred and planning for relocation away from areas affected by future debris flows.[59].

[59] https://cdn.boprc.govt.nz/media/796271/submitter-1-te-runanga-o-ngati-awa.pdf

6.0 Evaluation of Objectives

Section 32(1)(a) requires that an evaluation report must examine the extent to which the objectives of the proposal being evaluated are the most appropriate way to achieve the purpose of this Act.

Objective 31 of the Operative RPS is:

> *"Avoidance or mitigation of natural hazards by managing risk for people's safety and the protection of property and lifeline utilities".*

Objective Haz 1 of the Operative District Plan is:

> *"Manage the subdivision, use, development and protection of land so as to avoid or mitigate the adverse effects of natural hazards on the life and wellbeing of people, and significant environmental values."*

No changes are proposed to the operative District Plan objective. The operative objective is consistent with, and assessed as the most appropriate way to achieve, the purpose of the Act which is to promote the sustainable management of natural and physical resources. The meaning of sustainable management includes:

> *"managing the use,* [and] *development … of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic and cultural well-being and for their health and safety …"*

An associated matter of national importance is section 6(h) *the management of significant risks from natural hazards*.

A proposed new objective for the Regional Natural Resources Plan is:

> *"Avoidance or mitigation of debris flow hazard by managing risk for people's safety on the Awatarariki Fanhead"*

This objective is appropriate having regard to:

Relevance

This objective is directed to addressing a resource management issue. It reflects the specific circumstances that apply on the Awatarariki Fanhead at Matatā and the focus on reducing risk to life. The proposed objective is consistent with, and assessed as the most appropriate way to achieve, the purpose of the Act. The objective is within the scope of RPS Objective 31 which is *"Avoidance or mitigation of natural hazards by managing risk for people's safety and the protection of property and lifeline utilities".*

Feasibility

This outcome is realistically able to be achieved within council's powers, skills and resources.

Acceptability

The objective is consistent with, and gives effect to, the RPS provisions relating to natural hazard management. Therefore, the objective will not result in unjustifiable costs on the community or parts of the community.

7.0 Evaluation of Provisions

7.1 Section 32 Requirements for preparing and publishing evaluation reports

Section 32(1)(b) requires that an evaluation report must:

> *" … examine whether the provisions in the proposal are the most appropriate way to achieve the objectives by—*
>
> *i. identifying other reasonably practicable options for achieving the objectives; and*
>
> *ii. assessing the efficiency and effectiveness of the provisions in achieving the objectives; and*
>
> *iii. summarising the reasons for deciding on the provisions; and…"*

Section 32(1)(c) requires that an evaluation must "*contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal."*

Section 32(2) states: "*An assessment under subsection (1)(b)(ii) must:*

(a) identify and assess the benefits and costs of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the provisions, including the opportunities for—
  i. economic growth that are anticipated to be provided or reduced; and
  ii. employment that are anticipated to be provided or reduced; and
(b) if practicable, quantify the benefits and costs referred to in paragraph (a); and
(c) assess the risk of acting or not acting if there is uncertain or insufficient information about the subject matter of the provisions."

7.2 Evaluation Method

7.2.1 Reasonably Practicable Options

The reasonably practicable options identified for evaluation are the outcome of a process of assessment and engagement with the community and other stakeholders.

Several non-regulatory options (risk acceptance, engineering or structural interventions, catchment management, warning and evacuation systems) are identified but excluded. The reasons for their exclusion are set out.

Voluntary managed retreat is identified as an option and whilst this offered a potentially effective option, it had not been proven as practicable at the time the Plan Changes were notified as it still remained subject to funding approval. Subsequent funding approval has resulted in voluntary managed retreat becoming a reasonably practicable option.

Regulatory options under the District Plan and Regional Natural Resources Plan are described in detail sufficient for evaluation.

7.2.2 Evaluating Effectiveness

Effectiveness generally means consideration of the extent to which an intended outcome will be achieved by an option.

In this case, the relevant outcomes against which effectiveness of an option should be assessed are:

- Risk reduction in the High Risk Area to medium levels (and lower if reasonably practicable);
- Risk reduction in the Medium Risk Area to as low as reasonably practicable.

An option should be evaluated as reasonably effective and not fatally-flawed before its efficiency is considered.

7.2.3 Evaluating Efficiency

The most efficient option will be the one that can achieve the outcome at least overall or net cost, taking into account all costs and benefits arising from the intervention.

This is confirmed and emphasised by the Environment Court in *Royal Forest & Bird Protection Society Inc v Whakatāne District Council* [2017] NZEnvC 051 (*Royal Forest & Bird*). In that decision, Judge Kirkpatrick confirmed at paragraph [59]:

> *"(59) In considering what rule may be the most appropriate in the context of the evaluation and section 32 of the Act, we consider that notwithstanding the amendments that have been made to that section in the meantime, the presumptively correct approach remains as expressed in Wakatipu Environmental Society Inc v Queenstown Lakes District Council: that where the purpose of the Act and the objectives of the plan can be met by a less restrictive regime then that regime should be adopted. Such an approach reflects the requirement in section 30(1)(b)(ii) to examine the efficiency of the provision by identifying, assessing and, if practicable, quantifying all of the benefits and costs anticipated from its implementation. It also promotes the purpose of the Act by enabling people to provide for their well-being while addressing the effects of their activities."*

The obligation under section 32(b)(ii) is to give effect to the objective in the least restrictive manner possible or at the least cost possible.

Hence the efficiency of the options can be evaluated and compared by assessing the following:

- Costs and benefits of establishing the provisions;
- Costs and benefits of compliance with the provisions.

7.2.4 Economic Growth and Employment

Provision or reduction of economic growth and employment will not be significant issues for the proposed plan changes. The affected area does not contain any significant business or employment activities.

The removal of the ability to use parts of the Awatarariki Fanhead in the future in ways that create economic and employment opportunities will have minimal impact on community well-being in the long term. That is because of the relatively small area affected by the planning provisions and the

high likelihood that other values and interests in the area would, in any event, have curtailed development.

Delineation of the areas at risk also identifies areas not subject to risk. This narrows the area subject to debris flow risk and provides certainty for economic growth outside of the risk areas.

7.2.5 Risk of Acting or Not Acting

Risks of acting and not acting have been assessed by considering the District and Regional Plan changes together.

Risks of acting are:

- Future research on debris flows may identify new information that could reduce the assessed risk and may then enable existing uses to remain or new development to occur on the Fanhead that is not provided for in the rules as proposed;
- Future development of warning and evacuation systems could improve reliability to the point that enables existing uses to remain or more new development to occur on the Fanhead.

In either event, a lower level of intervention and control of development could be appropriate.

There is no indication that either of these events is likely. The information on which the plan changes are based has been developed through a rigorous process and applies the best available information and methods. The efficacy of a warning system, no matter how sophisticated, will rely on self-evacuation within a short timeframe that cannot be assured.

Risks of not acting are:

- Activities will remain susceptible to a debris flow event occurring that causes fatalities and damage to property as quantified in the risk assessment;
- Community risks will remain for those engaged in any response to a future debris flow including the potential need to rescue affected homeowners, and supporting the recovery of the area for re-occupation;
- The inability to obtain consents to enable development of land affected by the high hazard risks will not be reflected in the planning provisions that apply to the land in question;
- Potential for the District Plan to confuse and undermine public understanding of the nature of the risk.

Each of these events is likely to occur. The risk to human life and wellbeing is the key reason for initiating the proposed Plan Changes. The risks of not acting are considered to outweigh the risks of acting.

7.2.6 Scale and Significance

An evaluation must contain a level of detail that corresponds to the scale and significance of the environmental, economic, social, and cultural effects that are anticipated from the implementation of the proposal.

The proposed plan changes give effect to a higher-level RMA document, the RPS natural hazard policy. The RPS is directive, with the requirement to reduce risk from high to medium or as low as reasonably practicable being placed on the District Council. The appropriateness of this policy

has been determined through the RPS evaluation and consideration processes. The District Council is required to identify effective measures to reduce natural hazard risk and to assess efficiency.

While the degree of change is significant, this applies to a localised and limited number of properties and landowners and relates to a relatively unique set of circumstances.

The most significant effects of the change to the Regional Natural Resources Plan (removal of current land uses from the high risk zone) will occur in the short to medium term. While the proposed changes are in part new and untested, there is a high degree of confidence in the assessment of natural hazard risk and the appropriateness and legal validity of the proposed plan provisions as a measure to minimise loss of life.

The evaluation and supporting documentation provide assessments of hazard risk to a level of detail and rigour using best practice methods that recognises the significant economic and social implications for identified individual property owners.

Consultation with all directly affected landowners has occurred.

Non-regulatory options that might have avoided or lessened social and economic impacts on landowners have been evaluated by recognised experts using the best available data.

The other effects of the change (managing risk to land uses that remain in medium risk zone) are consistent with existing plan provisions and are of minor significance.

8.0 Non-Regulatory Options

8.1 Risk Acceptance

Although residents have indicated varying degrees of acceptance of natural hazard risk, WDC, BOPRC, and Central Government all have overarching legislative responsibilities to act on behalf of communities to reduce or mitigate risk to life safety from natural hazards.

There is a clear difference between individual acceptance of a risk and wider community acceptance, especially as risks relating to continued occupation of the high risk area are not confined to the current residents. Community risks remain for those engaged in any future response to a debris flow including the potential need to rescue affected homeowners and supporting the recovery of the area for re-occupation.

The Indicative Business Case included a range of modelled scenarios with associated costings. The financial cost of a repeat event (the same magnitude as 2005 and occurring before 2021) was estimated to be $32.5 million dollars[60]. This includes costs for: loss of life; building damage; loss of contents; response and recovery costs. The costings used 2016 financial data and inflation and discount value weren't included.

8.2 Engineering or Structural

Engineering or structural options to reduce risk have been thoroughly investigated and proven not to be reasonably practicable.

This includes protection work undertaken on an area-wide basis such as debris dams, bunds and channels; and works to protect property in the high risk area such as raised building platforms and debris barriers.

8.3 Catchment Management

Catchment management options include measures such as tree planting to stabilise valley sides and active management of debris build up behind naturally occurring log-jam dams.

These options have been investigated in a peer reviewed report[61],[62]. The conclusion is that effectiveness of measures of this type is uncertain and they are likely to have only a minor influence on the size and impact of a debris flow event. The intensity of rainfall that causes debris flow is such that it will overwhelm the catchment causing debris avalanches into the stream and bed scour that generate most of the destructive material in the flow.

It is estimated that a maximum of about 40,000 – 50,000 m^3 of debris may have been present in Awatarariki stream in storage behind log-jam dams prior to the 2005 debris flow. This is 8 – 14% of the estimated total volume of the event and is less than the margin of error of the total volume

[60] Debris Flow Risk: A way forward for the Awatarariki Stream fanhead, Draft Indicative Business Case 16 August 2017 Page 67.

[61] The Significance of Sediment Stored Behind Log Dams to the 2005 Awatarariki Debris Flow; Implications for Risk Management; Tim Davies, Dept Of Geological Sciences, University of Canterbury September 2017

[62] Peer review of report: "The significance of sediment stored behind log jams to the 2005 Awatarariki debris flow; implications for risk management" by Prof. Tim Davies; Contract Report: LC3158; Chris Phillips; April 2018; Manaaki Whenua – Landcare Research

estimate. Maintaining the catchment free of log-jams will not contribute to reducing debris-flow risk on the Awatarariki Fanhead.

These measures are also logistically difficult and require long term public resource commitments that cannot necessarily be assured.

On this basis, catchment management measures would not derogate from the precautionary approach recommended through the risk assessment process.

8.4 Early Warning Systems

Early warning Systems (EWS) have the potential to reduce risk-to-life to an acceptable level by enabling residents to evacuate when it is known that a debris-flow is moving down the catchment, so that they are not in the flow-path when the debris-flow passes.

A further value of such a system would be to allow the road and rail corridors to be closed to traffic when a debris-flow impact is anticipated, again preventing possible deaths. In all these cases, the residual risk to life may be reduced substantially if an effective and reliable warning-evacuation system can be implemented.

EWS and evacuation protocols have been investigated as a mechanism to protect life safety in case of an imminent debris flow in the catchment[63].

This investigation found that, while warning systems are feasible, due to the velocity of flow, proximity of dwellings, and the probable length of time it would take to evacuate, such systems cannot provide sufficient warning time, and that risk to life for residents on the Awatarariki Stream fanhead cannot be reduced by provision of a debris-flow warning system.

The investigation also found that a trip-wire debris-flow detection system at the lowest major confluence on Awatarariki Stream can trigger immediate deployments of lights and barriers on both road and rail corridors and prevent users from entering the high-risk area. Because road and rail users are present on the fan for different proportions of total time than residents, specific risk analyses would need to be undertaken to determine the acceptability or otherwise of their risk-to-life and hence the need or otherwise for a warning-closure system.

The behavioural impacts of procedures for issuing warnings in hazard zones also require careful consideration. Indicators or thresholds for taking this course of action would need to be agreed ahead of time. Desensitisation by the “cry wolf” syndrome may arise if thresholds are set too low. Lives may be put at greater risk if thresholds are set too high.

Agreement would also be need reached on who would take the responsibility for the action and the continued operation of the monitoring equipment and warning systems.

In response to submissions seeking further consideration of early warning systems in the management of debris flow risk, WDC commissioned GNS to scope out the potential design and effectiveness evaluation of a public facing EWS and to evaluate whether an EWS would be suitable/unsuitable for the Council to consider as an option to manage risk. The report[64] results found that an EWS is unlikely to allow all potential people present in the hazard zone at the time that a debris flow is initiated to evacuate to safe areas.

[63] Awatarariki Fanhead, Matata: Debris-Flow Early Warning Systems Feasibility Study, T.R.H. Davies, Dept. Of Geological Sciences, University of Canterbury, December 2017

[64] Awatarariki catchment debris flow early warning system framework; GNS Science Report 2019/77, February 2020

Given the uncertainties, adopting an EWS is not aligned with taking a precautionary approach as stated in the RPS.

On this basis, an EWS is not a reasonably practicable option that can be relied on for allowing new development in areas of significant hazard or for existing development to remain where the risk is identified as being high.

8.5 Voluntary managed retreat

The option of voluntary managed retreat is discussed above in the context of background and described in the resource management issues analysis.

A detailed business case to support funding was negotiated through District, Regional and Central Government[65].

Five Options were shortlisted for detailed consideration against strategic, economic, commercial, financial and management criteria.

The shortlisted options were:

- Option 0: Status quo – to be used as baseline comparator.
- Option 1 (do minimum): Voluntary managed retreat of existing dwellings in high risk zone (300,000m^3 event), short timeframe (2020), and Plan Changes. Voluntary managed retreat for existing dwellings only (16 homes), based on magnitude event of 300,000m^3, delivered by WDC by 2020 and funded by central and local government through a retreat package.
- Option 2 (intermediate): Voluntary managed retreat of all properties in high risk zone (300,000m^3 event), short timeframe (2020), and Plan Changes. Voluntary managed retreat for all properties (16 homes and 18 vacant sections), based on a magnitude event of 300,000m^3, delivered by WDC by 2020 and funded by central and local government with a retreat package. The scale of event planned for is the same as Option 1. Option 2, however, also includes the 18 vacant privately owned sections as well as the 16 homes.
- Option 3 (less ambitious): Voluntary managed retreat of all properties in high risk zone (450,000m^3 event), long timeframe (2036), and Plan Changes. Voluntary managed retreat for all properties (18 homes and 18 vacant sections), based on magnitude event of 450,000m^3, delivered by WDC by 2036 and funded by central and local government through a retreat package.

  A magnitude 450,000m^3 event was also modelled by Tonkin and Taylor (2015) as a possibility and has been chosen to represent planning for a larger event compared with the 2005 debris flows. The risk to life safety of a repeat debris flow of this magnitude has been modelled as affecting an area containing 18 homes (2 additional properties to Options 1 and 2) and 18 privately owned sections.
- Option 4 (ambitious): Managed retreat (compulsory) of all properties in high risk zone (450,000m^3 event), short timeframe (2020). Compulsory retreat for all properties (18 homes and 18 vacant sections), based on a magnitude event of 450,000m^3, delivered by BOPRC or central government by 2020, and funded by homeowners and/or BOPRC and/or central government.

[65] Debris Flow Risk: A way forward for the Awatarariki Stream fanhead, Draft Indicative Business Case 16 August 2017

The preferred way forward was a voluntary managed retreat of 34 privately-owned properties on the Awatarariki Stream fanhead that have a high loss-of-life risk exposure to future debris flows. (Option 2).

9.0 District Plan Options

Reasonably practicable options for achieving the objectives of the proposal through changes to the District Plan are described and evaluated below.

9.1 Option1 - Business as Usual

Retain the District Plan provisions as they are, as described above in the issues section.

9.2 Option 2 - Residential Zoning with "NHaz4" Policy Overlay

Retain the Residential Zone and identify all the land susceptible to debris flow with an NHaz4 (falling debris and debris flows) hazard notation on the District Planning Maps.

The effect of this would be to make any future development within the area susceptible to debris flow hazards a "discretionary activity" and subject to a hazard risk assessment.

This is primarily a change to the Planning Maps and would use existing District Plan methods for development control. No changes to objectives, policies and rules would be required.

9.3 Option 3 - Coastal Protection Zone with "NHaz4" Policy Overlay

Rezone the area of existing residential land at high debris flow risk (retreat area) to Coastal Protection Zone and identify all land susceptible to debris flow hazard with a NHaz4 (falling debris and debris flows) hazard notation**.**

Properties susceptible to debris flow outside the retreat area would retain a Residential Zone/NHaz4 notation as for Option 2.

The effect of this would be to make any future development within the area susceptible to debris flow hazards a "discretionary activity" and subject to a hazard risk assessment.

This is primarily a change to the Planning Maps and would use existing District Plan methods for development control. No changes to objectives, policies and rules would be required.

9.4 Option 4 - Coastal Protection Zone with "Awatarariki Debris Flow Policy Area"

This option creates a new Awatarariki Debris Flow Policy Area with High Risk, Medium Risk and Low Risk Areas identified as hazard overlays on the Planning Maps.

In the High Risk Debris Flow Area, permanent occupation by susceptible activities would be a Prohibited Activity. The existing residentially zoned land would be zoned Coastal Protection Zone

reflective of its limited development potential, and appropriate future use and relationship to the coastal reserve.

In the Medium Risk Debris Flow Area, land would retain a Residential Zone and would be subject to controls through the Resource Consent process restricting future development unless a reduced level of risk can be proven.

In the Low Risk Debris Flow Area, land would retain a residential zoning. The level of risk would be identified in the District Plan and LIMs, and taken into account in any resource consent application proposing to intensify activities

Changes to Planning Maps, policies, and rules would be required.

9.5 Option 5 - "Awatarariki High Risk Debris Flow Zone" with "Awatarariki Medium Risk Debris Flow Policy Area"

This option would create a new Awatarariki High Risk Debris Flow Hazard Zone on the planning maps and make permanent occupation by susceptible activities a Prohibited Activity under the District Plan.

In the Medium Risk Debris Flow Area, land would retain a Residential Zone and would be subject to controls through the Resource Consent process restricting future development unless a reduced level of risk can be proven.

In the Low Risk Debris Flow Area, land would retain a residential zoning. The level of risk would be identified in the District Plan and LIMs and considered in any resource consent application proposing to intensify activities.

Changes to Planning Maps and a new zone and overlay with related policy and rules would be required.

9.6 Excluded District Plan Options

Consideration has been given to other District Plan options including:

- Incorporating the changes for Awatarariki in a District-wide Plan Change to update Planning Maps, objectives and policies and rules relating to all areas that have been identified and assessed as having falling debris and debris flow hazards (i.e. at Ōhope, Whakatāne and Matatā);
- Incorporating the changes for Awatarariki in a District-wide Plan Change to the entire Hazards Chapter to give full effect to the RPS Hazards Policy.

These options have been excluded because of the discrete nature of the issues at Awatarariki and the desire to align the work streams within the Awatarariki Debris Flow Risk Management Programme. The programme for the plan changes to give full effect to the RPS is likely to continue through to at least 2022, given the extent of investigation of multiple hazards and consultation that will be required.

9.7 Evaluation of District Plan Options

The following table evaluates the options in terms of their effectiveness and efficiency.

Criteria		**Option 1 - Business as usual**	**Option 2 - Residential Zoning with "NHaz4" Policy Overlay**	**Option 3 - Coastal Protection Zone with "NHaz4" Policy Overlay**	**Option 4 - Coastal Protection Zone with "Awatarariki Debris Flow Policy Areas"**	**Option 5 - Awatarariki High Risk Debris Flow" Zone with "Awatarariki Medium Risk Debris Flow" and "Awatarariki Low Risk Debris Flow" Policy Overlays.**
Effectiveness	Risk Reduction in High Risk Area	Low Zoning is misleading given very low likelihood of development being allowed. Reliant on general Building Act and RMA process under Section 106 to limit development. Inconsistent with other plan provisions. Doesn't achieve reduction of current high risk.	Low - Moderate Can prevent further development and subdivision. Discretionary activity consent for any new development or subdivision enables risk to be assessed. Likely perception of potential for residential use of the land while there is a very low actual likelihood of gaining consent for residential use. The risk assessment concludes that there is no practicable method that can enable development in the high risk area and achieve a low risk once development is completed. Existing use rights apply so existing residential activities can continue. Doesn't achieve reduction of current high risk.	Low-Moderate Can prevent further development and subdivision. Land use consent for any new development or subdivision enables risk to be assessed. Possible perception of potential for residential use of the land while there is no likelihood of gaining consent for residential use. The risk assessment concludes that there is no practicable method that can enable development in the high risk area and achieve a low risk once development is completed. Existing use rights apply so existing residential activities can continue. Doesn't achieve reduction of current high risk.	Moderate Will prevent further development and subdivision. No ambiguity in plan provisions as rule reflects level of risk which is not capable of mitigation. Existing use rights apply so residential activities can continue. Doesn't achieve reduction of current high risk.	Moderate Will prevent further development and subdivision. No ambiguity in plan provisions as rule reflects level of risk which is not capable of mitigation. Existing use rights apply so residential activities can continue. Doesn't achieve reduction of current high risk.
	Risk Reduction in the Medium Risk Area	Low No reduction in risk Reliant on general Building Act and RMA process under Section 106 to limit development. Inconsistent with other plan provisions.	Low/Moderate Can control further development and subdivision. Resource Consent process for any new development or subdivision enables risk to be assessed as part of resource consent process. Existing use rights apply so residential activities can continue. Can achieve reduction of current medium risk over time as redevelopment occurs.	Moderate Can control further development and subdivision. Resource Consent process for any new development or subdivision enables risk to be assessed as part of resource consent process. Existing use rights apply so residential activities can continue. Can achieve reduction of current medium risk over time as redevelopment occurs.	Moderate Can control further development and subdivision. Resource Consent process for any new development or subdivision enables risk to be assessed as part of resource consent process. Existing use rights apply so residential activities can continue. Can achieve reduction of current medium risk over time as redevelopment occurs.	Moderate Can control further development and subdivision. Resource Consent process for any new development or subdivision enables risk to be assessed as part of resource consent process. Existing use rights apply so residential activities can continue. Can achieve reduction of current medium risk over time as redevelopment occurs.

Criteria		Option 1 - Business as usual	Option 2 - Residential Zoning with "NHaz4" Policy Overlay	Option 3 - Coastal Protection Zone with "NHaz4" Policy Overlay	Option 4 - Coastal Protection Zone with "Awatarariki Debris Flow Policy Areas"	Option 5 - Awatarariki High Risk Debris Flow" Zone with "Awatarariki Medium Risk Debris Flow" and "Awatarariki Low Risk Debris Flow" Policy Overlays.
	Risk Management in the Low Risk Area	Low No management of risk – reliant on Building Act process. Inconsistent with other plan provisions. Fails to give effect to the RPS	Moderate The level, albeit low, is identified and persons considering purchase and/or development are made aware of the risk.	Moderate The level, albeit low, is identified and persons considering purchase and/or development are made aware of the risk.	Moderate The level, albeit low, is identified and persons considering purchase and/or development are made aware of the risk.	Moderate The level, albeit low, is identified and persons considering purchase and/or development are made aware of the risk.
Efficiency	Establishment process	Not assessed. An option must be assessed as reasonably effective and not fatally-flawed before its efficiency is considered.	Moderate Changes are over a discrete area with robust technical basis. Minimal changes to District Plan.	Moderate Changes are over a discrete area with robust technical basis. Minimal changes to District Plan.	Moderate Changes are over a discrete area with robust technical basis. Changes consistent with the Operative District Plan structure and potentially consistent with the format of pending national planning standards as indicated through Ministry for the Environment consultation.	Low - Moderate Changes are over a discrete area with robust technical basis. Plan amendments to create new zoning and overlay are more extensive than for other options. Potentially inconsistent with the format of pending national planning standards as indicated through Ministry for the Environment consultation.
	Implementation process	Not assessed. An option must be assessed as reasonably effective and not fatally-flawed before its efficiency is considered.	Moderate Ambiguous approach in High Risk Area where there is no likelihood of gaining consent for residential use.. Introduces appropriate consideration of risk for new development in Medium Risk Area.	Moderate Ambiguous approach in High Risk Area where there is no likelihood of gaining consent for residential use. Introduces appropriate consideration of risk for new development in Medium Risk Area.	High Provides unambiguous control in the High Risk Area. Introduces appropriate consideration of risk for new development in the Medium Risk and Low Risk Areas.	High Provides unambiguous control in the High Risk Area. Introduces appropriate consideration of risk for new development in the Medium Risk and Low Risk Areas.

9.8 District Plan Option Evaluation Summary

Option 1

Option 1 (Business as Usual) does not reflect the actual natural hazard risk that is present and is inconsistent with the RPS and other District Plan provisions. Successful implementation of hazard risk management outcomes relies on the general requirements of the Building Act and RMA that apply to building and subdivision only and does not provide risk reduction.

Options 2 and 3

Options 2 and 3 (Residential or Coastal Protection Zone with NHaz4 hazard notations) are very similar in terms of activity status and assessment criteria for hazard management. A plan change for Option 2 or Option 3 would be limited to Planning Map amendments.

Retaining a Residential Zone in the high-risk hazard area is ambiguous in that it sets a planning direction that residential (i.e. new residential development) is enabled which is not the case given there is no likelihood of gaining consent for actual residential use through either a resource consent or building consent process.

The Coastal Protection Zone is the zone that applies to other land in the coastal reserve, so this would promote a more consistent, long-term approach to land use decisions in the high risk area.

Options 2 and 3 are both ineffective in reducing high loss-of-life and property risk. Existing use rights would continue to apply, although both options could be effective in managing development in areas susceptible to debris flows that are outside the high-risk area.

Option 4

Option 4 provides an unambiguous statement on the nature and implications of the debris flow natural hazard risk and differentiates between the two levels of risk.

This option sets a clear direction on land use management within the high risk area. Option 4 is consistent with the Operative District Plan structure and potentially consistent with the format of pending national planning standards as indicated through Ministry for the Environment consultation.

However, as existing use rights would continue to apply, this option is ineffective in achieving the RPS objective of reducing high loss-of-life risk.

Option 5

Option 5 has the same effectiveness as Option 4.

As for Option 4, existing use rights would continue to apply, so this option is also ineffective in achieving the objective of reducing high loss-of-life risk. A specific zone may provide a clearer message to landowners and the wider community. However, the additional complexity of adding a new zone and overlay does not increase effectiveness and marginally reduces the efficiency of the Plan Change process.

Outcome of Evaluation

Option 4 is assessed as the most appropriate option. However, any District Plan rules can only be effective in managing risk for redevelopment or for new development. The inability to reduce current risk is due to the continuation of existing use rights.

To be effective in reducing risk in the high risk area, as required by the RPS, a change to the Regional Plan to prohibit all residential activity in the high risk area is needed.

A proposed change to the District Plan that gives effect to Option 4 is included in Appendix 7. This includes the amendments made by the Hearings Commissioners' decision.

10.0 Regional Natural Resources Plan Options

Reasonably practicable options for achieving the objectives of the proposal through changes to the RNRP are described and evaluated below.

10.1 Option 1 – Business as Usual

Business as usual would continue with RNRP having no provisions related to the management of debris flow natural hazards. This method relies on District Plan provisions to manage natural hazards outside the Coastal Marine Area.

10.2 Option 2 - Residential Use of High Risk Sites on Awatarariki Fanhead a Prohibited Activity

A change to the RNRP would make all residential development on sites subject to high risk on the Awatarariki Fanhead a Prohibited Activity. Natural hazard provisions would be added to the Operative Regional Natural Resources Plan including an objective, policies and a rule.

Affected sites at Awatarariki subject to high risk would be specifically identified in a schedule. The prohibition would apply only to affected sites that are currently in residential use and/or have existing use rights under section 10 of the Act enabling a previous residential use to re-establish.

It is also reasonable to consider the anticipated completion of the voluntary managed retreat strategy property acquisition process (forecast as December 31, 2020[66]) and to set an appropriate date shortly after this for the Prohibited Activity rule to apply. This will avoid creating conflict with the land purchase agreements. Three months after this date is proposed with a date of 31 March 2021 when the rule will apply, and residential activity would be required to cease.

The prohibition would be enforceable under the provisions of the RMA through an abatement notice or enforcement order, for which the Regional Council would be the relevant local authority.

10.3 Option 3 - Residential Use of High Risk Sites on Awatarariki Fanhead Subject to Land Use Consent

Affected sites at Awatarariki subject to high risk would be specifically identified in a schedule as for Option 2.

However, this option would make continued occupation of the high risk area subject to obtaining resource consent for the residential activity to continue for a maximum fixed duration, with the activity duration determined on a case by case basis through a resource consent application process, based on a site specific risk assessment. This could be for a Restricted Discretionary Activity with discretion limited to consideration of the level of risk exposure for individual occupiers.

To ensure effective implementation, where Resource Consent was not granted by a specified date, the activity would default to a Prohibited Activity as for Option 2.

[66] Refer Indicative Business Case Table 12 p 65

Conditions would be imposed to limit residential use (including, for example, restricting the number of occupants, removing the ability to let properties as short-term holiday rentals, etc) to prescribe the risk profile as assessed in an application.

10.4 Option 4 - Defer any Regional Plan Change until outcome of the offer to purchase is known, then Option 2 if required.

This option would defer action on a regional plan change until the outcome of the offer to purchase is known. The rationale for this is that if all owners were to reach an agreement on purchase, the need for a regional plan change would be avoided.

If a plan change were needed, this would follow Option 2.

10.5 Excluded Regional Plan Options

A regional plan change that addresses mitigation of high risk sites on a region-wide basis (i.e. at locations other than Awatarariki) has been excluded.

This option has been excluded because of the discrete nature of the issues at Awatarariki, high loss of life risk, and the desire to align the work streams within the Awatarariki Debris Flow Risk Management Programme.

The programme to give full effect to the RPS across the region is likely to continue over several years given the extent of investigation of multiple hazards and consultation that will be required.

10.6 Evaluation of Regional Plan Options

The table below evaluates the options in terms of their effectiveness and efficiency.

Criteria		**Option 1 - Business as usual**	**Option 2 - Residential Use of High Risk Sites on Awatarariki Fanhead a Prohibited Activity**	**Option 3 - Residential Use of High Risk Sites on Awatarariki Fanhead subject to Land Use Consent**	**Option 4 - Defer Regional Plan Change until outcome of the offer to purchase is known, then Option 2 if required.**
Effectiveness	Risk Reduction in High Risk Area	Low Relies on information provision and District Plan provisions to manage natural hazards which are ineffective at reducing risk. Knowledge of risks and policy responses by real estate, financial and insurance sectors may limit viability of residential occupation over time. Doesn't achieve certainty for reduction of current high risk. Activities will remain susceptible to a debris flow event occurring that causes fatalities and damage to property as quantified in the risk assessment. Community risks remain for those engaged in any future response to a debris flow including the potential need to rescue affected homeowners and occupiers and supporting the recovery of the area for re-occupation.	High Current residential activities in the high-risk area must cease, and property owners retreat from the area. at date to be specified in the Regional Plan. No ambiguity in plan provisions as rule reflects high level of risk which is not capable of mitigation. Direct impact of loss of homes and property rights for affected owners/occupiers and indirect social and economic impact of displacement of part of the community.	Low - Moderate Current residential activities in the high-risk area must cease, and property owners retreat from the area. Allows landowners to be involved in the decisions about the timing of retreat on an individual property scale. However, this would require landowners to apply for resource consent, and a decision made to allow some landowners to remain. The risk assessment concludes that there is no practicable way to enable development in the high risk area and achieve a medium or low risk. The assessment of risk at individual site level is not practical due to the level of uncertainty in how a debris flow may behave. Delayed retreat from the High Risk Area means high risk remains for a longer period. Effectiveness depends on how long the delay is for. Delayed retreat from the High Risk Area may not align with the Voluntary Managed Retreat funding timeframe. Direct impact of loss of homes and property rights for affected owners/occupiers and indirect social and economic impact of displacement of part of the community would remain.	Moderate Effectiveness in risk reduction is dependent on success with negotiating managed retreat. Current residential activities in the high-risk area must cease, and property owners retreat from the area. No ambiguity in plan provisions as rule reflects level of risk which is not capable of mitigation. Delayed retreat from the High Risk Area means high risk remains for a longer period. Effectiveness depends on how long the delay is for. Several landowners have indicated that they are not likely to be willing sellers.
Efficiency	Establishment process	Not assessed. An option must be assessed as reasonably effective and not fatally-flawed before its efficiency is considered.	Low Likely to be highly contentious for those directly affected at Awatarariki. Prohibited activity status is likely to result in opposition from property owners. Even though locality specific, the change is likely to generate some region-wide or national interest given the perceived precedent that could be established.	Low - Moderate Likely to be highly contentious for those directly affected at Awatarariki and likely to generate region wide interest. Consent process is likely to result in opposition from property owners. Flexibility in how the consent would apply may offer wider scope to address affected landowner circumstances.	Moderate - High This option could avoid the cost of a plan change. If a change were ultimately required, this may have a narrower scope with fewer parties affected.

Criteria		Option 1 - Business as usual	Option 2 - Residential Use of High Risk Sites on Awatarariki Fanhead a Prohibited Activity	Option 3 - Residential Use of High Risk Sites on Awatarariki Fanhead subject to Land Use Consent	Option 4 - Defer Regional Plan Change until outcome of the offer to purchase is known, then Option 2 if required.
			There are no known examples of a regional plan rule being used in this specific manner, however it is specifically provided for in the RMA.	Potential cost savings from two parallel plan changes having issues addressed in an integrated manner. There are no known examples of a regional plan rule being used in this specific manner, however it is specifically provided for in the RMA.	
	Implementation process	Not assessed. An option must be assessed as reasonably effective and not fatally-flawed before its efficiency is considered.	High Once in place, provides unambiguous control on development in High Risk Area. Retreat for some residents may come at an economic cost as well as a social cost.	Low This option would require owners to make an application for resource consent to remain by a specified date, beyond which the activity would have no use rights. Ambiguity in provisions likely to result in fruitless and drawn out process.	High Once in place, provides unambiguous control on development in High Risk Area, as for Option 2.

10.7 Regional Plan Option Evaluation Summary

Option 1

Option 1 is ineffective as this relies on information and District Plan provisions to manage natural hazards, which do not achieve reduction of current high risk. Activities will remain susceptible to a debris flow event occurring that causes fatalities and damage to property as quantified in the risk assessment.

Option 2

Option 2 is the most effective option. It recognises the intolerable risk to life on parts of the Awatarariki Fanhead and, once in place, is the most efficient means of reducing this risk to medium or lower.

A later date for the rule to apply could give more time for owners to address consequential impacts but would also increase risk by prolonging their exposure to debris flow risks and would not coincide with VMR funding programme.

There will be an inevitable impact of loss of homes and property rights for affected owners/occupiers and indirect social and economic impacts from displacement of part of the community, but this is outweighed by the economic and social benefits from reducing the risk to life[67].

Option 3

Option 3 offers potential for tailoring the effective date of termination of residential use within the high risk area to an owner's individual circumstances and risk profile, although any delay reduces effectiveness.

Effectiveness will depend on owners' willingness to cooperate in applying for resource consent to set an agreed termination date for residential activity.

There is unlikely to be an evidence basis for undertaking a site specific assessment of risk on which to base staged retreat. The inherent ambiguity in provisions is likely to result in fruitless and drawn out process.

Option 4

Option 4 of deferring a regional plan change until the outcome of the voluntary managed retreat strategy is efficient, but there is unknown potential for reduced effectiveness and greater risk to life from a debris flow event with delayed implementation. Delay could be minimised by linking a decision on whether to proceed with a change to key steps in the voluntary managed retreat policy process such as:

- Whether funding agreements have been reached with regional and central government;
- Whether there has been a positive response from landowners to settlement offers.

Outcome of Evaluation

Option 2 is assessed as the most appropriate option that will most effectively and efficiently reduce the risk to life in the identified high risk area. This includes the amendments made by the Hearings Commissioners' decision.

[67] Preliminary Social Impact Review of the Potential Costs and Benefits of the Awatarariki Plan Changes Prepared for Whakatāne District Council Beca Limited 6 April 2018

A proposed change to the Regional Resource Plan that gives effect to Option 2 is included in Appendix 8.

10.8 Overall Evaluation

Option 4 is assessed as the most appropriate Option for the Proposed District Plan Change. Option 2 is assessed as the most appropriate Option for the Plan Change request to the Bay of Plenty Regional Council.

These two options, when combined, offer an integrated response within the current planning framework of both Councils and one able to reduce the risk that the landowners and other residents are currently exposed to in the High Risk area of the Awatarariki Fanhead.

Option 4 for the District Plan Change provides explicit identification of the level of risk on parts of the Awatarariki Fanhead. It provides a tiered approach to managing the risk on different parts of the Fanhead, with restrictive rules being imposed in the high risk area, and the medium and low risk areas being subject to appropriate management.

Option 2 for the Regional Plan Change is a necessary extension of this. It is the only statutory mechanism available to give full effect to the RPS, by reducing high risk to a medium or lower level.

Allowing residents to extend the time they are able to live in the high risk area (Option 3), while it may achieve the objective of reducing the risk over time, will continue to expose occupiers to a high loss of life risk. The assessment of risk at individual site level is not practical due to the level of uncertainty in how a debris flow may behave.

11.0 Conclusion

The Awatarariki Fanhead is subject to high loss-of-life risk from a debris flow event. Whakatāne District Council has an obligation under the Regional Policy Statement to take steps to reduce this risk to a least a medium level, or lower if reasonably practicable. The high risk cannot be reduced by any practicable engineering or other solutions. Reducing the risk requires land use intensification and growth to be halted and existing uses to be moved out of harm's way in the high risk areas.

Whakatāne District Council's preferred method of reducing the high risk is voluntary managed retreat, including purchase of affected property. This programme is now well advanced with most properties acquired.

Despite the proposed voluntary managed retreat strategy, any residual debris flow risk associated with future development and redevelopment will need to be managed under the District and Regional Plans. This relates to:

- Managing the risk that could remain inside the high-risk area if there were incomplete implementation, or failure, of the voluntary managed retreat package;
- Managing the risk that remains in areas affected by debris flows in the medium and low risk areas.

District Plan Option 4 is assessed as the most appropriate District Plan Change option. This option creates a new Awatarariki Debris Flow Policy Area with High Risk, Medium Risk, and Low Risk Areas identified as hazard overlays on the Planning Maps. In the High Risk Debris Flow area, any susceptible activities would be a Prohibited Activity. In the Medium Risk Debris Flow Area, further development and subdivision would be subject to a resource consent application where risk reduction is specifically assessed. The Low Risk Area is identified on the Planning Maps, with an associated description in the District Plan.

This option provides a clear statement on the nature and implications of the debris flow natural hazard risk and differentiates between the levels of risk. However, as existing use rights would continue to apply, this option is ineffective in achieving the objective of reducing high loss of life risk.

Regional Plan Option 2 is assessed as the most appropriate regional plan change option. This option makes existing residential development on sites subject to high risk on the Awatarariki Fanhead a Prohibited Activity. Provisions would be added to the Operative Regional Natural Resources Plan including objectives, policies and rules.

Affected sites at Awatarariki subject to high risk would be specifically identified in a schedule. The prohibition would apply only to affected sites that are currently in residential use or that have existing use rights under section 10 of the Act enabling a previous use to re-establish. The rules would specify the date when the prohibition is to take effect. The prohibition would take effect on 31 March 2021 following the anticipated completion of the voluntary managed retreat strategy property acquisition process.

This option is effective at achieving the objective of reducing high risk hazards, and the timeframe is aligned with the implementation of the managed retreat strategy.

Appendix 1 – Location Plans

Appendix 2 - Summary of key decisions, actions and engagement since the 2005 debris flow event

Appendix 3 - Previously Proposed Debris Flow Control System

Appendix 4 – Supplementary Risk Assessment Debris Flow Hazard Report and Peer Review

Appendix 5 – Awatarariki Fanhead High, Medium and Low Risk Areas

Appendix 6 – Regional Policy Statement Analysis

Appendix 7 – Proposed District Plan Change

Appendix 8 - Proposed Regional Plan Change