



MANAGING LANDSLIDE HAZARDS FROM THE WHAKATĀNE AND ŌHOPE ESCARPMENTS

Summary - Landslide Risk Study & Management Options

INTRODUCTION	2
SUMMARY	3
GEOLOGY AND LANDSLIDE FORMATION	5
SUSCEPTIBILITY, HAZARDS AND RISK ASSESSMENT	6
POSSIBLE RISK MANAGEMENT OPTIONS	8
CURRENT RISK MANAGEMENT STRATEGIES	9
CONCLUSIONS	10
COMMUNITY CONSULTATION	10
QUESTIONS AND ANSWERS	11

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INTRODUCTION

Between May 2010 and June 2011, a series of high rainfall weather events passed over the Eastern Bay of Plenty, triggering a number of landslides within the escarpment slopes that form the back-drops to Whakatāne and Ōhope Beach. The latter was the most severely affected area, with some 22 houses being directly affected by landslide debris. Those landslides resulted in a severe injury in 2010 and a fatality in 2011. The Whakatāne Escarpment was affected to a much lesser extent, although five residential dwellings were damaged by debris and Muriwai Drive was closed to traffic on several occasions.

In view of the history of slope instability on the two escarpments and the number of landslides experienced during 2010 and 2011, the Whakatāne District Council asked Tonkin & Taylor (T&T) Limited to undertake a Quantitative Landslide Risk Assessment (QLRA) study assessing the level of risk posed by future landslide events, while environmental consultants Boffa Miskell Limited was engaged to help develop an effective approach to managing the risks those events pose to lives and property.

This summary is produced for the owners of properties which are potentially exposed to landslide hazards from

the Whakatāne and Ōhope Escarpments. It covers the key findings of the T&T draft landslide risk study of the susceptibility of the escarpments to landslide hazards and the risks that may result for people living or working in those areas; and also sets out possible approaches suggested by Boffa Miskell, which the Council and property owners may take to reduce the risks to life and property to more acceptable levels.

The Council is seeking feedback from property owners on the options they would like to see developed to reduce the loss of life risk landslides represent to people living or working in close proximity to the base of the escarpments.





SUMMARY

Historic and recent evidence indicates that the steep escarpment slopes that form the backdrop to Whakatāne and Ōhohe are susceptible to landslide events. It is well known within the affected communities that these areas are affected by landslide hazards. What has not been well understood until recent times is the level of risk landslides represent to people and property and the need to put in place measures that will, over time, reduce those risks to more acceptable levels.

The Whakatāne District Council is required by law (key statutes include the Local Government Act 2002, the Resource Management Act 1991, the Building Act 2004 and the Civil Defence Emergency Management Act) to manage hazards within its territorial boundaries.

T&T's Draft Quantitative Landslide Risk Assessment study uses the methodology published by the Australian Geomechanics Society (AGS, 2007) to assess the level of risk posed by future landslides from the escarpments.

The study area can be divided into four hazard sectors based on the frequency of recorded landslides:

- The northern section of the Whakatāne Escarpment, between the Wairere Stream and 1C Muriwai Drive;
- The southern section of the Whakatāne Escarpment, between the Wairere Stream and Gorge Road;
- The Ōhohe Escarpment from the beginning of West End Road in the east to 71 West End Road in the west; and
- The Ōhohe Escarpment from the beginning of Pohutukawa Avenue in the west to 254 Pohutukawa Avenue in the east.

A landslide inventory was developed for the escarpments based primarily on T&T's record of landslide investigations for the Earthquake Commission, but also from historical photographic records and field mapping.

The period covered is approximately 50 years in the case of the Whakatāne Escarpment and 70 years for the Ōhohe Escarpment.

All of the landslides in the inventory were triggered by rainfall. An assessment of past rainfall and escarpment landslide records indicates that landslides occur both as a result of individual high intensity rain storms, and during unusually wet periods.

Seismic events can also trigger landslides. Rupture along the Whakatāne Fault is the most likely source of seismic landslides on the Whakatāne and Ōhohe escarpments. Although dozens of landslides could potentially be triggered by a major rupture of the Whakatāne Fault, the long hazard return period of a major event (1,000 to 2,300 years) means that the annualised risks associated with seismic-induced landslides are one or two orders of magnitude less (between 10 and 100 times less likely) than those associated with rainfall.

The overall landslide susceptibility, hazard and Loss of Life Risk classifications of the study area sectors are included in the table on page 4. Note that 'susceptibility' is a measure of the likelihood of an event happening in a particular area; 'hazard' includes an analysis of the estimated frequency of that event; and 'risk' is a measure of both the likelihood of the event and the consequences it would have for the people most at risk.

SECTOR	SUSCEPTIBILITY ¹	HAZARD ¹	LOSS OF LIFE RISK ²
Whakatāne – North of Wairere Stream	High	High ⁴	Very High ⁵
Whakatāne – South of Wairere Stream	Moderate ³	Moderate ³	Very High ⁵
Ōhope – West End Road	High	High ⁴	Very High ⁵
Ōhope – Pohutukawa Avenue	High	Moderate ³	Very High ⁵

Notes:

¹ Includes initiation and inundation;

² For people most at risk in dwellings located at the base of the escarpments;

³ Except for one small section, where the landslide susceptibility and hazard classifications are high;

⁴ A 'high' hazard rating indicates a likelihood of between one and 10 landslides per square kilometre per year; a 'moderate' hazard rating indicates a likelihood of less than one landslide per square kilometre per year;

⁵ Definitions of acceptable Loss of Life risks vary between countries. The Australian Geomechanic Society approach defines a very high risk as more than one chance in 10,000 per year of a death occurring as a result of a specific hazard.

Although all four sectors fall within the Loss of Life Risk range that AGS (2007) classifies as very high, the annual Loss of Life Risk in the highest risk sectors (West End Road, Ōhope and Whakatāne, north of the Wairere Stream) is at least 10 times higher than the other sectors.

Analysis of T&T's hazard maps indicates that in Ōhope, there are: 129 properties with a high hazard rating; 153 properties with a moderate hazard rating; and 267 properties with a low hazard rating. For the Whakatāne Escarpment, there are: 86 properties with a high hazard rating; 120 properties with a moderate hazard rating; and 272 properties with a low hazard rating. Note that where a property has more than one hazard rating, the highest rating has been applied (i.e. if part of a property is in a high hazard area and part in a moderate hazard area, it is classified as having a high hazard rating).

The covering letter you received with this summary document tells you what hazard assessment applies to your property. Note that the hazard assessment is for broad planning purposes and is not property-specific. If, for example, you intend to carry out development on your property, a site-specific assessment will be required to confirm that hazard ratings take local factors into consideration.

Options for reducing the occurrence of landslides on the Whakatāne and Ōhope escarpments are limited by both the scale of the escarpments and the unpredictable

and cyclic nature of landslides. Realistically, landslide management therefore needs to focus on reducing (avoiding or mitigating) the risk to both people and property (i.e. reducing the consequences if a landslide does occur).

Possible risk management measures and strategy options are covered in some detail on page 8. These range from site-specific works which property owners and/or Council could undertake through to non-structural measures such as education programmes; advice notices; warning systems; evacuation procedures; and development controls.

Home owners can take a number of steps to reduce the risk applying to their properties. These include:

- Monitoring the vegetation on the slopes behind their property, with a particular focus on the stability and/or health of large trees;
- Looking for slabs of rock that may have partially come away from a rock face and have the potential to fall;
- Where space allows, undertaking minor earthworks at the rear of properties to direct surface water and mud slurry flows away from dwellings (providing that does not increase the risk applying to neighbouring properties); and
- Installing debris catch structures behind their properties.



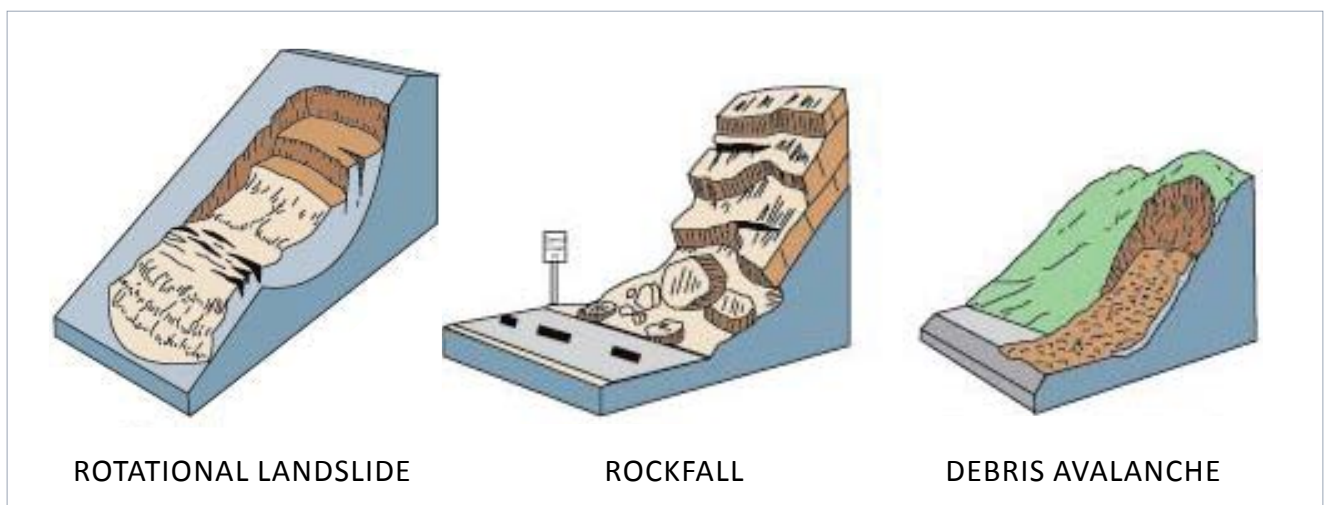
GEOLOGY AND LANDSLIDE FORMATION

The geological composition of the study area consists of a ridge of greywacke basement rock overlain by younger marine, terrestrial and volcanic sediment deposits. The Whakatāne Escarpment represents the western edge of the greywacke ridge, while the Ōhohe Escarpment was formed from the erosion of mainly marine material deposited against the eastern side of the ridge.

Steep terrain and the very weak nature of the geology make both escarpments susceptible to landslides.

Landslides occur in many different forms. Those that have been observed on the Whakatāne and Ōhohe Escarpments are:

- Rotational landslides initiated in the thick soil layer on or behind the crest of the escarpments;
- Rockfall material lost from the greywacke outcrops on the Whakatāne Escarpment and from the Lower Ōhohe sandstone layer on the Ōhohe Escarpment; and
- Debris avalanches (the most common form of landslide in the study area) from the escarpment face.



Geology and topography are the primary factors contributing to slope instability, but there is usually a triggering event which initiates a landslide. Local experience indicates a close association between extreme rainfall events and landslides. Large earthquakes can also be a triggering event, but the long return period between such events makes seismic shaking a less relevant factor.

An analysis of rainfall records between 1978 and 2013 shows that:

- Almost the entire inventory of known landslides occurred in the four wettest years – 2001, 2004, 2010 and 2011;
- The onset of significant, multiple landslide events coincided with the highest daily rainfall recorded in the last 35 years – 160mm on 18 July 2004, preceded by 117mm the previous day;

- The multiple landslides which occurred from mid-2010 through to early-2011 were also associated with daily rainfall in excess of 100mm; and
- As wet periods persist, landslides occur at increasingly lower daily rainfall totals.

From that, we can say that landslides are always associated with daily rainfall in excess of 120mm and become increasingly common when rainfall exceeds 100mm a day. Since 2001, the number of landslides known to have been induced by such extreme rainfall events range between five and seven (per event) on the Ōhohe Escarpment and between zero and three on the Whakatāne Escarpment.



SUSCEPTIBILITY, HAZARDS AND RISK ASSESSMENT

Susceptibility

Landslide susceptibility is an assessment of the likelihood that a particular area will generate, or be affected (inundated) by a landslide event. That assessment is based on a complex range of measures, but the key underlying assumptions are that: areas that have experienced landslides in the past are likely to be affected in the future; and that other areas with similar topography (slope angle) and geology are also likely to be affected.

That susceptibility analysis indicates that:

- The Whakatāne Escarpment to the north of the Wairere Stream is highly susceptible to landslides;
- The Whakatāne Escarpment south of the Wairere Stream is moderately susceptible to landslides; and
- The entire Ōhope Escarpment is highly susceptible to landslides.

Hazard Assessment

Hazard assessments are similar to susceptibility, but include an analysis of the estimated frequency of landslide events. Based on the recorded landslides in the study area (over the last 50 years for the Whakatāne Escarpment and the last 70 years for the Ōhope Escarpment), the area of the Whakatāne Escarpment north of the Wairere Stream and the Ōhope Escarpment behind West End Road are both assessed to have a high hazard rating, while the remaining parts of both escarpments have a moderate hazard rating.

Hazard maps will be available for inspection on the Council website (www.whakatane.govt.nz) from Friday 12 July.

Risk Assessment

'Risk' assessments are based on both the hazard (likelihood) and the consequence of an event. That means that even if a hazard is not considered to be highly likely, if the consequences of it occurring are life-threatening, the risk to people exposed to the hazard is likely to be high.

New Zealand does not have a formal system for analysing landslide risk and there are no established criteria for determining risk tolerability and acceptance. Work in this area generally follows the Australian Geomechanics Society (AGS) methodology for calculating loss of life risk (annual individual fatality risk). That risk calculation includes a number of variables, with the primary factors being the annual probability of landslide occurrence; the probability that a landslide will reach areas where people live or work; and the vulnerability of those people to an impact.

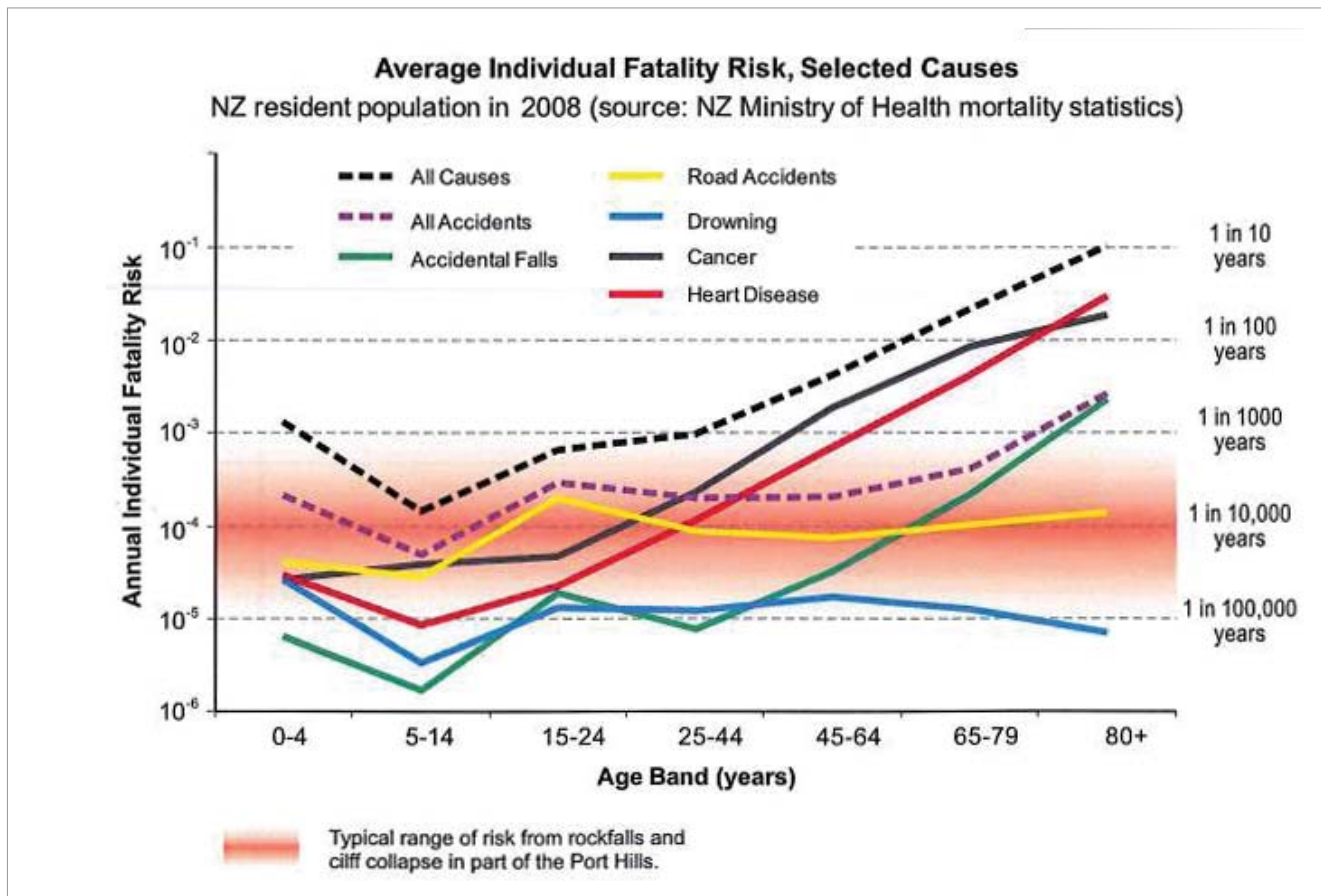
AGS defines an 'intolerable' loss of life risk to be any natural hazard risk with an annual probability greater than one-in-10,000 (0.0001 percent). The table overleaf shows the assessed Loss of Life Risk associated with the Whakatāne and Ōhope Escarpments. These risks are significantly higher than would be generally accepted in many parts of the world. For comparative purposes, the following graph shows the average individual fatality risk New Zealand residents are exposed to from a range of hazards and other causes.

Estimated Loss of Life Calculations for People Most at Risk – Whakatāne & Ōhope Escarpments

LOCATION	ANNUAL LOSS OF LIFE PROBABILITY ¹	RISK
Whakatāne Escarpment		
Muriwai Drive/Terrace	1.5 percent (1.5×10^{-2})	Very High
Wairaka Road	0.79 percent (7.9×10^{-3})	Very High
South of Wairere Stream	0.37 percent (3.7×10^{-3})	Very High
Ōhope Escarpment		
West End Road	4.4 percent (4.4×10^{-2})	Very High
Pohutukawa Avenue	0.81 percent (8.1×10^{-3})	Very High

Note:

¹ The annual probability of loss of life for a person most at risk (applies to anyone who spends most of their time at home, in an area where the risk is very high).



Assessing the community's views on risk acceptability

Views about whether or not a particular risk is tolerable vary between individuals, communities and countries. In some situations, this issue has been addressed by establishing a community taskforce, made up of representatives of those most closely affected (the people at risk) and others with expertise in the subject, working together to make recommendations about tolerable risk levels. The Council believes that approach could have considerable merit and would like to hear the community's views on the matter. If there is support for the concept, nominations will be invited from property owners in the study areas.

Hazard Maps

The hazard maps developed for the Whakatāne and Ōhope Escarpments are too large to include in this summary. They can be inspected on the Council website from Friday 12 July (www.whaktane.govt.nz), or we can provide copies on request (phone 306 0500 and leave your name, address and a contact number).

Note that these maps are not a property-specific assessment of hazard or risk. Hazard ratings are based on topography and the likelihood of landslides occurring. If, for example, you intend to carry out development on your property, a site-specific assessment will be required to confirm that hazard ratings take local factors into consideration.

POSSIBLE RISK MANAGEMENT OPTIONS

Regardless of any value judgement Council and the community may come to about the tolerability of landslide risks, it is clear that in this instance, significant measures must be taken to achieve a more acceptable loss-of-life risk, particularly for people who live or work in the West End Road (Ōhope Escarpment) and Muriwai Drive/Terrace (Whakatāne Escarpment) areas. The following sections set out a range of possible measures and strategies, which, over time, could reduce the risks posed by landslides from the escarpments.

Structural Measures

Hazard Elimination

Other possible measures which could be feasible, on at least a site-specific basis, include:

- Construction of earthwork buttresses to support the slope;
- Construction of retaining walls;
- Slope reinforcement; and
- Using netting or other similar solutions to prevent material falling from the escarpments from reaching dwellings.

The cost of some structural approaches, such as re-profiling or reducing the height of slopes, makes such measures impracticable.

Hazard Reduction

Possible hazard reduction measures include:

- Diverting stormwater flows away from landslide prone areas;
- Lowering groundwater levels through subsurface drains;
- Removing, or reducing the canopy weight of dangerous overhanging trees;
- Planting appropriate species to stabilise slope faces and bases.

Some stormwater control work has already been undertaken in the Ōtarawairere area and above West End Road to reduce the landslide hazard for properties at the base of the escarpment. Work will be undertaken to assess whether there are other areas where stormwater control would be both feasible and beneficial.

Vegetation (particularly large pohutukawa) has been identified as a major component of destructive landslides which have affected residential areas of Ōhope. The Council intends to undertake a detailed study of possible vegetation control measures on the escarpment. This work would need to be carried out in conjunction with other owners/stakeholders – the Department of Conservation, Ngāti Awa and private owners – and take into consideration matters such as reserve status and outstanding natural feature landscape zoning.

Regardless of any complicating issues, vegetation control which would reduce the loss-of-life risk for the community is likely to be considered a priority activity.

Risk Reduction

In the Whakatāne and Ōhope Escarpment context, possible risk reduction measures include:

- Earth bunds;
- Steel posts (driven or sunk into the escarpment slope to catch sliding vegetation);
- Flexible net barriers;
- Impact walls; and
- Monitoring areas known to be unstable.

All of the above measures are feasible, at least on a site-specific basis. Any risk reduction work undertaken as part of a development (Resource and/or Building Consent) process would have to become a permanent commitment applying to future owners of the property or properties concerned.

Non-Structural Measures

Non-structural measures do not alter the likelihood of a landslide occurring, but would be designed to reduce the possible consequences of an event. The Council will be looking to use a range of non-structural measures to ensure: that landslide hazard levels are clearly understood by present and future owners; that there is no new development in areas where the risk to people's lives is unacceptably high; and to encourage property owners to put risk reduction measures in place.

Information

Information initiatives include:

- Developing information resources to inform future decision-making;
- Contingency and emergency response plans;
- Education programmes to promote hazard and risk awareness;
- Advice and advocacy; and
- Using Land and Project Information Memoranda (LIMs & PIMs) to ensure knowledge of known landslide hazards is permanently captured.

Warning Systems

Possible warning systems which could be implemented include:

- Landowner education on warning signs and the need for self-evacuation preparedness;
- Regular monitoring and assessment of risk areas;
- Monitoring of MetService heavy rainfall warnings and rain radar data;
- Forwarding severe weather warnings to property owners via email, text or land-line alert systems;
- Installation of sensors to measure land movement in high-hazard areas;
- Visual observations by residents; and
- Developing self-evacuation procedures.

While severe weather warnings could help to reduce loss of life risks, any decision about whether or not to evacuate must always remain with property owners (unless a state of emergency has been declared). History tells us that most heavy rainfall warnings are not accompanied by landslides, which in any event, will be random in nature and will not affect most properties. There is therefore a likelihood that warnings would increasingly be ignored if they are issued and no landslide eventuates. Warnings are likely to be dependent on actual daily rainfall exceeding 100mm, or heavy falls occurring after an extended wet weather period. It should also be noted that landslides could occur without a triggering heavy rainfall event.

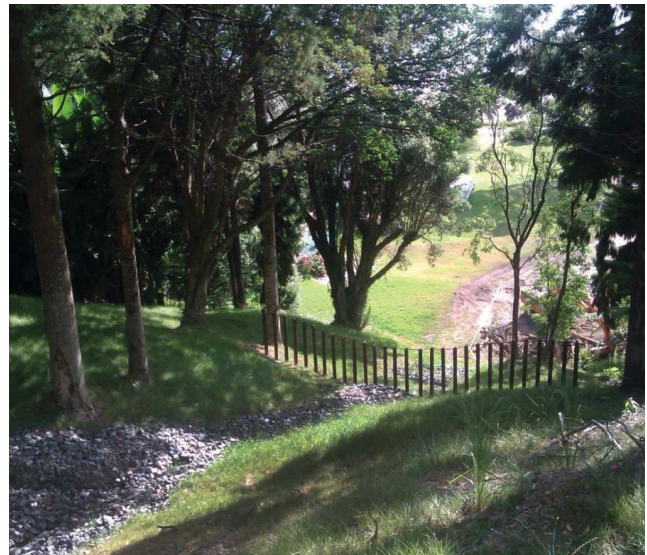
Development Control

Possible development controls could include:

- Restrictive District Plan zoning and rules to control development in high hazard areas, such as requiring resource consents for any works on hazard-prone sites, not allowing further subdivision, and not allowing new vulnerable land uses to be established;
- Enabling District Plan zoning and rules to control development in hazard areas, such as: allowing existing activities to continue within existing housing envelopes; allowing alterations or re-development where the risk has been reduced to an acceptable level; allowing properly designed protection works to be undertaken without a resource consent; and providing best practice guidelines to help land owners mitigate the risk to their properties; and

- Regional Plan zoning and rules to control development in hazard areas (this aspect will be part of a separate study by the Bay of Plenty Regional Council). For some properties, this could involve measures such as requiring existing activities to cease by a specified date unless a resource consent is obtained, which would require the landslide risk to have been reduced to an acceptable level.

Changes to District and Regional Plans will be needed to implement these measures. The Council wishes to get feedback from the community to assist it in deciding which measures should apply.



CURRENT RISK MANAGEMENT STRATEGIES

The Whakatāne District Council's Operative and Proposed District Plans must give effect to the relevant provisions of the Bay of Plenty Regional Council's Operative and Proposed Regional Policy Statements. The Proposed Regional Policy Statement (RPS) includes a number of policies which are relevant to the escarpment landslide hazard situation.

In summary, the RPS provisions require that:

- Natural hazard risks to human health and safety must be assessed as to whether they are acceptable, tolerable or intolerable;
- That the community be informed about the level of risk and have an opportunity to respond;
- That new development should be managed to ensure that natural hazard risks do not exceed acceptable levels;
- That action is taken to make the level of risk in areas of existing use and development as low as reasonably practicable, until acceptable levels of risk are achieved;
- That intolerable risks from natural hazards are avoided; and
- That action to reduce natural hazard risks should be facilitated.

The WDC Operative District Plan sets out objectives and policies which aim to provide protection from natural hazards (Objective NHaz1). Those which apply to rainfall-induced landslide hazards include:

- To avoid, or mitigate the adverse effects of subdivision, use, or development of land which is likely to be subject to material damage by erosion, falling debris, subsidence, slippage or inundation from any source (Policy 3);
- To avoid or mitigate the adverse effects of subdivision, use, or development of land which is likely to accelerate, worsen or result in material damage to that, or other land or structures, from erosion, falling debris, subsidence, slippage or inundation from any source (Policy 4);
- New structures shall not be sited, designed or constructed which would have an adverse effect on the stability of escarpments (Policy 7);
- To manage vegetation and earthworks on escarpments to assist in stabilising the slope (Policy 8).

The District Plan Planning Maps include maps defining the areas subject to hazards from falling debris from the Whakatāne and Ōhope Escarpments (NHaz4). These hazard areas are defined by a slope limit.

CONCLUSIONS

The history of landslide events on the Whakatāne and Ōhope Escarpments and the hazard risk assessment work undertaken by T&T make it clear that there is an unacceptable loss-of-life risk associated with many properties located in close proximity to both escarpments.

The Council has a statutory responsibility to take action to avoid or mitigate landslide hazards so that, over time, the risk to people is reduced to a tolerable, and ultimately, an acceptable level. That responsibility is likely to be given further weight by the provisions of the Bay of Plenty Regional Council's Proposed Regional Policy Statement (currently under appeal).

Key matters for property owners to consider are:

- In the short to medium-term, existing property uses will not be affected (unless the risk to occupants is considered extreme);
- Planning rules are likely to be introduced through a variation to the Proposed Whakatāne District Plan which would prevent new development, or alterations to existing buildings in high and moderate landslide hazard zones, unless work has been undertaken to reduce the level of risk to people living on the properties concerned;
- The BOP Regional Council's Regional Plan may, in future, introduce rules requiring property owners to undertake hazard mitigation work within a specific timeframe;
- Any work undertaken to reduce the level of risk on one property must not increase the risk for neighbouring properties;
- It is intended that as a result of the community consultation process, a range of practical actions will be defined which will allow property owners and the Council to reduce the loss-of-life risk to people living in close proximity to the Whakatāne and Ōhope Escarpments. These may include escarpment slope stability monitoring (with particular emphasis on the effect that large trees may have on landslide initiation), warning systems, self-evacuation procedures, stormwater improvement works; and providing advice on possible hazard reduction works.

COMMUNITY CONSULTATION

The Council is keen to facilitate opportunities for affected property owners, and other stakeholders, to seek further information and provide feedback on the community's preferred options for addressing the unacceptable risk levels currently applying to many properties. Those opportunities could include neighbourhood meetings; face-to-face meetings with individuals or groups, or community-wide information forums. The covering letter which accompanied this summary includes details on how to record your preferred consultation option.

Property owners are encouraged to provide feedback for the Council to consider before new hazard zones and planning rules are included as a variation (change) to the Proposed Whakatāne District Plan. Any new zones or rules will be subject to a formal consultation process, providing an opportunity for affected property owners to have their issues considered by the Council before the District Plan takes effect. Any appeals to the Proposed District Plan will be heard by the Environment Court.

TIMETABLE – PROPOSED WHAKATĀNE DISTRICT PLAN VARIATION: LANDSLIDES

	Activities	Dates
1	Consult with communities on landslide issues and options paper	July 2013 – 30 September 2013
2	Prepare a variation change to the Proposed District Plan to manage landslide and debris flows, taking into consideration feedback	October 2013
3	Council approval and notification of variation to the Proposed District Plan: Submissions requested	November 2013
4	Submission period	December 2013 – January 2014
5	Public notification of availability of summary of requested decisions	February 2014
6	Further submission period	March – April 2014
7	Hearings, deliberations and decisions process aligned to Proposed District Plan Review	

QUESTIONS AND ANSWERS

Q. If I live at the bottom of the escarpment and want to get a building consent for an alteration to my house, what difference will it make to my plans?

A. Building consents would not be issued unless the project included measures designed to reduce the risk landslides represent to the current and future occupiers of your property.

Q. How will the outcomes of this study affect my insurance?

A. Household insurance policies may already have factored landslide hazards into the cover provided. Property owners are advised to consult their insurers to clarify their individual circumstances.

Q. If I already have a section 72 notice on my property, why is my property affected by the study?

A. The new hazard maps and proposed planning rules are likely to apply to all properties which are considered to be subject to landslide hazards.

Q. Do I have to put in protection measures such as a retaining wall now?

A. No, but the Council is encouraging the owners of all properties in the landslide hazard areas to take advice about possible protection measures and where there are practicable solutions to landslide risks, to take action as soon as possible. Note that the Bay of Plenty Regional Council's Proposed Regional Policy Statement may, in future, impose a timeframe for risk reduction.

Q. What will happen with empty sections?

A. Any development on empty sections will be subject to resource and building consents. In high and moderate landslide areas, those consents would not be issued unless approved risk reduction measures have been put in place to reduce the landslide risk to future occupants.

Q. Will the Council, or the Government, compensate me for any effect on my property value, or buy me out if there's no way to reduce the landslide risk to an acceptable level?

A. Compensation is unlikely. At this stage, no decision has been made on a policy relating to properties which are deemed to be uninhabitable because the landslide risk cannot be mitigated.

Q. Will the outcomes of this study be recorded on my property's LIM?

A. Yes. All properties in the landslide hazard areas will have information recorded on property information memoranda. Council is required by law to include any hazard information it has knowledge of.

Q. Will everyone in the landslide hazard areas have to apply for a resource or building consent to put in a protection structure such as a retaining wall?

A. The planning rules proposed to help manage the landslide hazard would make approved protection structures a permitted activity. As such, this would not require a resource consent, but a building consent may be needed.

Q. There is another house between mine and the escarpment which will protect us from landslides, so why is my property included in the hazard area?

A. Individual property circumstances will be assessed, but it's unlikely that the presence of another structure will provide full protection against landslides.

Q. Can I make the owner of the property behind mine put in a protection structure to make my house safe too?

A. No. Council would encourage the owners of neighbouring properties to look at a shared approach to protection structures to ensure that everyone gets the best possible safety outcome at the least possible cost.

Q. I already have a protection structure with a consent from the Council, so can my property be removed from the hazard maps?

A. That information will be recorded on your Land or Project Information Memoranda and taken into account if you seek a building or resource consent in the future. It would also be taken into account by anyone looking at purchasing your property in the future.

Q. If I put in a protection structure, will I be able to subdivide or build a new house?

A. The planning options under consideration may prevent new development in the hazard areas. A resource consent for subdivision or a new building would only be provided if protection measures have been put in place to reduce the risk associated with landslides to an acceptable level.

Q. My property is flat and away from the escarpment, why is it included in the hazard area?

A. The hazard maps take into account the possible run-out distance landslides could travel from the escarpments. Properties located further away from the base of an escarpment will generally have a lower hazard assessment level and that will be reflected in property information memoranda.

Q. If large trees on the escarpments are dangerous, why are they being protected under the Proposed District Plan?

A. The Whakatāne and Ōhope Escarpments are undoubtedly significant landscape features which should be protected. However, if large trees are assessed to be increasing the level of risk to people and properties. These may be removed for safety purposes.

Q. How does this situation compare with the Port Hills in Christchurch?

A. The situation and the proposed resolutions are very similar, although in the Port Hills case, the cause of instability is seismic rather than heavy rainfall events. Central government is involved in the reduction of risk in the Port Hills area.

Q. Why consider such long-term risks when the Building Act assumes that houses will last for 50 years or less?

A. People will continue to live in the areas included in the landslide hazard maps far into the future. The Council is taking action now to ensure that, over time, the risk to people and property is reduced to a level which the community is happy with and which meets our legal requirements. We are looking to achieve long-term solutions which will safeguard today's and tomorrow's residents.

