

Westland District Council Plan Change 7: Managing Fault Rupture Risk in Westland Section 32 Assessment



The following report assesses the proposed changes against section 32 of the Resource Management Act to ensure that the proposal is the most efficient and effective method of achieving the Act and that alternatives benefits costs and risk have been assessed.

The Purpose of the Act

The Resource Management Act seeks to promote “sustainable management of natural and physical resources”. And goes on to define this as managing the “use, development and protection of natural and physical resources in a way or at a rate, which enables people and communities to provide for their social, economic and cultural 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 safe guarding the life supporting capacity of air water soil and ecosystems and avoiding remedying or mitigating any adverse effects of activities on the environment. ”

Objective 3.13.1 of the Westland District Plan states:

Rules for the avoidance and mitigation of natural hazards have been incorporated in the District Plan given that severe hazards pose a significant threat to the built resource and infrastructure of the District and people and communities.

Westland District Council has worked with the West Coast Regional Council to obtain professional reports regarding the location of the Alpine Fault throughout the West Coast Region from the Institute of Geological and Nuclear Sciences (GNS). The initial report was received by Westland District Council in October 2010 and is referenced below:

Langridge, R and Ries W, 2009. Mapping and fault rupture avoidance zonation for the Alpine Fault in the West Coast region. GNS Science Consultancy Report 2009/18. 47p.

In order to provide further certainty to the residents and businesses of Franz Josef/Waiiau, where the Alpine Fault is located under the township, a further more detailed study was commissioned. The aim of this study was to produce more accurate data around fault rupture risk in Franz Josef/Waiiau and to make suggestions on how the West Coast Regional Council and Westland District Council should respond to this information. This report is referenced as:

Langridge, RM and Beban,JG, 2011. Planning for a safer Franz Josef-Waiiau community, Westland District: considering rupture of the Alpine Fault. GNS Science Consultancy Report 2011/217. 61p.

Both reports calculate the probability of an Alpine Fault earthquake event, with fault rupture to the surface, occurring is 20% within the next 30 years. Along the fault rupture it is estimated that there will be approximately 8-9 metres of horizontal displacement (to the north) on the west (Australian plate) side, and 1-2 metres vertical uplift on the east (Pacific Plate) side. Land deformation will be greater on the vertical lift or “hanging wall” side of the fault rupture, the Fault Rupture Avoidance Zone is wider on the east (Pacific Plate) side.

A rupture occurring along the Alpine Fault during an earthquake is a significant hazard for the District. The proposed plan change has been written in order to meet Objective 3.13.1, to mitigate the effects of fault rupture, and to avoid development being affected by fault rupture. It proceeds in order to provide for the health and safety of Westland residents and visitors in accordance with the purpose of the Resource Management Act.

The following assessment considers the effectiveness and efficiency of the rules and other methods that are appropriate to avoid and mitigate the risk of fault rupture. The assessment will also address the benefits and costs of each method.

As required by Section 32 of the Resource Management Act, this report outlines possible options of ways to achieve 3.13.1 in relation to fault rupture hazard, as provides as assessment of the appropriateness of the approach.

- **Option 1: Do nothing**

Continuing the current situation will mean that the location of the Alpine Fault within Westland remains undefined in the District Plan, and that land identified as being located within an area that is likely to be susceptible to fault rupture during an earthquake event will not have any different status from any other land within Westland.

Existing provisions of the Westland District Plan

The Westland District Plan contains provisions which require subdivision applications to identify if the land is subject to hazard, however the existence of a hazard does not affect the status of the application. Subdivision within small settlements such as Franz Josef / Waiiau would remain a controlled activity. Section 106 of the Act allows Council to decline subdivision in some circumstances; however fault rupture is not specifically listed, although many hazards associated with fault rupture are.

Dwellings within the rural zone are controlled activities and Council does not retain control over hazard identification or mitigation. For activities where Council has retained full discretion, fault rupture hazard risk can be considered.

It is not considered that the existing provisions within the District Plan, or within the Resource Management Act, provide Council or the community with certainty. This is because development could continue to occur within an area identified to be subject to fault risk, therefore increasing the value of investment, buildings and potentially people that will be located within these areas during an earthquake and associated fault rupture,

Existing provisions of the Building Act

If no additional rules or methods are added to the Westland District Plan, structures erected within areas known to be subject to fault rupture risk would be managed through the Building Act. Fault rupture is not classified as a hazard that enables Councils to decline building consent under the Building Act due to hazard risk. However, the Building Code relating to Structures includes an objective to safeguard people from injury caused by failure of a structure and loss of amenity due to behaviour of the building.

The Building Code requires that new buildings must be ensured to be of “Low probability of rupturing during the life of the building” and ensure that there is a “Low probability of loss of amenity”. Building Consent processors are able to

take into account the intended use of the building when making the determination. As the Council now has clear information that the fault line is predicted to move approximately 8-9m horizontally and 1-2 metres vertically, in order to be able to approve a building consent within the proposed fault rupture avoidance zone, the processors need to ensure that the building has a function that will not be likely to cause injury during a fault rupture event, and will not cause a loss of amenity in a fault rupture event.

Under the current Building Code, existing commercial development will only be required to be fully upgraded to comply with the Building Code provisions for the portion of the building subject to the building consent application (excluding fire and accessibility requirements). Any increase in the footprint, or application to extend the life of a building will be required to comply with the Clause “B2 Structure” of the Building Code and will therefore require detailed specific engineering design. It is important to note that all buildings other than residential buildings will also be subject to the provisions of any Earthquake Prone Building Policy. There is some building work that can proceed without the need for building consent and accordingly are not considered by Council. Alterations to habitable parts of a dwelling within the area subject to fault rupture will require engineering input to determine if the building is able to comply with the Building Code.

Benefits and Costs

Continuing without a Plan Change will remove the costs incurred by Westland District Council of the plan change process.

If the plan change does not proceed, existing investment may be protected from alterations to Insurance premiums, although Council staff have been informed that insurance companies are paying greater attention to potential hazard risk following the Canterbury earthquakes and may utilise the public information relating to the Alpine Fault location to make decisions independent of any Council led process.

The most significant cost relating to the retention of the current situation is the continuation of activities within areas known to be at significant risk during an earthquake event. This could potentially lead to loss of life and significant injury during fault rupture.

It is unlikely that any building could be built to withstand the projected rupture of up to 9 metres horizontally and up to 2 metres vertically. This will create costs of rebuilding, insurance, and inconvenience to the community as buildings lose their function.

Owners wishing to develop areas known to be subject to fault rupture risk may invest significantly in their project before it is lodged for building consent and then assessed for compliance with the Building Code. It is considered that allowing development in areas subject to fault rupture risk will significantly increase costs to the community. Over the long term, development and investment will continue in areas known to be subject to significant hazard. This does not increase the post-disaster resilience of the community and can lead to increased costs for recovery.

Efficiency and Effectiveness

If Council does not respond to this information it will be failing to meet the purpose of the Resource Management Act as it is not providing for the health and safety of residents and will not be providing for the long term future of Westland. It is also considered that there is a public expectation that Council will respond to detailed information locating a hazard, such as the two reports generated by GNS.

Relying on the Building Act will address fault rupture risk over a long period of time and will not prevent an increase in scale of an activity on a site unless this triggers the need for a building consent. It may also be costly to building consent applicants who may invest in building plans and discover at building consent that their activity is unable to be approved. This is not considered efficient planning for development within Westland.

- **Option 2: Proposed Plan change**

Through identifying and mapping the Alpine Fault within Westland and mapping buffers around the fault line, the areas susceptible to fault rupture have been identified. Identifying these areas and creating a specific set of requirements managing development within these areas, then Council can create a specific set of provisions to manage development that can occur.

The information held about the faultline varies in accuracy throughout the District. Areas that have been subject to academic study, such as the Toaroha and Kokatahi river valleys contain data of increased accuracy, and therefore margins of uncertainty are reduced when creating the proposed 'Avoidance Zone'. It has been decided to separate the Franz Josef / Waiiau area where the fault location is very well defined, from the rest of the District which contains the variations in accuracy. If a site specific geological report is undertaken to better define the fault trace location on a site, then this information can be utilised.

The benefits of this approach are that the areas at risk of rupture are clearly defined and land owners within these areas are able to readily ascertain the process in which development may occur and what restrictions apply.

Through management, the resilience of the community will increase, as over time there will be a reduction in hazard as buildings and activities move away from the areas of established risk. The risk to life during an Alpine Fault event will be reduced or will not increase.

The Council is mindful of the fact that existing use rights under section 10 of the Resource Management Act will not be altered by the introduction of this proposal.

- *Evaluation of specific rules:* General Fault Rupture Avoidance Zone
Activities within the General Fault Rupture Avoidance Zone require compliance with the Rural rules for the wider Westland District, with specific additional rules relating to built structures. Any building currently located within the General Fault Rupture Avoidance Zone that has obtained a report that establishes in greater accuracy the location of the Alpine Fault trace, and establishes an appropriate buffer for fault rupture risk and then certifies that the proposed building will be outside that area, will remain a permitted activity. These provisions apply also for dwellings, although the activity status in this

case reverts to the controlled activity status for dwellings elsewhere in the District.

Buildings that are not accompanied by a technical report, and are located within the General Fault Rupture Avoidance Zone, will be non-complying activities. This will discourage the location of buildings within this area, thereby achieving the intent of Objective 3.13.1.

- Franz Josef/Waiiau Fault Rupture Avoidance Zone

To reflect the greater accuracy of mapping data available for the Franz Josef/Waiiau township, reference to the ability to obtain further data to establish that proposed buildings are outside of an area of possible fault rupture deformation has been removed from the proposed Franz Josef/ Waiiau Fault Rupture Avoidance Zone.

- Subdivision Rules

Two differing activity statuses are suggested for subdivision within the District that is subject to either of the Fault Rupture Avoidance Zones. Subdivision of land that is partially affected by the Fault Rupture Avoidance Zone is a discretionary activity, whereas land located entirely within an area subject to fault rupture risk is a noncomplying activity. This allows land that is partially affected to be subdivided, along with specific consideration of the fault rupture risk being addressed during the subdivision process, such as through the use of consent notices. Subdivision of land entirely within an area subject to fault rupture is discouraged through a non complying activity status.

Costs

The proposed fault rupture avoidance zone within Franz Josef/Waiiau crosses a number of properties. The introduction of the rules will significantly restrict the future development on these properties. However, it is considered that fault rupture poses a significant potential risk to landowners and tenants within the township and this risk outweighs the potential cost.

Obtaining technical advice in order to better locate the Faultline on a specific site in order to demonstrate the location of a building outside of the fault rupture zone will place costs on the landowner concerned. However, within the 'General Fault Rupture Avoidance Zone', the majority of the land is zoned rural and therefore it is likely that alternative suitable building sites will exist

outside of the avoidance zone. Council has contributed to further more detailed study in Franz Josef/ Waiiau to remove these costs for residents.

Effectiveness and efficiency

It is not considered necessary to require consent for any building or activity if only a part of a site is affected by the fault avoidance zone. The fault avoidance zones contain margins for uncertainty so it is not necessary to impose a further buffer to the edge of properties. This also reduces costs on those who have only part of their site within the zone.

Through heavily restricting the type of building in the fault rupture avoidance zone, the potential risk to health and safety is reduced. Utilising building importance categories the type of buildings have been limited to temporary buildings only. Commercial building and residential dwellings pose a significant risk to health and safety.

It has been suggested that the introduction of the fault rupture avoidance zone may not make residents and visitors safer as it will prevent investment in buildings. This would prevent strengthening of buildings to reduce damage cause by ground shaking. This statement is correct, the proposed zone will discourage or prevent works that may increase a building's performance in relation to ground shaking and liquefaction. However, strengthening a building against shaking will not address the risk of fault rupture on the building. Investment in a building increases the economic effect of an earthquake event. As a result of consultation, the Committee has amended the plan change wording to clarify that existing use rights continue to be protected, and maintenance and building work that does not expand the building or increase usage will be a permitted activity.

As a result of allowing existing uses to continue to operate within the two fault rupture avoidance zones, the existing risk experienced by those landowners and occupiers is not immediately reduced. However, the Council considers that the plan change, along with its supporting information, will fully inform land owners and allow individuals and businesses to make decisions based on risk. It is expected that over time, this will lead to a reduction of occupation of these areas.

- **Option 3: Risk Based Planning**

An emerging method for assessing and planning for hazards is “risk-based planning”. This approach involves consulting with the community to establish levels of acceptable risk, and utilise this along with information on the consequences of the hazard alongside the likelihood of it occurring to create a matrix. This matrix is then utilised to create consent status.

There is a benefit in this approach that it involves the consideration of a number of factors over and above the return period of an event. It also allows communities to be heavily involved in decision making. However, as a fault rupture event occurring will have significant social, health, economic and environmental effects, and the likelihood is high, the weighting of the hazard will be very high. Similarly there is no opportunity for variation in hazard avoidance zone, so there is little benefit from creating such a matrix. It is considered that the community will be involved in commenting on the draft Plan Change and discussions around acceptable risk can occur at that time.

- **Option 4: Relocation**

In order to require all existing activities within the proposed fault rupture avoidance zones to cease, Council must provide compensation. This would need to be funded through the Annual Plan and Long Term Plan process, or through external funding. Council would also need to source land for relocation to. In the case of Franz Josef /Waiiau, there is available land to north of the township, and also within the Franz Alpine Resort.

The Council is unlikely to be in a position to offer compensation. This method is financially un-viable. Council will instead continue to contribute towards the planning of the District to ensure that there is attractive land outside of the fault rupture hazard areas.

- *Risks of not acting/ acting on current level of information.*

Council proceeds with this plan change in order to respond to two reports from GNS which provide the most up to date information on the fault line location and corresponding fault rupture risk zones. Some areas of the fault line are not well-defined and there will be a cost to those owners to obtain further advice if

they wish to develop within the zone, however this is considered to be an appropriate sharing of cost between Council and the community.

The risk of not acting is that development and activity continues to expand within the Fault Rupture avoidance zone and the potential hazard is therefore increased. Council considers it a priority to implement this Plan Change promptly.