HAZARD ACCEPTABILITY THRESHOLDS FOR DEVELOPMENT APPROVALS

DECEMBER 2019

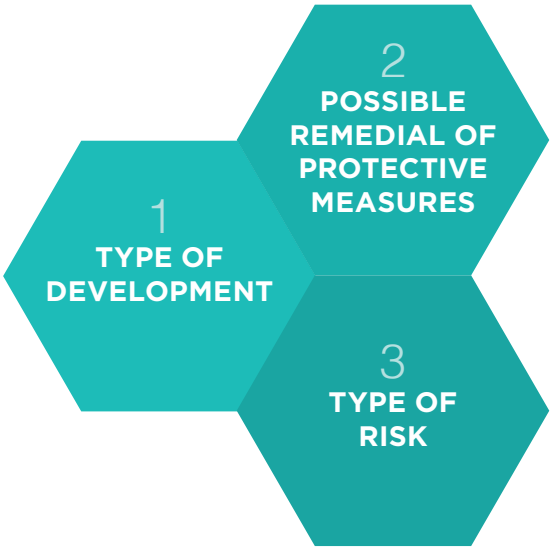
CVRD

Ensuring Safe Development

In 2019, the Cowichan Valley Regional District adopted a Natural Hazard Risk Tolerance Policy. The Policy establishes tolerance criteria for decisions made by the CVRD to protect public safety and minimize potential life loss. The CVRD recognizes the wide range of natural hazards across the region, the historic development patterns which may affect some communities, as well as the growing level of risk due to both climate change and continued growth. Therefore, the CVRD will apply the hazard acceptability thresholds and responses described in this document to inform planning, land use and decisions related to subdivision; construction of, addition to or alteration of a building or other structure; or land alteration as well as our management of infrastructure.

Local governments must define what acceptable risk is. The Association of Professional Engineers and Geo-scientists of British Columbia (APEGBC) are clear that defining levels of safety is "not the role of a Professional Engineer or Professional Geoscientist"; rather acceptable risk must be "established and adopted by the local government or provincial government after considering a range of social values".[1] Professional Engineers and Geoscientists are critical to ensure safety by characterizing the natural hazard and providing a professional opinion to the CVRD. However it is ultimately the responsibility of the CVRD to determine levels of acceptable risk in development approvals.

Three factors are analyzed to process development approvals in natural hazard lands:



The following pages describe at which point developments may be subject to additional regulatory responses, ranging from outright refusal of development to unconditional acceptance. Generally, developments which involve greater increases in land use density and those exposed to greater risks are less likely to be approvable given the increase to potential loss of life of damage.

1 Association of Professional Engineers and Geoscientists of BC (APEGBC) Guidelines for Legislated Landslide Assessments for Proposed Residential Developments in British Columbia, 2008, p.4.

Types of Development

In the face of natural hazards including flooding, landslides, earthquake and sea level rise, 7 types of development application are distinguished in order to evaluate their acceptability. They are ranked in order of increasing intensity of land use (that is the likelihood that more people would be put at risk), reflecting corresponding increases in exposure to a hazard and ultimately public risk.

Risk = hazard x exposure. So the more exposure to a hazard the more potential risk, therefore the guidelines require greater oversight as the exposure increases.

Minor Repair – no substantial increase to population at risk

- Costs less than 25% of the assessed value of the structure before repair, and increases original floor area by 25% or less.
- Includes health and safety repairs (i.e. leaking roof or fireplace replacement).
- Covenant to identify mitigation works may be necessary.
- Discourages extending the lifespan of a building in life-threatening risk areas.

Major Repair – greater potential increase to population at risk

- Cost exceeds 25% of the assessed value of the structure before repair, or increases original floor area by more than 25%.
- Extends the lifespan of the building but increases long term exposure to the natural hazard.
- May require mitigation to reduce hazard risk.
- Suited to areas with low frequency events.

Reconstruction

- Construction or replacement of an existing building after destruction, demolition or removal.
- Consider re-siting the building to a safer area and reduce the natural hazard risk.

Extension – new expoure

- Expansion of an existing building footprint.
- Does not included increased density or relocation of the building.

New Building – new exposure

- New building or structure.
- Mitigation may be required
- Site specific or subdivision natural hazard report may be necessary.

Subdivision – new exposure

- Division of a lot into two or more smaller parcels.
- Subdivision increases the density of land use and potential exposure to natural hazards.

Major Rezoning and Community Plan Amendment – new exposure

- Bylaw amendment to permit an alternate type of development (i.e. involves converting industrial or agricultural land to residential use).
- Often includes increased density.
- Opportunity to ensure development avoids hazardous lands.

The Acceptability of Risk in the Cowichan Region

The CVRD is focused on keeping it communities and residents as safe as possible. This means we need to understand the risk you and the users of your buildings will face. If we can reduce the probability of damage or injury, this will allow us to ensure our communities are as resilient as possible. If we cannot manage this risk within tolerable limits we may not be able to approve proposed development requests.

Figure 1. **Natural Hazard Acceptability for Development**

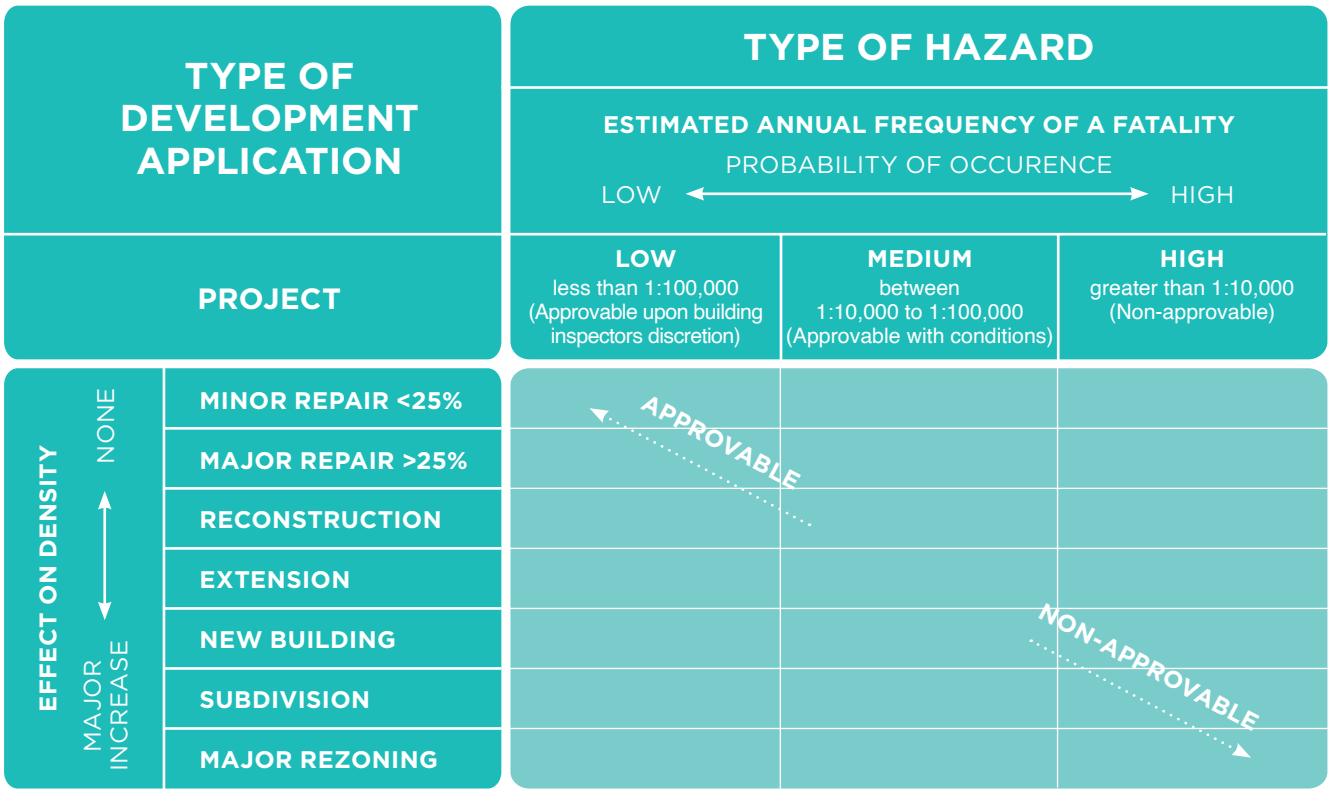


Figure 2. **Hazard-Related Responses to Development Approval Applications**

RESPONSES	
	Approval without conditions relating to hazards.
	Approval, without siting conditions or protective works conditions, but with a covenant including 'save harmless' conditions.
	Approval as above, but with a covenant including "save harmless" conditions as well as siting conditions, protective works or both.
	Not approvable.

Remedial and Protective Measures

Avoidance Measures

Reduction of exposure to risk by simple avoidance is the most desirable means of mitigating a natural hazard. Examples of avoidance measures include:

Elevating construction above a flood line

Staying away from waterways or floodplains

Staying away from steep or unstable slopes

Staying away from coastal surge areas

Protective Measures

Protective measures are more visible and generally more popular than avoidance measures, but are less secure in their results and often require maintenance. Examples of protective measures include:

Rip-rap Protection of River Banks to Prevent Erosion

Raised, Reinforced Foundations

Protective Berms and Dykes to Protect Against Flooding

Warning and evacuation strategies

Read the BC FireSmart Manual to learn how you can protect your family and your home from wildfire

Contact utility company if trees are not clear from power lines

Plant native trees and shrubs to help stabilize slopes

Protect natural drainage courses to allow safe passage of water down slopes