

Tāmaki Makaurau Recovery Office

Supporting storm-affected homeowners

HOW WE MEASURE RISK
& DECIDE PROPERTY CATEGORIES

March 2024

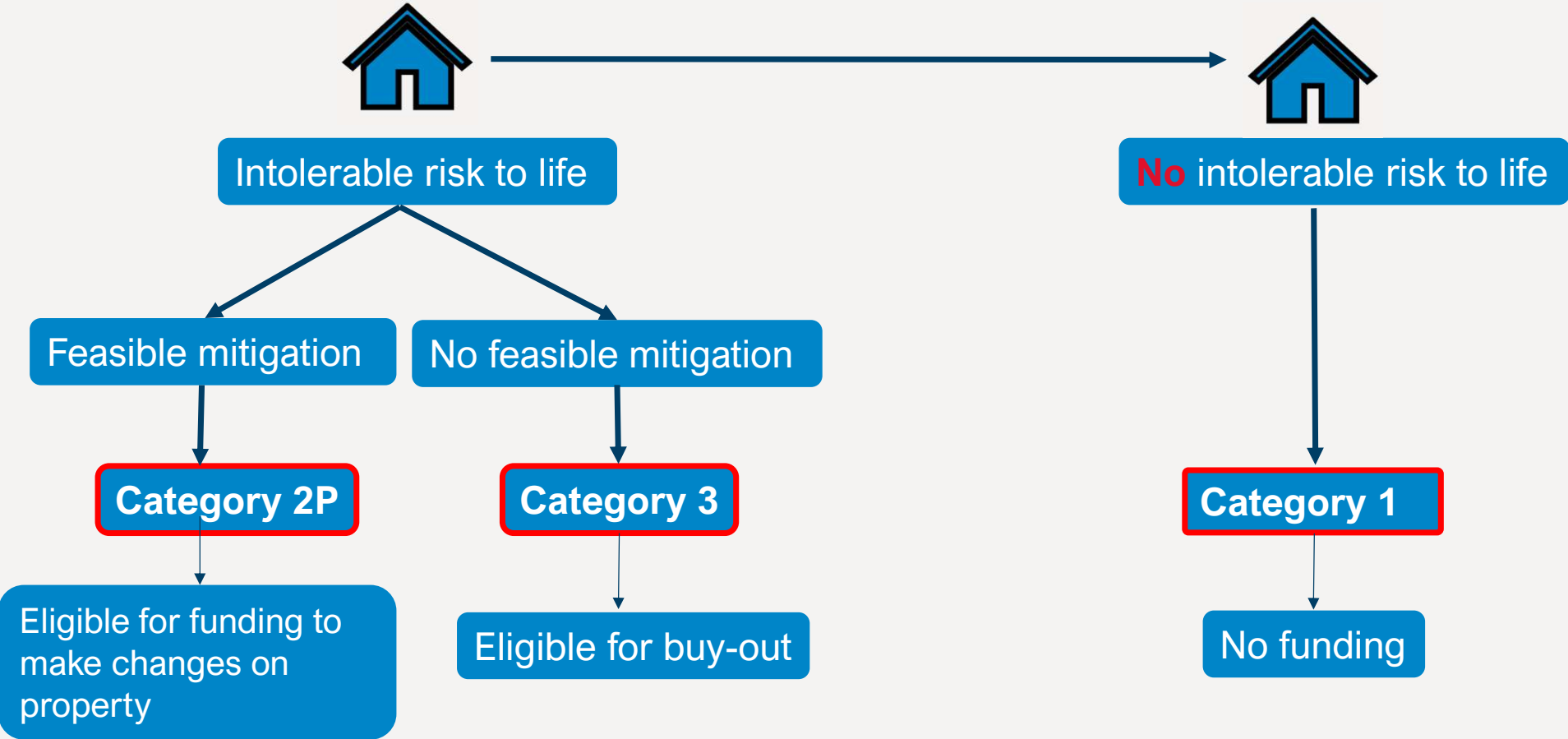


Agenda

- Property category update
- Intolerable risk – flooding
- Intolerable risk - landslide
- Support options
- Frequently asked questions
- Live Q&A session
- Upcoming webinars for storm-affected homeowners



Intolerable risk and the Government co-funding agreement



Flooding: Intolerable risk



**Is there an intolerable risk to life?
If so, is there an appropriate mitigation option?**



For flooding, there is ‘intolerable risk to life’ where there is a high risk to life for vulnerable people in an existing 1% AEP flood event.

This means that there’s a one in 100 chance of a flood of this size occurring (or being exceeded) each year.



1% AEP Event

For flooding, there is ‘intolerable risk to life’ where there is a high risk to life to vulnerable people in an **existing 1% AEP flood event.**

1% AEP = ‘one in 100 year’

This means that there’s a one in 100 chance of a flood of this size occurring (or being exceeded) each year.



Who is considered vulnerable?

- For flooding, there is ‘intolerable risk to life’ where there is a high risk to life to **vulnerable** people in an existing 1% AEP flood event
- Children* and the elderly
- Immobile or people with restricted mobility.

*Not infants and very young children – it is assumed they will be with an adult



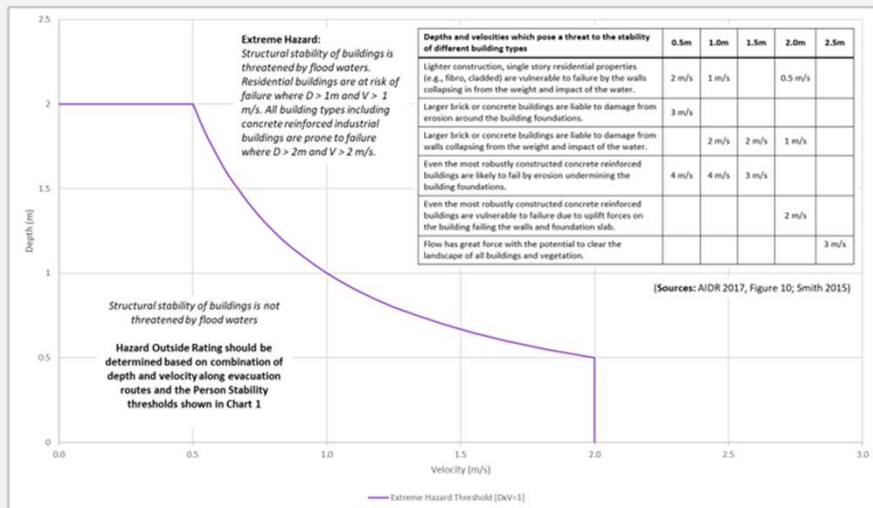
How do we determine if there is an intolerable risk to life?

- Primarily urban, pluvial, flashy flooding, that varies from property to property
- Behavioural factors influence flood risk
- Consider the risk of staying and the risk of leaving
- Building stability issues
- Australian Rainfall Runoff DxV curves used for assessing flood hazard.



Building stability

- Australian guidance
- Depths of >2m or velocities >2m/s can threaten building stability.



Step 1 – Building Stability

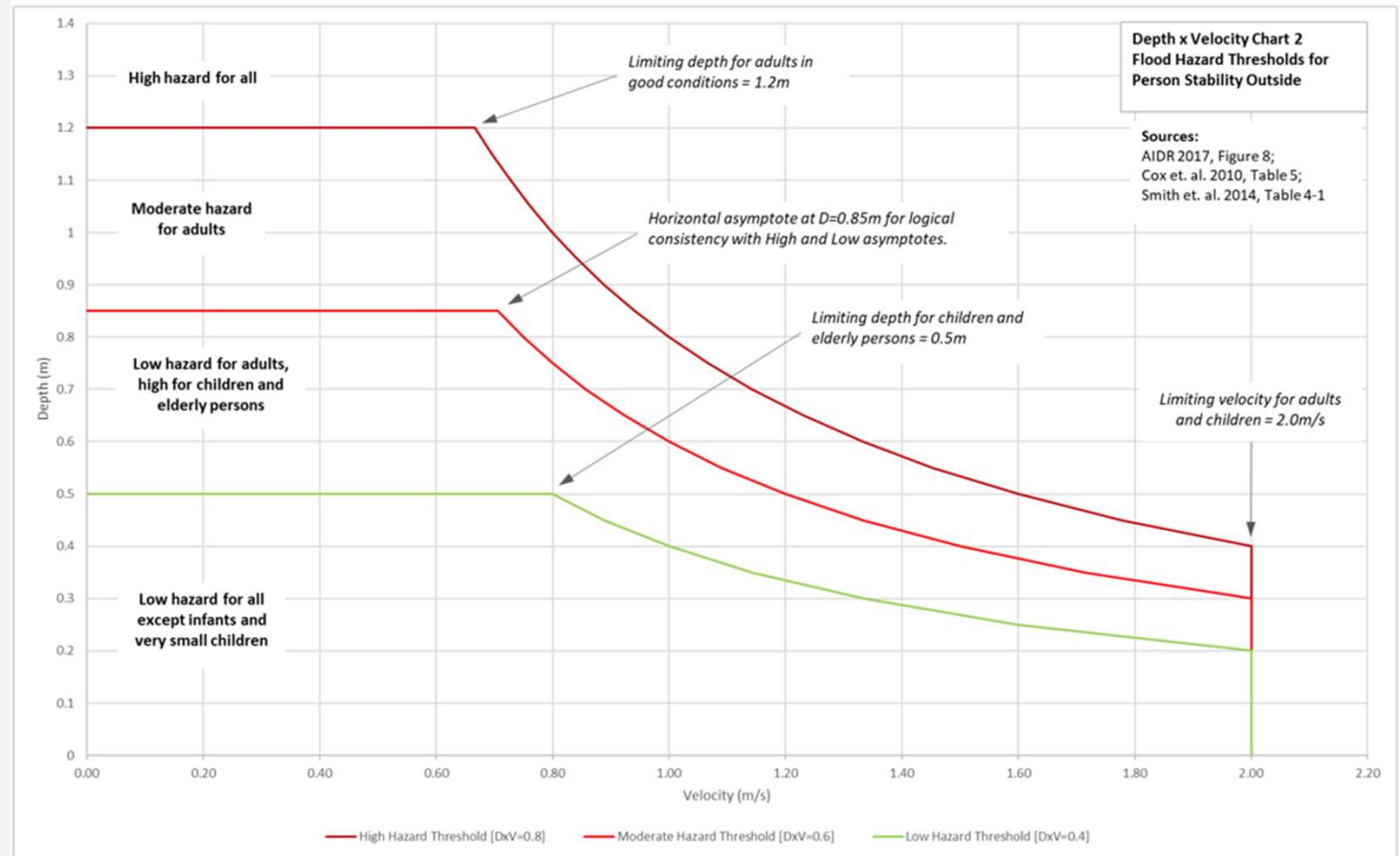
Building Stability Danger Rating Matrix

Hazard to Building Stability	
Assess the flood hazard adjacent to building footprint using DxV Chart 1 (Flood Hazard Thresholds for Building Stability). Show the result here.	
Floodwaters DO NOT threaten building stability. Flood Danger Rating will be determined by threat to person stability (refer Person Stability Matrix)	Floodwaters threaten building stability. Flood Danger Rating = Extreme. Intolerable risk at 1% AEP or greater
STABLE	UNSTABLE (Extreme Danger)



Person stability

- Australian guidance
- Combination of depth and velocity exceeding certain thresholds
- Lower thresholds for vulnerable people



Step 2 – Person Stability – What is the danger if they stay inside the building?

Hazard to People Inside	<p>Assess flood hazard inside the dwelling based on depth over habitable floor (assuming $V = 0$ inside the building)</p> <p>For assessing Hazard Inside, vulnerable people includes children, the elderly, and the mobility impaired.</p>	Habitable floor remains dry	Very Low	Floodwaters are NOT touching the building footprint. Nil depth over habitable floor.
			Very Low	Floodwaters are touching the building footprint. Nil depth over habitable floor.
		Habitable floor is wet.	Low hazard for all except infants and very young children	Depth (D) over habitable floor: $0 \leq D < 0.5m$
			Low hazard for able-bodied adults / High for vulnerable* people	Depth (D) over habitable floor: $0.5 \leq D < 0.85m$
			Moderate hazard for able-bodied adults	Depth (D) over habitable floor: $0.85 \leq D < 1.2m$
			High hazard for all	Depth (D) over habitable floor: $D \geq 1.2m$



Step 3 – Person Stability – What is the danger if they leave the building?

Hazard to People Outside				
Assess flood hazard along the most likely evacuation route using DxV Chart 2 (Flood Hazard Thresholds for Person Stability). Select the most appropriate Hazard Outside Rating between Very Low to High.				
An evacuation route is available and does not require wading	An evacuation route may be available but requires wading. Hazard is a function of depth and velocity of flooding along the evacuation route. Refer DxV Chart 2.			
Very Low	Low hazard for all except infants and very young children	Low hazard for adults / High for children and elderly	Moderate hazard for adults	High hazard for all
n/a	Refer DV Chart 2	Refer DV Chart 2	Refer DV Chart 2	Refer DV Chart 2



Person Stability Danger Rating Matrix

Hazard		DANGER RATING KEY		Hazard to People Outside									
		LOW DANGER	MODERATE DANGER	Assess flood hazard along the most likely evacuation route using DxV Chart 2 (Flood Hazard Thresholds for Person Stability). Select the most appropriate Hazard Outside Rating between Very Low to High.									
Show the Danger Rating based on the assessed Hazard Inside and Hazard Outside		Conditions		An evacuation route is available and does not require wading		An evacuation route may be available but requires wading. Hazard is a function of depth and velocity of flooding along the evacuation route. Refer DxV Chart 2.							
		Hazard Rating		Very Low	Low hazard for all except infants and very young children	Low hazard for adults / High for children and elderly	Moderate hazard for adults	High hazard for all					
		D & V Thresholds		n/a	Refer DV Chart 2	Refer DV Chart 2	Refer DV Chart 2	Refer DV Chart 2					
Hazard to People Inside	Assess flood hazard inside the dwelling based on depth over habitable floor (assuming V = 0 inside the building)	Habitable floor remains dry	Very Low	Floodwaters are NOT touching the building footprint. Nil depth over habitable floor.	Low hazard	Low hazard	Moderate hazard	High hazard					
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	For assessing Hazard Inside, vulnerable people includes children, the elderly, and the mobility impaired.	Habitable floor is wet.	Low hazard for all except infants and very young children	Depth (D) over habitable floor: $0 \leq D < 0.5m$	Low hazard	Low hazard	Moderate hazard	High hazard					
					Low hazard for able-bodied adults / High for vulnerable* people	Depth (D) over habitable floor: $0.5 \leq D < 0.85m$	High hazard	High hazard	High hazard	High hazard			
							Moderate hazard for able-bodied adults	Depth (D) over habitable floor: $0.85 \leq D < 1.2m$	High hazard	High hazard	High hazard	High hazard	
									High hazard for all	Depth (D) over habitable floor: $D \geq 1.2m$	High hazard	High hazard	High hazard

Intolerable Risk Threshold @ 1% AEP



Person Stability Danger Rating Matrix

Hazard Show the Danger Rating based on the assessed Hazard Inside and Hazard Outside		DANGER RATING KEY ■ LOW DANGER ■ MODERATE DANGER ■ HIGH DANGER		Hazard to People Outside Assess flood hazard along the most likely evacuation route using DxV Chart 2 (Flood Hazard Thresholds for Person Stability). Select the most appropriate Hazard Outside Rating between Very Low to High.					
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	Habitable floor is wet. For assessing Hazard Inside, vulnerable people includes children, the elderly, and the mobility impaired.	Moderate hazard for able-bodied adults	Depth (D) over habitable floor: $0.85 \leq D < 1.2\text{m}$						
		High hazard for all	Depth (D) over habitable floor: $D \geq 1.2\text{m}$						

Intolerable Risk Threshold @ 1% AEP



How this informs your Category

Category	1	2P	2C	3
Description	May have experienced damage but does not meet threshold for intolerable risk to life	Property specific measures to reduce the risk to life in future natural events.	Community level scheme to reduce the risk to life in future natural events.	Property purchase required to reduce risk to life in future natural events.

← These properties do not meet the threshold for intolerable risk to life

→ These properties meet the threshold for intolerable risk to life

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Description	May have experienced damage but does not meet threshold for intolerable risk to life	Property specific measures to reduce the risk to life in future natural events.	Community level scheme to reduce the risk to life in future natural events.	Property purchase required to reduce risk to life in future natural events.

Mitigation is feasible

Mitigation not feasible

These properties do not meet the threshold for intolerable risk to life

These properties meet the threshold for intolerable risk to life

What now?

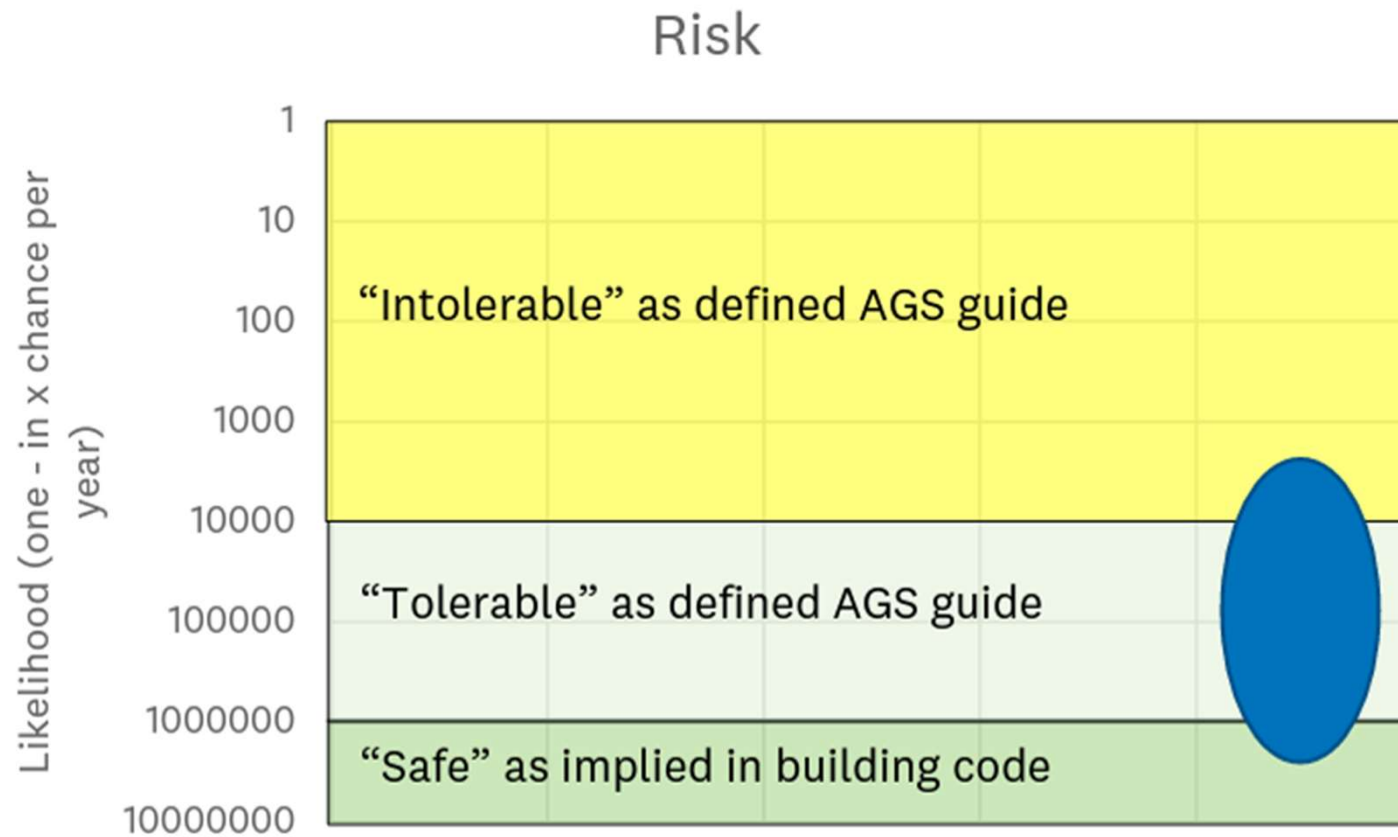
- Process is being applied
- Regular check-ins with expert panel
- We are currently preparing a fact sheet for homeowners on flooding intolerable risk to life.



Landslide: Intolerable risk



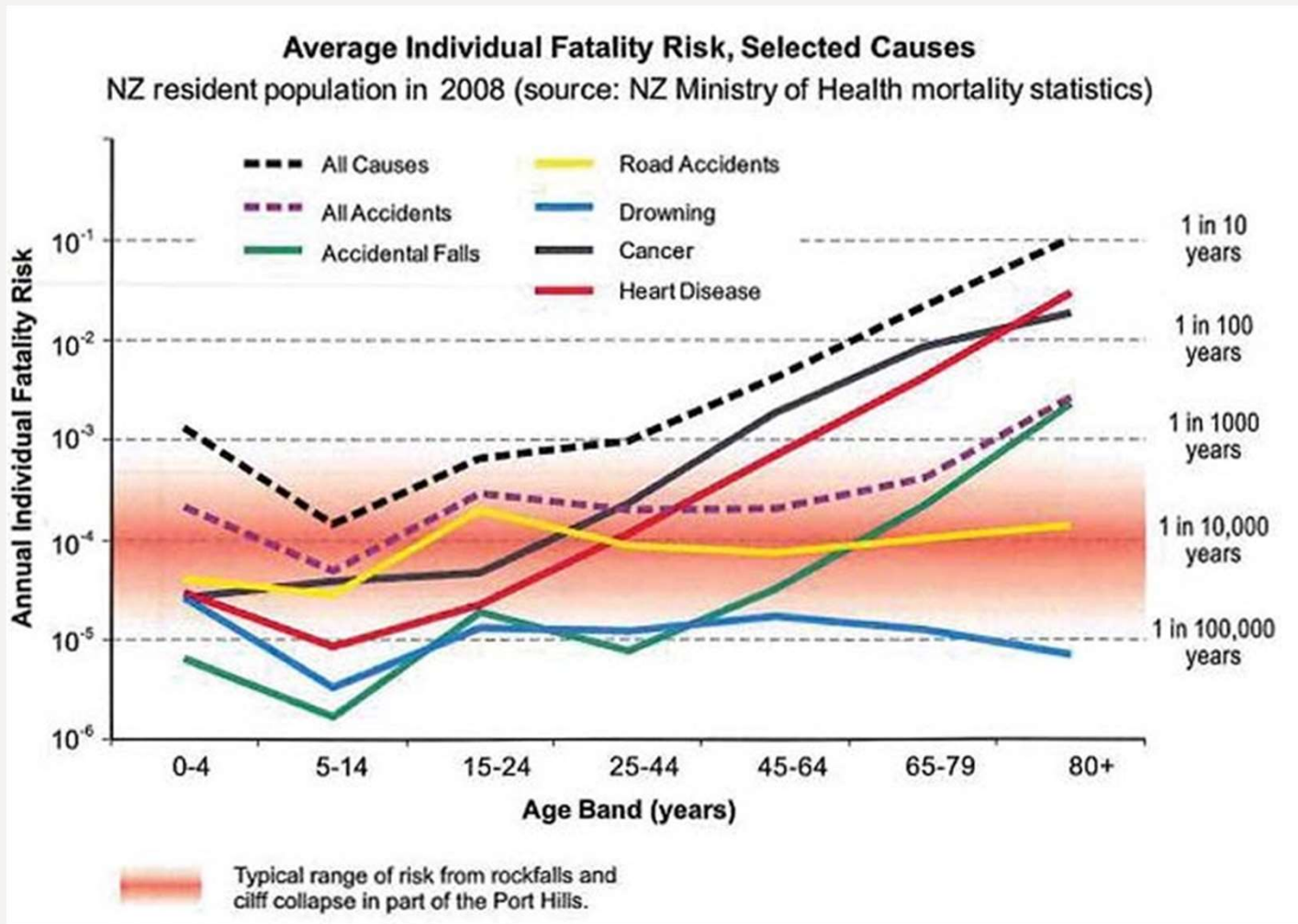
What is 'tolerable risk'?



3/21/2024



Why do we think this is tolerable?



How the AGS2007 calculation works

The risk of 'loss-of-life' to an individual is calculated from:

$$R_{(LoL)} = P_{(H)} \times P_{(S:H)} \times P_{(T:S)} \times V_{(D:T)}$$

Where:

- $R_{(LoL)}$ is the risk (annual probability of death of an individual)
- $P_{(H)}$ is the annual probability of the landslide (event)
- $P_{(S:H)}$ is the probability of spatial impact
- $P_{(T:S)}$ is the temporal probability
- $V_{(D:T)}$ is the vulnerability

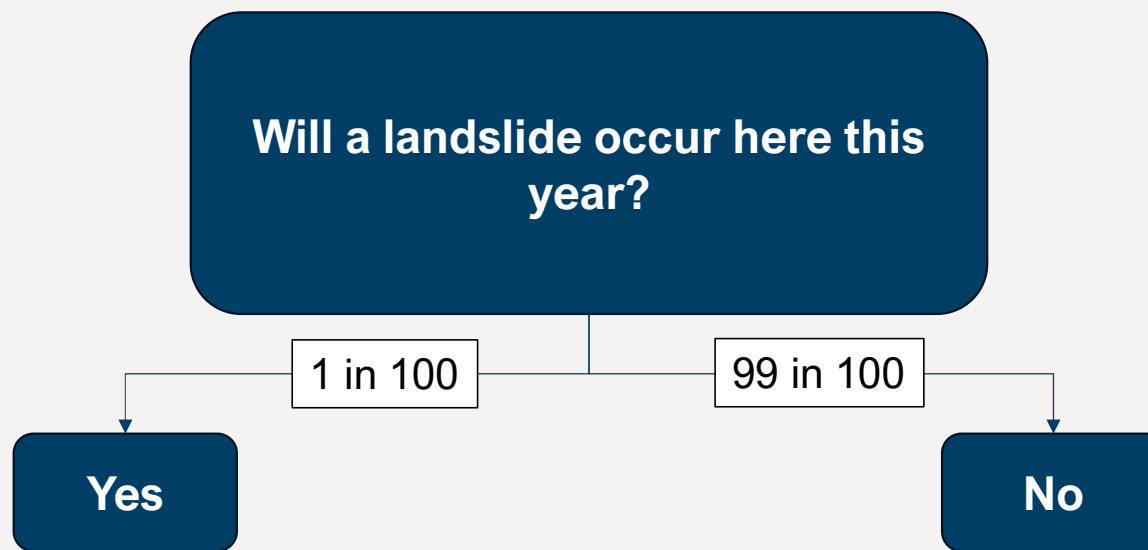


A simpler way to think about it

Four questions:

$$R_{(LoL)} = \underline{\mathbf{P}}_{\mathbf{(H)}} \times P_{(S:H)} \times P_{(T:S)} \times V_{(D:T)}$$

Question 1

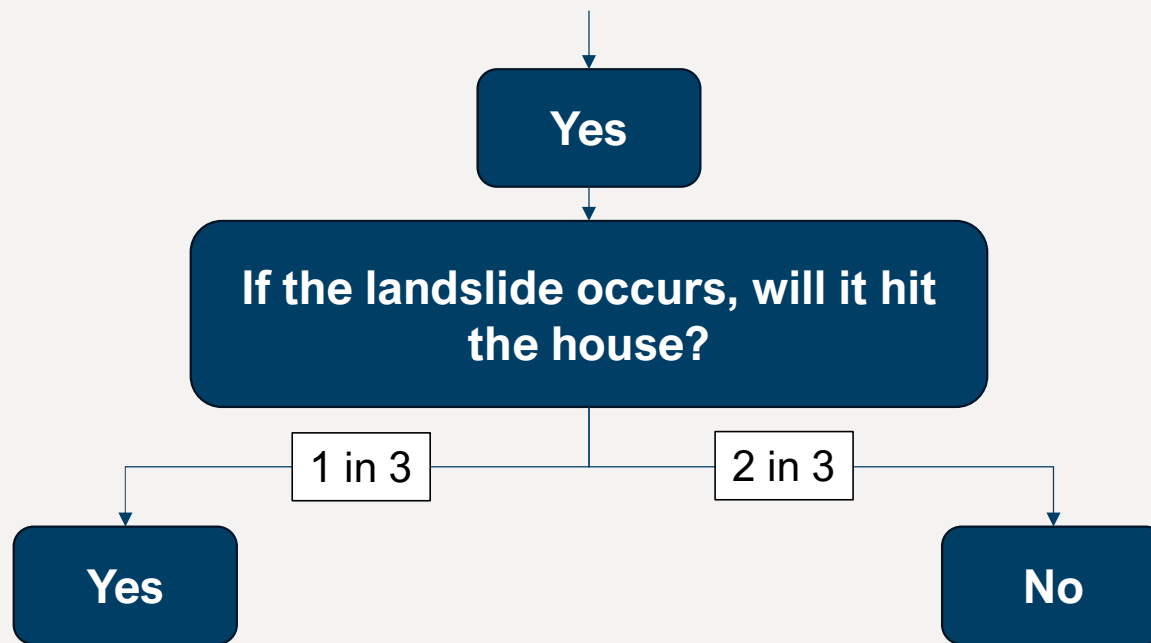


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Question 2

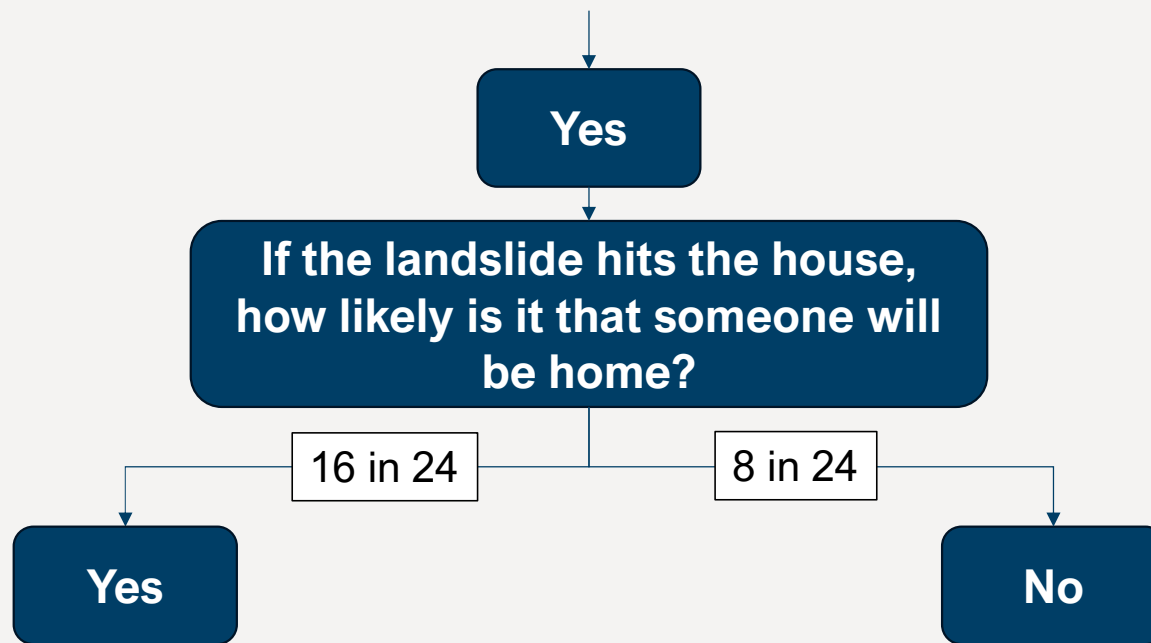


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Question 3

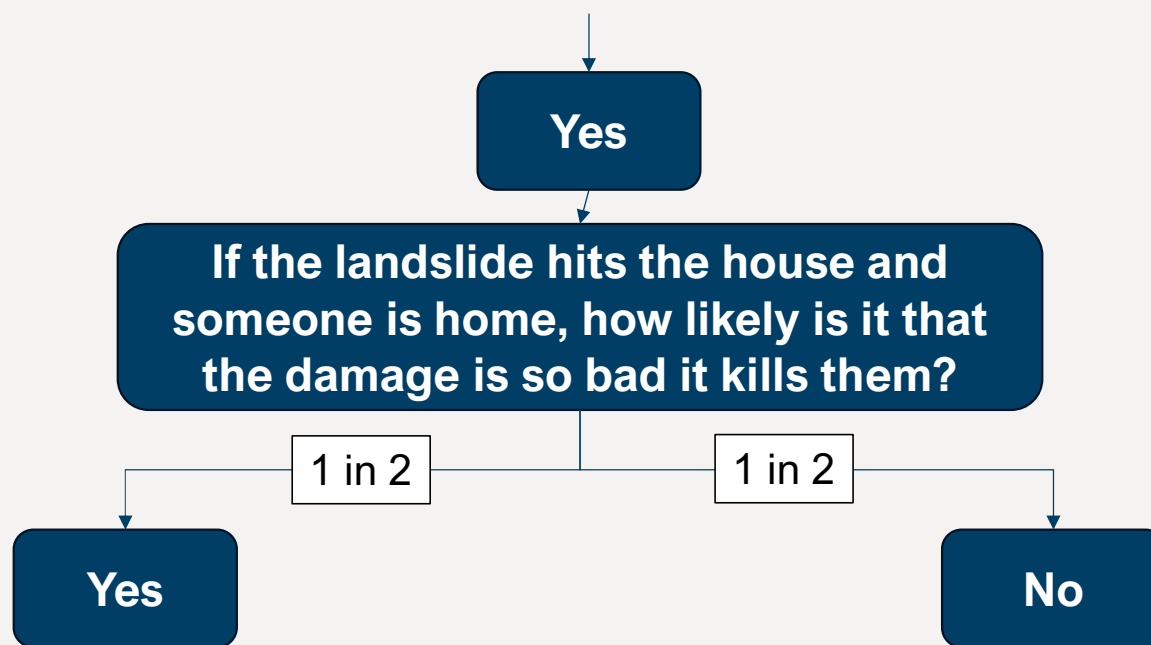


A simpler way to think about it

Four questions:

$$R_{(LoL)} = P_{(H)} \times P_{(S:H)} \times P_{(T:S)} \times \underline{\underline{V_{(D:T)}}}$$

Question 4



A simpler way to think about it

Four questions:

$$R_{(LoL)} = P_{(H)} \times P_{(S:H)} \times P_{(T:S)} \times V_{(D:T)}$$

$$R_{(LoL)} = 1 / 100 \times 1/3 \times 16/24 \times 1/2$$

$$R_{(LoL)} = 0.0011$$

This can also be written as 1.1×10^{-3} or about 1 in 1,000

- This would be intolerable



How this informs your Category

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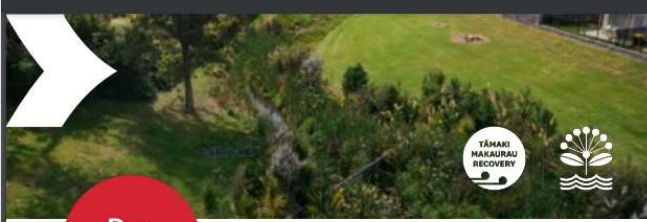
These properties meet the threshold for intolerable risk to life



Current online resources:

Homeowner guide:

‘How we decide property risk categories’



Dec 2023

How we decide property risk categories



This guide explains how Auckland Council decides risk categories for residential properties affected by the severe weather events in early 2023.

The Government property risk assessment framework for homes affected by the 2023 storm events includes three risk categories:

Category	Description
Category 1	These properties do not meet the threshold for intolerable risk to life. They are not eligible for a buy-out or other financial support from council, but can access wellbeing and other support.
Category 2	These properties meet the threshold for intolerable risk to life. This category is split into three sub-categories: 2C: Community level measures to reduce the risk to life from future weather events. 2P: Property specific measures to reduce the risk to life from future weather events. 2A: Property needs further assessment - more information required to provide categorisation. Category 2P property owners can apply for a council grant to undertake the property interventions.
Category 3	These properties meet the threshold for intolerable risk to life and there is no feasible intervention. Category 3 properties are eligible for a voluntary buy-out by council.

The property risk assessment framework is part of a one-off, limited response to the 2023 severe weather events.

It is a tool for the council to respond to the weather events and is not based on a legislative or regulatory requirement. Category decisions reflect a point in time and are not permanently attached to a property.



Support options



Storm Recovery Navigation Service

Support for wellbeing, access to information & connecting with community support services

navigators@aucklandcouncil.govt.nz



Need to talk?

Free call or free text **1737** any time, to talk to (or text with) a trained counsellor or peer support worker.



NZ Claims Resolution Service

Call **0508 624 327** or visit www.nzcrs.govt.nz for free advice support with insurance claims



Look in the chat function for these links

Recovery e-newsletter

- Be first to hear about funding, support and new announcements affecting storm affected property owners and their neighbourhoods.
Unsubscribe at any time.

Recovery web page

- Visit the Recovery section on OurAuckland website for news and resources

Document library

- On Auckland Council website for guides and application forms



Upcoming webinars March - May

Exact dates TBC

- Insurance related issues (Q&A with industry experts)
- Information for Category 1 property owners
- Property deconstruction and future land use



Your frequently asked questions



'LIVE' Question and answer session



Tāmaki Makaurau Recovery

Thank you for attending

