To the Planning Team, Hamilton City Council

Name of submitter: Sarah-Jayne McCurrach

Organisation: Natural Hazards Commission Toka Tū Ake

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Date: 28 February 2025

Thank you for the opportunity to submit on Plan Change 14 – Flooding (Plan Change 14).

About the Natural Hazards Commission Toka Tū Ake (NHC)

The Natural Hazards Commission Toka Tū Ake (NHC) is a Crown Entity responsible for providing residential property owners with a current contract of fire insurance for their residential property with insurance against damage from natural hazards covered by the Natural Hazards Insurance Act 2023 (NHI Act). NHC provides limited cover for:

- building and land damage from earthquakes, landslides tsunami, volcanic and hydrothermal activity, and fire following these hazards, and
- land damage only from storm or flood, and fire following these hazards.

Why NHC is providing this submission

NHC's primary objective is to *'reduce the impact of natural hazards on people, property, and the community'*. To achieve this objective, NHC's functions, as set out in the NHI Act, include: to facilitate research and education, and to contribute to the sharing of information, knowledge, and expertise (with the Crown, public and private entities, and the public generally), including in relation to:

- natural hazards and their impacts,
- community resilience to natural hazards, and
- planning for, and recovering from, natural hazards.

As NHC is the 'first loss' insurer for residential damage resulting from natural hazards listed in the NHI Act, NHC carries financial risk on behalf of the Crown. We also see the impacts of natural hazards in the insurance claims we receive. This means that NHC has leading insights and a strong interest in reducing risk from, and building resilience to, natural hazards across New Zealand.

Our investments in research and education about natural hazards enable us to use and translate this information to support evidence-based, policy and planning. Our focus is on ensuring long-term resilience by encouraging building in areas that will remain safe and sustainable for future generations. Developing in zones at high risk from natural hazards exposes future owners to complex and potentially hazardous situations, which could compromise the longevity and safety of these developments.

Climate change is also increasing the occurrence and severity of natural hazards covered by the NHC Scheme. Therefore, we support clear, risk-based policy frameworks that reduce natural hazard risks, allow for resilient and sustainable land use planning to manage risk, and support community education and resilience towards natural hazards.

When we make submissions on council strategies and plans, our submissions relate to the suitability of the land proposed for development *without* mitigations. We do not submit on any individual planned or proposed developments. It is up to councils to decide whether the risks to land can be managed, and whether the appropriate mitigations and management strategies are in place for individual consent applications.

Our advice and recommendations are not intended to impede development, but to highlight the importance of careful and precautionary choices to ensure resilient and sustainable communities in the future. Our goal is to support councils to ask the right questions and make risk informed decisions.

Therefore, our advice to councils is to consider the risks and impacts on communities the district plan may create for the future. We encourage councils to ensure that they are satisfied that:

- Natural hazard risk has been assessed on a multi-hazard basis, over multiple timeframes, to at least 50, or preferably 100, years into the future, and using multiple climate change scenarios.
- Risks are mitigated to tolerable levels for the community and council. For example, is 'nuisance flooding' tolerable if it is ongoing?
- New developments do not create any new or further risks for neighbouring suburbs – now, or in the future.
- There is a plan for managing any residual risks after mitigation.
- 'Status quo' of risk and risk tolerance are acceptable where long-term decisions are being made. I.e., an existing community being flood- or liquefaction-prone is not justification for a new development having the same risks.

We advise councils to engage with private insurers to assess their tolerance for providing insurance to locations, risks, and developments if there is any doubt. Insurability should be a key consideration when thinking about the risks and impacts on communities that are being creating for the future.

Although Hamilton is generally considered to be at lower risk from natural hazards than other areas in New Zealand, there are still a range of natural hazards that could impact the city, including earthquakes, liquefaction, volcanic ash fall, landslide and erosion, and flooding. A number of active faults run through the Waikato region, and 17% of Hamilton's urban area is built on liquefaction-prone unconsolidated material. Flooding from the Waikato River is of particular concern for Hamilton with a number of properties being exposed to this flood hazard.

NHC encourages territorial authorities to use risk-based frameworks in district plans to reduce risk and increase resilience to natural hazards. Plan Change 14 contains provisions that we support in this regard, and we have provided suggestions in other areas that could be improved.

We welcome the opportunity to discuss our submission with council officers and provide further assistance, if this would be helpful. Please feel free to contact us at any time.

Yours sincerely,

Sarah-Jayne McCurrach

Head of Risk Reduction, NHC Toka Tū Ake

Form 5, Clause 6 of Schedule 1, Resource Management Act 1991

Natural Hazards Commission Toka Tū Ake Submission on Hamilton City Council Plan Change 14 - Flooding

To: Hamilton City Council

Via Council submission email: planchange14@hcc.govt.nz

Submitter: Natural Hazards Commission Toka Tū Ake (NHC)

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1. This is a submission on the following:

The Plan Change 14 notified on 21/01/2025.

2. NHC could not gain an advantage in trade competition through this submission.

3. NHC does not wish to be heard in support of this submission.

If others make a similar submission, NHC would not consider presenting a joint case at any hearing.

4. This document and the Appendices attached is the NHC submission. This submission relates to Plan Change 14 in its entirety.

5. The submission from NHC is:

NHC supports with amendments Plan Change 14 to the extent outlined in this submission.

a) **Identification of flood hazard** - NHC generally supports the flood hazard mapping and definitions provided in Plan Change 14. NHC requests that some of the provisions associated with flood hazard are amended to better manage risks and reduce the impacts to people and property in future flood events.

b) **Natural Hazard Mapping/Overlays** - NHC supports the use of regulatory hazard mapping, in the form of overlays, to spatially identify areas of the city that are prone to natural hazards. NHC requests that these remain as regulatory maps within the District Plan due to concerns over natural justice and prior use rights. The two fundamental principles of natural justice are that affected parties should be given the opportunity to be heard, and that decision makers should be unbiased. Having natural hazard maps outside the District Plan raises concerns that the maps could be changed without notifying or consulting with residents as required for a District Plan change, therefore breaching the first fundamental principle of natural justice.

Natural hazard information is constantly updated and although we believe it is important to have access to the most up-to-date information (especially in regard to natural hazards that will be impacted by climate change), we also believe that requiring consultation is crucial for delivering natural justice in regard to property, existing use rights as well as delivering robust scientific information. The consultation process that is required for a plan change to update natural hazard maps provides a mechanism for assessing the scientific rigour of the information included in the maps, which will then go on to inform planning decisions. The ability to view any natural hazard maps before they are used for decision making provides the

opportunity for discussion and feedback to ensure that the best available information is being used for planning decisions.

c) **Climate change modelling** - Climate change projections for Hamilton indicate that the city will experience more frequent intense rainfall events, which can increase the flood risk. The Section 32 Evaluation Report states *"modelling of flood hazards considers a range of assumptions about future levels of permeable and impermeable surfaces in catchments as well as rainfall patterns with climate change*." NHC requests that the climate change projections that have been used are included in the plan. This will ensure that associated rules and policies will be able to be implemented consistently, and reduce the impacts from flooding to people and property now, and into the future.

Provided in Appendix 1 is a table containing submission points that address the above, and other matters of relevance.

6. NHC seeks the following decision from the local authority:

That the specific amendments, additions or retentions which are sought as specifically outlined in Appendix 1, are accepted and adopted into Plan Change 14, including such further, alternative, additional, or consequential relief as may be necessary to fully achieve the relief sought in this submission.

Date:	28/02/2025
Address for service:	Natural Hazards Commission Toka Tū Ake PO Box 790, Wellington 6140
Contact person:	Sarah-Jayne McCurrach, Head of Risk Reduction
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Appendix 1

Provision	Description	Support/ Oppose/ Amend	Reasoning	Requested Action
Chapter 22 Natural Hazards				
22.1 Purpose	a. This chapter establishes a city-wide framework for managing the use, development and subdivision of land affected by natural hazards. b. A natural hazard is the result of natural processes that form, shape and alter the environment. Natural hazards are any atmospheric, earth or water-related occurrence that may adversely affect human life, property or the environment. They include earthquakes, tsunami, erosion, volcanic and geothermal activity, landslips, subsidence, sedimentation, wind, drought, fire, and flooding. c. Flooding and land instability (erosion, land slips and subsidence) are natural hazards of particular relevance to Hamilton. It is these hazards that this chapter focuses on. Other natural hazards are managed by other statutory instruments or processes d. Land may fall within one or more areas affected by natural hazards. These are: i. Flood Hazard Areas: a. Low Flood Hazard Area. b. Medium Flood Hazard Area. c. High Flood Hazard Area.	**Support**	We support the addition of Low and High Flood Hazard Areas and the specification of Depression Areas, Overland Flow Paths, and Extent Areas. We recommend that the District Plan and planning provisions are utilised for hazard risk management for all natural hazards in Hamilton, to reduce the impacts to people and property. Hamilton could be affected by a range of natural hazards including earthquakes, severe wind, drought, volcanic ash fall, landslides and erosion, rural fire, and flooding[1]. Land use planning is an effective tool for managing natural hazard risk, because it can decrease the level of exposure, therefore reducing the risk. For example, the MBIE/MfE Guidance for Potentially Liquefaction Prone Land[2] is a useful resource to assess what planning controls are required for liquefaction prone areas. We understand that these changes are not within scope for Plan Change 14 but should be considered as part of any future plan changes. [1]An overview of natural hazards for the Hamilton City Council [2]MBIE & MfE (2017). Planning and engineering guidance for potentially liquefaction-prone land Resource Management Act and Building Act aspects.	That the provision be retained.

	ii. Depression Areas iii. Overland Flow Paths iv. Flood Extent Areas v. Waikato Riverbank and Gully Hazard Area.			
22.1 Flooding	e. The Flood Hazard Areas and Flood Extent Areas have been identified using catchment-based flood modelling. These identify land predicted to be affected by river flooding, water ponding or overland flow paths in a storm event that has a 1% chance of occurring in any one year. f. The Low, Medium and High categories of Flood Hazard Areas are based on combinations of water depth and speed. Generally, the deeper or faster the water the greater the consequence if people or property are exposed to it (i.e. the greater the risk). This is reflected in the policies and rules that relate to Flood Hazard Areas whereby a more restrictive approach exists within High Flood Hazard Areas compared with the Medium or Low Flood Hazard Areas g. The depression Areas are areas that have the potential to 'fill up' with stormwater if the stormwater pipes, or culverts are blocked by debris, or their capacity is exceeded in a flood event. Depression Areas can be created through manmade features (e.g. roads, earthworks) that can inadvertently act as a dam and stop stormwater from flowing, but they can also be caused by natural topographical features.	**Support / Amend**	We support the inclusion of different flood modelling to support the development of rules and provisions to manage flood risk and reduce, the impact to people and property in future flood events. We also support Council providing the best available information. However, while we understand that information not in the District Plan can be easily updated, we believe that unless incorporated by reference, the flood modelling and mapping should be held in the District Plan in Planning Maps, as this means they will have to be consulted on for any changes. This will manage issues associated with maintaining natural justice by ensuring affected parties can be heard when the hazard maps change. Requiring consultation for updating hazard maps also provides a mechanism for assessing the scientific rigour of the information included in the maps.	That the following amendment be made: Unless incorporated by reference, flood hazard information is contained within Planning Maps in the District Plan.

	h. Overland Flow paths show the most direct route that water will try to flow over land. i. The best available catchment-based flood information produced by Council is currently published Council's website. This flood information is generally considered suitable for identifying whether a specific property may be affected by one or more of the above flood related features, however alternative flood information can be used if Council considers it to be better than the information that it holds. j. Subdivision, development and land uses will need to determine whether there are any flood related hazards relevant to the site and proposal when applying the provisions of this chapter			
22.2.1 Objective	Risks from natural hazards are managed in a way that: i. do not increase the potential for adverse effects to people, property and the environment. ii. where practicable reduce, risks arising from natural hazards for adverse effects on people, property and the environment. iii. increase community resilience to natural hazards including the effective and efficient response and recovery from the adverse effects of natural hazard events.	**Support / Amend**	We agree with decreasing natural hazard risk and increasing community resilience. These objectives will reduce the impacts to people and property during natural hazard events. We recommend that the wording for *ii* is amended to make this meaning clearer.	That the following amendment be made: ii. Where practicable, reduce~~,~~ natural hazard risk~~s arising from natural hazards for~~ to minimise the adverse effects on people, property, and the environment.

22.2.1a Managing the risks of natural hazards	Manage subdivision, use, and development to mitigate risks from natural hazards, or minimise them to a tolerable level, including by: i. Assessing the effects of and risks from natural hazards. ii. Taking a precautionary approach. iii. Recognising that sites may be subject to multiple hazards and the potential cumulative effects these hazards may create. iv. Giving priority to the use of non-structural solutions rather than construction of natural hazard protection works or structures. v. Recognising, maintaining, or enhancing the role of natural features and processes to avoid or minimise natural hazards, including, e.g., the natural function of floodplains to store and convey flood waters. vi. Ensuring new activities do not create new, or exacerbate existing, natural hazards. vii. Considering the effects of climate change on the occurrence and severity of natural hazards. viii. Recognising that redeveloping a site, including intensifying its use, may create opportunities to reduce the overall level of existing risk. ix. Using the best available information and applying best practice where practicable.	**Support / Amend**	We support these policies, particularly taking a precautionary approach and considering the effects of climate change, as they will reduce the impacts to people and property in future natural hazard events. However, it is important to define what the council means by a "tolerable level" to avoid confusion and ensure consistent application of rules and policies. NHC has developed a Risk Tolerance Methodology[1] that is designed to integrate a risk tolerance assessment into existing risk management approaches. This methodology could be used by the Council to develop a metric to determine "tolerable" levels of risk. [1]NHC Toka Tū Ake Risk Tolerance Methodology.	That the following amendment be made: Include a definition and/or metric to determine what natural hazard risk is deemed "tolerable" by the council.
22.2.1b Flood Hazard Area Risk	When assessing flood hazard risks, consider the following matters:	**Support / Amend**	We support these matters being considered when assessing flood hazard risk, as considering them in	That the following amendment be made:

Assessment	i. The anticipated effects of climate change on the frequency and severity of flooding up to and including at least the 1% AEP rainfall event flood level; ii. The health and safety of people; iii. The vulnerability or resilience of activities to the effects of flood events; iv. The possible need for people to be evacuated during a flood including flood free access and egress; and v. Whether the development will accelerate or exacerbate potential effects on sites upstream, downstream, or adjacent to the site, including the effects of increased flood depths and velocities.		subsequent management options can reduce the impact to people and property in future flood events. We recommend providing clear guidelines for how to account for the anticipated effects of climate change, to avoid confusion and ensure consistent applications of policy. We recommend requiring the RCP8.5 climate change scenario to be included in flood hazard area risk assessments. The RCP8.5 scenario represents the upper estimate of likely futures and provides for a precautionary approach to natural hazard risk management. The National Adaptation Plan[1] outlines that councils should use the RCP8.5 climate change scenarios for detailed hazard and risk assessments in coastal and non-coastal areas. [1]Ministry for the Environment. 2022. Aotearoa New Zealand's first national adaptation plan. Wellington. Ministry for the Environment.	The anticipated effects of climate change, <u>according to RCP8.5</u>, on the frequency and severity of flooding up to and including at least the 1% AEP rainfall event flood level;
22.2.1c Earthworks	Manage earthworks to not reduce flood storage capacity or divert or to concentrate stormwater discharges off a site.	**Support / Amend**	We support earthworks not being able to reduce on-site storage capacity of water and not concentrating stormwater discharges to another site. This provision can reduce the impacts to people and property during future flood events. However, it is also important that earthworks do not reduce the off-site flood storage capacity.	That the following amendment be made: Manage earthworks to not reduce <u>on-site and off-site</u> flood storage capacity and <u>to not</u> ~~or~~ divert or ~~to~~ concentrate stormwater discharges off a site.
22.2.1d Use and Development in Flood Hazard Areas	Land use that is vulnerable to the adverse effects of flooding events (including but not limited to residential units, visitor accommodation, child care facilities, community centres, schools, and health care services) and development avoids High Flood Hazard Areas.	**Support / Amend**	We support vulnerable land uses and development avoiding High Flood Hazard Areas. Avoiding identified High Flood Hazard Areas will reduce the impacts to people and property in future flood events. We recommend including a more inclusive list of land uses that the Council deems as vulnerable to the adverse effects of flooding events. Providing a clearer list is	That the following amendment be made: A clear list of hazard sensitive activities is included. For example: *a.* <u>*Childcare Services*</u>

			necessary to avoid confusion and ensure consistent application of rules and policies. For example, Wellington City Council provides a list of hazard sensitive activities[1] that could be considered for this plan: a. *Childcare Services* b. *Community Facility* c. *Educational Facility* d. *Emergency Service Facilities* e. *Hazardous Facilities and Major Hazardous Facilities* f. *Healthcare facility* g. *Hospital* h. *Marae* i. *Multi-unit housing* j. *Places of Worship* k. *Residential Units and Minor Residential Units (including those associated with Papakainga)* l. *Retirement Village* m. *Visitor Accommodation* [1]Wellington City Council District Plan	b. *Community Facility* c. *Educational Facility* d. *Emergency Service Facilities* e. *Hazardous Facilities and Major Hazardous Facilities* f. *Healthcare facility* g. *Hospital* h. *Marae* i. *Multi-unit housing* j. *Places of Worship* k. *Residential Units and Minor Residential Units (including those associated with Papakainga)* l. *Retirement Village* m. *Visitor Accommodation.*
22.2.1e Use and Development in Flood Hazard Areas	Activities in Flood Hazard Areas should take steps to reduce natural hazard risk, including risks to other properties, to a level that is tolerable.	**Support / Amend**	We support all activities needing to take steps to reduce natural hazard risk, as this can reduce the impact to people and property in future flood events. However, it is important to define what the council means by a "level that is tolerable" to avoid confusion and ensure consistent application of rules and policies. NHC has developed a Risk Tolerance Methodology[1] that is deigned to integrate a risk tolerance assessment into existing risk management approaches. This methodology could be used by the Council to develop a metric to determine "tolerable" levels of risk.	That the following amendment be made: Include a definition and/or metric to determine what natural hazard risk is deemed "tolerable" by the council.

			[1]NHC Toka Tū Ake Risk Tolerance Methodology.	
22.2.1f Use and Development in Flood Hazard Areas	Allow land uses and development within a Low and Medium Flood Hazard Area only when: i. The adverse effects of a flood event have been minimised and risk reduced to a level that is tolerable and as low as reasonably practicable; and ii. The activity does not create a new, or exacerbate existing, flood risks off the site.	**Support / Amend**	We support that land uses and development should only be allowed in Low and Medium Flood Hazard Areas when the risk is at a tolerable level and so that new risk is not created. However, it is important to define what the council means by a "level that is tolerable" to avoid confusion and ensure consistent application of rules and policies. NHC has developed a Risk Tolerance Methodology[1] that is deigned to integrate a risk tolerance assessment into existing risk management approaches. This methodology could be used by the Council to develop a metric to determine "tolerable" levels of risk. [1]NHC Toka Tū Ake Risk Tolerance Methodology.	That the following amendment be made: Include a definition and/or metric to determine what natural hazard risk is deemed "tolerable" by the council.
22.2.1g Use and Development in Flood Hazard Areas	Recognise that some uses and developments are more resilient to the adverse effects of flooding and can be carried out in Flood Hazard Areas, provided that the activity: i. Does not increase flood hazards off the site, and ii. Provides safe evacuation routes or refuges for people on the site, and iii. Habitable floors are above 1% AEP rainfall event flood levels.	**Support / Amend**	Not all developments have the same vulnerabilities to the impacts from flooding. To enable development while also managing flood risk it is important to identify which types of developments may experience flooding differently. We recommend that the Council provides a clear list of development types that would be permitted in each Flood Hazard Level (Low, Medium, and/or High) according to their level of resilience to the impacts from flooding. For example, Wellington City Council (WCC) provides lists of "Less Sensitive activities[1]", "Potentially Hazard Sensitive Activities[2]", and "Hazard Sensitive Activities[3]", which could correspond to the High, Medium, and Low Flood Hazard Areas as defined by Hamilton City Council. [1]WCC Less Hazard Sensitive Activities [2]WCC Potentially Hazard Sensitive Activities [3]WCC Hazard Sensitive Activities	That the following amendments be made: Include a clear list of developments and activities that would be suitable in differing Flood Hazard Levels. See Appendix 2 for an example.

2.2.1h Depression Areas	Allow land uses and development within Depression Areas only when the adverse effects of a flood event caused by a depression area are reduced to a tolerable level.	**Support / Amend**	We support allowing land uses and development in Depression Areas when the effects of a flood event are at a tolerable level. However, it is important to define what the council means by a "tolerable level" to avoid confusion and ensure consistent application of rules and policies. NHC has developed a Risk Tolerance Methodology[1] that is deigned to integrate a risk tolerance assessment into existing risk management approaches. This methodology could be used by the Council to develop a metric to determine "tolerable levels of risk" that could be used within this plan. [1]NHC Toka Tū Ake Risk Tolerance Methodology.	That the following amendment be made: Include a definition and/or metric to determine what natural hazard risk is deemed "tolerable" by the council.
22.2.1i Emergency Services and Hospitals	Emergency service facilities and hospitals shall avoid Medium and High Flood Hazard Areas if the infrastructure could become unusable or inaccessible during flood events.	**Support**	We support emergency service facilities avoiding Medium and High Flood Hazard Areas as this will be able to reduce the impacts to people and property in future flood events.	That the provision be retained.
22.2.1j Regionally Significant Infrastructure	Allow new regionally significant infrastructure and essential services within a Flood Hazard Area only when: i. The infrastructure cannot reasonably or practicably be located elsewhere; and ii. The adverse effects of a flood event on the infrastructure are minimised to an acceptable level	**Support / Amend**	We support only allowing regionally significant infrastructure and essential services in flood hazard areas when it is necessary, and when the flood hazard can be mitigated. However, it is important to define what the council means by a "acceptable level" to avoid confusion and ensure consistent application of rules and policies. NHC has developed a Risk Tolerance Methodology[1] that is deigned to integrate a risk tolerance assessment into existing risk management approaches. This methodology could be used by the Council to develop a metric to determine "acceptable" levels of risk that could be used within this plan. [1]NHC Toka Tū Ake Risk Tolerance Methodology.	That the following amendment be made: Include a definition and/or metric to determine what natural hazard risk is deemed "acceptable" by the council.

22.2.1k Overland Flow Paths	Retain and, where necessary, restore the function of overland flow paths to convey stormwater runoff safely through a site without causing nuisance to other property or damage to the environment.	**Support / Amend**	We support that Overland Flow Paths should be maintained and/or restored to move stormwater safely as this will reduce the impacts to people and property in future flood events. However, we recommend providing clear definitions for the Overland Flow Path layers provided in the Flood Viewer to avoid confusion and ensure consistent application of rules and policies.	That the following amendment be made: Definitions are provided for "Major", "Moderate", and "Minor" Overland Flow Paths as mapped in the Flood Viewer.
22.2.1l Development in Flood Extent Areas	Allow development within the Flood Extent Areas, only where floor levels have sufficient freeboard above the 1% AEP rainfall event flood levels to limit the risk of flood damage.	**Support / Amend**	We support development in Flood Extent Areas only where floor levels have been raised above the 1% AEP rainfall event flood levels. We recommend that the floor levels should be elevated to a minimum freeboard of 0.5m above the modelled flood level for hazard sensitive activities and 0.3m for non-hazard sensitive activities, which aligns with guidance from the Australian Institute of Disaster Resilience[1]. This would be a more effective way of reducing the impacts to people and property during future flood events compared to raising floor levels in relation to the ground level. [1]Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia (AIDR 2017).	That the following amendments be made: A specified freeboard or definition for "sufficient" is provided.
22.2.1m Waikato Riverbank and Gully Hazard Area	New use and development that is vulnerable to the adverse effects of land instability avoids the Waikato Riverbank and Gully Hazard Area, unless the adverse effects and risks of land instability have been minimised to an acceptable or tolerable level.	**Support / Amend**	We support avoiding new use and development in the Waikato Riverbank and Gully Hazard Area. However, it is important to define what the council means by a "acceptable" and "tolerable level" to avoid confusion and ensure consistent application of rules and policies. NHC has developed a Risk Tolerance Methodology[1] that is deigned to integrate a risk tolerance assessment into existing risk management approaches. This methodology could be used by the Council to develop a metric to determine "acceptable" and "tolerable" levels of risk that could be used within this plan.	That the following amendments be made: • The council provides a definition and/or metric for what is deemed "acceptable" and "tolerable" levels of risk. • A clear list of hazard sensitive activities is

			We recommend including a list of land uses that the council deems as vulnerable to the adverse effects of land instability. Providing a clear list is necessary to avoid confusion and ensure consistent application of rules and policies. Wellington City Council provides a list of hazard sensitive activities that could be adopted for this plan: *a. Childcare Services* *b. Community Facility* *c. Educational Facility* *d. Emergency Service Facilities* *e. Hazardous Facilities and Major Hazardous Facilities* *f. Healthcare facility* *g. Hospital* *h. Marae* *i. Multi-unit housing* *j. Places of Worship* *k. Residential Units and Minor Residential Units (including those associated with Papakainga)* *l. Retirement Village* *m. Visitor Accommodation* [1]NHC Toka Tū Ake Risk Tolerance Methodology [2]Wellington City Council District Plan	included. For example: a) Childcare Services b) Community Facility c) Educational Facility d) Emergency Service Facilities e) Hazardous Facilities and Major Hazardous Facilities f) Healthcare facility g) Hospital h) Marae i) Multi-unit housing j) Places of Worship k) Residential Units and Minor Residential Units (including those associated with Papakainga) l) Retirement Village m) Visitor Accommodation
22.3h Rules – Activity Status Table	New buildings (excluding accessory buildings less than 25m^2 in area)	**Support / Amend**	We support new buildings being a non-complying activity in High Flood Hazard Areas, restricted discretionary in Medium Flood Hazard Areas, and permitted in Low Hazard Areas. As these controls will be able to reduce the impacts to people and property in future flood events.	That the following amendment in made: New buildings are changed from being a permitted activity (~~P~~) in Overland Flow Paths to

			However, we recommend that new buildings are a restricted discretionary activity in Overland Flow Paths. Overland Flow Paths represent low points in terrain where surface runoff will flow, which means that buildings located in these areas will be exposed to higher levels of flood hazard and so will have high level of risk. Therefore, to reduce the impacts to people and property in future flood events new buildings should be a restricted discretionary activity.	restricted discretionary (RD).
22.3q Rules – Activity Status Table	Stormwater management devices and flood mitigation works if designed, constructed, operated and maintained in accordance with any structure or catchment management plan; resource consent and/or Council vesting requirements	**Support**	We support stormwater management devices and flood mitigation works being a permitted activity in all hazard areas. Stormwater management and flood mitigation works can help to reduce the impacts to people and property in future flood events.	That the provision be retained.
22.3x Rules – Activity Status Table	Fences and walls	**Support / Amend**	We support the construction of fences and walls being restricted discretionary in High Flood Hazard Areas and Medium Flood Hazard areas. However, we recommend that fences and walls should also be a restricted discretionary activity in Overland Flow Paths. Overland Flow Paths represent low points in terrain where surface runoff will flow, fences and walls have the potential to restrict this flow or redistribute it and increase flood hazard for certain aeras. Therefore, to effectively manage flood risk and reduce the impacts to people and property in future flood events, fences and walls should be a restricted discretionary activity.	That the following amendment be made: Fences and Walls in Overland Flow Paths are changed from being a permitted activity (~~P~~) to restricted discretionary (RD)
Appendix 01.03 – Assessment Criteria				
B22 Buildings in areas affected by	The extent to which a dwelling where the minimum finished floor level for the habitable rooms has been elevated to 1.2m above ground levels: A. Is physically connected to the street	**Support / Amend**	We support having elevated floor levels as an assessment criteria for new buildings that are a restricted discretionary activity in the Medium Flood Hazard Area. We recommend that the floor levels for habitable rooms should be elevated to a minimum	That the following amendments be made: • The extent to which a dwelling where the minimum finished

natural hazards	B. Provides for universal access opportunities C. Provides adequate opportunities for information surveillance of any adjacent public spaces Mitigates the effects through an integrated and well considered design of the front interface (including through the use of landscaping, terracing, fences, walls, external front porch)		freeboard of 0.5m above the modelled flood level for hazard sensitive activities and 0.3m for non-hazard sensitive activities, which aligns with guidance from the Australian Institute of Disaster Resilience[1]. This would be a more effective way of reducing the impacts to people and property during future flood events, compared to raising floor levels in relation to the static ground level. We also note the discrepancies between the provision number. In Chapter 22 Table 22.6 this provision is listed as B21, however, in Appendix 01.03 it is B22. [1]Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia (AIDR 2017).	floor level for the habitable rooms has been elevated to ~~1.2m~~ 0.5m above the maximum modelled flood ~~ground~~ levels: • The provision number is made consistent across all documents in Plan Change 14
F1a Hazards and Safety	Matters of discretion: a. Whether there are additional flooding effects on properties upstream, downstream or adjacent to the site including greater depth, velocity or duration of flood waters b. How vulnerable the activity is to exposure of lower level flooding, including the need for access or egress during a flood event c. Whether existing flood risks can be reduced through proposed works (including raising floor levels of existing units and undertaking other mitigations) The extent to which the development complies with standards set out in 22.5	**Support / Amend**	We support these matters of discretion for the activities listed in Section 22.6 in the Natural Hazards Chapter. These matters of discretion can reduce the impacts to people and property in future flood events. We recommend providing clarity on what is meant by 'lower-level flooding'. Specifically, whether this is different to the Low Flood Hazard Area defined elsewhere in this plan.	We recommend That the following amendment be made: That the Council clarifies what is meant by "lower-level flooding".
F1b Hazards and safety	Matters of discretion: The extent to which:	**Support / Amend**	We support these matters of discretion for the activities listed in Table 22.6 of the Natural Hazards Chapter as they will be able to contribute to reducing the impacts to	That the following amendment be made:

	a. the spatial extent and severity of the flooding associated with Depression Areas impacts the development b. the development positively responds to the risks associated to Depression Areas through land use, building location and design, and evacuation strategies c. the extent to which non-RMA approaches, including - but not limited to - the Building Act, evacuation plans, Civil Defence strategies, are utilised to reduce negative effects associated to Depression Areas to a tolerable level.		people and property in future flood events. However, it is important to define what the council means by "tolerable level" to avoid confusion and ensure consistent application of rules and policies. NHC has developed a Risk Tolerance Methodology[1] that is deigned to integrate a risk tolerance assessment into existing risk management approaches. This methodology could be used by the Council to develop a metric to determine "tolerable" levels of risk that could be used within this plan. [1]NHC Toka Tū Ake Risk Tolerance Methodology	The council provides a definition and/or a metric for what is deemed "tolerable" levels of risk.
F5 New buildings; Alterations and Additions; Compensatory Earthworks; and Vulnerable Land Uses (listed in Rule 22.3 Activity Status Table) in the Medium Flood Hazard Area.	Matters of discretion: The extent to which: a. the proposal changes the on-site flood risk and how any potential impacts from these changes will be mitigated, including setting of minimum freeboard levels b. the proposal changes the flood risk on neighbouring properties or properties downstream or upstream and how any potential impacts from these changes will be mitigated c. the proposal reduces water storage capacity of the Flood Extent Areas or Overland Flow Path d. provides for the conveyance of water in the Overland Flow Path or Flood Extent Areas e. the proposal provides for safe evacuation or refuge for people during flood events. f. mitigation measures are taken so that goods and material stored outdoors do	**Support**	We support these matters of discretion for the activities listed in Table 22.6 of the Natural Hazards Chapter. These matters will contribute to reducing the impacts to people and property in future flood events.	That the provision be retained.

	g. not move and cause damage to any buildings or exacerbate flooding risk mitigation measures are taken so that the design of the car parking ensures that vehicles do not move and cause damage to any buildings or exacerbate flooding risk.			

Chapter 23 Subdivision				
23.2.1a Policies	Subdivision: vi. Avoid subdivision that increases the demand or potential for a greater number or extent of buildings and structures within High Flood Hazard Areas. vii. Allow subdivision within a Low and Medium Flood Hazard only when it does not create new, or exacerbate existing flood hazards (within the site, or adjacent to, upstream, or downstream of it).	**Support**	We support avoiding subdivision in High Flood Hazard Areas and allowing development only when there is no new or exacerbation of flood risk. These policies will reduce the impact to people and property in future flood events.	That the provision be retained.
23.7.1aa Allotment Size and Shape	Any vacant lot subdivision in the General Residential Zone must include a 165m2 building platform which is able to accommodate a 12.5m diameter circle clear of any identified Flood Hazard Area.	**Support / Amend**	We support requiring an area to be clear of flood hazard for any vacant lot subdivision in the General Residential Zone. However, we recommend clarifying what is meant by *"clear of any identified Flood Hazard Area"*. This could be interpreted as above the elevation of the modelled Flood Hazard Area or outside of the area as indicated on the maps provided by Council. Providing a clear definition avoids confusion and ensures consistent application of rules and policies.	That the following amendment be made: A clear definition for "clear of any identified Flood Hazard Area" is provided.
23.7.1bb Allotment Size and Shape	Any vacant lot in the Medium Density or High Density Residential Zone must include a 720m2 building platform which is able to accommodate a 15m x 20m rectangle clear of any identified Flood Hazard Area.		We support requiring an area to be clear of flood hazard for any vacant lot subdivision in the General Residential Zone. However, we recommend clarifying what is meant *by "clear of any identified Flood Hazard Area"*. This could be interpreted as above the elevation of the modelled Flood Hazard Area or outside of the area as indicated on the maps provided by Council. Providing a clear definition avoids confusion and ensures consistent application of rules and policies.	That the following amendment be made: A clear definition for "clear of any identified Flood Hazard Area" is provided.

Chapter 25.13 Three Waters				
25.13.4.2c Stormwater – Non-Residential Zones	Stormwater management measures must be maintained and operated in perpetuity in accordance with best practice by the relevant property owner(s).	**Support / Amend**	We support on site-stormwater management and that it is maintained in a best practice way as this will reduce the impacts to people and property in future flood events. We note that this provision number (25.13.4.2c) is listed twice in Chapter 25.13.	That the following amendment be made: The provision numbers are clarified so 25.13.4.2c does not appear twice in Chapter 25.13.
25.13.4.2f Stormwater – Non-Residential Zones	Development or redevelopment of impermeable surfaces greater than 1000m2 in area requires a Site-Specific Stormwater Management Plan, as described in Volume 2, Appendix 1.2.2.5b.	**Support**	We support that the development of impermeable surface areas must have a site-specific storm water management plan. This will ensure that flood risk can be managed, flood risk is not transferred to neighbouring properties or infrastructure, and the impacts to people and property are reduced.	That the provision be retained.
25.13.4.2g Stormwater – Non-Residential Zones	Development of all new impermeable surfaces and redevelopment of existing impermeable surfaces greater than 100m^2 in area must implement one of the following two stormwater management measures: i. On-site retention as follows: A. Provide retention (volume reduction) of at least 10mm runoff depth on the new and redeveloped impermeable surfaces; and B. Where redeveloped impermeable surfaces comprise over half of the total existing impermeable surfaces on the site, redevelopment must also provide retention of 10mm of runoff depth on at least 20% of the remainder of existing impermeable surfaces; and C. The retention is to be provided through a combination of rainwater capture	**Support**	We support rules that require retention when there is limited permeable surfaces. This can work to reduce the transfer of flood risk to neighbouring properties and impacts to people and property in future flood events.	That the provision be retained.

	appropriately connected to the building for non-potable reuse, and/or infiltration via targeted soakage within the lot boundary.			
Chapter 25.14 Transportation				
25.14.2.1d Policies	The design, location and quantity of any parking infrastructure provided is managed in a way that: vi. Integrates nature based solutions to the management of stormwater runoff.	**Support**	We support incorporating nature based solutions to manage stormwater runoff. Nature based solutions are a useful and sustainable method to manage runoff and reduce the impacts to people and property in future flood events.	That the provision be retained.
Appendix 1 Definitions and Terms				
Depression area	Means that part of any land affected by potential ponding as a consequence of blocked downstream stormwater infrastructure (such as a pipe or culvert), overwhelmed infrastructure, or the absence of infrastructure during a 1% AEP rainfall event. This is the maximum extent of flooding before water overtops the topographical or constructed feature that forms the embankment. Depression Areas typically include depressions formed by road/railway/motorway embankments which were built across natural gullies. The modelled Depression Area assumes a generic flow depth and hydraulic head required above the spill level for water to flow downstream.	**Support**	We support this definition of a Depression Area to be included in the list of definitions. The definition provides a clear understanding of what type of flood hazard this area corresponds to and how it has been modelled. Clear definitions help to avoid confusion and ensure consistent application of rules and policies.	That this definition be retained.
Essential Services in a flood hazard area	Means Emergency service facilities, Hospitals and Lifeline utilities	**Support / Amend**	We support a clear list of essential services as this will avoid discrepancies in the application of related policies. We believe that the flood hazard area should also be included to make sure it is clear what flood hazard areas are included within this definition.	That the following amendment be made: Means Emergency service facilities, Hospitals and Lifeline utilities <u>located in a Low Flood Hazard Area,</u>

				Medium Flood Hazard Area, High Flood Hazard Area, Depression Area, and Overland Flow Path.
Flood Extent Area	Means that part of any land affected by river or surface flooding during a 1% AEP rainfall event when pipes, culverts and the stormwater network in the catchment are fully functioning, but not intense enough to be categorised as a Flood Hazard Area (See Appendix 11 for how Flood Hazard Areas are derived)	**Support / Amend**	We support providing a definition for areas that can be affected by flooding, but does not reach the criteria for Low, Medium, or High Flood Hazard Areas. This definition can help to avoid confusion and ensure consistent application of rules and policies. However, we recommend that an allowance for climate change is made clear in the definition. It is important to outline what climate change projections have been incorporated into flood modelling (e.g. RCP8.5) to ensure the associated rules and policies will be able to sufficiently reduce the impacts to people and property now, and into the future.	That the following amendment be made: The climate change scenario used for flood modelling is provided within the definition
Freeboard	Freeboard is the vertical distance between the modelled top level of flood water and the finished floor level.	**Support**	We support providing a clear definition for freeboard to reduce confusion and improve clarity when applying relevant policies and rules. We suggest specifying 0.5m freeboard for hazard sensitive activities, and 0.3m freeboard for activities that are not sensitive to the effects of natural hazards. This is in line with other territorial authorities around New Zealand and with guidance from the Australian Institute of Disaster Resilience[1]. [1]Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia (AIDR 2017).	That the definition be retained.
Hazard Area	Means the land identified as: a. High Flood Hazard Area. b. Medium Flood Hazard Area. c. Low Flood Hazard Area.	**Support / Amend**	We support clearly outlining what hazard areas are included in the Hazard Area. We recommend that the hazard areas for Hamilton also include areas susceptible to other natural hazards,	That the following amendments be made:

	d. Depression Flood Hazard Area. e. Overland Flow Path f. Waikato Riverbank and Gully Hazard Area.		including earthquake hazards like liquefaction, and further consideration of landslides and erosion[1]. We understand that these changes are not within scope for Plan Change 14 but should be considered as part of a future plan change. We also recommend that hazard areas should be contained within Planning Maps in the District Plan as this means they will have to be consulted on for any changes. This will manage issues associated with maintaining natural justice by ensuring affected parties can be heard when the hazard maps change. Requiring consultation for updating hazard maps also provides a mechanism for assessing the scientific rigour of the information included in the maps. [1]An overview of natural hazards for the Hamilton City Council	Means the land shown on the Planning Maps ~~identified~~ as: a. High Flood Hazard Area. b. Medium Flood Hazard Area. c. Low Flood Hazard Area. d. Depression Flood Hazard Area. e. Overland Flow Path f. Waikato Riverbank and Gully Hazard Area.
High Flood Hazard Area	Means that part of any land predicted to be affected by river or surface flooding during a 1%AEP rainfall event when pipes, culverts and the stormwater network in the catchment are fully functioning. For Waikato River flooding, a high flood hazard is identified when the depth of flood waters exceeds 1 metre. For surface ponding and overland flowpaths, a high flood hazard is identified under any of the following conditions: a. The depth of flood waters exceeds 1 metre,	**Support / Amend**	We support this definition for High Flood Hazard Area as it aligns with the Australian Institute of Disaster Resilience guidelines[1] and in common use amongst territorial authorities in New Zealand. A clear definition can help to avoid confusion and ensure consistent application of rules and policies and be used to inform decisions about acceptable levels of risk. However, we recommend that an allowance for climate change is made clear in the definition. It is important to outline what climate change projections have been incorporated into flood modelling (e.g. RCP8.5) to ensure the associated rules and policies will be able to sufficiently reduce the impacts to people and property now, and into the future.	That the following amendments be made: • The climate change scenario used for flood modelling is provided within the definition • High Flood Hazard Areas are contained within Planning Maps in the District Plan rather than a separate Council GIS viewer.

	b. The speed of flood waters exceeds 2 metres per second, c. The product of flood depth (in metres) and speed (in metres per second) exceeds one. Flood water depths less than 0.1 metres are excluded from both classifications. Further detail for how this Flood Hazard Area category has been derived is contained in Appendix 11.		We also recommend that the High Flood Hazard Areas should be contained within Planning Maps in the District Plan as this means they will have to be consulted on for any changes. This will manage issues associated with maintaining natural justice by ensuring affected parties can be heard when the hazard maps change. Requiring consultation for updating hazard maps also provides a mechanism for assessing the scientific rigour of the information included in the maps. [1]Australian Disaster Resilience Handbook 7 Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia (AIDR 2017).	
Low Flood Hazard Area	Means that part of any land affected by river or surface flooding during a 1% AEP rainfall event when pipes, culverts and the stormwater network in the catchment are fully functioning. For surface ponding and overland flowpaths, a low flood hazard is identified under the following conditions: a. The depth of flood waters is equal to or less than 0.5m, b. The speed of flood waters is equal to or less than 1m per second. Flood water depths less than 0.1 metres are excluded from the classification. Further detail for how this Flood Hazard Area category has been derived is contained in Appendix 11.	**Support / Amend**	We support having a clear definition for Low Flood Hazard Area. This can help to avoid confusion and ensure consistent application of rules and policies. Having clear definitions for hazard levels can also be used to inform decisions about acceptable levels of risk. However, we recommend that an allowance for climate change is made clear in the definition. It is important to outline what climate change projections (e.g. RCP8.5) have been incorporated into flood modelling to ensure the associated rules and policies will be able to sufficiently reduce the impacts to people and property now, and into the future. We also recommend that the Low Flood Hazard Areas should be contained within Planning Maps in the District Plan as this means they will have to be consulted on for any changes. This will maintain natural justice by ensuring affected parties can be heard when the hazard maps change. Requiring consultation for updating hazard maps also provides a mechanism for assessing the scientific rigour of the information included in the maps.	That the following amendments be made: • The climate change scenario used for flood modelling is provided within the definition • Low Flood Hazard Areas are contained within Planning Maps in the District Plan rather than a separate Council GIS viewer.

Medium Flood Hazard Area	Means that part of any land predicted to be affected by river or surface flooding during a 1% AEP rainfall event when pipes, culverts and the stormwater network in the catchment are fully functioning. For Waikato River flooding, a medium flood hazard is identified when the depth of flood waters exceeds 1 metre. For surface ponding and overland flowpaths, a medium flood hazard is identified under any of the following conditions: a. The depth of flood waters is equal to or less than 1m but greater than 0.5m, b. The speed of the flood waters is equal to or less than 2m per second but greater than 1m per second, c. The product of flood depth (in metres) and speed (in metres per second) is less than or equal to one. Flood water depths less than 0.1 metres are excluded from both classifications. Further detail for how this Flood Hazard Area category has been derived is contained in Appendix 11.	**Support / Amend**	We support having a clear definition of Medium Flood Hazard Area. This can help to avoid confusion and ensure consistent application of rules and policies. Having clear definitions for hazard levels can also be used to inform decisions about acceptable levels of risk. However, we recommend that an allowance for climate change is made clear in the definition. It is important to outline what climate change projections (e.g. RCP8.5) have been incorporated into flood modelling to ensure the associated rules and policies will be able to sufficiently reduce the impacts to people and property now, and into the future. We also recommend that the Medium Flood Hazard Areas should be contained within Planning Maps in the District Plan as this means they will have to be consulted on for any changes. This will maintain natural justice by ensuring affected parties can be heard when the hazard maps change. Requiring consultation for updating hazard maps also provides a mechanism for assessing the scientific rigour of the information included in the maps.	That the following amendments be made: • The climate change scenario used for flood modelling is provided within the definition • Medium Flood Hazard Areas are contained within Planning Maps in the District Plan rather than a separate Council GIS viewer.
Overland flow path	Low point in terrain where surface runoff will flow, with an upstream contributing catchment area exceeding 2,000m^2. Note: Council holds publicly available information showing the modelled Overland Flow Paths in its GIS viewer for specific properties. The Overland Flow Path map is indicative only. A party may provide Council with a site specific technical report prepared by a suitably qualified and	**Support / Amend**	We support having a clear definition of Overland Flow path. This can help to avoid confusion and ensure consistent application of rules and policies. Having clear definitions for hazard levels can also be used to inform decisions about acceptable levels of risk. We also recommend that the Overland flow paths should be contained within Planning Maps in the District Plan as this means they will have to be consulted on for any changes. This will maintain natural justice by	That the following amendment be made: Overland flow paths are contained within Planning Maps in the District Plan rather than a separate Council GIS viewer.

	experienced person to establish the location, depth or flow characteristics of the Overland Flow Path. Council will continually update the Overland Flow Path map to reflect the best information available.		ensuring affected parties have the ability to be heard when the hazard maps change. Requiring consultation for updating hazard maps also provides a mechanism for assessing the scientific rigour of the information included in the maps.	

Appendix 2

Example list of development and activities that are acceptable in different hazard levels, for provision *22.2.1g Use and Development in Flood Hazard Areas*.

Less Sensitive Activities:

a. Accessory buildings used for non-habitable purposes
b. Buildings associated with marina operations (above MHWS)
c. Maritime emergency facilities
d. Informal recreation activities and organised sport and recreation activities within the Sport and Active Recreation Zone, including those for maritime purposes in the Evans Bay Marine Recreation Area
e. Parks Facilities
f. Parks Furniture
g. Quarrying activities

Potentially Hazard Sensitive Activities:

a. Buildings associated with primary production (excluding Residential Units, Minor Residential Units, Residential Activities, buildings identified as Less Hazard Sensitive Activities or Quarrying Activities)
b. Commercial Activity
c. Commercial Service Activity
d. Community Corrections Activity.
e. Entertainment Facility
f. Food and Beverage Activity
g. Industrial Activities
h. Integrated Retail Activity
i. Large Format Retail Activity
j. Major Sports Facility
k. Offices
l. Retail Activities
m. Rural Industrial Activities

Hazard Sensitive Activities:

a. Childcare Services
b. Community Facility
c. Educational Facility
d. Emergency Service Facilities
e. Hazardous Facilities and Major Hazardous Facilities
f. Healthcare facility
g. Hospital
h. Marae
i. Multi-unit housing
j. Places of Worship
k. Residential Units and Minor Residential Units (including those associated with Papakainga)
l. Retirement Village
m. Visitor Accommodation