I hereby give notice that an ordinary meeting of the Civil Defence and Emergency Management Group Committee will be held on:

**Date:** Wednesday, 28 August 2019  
**Time:** 10.00am  
**Meeting Room:** Room 1, Level 26  
**Venue:** 135 Albert Street  
Auckland

Komiti Ārai Tūmatanui me Te Toko Raru Ohorere / Civil Defence and Emergency Management Group Committee

OPEN AGENDA

MEMBERSHIP

**Chairperson**  
Cr Sharon Stewart, QSM

**Deputy Chairperson**  
Cr John Watson

**Members**  
Cr Josephine Bartley  
Cr Ross Clow  
Cr Fa’anana Efeso Collins  
IMSB Member Hon Tau Henare  
IMSB Member Dennis Kirkwood  
Cr Greg Sayers  
Cr Sir John Walker, KNZM, CBE  
Cr Paul Young

**Ex-officio**  
Deputy Mayor Cr Bill Cashmore  
Mayor Hon Phil Goff, CNZM, JP

(Quorum 3 members)

Sonya Inger  
Governance Advisor  
22 August 2019

Contact Telephone: (09) 977 6050  
Email: sonya.inger@aucklandcouncil.govt.nz  
Website: www.aucklandcouncil.govt.nz

**Note:** The reports contained within this agenda are for consideration and should not be construed as Council policy unless and until adopted. Should Members require further information relating to any reports, please contact the relevant manager, Chairperson or Deputy Chairperson.
Terms of Reference

Responsibilities and powers

The Civil Defence Emergency Management Group Committee is a statutory committee required under s12(1) of the Civil Defence and Emergency Management Act 2002 (CDEM Act) and is responsible for:

- being Auckland’s strategic forum for civil defence and emergency management planning and policy
- establishing an emergency management structure for the Auckland region
- developing, approving, implementing and monitoring the Auckland Civil Defence Emergency Management Group Plan
- developing, approving, implementing and monitoring other relevant strategies and policies relevant to the powers and functions of the Civil Defence and Emergency Management Group as identified in the CDEM Act
- performing the statutory functions of a civil defence emergency management group
- representing Auckland in the development of national emergency management policy including approving relevant policy and legislative submissions to external bodies
- engaging with Local Boards and local board portfolio holders on civil defence and emergency management issues.

The Civil Defence Emergency Management Group Committee will exercise the statutory powers outlined in the Civil Defence Emergency Management Act 2002 and the Auckland Civil Defence Emergency Management Group Plan. The Civil Defence Emergency Management Group Committee is authorised to approve use of the established emergency funding facility provided for emergency management.

Relevant legislation includes but is not limited to:

Exclusion of the public – who needs to leave the meeting

Members of the public

All members of the public must leave the meeting when the public are excluded unless a resolution is passed permitting a person to remain because their knowledge will assist the meeting.

Those who are not members of the public

General principles

- Access to confidential information is managed on a “need to know” basis where access to the information is required in order for a person to perform their role.
- Those who are not members of the meeting (see list below) must leave unless it is necessary for them to remain and hear the debate in order to perform their role.
- Those who need to be present for one confidential item can remain only for that item and must leave the room for any other confidential items.
- In any case of doubt, the ruling of the chairperson is final.

Members of the meeting

- The members of the meeting remain (all Governing Body members if the meeting is a Governing Body meeting; all members of the committee if the meeting is a committee meeting).
- However, standing orders require that a councillor who has a pecuniary conflict of interest leave the room.
- All councillors have the right to attend any meeting of a committee and councillors who are not members of a committee may remain, subject to any limitations in standing orders.

Independent Māori Statutory Board

- Members of the Independent Māori Statutory Board who are appointed members of the committee remain.
- Independent Māori Statutory Board members and staff remain if this is necessary in order for them to perform their role.

Staff

- All staff supporting the meeting (administrative, senior management) remain.
- Other staff who need to because of their role may remain.

Local Board members

- Local Board members who need to hear the matter being discussed in order to perform their role may remain. This will usually be if the matter affects, or is relevant to, a particular Local Board area.

Council Controlled Organisations

- Representatives of a Council Controlled Organisation can remain only if required to for discussion of a matter relevant to the Council Controlled Organisation.
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1 **Apologies**

Apologies from Cr J Bartley and Cr G Sayers have been received.

2 **Declaration of Interest**

Members are reminded of the need to be vigilant to stand aside from decision making when a conflict arises between their role as a member and any private or other external interest they might have.

3 **Confirmation of Minutes**

That the Civil Defence and Emergency Management Group Committee:

a) confirm the ordinary minutes of its meeting held on Wednesday, 29 May 2019, as a true and correct record.

4 **Petitions**

At the close of the agenda no requests to present petitions had been received.

5 **Public Input**

Standing Order 7.7 provides for Public Input. Applications to speak must be made to the Governance Advisor, in writing, no later than one (1) clear working day prior to the meeting and must include the subject matter. The meeting Chairperson has the discretion to decline any application that does not meet the requirements of Standing Orders. A maximum of thirty (30) minutes is allocated to the period for public input with five (5) minutes speaking time for each speaker.

At the close of the agenda no requests for public input had been received.

6 **Local Board Input**

Standing Order 6.2 provides for Local Board Input. The Chairperson (or nominee of that Chairperson) is entitled to speak for up to five (5) minutes during this time. The Chairperson of the Local Board (or nominee of that Chairperson) shall wherever practical, give one (1) day’s notice of their wish to speak. The meeting Chairperson has the discretion to decline any application that does not meet the requirements of Standing Orders.

This right is in addition to the right under Standing Order 6.1 to speak to matters on the agenda.

At the close of the agenda no requests for local board input had been received.
7 Extraordinary Business

Section 46A(7) of the Local Government Official Information and Meetings Act 1987 (as amended) states:

"An item that is not on the agenda for a meeting may be dealt with at that meeting if-

(a) The local authority by resolution so decides; and

(b) The presiding member explains at the meeting, at a time when it is open to the public,-

(i) The reason why the item is not on the agenda; and

(ii) The reason why the discussion of the item cannot be delayed until a subsequent meeting."

Section 46A(7A) of the Local Government Official Information and Meetings Act 1987 (as amended) states:

"Where an item is not on the agenda for a meeting,-

(a) That item may be discussed at that meeting if-

(i) That item is a minor matter relating to the general business of the local authority; and

(ii) the presiding member explains at the beginning of the meeting, at a time when it is open to the public, that the item will be discussed at the meeting; but

(b) no resolution, decision or recommendation may be made in respect of that item except to refer that item to a subsequent meeting of the local authority for further discussion."
Update from Acting General Manager, Auckland Emergency Management

File No.: CP2019/15245

Te take mō te pūrongo
Purpose of the report
1. To give the Acting General Manager – Auckland Emergency Management the opportunity to update the committee.

Whakarāpopototanga matua
Executive summary
2. Sarah Sinclair, Acting General Manager – Auckland Emergency Management, will present a presentation to update the Civil Defence Emergency Management Committee.

Ngā tūtohunga
Recommendation
That the Civil Defence and Emergency Management Group Committee:
a) receive the presentation from the Acting General Manager – Auckland Emergency Management.

Ngā tāpirihanga
Attachments
There are no attachments for this report.

Ngā kaihaina
Signatories

| Authoriser          | Sarah Sinclair - Acting General Manager – Auckland Emergency Management |
Report on Coordinating Executive Group Meeting of 5 August 2019

File No.: CP2019/15246

Te take mō te pūrongo
Purpose of the report
1. To report to the committee the advice and recommendations from the Coordinating Executive Group meeting of Monday, 5 August 2019.

Whakarāpopototanga matua
Executive summary
2. The Coordinating Executive Group had its quarterly meeting on Monday 5 August 2019.
3. Agenda items from that meeting, not separately reported to this committee meeting, include:
   • Coordinating Executive Group Chair Update from the Ministry of Civil Defence and Emergency Management
   • Welfare Sub-Function Plans update
   • Coordinating Executive Group Workshop: Forward Work Plan.

Ngā tūtohunga
Recommendation
That the Civil Defence and Emergency Management Group Committee:
a) receive the report from the Coordinating Executive Group meeting of 5 August 2019.

Horopaki
Context
4. Under section 20 of the Civil Defence Emergency Management Act 2002, the Coordinating Executive Group:
   • provides advice to the Civil Defence Emergency Management Group
   • implements, as appropriate, the decisions of the Civil Defence Emergency Management Group
   • oversees the implementation, development, maintenance, monitoring and evaluation of the Civil Defence Emergency Management Group Plan 2016-2021.
5. In performing these functions, the Coordinating Executive Group meets quarterly and also attends the Civil Defence Emergency Management Group Committee meetings.
6. Coordinating Executive Group agenda items, not separately reported to the Civil Defence Emergency Management Group Committee, are summarised in this report.
Tātaritanga me ngā tohutohu
Analysis and advice

Coordinating Executive Group Chair Update from the Ministry of Civil Defence Emergency Management

7. The Ministry of Civil Defence Emergency Management send monthly updates to the Chairs of New Zealand’s 16 Coordinating Executive Groups.

8. The Coordinating Executive Group meeting received updates for the months of May, June and July 2019. This included updates on the:
   - New Zealand Emergency Management Assistance Team
   - Recovery Toolkit
   - Response and Recovery Leadership Capability Development Programme
   - Directors Guidelines: Risk Assessment guidance for Civil Defence Emergency Management Groups planning consultation
   - National Emergency Management Agency.

9. The Coordinating Executive Group agreed that the monthly Chair updates from the Ministry of Civil Defence and Emergency Management will be a standing agenda item going forward.

Update on Welfare sub-function plans

10. The Auckland Welfare Coordination Group are working to complete sub-function plans for each welfare sub-function service.

11. The welfare sub function services include: registration and needs assessment, inquiry, care and protection services of children and young people, psychosocial support, household goods and services, shelter and accommodation, financial assistance and animal welfare.

12. These plans will outline the delivery of services in an emergency and strengthen operational understanding, coordination and our collaborative capability, to provide support services to affected people and animals in emergencies.

13. The Coordinating Executive Group agreed to receive progress reports on sub-function plan development, with a focus on the completion of all sub-function plans by the end of June 2020.

Coordinating Executive Group Workshop: Forward Work Programme

14. A Coordinating Executive Group workshop was held on Monday 29 July 2019, with a focus on the forward work plan that canvased a range of current and anticipated projects and initiatives across member agencies for the 2019/2020 financial year.

15. The Coordinating Executive Group agreed to provide oversight, receive reports and take action in respect to the work plan including:
   - Reporting on initiatives outside the Group (national and regional)
   - Reporting of member agency initiatives
   - Forming additional working groups
   - Developing and contributing to projects across the Coordinating Executive Group.

16. The Coordinating Executive Group agreed to the work priorities and endorsed the forward work plan as a basis for regular reporting to the Group and the Civil Defence Emergency Management Group Committee for the 2019/2020 financial year.
17. The matters outlined in this report support fulfilment of the Civil Defence Emergency Management Group’s role and contribute to improving emergency management capability in Auckland. There are no direct implications for Auckland Council group.

18. There are no direct local impacts or implications for local boards.

19. There are no direct impacts on or implications for Māori.

20. No financial implications are identified arising out of the matters outlined in this report.

21. There are no specific risks identified as arising out of the matters outlined in this report.

22. The next quarterly meeting of the Coordinating Executive Group will be held on Monday 4 November 2019.

There are no attachments for this report.

Authoriser | Sarah Sinclair - Acting General Manager – Auckland Emergency Management
Natural Hazards Risk Management Action Plan

File No.: CP2019/15248

Te take mō te pūrongo
Purpose of the report

1. To approve the final draft of the Natural Hazards Risk Management Action Plan (NHRMAP), for internal consultation on the proposed actions and prioritisation for implementation.

Whakarāpopototanga matua
Executive summary

2. The Natural Hazards Risk Management Action Plan presents a series of actions developed with input from across council to support natural hazard management at Auckland Council.

3. The Action Plan outlines the roles of council in natural hazard risk management, identifies the main natural hazard risks that impact the region, and what levers and tools council has to manage natural hazard risk. Then, through a series of interviews and workshops with key engagement contacts, considerations and gaps in the current management strategy are identified and actions developed to address those gaps.

4. The result is a set of actions that identify key opportunities for council to establish or improve overarching systems, programmes or projects that support natural hazard management as a whole.

5. The development of the Action Plan has also highlighted the opportunity to expand this approach to other include hazards and Council-Controlled Organisations (CCOs) in future iteration.

Ngā tūtohunga
Recommendation/s

That the Civil Defence and Emergency Management Group Committee:

a) approve the Final Draft Natural Hazards Risk Management Action Plan for internal consultation and targeted engagement with identified groups and organisations

b) endorse the next steps of expansion of the report across other hazard areas.

Horopaki
Context

6. Auckland Council’s Natural Hazards Risk Management Action Plan (Attachment 1) is a key component of council’s natural hazard management, identified as a strategic deliverable in the Auckland Civil Defence and Emergency Management Group Plan 2016-2021 ‘Resilient Auckland’.

7. The Action Plan describes how Auckland Council is taking a risk-based approach to continue to integrate natural hazard management into the relevant business areas across council. The key objectives are to reduce the risk from natural hazards and increase resilience to natural hazard events.

8. The purpose of the Natural Hazards Risk Management Action Plan is to:

   a) Identify where Auckland’s natural hazards are and the risks they present, in a way that allows natural hazard risks and their consequences to be compared and evaluated against each other.

   b) Outline the roles and responsibilities of Auckland Council in managing the risks of natural hazards.
c) Identify the actions Auckland Council will implement or facilitate over the next 10 years to reduce risk from natural hazards.

d) Identify the next steps council will take to implement the action plan, to monitor its success, and to involve other organisations in managing natural hazards and other disasters in Auckland.

9. After presenting a high-level overview to this committee in May 2019, approval was received to continue development of risk mitigation actions with other departments of council. These have been incorporated into the final draft for consultation, which is presented today. The opportunity to update the report for alignment with other council initiatives has also been taken.

Tātaritanga me ngā tohutohu
Analysis and advice

The vision and scope of the Natural Hazard Risk Management Action Plan

10. The guiding vision that underpins the intention of the Natural Hazards Risk Management Action Plan was developed in partnership with mana whenua during workshop and engagement sessions. It is to:

‘Create resilience to the potential risks of natural hazards, supported by strengthening our cultural uniqueness with a network of prepared communities and a sustainable environment.’

11. The key principles of this vision are building resilience and protection of the land, the community and the environment. These are values that Auckland Council has a fundamental role in delivering, or supporting other agencies, organisations or communities in delivering, for the region.

12. While identifying the role that the wider community has in natural hazard risk management, the scope of this phase of work for the Natural Hazards Risk Management Action Plan is limited to the functions of council, with the intent that future phases develop a broader risk assessment and action plan.

The Hazard Assessments

13. Identifying the current natural hazard risk, and potential future risk, involved the development of a series of semi-quantitative risk assessments. Ten natural hazards were identified that posed the largest risk to Auckland in terms of their impact to the natural, cultural, economic and social environments:

- Flooding - Waipuke
- Severe wind - Pūkerikeri
- Volcanic activity - Puia o Ruaumoko
- Tsunami - Parawhenua o te Moana
- Coastal inundation - Waipuke ki Tai
- Coastal erosion - Horowhenua ki Tai
- Land instability – Horowhenua
- Tornado – Āwhiowhio
- Uncontrolled fire – Mahuika
- Earthquake – Ruaumoko

14. The present risk is identified for each hazard, as well as the likely future risk as a result of the effects of climate change.
15. The comparative approach to the hazards enabled us to clearly identify:
   - Hazards and scales of event that can be managed by general council operations
   - Hazards that need to be planned for and managed as disasters
   - Hazards that have the potential to become disasters, for larger types of event, and where climate change and population growth will influence potential consequences

**Action plan development**

16. Once the risks were identified, eight key functions of council were recognised as contributing in a significant way to the mitigation of natural hazards risk. These were assessed from the scale of strategic long-term influences to operational activities, considering both business as usual and disaster management activities. Engagement partners were identified in each area:

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17. Key contacts were identified with each engagement partner and focused one-on-one discussions identified gaps and considerations in each key function’s approach to natural hazard risk management.

18. These gaps and considerations were considered together as a whole, key themes were identified and actions formulated to address them. For each action, links and interdependencies between actions and the objectives of other fundamental documents (i.e. the Auckland CDEM Group Plan, Auckland Climate Action Framework) and national plans (National Disaster Resilience Strategy) were identified, and high-level implementation strategies were developed.

19. These draft actions were then circulated back to a wider group of key contacts for discussion and refinement.

20. The result is a set of actions that identify key opportunities for council to establish or improve overarching systems, programmes or projects that support natural hazard management as a whole, rather than individual hazards.
Ngā whakaaweawe me ngā tirohanga a te rōpū Kaunihera
Council group impacts and views

21. While this Action Plan focuses on the role of Auckland Council in the management of natural hazard risk, there is intent in the future to expand this to include the role of CCOs. There are significant opportunities to collaborate and align risk management strategy, particularly in areas where responsibility is shared (such as managing the effects of drought with Watercare).

Ngā whakaaweawe ā-rohe me ngā tirohanga a te poari ā-rohe
Local impacts and local board views

22. Natural hazards impact the entire Auckland region and all of Auckland has a role in managing their risk. There is a particular opportunity to work with the local boards on several actions in the governance, asset management and community engagement function areas.

23. During the next phase of the Action Plan, the implementation strategy will be developed. We will approach the local boards to discuss the opportunities for collaboration, and where they would like to be involved.

Tauākī whakaaweawe Māori
Māori impact statement

24. The mana whenua kaitiaki forum was involved in the early development of this plan, including determining guiding principles, and working through some early improvement actions.

25. An emergency event may adversely impact on land, water, sites of significance, waahi tapu flora or fauna affecting mana whenua and Māori wellbeing in general. The recovery from such an event would similarly affect mana whenua and Māori wellbeing.

26. A significant development arising out of the recovery from the Christchurch earthquakes has been the involvement of local iwi at all levels, from delivering services and activities on marae to governance and decision-making through the structures established for the recovery. This is identified as a key priority for Auckland, and specific actions have been identified to
   • Develop mana whenua representation in the emergency coordination centre
   • Seek involvement of iwi in the coordinating executive group
   • Work with mana whenua to develop appropriate response and resilience plans, for natural hazard risk management.

27. Auckland’s mana whenua and mātaawaka will be engaged and consulted on the draft Framework. The engagement is also an opportunity to introduce Auckland Emergency Management recovery activities and lead into the draft Framework’s identified actions with Māori communities. Based on wider engagement, these actions are to develop a shared understanding of recovery, identify opportunities to collaborate and cultivate leadership, participation and outcomes for Māori.

Ngā ritenga ā-pūtea
Financial implications

28. There are no financial implications arising from this report. Resources have been provided for in the current budget and no financial risks have been identified.

Ngā raru tūpono me ngā whakamaurutanga
Risks and mitigations

29. The key objectives of the Action Plan are to reduce the risk from natural hazards and increase resilience to natural hazard events.
30. The main risk would be a natural hazard event to occur before the Action Plan has been implemented. While the development of this Action Plan has identified some gaps in council natural hazard risk management strategy, the mitigating factor is that there is no natural hazard identified in the Action Plan that is not provided for in some way in Auckland Council operational plans and strategy. The Action Plan works to align, improve and strengthen these processes.

**Ngā koringa ā-muri**

**Next steps**

31. Once accepted by committee, the draft will be incorporated into a final document by the Auckland Council design team. An engagement and communication strategy will be developed to facilitate discussion on the Action Plan themes and support development of the implementation plan.

32. A technical companion document will be developed providing details on the risk assessments and technical considerations of the Action Plan development and released later in 2019.

**Ngā tāpirihanga**

**Attachments**

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**Ngā kaihaina**

**Signatories**

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<td></td>
<td>Jennifer Rose - Head of Recovery</td>
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<tr>
<td>Authoriser</td>
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Consultation Draft
August 2019
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Foreword

A brief version of the Māori creation story as it relates to Auckland (adapted from the Tupuna Maunga Integrated Management Plan), both in English and Te Reo – the story is directly linked to Auckland’s volcanoes and makes the point very effectively that we live in a place that can be quite dangerous.

TO BE PREPARED DURING INTERNAL CONSULTATION ON ACTIONS
Executive Summary

Auckland Council’s Natural Hazards Risk Management Action Plan is one of the key components of the Council’s natural hazard management framework, along with the Auckland Civil Defence and Emergency Management Group Plan 2016-2021. It provides the reader with information about the 10 natural hazards that are an integral part of Auckland’s location and describes how the risks of these hazards have been assessed (flooding, severe wind, volcanic activity, tsunami, coastal erosion, land instability, tornado, uncontrolled fire and earthquake).

New Zealand is frequently affected by natural hazard events and it is important to understand the statutory framework that applies to managing emergencies, including those not caused by a natural hazard. There are a large number of organisations and groups in the public and private sector that are involved in this field.

The Natural Hazards Risk Management Action Plan focuses on Auckland Council’s role and responsibilities, which are wider than its civil defence and emergency management function. To create a resilient Auckland, the Council must take action to improve or newly establish a range of programmes and initiatives across the entire organisation, including the council-controlled organisations (CCOs) that are vital to providing for Auckland’s infrastructure needs.

The Natural Hazards Risk Management Action Plan identifies eight ‘business areas’ that reflect the work the Council and its CCOs undertake on a daily basis:

- Governance and leadership
- Strategy, policy and planning
- Regulations and consents
- Asset management
- Emergency management, readiness, response, and recovery
- Knowledge and research
- Communication, education and community resilience-building
- Partnerships.

The Plan sets out actions Council seeks to implement over the next 10 years in these areas. These actions are based on guiding principles that include a commitment to embedding te ao Maori into managing natural hazards, fostering sustainability and resilience and the need to adapt to climate change, as this will increase the risk from some natural hazards in the future.

Consultation with Auckland Council departments will confirm the delivery programme for action.
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<td>2. Improve reporting on natural hazard risk, mitigation and adaptation at governance level</td>
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<td>3. Increase engagement of elected members in natural hazard risk management</td>
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<td>4. Develop a framework for local board roles in community resilience building</td>
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<td>5. Work with the CDEM Coordinating Executive Group in contributing to natural hazard risk reduction</td>
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<td>Strategy, policy and planning</td>
<td>6. Prioritise embedding the risk-based natural hazards management approach into the Auckland Planning Framework including developing a common language of risk as it relates to natural hazards, adaptation, mitigation and resilience across council</td>
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<td>7. Strengthen the management of natural hazards in land development and growth activities as a key part of the Auckland Unitary Plan</td>
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<td>8. Continue to integrate planning for climate change, resilience building and natural hazard risk management into the Auckland Development Strategy</td>
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<td>9. Work with government agencies to resolve contradictions in legislative outcomes</td>
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<td>Regulations and consents</td>
<td>10. Standardise Council’s approach to the provision of natural hazard-related information in property documents (PIMs and LIMs) across all hazards</td>
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<td>11. Develop specific Auckland Council requirements and guidance for developments with a known natural hazard risk component</td>
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<td>12. Ensure that Auckland Unitary Plan rules addressing natural hazard risk are supported by accurate and accessible information for developers and regulatory staff</td>
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<td>13. Develop a natural hazard management toolbox for regulatory staff managing consent applications</td>
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<td>14. Investigate mechanisms to facilitate consenting for projects aimed at reducing and managing natural hazards</td>
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<td>15. Build an information loop between resource consenting and natural hazard risk and vulnerability data, including reporting on new developments in risk zones</td>
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<td>Asset management</td>
<td>16. Specifically address natural hazard risk including climate change effects, risk reduction measures and resilience in the next iteration of asset management plans (AMPS)</td>
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<td>17. Improve our understanding of the economic impact of natural hazards on Auckland Council assets</td>
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<td>18. Formalise Council’s approach to the consenting and vesting of assets that are likely to be affected by natural hazard events</td>
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<td>20. Develop natural hazard risk assessment criteria for asset renewal strategies and plans</td>
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<td>21. Promote resilience and adaptation measures for Council assets</td>
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<td><strong>Emergency management, readiness, response and recovery</strong></td>
<td>22. Continue to develop and improve Auckland Emergency Management capability and capacity through a structured training programme and exercising across the Coordinating Executive Group</td>
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<td>23. Work with mana whenua to ensure planning, response and recovery to natural hazard events appropriately includes te ao Māori and mana whenua representation and leadership</td>
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<td>24. Continue active participation in the Auckland Coordination Groups (i.e. The Auckland Lifelines Group and the Auckland Welfare Coordination Group) to continually improve and develop planning for natural hazard response</td>
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<td>25. Continue to develop and improve standard operating procedures, early warning and emergency alert systems across the region to reduce the exposure of people and key response networks to the impacts of natural hazards</td>
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<td>26. Utilise our increased understanding of natural hazard risk envelopes to develop more specific data for response planning and recovery, and work to enhance data sharing across the sector</td>
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<td>27. Continue to develop and integrate Recovery networks, processes and planning into emergency management</td>
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<td><strong>Knowledge and research</strong></td>
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<td>29. Prioritise the collating and aggregating of natural hazard data in a visual (Geospatial) format to facilitate sharing</td>
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<td>30. Develop a Natural Hazards Data Management Manual</td>
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<td>31. Formalise the Auckland Council Natural Hazards Specialist Group that works across data researchers and end users, to build collaboration and information networks</td>
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<td>32. Ensure Auckland is represented and involved at the national-level in research and innovation sharing for the management of natural hazard risk</td>
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<td><strong>Communication, education and community resilience-building</strong></td>
<td>34. Maximise opportunities provided by website and social media platforms to provide and enhance public knowledge and preparedness before, during and after emergency events in Auckland</td>
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<td>35. Continue to support existing, and develop new and innovative, emergency management hazard, consequence and response, information and engagement tools</td>
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<td>36. Build greater community resilience through engaging strategically about resilience when undertaking infrastructure or community empowerment projects or activities</td>
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<td>37. Develop community resilience through creating understanding of hazard consequences and impacts for all communities, to improve planning and readiness</td>
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<td>38. Develop and implement a comprehensive volunteer programme to resource emergency events, including natural hazard events</td>
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<td>39. Recognise the opportunities of Auckland’s cultural diversity for building community resilience</td>
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<td>40. Facilitate organisational resilience</td>
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<td><strong>Partnerships</strong></td>
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<td>42. Develop relationships with Auckland Council CCOs to create a shared understanding of natural hazard risk and coordinated management response to natural hazards</td>
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Purpose Statement

The Natural Hazards Risk Management Action Plan provides the most important information about Auckland’s natural hazards in one place, including:

1) What Auckland’s natural hazards are, and the risks they present.
2) The role and responsibilities of Auckland Council in managing the risks of natural hazards.
3) The actions Auckland Council will undertake or facilitate over the next 10 years to reduce risk from natural hazards and to increase resilience.
4) The next steps Auckland Council will take to involve other organisations in managing natural hazards and other disasters in Auckland.

The guiding vision of the Natural Hazards Risk Management Action Plan is to:

“Create resilience to the potential risks of natural hazards, supported by strengthening our cultural uniqueness with a network of prepared communities and a sustainable environment.”

This vision was formulated in partnership with mana whenua and acknowledges the relationship between cultural identity, the different communities coming together and the necessity of caring for the environment that sustains us all. In particular, this Action Plan seeks to acknowledge the partnership between Council and mana whenua and the contribution to natural hazards management that Tāmaki Makaurau’s mana whenua entities could make if they were to be appropriately resourced and supported.
PART A: INTRODUCTION
1.0 Setting the Scene – Living with Natural Hazards

1.1 Auckland’s environment – Te Taiaroa ki Tāmaki Makaurau

Auckland is unique. It is a place that is vibrantly urban at its centre and solidly rural to the north and the south and combines exceptional natural beauty, cultural diversity and economic opportunities. It also offers many challenges, among them finding places for all our people to live, coping with growing infrastructure and transportation needs, caring for our environment and finding ways of living with the natural hazards that are an integral part of our location and environment.

Auckland’s geographical location, diverse coastline and mild climate make it a great place to live, but also generate or sustain the natural hazards that are part of our lives.

For mana whenua, the volcanoes that have created Auckland’s unique and powerful landscape are Tūpuna Maunga (ancestral mountains). These iconic taonga are among the most significant cultural, historical and geological landscapes in the region and are an integral part of mana whenua whakapapa (genealogy). They provide a sense of identity for all Aucklanders. Mana whenua in particular have a strong emotional connection with them. But this instantly recognisable living part of the environment also indicates a significant natural hazard as the potential for volcanic activity and eruptions is ever present.

As Auckland’s volcanoes shape identity and belonging for mana whenua on land, so does the presence of the coast and numerous waterways create a connection with the sea, which is one of the most important aspects of te ao Māori. Auckland has 3,200 km of dynamic coastline and a blue network of 21,000 km of rivers and streams and is bounded by the South Pacific Ocean in the east and the Tasman Sea in the west. This long coastline and comparatively small land mass make the region vulnerable to coastal inundation, flooding and tsunami. Flooding from rainstorms is the most common, and regular, natural hazard occurring in Auckland, often exacerbated by historic land use practices. However, rainfall patterns and topography of Auckland means that often finite localised areas are intensely affected by flooding at any one time.

The geology that created the familiar and much-loved shoreline cliffs and landforms also makes Auckland susceptible to coastal erosion and land instability that affects some areas where people have made their homes, and much of our shoreline amenity. Over the years, Auckland’s urbanisation and the draw of coastal views and coastal living have magnified the risk of people being affected by these natural processes.

Located on the boundary between the Australian and Pacific tectonic plates, New Zealand is a seismically active country. Although Auckland’s urban area is not situated on any fault lines and is categorised as one of the lowest earthquake activity zones in the country, the more rural parts of the south-east Auckland region rest on a localised network of seismic faults that may affect the densely populated urban areas as well.

Auckland’s location provides us with a mild climate, but this also means that we are often exposed to severe winds and tornadoes. Being located in the Southern Pacific Ocean, we are frequently in the path of tropical cyclones. By the time a tropical cyclone makes landfall in Auckland, it is often downgraded to an ex-tropical cyclone that has lost much of its devasting force, but still brings with it high winds, heavy rainfall and coastal inundation. In La Niña years, when temperatures are generally warmer, Auckland can experience
particularly powerful cyclones. Auckland’s cyclone risk is calculated as 80%, meaning that in four years out of five, a cyclone will come within 500 km of Auckland’s coast during the cyclone season.

Parts of our region have also experienced uncontrolled fires in the past and are likely to do so again in the future. Such fires are sometimes referred to as wildfires and while they do not occur often in our region, they have the potential for devastating effects on people, property, the environment and food production.

1.1.1 Auckland’s climate future

The most recent climate change projections, published in June 2016 by the Ministry for the Environment, indicate that the Auckland region is likely to have warming temperatures, less annual rainfall in the north of the region but more in the south, stronger ex-tropical cyclones and an ongoing sea level rise. This is confirmed for Auckland by a recent report by NIWA for Auckland Council.\(^1\)

Climate change is already exacerbating many of Auckland’s existing natural hazards, often causing significant consequences at a local level. For example, we are already experiencing more significant and frequent flooding as the result of heavy rainfall and strong winds. With rising sea levels, such events will increase the effects of coastal inundation and erosion.

The effect of climate change on natural hazards is also recognised internationally and there is a growing move towards integrating climate change adaptation work with risk reduction and disaster management to enable better co-ordination, reduce duplication of effort and achieve greater efficiencies in the use of human and financial resources.

The Natural Hazards Risk Management Action Plan recognises the effect of climate change on natural hazards by integrating a current day climate risk assessment into the natural hazards risk assessment, and by ensuring that actions align with our Climate Action Framework. As our scientific understanding of climate change and the relationship to natural hazards improves, Auckland’s risk profile in future updates of the Natural Hazards Risk Management Action Plan is also likely to change and allow for a more nuanced risk reduction approach, as Council adopts more adaptive pathways.

1.2 Auckland’s people – Tāmaki Makaurau Kotahitanga

Auckland is also known as Tāmaki Makaurau, which is often translated as “Tāmaki of a thousand lovers” because the fertile volcanic soil of Auckland and its location between two resource-rich coastlines made it a very desirable place to live. This is still the case today and Auckland is now New Zealand’s largest city and home to the country’s most diverse community.

People have lived in Tāmaki Makaurau for around 1,000 years. The first people arrived from Hawai‘i in the Pacific and some settled along the shores of the Manukau and Waitakarū Harbours. Over the centuries, several tribal migrations into the region occurred. By the time the first Europeans arrived, Tāmaki Makaurau

---

was a thriving community where tribes from all over the country came to trade and hundreds of waka could often be seen in both harbours.

Today, Auckland is home to the country’s largest Māori population. Auckland’s mana whenua (those who are tribal to Tāmaki Makaurau) are represented by 19 iwi. There is also a large proportion of Māori in Auckland that do not have a direct tribal ancestral relationship to the Auckland region (mataawaka) but represent iwi from other regions of New Zealand.

Auckland attracts people from many different cultures. By the late 19th century, immigrants from all over Europe, China and India gave the city the cosmopolitan aspect that continues to flourish today. The middle of the 20th century saw the arrival of people from the various islands of the Pacific, making Auckland the largest Polynesian city in the world today.

As a result of this continuing migration, Auckland is one of the world’s most culturally diverse cities today. People from more than 200 different ethnicities live here. Almost 40% of Aucklanders were born overseas and of the other 60% only about half were born in Auckland - the remainder have come to the city from other parts of New Zealand. 23% of Auckland’s population identify themselves as being members of the Asian community, with the majority having come from China, India and Korea. About 15% of Aucklanders consider themselves Pacific people.

This diversity expresses itself in many forms, as people share their culture heritage, world views, cuisine, customs, festivals, art, music and language with their neighbours. Although often complex, our diversity also has the potential to create stronger and more resilient, connected communities.

1.3 Auckland’s economy - Tāmaki Makaurau Pepehatia

Together, we represent more than 35% of New Zealand’s entire population and contribute around 38% of the national gross domestic product (GDP). The rate of our population growth is faster than that of the country as a whole, and the medium growth projections predict that by 2038 around 2.2 million people will call Auckland home.

Along with Auckland’s population, its economy and contribution to the nation’s wealth and welfare are also projected to grow substantially over the next 30 years.

Auckland is already New Zealand’s major commercial centre. A substantial proportion of the country’s largest businesses have their head offices in Auckland and together with other businesses and institutions are significant employers of Auckland’s population. Overall, almost 700,000 (35%) of New Zealand’s two million employees can be found in Auckland.

In many ways, Auckland is New Zealand’s ‘Gate to the World’, because it is New Zealand’s primary distribution hub and most tourists enter the country in Auckland. Unlike other parts of New Zealand, Auckland’s economy is characterised by a higher representation of service-based businesses than other parts of New Zealand. Elsewhere, manufacturing and agriculture dominate.

One of Auckland’s most significant economic challenges lies in providing housing and infrastructure for our growing number of people, ensuring that the built environment sufficiently resilient to withstand natural hazard events and to help people to cope with disasters when they happen.
Natural disasters not only affect people and the environment directly but can also have a significant economic impact on our communities and consequently our quality of life. Auckland’s economic importance to New Zealand as a whole means that any natural hazard event of sufficient magnitude will be ‘felt’ throughout the country. We have already experienced a consequential effect as the result of the Christchurch earthquakes. If a natural disaster of a similar scale was to occur in Auckland, the consequences for the entire country would be even more profound.

1.4 Auckland’s natural hazards

The following table describes the natural hazards that Auckland, its people, its environment and its economy are subject to, and at potential risk from.
Auckland’s Natural Hazards

1. Flooding occurs during or after heavy rainfall, when the natural environment or built systems cannot cope and areas of land are submerged. The level and intensity of flooding depends on several factors including rainfall intensity and duration, soil moisture conditions, local river levels and the physical characteristics of catchments (for example soil type, slope and vegetation cover). A flood becomes dangerous if the water is very deep or travelling very fast, if the flood waters have risen suddenly, or if the water contains large amounts of debris.

2. Severe winds are caused by the movement of air from high pressure areas to low pressure areas and are generally associated with tropical cyclones, ex-tropical cyclones and other storm events. Cyclones and other storms are common throughout the world and are categorised according to the wind speed that can be generated. The highest category is 5, which can generate wind of more than 250 km/hour and bring widespread devastation.

3. A volcanic eruption or activity from a volcano in the Auckland Volcanic Field (AVF) or the Central Plateau further afield are a significant hazard for Auckland. Auckland’s urban area is built directly on the AVF, which consists of over 50 volcanoes. It is a monogenetic field, which means that the volcanoes in it erupt only once and new eruptions will occur in new and unknown locations. Auckland could also be affected by ash fall from volcanic eruptions in the central North Island and Taranaki.

4. A tsunami is a series of waves, typically created by sudden movement of the ocean floor as the result of earthquakes, underwater landslides and underwater volcanic eruptions. In deep water, a tsunami can travel at high speeds and across great distances and wave heights are usually small. A tsunami gains power when it enters shallow water, because the wave’s interaction with the seabed causes it to travel more slowly and increase in height. Tsunamis have been observed to reach heights of 10 m or more when making landfall.

5. Coastal inundation occurs when low-lying areas are flooded by the sea. In most cases, coastal inundation occurs when a low pressure system (often associated with an ex-tropical cyclone) creates a vacuum effect over the sea that causes the water level to rise. However, very high tides and wave energy can also cause the sea level to rise temporarily.

6. Coastal erosion is the loss of land that occurs as the shoreline retreats, caused by the steady removal of material through coastal processes. Coastal erosion can affect many landforms and ranges from beach and dune erosion to hard and soft coastal cliff instability. It is caused by many different events or processes occurring over time, such as storms, high tides and changes to sediment availability and is exacerbated by inappropriate land use.

7. Land instability includes landslides, subsidence and stream or river bank erosion. Land shape (topography and geomorphology) and composition (geology) are the main factors that contribute to such instability. In Auckland, land instability is often prevalent in the soft soils and weak rock that are common across the region. Landslides can be triggered by heavy rainfall, earthquakes and human activity such as removal of trees and vegetation, steep roadside cuttings, leaking water pipes or a combination of these.

8. A tornado is a violently rotating column of air that is in contact with the ground. In New Zealand, most tornadoes are associated with bands of thunderstorms embedded in a strong, unstable pre-frontal north-westerly flow. Tornadoes can occur anywhere and will typically last for a few minutes.

9. Uncontrolled wildfires in rural or urban areas can destroy infrastructure and devastate agricultural resources and the environment. Strong winds, high temperatures, low humidity and seasonal drought can combine with fuels (such as large wooded areas) and topography to produce dangerous fire weather situations. Islands are especially vulnerable because of their isolation and lack of infrastructure, while urban fire can be a significant hazard in densely populated areas.

10. An earthquake is a sudden motion or shaking caused by the abrupt release of accumulated stress along a break in the Earth’s crust (fault). Earthquake hazards include strong ground shaking (dependent on size, depth and near-surface materials), fault rupture, permanent ground tilt, subsidence or lateral spreading, liquefaction (where certain soils under strong shaking lose strength and behave like liquids), landslides, rock falls, tsunami and fire.
2.0 The Purpose of the Natural Hazards Risk Management Action Plan

The previous chapter outlined some of the factors that make Auckland unique, such as the beauty of its natural environment, the vibrant cultural diversity of its people, its economic importance – and the ever-present natural hazards.

It is the impact of hazards on people and the things we value that turns a natural event such as flooding or a volcanic eruption into a hazard. Conversely, it is people who have to find ways of building and maintaining the resilience we need to thrive as a community, even when a natural disaster strikes. For example, Auckland’s great diversity can be seen as a vulnerability if and when a natural hazard event occurs – or it can be one of our biggest advantages. The different world views, customs, economic status and particularly language abilities could mean that communities are unprepared for what may occur, may be isolated in the event of an emergency and may not be able to cope in the immediate and possibly even longer-term aftermath of a significant natural hazard event. But those very differences could also be the key to making us all stronger together, when we acknowledge and value the contributions our diverse communities can make to building resilience into the foundation of our social and built environment and foster an inclusive approach to natural hazard risk management.

One of the most basic and important tools to help us with building resilience is information. The purpose of this document is to assemble and integrate the most important information about Auckland’s natural hazards in one place and so provide a foundation for more strategic and prioritised management of natural hazard mitigation/adaptation initiatives and projects. This purpose is achieved through:

1) Describing what Auckland’s natural hazards are and how the risk they present is assessed and prioritised so that we can focus our attention on those that present the highest risk.

2) Explaining the roles and responsibilities of Auckland Council in managing the risks of natural hazards and in emergency management and identifying other active organisations.

3) Outlining a number of actions Auckland Council will undertake or facilitate over the next 10 years to reduce risk and increase resilience. These actions:
   - Are strategic and operational, meaning that they define concepts and strategies, and seek to construct a framework for more specific tasks or projects and programmes.
   - Are generally within Auckland Council’s statutory ability to implement. They do not include actions that are the responsibility of other organisations, which will be covered in future iterations of the Action Plan.
   - Complement those set out in the Auckland CDEM 2016-2021 Group Plan, which focuses on emergency management and resilience building over the next five years.

4) Identifying the next steps Council will take to involve other organisations in managing natural hazards and other disasters in Auckland.
PART B: DEFINING NATURAL HAZARDS
3.0 Assessing the Risk of Natural Hazards

3.1 Introduction

Risk is the combination of likelihood and consequence. There are many different ways of calculating risk, ranging from purely qualitative to quantitative. Risk assessment is used in many diverse fields, from workplace health and safety to financial investment – and natural hazard management.

In the past, assessing the risk of natural hazards was based on how likely it was that an event such as an earthquake of a given magnitude or intensity would occur, which is often expressed in terms of the ‘Average Recurrence Interval’ (ARI), also called ‘return period’.

The major disadvantage of relying on a measurement of likelihood alone is that this gives little consideration to the consequences associated with natural hazard events. This means that there is a tendency to focus on more frequent events, while overlooking less frequent events that have potentially catastrophic consequences.

New Zealand’s approach to emergency management and specifically natural hazard management, had already started to become more risk-based and this approach was reinforced following the 2011 Canterbury earthquakes. A risk-based management approach considers not only how likely it is that an event occurs, but also what the consequence of that event could be (Figure 3.1).

Through using a suitable risk assessment tool, it is possible to make a judgement about what level of risk is deemed to be acceptable or unacceptable to a community. Determining risk also assists in making decisions about the level of risk mitigation that may be appropriate, which generally has significant financial implications. For example, a robust assessment of flooding risk can provide an understanding of where relevant flood protection infrastructure can achieve the best outcomes and protection and where further investment would contribute little or no additional benefit to the outcome.

This section provides a brief overview of the semi-quantitative risk assessment methodology developed by Auckland Council to inform its natural hazard management approach and prioritisation decisions.
3.2 Auckland’s natural hazard risk assessment methodology

To develop Auckland’s natural hazard risk assessment methodology, a wide range of risk assessment approaches from elsewhere in the world were reviewed and evaluated. The Australian and New Zealand Risk Management Standard (AS/NZS ISO 31000:2009) was used as a starting point. The key features of Auckland’s methodology are:

- It is semi-quantitative, meaning that available data is used when available, but that expert knowledge is used when no data can be obtained, or is limited.
- It uses generic likelihood criteria and consequence criteria (for the four ‘well-beings’ identified in the Local Government Act – social, cultural, environmental and economic) that can be consistently applied to a wide range of natural hazards.
- The final risk profile for each natural hazard is the result of identifying consequences for a range of likelihoods, rather than just one.
- Each assessment is reviewed by a panel of experts.
- The final risk ratings are grouped, so that natural hazards can be ranked on a scale from very high risk to low risk.
3.2.1 Likelihood criteria

Likelihood is defined as the “chance of something happening” (AS/NZ ISO 31000:2009). A common measurement of likelihood is the ‘Average Recurrence Interval’ (ARI), also called ‘return period’. When using ARIs to express likelihood, natural hazard events are often referred to as 1:50 or 1:100 year events, meaning they are expected to occur “once in 50 years”, or “once in 100 years” respectively. However, using this terminology can be misleading as it implies that an event of this magnitude will not happen again for another 50 or 100 years, which is not the case at all.

An alternative way of describing the likelihood of an event is to use probability. The ‘Probability of Exceedance’ is a percentage value describing the probability that a natural hazard event of a certain size, magnitude or intensity will occur, or will be exceeded, in a given time period. The most commonly used time period is one year, referred to as an ‘Annual Exceedance Probability’ (AEP).

The information needed to calculate the ARI or AEP of an event is derived from our knowledge of past natural hazard events and relevant scientific research such as studies of weather patterns, climatic influences or seismic investigations. For some natural hazards, the necessary data is readily available and considered to be reliable and accurate, which means that the likelihood predictions are considered to be reliable. For other types of natural hazards data availability is poor and determining the likelihood of an event is less reliable.

The Auckland methodology uses likelihood criteria that range from the lowest to the maximum credible event occurrence, which allows a range of return periods between <1 to >100,000 years to be assessed for each hazard, as appropriate (Table 1).

<table>
<thead>
<tr>
<th>Table 1: Risk Assessment likelihood criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Descriptor</strong></td>
</tr>
<tr>
<td>Almost Certain</td>
</tr>
<tr>
<td>Likely</td>
</tr>
<tr>
<td>Possible</td>
</tr>
<tr>
<td>Rare</td>
</tr>
<tr>
<td>Extremely Rare</td>
</tr>
<tr>
<td>Improbable</td>
</tr>
</tbody>
</table>

3.2.2 Consequence criteria

The potential consequences of a natural hazard event are described in terms of the four ‘well-beings of sustainability’ (or pou in te ao Māori) set out in the Local Government Act 2002 – social, cultural, economic and environmental.

**Social consequences** range from tangible and direct (such as injuries and fatalities) to indirect (for example, where a loss of essential services causes disruption) and intangible (such as potentially long-term trauma and stress). For the purpose of this risk assessment methodology, social consequences are categorised as direct impacts on people (measured in terms of injuries and fatalities), effects on land use (meaning that the
land and/or the resource use associated with it may be lost or reduced) and critical infrastructure (which includes medical services such as hospitals, water supply, wastewater systems, power distribution, telecommunication, fuel supply and transport systems such as roads, rail networks, ports and airports). The latter are related to the level of disruption caused to society as a result of being damaged or failing altogether. Because the impacts on society resulting from injuries or fatalities and infrastructure failure are quite distinct, they are described separately, even though there is only one overall social consequence score (the average of both people and infrastructure impacts).

**Cultural consequences** relate directly to mana whenua’s ability to maintain their way of life. In te ao Māori, this encompasses impacts on people, place and practice. For mana whenua, social, economic and environmental consequences are interconnected and inseparable.

**Economic consequences** describe the direct and indirect costs that arise as the result of a natural hazard event. Direct costs are derived from estimating the damage expected to buildings (private residential and non-residential buildings and infrastructure), cars and property. Indirect costs include the economic losses due to interruption of infrastructure services, loss of operational capability and the resulting effects on businesses.

**Environmental consequences** resulting from a natural hazard event can be highly varied and difficult to assess consistently and include loss of habitat and biodiversity. For the purpose of this methodology, environmental impacts are evaluated in terms of the size of the area damaged. Although this does not capture the complexity of environmental damage that is possible, it does provide a quantifiable parameter that facilitates consistency.

Table 2 provides descriptions of the consequences, severity category and numeric scores, which enables them to be applied consistently to all natural hazards. The consequences will be magnified by climate change, for the same probability of event. This is discussed further throughout the report.

**Table 2: Risk Assessment consequence criteria**

<table>
<thead>
<tr>
<th>Consequences</th>
<th>Incidental</th>
<th>Minor</th>
<th>Moderate</th>
<th>Major</th>
<th>Severe</th>
<th>Catastrophic</th>
</tr>
</thead>
<tbody>
<tr>
<td>People</td>
<td>No fatalities or major injuries, near misses or minor injuries only</td>
<td>A fatality and isolated cases of moderate injuries</td>
<td>Isolated fatalities (&lt;10), multiple cases of serious injuries</td>
<td>Multiple fatalities (&lt;100), numerous major injuries</td>
<td>Numerous fatalities (&lt;1,000), widespread major injuries (&lt;10,000)</td>
<td>Widespread fatalities (&gt;1,000) and major injuries (&gt;10,000)</td>
</tr>
<tr>
<td>Social</td>
<td>Critical infrastructure out of service for up to an hour</td>
<td>Critical infrastructure out of service for up to a day</td>
<td>Isolated cases of critical infrastructure out of service for up to a day</td>
<td>Several critical infrastructure out of service for up to a week affecting some areas of Auckland</td>
<td>Multiple critical infrastructure out of service for up to a month affecting large parts of Auckland</td>
<td>Widespread critical infrastructure out of service for more than a month affecting all parts of Auckland</td>
</tr>
<tr>
<td>Infrastructure</td>
<td>Critical infrastructure out of service for up to an hour</td>
<td>Critical infrastructure out of service for up to a day</td>
<td>Isolated cases of critical infrastructure out of service for up to a day</td>
<td>Several critical infrastructure out of service for up to a week affecting some areas of Auckland</td>
<td>Multiple critical infrastructure out of service for up to a month affecting large parts of Auckland</td>
<td>Widespread critical infrastructure out of service for more than a month affecting all parts of Auckland</td>
</tr>
</tbody>
</table>
### 3.2.3 Risk assessment process

The risk assessment process that has produced the natural hazard risk profile presented in the next section involves the following steps:

- For each natural hazard likely to affect Auckland, available data and qualitative information was collated to establish as good an information base as possible. Where quantitative data was limited, a wide range of experts were consulted who contributed their specific knowledge.
- For each individual hazard, a range of likelihoods (between a 1 year and 100,000 year ARI) was chosen and consequences were described for each.
- As a final step, the results were peer-reviewed by an independent panel of experts.

The technical information and detailed assessment for each natural hazard will be released as a technical companion document with the final Action Plan.
4.0 Auckland’s Natural Hazard Risk Profile

The natural hazard risk profile described in this section is the result of the comprehensive risk assessment that was undertaken for each natural hazard using the methodology previously described. Because the risk assessment methodology is semi-quantitative and involves a subjective judgement based on best available information and expert knowledge, the results are not intended to produce an explicit list or numerical ranking. Furthermore, these results apply to the Auckland region as a whole and do not take precedence over more quantitative site-specific or national scale risk assessments that may be undertaken by other hazard management agencies such as the Ministry of Civil Defence and Emergency Management.

Auckland is at risk from a range of natural hazards. This Action Plan considers 10 of these hazards, which have been categorised in the Auckland CDEM Group Plan as having ‘very high’, ‘high’, ‘moderate’ and ‘low’ risk, based on the risk assessments undertaken. Each risk profile shows the ‘Present Day Risk’ and ‘Future Risk’. Assessment of the potential future risk included the impact that climate change could have on changing the risk profile.

Of these 10 natural hazards, presented here in no particular order, seven are identified as high to medium frequency events with consequences that range from relatively minor to localised severe consequences (Figure 4.1). The remaining three (volcanic activity, tsunami and earthquake) are considered to be of rare or extremely rare likelihood, but with the potential for catastrophic and widespread consequences.

![Diagram](image-url)

Figure 4.1: Cluster representation of Auckland’s natural hazard risks. Likelihood and Consequences are described in Table 1 and Table 2, respectively.
The understanding of each natural hazard and their potential impacts and our current knowledge base, is used to prioritise Council’s natural hazard management activities, as will be further outlined within the prioritised actions in this Plan.

4.1 Flooding - Waipuke

Flooding occurs when water flows over or inundates land as a result of a rainfall event and overwhelms the capacity of natural or designed drainage systems. Flooding is dependent on several factors including rainfall intensity and duration, soil moisture conditions, stream levels, the physical characteristics of catchments (such as soil type, slope and vegetation cover) and the effectiveness of overland flow paths. A flood becomes dangerous if the water is very deep or travelling very fast, the flood waters have risen suddenly, or if the water contains large debris.

<table>
<thead>
<tr>
<th>Key characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present risk</td>
</tr>
<tr>
<td>Very high</td>
</tr>
<tr>
<td>Future risk</td>
</tr>
<tr>
<td>Increasing in likelihood and intensity because of climate change and expected population growth</td>
</tr>
<tr>
<td>Spatial range</td>
</tr>
<tr>
<td>Local to regional</td>
</tr>
<tr>
<td>Vulnerable areas</td>
</tr>
<tr>
<td>Low lying floodplains in urban areas, which often have small catchments</td>
</tr>
</tbody>
</table>

By combining the individual consequence (or impact) scores of each event on each of the 4 ‘wellbeings of sustainability’ (social, cultural, environmental, economic), we determine the event with the greatest impact. When considering the impact alongside the likelihood of each event, we calculate the overall risk score and can identify the event with the greatest overall risk (Figure 4.2) The flooding event with the highest probabilistic risk is a 1:100 years event (1% AEP), because an event of such intensity is likely to result in more severe consequences than flooding events that are more common but also of lesser intensity.

The areas most vulnerable to flooding, such as demonstrated in Figure 4.3, are low-lying floodplains in urban areas, because urban catchments are generally small and the impervious areas (roads, houses and paved areas) in urban environments provide much less opportunity for rainfall to be absorbed by the ground. Flooding primarily occurs at a local scale as the result of heavy rainfall, meaning that not everyone across the region will be affected. However, if the weather event is widespread, for example a tropical cyclone, flooding can affect vulnerable areas across the region.
The consequences of flooding clearly depend on the magnitude and intensity of the event – for a 1:100 year (1% AEP) event, the most likely impacts are:

- Direct economic effects in the form of property (land and/or buildings) damage, loss of building contents including personal belongings and stock losses in rural areas.
- Possible evacuations on a local scale, where people and property are exposed to flooding. This is likely to lead to stress within the affected communities, possibly over a longer period where property damage or loss is experienced.
- Local communities may be temporarily isolated and cut off from food and medical supplies. People may not be able to get to work for some time, resulting in economic hardship.
- In some badly affected areas, injuries or even fatalities may occur if people cannot leave the area or leave too late.
- Local infrastructure is likely to be affected; there may be localised power outages, and/or some areas may be temporarily inaccessible due to flooding of roads. Wastewater treatment plants could be affected, as these are often located close to a waterway.
- Localised erosion, which may result in the loss of stream crossings in rural areas.
- Waterways are likely to be contaminated because stormwater and wastewater systems become overloaded. This can have a particularly negative impact on mana whenua, because traditional food gathering, and the mauri of water will be negatively affected.
- In extreme cases, vegetation and wildlife in waterways may be affected. Losses are however likely to be temporary and re-colonisation of the affected area will usually take place.
Flooding is a relatively common occurrence in Auckland, because of its location and topography. The consequences of flooding increase with the magnitude of the rainfall event and a 1:100 year (1% AEP) event can affect people and damage property throughout the Auckland region, in vulnerable areas. More frequent and less severe flooding events can still result in potentially significant economic consequences, usually as the result of property damage, business closures and the temporary loss of infrastructure services, including loss of power.

![Image of flood prone areas](image_url)

Figure 4.3: Example of an area vulnerable to flooding during 1-in-100 year flood events.
Source: Auckland’s Hazard Viewer

4.2 Severe wind and ex-tropical cyclones - Hau Pūkerikeri

Severe winds are typically associated with tropical cyclones, ex-tropical cyclones and other storm events caused by the movement of air from high pressure areas to low pressure areas. As tropical cyclones migrate over cooler mid-latitude waters, where New Zealand is situated, they tend to weaken or decay, consequently transforming into ex-tropical cyclones. Tropical cyclones generally occur between December and April and are classified as categories 1 to 5, depending on the maximum wind speed.

<table>
<thead>
<tr>
<th>Key characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present risk</td>
</tr>
<tr>
<td>Very high</td>
</tr>
<tr>
<td>Future risk</td>
</tr>
<tr>
<td>Increasing in likelihood and intensity because of climate change</td>
</tr>
<tr>
<td>Spatial range</td>
</tr>
<tr>
<td>Regional to beyond Auckland</td>
</tr>
<tr>
<td>Vulnerable areas</td>
</tr>
<tr>
<td>Coastal and exposed areas</td>
</tr>
</tbody>
</table>
A 1:100 year (1% AEP) storm event has been identified as having the highest risk (Figure 4.4), as a storm of this magnitude would cause significant damage to property and put people at risk and would be likely to affect most of the region. More frequently occurring storms would still result in property and environmental damage, although such damage may be less widespread and be focussed on vulnerable areas such as coastal and other exposed areas.

Figure 4.4: Calculating the highest risk severe wind and ex-tropical cyclone event. The event with the highest overall risk score of 13.5 is the 1:100 ARI event.

The consequences of a large storm are directly related to the magnitude and intensity of the event – for a 1:100 year (1% AEP) event, the most likely impacts are:

- Property damage (either localised or wide-spread depending on the path of the storm) is highly likely, with significant economic costs.
- Temporary isolation of outlying communities, if road access is cut off due to uprooted trees, landslides or similar obstacles.
- Boats are likely to come off their moorings or be at risk if at sea.
- Injuries or even fatalities may occur, caused by airborne debris, falling trees or building damage.
- Local or regional critical infrastructure (water supply, wastewater systems, power supply, transport networks and telecommunication) could be out of service for up to several days in some isolated areas.
- Disruption to business and productivity through direct damage and indirect impacts on infrastructure can be expected.
• Damage to or loss of mana whenua places of significance is possible, as these are often located close to the coast in vulnerable areas.
• If the storm brings with it significant rainfall, flooding is likely in vulnerable areas.
• Severe winds will also affect the environment as trees are uprooted and crops could be destroyed.

Severe winds are a common occurrence in Auckland, which is in the path of the South Pacific’s tropical cyclones. In the majority of cases, these cyclones have lost most of their destructive power and have become ex-cyclones when making landfall, because of our location at the southern boundary of their influence. However, cyclones at near full strength have affected the Auckland area in the past, resulting in loss of services such as power and widespread property and environmental damage. Together with flooding, severe winds are the natural hazard events that will be experienced by most Aucklanders over their lifetime (Figure 4.5).

Figure 4.6: Example of areas subject to severe wind exposure
Source: Auckland’s Hazard Viewer

4.3 Volcanic activity – Puia o Ruamoko

Auckland is at risk from two types of volcanic activity – eruptions in the Auckland Volcanic Field (AVF) and far-field eruptions (e.g. the central North Island volcanoes).
Auckland has developed directly on the AVF and although its volcanoes are small and their eruptions infrequent, the field is considered to be active. Future eruptions are more likely to occur in a new, unknown location rather than from any of the existing 53 cones.

The most likely major impact from far-field eruptions is ash fall.

<table>
<thead>
<tr>
<th>Key characteristics</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Present risk</td>
<td>Very high</td>
</tr>
<tr>
<td>Future risk</td>
<td>Not expected to change</td>
</tr>
<tr>
<td>Spatial range</td>
<td>Regional to beyond Auckland</td>
</tr>
<tr>
<td>Vulnerable areas</td>
<td>Auckland Volcanic Field</td>
</tr>
</tbody>
</table>

It cannot be predicted when Auckland’s volcanic field will become noticeably active again. Although New Zealand is a geologically active country, such events generally occur on a geological timescale, which far exceeds an average human lifespan. Risk assessments have been undertaken on recurrence intervals of 300, 1,000 and 100,000 years, which reflects the rarity of these events (Figure 4.6). However, a volcanic eruption in the Auckland field is likely to have significant consequences, regardless of when or how often it occurs. Because large-scale impacts are likely for any volcanic eruption, the potential rarity of such an event cannot reduce the overall risk.

Figure 4.6: Calculating the highest risk volcanic event. The event with the highest overall risk score of 13.1 is the 1:1000 ARl event.
Although not all areas in the region will be directly affected by activity in the volcanic field, the impact will most likely be experienced throughout the region. The expected consequences of an eruption of the Auckland volcanic field are:

- Evacuations from areas that are predicted to be directly affected.
- Large parts of the population are likely to experience short-term stress as ‘normal life’ is disrupted. Those facing property damage or loss will most likely experience long-term stress as well.
- Acute and chronic health impacts in the form of eye and lung irritation could affect large parts of Auckland’s population.
- Depending on the nature of the eruption, injuries and fatalities could occur.
- Significant damage to or loss of critical infrastructure in affected locations (power supply, transport networks, water supply and wastewater networks, telecommunication) is likely. Some systems may need to be re-built and may be unavailable for extended periods of time.
- If critical parts of infrastructure networks are destroyed, disruption to services throughout the region will be experienced.
- Auckland’s volcanic cones are highly revered taonga for mana whenua and modification or loss will deeply affect some iwi. Even if the existing cones are not changed, the changed landform resulting from an eruption will affect mana whenua’s relationship with the land.
- High economic costs over a prolonged period as the result of direct damage to or loss of property in affected areas and damage to or loss of critical infrastructure.
- The loss of property, disruption to business and productivity through loss of essential services and dislocation of people will result in high economic costs over a prolonged period.
- Environmental damage in directly affected areas is likely to be significant and includes loss of vegetation and wildlife, contamination of waterways and significant changes in landform.

Auckland could also be severely affected by an eruption in the central North Island. If a large ash cloud was to develop and move towards Auckland, effects could include:

- Disruption to air travel as flights to and from Auckland are delayed or suspended.
- Damage to roofs and other structures due to the acidic nature and weight of ash.
- Damage to infrastructure, including air-conditioning systems.
- Health effects in the form of eye and skin irritation and breathing difficulties.
- Contamination of drinking water sources for people and animals.
- Extended power cuts if electricity infrastructure is affected.

When and where future eruptions will occur is unknown, but calculations based on the number and frequency of past eruptions indicate that there is an 8 per cent probability (one in 12.5 chance) an eruption will occur in the AVF field over any 80-year period (Figure 4.7). Although it is likely that the changes preceding an eruption would be detected and widespread loss of life could be prevented, such an event would lead to significant disruption of normal life, loss and damage of property and affect the entire Auckland region for a prolonged period.
4.4 Tsunami - Parawhenua o te Moana

A tsunami is a series of waves, typically created by sudden movement of the ocean floor from earthquakes, underwater landslides and volcanic events. In deep water, tsunamis travel at high speeds with the potential to propagate over great distances across oceans in a matter of hours. Offshore, tsunami wave heights are typically small, but when a tsunami enters shallow water the wave’s interaction with the seabed causes it to travel more slowly and increase in height, as kinetic energy transfers to potential energy. The tremendous volume of water involved means that tsunamis can reach a significant distance inland and have considerable force, even at low height.

Tsunamis may be generated from three different sources. This influences their likelihood of occurrence, travel time, size and potential extent:

- Local – the source is close to New Zealand and arrival takes less than one hour.
- Regional – the source is further away in the Pacific and arrival takes between 1 and 3 hours.
- Distant – the most likely source is the west coast of South America and arrival takes more than three hours.
The tsunami event with the highest risk is a 1:1,000 year event (0.1% AEP) (Figure 4.8). Such an event would most likely be triggered by a large distant-source event and by the time it arrives in Auckland, the wave height and volume of water carried within it would be considerable.

![Risk (Likelihood x Consequence)](image)

Figure 4.8: Calculating the highest risk tsunami event. The event with the highest overall risk score of 13.5 is the 1:100 ARI event, but only by a slight margin. The 1:2500 ARI event is considered to be the national standard event in tsunami impact modelling.

The areas most vulnerable to tsunami are low-lying areas on the coast. Urban areas are particularly vulnerable because of the high population density. Tsunami waves do not need to be high to cause significant damage and endanger people, because of the large volume of water, debris and force they carry. Unlike an ordinary ocean wave, a tsunami can travel considerable distances over land across low-lying areas, destroying buildings and infrastructure in its path.

The consequences of a tsunami event depend on the wave intensity and warning time available. For the event considered to be the national standard in tsunami impact modelling (the 1:2500 ARI event event), the most likely impacts are:
- Evacuations from low-lying coastal areas on a regional scale, to ensure people’s safety for the duration of the event. Such evacuations will cause considerable short-term stress and anxiety.
- Injuries or fatalities may occur if people cannot leave the area or leave too late.
- Damage or destruction of property, leading to long-term stress and economic hardship for many of the people affected.
- A wide range of infrastructure will be affected, including power supply, transport networks, water supply and wastewater networks and telecommunications. Systems may be unavailable for extended periods of time in directly affected areas and disruption to services is likely throughout the region.
- The economic consequences are likely to be severe and include costs incurred by clean-up, loss of or damage to property and critical infrastructure, disruption to business and productivity through loss of essential services and dislocation of people.
- Where the tsunami reaches productive land, crop and possible livestock losses are possible.
- Many iwi are likely to be particularly affected, because marae and tribal lands are often located on the coast.
- Environmental damage is also expected to be considerable, both directly as a result of wave effects (loss of vegetation and wildlife) and indirectly through saltwater intrusion and contamination of waterways.

An effective warning system can provide sufficient time for evacuations (Figure 4.9) and so minimise injuries and fatalities, especially if the tsunami is caused by a distant-source event.

Figure 4.9: Example of tsunami evacuation zones
Source: Auckland’s Hazards Viewer
4.5 Coastal Inundation - Waipuke ki Tai

Coastal inundation occurs when low-lying areas are flooded by the sea. This is caused by a number of processes including high astronomical tides, low atmospheric pressure (storm surge) and wind direction and strength (which determines wave height). While tides have the largest effect on sea-level, coastal inundation is most likely to occur when high tides and a low pressure system (often associated with an ex-tropical cyclone) coincide causing the water level to rise. Climate change induced sea-level rise will exacerbate this process over time.

Low-lying coastal areas are most at risk of coastal inundation. As Auckland has a very long coastline to land mass ratio, with much of it developed for commercial and residential use, there are many places that are at risk.

<table>
<thead>
<tr>
<th>Key characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present risk</td>
</tr>
<tr>
<td>Very high</td>
</tr>
<tr>
<td>Future risk</td>
</tr>
<tr>
<td>Expected to increase in likelihood and intensity due to sea level rise caused by climate change</td>
</tr>
<tr>
<td>Spatial range</td>
</tr>
<tr>
<td>Local to regional</td>
</tr>
<tr>
<td>Vulnerable areas</td>
</tr>
<tr>
<td>Low-lying coastal areas</td>
</tr>
</tbody>
</table>

As is the case with other meteorological or climate-linked natural hazards, a 1:100 year event (1% AEP) carries the highest risk (Figure 4.10), as the combination of likelihood and expected consequences generates the highest risk score. Coastal inundation does occur on a more regular basis in the Auckland region, although smaller events are unlikely to cause significant damage.

Figure 4.10: Calculating the highest risk coastal inundation event. The event with the highest overall risk score of 13.0 is the 1:100 ARI event.
The most likely consequences of a 1:100 year (1% AEP) coastal inundation event include:

- Evacuations from low-lying coastal areas in the Auckland region.
- Temporary isolation of outlying communities.
- In affected areas, services such as power supply may be disrupted.
- Flood protection and erosion control structures could be damaged by processes including overtopping, scour and undermining.
- Infrastructure located in coastal areas such as wastewater treatment plants could be damaged, resulting in loss of service and environmental effects.
- Places and resources treasured by mana whenua could be damaged or even lost, as many such places are located near the coast and therefore vulnerable.
- Wastewater pipes near the coast could be damaged or lost, resulting in significant contamination of the surrounding water.
- There may be potentially high economic costs as a result of disruption to business activity, damage or loss of property, incidental losses of vehicles and stock losses.
- Productive land and freshwater habitats could be affected by saltwater intrusion.
- In extreme cases, there could be a temporary loss of vegetation and wildlife in flooded areas, with eventual re-colonisation.

Because of its location, Auckland is subject to coastal inundation events (Figure 4.11) on a regular basis, although many have low impacts. Large events of this kind have the potential to create significant property damage when inundation depths exceed property floor levels and result in considerable economic costs, which has indirect effects on the social well-being of Aucklanders.

![Figure 4.11: Example of area at risk from coastal inundation](source: Auckland’s Hazard Viewer)
4.6 Coastal erosion - Horowhenua ki Tai

Coastal erosion occurs when soil and material at the coastline is removed, leading to loss of land. It is a complex process that can be caused by a number of factors including wave energy, high rainfall, changes to sediment availability and land use, or sea-level rise. Coastal erosion occurs on soft shores (beaches and dunes) and hard shores (including cliffs), where different factors will dominate the erosion process.

Because of Auckland’s long coastline, coastal erosion can potentially occur anywhere along the region’s coastal margin, although the area affected is generally small and localised. While the erosion process is ongoing, significant erosion events are usually triggered by other natural hazard events such as a severe storm.

<table>
<thead>
<tr>
<th>Key characteristics</th>
<th></th>
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</thead>
<tbody>
<tr>
<td>Present risk</td>
<td>High</td>
</tr>
<tr>
<td>Future risk</td>
<td>Expected to increase in intensity due to climate change</td>
</tr>
<tr>
<td>Spatial range</td>
<td>Regional</td>
</tr>
<tr>
<td>Vulnerable areas</td>
<td>Coastal margins</td>
</tr>
</tbody>
</table>

A coastal erosion event with a recurrence period of 1:100 (1% AEP) years is considered as having the highest risk (Figure 4.12), because of the potentially significant consequences such an event is likely to generate.

![Risk (Likelihood x Consequence)](image)

**Figure 4.12:** Calculating the highest risk single coastal erosion event. The event with the highest overall risk score of 11.5 is the 1:100 ARI event.
The consequences of an episodic coastal erosion events include:

- High economic cost associated with coastal erosion as the result of damage to property and critical infrastructure.
- Associated stress and hardship.
- Infrastructure such as transport networks, water supply, wastewater networks and stormwater systems may be temporarily out of service and/or require replacement and damage could result in contamination of nearby waterways and/or coastal waters.
- The loss of infrastructure networks may result in the temporary inability to use or inhabit a property.
- Mana whenua places and resources of significance are likely to be damaged or lost, as they are often located near the coast.
- Potential injuries and, in extreme cases, fatalities as the result of sudden coastal cliff instability and localised landslides.
- Coastal landscape values and habitat could be modified or lost.

Although not a direct consequence of a specific coastal erosion event, the high costs associated with erosion protection measures (such as construction of seawalls) must also be considered.

A regional-scale coastal erosion event is usually triggered by another event such as a large storm or an earthquake and is therefore often part of a cumulative or cascading major natural hazard event. The loss of land caused by coastal erosion rarely results in fatalities or injuries but can have significant impact on cultural values and property.

### 4.7 Land instability - Horowhenua

Land instability predominantly occurs in the form of landslides but can also manifest as subsidence or stream and river bank erosion. Land shape (topography and geomorphology) and composition (geology) are the main factors that contribute to such instability. Landslides can be triggered by heavy rainfall, earthquakes and human activity such as removal of trees and vegetation, steep roadside cuttings, leaking water pipes or a combination of these. In Auckland, land instability is often prevalent in the steep slopes and weak rock that is common across the entire region.

Most of Auckland is at moderate to high risk of land instability, depending on the slope and geotechnical properties of the underlying rocks and soils.

<table>
<thead>
<tr>
<th>Key characteristics</th>
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<tbody>
<tr>
<td>Present risk</td>
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<tr>
<td>Future risk</td>
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<tr>
<td>Spatial range</td>
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<tr>
<td>Vulnerable areas</td>
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</tbody>
</table>

The highest risk for sudden land instability events have been assessed as both the 1:100 year (1% AEP) and 1:1,000 year (0.1% AEP) events (Figure 4.13), because of the expected severe consequences. However,
sudden land instability events of lesser intensity occur much more frequently and are well known throughout the region.

Figure 4.13: Calculating the highest risk land instability event. The event with the highest overall risk score of 11.0 are the 1:100 and 1:1000 ARI events.

Landslides are the most common form of land instability in Auckland and are generally triggered by heavy rainfall, especially after prolonged wet periods.

The consequences of a significant landslide are similar to those of a significant coastal erosion event, but their prevalence is not restricted to the coastal margin:

- Isolated communities could be cut off for some time if access roads are affected by landslides.
- Stress and hardship caused by damage to or loss of property.
- Infrastructure such as transport networks, water supply, wastewater networks and stormwater systems may be temporarily out of service and/or require replacement.
- Impacts on water supply dams, where the sudden increase of sediment input can significantly affect water treatment and water supply security.
- Loss of or damage to mana whenua places and resources of significance.
- Potential injuries and, in extreme cases, fatalities (in New Zealand recorded history landslides have killed twice as many people as earthquakes)².
- Loss of land and habitat.
- Contamination and sedimentation of waterways.

In addition, there is likely to be a high economic cost associated with clean up and debris removal and the high costs of land protection and stabilisation measures.

Figure 4.14: Example of a recent landslide in urban Auckland. Landslides are common in Auckland as a result of our relatively steep topography and weak geology.
Source: Auckland Council Engineering and Technical Services

4.8 Tornado - Āwhiwhio

A tornado is a violently rotating column of air which is in contact with the ground. In New Zealand, most tornadoes are associated with bands of thunderstorms embedded in a strong, unstable pre-frontal northwesterly flow. Tornadoes can occur anywhere and will typically last for a few minutes, during which time they may track across the land for two to five kilometres and will have a diameter of 20 to 100 m. Wind speeds are in the order of 115 to 180 km/h.

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<th>Key characteristics</th>
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<td>Present risk</td>
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<td>Future risk</td>
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<td>Spatial range</td>
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<td>Vulnerable areas</td>
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Auckland’s narrow land mass makes it highly susceptible to short but high intensity storm events with the potential to produce tornadoes. Tornadoes are highly localised events that have the potential to generate considerable damage in their path. The size of a tornado is not necessarily an indication of its intensity. Large tornadoes can be weak and small tornadoes can be violent. In the past, tornadoes have occurred in many different locations in the region and it is not possible to determine any particularly vulnerable areas. Tornadoes of lesser intensity occur relatively frequently and although they have caused property damage and – rarely - loss of life, the highest risk is associated with a 1:100 year (1% AEP) event (Figure 4.15).

![Risk Likelihood vs Consequence](image)

**Figure 4.15**: Calculating the highest risk tornado event. The event with the highest overall risk score of 11.0 is the 1:100 ARI event.

The expected consequences of a tornado of such intensity include:

- Injuries and fatalities in the zone of influence of the tornado.
- Significant property damage and loss (Figure 4.16).
- Damage to above ground infrastructure in affected locations (power supply, transport networks, telecommunication).
- Temporary disruption to services in affected areas.
- Damage to or loss of mana whenua places of significance.
- Potentially high economic costs due to property or infrastructure loss or damage.
- Temporary disruption to local businesses.
- Potential loss of vegetation, for example uprooting of trees.
- High clean-up costs.
4.9 Uncontrolled wildfire - Mahuika

Uncontrolled wildfires are large-scale fires in rural or urban areas or in the natural environments (wildfire). A fire generally becomes a wildfire through a combination of fire environment conditions (strong winds, high temperatures, low humidity and seasonal drought), topography variations and a change in the vegetation types (grasslands vs scrublands vs forested areas). A wildfire is an uncontrolled fire of a scale that threatens property, critical infrastructure has rapid or unpredictable fire behaviour and often requires additional and varied resources to contain it.

Uncontrolled wildfires can destroy natural and manmade environments, buildings and infrastructure and in many cases threatens lives and property. The likelihood and consequence of wildfires is increasing based on the recent larger fires within New Zealand.

Many more isolated communities, especially islands are particularly vulnerable to uncontrolled wildfires, because they are more remote and lack the infrastructure and resources that supports a fast and effective initial response.

Several factors (the fire environment) such as weather, topography and fuel combine to allow a fire to spread rapidly and rendering it uncontrollable, often for some period until the appropriate resources and incident management are deployed.
An uncontrolled fire with a return period of 1:100 (1% AEP) years was calculated to present the highest risk (Figure 4.17).

Figure 4.17: Calculating the highest risk uncontrolled wildfire event. The event with the highest overall risk score of 10.5 is the 1:100 ARI event.

Some of the potential consequences of a high-risk uncontrolled wildfire are:

- Depending on the location and extent of the fire, evacuations are likely, possibly at a large scale (neighbourhoods rather than individual dwellings).
- Injuries and fatalities are possible.
- Acute and chronic health effects caused by smoke inhalation can be expected.
- People and affected communities are likely to suffer long-term stress due to the loss of property and - possibly - livelihoods.
Economic costs will be high due to loss or damage of property, infrastructure and agricultural and/or forestry resources.

- Loss of vegetation, habitat and biodiversity is likely.
- Water supply catchments may be severely affected.

There are additional complexities when dealing with uncontrolled fires in areas at the urban/rural boundary (Figure 4.18). Although fire is responded to by Fire and Emergency New Zealand, the hazard has been included because of Council’s role in managing risk through its work.

4.10 Earthquake - Ruaumoko

An earthquake is a sudden motion or shaking caused by the abrupt release of accumulated stress along a fault, a break in the Earth’s crust. Earthquakes exhibit many different characteristics, including strong ground shaking (dependent on size, depth and near-surface materials), fault rupture, permanent ground tilt, subsidence or lateral spreading, liquefaction (where certain soils under strong shaking lose strength and behave like liquids), landslides, rock falls or tsunami.

Earthquake intensity varies significantly, and the extent of a significant earthquake is widely felt.
Auckland is in one of the lowest earthquake activity areas of New Zealand and approximately 300 km away from the nearest zone of high activity. Although the likelihood of a severe earthquake is low, the potential damage and loss of life it could cause in a densely populated urban area is considerable, which increases the overall risk (Figure 4.19).

![Risk Likelihood x Consequence](image)

Figure 4.19: Calculating the highest risk earthquake event. The event with the highest overall risk score of 10.9 is the 1:100 ARI event.

As shown in Figure 4.20, there are minor faults in the rural parts of the Auckland region north and south of the urban area, which are the most vulnerable locations. The consequences of a severe earthquake include:

- Injuries and fatalities.
- Long-term stress as a result of trauma and loss.
- Significant long-term community disruption.
- Damage to and loss of critical infrastructure (power supply, transport networks, water supply and wastewater networks, telecommunication).
- Temporary to long-term disruption to services and businesses.
- Damage to or loss of mana whenua places of significance.
- Potentially high economic costs due to property or infrastructure loss or damage.
- High clean-up costs.
- Environmental damage such as loss of habitat and biodiversity and contamination of waterways.

Figure 4.20: Location of active faults in the Auckland region
Source: Auckland’s Hazards Viewer
5.0 Exacerbating Factors

5.1 Cumulative and cascading natural hazards

The natural hazard risk profiles presented in Section 4 above describe the characteristics and risk of individual events. However, natural hazard events can occur together, or seemingly in short succession. A recent example of a cumulative event is the Kaikoura earthquake in November 2016 that affected the North of the South Island and Wellington, followed very shortly afterwards by heavy rain causing significant flooding. Although it may appear that these events are related, this is not the case.

There are two kinds of multiple natural hazard events – cumulative and cascading natural hazard events.

Cumulative natural hazards are generally unlikely to occur together because they are unrelated and only linked by location. Some areas are susceptible to more than one type of natural hazard and may therefore experience natural hazard events more frequently. An example is Great Barrier Island. Because of its location and geology, the island is susceptible to multiple unrelated natural hazards such as coastal erosion (triggered by storms and sea level rise), bush fires (triggered by drought) and tsunami. As the natural hazards are unrelated it is unlikely that the island would be affected by all of them at the same time, but there is a higher likelihood that it will experience one of those events over a given period of time than an area that is only susceptible to one type of natural hazard.

Cascading natural hazards are different in that an initial trigger event results in a domino effect of natural hazard events. A cascading event is one where extraordinary and generally unpredictable circumstances can result in triggering a series of events of unusual magnitude. An example is a “super storm”, which is effectively a combination of several natural hazards occurring together, triggered by a weather event of significant size and intensity. The severe winds and heavy rainfall brought by the storm trigger other hazards such as flooding, coastal inundation, landslides and coastal erosion.

The combined risk of cumulative or cascading events is very difficult to assess, given the multitude of hazards, likelihoods and combinations to consider, but as the November 2016 events have shown, they are possible. In general, the consequences of such a ‘multiple’ event, regardless of whether it is classified as cumulative or cascading, would be exacerbated and include the following:

- A higher level of damage and/or disruption than might be sustained from only one type of natural hazard event.
- A potentially higher number of injuries, or possibly fatalities, because rescue and/or relief efforts could be more difficult.
- Longer recovery time after the events, because of the many responses required.

5.2 Climate change

Auckland’s climate is changing, and these changes will continue. The changing climate has the potential to impact Auckland in different ways, one being increasing the risk posed by many key natural hazards. In
2017, Auckland Council commissioned NIWA to analyse and develop a set of Auckland-specific climate projections to indicate the rate and extent of change the region might experience.

These projections indicated that as well as an increase in average temperature of between 0.3-3.4°C by 2090, the number of hot days (i.e. above 25°C) will increase and the seasonal rainfall pattern will change, leading to periods of drought becoming more common. Changes in weather patterns may also lead to more frequent high-intensity rainfall and storm events and while there is a projected decrease overall in wind across the region, the changing climate will affect the frequency and characteristics of ex-tropical cyclone activity in an as-yet-unknown way.

These changes will have much wider-reaching implications than simply the weather. The increase in high-intensity rainfall may be an increase in landslips and nuisance flooding. Changes to the climate will also affect the indigenous biodiversity and its resilience, as well as potentially affecting the health of Auckland’s communities through changes in temperature, rainfall, air quality and potential biosecurity threats (invasive plant species, or disease vectors such as mosquitoes).

Globally, the mean sea-level has risen and is projected to continue to rise if greenhouse gas emissions are left unchecked. This will lead to an increase in inundation and erosion along Auckland’s coasts.

Nationally, the Government has proposed the Zero Carbon Bill. This bill aims to deliver clear national policies and plans that contribute to the global effort under the Paris Agreement to limit the global average temperature increase to 1.5°C above pre-industrial levels. Submissions on the bill have closed and it is now before the Environment Select Committee.

In response, Auckland Council has declared a 'Climate Emergency' and is undertaking a number of initiatives to understand and address the region’s long-term contribution to and impact from, the effects of climate change. These include the Auckland Climate Action Framework, the Live Lightly campaign, the Energy Efficient Communities project and other sustainability initiatives.

5.3 Population growth effects

Similar to climate change, growth can exacerbate the effects on the population of any natural hazard. Any new development within flood plains, coastal inundation areas, or other known hazard-prone areas will increase the population at risk, thereby worsening the consequence of the hazard. Although there are mitigations, such as keeping the habitable floor levels above the 100 year flood plain height, the impacts on such developments and their occupants, for a large scale event, are not well understood. In addition, not all hazards occur in predictable areas. The impact of growth on natural hazard risk is likely to increase the need for planned response to the risk.

As Auckland grows, there is an increase in populations in urban areas and a smaller but noticeable increase in rural areas, some of which are relatively isolated. These may not necessarily be connected to water or

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4 They are projected to double by the early 22nd century in a mid-range climate change scenario.

5 While the annual rainfall may not change, the spring rainfall will decline, and autumn rainfall will increase.
waste water networks, or with singular transport route and main power transmission lines into the area. There may not be full cell tower coverage in isolated communities and in some areas, there may not be local access to medical facilities. There is a strong focus in Emergency Management on understanding and building community resilience in isolated areas. Recent events, such as the April 2018 storm, have shown that people in isolated communities may not be as resilient or as prepared for disasters as they used to be.

International considerations of community resilience have indicated that people who are vulnerably housed, for example in temporary accommodation, are less resilient to natural hazards. This is a future consideration, in terms of assessing consequences of events.
PART C: MANAGING NATURAL HAZARDS
6.0 The Statutory Framework for Managing Natural Hazards

There is no single statute that provides the framework for managing natural hazards, but there are five pieces of legislation that are directly relevant to the management of natural hazards in New Zealand. These are briefly described below. In addition, New Zealand also has international obligations as a signatory to the 2015-2030 Sendai Framework for Disaster Risk Reduction, which was adopted at the UN World conference in Sendai, Japan as the successor of the Hyogo Framework (2005-2015). The Sendai Framework seeks to:

"Prevent new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery and thus strengthen resilience."

To emphasise and strengthen the need to address natural hazards, the Government added the management of significant risks from natural hazards to Section 6 of the Resource Management Act 1991 (Matters of National Importance), through the Resource Legislation Amendment Bill 2017. In addition, the New Zealand Coastal Policy Statement 2010 contains national objectives and policies for coastal natural hazards.

In June 2017, the then Minister of Civil Defence, Kris Faafoi, sponsored a Technical Advisory Group review of the CDEM Sector (TAG Review). The review was aimed at ensuring the New Zealand emergency response framework was world-leading, fit for purpose and well-placed to meet future challenges.

Their report, titled "Better Responses to Natural Disasters and Other Emergencies" outlined 42 recommendations primarily focussed on responding to emergencies at a national level, but with wide-reaching implications for governance, leadership, establishing responsibilities and partnerships at CDEM Group level. The government response to this document confirmed legislation reform (the Civil Defence and Emergency Management Act), the scoping of which is currently underway.

The government is seeking reform of the Resource Management Act, for which a working group will report in May 2020, with some more immediate changes being made to the appeals process. In addition, legislation has been introduced to parliament for Kainga Ora (previously the housing and urban development authority), which has access to a range of statutory powers to enable development at pace. It is not yet fully understood how these will align with local government management of natural hazard risks which are potentially exacerbated by growth.

The Climate Change Response (Zero Carbon) Amendment Bill, currently at Select Committee, will also potentially affect natural hazard risk management in New Zealand, particularly in terms of developing risk measures and adaptation policy at a national level.

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6.1 Civil Defence and Emergency Management Act 2002 (CDEM Act)

The CDEM Act (including the 2016 amendments) is based on the concept of the ‘4 Rs’ - Reduction (of risk), Readiness (for an event), Response (when an event occurs) and Recovery (after the event). The Act seeks to:

- Promote the sustainable management of hazards in a way that contributes to safety and wellbeing.
- Encourage wide participation, including communities, in the process to manage risk.
- Provide for planning and preparation for emergencies and for response and recovery.
- Require local authorities to coordinate reduction, readiness, response and recovery activities through regional groups.
- Provide a basis for the integration of national and local planning and activity.
- Encourage coordination across a wide range of agencies, recognising that emergencies are multi-agency events affecting all parts of society.

There is a clear and strong link between the purpose of the CDEM Act, the Sendai Framework and the Resource Management Act 1991 (RMA) and an expectation that relevant legislation such as the RMA are used to achieve the purposes of the CDEM Act.

6.2 Resource Management Act 1991 (RMA)

The RMA is New Zealand’s principal environmental and land use planning legislation. It provides for the management of natural hazards in several ways, including:

- Providing a definition for ‘natural hazards’ through the purpose of the Act, which is “to promote the sustainable management of natural and physical resources”, where sustainable management is defined 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 well-being and for their health and safety [...]”

- Assigning responsibilities for the management of natural hazards (Sections 30 and 31). In particular, Section 30 (1)(c)(iv) states that:

  “every regional council shall have the following functions for the purpose of giving effect to this Act in its region […] the control of the use of land for the purpose of […] the avoidance or mitigation of natural hazards.”

- Requiring that Assessments of Effects on the Environment (which must be prepared for any application for a resource consent) must address:

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5 “Any atmospheric, earth or water related occurrence (including earthquake, tsunami, erosion, volcanic and geothermal activity, landside, subsidence, sedimentation, wind, drought, fire or flooding) the action of which adversely affects or may adversely affect human life, property, or other aspects of the environment”.

6 The Resource Legislation Amendment Bill (RLAB) proposes including a new matter of national importance in Section 6 of the RMA.

"(h) the management of significant risks from natural hazards".
“any risk to the neighbourhood, the wider community, or the environment through natural hazards” (Schedule 4, Section 7)

- Providing for a consent authority to refuse and/or place conditions on subdivision consent if it considers that:
  “the land…or any structure on the land is likely to be subject to material damage by erosion, falling debris, subsidence, slippage or inundation from any source” (Section 106).  

6.3 Local Government Act 2002 (LGA)

The LGA is the principal statute providing for the governance of New Zealand’s local authorities. With respect to the management of natural hazards, two provisions are of particular relevance:

- Section 93 requires councils to have a long-term plan (LTP) covering a period of 10 years. Among other things, LTPs describe desired community outcomes, provide for integrated decision-making and must include an infrastructure strategy.

- Section 101B provides further detail on what an infrastructure strategy (which must cover at least 30 consecutive financial years) should contain, including:
  “how the local authority intends to manage its infrastructure assets, taking into account the need to [ . . ] provide for the resilience of infrastructure assets by identifying and managing risks relating to natural hazards and by making appropriate financial provision for those risks”.

6.3.1 Local Government (Auckland Council) Act 2009

With the amalgamation of seven city and district councils with the Auckland Regional Council in 2009, Auckland Council became a unitary authority through the Local Government (Auckland Council) Act 2009 (The Auckland Act). This established a two-tier governance structure that shared decision-making between 20 elected regional representatives (the governing body) and elected representatives on 21 local boards.

This transferred the roles and responsibilities of the territorial and regional authorities that existed before amalgamation and that exist still in most regions nationally, to a single unitary authority. This included the roles and responsibilities of the regional and territorial authorities to the mitigation of natural hazard risk.

However, the ownership and administration of council assets is still divided between local board areas, who administer assets within their board areas and the governing body who administer assets within the regional parks.

6.4 Building Act 2004 (BA), Building Regulations 1992 and Building Code

The Building Act provides a national framework for building control to ensure that buildings and associated infrastructure are safe, sanitary and have suitable means of escape from fire. The Building Regulations (and the Building Code contained in the Regulations) set out the mandatory requirements and performance

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² The RLIA also proposes changes to Section 106 that specifically refer to “significant risk from natural hazards”.

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Natural Hazards Risk Management Action Plan (NHRMAP)
criteria that buildings, including relevant infrastructure components, need to comply with. The BA has two provisions that are fundamental for the management of natural hazards.

Sections 31-35 address Project Information Memoranda (PIMs). These can be requested by a building owner from Auckland Council and must include:

“information likely to be relevant to the proposed building work that identifies […] each special feature of the land concerned”. A special feature of the land “includes, without limitation, potential natural hazards […] that is likely to be relevant to the design and construction or alteration of the building or proposed building and is known to the territorial authority and is not apparent from the district plan”.

Sections 71-74 address limitations and restrictions on building consents if the land is subject to one or more natural hazards or if the building will accelerate or worsen the adverse effects because of the natural hazard on that land or property. In addition, the Building Act also includes provisions in relation to earthquake-prone buildings (Earthquake-prone Buildings Amendment Act 2016).

6.5 Local Government Official Information and Meetings Act 1987 (LGOIMA)

Section 44A of this Act specifies that:

“a person may apply to a territorial authority for the issue, within 10 working days, of a land information memorandum (LIM) in relation to matters affecting any land in the district of the authority.” A LIM must include “information identifying each (if any) special feature or characteristic of the land concerned, including but not limited to potential erosion, avulsion, falling debris, subsidence, slippage, alluvion, or inundation […] being a feature that is known to the territorial authority but is not apparent from the district scheme…or district plan”.

Information about any notices about the land (including under the Building Act) must also be provided.

This obligation on Auckland Council has implications for the management of natural hazards information and the public availability and hence awareness of such information.
7.0 Roles and Responsibilities

7.1 Auckland Council

Council’s role and responsibilities in managing natural hazards are directly derived from the legislation under which it operates. The key responsibilities of Council are:

- Ensuring that Auckland is prepared for emergencies, including a natural hazard emergency, under the CDEM Act. Section 64(1)(Duties of local authorities) of the Act states that:
  "a local authority must plan and provide for civil defence emergency management within its district".

This task is undertaken by Auckland Emergency Management, formerly Council’s Civil Defence and Emergency Management Department, in cooperation with other organisations, collectively called the Auckland CDEM Group. A detailed overview of the visions and work undertaken by Auckland Emergency Management is contained in the Auckland CDEM Group Plan 2016-2021, which is a statutory document. The Auckland CDEM Group consists of the emergency services, lifeline utilities, welfare agencies and Auckland Emergency Management, which provides the administrative support and coordination for the Auckland CDEM Group.

- Leading and representing our community, under the LGA. Council must ensure that the current and future needs of the community for good-quality local infrastructure, local public services and performance of regulatory functions are provided for in a cost-effective manner. This includes providing infrastructure that enables growth by managing natural hazard risks, such as stormwater infrastructure.

- Managing our natural and built environment, under the RMA. In this role, Council has a range of tools at its disposal that can reduce risk (for example, through land use planning) and increase resilience to a natural hazard event (for example, by ensuring that the environment is protected and managed to provide natural buffers).

- Ensuring that buildings and structures are safe, under the Building Act and the Building Code. Auckland Council is a regulatory authority under the Building Act and is responsible for making sure that buildings and associated infrastructure are safe, sanitary and have suitable means of escape from fire.

- To proactively manage risks and build resilience in line with the goals and objectives of the National Disaster Resilience Strategy.

- Providing property information held by Council upon request, usually when the property is to change ownership.

All the above rely on having good data and predictions for natural hazard risk.

7.2 Mana whenua

There are 19 iwi authorities that represent mana whenua interests in Tamaki Makaurau. Through the Treaty of Waitangi, mana whenua are in a partnership with central and local government and work with Auckland Council to incorporate mana whenua values into Council’s policies and programmes across the whole
organisation – including natural hazards management. One of the most significant values is Kaitiakitanga, the guardianship and protection of the environment and the natural world.

As kaitiaki, mana whenua are responsible for the well-being of the land, sea, water and biodiversity, including people. However, mana whenua are not just concerned about and sensitive to the cultural well-being of all Māori in Tamaki Makaurau, but also seek to safeguard the well-being of the other peoples living in Tamaki Makaurau.

7.3 Central government

The Ministry of Civil Defence & Emergency Management is a business unit of the Department of the Prime Minister and Cabinet. The Ministry provides policy advice to government, supports Auckland Emergency Management planning and operations, ensures coordination at local, regional and national levels and manages the central government response for large-scale emergencies that are beyond the capacity of local authorities.

The government’s overarching strategic direction for civil defence and emergency management is risk-based and focuses on the four ‘Rs’ of emergency management – Reduction, Readiness, Response and Recovery.

The Ministry works closely with local government, utilities and the emergency services involved in civil defence and emergency management to ensure that those responsible for designing and implementing solutions at the local level have the skills, tools and knowledge needed to carry out their responsibilities.

Other central government departments that have a function in natural hazards management include the:

- Ministry of Business, Innovation and Employment (MBIE), whose responsibilities are wide-ranging and include building and construction, housing and property, infrastructure and growth, science and innovation as well as Government procurement and property. MBIE is responsible for the Building Act and the Building Code.

- Ministry for the Environment, the Government’s principal advisor on the environment in New Zealand and on international environmental matters, which includes resource management, natural hazards management and climate change.

- Treasury, the lead advisor to the Government on economic, financial and regulatory policy. Treasury incorporates the National Infrastructure Advisory Board and National Infrastructure Unit, which released the Thirty-year New Zealand Infrastructure Plan in 2015.

- Earthquake Commission (EQC), which is a Crown entity established under the Earthquake Commission Act 1993. The EQC provides natural disaster insurance for residential property, administers the Natural Disaster Fund (NDF) and funds research and education on natural disasters and ways of reducing their impact.

- Department of Conservation, which advises the Minister of Conservation on the preparation of the New Zealand Coastal Policy Statement.

- Ministry of Health, Ministry of Primary Industries, Ministry of Education and Oranga Tamariki are members of the Auckland Welfare Coordinating Group, who deliver welfare support during emergency response in Auckland.
7.4 Utility providers

Utility providers are organisations that provide essential infrastructure and services in the form of road and rail networks, water supply, wastewater systems, stormwater systems, power/electricity, gas, fuel and telecommunications. In Auckland, Ports of Auckland and Auckland Airport are also considered to be utility providers. They are defined under the Civil Defence and Emergency Management Act, with certain responsibilities to manage and respond to disasters.

All of these organisations are represented in the Auckland Lifelines Group, which is a voluntary group dedicated to bringing these organisations together and providing them with a platform for information exchange, sharing knowledge and experience and making sure that the people responsible for Auckland’s essential services - its lifelines - know each other and can come together easily in a crisis to limit the extent of an emergency to the greatest degree possible.

7.5 Emergency services

New Zealand’s emergency services – the Fire Service, Police, Ambulance, Coastguard – have a key role in natural hazard management and work closely with the relevant central government departments and Auckland Emergency Management across the four ‘Rs’ of emergency management – Reduction, Readiness, Response and Recovery.

When an emergency occurs, the NZ Defence Force is often also mobilised to provide assistance, support and resources.

These services are part of the civil defence and emergency management Group and represented on Auckland’s CDEM Coordinating Executive Group alongside Council.

7.6 The private sector

The private sector plays an important role across all areas of natural hazard management and emergency preparedness, but particularly so in risk reduction and improving resilience within our built environment. Auckland is expected to grow significantly over the next three decades and the investment in housing and infrastructure will be led by the private sector. A commitment to risk reduction in the design and implementation of Auckland’s urban growth would significantly improve the region’s ability to cope with and recover from natural hazard emergencies. Of particular relevance are the insurance industry, the banking community, land developers and the real estate sector.

7.7 Non-governmental organisations

Non-governmental organisations (NGOs) are involved in natural hazards management in various areas, including:
• Emergency management – Red Cross*, St Johns.
• Governance and leadership – New Zealand Society of Local Government Managers (SOLGM).
• Strategy, policy and planning – Local Government New Zealand (LGNZ), the New Zealand Planning Institute (NZPI).
• Knowledge and research – Crown Research Institutes such as GNS and NIWA, universities and research consortiums throughout New Zealand.
• Community engagement – Salvation Army and other social support organisations.
• Non-profit organisations – Rotary, Lions Club and similar volunteer organisations.

7.8 Auckland’s community

Ultimately, it is the community as a whole that is responsible for its well-being and ability to cope with a natural hazard event. As a community, we need to be informed, prepared and able to look after ourselves and our neighbours in the event of an emergency. The Auckland CDEM Group Plan recognises this fundamental community role and facilitates it through a commitment to education, community engagement and facilitating volunteer work in the emergency management field. As noted in the Auckland CDEM Group Plan, resilience building must involve the community as a whole and cannot be imposed. Resilience building requires partnership, empowerment and the strengthening of social networks to enable Auckland’s different communities to come together.
### 8.0 The Toolbox for Managing Natural Hazards Risk

As described above, managing the risk of natural hazards is the responsibility of many different organisations throughout New Zealand. As this Action Plan focuses on Auckland Council as the agency that implements or facilitates the actions set out in Section 12 below, the tools listed here are those available to Auckland Council. For the purpose of this Action Plan, the tools have been aligned to Council’s key function (or activity) areas and the National Disaster Resilience Strategy and include a range of statutory and non-statutory mechanisms.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governance and leadership</td>
<td>Council’s governance structure is determined by legislation (the LGA and Auckland Act), which also provides the framework for enabling Council to take a leadership role in building resilience, including organisational resilience, championing resilience within the wider community (including private sector organisations) and empowering Auckland’s communities to be prepared and develop capacity for coping with natural hazard events.</td>
</tr>
<tr>
<td>Strategy, policy and planning</td>
<td>Council’s activities are guided by a comprehensive planning framework that sets out the long-term vision of what Auckland wishes to be, now and in the future. The different components of this framework provide multiple opportunities to recognise that natural hazards are an integral part of our daily lives and that there are a variety of ways to manage the risk of natural hazard events.</td>
</tr>
<tr>
<td>Regulations and consents</td>
<td>Regulations such as local bylaws and consents such as resource consents and building consents are the key implementation tools for Council’s policies and plans. With respect to improving resilience to natural hazard events, resource consents are particularly important because they are usually required for land development and can include conditions aimed at reducing the risk of natural hazards.</td>
</tr>
<tr>
<td>Asset management</td>
<td>Auckland Council and its CCOs own and manage a wide range of public infrastructure and physical assets on behalf of the people of Auckland, including roads, water supply, wastewater networks and treatment plants, stormwater systems, parks and recreational facilities and many other community facilities and a wealth of environments and habitat that promote biodiversity and natural resilience. By ensuring that ‘built’ assets are built appropriately and to a high quality standard and maintaining them to enable their continued function, Council contributes significantly to increasing the resilience of our built environment. Similarly, by ensuring that our natural environments are managed well, we enable the natural environment to be more resilient to natural hazard effects.</td>
</tr>
<tr>
<td>Emergency management, readiness, response and recovery</td>
<td>Emergency management is based on four key activities - risk reduction, readiness, response and recovery, underpinned by resilience. In Auckland, this is undertaken and coordinated by the Auckland Civil Defence and Emergency Management Group, of which Auckland Emergency Management is a member. The Group’s duties and activities are described in the Auckland CDEM Group Plan, which is a statutory document and closely aligned with this Action Plan.</td>
</tr>
</tbody>
</table>

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10 Council-controlled organisations (CCOs) are organisations in which Auckland Council controls 50% or more of the votes or has the right to appoint 50% (or more) of directors or trustees. A substantive CCO is either responsible for the delivery of a significant service or activity on behalf of Auckland Council, or owns or manages assets with a value of more than $10 million. Auckland Council has five substantive CCOs: Panuku Development Auckland, Auckland Tourism, Events and Economic Development Limited, Auckland Transport, Regional Facilities Auckland, Watercare Services Limited.
**Knowledge and research**

An integral component of effective natural hazard management is knowledge and good, reliable information. In order to assess risks and make decisions on how to manage them, we need to know and understand the nature and risks of natural hazards first. Ongoing research and the improvement of Council’s natural hazard knowledge base is therefore one of the most important tools.

**Communication, education and community resilience-building**

An informed and engaged community is a strong community and one that is much more likely to cope with and recover from an emergency brought about by a natural hazard event. One of Council’s most important tasks is to ensure that all Aucklanders are knowledgeable about the natural hazards we all live with, know how to protect themselves and their families and are willing and capable to care for others around them when a natural hazard event occurs.

**Partnerships**

Building resilience and managing emergencies involves a wide range of activities and can only succeed through the cooperation of many different organisations from the public and private sector. As the lead agency responsible for emergency management in Auckland, one of Council’s most effective tools is building and maintaining partnerships that are instrumental in improving our combined knowledge of natural hazards and working together before, during and after natural hazard events.
PART D: THE ACTION PLAN
9.0 Strategic Context of the Natural Hazards Risk Management Action Plan

Auckland Council has developed a substantive and interconnected policy and planning framework that guides and directs Council activities, initiatives and statutory responsibilities (Figure 9.1). The Auckland Plan is the 30-year strategy that is the ‘umbrella’ for most other parts of the planning framework. Like the National Disaster Resilience Strategy, the Auckland Plan has the themes of ‘resilience’ woven through the key outcomes for Auckland.

This Action Plan is one of the key steps towards achieving the shared vision for Auckland described in the Auckland Plan. It identifies the natural hazards that are an integral part of our location and landscape, describes the risk these hazards represent to our way of life, people and property and sets out actions that contribute to making us resilient and well prepared.

The February 2011 earthquakes in Canterbury and the more recent Kaikoura earthquakes in November 2016 are reminders of the devastating and long-lasting impacts that natural hazards in New Zealand can have. Auckland is not immune to natural hazards and events that could have similarly significant consequences.

Auckland Emergency Management prepared the Auckland CDEM Group Plan, Resilient Auckland, in 2016. This strategic document sets out how it will undertake its responsibilities of reducing risk, preparing for and responding to emergencies, contributing to recovery and building resilience.

This Action Plan was developed as a deliverable of the Auckland CDEM Group Plan. Resilient Auckland noted that effective natural hazard management requires an aligned all-of-Council approach. This Action Plan expands the focus of natural hazard management-related activities away from purely CDEM and identifies other key Council functions that can contribute to an overarching natural hazard management strategy. The scope of the Natural Hazards Risk Management Action Plan encompasses more than just specific risk-related actions and emphasises that everyone contributes to keeping our communities safe.
9.1 The National Disaster Resilience Strategy

The National Disaster Resilience Strategy came into effect April 10, 2019 and outlines the 10-year vision and long-term goals for implementing the principals of the Civil Defence and Emergency Management Act (2002) in New Zealand. The National Disaster Resilience Strategy acknowledges that while many of the risks New Zealanders face now and in the future are identifiable, the changeable climate and the uncertainty that brings to New Zealand’s future risk landscape means that building resilience is an important requirement for the nation’s safety, wellbeing and prosperity. The theme of resilience is also woven through the Auckland Civil Defence and Emergency Management Group Plan as well as the Auckland Plan.

The National Disaster Resilience Strategy promotes the concept of a ‘disaster resilient nation’ through a 3-step goal (Figure 9.2):

- Managing risks.
- Effective response to and recovery from emergencies.
- Enabling, empowering and supporting community resilience.

The National Disaster Resilience Strategy outlines 18 objectives that give effect to the goal, which promote resilient practices at all levels of society, from families/whanau to Government and national organisations. There are a number of objectives in the National Disaster Resilience Strategy that can be addressed, in part, by Auckland Council. The actions developed as part of the Natural Hazards Risk Management Action Plan are designed to align and map to the goals and objectives of the National Disaster Resilience Strategy. The Action Plan itself is directly aligned to Step 1, in particular objectives 1-5 of the National Disaster Resilience Strategy:

1) Identify and understand risk scenarios (including the components of hazard, exposure, vulnerability and capacity) and use this knowledge to inform decision-making

2) Put in place organisational structures and identify necessary processes – including being informed by community perspectives – to understand and act on reducing risks
3) Build risk awareness, risk literacy and risk management capability, including the ability to assess risk.

4) Address gaps in risk reduction policy (particularly in the light of climate change adaptation).

5) Ensure development and investment practices, particularly in the built and natural environments, are risk-aware, taking care not to create any unnecessary or unacceptable new risk. 

Figure 9.2: The three priorities and 18 objectives of the National Disaster Resilience Strategy

9.2 The Technical Advisory Group Review

As described in section 0, the Technical Advisory Group report titled “Better Responses to Natural Disasters and Other Emergencies” outlined 42 recommendations aimed at ensuring the New Zealand emergency response framework was world-leading, fit for purpose and well-placed to meet future challenges.

The government response to the Technical Advisory Group (TAG) Review11 outlined several actions that could be immediately or progressively incorporated into Civil Defence and Emergency Management in New Zealand across 5 key areas.

The five key areas are:

"1) Putting the safety and wellbeing of people at the heart of the emergency response system

2) Strengthening the national leadership of the emergency management system

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3) Making it clear who is responsible for what, nationally and regionally
4) Building the capability and capacity of the emergency management workforce
5) Improving the information and intelligence system, that supports decision-making in emergencies

Whilst these are generic to all hazards, these key areas and the actions arising, are relevant to the responses and recovery for natural hazard risk management planning.

9.3 The Auckland Climate Action Framework

The climate action framework includes the following “key moves”:

1) Lay the foundation
   We make decisions based on sound evidence. We have the capacity, resources and leadership to deliver change by working together.

2) Enhance, restore and connect our natural environments
   Oranga tāiao, oranga tāngata: a healthy and connected natural environment that restores the mauri (life essence) of Tāmaki Makaurau and benefits every Aucklander.

3) Make development and infrastructure climate-compatible
   All new development and infrastructure complies with our climate goals and encourages low-impact lifestyles.

4) Transform existing buildings and places
   Existing buildings and spaces are revitalised to be healthy, low-impact and multi-functional.

5) Deliver clean, safe and equitable transport options
   Aucklanders have more options for getting around.

6) Move to a zero-carbon, climate-resilient economy
   Auckland leads climate-smart innovation and a fair and just transition to a zero-carbon, climate-resilient economy.

7) Help Aucklanders become more resilient and reduce their carbon footprint
   We are all more resilient to climate change and lead Auckland’s transition to net zero emissions.

8) Te puawaitanga o te tāngata
   Self-sustaining Māori communities and a lift in the well-being of Māori whānau across Tāmaki Makaurau.

9) Youth and intergenerational equity
   Rangatahi (young people) bring their own unique perspective on climate change.
10) Shift to decentralised renewable energy
   Energy supply is clean and secure and benefits every Aucklander.

11) Grow a low carbon, resilient food system
   A strong and resilient food economy provides all Aucklanders with access to low-carbon, fresh and healthy food.

The Auckland Climate Action Framework puts together a programme of actions and aspirations, to be delivered in the main by 2030, with some extending to 2050. Its focus is on carbon reduction (mitigation), as well as responding to the exacerbation of natural hazards or other natural phenomena (adaptation). Many of the actions are relevant to natural hazard risk management, both from an adaptation and planning perspective and from a building resilience perspective.

The climate risk deep dive, done by Council in parallel with the climate action framework, confirms the Natural Hazard Risk Management Action Plan as one of the key adaptation responses.
10.0 Guiding Principles

Fundamentally, any approach to managing the risks of Auckland’s natural hazards and building community resilience must acknowledge and safeguard the spirit that makes Auckland the unique place it is – the connection between its people and environment that creates the special ‘vibe’ and sense of place Aucklanders cherish.

The process of identifying tasks and actions that will contribute to building Auckland’s ability to withstand and cope with natural hazard events was guided by a number of principles articulated through a workshop process to ensure that our partnership with mana whenua was recognised, and that Auckland’s diversity, natural environment, future challenges and the complexity of natural hazard events are considered when planning mitigations and responses.

10.1 Embedding te ao Māori

For Auckland to become the world’s most liveable city, it must be so for all of its people. For mana whenua, this means embedding te ao Māori – the Māori world view – within its very foundation.

Mana whenua have lived with and experienced Tāmaki Makaurau’s natural hazards for a long time and had adapted to the ever-present risk of volcanic activity, earthquakes, significant storm events and other natural events capable of disrupting communities and threatening lives. Many of these adaptation strategies no longer work at a time when a steadily growing population reduces or eliminates the ability to move whole communities out of harm’s way and modern life imposes a wide range of constraints. However, te ao Māori has much to offer when it comes to finding ways of living with the risk of natural hazard events.

At the heart of te ao Māori is the concept of mauri. Loosely translated, mauri is the life force or life essence which exists within all matter, the connection between spiritual, physical and temporal realms. The importance of mauri is recognised in Part 1 of the Auckland Unitary Plan, which includes the following objective:

"Those aspects that are of significance to mana whenua are protected and maintained, including the spiritual dimension and the mauri of natural and physical resources and of people."

As kaitiaki, mana whenua have the responsibility of ensuring that the spiritual and cultural aspects of resources are maintained for future generations, which involves the ongoing protection of mauri from damage, destruction or modification. Mana whenua acknowledge that natural hazards are an integral part of life and that natural hazard events cannot be controlled by human beings. However, by caring for and protecting the mauri of resources and designing our built environment and infrastructure to be respectful of the environment and the connectedness of all things, sustainability and resilience are woven into our lives as Aucklanders, allowing us to better manage the risk of natural hazards.

10.2 Fostering sustainability and resilience

The term ‘resilience’ describes the ability of people or the capacity of systems to anticipate, resist and adapt to the demands, challenges and changes encountered during and after a shock or stress. The stronger the
inherent resilience in individuals, communities or systems, the greater capacity there is for them to adapt and
thriving during a natural hazard event and maintain or recover functionality afterwards.

Increasing the resilience of Auckland’s natural and built environment and its communities to natural hazard
events is challenging. Like many urban areas of the world, Auckland has a rapidly growing and diverse
population, increasing social inequities and a degraded natural environment. Strengthening our existing
resilience in such a complex environment is not a linear process with a single definable set of actions and an
end point. Nor resilience a static condition - it can be fostered and nurtured before it is needed. The depth
of resilience in a system - for example ecosystem or a social system - reveals itself when that system is
under stress.

There are many ways to increase the resilience of our complex, interconnected social, environmental and
economic systems.

The first is to safeguard the existing inherent resilience in our natural environment - there can be no human
resilience without environmental resilience. Therefore, any activity that modifies our environment must as a
minimum maintain and not increase its level of vulnerability. Ideally given increasing stresses on the natural
environment, restoring and enhancing its adaptive capacity should be a mandatory outcome for any
modification activity.

The second is to equitably build the adaptive capacity of Aucklanders, their families, neighbourhoods and
communities so they can cope better, have ability and understanding of where they could support others if
required, respond faster and recover more quickly during and after a natural hazard event. Important
elements of achieving this outside of specific community resilience initiatives and plans include sustainability
initiatives that improve the economic livelihoods and social well-being of people. There is a wealth of
sustainability initiatives being undertaken by Council, businesses, organisations, volunteers, households and
individuals. Those all play an important role in strengthening social resilience by building trusted networks,
increasing community connectivity and strengthening our adaptive capacity.

Finally, knowledge and information are at the core of building sustainability and resilience. Information on
natural hazards must be widely promoted, in forms that reach as many people as possible in order to build
greater public awareness and understanding about natural hazard risks and potential impacts. From there, a
more informed discussion can occur about community different roles and responsibilities and what actions
can be taken at a personal and community level as well as a city level, to reduce natural hazard risks.

10.3 Recognising scale

The natural hazards that are likely to affect Auckland are as diverse as Auckland’s people and environment
and one of the most important features of this diversity is the scale of potential impacts in terms of the
geographical area that could be affected.

At one end of the spectrum are the natural hazard events that are very localised, for example tornadoes.
While such events can have devastating effects on a relatively small number of people and local
environments, they are unlikely to significantly change the life and functioning of Auckland as a whole, or for
an extended period of time. Building resilience to withstand such events and preparing for them is often – but
not always – less complex.
At the other end of the spectrum are events that have the potential to affect large parts of the city and surrounding areas, or possibly the entire region. Examples are volcanic activity, either an eruption within the region or a large-scale event elsewhere on the North Island, causing significant prolonged ash-fall over Auckland.

The risk-based approach to managing Auckland’s natural hazards is designed to recognise and account for these potentially significant differences in scale and support the development of management tools and procedures that are appropriate for different types of events.

10.4 Adapting to climate change

A number of hazards will be exacerbated by climate change, so the guiding principles incorporate the assessment of natural hazard risk increasing into the future. As Figure 10.1 shows, there is a large overlap between natural hazard or disaster risk management and adaptation. Therefore, as a guiding principle, addressing natural hazard risk, either by risk mitigation, or by learning to adapt to the hazard, will necessarily require us to include future hazard predictions, and to promote resilient and sustainable adaptation practices.

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Figure 10.1: The overlap between Climate Change Adaptation and Disaster Risk Reduction
Source: PLACARD network

There are two parts of climate change response – adaptation and mitigation. Although mitigation focusses on reducing emissions of greenhouse gases, many mitigation options, such as switching to renewable energy sources, also improve resilience. Therefore, the principle of promoting resilience through mitigation activities is also incorporated.

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12 https://www.placard-network.eu/
10.5 Understanding and prioritising risks

Risk is the product of likelihood and consequence. Because risk ratings are based on this fundamental mathematical function, a high risk can be the result of a number of combinations of these two criteria. For example, events that occur relatively often but generally do not result in significant and wide-spread damage can have a very similar risk rating as events that are very rare but have devastating large-scale consequences.

By using a risk-based approach that relies on identifying such information in some detail it is possible to make better-informed decisions about how resources and funds should be used to achieve the best results in reducing overall risks from natural hazards.
11.0 The Development of the Action Plan

Auckland Council has a significant role in identifying and managing the risks of natural hazards and there are few departments or people within Auckland Council that do not contribute in some way towards this task. This action plan has been developed with staff from many different parts of council, to ensure a coherent and collaborative approach to managing natural hazard risk.

11.1 Identifying the need to act

To determine what actions are needed to develop and implement an integrated council-wide natural hazards management approach, Auckland Council adopted the methodology shown in Figure 11.1. This involved:

- Describing the ‘ideal scenario’, or goals, for each council function.
- Identifying what progress has been made towards these goals and what activities Council is already undertaking.
- Undertaking a gap analysis to ascertain what activities (actions) should be carried out to reach the goals.

An analysis of actions to date is included as Appendix A. This was captured from interviews and workshops across council, supplemented with findings from the 2019 Climate Risk deep dive.

The identification and considerations of ideal state, and the determination of potential ‘gap filler’ actions that could be taken to achieve goals was also developed through workshop scenarios, supplemented with interviews.

11.2 Developing draft priorities

The actions developed through this process were then considered using the set of criteria listed below, to identify the most effective actions to be included in this consultation draft:

- **Ease of implementation.** For example, will this action require the cooperation of a large number of Council departments, or can it be undertaken by a small group over a relatively short period of time?
- **Effectiveness.** Will the activity deliver on the expected outcome and can the success be measured?
- **Cost.** How expensive is the activity compared to others and can the cost be spread over a period of time?
- **Criticality.** Will the activity contribute to improving the way natural hazards are managed, or will the benefits be relatively short-lived and narrowly focused?
- **Coverage.** Does the activity benefit all or many natural hazards, or does it apply to one particular hazard only?
- **Risk.** To what extent will the activity reduce the risk associated with the hazard?
The consultation draft will confirm actions and their priorities, to be complied into a confirmed action plan for Auckland Council.

The actions will also be prioritised by synergy with the Climate Action Framework and funding priorities, as discussed in the Implementation Plan (Section 13).

### 11.3 Interpreting the risk assessment

![Risk Assessment Diagram](image)

**Figure 11.2:** The natural hazard risk profile used in this Plan with the expected range of impacts from the different hazards. See the text for an explanation of the area highlighted by the red circle.

Figure 11.2 clearly shows that tsunami, volcano and earthquake are infrequent but catastrophic hazards. Their low probability indicates that day to day operational management approaches are not required. However, the extremely high consequences show that disaster planning and preparedness, and resilience building for catastrophic events will be needed to mitigate the risks of these hazards.

Many of the other hazards start to have a noticeable impact on a very frequent basis – approximately yearly. At incidental to minor consequences, it is reasonable for Auckland Council to seek to manage the effects and
mitigations in daily business, from land use planning and building and infrastructure design guides and standards to capital investment in ‘mitigation’ infrastructure, such as the stormwater drainage network.

At present, many of our building and infrastructure performance standards equate to 50 to 100 year probability events. Auckland Council interventions such as land use planning and infrastructure investments should seek to reduce consequence levels from moderate to minor. However, the area highlighted in Figure 11.2 indicates the potential for larger scale events of these ‘routine’ hazard types to cause significant or major damage. More consideration is needed of how we address these less frequent, higher hazard events, and the cost of interventions vs the scale of potential damage.

Finally, if we consider that climate change, and growth in hazard areas will increase the scale of hazard for the same probability of event, this shows the imperative to mitigate the risks.

The analysis indicated that some hazards are a better understood than others, and some hazards have a well-functioning risk management approach in place, but not all do. An all-of-council approach is needed to ensure that risks are addressed systemically.

11.4 Implementation of the Natural Hazards Risk Management Action Plan

Council activities that directly or indirectly affect natural hazard management use the eight key function area tools described in Section 8 above:

1) Governance and leadership.
2) Strategy, policy and planning.
3) Regulations and consents.
4) Asset management.
5) Emergency management, readiness, response and recovery.
6) Knowledge and research.
7) Communication, education and community resilience-building.
8) Partnerships.

Additionally, gaps in natural hazard management strategy for specific hazards were identified separately.
12.0 Actions

This Action Plan describes how Auckland Council is taking a risk-based approach to continue to integrate natural hazard management into the relevant business areas across Council. The key objectives are to reduce the risk from natural hazards and increase resilience to natural hazard events. The proposed actions therefore focus on tasks that can be implemented by Council, or that can be facilitated by Council and undertaken in association with other organisations.

The actions presented are 'high-level', meaning that they generally address the establishment or improvement of overarching systems, programmes or projects that support natural hazard management as a whole. Therefore, actions are not aimed at specific natural hazards such as flooding, tsunami or tornadoes.

The structure of this section follows the steps outlined in Section 11 above, which describes how the Action Plan was developed. For each of the eight function areas there is a natural hazard-related goal, followed by a brief summary of the work Council is already undertaking in this regard and an outline of the considerations or further work required.

The summary of work underway and future considerations or opportunities is followed by a brief description of each action and its expected outcome and the approximate timeframe for implementation. Many actions are closely linked to each other or have already been identified in other Council plans such as the Auckland CDEM Group Plan. These linkages are clearly identified as are those to the National Disaster Resilience Strategy and the Auckland Climate Action Framework.

This consultation draft is intended to promote discussion of the actions, their linkages and synergies, and their relative priority across Auckland Council functions.
12.1 Governance and leadership

12.1.1 Goals

Elected representatives and other community leaders are committed to building and strengthening resilience in communities as well as built and natural environments and are supported by adaptable and effective governance arrangements, clear guidance and specific training on natural hazard risk.

Council leaders have a cross-Council goal to minimise and mitigate natural hazard risk, including exacerbation of those risks by climate change or population vulnerability changes and maintain vigilance over monitoring and reporting of an ongoing reduction in risk.

12.1.2 Existing activities

Auckland Council already deliver programmes and projects that actively engage community leaders to foster a culture of resilience in a number of ways, including within Council, by working closely with other local councils and central government, private sector leaders and the Auckland CDEM Group CEG.

The CEO of Auckland Council maintains a close interest in the management of natural hazard risk across Council including having a close relationship with Auckland Emergency Management and being the chair of the Coordinating Executive Group. A Crisis Management Team consisting of Auckland Council Executive Lead Team members has been developed to manage the impacts of emergency events on Council operations.

Council Executive Leadership team includes portfolio holders responsible for all the functions listed in this document, ensuring visibility of approaches at executive level.

An elected member engagement framework developed by Auckland Emergency Management uses an online e-learning course combined with interactive workshops to give the Auckland Council governing body an introduction to CDEM in New Zealand, the hazards and risks affecting Auckland and their role as elected members across the 4 R's of emergency management as well as resilience.

Auckland Council has also acknowledged the role a changing climate and increase in the impacts of key natural hazards will play in the future by introducing a compulsory section on a decisions impact on (or impact by) the effects of climate change in elected member briefings.

12.1.3 Considerations

Many of the impacts of natural hazard emergency events are going to be amplified by the effects of climate change. It is therefore important that natural hazards are brought up the agenda and leaders and elected members are informed and aware of the issues and informed and aware of specific impacts of their decisions on the effects of natural hazard events.

Both the Government Response to the TAG Review and the National Disaster Resilience Strategy highlighted opportunities to increase the capability of community leaders across all levels of government to
contribute to effective civil defence and emergency management (including effective natural hazard risk management) in New Zealand. There is a need to improve clarity on the role of elected representatives (the Governing Body) and Council with respect to building community resilience for natural hazards.

Recognition of the need to build resilience into systems, environments and people has strengthened recently, both internationally and in New Zealand and approaches and methodologies continue to evolve. The effects of climate change on natural hazards has brought natural hazard approaches to wider public attention. A recent Council risk analysis of climate change mitigation and adaptation concluded that improvements are required in the following governance and leadership areas:

- Leadership is needed to ensure alignment and prioritisation of key climate change actions
- Commitment to building and strengthening climate resilience throughout Council and its CCOs needs to be integrated into work programmes and cross-council agreements.
- Quality advice is needed to enable decision makers to ensure effective management and governance oversight.

12.1.4 Actions

<table>
<thead>
<tr>
<th>Action</th>
<th>Description</th>
<th>Expected outcome</th>
<th>Links</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>Develop a portfolio approach to governance of natural hazard risk, mitigation and adaptation</td>
<td>ELT and elected members have a clear view of work in train or planned, to manage natural hazard risk and this work is coordinated and prioritised across all council functions</td>
<td>Natural Hazards Risk Management Action Plan Action 2, 40 Auckland Civil Defence and Emergency Management Group Plan Actions 10, 77 Auckland Climate Action Framework Key Move 1 National Disaster Resilience Strategy Objectives 4, 12</td>
</tr>
<tr>
<td></td>
<td>Define a portfolio of all work relating to natural hazard risk mitigation and risk adaptation including resilience building, identify an executive with accountability to take a council-wide view of natural hazard management activities and ensure coordination of aims, objectives and priorities across activities.</td>
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<tr>
<td></td>
<td>Expected outcome</td>
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<tr>
<td></td>
<td>Implementation Strategy</td>
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<td></td>
<td>Define the coordination and accountability role required.</td>
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<td></td>
<td>Working with sustainability office and risk team and others to ensure alignment with climate activities and policy, regulatory and asset owners to ensure alignment with operational and land development activities, define a portfolio of all activities relating to natural hazard management, including owners and contributors to each piece of work.</td>
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<td></td>
<td>Analyse portfolio and present recommendations to ELT, aligned with reporting recommendations in item 2.</td>
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<td></td>
<td>Timeframe</td>
<td>Recommendations by January 2020</td>
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<tr>
<th>Action</th>
<th>Description</th>
<th>Expected outcome</th>
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<tbody>
<tr>
<td>(2)</td>
<td>Improve reporting on natural hazard risk, mitigation and adaptation at governance level</td>
<td>ELT and elected members have a clear view of progress against goals to manage natural hazard risk</td>
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<tr>
<td></td>
<td>Develop a reporting framework for work programmes relating to management (adaptation and mitigation) of natural hazard risks and climate change effects and of resilience building, based on the portfolio and prioritisation in item 1 above.</td>
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### Item 10

#### Natural Hazards Risk Management Action Plan

<table>
<thead>
<tr>
<th>Links</th>
<th>Action Plan Actions 1</th>
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<tbody>
<tr>
<td></td>
<td>Auckland Civil Defence and Emergency Management Group Plan Action 10</td>
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<tr>
<td></td>
<td>Auckland Climate Action Framework Key Move 1</td>
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<tr>
<td></td>
<td>National Disaster Resilience Strategy Objectives 4, 12</td>
</tr>
</tbody>
</table>

| Implementation Strategy | As part of the development of a portfolio approach, identify how projects will contribute to key Council goals, and develop a milestone or traffic light report to assess and report progress against goals. Align with SFPO work including project and risk reporting to incorporate into programme reporting at executive level. |

| Timeframe       | Milestone report template by January 2020 |

### (3) Increase engagement of elected members in natural hazard risk management

#### Description
Providing elected members with the tools and understanding of the role and responsibilities Auckland Council and Auckland Emergency Management has during emergency events and ‘peacetime’ will help support effective decision-making around natural hazard risk.

#### Expected outcome
Auckland’s elected leaders are committed to building resilience and empowering communities to achieve a sustainable level of community resilience to natural hazards.

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<thead>
<tr>
<th>Links</th>
<th>Action Plan Actions 1, 4, 35, 40</th>
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<tr>
<td></td>
<td>Auckland Civil Defence and Emergency Management Group Plan Actions 31, 74 to 76</td>
</tr>
<tr>
<td></td>
<td>Auckland Climate Action Framework Key Move 1</td>
</tr>
<tr>
<td></td>
<td>NDRS Objectives 9, 10</td>
</tr>
</tbody>
</table>

| Implementation Strategy | Continue to develop and implement an engagement programme suited to the elected member audience combining:  |
|                         | 1) Practical knowledge about Auckland Hazards  |
|                         | 2) Governance structure of CDEM in New Zealand |
|                         | 3) The role of Auckland Council, the elected members and AEM in emergency events |

Content for the Video and eLearning will be reviewed by an Elected Member Working Group to ensure relevance and that information needs are met. The learning tools will be interactive where possible and paired with facilitated workshop sessions to maximise engagement. Newsletters will be developed to keep members up to date with hazard management operations across Council.

| Timeframe       | Commencing November 2019 |

### (4) Develop a framework for local board roles in community resilience building

#### Description
Identifying and formalising the key role of local boards in community resilience building, to enable identification of resources and budgets for direct engagement with communities, aligning council departments’ work with local boards on community engagement around resilience and adaptation.

#### Expected outcome
A framework exists with a formalised programme of work and identified resources and budgets for LTP funding round.

<table>
<thead>
<tr>
<th>Links</th>
<th>Action Plan Actions 2, 3, 40</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Auckland Civil Defence and Emergency Management Group Plan Actions 31, 69, 78</td>
</tr>
<tr>
<td></td>
<td>Auckland Climate Action Framework Key Move 7</td>
</tr>
<tr>
<td></td>
<td>NDRS Objectives 4, 12</td>
</tr>
</tbody>
</table>

| Implementation Strategy | Collate information across all community outreach programmes and activities involving local boards which have a resilience component. |

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**Natural Hazards Risk Management Action Plan (NHRMAP)**

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| Work with local board advisors and local boards to develop a framework, comprising principles, systems and resources for local board roles in community resilience building. |
| Work with local board advisors and local boards and with council departments, to develop a programme of work for resilience building. |
| Timeframe | Collation to commence November 2019. Workshopping with local boards to commence March 2020 |

### (5) Work with the CDEM Coordinating Executive Group in contributing to natural hazard risk reduction

**Description**
The Coordinating Executive Group is a collaborative body comprised of senior representatives of Auckland Council and key response agency partners that support Auckland Emergency Management in developing strategic and operational plans across the 4 R’s of emergency management. The next iteration of hazard management will be to apply the same risk assessment and action plan methodology to other hazards managed by the CDEM Group in Auckland.

**Expected outcome**
A coordinated strategic overview of the hazard landscape in Auckland and a collective approach to hazard reduction and emergency response plans underpinned by frequent discussions and collaborative initiatives.

**Links**
- Natural Hazards Risk Management Action Plan Actions 22, 23, 42
- Auckland Civil Defence and Emergency Management Group Plan Actions 6, 8, 42
- Auckland Climate Action Framework Key Move 1
- NDR3 Objectives 10, 11

**Implementation Strategy**
Support CEG to implement the risk-based analysis of hazards and develop and apply relevant functional accountability and develop operation and strategic plans to present to committee and enable response agencies to achieve operational excellence.

**Timeframe**
Commence March 2020
12.2 Strategy, policy and planning

12.2.1 Goal

Natural hazards and the risk they present are recognised throughout Auckland’s planning framework and resilience building is given weight in policies and supported through rules and guidance.

12.2.2 Existing activities

Natural hazards are already recognised and given weight in many planning documents, most prominently in the Auckland Unitary Plan. However, as shown in Figure 9.1 above (Auckland’s Planning Framework), the range of Auckland-specific planning documents is considerable. Risk-based natural hazard management measures should be integrated into all relevant strategies and plans.

In addition to the Auckland Plan 2050 and Auckland Unitary Plan, natural hazards related matters are included but not limited to the below documents:

- The Coastal Management Framework (2017) and the subsequent 16 Coastal Compartment Management Plans (in development).
- Catchment Management Plans for the Auckland Region (complete and ongoing).
- Climate Change and Adaptation Guidelines (2014).
- Thriving Communities – Community and Social Development Action Plan (2014).
- Codes of Practice for land-use and subdivision development.
- Auckland Council Indigenous Biodiversity Strategy
- Low Carbon Auckland Plan

Government policy in this area includes subjects such as urban development capacity. The Climate Change Response (zero carbon) Amendment Bill drives the need for a national climate change risk assessment and a national adaptation plan, both of which will affect natural hazard risk management approaches in Auckland.

Auckland has ‘innovator city’ status in the C40 Climate Cities group, to (among other things) prepare for the impacts of climate change and adaptation will be a strong focus of future strategy and policy for Council. This will help ensure that natural hazards and their impacts remain a key focus for Council.

12.2.3 Considerations

The recently declared climate emergency has raised the need and opportunity, to align natural hazard risk management with climate adaptation actions and resilience-building mitigation actions. The considerations
below are fully aligned with considerations in the Auckland Climate Action Framework, leading to actions which meet the objectives of climate change response and natural hazard risk management.

With respect to ensuring the integration of risk-based natural hazard management, risk reduction and resilience building activities into Auckland’s strategic and planning framework, the following key issues need to be addressed:

- Relevant and consistent objectives, policies, rules and other implementation methods to manage natural hazards risk needs to be included into Council’s planning documents, as part of ongoing reviews, plan changes and law reforms.
- There is potential conflict between providing for Auckland’s growth and managing risks from natural hazards which requires several aspects, e.g. the use of land that may be at risk from natural hazards and/or not sufficiently addressing the need for resilient infrastructure when developing land. There is also an information gap between known hazard areas and consenting of development into those areas, which can have significant implications for response planning and community resilience building resourcing.
- An agreed definition of what resilience to natural hazards means in practice is currently required to facilitate the development and implementation of the programmes to achieve it.
- There are currently conflicting or not clearly delineated requirements of different pieces of legislation. For example, the varying timeframes and climate change considerations between the Building Act (50 years, no climate change constraints) versus the Resource Management Act (at least 100 years).
- At present, the less probable events, such as tsunami, are not considered in land use planning or policy.
- Changes to the current Auckland Unitary Plan can only be made if there is new guidance from central government, or if it can be shown that the current regulatory tool is not achieving the desired outcome. The next opportunity to change the Auckland Unitary Plan outside of extraordinary plan changes is in 2026.

12.2.4 Actions

<table>
<thead>
<tr>
<th>(6)</th>
<th>Prioritise embedding the risk-based natural hazards management approach into the Auckland Planning Framework including developing a common language of risk as it relates to natural hazards adaptation, mitigation and resilience across council</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>As the impacts of natural hazards and the exacerbating effects of climate change can affect almost all Council operations, there are few departments or people within Council that cannot contribute in some way towards identifying and managing natural hazard risk. The interdependencies in natural hazard risk management that exist from the planning of greenfield developments through to the issuing of individual resource consents means that strategies, policies and language used to manage natural hazard impacts across Council should be carefully aligned.</td>
</tr>
<tr>
<td>Expected outcome</td>
<td>An Auckland planning framework that contains consistent and complementary provisions for natural hazards management in each planning and technical document.</td>
</tr>
</tbody>
</table>
| Links | Natural Hazards Risk Management Action Plan Action 7, 8  
Auckland Civil Defence and Emergency Management Group Plan Actions 2, 4 to 5, 67 to 69 and 81 to 83 |
Auckland Climate Action Framework Key Moves 1 and 3
NDRS Objectives 1, 4, 5

Implementation Strategy
Work across Council to ensure that empirical and anecdotal data are captured after natural hazard events to provide an evidence base for future decision making and model revision.
Collate a list of relevant planning and technical documents and develop a review workplan. Identify which need additional work to incorporate or update risk-based natural hazard management principles, policies and rules.

Timeframe
Ongoing and dependent on statutory review periods

(7) Strengthen the management of natural hazards in land development and growth activities as a key part of the Auckland Unitary Plan

Description
The Auckland Unitary Plan contains a number of policies and rules that focus on managing a range of natural hazards, such as flooding and coastal erosion.
As knowledge and awareness improves, the Unitary Plan must continue to be fully aligned with risk reduction and mitigation measures and may need to be revised regularly to be compatible with new information or new approaches which reduce risk.

Expected outcome
A mechanism to ensure regular updates, to deliver a rule framework that manages the risk from specific natural hazards in a clear and consistent manner.

Links
Natural Hazards Risk Management Action Plan Actions 6, 28
Auckland Civil Defence and Emergency Management Group Plan Action 5
Auckland Climate Action Framework Key Move 3
National Disaster Resilience Strategy Objectives 4, 5

Implementation Strategy
Create a working group of planning, natural hazard and risk technical experts from across council to consider how to update the current provisions of the Auckland Unitary Plan using new research and guidance.

Timeframe
Commence November 2019. outcomes may be dependent on statutory review periods

(8) Continue to integrate planning for climate change, resilience building and natural hazard risk management into the Auckland Development Strategy

Description
The 30-Year Development Strategy is part of the Auckland Long-Term Plan 2018-2028 (Volume 2, Part 1). It describes how Council and its CCOs will manage infrastructure over the long term and already recognises the risk posed by natural hazards to some degree, as well as the need for resilient infrastructure. As knowledge grows and better data becomes available to inform decision-making, the Development Strategy will reflect this.

Expected outcome
Continuous improvement of infrastructure planning in terms of natural hazard risk reduction and resilience building.

Links
Natural Hazards Risk Management Action Plan Action 6, 16
Auckland Civil Defence and Emergency Management Group Plan Actions 74, 76
Auckland Climate Action Framework Key Move 1
National Disaster Resilience Strategy Objectives 5, 16

Implementation Strategy
Agree a methodology to incorporate new risk data and evolving land management policy into future iterations of the Auckland Development Strategy.
<table>
<thead>
<tr>
<th>Description</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work with others to align climate and natural hazard risks and objectives.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Work with government to align with future law reform.</td>
<td></td>
</tr>
</tbody>
</table>

| (9) Work with government agencies to resolve contradictions in legislative outcomes |                      |
| Description                                                                 |                      |
| The size and technical capacity of the greater Auckland Council gives us a unique opportunity to lead conversations with central government agencies, with other territorial authorities, regarding legislative tools that are not resulting in the desired risk-reduction outcomes. |                      |
| Expected outcome                                                           |                      |
| National statutory legislation empowers territorial authority's natural hazard risk reduction strategies. |                      |
| Links                                                                       |                      |
| Auckland Civil Defence and Emergency Management Group Plan Action 5         |                      |
| Auckland Climate Action Framework Key Move 1                               |                      |
| National Disaster Resilience Strategy Objectives 4, 9                      |                      |
| Implementation Strategy                                                   |                      |
| Develop a cross Council recommendation to take to Government, in time for consideration as part of RMA reform and to inform the new National Emergency Management Agency. This will involve: |                      |
| Identification of contradictions and constraints, with case studies of impacts on natural hazard risk management |                      |
| Recommendations for legislative change                                      |                      |
| Recommendations for other solutions where appropriate.                     |                      |
| Timeframe                                                                  | Commence November 2019 |


12.3 Regulations and consents

12.3.1 Goal

The natural hazard risk associated with land development or infrastructure failure is managed through appropriate regulations and a consistent approach to risk management in the consenting process.

12.3.2 Existing activities

The planning framework for land development across Auckland is set out in the Auckland Unitary Plan (AUP). However, many of the underlying processes to support consistent and effective consent process are still being developed and the interface between the AUP and other Council functions related to land development continue to evolve. Many regulatory controls or guidance already exist in Council including:

- Online mapping for flood hazards, coastal inundation and sea-level rise.
- Technical reporting for extreme water levels by storm tides and waves in the Auckland Region (Stephens et al., 2016)\textsuperscript{13} to be applied in determining habitable floor levels.
- Technical reporting for extreme fluvial and pluvial flood levels to be applied in determining habitable floor levels and location of development.
- Code of Practice for Land-Use and Subdivision.
- Tsunami evacuation mapping.
- Wind design codes and standards exist – with specific design needed for higher risk buildings such as high rises, or those in very high exposure areas.

As part of an ongoing improvement process, Council is undertaking a comprehensive consenting process revision programme that seeks to streamline the consenting and land development process. The impact of these changes is not yet understood.

12.3.3 Considerations

Currently, there are no building or consent controls for some natural hazards, including two of the catastrophic hazards (tsunami and volcanic eruption). In addition, risk specific design for high risk wind areas would benefit from more consistent approaches, via guidelines. There is an opportunity to consider specific design requirements for other natural hazards such as fire.

Some of the most important risk reduction measures can be implemented at the resource and building consent stage. Key issues with respect to integrating natural hazard risk reduction and resilience-building measures into the consenting process are:

\textsuperscript{13} Stephens, S., S. Wadwha and B. Tuckey, 2016. Coastal inundation by storm tides and waves in the Auckland region. TR2016017, National Institute for Water and Atmospheric Research (NIWA) and DHI, Auckland
The different approaches used within the Resource Management Act and the Building Act (including factors such as design life considerations) can create challenges when dealing with natural hazards and in particular those that originate outside the proposed development site, or which occur with a recurrence interval longer than the design life.

- There is no means of capturing permitted development, or consented development which adds to the number of households or businesses which may be exposed to hazards. This in turn makes it increasingly difficult to quantify disaster implications and plan response, as well as increasing the consequences of the hazard.

- There is a lack of available and/or easily accessible, or regionally complete data and other information on natural hazard risk at different locations across the region.

- There is no consideration for the effects of cumulative permissions within a hazard zone and some hazards are considered inconsistently for residential versus business properties.

- There is a current focus on providing finished habitable floor levels above floodplain and coastal inundation extents. However, there is no interface of this activity with the wider consideration of providing for safe access and egress from property.

- Neither is there consideration of the ability of vulnerable populations, such as aged housing communities, to respond to high impact hazards such as tsunami, in the planning process.

- Insufficient or inconsistent guidance is available for regulatory staff across all natural hazards on what natural hazard related information to request from applicants and how to address natural hazard risk during the consent process. Decision-makers and affected parties are not clear, and it is not clear how much weight natural hazard risk is given in decision-making. Neither are decisions and consequential hazards fully articulated to future property owners.

- Measures or activities that aim to reduce natural hazard risks or increase resilience are not incentivised.

- The provision of natural hazards information in Land Information Memoranda (LIMs) and Project Information Memoranda (PIMs) is consistent across Council, but does not include all hazards, such as tsunami, which are a high consequence but low probability hazard.

12.3.4 Actions
### (10) Standardise Council’s approach to the provision of natural hazard-related information in property documents (PIMs and LIMs) across all hazards

**Description**
Land Information Memoranda (LIMs) provide information held by Council about a particular property and can be applied for by any person under the LGOIMA, while Project Information Memoranda (PIMs) provide information about a site that may have an effect on the work that is undertaken, including planning restrictions, the location of stormwater drains and ground conditions. A PIM can only be applied for by someone who is planning a specific project and may need a building consent.

Reflecting their different purposes and the differences in extent and quality of available information across the different hazards, the information provided on PIMs and LIMs generally differ. Currently, hazards of a geotechnical nature and coastal and rainfall flooding are the only hazards included in PIMs and LIMs. By implementing a standardised approach to including all types of hazards and aligning with consenting decision-making to ensure information on hazards considered at consent stage is available, Council can ensure that anyone wishing to purchase a property is aware of potential natural hazard risks and whether these risks have been addressed and are no longer applicable to the property. This assessment should also include consideration of future climate change effects, such as sea level rise.

<table>
<thead>
<tr>
<th>Expected outcome</th>
<th>LIMs and PIMs include identification all current and future natural hazard risks, supported by accurate and consistent data and information.</th>
</tr>
</thead>
</table>
| **Links**        | Natural Hazards Risk Management Action Plan Actions 11, 12  
Auckland Civil Defence and Emergency Management Group Plan Action 5  
Auckland Climate Action Framework Key Moves 1  
National Disaster Resilience Strategy Objectives 3, 13 |
| **Implementation Strategy** | Review the way in which natural hazards are referred to currently in PIMs and LIMs. Seek guidance on what can be included, including legal advice and best practice elsewhere in NZ. Identify and develop policy on incorporating low probability, high hazard events, development decision-making and identified mitigations. Canvas feedback on other opportunities to improve the understanding of members of the public on natural hazard risk relating to property. |
| **Timeframe**    | Policy by December 2020 |

### (11) Develop specific Auckland Council requirements and guidance for developments with a known natural hazard risk component

**Description**
To meet Auckland’s housing development targets, it is possible that land with known natural hazard risks comes under development pressure. Granting consent for such land to be developed has implications not just for the developer choosing to accept the risk, but also for Council as the regulator.

Clear guidelines, formal processes and documentation that set out the subsequent obligations of the developer and possible implications for Council, learned with formalising the way that Technical Practice Standards and guidance documents are referenced in the Auckland Unitary Plan will assist consent officers in providing consistent advice and decision-making as to what risks could be acceptable.

<table>
<thead>
<tr>
<th>Expected outcome</th>
<th>Improved decision-making regarding development of land susceptible to known natural hazard risks.</th>
</tr>
</thead>
</table>
| **Links**        | Natural Hazards Risk Management Action Plan Actions 10, 12, 13  
Auckland Civil Defence and Emergency Management Group Plan Action 5  
Auckland Climate Action Framework Key Moves 1 and 3  
National Disaster Resilience Strategy Objectives 2, 13 |
### Implementation Strategy
- Establish a working group between the Council departments responsible for providing technical advice and guidance and the resource consent team to review existing documentation and prioritise improvements or new guidance.

**Timeframe**: Improvement Plan by December 2020

### (12) Ensure that Auckland Unitary Plan rules addressing natural hazard risk are supported by accurate and accessible information for developers and regulatory staff

**Description**: Data and information are a key component of the consenting process. With respect to natural hazard management, it is essential that the information used by regulatory staff is adequate as well as reliable, to allow an application to be processed.

**Expected outcome**: The consenting process is supported by easily accessible, accurate and verified data that enables the risk of natural hazards to be addressed and relevant conditions to be included in the consent.

**Links**
- Natural Hazards Risk Management Action Plan
- Action 6, 7, 10, 11, 13: Develop a natural hazard management toolbox
- Auckland Civil Defence and Emergency Management Group Plan
- Action 5
- Auckland Climate Action Framework
- Key Move 1
- National Disaster Resilience Strategy Objectives 4, 15

**Implementation Strategy**
- Collate, aggregate and align the natural hazard data, advice and guidance available to resource consent staff. Create a framework to monitor, review and refresh this information regularly as required.

**Timeframe**: Ongoing

### (13) Develop a natural hazard management toolbox for regulatory staff managing consent applications

**Description**: Natural hazard management is a specialist area, and, in some cases, regulatory staff may require the assistance of a specialist during the consent process. Clear guidance on when specialist support is required and (among other things) how to assess site-specific natural hazard issues or develop appropriate consent conditions for natural hazard risks will facilitate the implementation of appropriate risk reduction and resilience-building measures.

**Expected outcome**: Improved integration of natural hazard management considerations into the consenting process.

**Links**
- Natural Hazards Risk Management Action Plan
- Action 11, 12, 14
- Auckland Civil Defence and Emergency Management Group Plan
- Action 5
- Auckland Climate Action Framework
- Key Move 1
- National Disaster Resilience Strategy Objectives 4, 5

**Implementation Strategy**
- Create a working group of technical and consenting staff from the I&ES and Resource Consents to review existing guidance documents and create a work programme of new guidance and technical standards.

**Timeframe**: By June 2021

### (14) Investigate mechanisms to facilitate consenting for projects aimed at reducing and managing natural hazards

**Description**: Resilient infrastructure is an important factor in reducing natural hazard risk. In general, the planning rules for the replacement or repair of infrastructure are more permissible than for new or replacement infrastructure that is upgraded. This can present barriers to infrastructure providers seeking to improve their...
assets, in terms of project cost and time required to obtain consent and implement the project. Where there are potential gains in terms of risk reduction associated with an infrastructure project, recognition of the beneficial nature of these projects through improved and streamlined consenting requirements would incentivise such improvements.

<table>
<thead>
<tr>
<th>Expected outcome</th>
<th>Increased uptake of opportunities to improve existing infrastructure.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Links</td>
<td>Natural Hazards Risk Management Action Plan Actions 13, 20</td>
</tr>
<tr>
<td></td>
<td>Auckland Civil Defence and Emergency Management Group Plan Action 20</td>
</tr>
<tr>
<td></td>
<td>Auckland Climate Action Framework Key Moves 1, 3</td>
</tr>
<tr>
<td></td>
<td>National Disaster Resilience Strategy Objectives 4, 15</td>
</tr>
<tr>
<td>Implementation</td>
<td>Review current consenting mechanisms for projects aimed at reducing natural hazard risk and work across Council departments to understand what can be done within the current frameworks to encourage or assist these projects.</td>
</tr>
<tr>
<td>Strategy</td>
<td>By December 2021</td>
</tr>
</tbody>
</table>

### Build an information loop between resource consenting and natural hazard risk and vulnerability data, including reporting on new developments in risk zones

<table>
<thead>
<tr>
<th>Description</th>
<th>At present, new developments into known hazard zones are not considered from a cumulative effects perspective. This has a potential impact on the planning of response, and on the communication of risk to those newly into an area.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expected outcome</td>
<td>A mechanism to involve Emergency Management in significant future decision making which will result in increased population and assets into known hazard areas (flood plains, inundation zones, tsunami zones), to quantify the additional risk, and enable AEM to update any significant hazard response planning.</td>
</tr>
<tr>
<td>Links</td>
<td>Natural Hazards Risk Management Action Plan Actions 2, 29</td>
</tr>
<tr>
<td></td>
<td>Auckland Civil Defence and Emergency Management Group Plan Actions 5, 10</td>
</tr>
<tr>
<td></td>
<td>Auckland Climate Action Framework Key Moves 1, 3</td>
</tr>
<tr>
<td></td>
<td>NDRS Objective 1</td>
</tr>
<tr>
<td>Implementation</td>
<td>Resolve with Regulatory a means of identifying development applications in hazard zones, and develop a practice note on how to achieve this.</td>
</tr>
<tr>
<td>Strategy</td>
<td>Develop a reporting approach, with RIMU, to capture annual growth into known hazard zones. As part of developing more specific area-based response plans and community resilience plans, include a mechanism to include reported new developments and businesses into plan updates.</td>
</tr>
<tr>
<td>Timeframe</td>
<td>Commence February 2020</td>
</tr>
</tbody>
</table>

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**Attachment A**

**Item 10**
12.4 Asset management

12.4.1 Goal

Public infrastructure (built and natural) is resilient, well maintained and performs effectively during and after natural hazard events, so that the risks from natural hazards are reduced and managed.

12.4.2 Existing activities

Auckland Council are required by law to prepare asset management plans (AMPs) and to manage all public assets prudently and efficiently. AMPs exist for most of Council’s assets, which extend out to up to 100 years, much longer than the minimum required by the Local Government Act. Council departments also prepare risk registers for their assets and operate in accordance with Enterprise Risk Management Frameworks. Most, but not all of these documents address the risk of natural hazard events to some extent, although not always explicitly. Some assets are designed to resolve natural hazard effects, such as stormwater or coastal infrastructure, to a certain level, whereas other assets simply have to be designed or managed to withstand impacts. Substantial work is underway to understand the criticality and vulnerability of assets, which includes vulnerability to the BAU natural hazards.

Auckland Council recognises natural assets, including taking specific account of their capital value which allows them to be managed as physical assets. It has programmes to strengthen resilience of the natural hazard base through increasing biodiversity and managing pollutants and predators.

Auckland Council also contributes to natural hazard risk management through targeted readiness and resilience initiatives including a workplan to improve Marae assets, asset sustainability initiatives and the use of Council assets during emergency events.

Auckland Council’s Coastal Management Framework (2017) was developed to provide a consistent approach to coastal asset and hazard management activities across the Auckland Region. The Framework sets out a range of key principles and best practice tools, including a standardised approach to coastal asset condition assessments. Following the adoption of the Coastal Management Framework, a work programme of Coastal Management Plans has been developed to consider the sustainable, long term management of our coasts and the implementation of dynamic adaptive pathways over time,

New stormwater initiatives such as understanding and separating risk to life and property, bring a much clearer understanding of natural hazard risk, which may be possible to implement across other risks over time.

All Council built assets are designed to meet or exceed Building Code Standards, which are government-led minimum standards to ensure that buildings are fit for purpose and resilient. Council also prepare a wide range of asset management related technical documents, such as:

- Codes of Practice, which set minimum standards for Council-owned infrastructure. The standards specifically address resilience to natural hazards, through defining service level performance.
- Technical Guidance documents, which describe technical approaches to providing for natural hazard management and risk reduction/mitigation in the planning, design and construction of infrastructure.
12.4.3 Considerations

Coastal Management Plans will capture coastal inundation and erosion risk, along with the ongoing effects of sea-level rise across each large scale coastal “cell” in the Auckland Region. The plans will culminate in recommended options to avoid and mitigate coastal hazards over time. The development of coastal plans is underway and is being undertaken through a rolling programme considering the scale of the Auckland coastline.

There is an opportunity to lead resilience-building initiatives in Council assets, driven through utilising hazard-related projects as a lever to define and build local community resilience. Similarly, the climate change mitigation plans are promoting the use of renewable resources which is strongly aligned with increasing resilience.

Because of the longer timeframe adopted for asset management at Council, there is scope for greater understanding of low probability, high impact hazards in asset management, particularly those with defined impact areas such as tsunami. There is also the opportunity to align asset critically with understanding of natural hazard effects.

Although lifeline utility work has focussed on high impact hazards, including volcanic ash, at operational levels, not all asset management plans explicitly address natural hazard risk and its implications for managing Council assets and infrastructure. It is not clear therefore how much of our asset performance is at risk from natural hazard impacts.

12.4.4 Actions

(16) Specifically address natural hazard risk including climate change effects, risk reduction measures and resilience in the next iteration of asset management plans (AMPS)

| Description | Council maintain Asset Management Plans that describe the assets in public (Council) ownership, their value, how these assets are maintained and renewed and what assets are to be constructed over the long term. At present, the extent to which these AMPs address natural hazard risk and risk reduction and/or mitigation planning is unclear. |
| Expected outcome | All AMPs for Council assets provide for natural hazard risk reduction, mitigation and infrastructure resilience in a consistent manner, with clear costs. |
| Links | Natural Hazards Risk Management Action Plan Actions 2, 6, 8 Auckland Civil Defence and Emergency Management Group Plan Action 5 Auckland Climate Action Framework Key Move 4 National Disaster Resilience Strategy Objective 5 |
| Implementation Strategy | Complete a ‘stocktake’ of Council’s AMPs to identify common elements and gaps, as a precursor to the next iteration of AMPs. Develop guidance for incorporating natural hazard risk in future AMPs and facilitate a consistent approach across Council and its CCOs. A key component of this work is the asset criticality criteria that are being developed currently. |
| Timeframe | Stocktake by June 2020 |
(17) Improve our understanding of the economic impact of natural hazards on Auckland Council assets

Description
To support a full understanding of the economic impact of natural hazards, review natural hazard damage assumptions and costs for repair/replacement of critical assets. Develop steps to increase resilience of key assets, where there is a clear economic or emergency response case.

Expected outcome
Critical assets are identified and managed for long term natural hazard risk.

Links
Natural Hazards Risk Management Action Plan Action 16, 33
Auckland Civil Defence and Emergency Management Group Action Plan Action 19
Auckland Climate Action Framework Key Move 1
National Disaster Resilience Strategy Objective 6

Implementation Strategy
Work with asset owners and utilities on critical asset damage impacts and align with post-disaster requirements including refuge requirements.

Working with asset owners, risk and financial teams, develop high level replacement and resilience costings.

Feed outcomes into overall economic impact assessments.

Timeframe
Scope by February 2020

(18) Formalise Council’s approach to the consenting and vesting of assets that are likely to be affected by natural hazard events

Description
As part of land development, Council receives a large number of assets built by the land developers every year. These assets include stormwater systems and devices, parks and reserves and coastal structures. Once these assets have been transferred to Council ownership through a vesting process, Council becomes financially responsible for their ongoing management and replacement. In some cases, such assets could impose a considerable financial burden on the community as they are susceptible to significant natural hazard risk, for example a coastal structure that is threatened by coastal erosion. There needs to be a clear mechanism for assessing these risks.

Expected outcome
A reduced number of future Council-owned assets that require excessive maintenance or are potentially subject to loss, such as coastal structures being affected by coastal erosion.

Links
Natural Hazards Risk Management Action Plan Action 15, 16, 17
Auckland Civil Defence and Emergency Management Group Action Plan Action 19
Auckland Climate Action Framework Key Moves 3 and 4
NDRS Objective 5

Implementation Strategy
Assess and develop clear guidelines that assess the future natural hazard risk of assets intended to be transferred to Council will enable Council.

Timeframe
By June 2021

(19) Explore our risk-based approach to asset management service-level agreements

Description
In their roles as asset owners and service providers, Auckland Council departments have specified ‘Levels of Service’ (LoS) for the performance of infrastructure assets. In some cases, the existing LoS were set some time ago and are not compatible with a risk-based natural hazards management approach, or the new regulatory framework of the Auckland Unitary Plan.
Item 10

Natural Hazards Risk Management Action Plan (NHRMAP)

Page 111
12.5 Emergency management, readiness, response and recovery

12.5.1 Goal

The Auckland Civil Defence and Emergency Management Group, Auckland Council and all Aucklanders understand and are prepared for natural hazard events, can respond fast and effectively to an emergency and recover quickly after an event.

12.5.2 Existing activities

Auckland Council works with the wider Auckland CDEM Group through the Coordinating Executive Group and Auckland Emergency Management on building the capacity and capability of the region across the 4 R’s of emergency management, underpinned by resilience. A recent organisational change has focussed on the three key areas of response and recovery, resilience building in our communities and raising internal and external capability including raising of public awareness.

Auckland Council is committed to leveraging the resources across the organisation to plan for and exercise for response. Over 300 Auckland Council volunteers have been trained as function leads or Emergency Staff (ACES) for use in the Auckland CDEM Group Emergency Coordination Centre to support Auckland Emergency Management career staff during the response to emergency events. Auckland Emergency Management provides training to these staff through a training and exercise programme based on guidance and systems developed by the Ministry of Civil Defence and Emergency Management. Substantial work has been done to define emergency capability requirements and develop training and exercises to be able to respond to a large-scale event, with an appropriate response management structure.

A cadre of trained controllers now exists, supported by an extremely effective council communications team. Work last year focussed on developing function lead capability in Intelligence, Logistics, Planning, Welfare, Lifelines, Operations and Chief of Staff. A new function of community liaison has been identified.

Auckland Emergency Management is also undertaking a wide range of critical tasks to enhance Auckland’s ability to cope with the natural hazard events that will occur. In particular, work to make hazard data available to the public, through the natural hazards viewer and an updated website, a natural hazards model for schools and broadening the reach for shake out (earthquake) and tsunami hikoi public awareness and planning programmes. This report generates further discussion on hazards generally and on specific hazards.

Auckland Council is building resilience through strengthening the organisation’s business continuity and emergency response plans in key business areas of Council including exercising with business continuity and crisis management planning.

Auckland Emergency Management collaborates with the other organisations of the Auckland CDEM Group to develop operational and response plans and procedures (e.g. the Tāmaki Makaurau Operational Evacuation Plan led by the New Zealand Police), hazard-related plans (e.g. The Auckland Volcanic Field Contingency Plan) and strategic response frameworks such as the “Pathways to Preparedness” recovery framework (in development). CEG working groups have been established to support a shared approach to
planning and responding. Recent work has included desktop exercising of response to a specific hazard, e.g. tsunami.

The Auckland Lifelines Group has worked with (DEVORA) DEtermining Volcanic Risk in Auckland Programme to understand volcanic risk and plan for utility responses, to follow on from critical asset planning. This work is then integrated into our lifeline utility coordination planning. The Auckland Welfare Group has published the Auckland Welfare Group Plan and work is underway on subfunction plans which also focusses on defining how we work together across the wider emergency sector to look after those affected by disasters.

12.5.3 Considerations

Over the past three years, Auckland has experienced a number of hazard events and a number of learnings have been adopted and implemented or are underway. Considerations in this report include some of the recommendations or findings that are currently being acted on. In addition, natural hazard events elsewhere in New Zealand have provided learnings to this Group.

Responses have shown the importance of understanding our communities when we are responding to disasters. The Christchurch Shooting resulted in the development of a community liaison role, with a focus on our diverse communities for Auckland. The Nelson Tasman fire utilised iwi liaison extremely effectively, reflecting a recommendation from a recent government review. There is a need to work more closely with mana whenua to determine how best this is implemented in an Auckland response.

The organisational change will enable a focus on resilience building, with communities including business communities, which is addressed in section 12.7. Auckland Council undertakes regular public survey on preparedness, which indicates some anomalies around how well-prepared individuals and families are. This stresses the importance of understanding hazards and impacts, when considering community preparedness and resilience. There is also work at a local and national level needed to continue to build trust and confidence in emergency management, so that people utilise planning and response resources.

Work on the high impact ‘disaster’ hazards is still being developed, to continue to provide more clarity of resilience and response requirements, including the need for localised hazard-specific alerting. There are activities from various parts of Council to define hazards in detail, with the intent to build work programmes around them. The Tsunami work programme, as an example, includes defining hazard zones, aligning national and local alerting approaches and developing a communication and public awareness programme as well as planning for response activities. The programme will also engage the lifelines and welfare sectors in short- and long-term planning.

Information sharing continues to be a challenge across the sector. There are a number of local and national initiatives underway, but the collection, collation and sharing of real time data continues to be a challenge. There is also ongoing organisational change across the sector, resulting in ongoing need to clarify roles and responsibilities and define and improve how we work together. For Auckland, given our scale, there are some specific local to national response and governance considerations, including disaster funding arrangements, that continue to be discussed.

A recent consideration has been the impact on Auckland of disasters elsewhere. The implications of, for example, an alpine fault scenario, will be a significant impact on Auckland populations. A volcanic eruption in
Taranaki would potentially have ash impacts on Auckland. Planning for disasters elsewhere will be a focus for AEM for the next two years.

### 12.5.4 Actions

<table>
<thead>
<tr>
<th>Action ID</th>
<th>Action Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(22)</td>
<td>Continue to develop and improve Auckland Emergency Management capability and capacity through a structured training programme and exercising across the Coordinating Executive Group.</td>
</tr>
<tr>
<td>Description</td>
<td>In the event of a large-scale natural hazard emergency, Auckland Emergency Management will play a key coordination role in the Auckland CDEM Group. This action ensures staff and staff training are of the highest quality and there is ongoing opportunity to learn from others, exchange information and train with other groups around New Zealand and internationally across the 4 Rs of emergency management: reduction, readiness, response and recovery.</td>
</tr>
<tr>
<td>Expected outcome</td>
<td>A highly skilled and confident workforce capable of managing and preparing for emergencies across the full spectrum of the 4 Rs of emergency management (reduction, readiness, response and recovery), as well as resilience.</td>
</tr>
</tbody>
</table>
| Links | Natural Hazards Risk Management Action Plan Action 38  
Auckland Civil Defence and Emergency Management Group Plan Actions 13 and 50 to 55 and 80  
National Disaster Resilience Strategy Objective 11 |
| Implementation Strategy | Develop and implement an annual training/exercise calendar for the department that:  
- Provides relevant and targeted training and development opportunities to meet our identified needs;  
- Is delivered by, or in consultation with, subject matter experts;  
- Is carried out in collaboration with partner agencies;  
- Ensures AEM staff can attend conferences and workshops and feedback their learning to the department;  
Is reviewed regularly against clear objectives and key performance indicators. |
| Timeframe | Ongoing |

<table>
<thead>
<tr>
<th>Action ID</th>
<th>Action Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(23)</td>
<td>Work with mana whenua to ensure planning, response and recovery to natural hazard events appropriately includes te ao Māori and mana whenua representation and leadership.</td>
</tr>
<tr>
<td>Description</td>
<td>People are at the forefront of emergency response and recovery and to date there has not been sufficient consideration or inclusion of mana whenua to enable us to have a fully effective plan for managing natural hazard risk. The Independent Māori Statutory Board is represented in the CDEM committee, but there are other opportunities for governance, leadership and alignment of work programmes and outcomes.</td>
</tr>
<tr>
<td>Expected outcome</td>
<td>Mana whenua representation in the Emergency Coordination Centre and Coordinating Executive Group. Te ao Māori embedded in the work of Auckland Emergency Management, including specific relationships with iwi and marae to increase community resilience and response to natural disasters.</td>
</tr>
</tbody>
</table>
| Links | Natural Hazards Risk Management Action Plan Action 41  
Auckland Civil Defence and Emergency Management Group Plan Action 30  
TAG review recommendations 4.1 and 4.2  
National Disaster Resilience Strategy Objective 8  
Auckland Climate Action Framework Key Move 8 |
### Implementation Strategy
Seek guidance from iwi and Council forums, working with te waka anga moa, on principles, objectives and how to implement.

### Timeframe
First meeting early 2020

#### (24) Continue active participation in the Auckland Coordination Groups (ie. The Auckland Lifelines Group and the Auckland Welfare Coordination Group) to continually improve and develop planning for natural hazard response

| Description | During response, Auckland Emergency Management leverages relationships with key lifeline utility and welfare agencies to provide a coordinated response during emergencies. Day-to-day, there are established coordination groups, to facilitate planning and raise risk awareness. Both groups develop response plans and sub group plans and both coordinate with the Ministry of Civil Defence and Emergency Management on national approaches. These groups are an effective vehicle to disseminate best practice knowledge of hazards and to plan for response and recovery. |
| Expected outcome | Good understanding of natural hazard risks, direct and indirect consequences and development of plans for between agencies that have a critical role in risk reduction, preparing for and responding to emergencies. |
| Links | Auckland Civil Defence and Emergency Management Group Plan Actions 14 to 17, 44, 54-58 National Disaster Resilience Strategy Objective 16 |

| Implementation Strategy | Maintain active participation of Auckland Emergency Management within the Auckland Lifelines Group and Auckland Welfare Coordination Group and sub groups, support initiatives and contribute as appropriate. Explore opportunities to provide additional training and support to Auckland Lifelines Group and Auckland Welfare Coordination Group members through the Foundation Course. |
| Timeframe | Ongoing |

#### (25) Continue to develop and improve standard operating procedures, early warning and emergency alert systems across the region to reduce the exposure of people and key response networks to the impacts of natural hazards

| Description | Auckland is exposed to a range of natural hazards, which may occur with varying warning or lead-up time. Building and maintaining effective warning and alerting systems may help protect lives and reduce the impact of natural hazard events by allowing residents of the region to take steps to mitigate their own risk and allow strategic partners to effectively prepare for the event in advance. An effective warning and alerting system will enhance community resilience without creating a dependence on the system itself and be supported by effective cross partner response frameworks. |
| Expected outcome | Effective and resilient public alerting networks and best-practice standard operating procedures that allow for timely and coordinated warning and response to natural hazard emergencies. |
| Links | Natural Hazards Risk Management Action Plan Action 15, 26 Auckland Civil Defence and Emergency Management Group Plan Actions 61 to 63 Auckland Climate Action Framework Key Move 7 National Disaster Resilience Strategy Objective 12 |

| Implementation Strategy | Develop and maintain a series of agreed standard operating procedures for key hazards in the Auckland region informed and supported by research and strategic partners through the Coordinated Executive Group. Develop a timeline for their revision and renewal. Update the Emergency Alerting Strategy as follows: |
| | - Investigate ways the current warning and alerting systems of Auckland can be enhanced or improved as appropriate, aligned with national initiatives and improved prediction information |
Attachment A

Item 10

28 August 2019

NATURAL HAZARDS RISK MANAGEMENT ACTION PLAN

- Investigate how these systems can be supported by community resilience initiatives.
- Work with asset owners in flooding and coastal areas to develop a "resilient communities" approach.
- Seek funding through the next LTP

Timeframe: Ongoing

(26) Utilise our increased understanding of natural hazard risk envelopes to develop more specific data for response planning and recovery, and work to enhance data sharing across the sector

Description:
The development of a single shared platform for spatial data, with all hazard risk zones is vital for land use planning and development, asset planning and response and recovery planning. Sharing data with our strategic and response partners will aid in the understanding and coordination of activities across the 4 R’s of emergency management and particularly during response.

A situational awareness viewer will provide a single source of verified intelligence in the Auckland Emergency Management Emergency Coordination Centre. It will allow all response functions and partner agencies to have access to the same information in live time (or close to live time) to inform effective and evidence-based decision making. It will also significantly aid development of evacuation zones, planning of welfare responses and improved risk management for a range of predictable hazards.

Expected outcome:
- Improved data and greater situational awareness in the Emergency Coordination Centre of Auckland
- Emergency Management to inform decision-making and coordination.

Links:
- Natural Hazards Risk Management Action Plan Action 15, 29
- Auckland Civil Defence and Emergency Management Group Plan Action 60
- Auckland Climate Action Framework Key Move 1
- National Disaster Resilience Strategy Objective 12

Implementation Strategy:
Utilise and update the Hazards Viewer.

There are specific projects already identified to improve data sets on risk – develop a prioritised programme to prepare for localised responses, in alignment with community resilience plans as well as SCPs.

Collaborate with the Auckland Council Geospatial Team and CEG partners to create an operational situational awareness viewer that is based on initial national guidelines and able to be upgraded once national standards are finalised.

Timeframe: SAV by December 2019, work programme by June 2020.

(27) Continue to develop and integrate Recovery networks, processes and planning into emergency management

Description:

Recovering from the consequences of a disaster can be complex, especially at large scale. Launching, implementing and managing a recovery involves collaboration and working through networks of networks, across the social, built and economic recovery environments.

Establishing what is needed, identifying solutions, prioritised and integrating action planning, marshalling and managing resources, delivering projects and works to achieve desired outcomes requires multiple agencies, their workers and contractors and communities to work together in an integrated way.

Expected outcome:

"Auckland's people, communities, businesses and infrastructure are well placed to recover from disaster" - Vision from Pathways to Preparedness: Recovery Planning (Section 2)

Achieving this vision for recovery preparations means Auckland will be better able to launch and manage an effective recovery, including taking advantage of opportunities to reduce or mitigate hazards.
| Links | National Disaster Resilience Strategy Objective 17  
Auckland Civil Defence and Emergency Management Group Plan Actions 62-72b |
|-------|---------------------------------------------------------------------|
|       | Addressing the actions for recovery identified in the Auckland CDEM Group Plan (62-72b) and Section 3 (Actions) of Pathways for Preparedness: Planning For Recovery.  
Subject to the outcomes of these actions and any community engagement in the interim, the work we undertaken and the way we go about it in addressing the consequences of an emergency event will be guided by the Community Values and Community Priorities identified in Section 2 of the Pathways to Preparedness document.  
Building on work already underway to better recovery from the consequences of an emergency event the medium-term focus is to ensure recovery is understood and communicated, capacity and capability is available, and collaboration is supported.  
This involves a range of activities including establishing and maintaining a pool of potential Task Group members across the natural, social, built and economic environments, taking opportunities to engage Auckland’s communities on engagement and weaving recovery more effectively into Auckland’s CDEM Group work programme across reduction, readiness, response and resilience. |
| Timeframe | Ongoing |
12.6 Knowledge and research

12.6.1 Goal

Auckland Council has accurate, up-to-date and region-wide data and information on natural hazards to support informed decision-making, risk reduction and resilience building, and decision making is aligned with national and international good practice and innovations.

12.6.2 Existing activities

Council’s current knowledge base covers a wide range of natural hazard data and information and the relevant departments within Council are actively working with other organisations to expand this information in meaningful ways and ensure it is integrated and available across the organisation. One example of this is the Natural Hazards Research Plan, which pools funds from Auckland Emergency Management, Engineering and Technical Services and the Research and Evaluation Unit to fund a 10-year risk-based research plan, currently in year three, to consistently improve natural hazard risk information. This is developing improved data on landslide risk at present.

In addition to the above, the Healthy Waters Unit funds a significant amount of research and probabilistic modelling of catchment flooding. Engineering and Technical Services (ETS) is updating existing coastal inundation modelling and undertaking new coastal erosion modelling across the Auckland Region. Auckland Emergency Management and ETS are enhancing tsunami risk zone modelling. The Sustainability Office has commissioned comprehensive NIWA research on climate change effects.

RIMU undertakes extensive research on Auckland’s population and environment. They have also recently undertaken exposure assessments of climate change impacts in Auckland. As a result, there is a published body of existing reports and geospatial datasets for the Auckland Region.

Auckland Council actively participates in several Special Interest Groups (SIGs) including the Hazard Management SIG, the Coastal SIG and the Land Management SIG. The SIGs bring practitioners and technical experts together from territorial authorities, the public and private sectors to discuss topical issues, share knowledge, strategy or plans and make group submissions to national policy reviews or contestable funds.

Council is also active in the National Science Challenges, particularly the ‘Resilience to Nature’s Challenges’ and ‘Deep South’ Challenges. It also supports academic institutions (e.g. The University of Auckland) and cross-sector research groups (e.g. QuakeCoRE, the Earthquake Centre of Research Excellence) through co-created research and programmes (e.g. the DEtermining Volcanic Risk in Auckland – DEVORA programme and PhD programmes).

12.6.3 Considerations

The main issues associated with Council’s current knowledge base of natural hazard information were identified in the recent deep dive on climate change risk. These are:
Availability: Council has good and reliable data on some natural hazards (for example, coastal inundation, floodplains and tsunami evacuation zones) less or no information on others.

Accessibility: Of the information that is available, not all of it is readily accessible. Information is held by different parts of Council and is not always generally known. In particular, information from the regulatory and consenting processes is not always available in a useable or otherwise reliable.

Quality: The accuracy and reliability of some of natural hazard information is uncertain, outdated or otherwise unreliable.

Coverage: Natural hazard data does not consistently cover the entire region to the same quality and degree.

Knowledge resides not only in documents and data systems, but also in people. Council staff with specialist knowledge of natural hazards are spread throughout the organisation, without a clear mandate for improving Council’s natural hazard knowledge base or managing the existing information for the purpose of improving natural hazards management overall and building resilience.

The management of natural hazards is also supported nationally as a community of practice, making collaboration with and learning from, other territorial authorities and civil defence groups an important aspect of knowledge development. Ensuring the right people are at the table at SIGs and the Science Challenges, representing the wide interests of Council, is essential.

12.6.4 Actions

28 Continue to progress an agile 10-year Natural Hazards Research Plan that reflects Council risk priorities

Description

The Natural Hazards Research Plan is a stocktake of the existing natural hazard data and other information currently held by Auckland Council, considering its age, coverage, accuracy and data format as well as other relevant data management aspects. It provides a gap analysis and identifies research targets for the next 10 years, prioritised by risk. Funding and potential partnerships with other organisations are also addressed.

Expected outcome

Improved availability of data. Research is focused on the natural hazards that present the greatest risk and fills real (rather than perceived) information gaps. Duplication of research effort is avoided through partnering and information exchange with others.

Links

Natural Hazards Risk Management Action Plan Action 6, 29, 31, 33
Auckland Civil Defence and Emergency Management Group Plan Action 12
Auckland Climate Action Framework Key Move 1
National Disaster Resilience Strategy Objective 1

Implementation strategy

A research fund has been developed, jointly funded by Auckland Emergency Management, the Research and Information Monitoring Unit and Engineering and Technical Services. Continue meeting quarterly to discuss and develop risk research needs and develop and implement the collaborative, risk-based research plan.

Timeframe

Ongoing

28 Prioritise the collating and aggregating of natural hazard data in a visual (geospatial) format to facilitate sharing

Description

There is a large quantity of data (including geospatial data) relating to natural hazards that is managed and maintained by different departments across Council for different purposes. This includes legacy datasets
from before the amalgamation of Council which may be in different formats or only available in hard copy (i.e. catchment-scale maps and information for every waterway in Auckland held by Healthy Waters). Digitising, collating and aggregating this information, housed, managed and maintained by a single department, or using an agreed management strategy will allow all of Council to have access to the information.

**Expected outcome**

All of Council has access to the most up-to-date and accurate information, ensuring decision making and plans are based on the same level of understanding.

**Links**

Natural Hazards Risk Management Action Plan Action 28, 30, 31
Auckland Climate Action Framework Key Move 1
National Disaster Resilience Strategy Objective 1, 12

**Implementation Strategy**

Work in conjunction with the Geospatial Team to align and aggregate geospatial information from different departments across Council. Develop management plans and agreements to maintain, update and review the information as appropriate.

**Timeframe**

December 2021

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### (30) Develop a Natural Hazards Data Management Manual

**Description**

The usefulness and reliability of data is dependent on its format and ongoing data management. In Auckland, much of the available natural hazards data is in different formats and is otherwise inconsistent. A data management manual would establish a consistent data format, especially for GIS use, update and review requirements (including how often information should be updated), as well as verification and quality control procedures.

This can build on work completed through the Environmental Reporting Act (2015) and National Environmental Monitoring Standards and align to natural hazard impacts.

This project will be carried out in conjunction with other Councils around New Zealand.

**Expected outcome**

Improved accuracy and reliability of natural hazards data and information.

**Links**

Natural Hazards Risk Management Action Plan Action 29, 31
Auckland Climate Action Framework Key Move 1
National Disaster Resilience Strategy Objective 3

**Implementation Strategy**

Work with data management specialist across Council and nationally to develop guidelines and standards for the terminology, standards and management protocols of data (including geospatial data) across Council.

**Timeframe**

Completed by December 2020

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### (31) Formalise the Auckland Council Natural Hazards Specialist Group that works across data researchers and end users, to build collaboration and information networks

**Description**

Natural hazard management requires many specialist skills including science, engineering, communications, policy development and emergency management. Expanding on the already existing 'community of interest' group, a team of specialists will be responsible for ensuring that decision-making in natural hazard management is integrated across Council (and its CCOs), consistent and long-term.

**Expected outcome**

Natural hazard management is coordinated as a key issue across Council by collaboration and information sharing across a dedicated team of specialists.
### Item 10

<table>
<thead>
<tr>
<th>Description</th>
<th>Ensure Auckland is represented and involved at the national-level in research and innovation sharing for the management of natural hazard risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>As the largest territorial authority administering the largest and most diverse population in the country, Auckland Council needs to ensure continued representation at a national level in the national conversation regarding the management of natural hazard risk. We should not only ensure that the interests of the diverse Auckland communities are represented, but we can learn from our colleagues who live in much more active hazard zones and use learnings from their work in our plans and processes. We can also support our colleagues as part of a natural hazard risk management community of practice to strengthen CDEM and natural hazard risk management capacity and capability nationally. As the largest territorial authority in the country, we also have access to resources and reach that others do not and can use our size to leverage positive national outcomes for other regional authorities.</td>
</tr>
<tr>
<td>Expected outcome</td>
<td>Auckland is seen as a strong participant in the national development of natural hazard management strategy and the interests of the Auckland region are represented in</td>
</tr>
<tr>
<td>Implementation Strategy</td>
<td>There are a number of ways Auckland Council can continue national involvement and representation in natural hazard risk management discussions including ensuring continued participation in:  - SIGs  - National Science Challenges  - National working groups (for CDEM and other national policy)  - National policy reviews  - Regional plan and policy reviews and working groups These should be reviewed for ongoing effectiveness and value to Auckland.</td>
</tr>
<tr>
<td>Timeframe</td>
<td>Ongoing, with annual review</td>
</tr>
</tbody>
</table>

### Item 33

<table>
<thead>
<tr>
<th>Description</th>
<th>Improve our understanding of the economic impact of natural hazards on Auckland, to help inform decision-making</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>The economy of Auckland is both diverse and spatially varied. While this diversity can be a benefit during large-scale emergency events, it makes the understanding of the economic impact that these events would have on Auckland a challenge to understand. While some businesses and enterprises have been found to be remarkably adaptable after past large-scale natural hazard emergencies (i.e. the earthquakes in Canterbury in 2010 and 2011), the unique characteristics of the growing Auckland economy mean this may not directly translate to our region.</td>
</tr>
</tbody>
</table>
While tools such as RiskScape and MERIT can be used to calculate the potential impact of events on the economy, they fail to take into account the reversed perspective, that is, how the loss of the utility of an area will impact the region as a whole.

<table>
<thead>
<tr>
<th>Expected outcome</th>
<th>Prioritisation of funds, plans and resources are guided by an understanding of the economic impact of natural hazards to Auckland.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Links</td>
<td>Natural Hazards Risk Management Action Plan Action 17&lt;br&gt;Auckland Civil Defence and Emergency Management Group Plan Action 19&lt;br&gt;Auckland Climate Action Framework Key Move 1&lt;br&gt;National Disaster Resilience Strategy Objective 6</td>
</tr>
<tr>
<td>Implementation Strategy</td>
<td>Work with the office of the Chief Economist and RIMU to determine an appropriate strategy to translate the assessed spatial impacts of natural hazards into the economic impact on our communities. This may include mapping the risk assessments developed as part of the Action Plan against the identified key economic drivers in an area and incorporating tools such as RiskScape and MERIT as they are further developed. It will also include working with asset owners and utilities on critical asset damage costs and impacts and with government agencies on societal costs.</td>
</tr>
<tr>
<td>Timeframe</td>
<td>Scope by February 2020</td>
</tr>
</tbody>
</table>
12.7 Communication, education and community resilience-building

12.7.1 Goal

Aucklanders are well informed about natural hazards and risks and have the tools, support and information needed to participate in managing their risks and building resilient communities.

12.7.2 Existing Activities

Communication and public education on natural hazards is primarily led by Auckland Emergency Management, however communication on impacts - including how climate change exacerbates natural hazard risk - is also undertaken by other Council departments. In particular, stormwater flooding hazard is communicated by Healthy Waters, and slope stability, coastal inundation and coastal erosion is communicated by Engineering and Technical Services and Community Facilities.

Auckland Emergency Management produces a wide range of information material across various public facing platforms and is currently developing a collaborative Communication and Public Education Strategy with partner agencies, which will align with other council communications on natural hazards. Auckland Emergency Management also works closely with the Ministry of Civil Defence on public education initiatives and community engagement activities (such as the National Shake Out campaign) and has a community resilience building programme which includes a range of community-driven initiatives.

With respect to public information and communication, Auckland Emergency Management undertakes regular media campaigns such as the 'summer storm campaign' which ran throughout January 2019 to help Aucklanders form greater awareness of tropical storm preparedness during the early summer months. Radio advertising was run across all major radio stations advising people how to prepare for wet and windy conditions and Auckland Emergency Management launched a digital advertising campaign using short animated videos to remind the public how to prepare.

As part of Auckland Emergency Management’s approach to public education there is a commitment to ensuring education is targeted to meet diverse needs. This has included collaborating with the Ministry of Pacific Peoples, leveraging off various Pacific Language Weeks to promote the use of translated hazard, risk and emergency preparedness messages and initiating a process to ensure community input into the development of new resources. It has also included running a pilot project with wheel chair users to provide, relevant, appropriate and accessible tools for people with mobility challenges.

Auckland Emergency Management’s public education work is also closely connected to community resilience building initiatives. These initiatives are targeted at communities (place, interest, or population based) who are likely to be adversely affected by the impacts of emergency events. Outcomes include the development, co-design, implementation and evaluation of projects and activities that build understanding of the impacts of hazards on various parts of the community, identify risk mitigations that individuals or groups can do and strengthen of community and business resilience.

A recent innovation, working with Healthy Waters and Engineering and Technical Services is the Resilient coastlines, catchments, communities project (RC3). This proposes to incorporate community resilience considerations into natural hazard risk improvement projects, to help the affected community understand the
hazard frequency and risks to life and property, and to ensure resilience building measures and public awareness raising are part of any solution. The process is currently being developed.

To ensure that information on hazards is easily available, this year Auckland Emergency Management launched its new website with the intent of making information accessible and engaging. The website provides access to the newly developed Natural Hazards Viewer which offers people a way of searching natural hazards in their area by address. This brings together all the knowledge on natural hazard risk areas into an easy to use, searchable site.

12.7.3 Considerations

Communication and engagement activities relating to the 4-Rs of emergency management and the fifth R of ‘resilience’ are a key component of Auckland Emergency Management’s work. The Auckland CDEM Group Plan proposes a range of actions aimed at improving the existing engagement with communities.

Considerations include:

- Additional community engagement and education is needed to build community understanding of how hazards might impact them and enable individuals and groups to plan and prepare.
- More public information material should be available in languages other than English, and with people with different sight or hearing requirements, targeted at different age groups, to ensure public information is suitable for all Aucklanders.
- Some hazards impact with little or no warning. Consideration of how to communicate this, and how to communicate warnings for specific hazards to achieve a resilient community response.
- Communication tools and methods for emergencies should be reflective of the diversity of Auckland communities.
- Developing messaging resources that can be implemented quickly
- Messaging that is adapted to be fit-for-purpose for Auckland’s hazards and communities.
- Communication that is effective across different scales (i.e. regional vs. national impact).

12.7.4 Actions

| (34) Maximise opportunities provided by website and social media platforms to provide and enhance public knowledge and preparedness before, during and after emergency events in Auckland |
| Description | Continue to upload and manage new website resources, alongside Auckland Emergency Management’s social media platforms, to provide advice, guidance and suggestions on how to build resilience and prepare for the impacts of natural hazards at home, work and in the community. Explore how digital media can be used to disseminate warnings, information and guidance during an emergency. |
| Expected outcome | A connected, well informed and knowledgeable Auckland community that actively seeks out and uses information on AEM platforms to prepare for, manage and recover from emergency events. |
| Links | Natural Hazards Risk Management Action Plan Actions 29, 35, 37  
Auckland Civil Defence and Emergency Management Group Plan Actions 20 to 24  
Auckland Climate Action Framework Key Move 1  
National Disaster Resilience Strategy Objectives 13, 14 |
### Implementation Strategy

Ensure that the content on these platforms aligns and reflects the Communication and Public Education Strategy and incorporate digital strategies into engagement planning.

- Raise and promote awareness of the digital tools, through focussed campaigns, and develop measures of effectiveness of uptake and delivery.
- Continuously review online content to identify areas of improvement.
- Seek customer and partner feedback on successes and improvements.

### Timeframe

Ongoing

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### (35) Continue to support existing, and develop new and innovative, emergency management hazard, consequence and response, information and engagement tools

#### Description

Today's fast-moving technology provides many opportunities to engage people in understanding their risks and to disseminate information appropriate for and responsive to, diverse social, economic and cultural needs. One example is the 'Hazards' smartphone app provided by the NZ Red Cross. Another is the augmented reality disaster game aimed at children and being prepared for release during Get Ready Week 2019.

Using emerging technologies and employing innovative and engaging approaches, Auckland Emergency Management will maximise engagement and messaging opportunities both in and out of emergency response (e.g. website chat-bot technology). Additionally, AEM will actively seek out new opportunities for innovation and collaboration at a national level and with partner agencies and other CDEM Groups.

#### Expected outcome

A connected, well informed and knowledgeable Auckland community that actively uses natural hazard information to prepare for and manage emergencies caused by a natural hazard event.

#### Links

- Natural Hazards Risk Management Action Plan Actions 34, 37
- Auckland Civil Defence and Emergency Management Group Plan Actions 20 to 24
- Auckland Climate Action Framework Key Move 1
- National Disaster Resilience Strategy Objective 13

#### Implementation Strategy

- Develop a digital engagement element of the communication and public awareness strategy, working with the Innovation team, Healthy Waters, and welfare agencies to identify needs and scope possible digital solutions.
- Maintain representation on MCDEM information sharing and software initiatives, to ensure effective Auckland implementation of national standards, and to share innovations and successes.

#### Timeframe

Ongoing

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### (36) Build greater community resilience through engaging strategically about resilience when undertaking infrastructure or community empowerment projects or activities

#### Description

Develop a strategy to embed community resilience into any council activities which engage with communities. This will involve a multi-pronged approach, in collaboration with communities and agencies to co-design and develop:

- Community events
- Campaigns (e.g. Neighbour’s Day and Get Ready Week)
- Workshops
- Resources (including community resilience plans, multi-language resources, hazard advice etc.)
- Funding for community-identified initiatives
Item 10

Natural Hazards Risk Management Action Plan (NHRMAP)
### (38) Develop and implement a comprehensive volunteer programme to resource emergency events, including natural hazard events

**Description**
Well-organised and highly trained volunteers are critical to managing a natural hazard event, as demonstrated during and after the 2011 Canterbury earthquake. In Auckland, any large-scale emergency response must be able to rely on volunteer contributions because of the size and population density, both for Council response and for community response and resilience.

**Expected outcome**
A network of capable volunteers who can assist either their local communities or the Auckland CDEM Group to respond effectively in an emergency.

**Links**
- Natural Hazards Risk Management Action Plan Action 22, 37
- Auckland Civil Defence and Emergency Management Group Plan Actions 25 to 27
- Auckland Climate Action Framework Key Move 7
- National Disaster Resilience Strategy Objective 10, 11

**Implementation Strategy**
Develop an external volunteer framework that includes:
- Highly trained response teams
- Community response plan volunteers
- Existing voluntary organisations
- Businesses and industries
- Spontaneous volunteers

Develop an implementation plan and programme, with reporting milestones.

**Timeframe**
Underway

### (39) Recognise the opportunities of Auckland’s cultural diversity for building community resilience

**Description**
Auckland is rich in cultural diversity and therefore rich in experiences and knowledge of how communities can deal with challenging situations. In fostering the exchange of ideas, information and experience Council can facilitate the development of resilience strategies that leverage the combined knowledge of all Aucklanders to become better prepared for emergencies and the recovery period.

**Expected outcome**
Auckland’s cultural diversity becomes its greatest asset in building community resilience and emergency management.

**Links**
- Natural Hazards Risk Management Action Plan Action 37, 38
- Auckland Civil Defence and Emergency Management Group Plan Actions 29 to 32
- Auckland Climate Action Framework Key Move 1
- National Disaster Resilience Strategy Objectives 14, 18

**Implementation Strategy**
Identify key cultural community groups and develop bespoke communication and engagement strategies. Maintain and enhance existing community networks through community-led engagement and outreach.
Develop agreements and engagement plans for Culturally and Linguistically Diverse communities and ethnic media outlets with guidance and support from Ministry of Civil Defence and Emergency Management.
Develop and implement a robust community interface role for emergency responses, which draws on community understanding and capability.
### Natural Hazards Risk Management Action Plan

#### Item 10

<table>
<thead>
<tr>
<th>Description</th>
<th>Facilitate organisational resilience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timeframe</td>
<td>Commenced 2019</td>
</tr>
<tr>
<td>Expected outcome</td>
<td>Auckland's businesses and organisations are prepared for an emergency and able to maintain operations to the greatest extent possible. Businesses recover quickly and facilitate broader community recovery.</td>
</tr>
<tr>
<td>Links</td>
<td>Natural Hazards Risk Management Action Plan Action 1, 3, 4</td>
</tr>
<tr>
<td></td>
<td>Auckland Civil Defence and Emergency Management Group Plan Actions 33 to 34</td>
</tr>
<tr>
<td></td>
<td>Auckland Climate Action Framework Key Move 6</td>
</tr>
<tr>
<td></td>
<td>National Disaster Resilience Strategy Objectives 2, 13</td>
</tr>
<tr>
<td>Implementation</td>
<td>working with the partnerships team, key networks (including via procurement teams) and key suppliers,</td>
</tr>
<tr>
<td>Strategy</td>
<td>develop an outreach plan for Auckland business groups.</td>
</tr>
<tr>
<td>Timeframe</td>
<td>Commence November 2019</td>
</tr>
</tbody>
</table>
12.8 Partnerships

12.8.1 Goal

Auckland Council works in partnership with mana whenua, other councils and public bodies (including Local Government New Zealand), central government, infrastructure and service providers (through the Auckland Lifelines Group), the private sector and non-governmental organisations (NGOs), including education and research organisations to build and maintain resilience to natural hazard events.

12.8.2 Existing activities

Council already works with a large number of organisations to identify opportunities for natural hazard risk reduction, resilience building and increasing public awareness and knowledge. Specific examples of such collaboration are the Auckland Lifelines Group and participation in the Hazard Risk Management Special Interest Group. However, there is scope for much more.

12.8.3 Considerations

Cooperation or joint projects with other organisations are not always well integrated or communicated within Council and often limited to one-off projects rather than long-term partnerships. The key issues limiting Council’s alliances and cooperation with other organisations are:

- There is no clear mandate for any one group or department within Council to support the building and nurturing of long-term strategic partnerships for natural hazard management.
- Mana whenua engagement with respect to managing natural hazard events is at an early stage.
- In most cases, collaboration with other agencies is on a project-basis rather than an ongoing commitment to long-term cooperation.
- Partners are not targeted in relation to specific natural hazard outcomes or shared goals.

12.8.4 Actions

| (41) Establish a natural hazard-specific emergency management programme with mana whenua |
| Description | This programme is a long-term research and operational programme that will assist iwi to develop natural hazard risk profiles directly relevant to their role. |
| Expected outcome | All iwi in the Auckland region, specifically those with marae, are knowledgeable, prepared and resourced to successfully manage a natural hazard emergency. |
| Links | Natural Hazards Risk Management Action Plan Action 23, 39  
Auckland Civil Defence and Emergency Management Group Plan Action 31  
Auckland Climate Action Framework Key Move 8  
National Disaster Resilience Strategy Objectives 8, 18 |
| Implementation Strategy | Auckland Emergency Management will contact and work with Auckland’s 19 iwi to develop appropriate iwi response plans and seek to formalise iwi roles in location-specific emergency management activities. |
| Timeframe | By December 2020 |
### (42) Develop relationships with Auckland Council CCOs to create a shared understanding of natural hazard risk and coordinated management response to natural hazards

**Description**
The management of natural hazard risk is not just the responsibility of Auckland Council, but the wider organisation including the Auckland Council CCOs. While many key CCOs are included in the management of natural hazard risk through their involvement in the Auckland Lifelines Group (e.g. Watercare and Auckland Transport), there is currently less alignment of core strategy and planning in the reduction, readiness and response from natural hazard emergency events.

In fact, the management of risk from a hazard may fall to several organisations, for example storm events may require management from Auckland Council, Watercare.

With support from the Coordinating Executive Group, the wider Auckland Council Family can be incorporated into forward planning of risk mitigation strategies and policies and plans aligned across the wider organisation.

<table>
<thead>
<tr>
<th>Expected outcome</th>
<th>Natural hazard risk assessments and action plans are developed jointly across the council group, such that communications, resilience planning and outreach and response and mitigation measures are delivered to Aucklanders seamlessly.</th>
</tr>
</thead>
</table>
| **Links**        | Natural Hazards Risk Management Action Plan Actions 22, 24  
                  Auckland Civil Defence and Emergency Management Group Plan Action 8  
                  Auckland Climate Action Framework Key Move 1  
                  National Disaster Resilience Strategy Objectives 2, 16 |
| **Implementation Strategy** | Expand the Natural Hazards Risk Management Action Plan to include the areas of natural hazard risk management that are led by the CCOs (e.g. Drought in conjunction with Watercare). Ensure that management activities and actions are aligned across the wider council group. |
| **Timeframe**    | To be scoped as part of Phase two |
13.0 Implementation Plan

13.1 Refinement and consolidation of actions

The consultation draft will be used to confirm actions and develop a prioritised work programme with iwi (via the I&ES Kaitiaki Forum as a starting point) and across Auckland Council functions and departments. As shown in the detailed tasks in Section 12, many actions align with existing programmes and wording may change to reflect those programmes and meet joint outcomes.

Public consultation on the Climate Action Framework is underway, feedback on the priorities and actions, particularly those planned for the next 10 years, will also inform the programme, and guide Auckland Emergency Management on public viewpoints on priorities. It is critical to the success of NHRMAP that natural hazard risk management is aligned with future plans for strategic and operational response to climate change.

The timing of the consultation draft is intended to align with work on the next iteration of asset management plans and associated long term funding plans for Auckland Council, with intent to scope and cost any additional work requirements in time for the next funding round.

Consultation with the Coordinating Executive will continue, to ensure work programmes are aligned.

13.2 Final Natural Hazard Risk Management Action Plan

The document will be updated to incorporate any other feedback on risk understanding and current actions, as well as incorporating the revised action plan. It is proposed to bring the final document to the CDEM committee for endorsement, and also to the Audit and Risk Committee, and to the governing body via the Environment and Community Committee.

13.3 Development of a work programme

The actions identified in this document require the cooperation of many different departments, which requires management and reporting at a programme level to ensure coordination, scheduling and resourcing. A Natural Hazard Risk Management Programme will be developed, with a virtual programme team across Council responsible for delivering each action.

A specific project or task plan will be developed for each action, based on consultation feedback on the outline implementation plans. Each project or task plan will define project owner and team, timeframes, deliverables and responsibilities, and overlaps with other projects or tasks.

13.4 Governance arrangements

A steering group will be established to guide the programme development and implementation.
14.0 Monitoring and Reporting

The Natural Hazards Risk Management Action Plan has identified 42 actions that seek to initiate, improve or support a wide range of activities that are within Council’s mandate for managing natural hazard risk.

Responsibility for carrying out these actions lies with different departments within Council, including its CCOs, either individually or jointly. Once these are confirmed and prioritised, it is important that progress is tracked, to identify where ‘road blocks’ prevent an action from being implemented, where additional resources may be required, or if a particular action needs to be revised in light of institutional or other changes that may have occurred.

Auckland Emergency Management will undertake monitoring of progress with the actions set out in this Plan and work with the departments responsible for implementation. This will be reported to the Civil Defence and Emergency Management Committee on a quarterly basis, with some components also being reported to MCDEM in terms of compliance with the National Disaster Resilience Strategy.

Formal reporting on progress will be provided in the form of an annual report, similar to other reports on Council-wide programmes such as the Low Carbon Action Plan Annual Report. The implementation timeframe for the actions set out in the Natural Hazards Risk Management Action Plan is 10 years. However, Council will review this Plan five years after its first publication, to ensure that the actions are still relevant and potentially add others if needed.
15.0 Next Steps

This iteration of the Natural Hazards Risk Management Action Plan is constructed around hazards selected based on current knowledge. It will be updated every 6 years, unless there is significant change in Auckland’s risk profile in the interim. To inform future iterations, Auckland Emergency Management will focus on expanding the hazard assessment in two ways:

- Examining natural hazard risk management across the Council group and across the emergency management sector, including lifelines.
- Working with the civil defence and Emergency Management Coordinating Executive Group to expand the assessments across other hazards, to give a full-risk profile of disaster management.

15.1 Expanding the consideration of natural hazards

15.1.1 Drought

Some natural assets such as aquifers, which provide a resource, need to be managed as assets in order to be able to manage drought risk. However, even new proposed water quality legislation does not allow Council to be informed of all individual abstractions from an aquifer.

Across the Council group, we will add drought as a hazard to be considered. Watercare supplies water to much of Auckland, to the extent of their pipe reticulation network. Outside of this, householders and businesses either use bore water (i.e. water taken from the local aquifer), or have rain tanks to collect water, with a few instances of collecting stream water. Council will work with Watercare to develop a comprehensive view of drought risk.

The action plan workshops identified that drought outside of the water supply network has not got an ‘owner’ in Council and that there is no clear visibility of abstraction levels from aquifers and how that aligned with what is permitted or consented to be taken. This means that in drought, there is a risk that aquifer levels will drop below bore hold levels, or that the aquifers may draw in pollutants such as saltwater, resulting in irreversible damage. In advance of the next stage of work, this report recommends that an asset manager is appointed who develops asset management plans for aquifers, recognising that land ownership will be complex.

15.1.2 Fire

The uncontrolled wildfire risk was initially developed with Rural Fire, before they became part of Fire and Emergency New Zealand (FENZ). It is included, because Council has some ability to control fire risk as a natural hazard, through development controls. However, the next iteration should work with FENZ to develop a broader view of fire risk and mitigation actions in Auckland.

15.1.3 Biosecurity and Pandemic

Risks posed by animal pandemics and biosecurity threats are managed by the Ministry of Primary Industries. However, recent events such as the 2018 detection of Mycoplasma bovis, Kauri dieback disease in the...
Waitakere ranges and 2019 response to the Queensland fruit fly found on the North Shore, have required a response from Auckland Emergency Management or Auckland Council.

Human pandemics risks are managed primarily by the Ministry of Health. While no specific response to pandemic has so far been required in Auckland since amalgamation, the growing incidence of measles cases in 2019 may require a coordinated response through the Auckland Welfare Coordination Group and human pandemic remains a key risk on Auckland Council’s risk register.

Considering the growing risk posed by biosecurity and pandemic threats as a result of climate change, there is an opportunity to incorporate these hazards into future iterations of the Risk Assessment and Action Plan development.

15.1.4 Expanding to other hazards

There has been consideration of infrastructure failure as a result of natural hazard (e.g. dam failure and whether that should be included as a specific hazard). Dam failure areas are mapped similarly to other flood plains and would benefit from some of the functional considerations in this document.

Other hazards that need a range of responses could be assessed in the same way, to give a full perspective of hazards affecting Auckland from the emergency management context. The draft Director’s Guideline on Risk Assessment currently in consultation will help inform approaches to these hazards.
Te take mō te pūrongo
Purpose of the report
1. To seek the Civil Defence Emergency Management Group Committee’s approval of the Pathways to Preparedness: Planning for Recovery document.

Whakarāpopototanga matua
Executive summary
2. The Civil Defence Emergency Management Group Committee approved the draft Pathways to Preparedness: A Planning Framework for Recovery for targeted engagement on 27 February this year.

3. Feedback has been received (150 points of feedback) from a range of individuals, organisations and groups including local boards, emergency management committees, and individuals with experience in working on the Christchurch rebuild.

4. The main themes of this feedback can be listed in order as follows:
   • Seeking specific text amendments
   • Seeking matters to be addressed in the next phase of recovery preparations
   • Seeking adoption or change of suggested aspects of emergency management
   • Seeking local consultation with support or endorsement of the approach to recovery preparations or identified aspects
   • Format and readability.

5. Some feedback commented on aspects of community resilience and response practices and requests for reports on various matters were also received. Matters outside the scope of strategic planning for recovery and the Pathways document and will be addressed separately. A summary of the main issues and responses to them are set out in Table 1.

6. Subsequent progress on recovery preparations will be reported to the committee.

7. A copy of the revised Pathways to Preparedness: Planning for Recovery document is attached.

Ngā tūtohunga
Recommendation/s
That the Civil Defence and Emergency Management Group Committee:

a) approve the Pathways to Preparedness: Planning for Recovery document.

Horopaki
Context
8. The draft Pathways to Preparedness: Planning for Recovery document fulfils requirements to strategically plan for recovery, pursuant to amendments to the Civil Defence Emergency Management Act 2002 and subsequent mandatory guidelines.

9. The Civil Defence Emergency Management Group Committee approved the draft Pathways document at its 27 February 2019 meeting for targeted engagement.
10. Auckland Emergency Management has undertaken targeted engagement and amended the draft document as discussed below. Auckland Emergency Management seeks the Committee’s approval of the amended Pathways to Preparedness: Planning for Recovery document.

Tātaritanga me ngā tohutohu
Analysis and advice

11. Feedback on the draft document has been sought through targeted engagement with a range of stakeholders including member agencies of the Coordinating Executive Group; the three emergency management committees (north and west, central and southern); Auckland Council's local boards, advisory panels, Auckland Lifelines Group and Auckland Council departments.

12. In total 150 items of feedback were received from a range of individuals, organisations or groups. The main issues identified in the feedback and responses to them are summarised in table 1 below:

<table>
<thead>
<tr>
<th>Feedback</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Support /endorsement of Pathways for Preparedness including:</td>
<td>Comments noted</td>
</tr>
<tr>
<td>• improving preparedness for recovery</td>
<td></td>
</tr>
<tr>
<td>• the values and priorities</td>
<td></td>
</tr>
<tr>
<td>• the vision</td>
<td></td>
</tr>
<tr>
<td>• liaison with advisory panels</td>
<td></td>
</tr>
<tr>
<td>• the partnership approach</td>
<td></td>
</tr>
<tr>
<td>• the 5 focus areas</td>
<td></td>
</tr>
<tr>
<td>Inclusion of purpose of document and intended audience</td>
<td>Introduction of draft Pathways document amended</td>
</tr>
<tr>
<td>Inclusion of additional values and or priorities</td>
<td>Draft amended with addition values and priorities</td>
</tr>
<tr>
<td>Concern that approach not applicability to parts of Auckland</td>
<td>Draft amended to clarify purpose of document, next steps and emphasise planning for recovery following an emergency is specific to the event, its impacts and consequences</td>
</tr>
<tr>
<td>Seeking additional consultation with specific communities</td>
<td></td>
</tr>
<tr>
<td>Various amendments to text to improve clarity, readability and navigation, including a shortening of the document’s title</td>
<td>Draft text amended, and section identifiers inserted to improve readability and navigation</td>
</tr>
<tr>
<td>Specific requests in respect of community resilience and response, such as assembly areas, civil defence centres, community led centres</td>
<td>Comments noted. These matters are addressed in Auckland Emergency Management’s wider work programme and not specifically addressed in the Pathways document.</td>
</tr>
<tr>
<td>Feedback</td>
<td>Response</td>
</tr>
<tr>
<td>-------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Clarification of local board role, how local boards can contribute and linkages to local board planning requested</td>
<td>Draft amended to clarify local board role and next steps, including operational planning</td>
</tr>
<tr>
<td>Further detail as to how strategic planning operationalised</td>
<td></td>
</tr>
<tr>
<td>Seeking to factor/prioritise specific issues into recovery</td>
<td>Amend to affirm recovery actions prioritised on basis of needs assessment across the natural, social, built and economic environments</td>
</tr>
<tr>
<td>Seeking specific actions during response</td>
<td>Comments noted</td>
</tr>
<tr>
<td>Seeking specific actions suggested to improve resilience of / and advice to rural communities</td>
<td>Comments noted</td>
</tr>
<tr>
<td>Concern that approach to recovery is 'one size fits' all.</td>
<td>Draft amended to emphasise planning for recovery following an emergency is specific to the event, its impacts and circumstance</td>
</tr>
<tr>
<td>Recovery should not be viewed as an opportunity to save costs and /or 'sweat assets'</td>
<td>Comment noted. Draft amended to emphasise planning for recovery following an emergency is specific to the event, its impacts and circumstance</td>
</tr>
<tr>
<td>Partnering with iwi should be embedded in approach to recovery</td>
<td>Comment noted. Māori responsiveness and engagement with Auckland’s Māori communities is a priority for Auckland Emergency Management’s work programme</td>
</tr>
<tr>
<td>Request for staff reporting / 6 monthly updates</td>
<td>Requests noted and addressed separately</td>
</tr>
<tr>
<td>Engage town centre managers as key stakeholders in developing recovery plans</td>
<td>Comment noted</td>
</tr>
</tbody>
</table>

**Amended Pathways to Preparedness document**

13. The accompanying Pathways document had its title shortened to Pathways to Preparedness: Planning for Recovery as it is more succinct. The document has also been divided into four sections.

14. Section 2, comprising the main body of text uses parts of Figure 1- Our approach to Recovery, to identify the topic discussed and its relevance to the approach we have taken to recovery.

15. Section 3 comprises the actions to build momentum, as refined in response to feedback received. Feedback sought greater clarity and increased levels of detail. The latter will be addressed through operational planning.
16. A new Section 4 has been added to spell out the next steps. The Ministry of Civil Defence Emergency Management is due to issue draft Directors Guidelines on Recovery Management in August 2019. Operational Planning will apply the direction set in the Pathways document and the Directors Guidelines for Recovery Management when they are finalised.

**Ngā whakaaweawe me ngā tirohanga a te rōpū Kaunihera Council group impacts and views**

17. Targeted engagement on the draft Pathways document has been undertaken. Successive stages of activities will increasingly involve groups and business units across the council group as arrangements are framed up, agreed and put into place for launching a successful recovery when required.

**Ngā whakaaweawe ā-rohe me ngā tirohanga a te poari ā-rohe Local impacts and local board views**

18. Recovery addresses the consequences of an emergency event. Such events may affect smaller or larger areas, affecting the communities of one or more local boards. Substantial engagement has been undertaken with local boards through the development of the Pathways document and the strategic planning it represents. Local boards and their communities will continue to be engaged as subsequent activities progress preparations for recovery.

**Tauākī whakaaweawe Māori Māori impact statement**

19. An emergency event may adversely impact on land, water, sites of significance, waahi tapu flora or fauna affecting mana whenua and Māori wellbeing in general. The recovery from such an event would similarly affect mana whenua and Māori wellbeing.

20. A significant development arising out of the recovery from the Christchurch earthquakes has been the involvement of local iwi at all levels, from delivering services and activities on marae to governance and decision-making, through the structures established for the recovery.

21. Auckland Emergency Management’s engagement with Auckland’s Māori communities is to be refreshed, following advice that establishing an ongoing relationship is preferred to one-off engagement on a succession of projects. The significance of establishing and maintaining a relationship across Auckland Emergency Management’s responsibilities and activities is recognised. It is a priority for the coming year across Auckland Emergency Management’s work programme.

**Ngā ritenga ā-pūtea Financial implications**

22. There are no financial implications arising from this report. Resources have been provided for in the current budget and no financial risks have been identified.

**Ngā raru tūpono me ngā whakamaurutanga Risks and mitigations**

23. Through strategic planning for recovery Auckland Emergency Management identifies community values, community priorities and a vision, setting the direction for more detailed preparations for recovery. Subsequent activities will build capability and capacity and address barriers to effective recovery, mitigating the risk of being underprepared to effectively recover from an event.
Ngā koringa ā-muri

Next steps

24. The next phase of our preparations for recovery include undertaking the actions identified, participating in Auckland Emergency management’s engagement with Maori communities and operationalising our recovery planning.

25. The imminent release of new Directors Guidelines on recovery management by the Ministry of Civil Defence Emergency Management will have a significant bearing on the work undertaken in the next phase. It is anticipated that an early step will be development and submission of feedback to the Ministry by the Auckland Civil Defence Emergency Management Group.

26. The achievement of milestones on recovery preparations and approval of arrangements will be reported to the Committee.

Ngā tāpirihanga

Attachments

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Amended Pathway to Preparedness Planning for Recovery Document</td>
<td>141</td>
</tr>
</tbody>
</table>

Ngā kaihaina

Signatories

<table>
<thead>
<tr>
<th>Author</th>
<th>Wayne Brown - Principal Recovery Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authorisers</td>
<td>Jennifer Rose - Head of Recovery</td>
</tr>
<tr>
<td></td>
<td>Sarah Sinclair - Acting General Manager – Auckland Emergency Management</td>
</tr>
</tbody>
</table>
Draft

Pathways to Preparedness:
Planning for Recovery

August 2019
Section 1

Introduction

How Auckland might recover from a disaster\(^1\) is important.

This document is the outcome of our strategic planning for recovery, with the aim of being prepared to recovery better. Inevitably this document takes a high-level view. The direction set will subsequently be operationalised in the next phase of preparations. It should also be noted that affected communities are consulted in the early stages of a recovery following an event.

This document is separated into the following sections:

Section 1 – Introduction set the scene for our approach to recovery.

Section 2 Pathways to Preparedness; provides explanation of our approach, based on community values and principles, our visions, and outlines our partnership approach to recovery, the focus of our work and monitoring and evaluation.

Section 3 identifies actions to build momentum on improving our preparedness to recover from a disaster. A detailed recovery work programme will be developed to deliver these actions across Auckland Council group and with our partners. The work programme targets actions identified as necessary to ensure preparedness and maintain readiness. Its completion will provide a platform for undertaking recovery through collaboration work across multiple stakeholders including local boards, community groups and organisations.

Section 4 outlines the next steps in the next phase of our preparations.

The recovery work programme forms a part of Auckland Emergency Management’s broader interrelated work programme across the Response and Recovery, Resilience and Capability and Public Awareness.

The process we followed

In the wake of lessons learned from Christchurch’s unanticipated, catastrophic earthquakes the Civil Defence Emergency Management Act 2002 was amended to make greater provision for recovery. Among other things, the amendments require strategic planning to be undertaken to prepare for recovery before disaster strikes. The Ministry of Civil Defence and Emergency Management issued guidelines stepping out how this can best be done.

We followed this process to:

- identify an initial set of community values and priorities to inform our planning.
- set our recovery vision

\(^1\) ‘Disaster’ in the Recovery Framework is defined as an emergency (under section 4 of the Civil Defence Emergency Management Act 2002) event that requires a recovery.
- anticipate the consequences and opportunities of Auckland’s hazards and risks
- focus on building capacity and capability; and addressing barriers to recovery
- identify actions to build momentum.

Figure 1. Our approach to recovery planning.
Section 2

Pathways to Preparedness

Community values and priorities

Our approach to recovery planning takes a community centric approach, recognising the significant challenges confronting all recovery efforts (from relatively localised events to large-scale disasters).

Community wellbeing is the focus of recovery. In the aftermath of a disaster, individuals and communities will want to get things moving towards ‘normality’ as quickly as possible. They will also want to see how we keep community at the heart of any recovery effort.

Understanding community values and priorities provides guidance on what will be important to communities, as a basis for pre-event planning and preparations for recovery. They indicate preferences for community involvement and the things communities hold dear. For example, decision-making underestimated the value the people of Christchurch attached to their built heritage, meaning the pace, manner and extent of demolition caused great upset. Through understanding community values and priorities, we are better able to ensure appropriate decision-making and priority setting processes, and opportunities for participation.

Identifying community values and priorities

Auckland Emergency Management has worked with Auckland Council’s local boards and Auckland Council’s demographic Advisory Panels (Seniors, Ethnic Peoples, Pacific Peoples, Disability, Rural, Youth and Rainbow Communities). Our discussions have highlighted some key values and priorities that will be consulted on across Auckland communities.

Strong themes centred on retention of heritage in the natural built and cultural context. The need for local knowledge, leadership, partnerships and voice. Communication and connection are common themes in the discussions. It was felt that multiple avenues for communicating was a high priority and suggestions for connecting across diversity, hard to reach communities and leveraging traditional and digital media would need to be sought.

Connections are important. Connections between families and neighbours provide the closest support during recovery. Strengthening connections between communities to share resources will also aid recovery. The partnerships and relationships with authorities and
resource providers need to be considered in recovery, as these authorities need to know where and when to provide help to communities.

The importance of getting key infrastructure such as hospitals, lifelines utilities and social and community infrastructure up and running fast was also identified. Personal safety was also highlighted.

<table>
<thead>
<tr>
<th>Community Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identity, Diversity and Inclusion, Independence</td>
</tr>
<tr>
<td>Resilience and Self Reliance, Community, Connection and Culture</td>
</tr>
<tr>
<td>Volunteerism, Heritage (Natural, Cultural and Built), Amenity</td>
</tr>
<tr>
<td>Local Knowledge, Leadership, Partnership and Voice</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Community Priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Access and Mobility, Physical and Social Connection,</td>
</tr>
<tr>
<td>Local, National and International Connections, Communication,</td>
</tr>
<tr>
<td>Enabling Local Input, Lifelines and Key Infrastructure, Economic Recovery,</td>
</tr>
<tr>
<td>Vulnerable People, Safety, Health, Hygiene and Personal Wellbeing (including our pets)</td>
</tr>
<tr>
<td>Security and Personal Property</td>
</tr>
</tbody>
</table>

Recovery

Recovery means “the coordinated efforts and processes used to bring to about the immediate, medium-term, and long-term holistic regeneration and enhancement of a community following an emergency.” Correspondingly, recovery activities deal with the consequences of an emergency. An emergency is when something happens which causes or may cause loss of life or injury, or endangers public safety or property that:

- cannot be dealt with by emergency services or

---

• requires a significant and coordinated response.\textsuperscript{3}

The definition of an emergency refers to the likes of earthquakes, tsunami, tornado, plague and floods as well as the leakage or spillage of dangerous substances or failure of or disruption to an emergency service or lifeline utility. For convenience and brevity, we use ‘disaster’ to mean an emergency event that requires a recovery.

The essential issue of recovery is that; what has been built up over many decades through private and publicly funded development, individual, family and civic effort can be destroyed or damaged all at once, needing to be regenerated within a comparatively short period of time. Resulting disruption to businesses, housing, infrastructure networks, facilities and amenities impact on daily life and living standards, potentially for some time.

Recovery is complex and takes time. Recovery initially faces high levels of uncertainty, as the situation evolves. For example, getting services running may need an initial focus on infrastructure repairs while longer term solutions may require the replacement of infrastructure. The time required for recovery to be completed can challenge people’s expectations and aspirations. They may feel like their life is on hold.

Our preparations for recovery aim to respond to and be fit for purpose for any scale of event. For example, depending on its scale, Auckland Council may have to reprioritise its activities to support a recovery. This will also be the reality for many individuals, whanau, firms and organisations as recovery will require the reorientation of priorities and reallocation of resources.

What does Well-placed mean?

An underlying theme of recovery and its essential problem is complexity. Well-placed means being well prepared.

Lessons have been learnt from recent large events such as the Christchurch earthquakes and Kaikoura earthquakes. Intentionally preparing for recovery rather than leaving matters to chance or orchestrating recovery as the event unfolds, greatly increases the prospects of more effective recovery – that is:

• the early commencement of organised recovery activities
  • with a clear sense of purpose
  • supported by participants and affected communities.

Achieving a successful start to a recovery requires a shared understanding of what a recovery is; what needs to be done (at least initially), and access to funding and resources. This in turn requires clear roles and responsibilities supporting cooperation and collaboration across many organisations and people, across many work streams. At a more detailed level it requires:

• clear, well understood processes for the transition to recovery
• assessing people’s needs and the damage to buildings and infrastructure
• procuring, allocating and managing resources
• managing the delivery of services and the implementation of activities and projects.

\textsuperscript{3} Adapted from definitions in the Civil Defence Emergency Management Act 2002.
Reinstatement, regeneration or enhancement?

Ultimately questions arise as to how ambitious or achievable recovery should be. Significant financial burdens may present barriers or constraints. Even so the primary goal is to recover as fully as possible in good time.

‘Build Back Better’ is a term arising out of the fourth priority for action (of 4): “Enhancing disaster preparedness for effective response and to build back better in recovery, rehabilitation and reconstruction” of the Sendai Framework for Disaster Risk Reduction endorsed by the United Nations.

“Over the years there has been an appreciation that reconstruction is an opportunity to build back better. Today recovery is defined as the restoration and improvement of facilities, livelihoods and living conditions of disaster-affected communities, including efforts to reduce disaster risk factors,” and is reflected in the definition of recovery in the Civil Defence Emergency Act 2002.

What this means in practice can be very difficult. What was lost may not be able to be replaced exactly.

Responsible and cost-effective rehabilitation of a community does not guarantee a community will be restored to its original state. However, there may be opportunities to enable communities to improve on previous conditions. By taking a broad, flexible or innovative view to recovery, communities may be able to gain significant enhancements through the adoption of new behaviours, the application of urban design and/or universal design principles, improved structures or upsized infrastructure increasing personal or community resilience.

New Zealand and international experience demonstrates the advantages of pre-event planning and preparation over leaving it to chance or having to orchestrate a recovery as the event unfolds.

Pre-event planning and preparation for recovery is supported by analysis of the likely impacts and consequences of disasters. The potential hazard and its impacts interact with

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4 UN World Conference on Disaster Risk Reduction, 14-18 March 2015, Sendai, Japan.
the circumstances existing at the time and in the area the disaster takes place. The
Auckland region hosts a range of living and working environments across the CBD and city
fringe, metropolitan centres, suburbs, town centres, industrial and commercial areas, the
peri-urban area and scattered rural and coastal communities on the mainland and Hauraki
Gulf islands. Recovery needs to be adaptable to ensure local needs are met when
necessities, access and communications are majorly disrupted, particularly for the
vulnerable. For example, the Aotea/Great Barriers community and their distance and limited
connection to mainland Auckland will require a more flexibility approach.

Community values and priorities form part of and inform these circumstances.
Understanding the impacts and circumstances, and their interaction in time and place is
integral to planning for recovery. Scenario planning and running scenario-based exercises
can assist greatly in this area.

Pre-event planning and preparation for recovery helps identify critical factors to an effective
recovery, opportunities to improve community resilience and where possible, mitigate
existing and identified hazards and risks. Through working with communities, we can
prioritise areas of vulnerability while leveraging and supporting continued resilience within
recovery.

![Diagram](image)

**Figure 2** Anticipating what recovery may have to address.

The Auckland CDEM Group’s Plan ‘Resilient Auckland’ identifies several hazards and risks
to the Auckland region, including natural events (such as volcanic eruption, severe weather
events, tsunami, and coastal inundation) and infrastructure and lifeline utility failures (such
as disruption to electricity, water, and transport networks).

When planning for impacts of hazards and risks, consideration needs to be given to the four
recovery environments – social, built, economic and natural.

Auckland faces unique challenges - super diversity, rural and urban contexts, housing
supply, homelessness, aging infrastructure and high rates of growth and development, which
influence the circumstances to be addressed by recovery efforts. Disasters and their
consequences can be localised, affecting an area within a single local board’s boundaries or
of wider impact, affecting an area that is part of multiple local boards, or the entire region.

Some disasters may involve a series of cascading events, each of which may require
different, but complimentary recovery activities. For example, a volcanic eruption in the north
of the Auckland Volcanic Field may cause evacuations and damage on the North Shore, but
ashfall may progressively damage wastewater treatment networks that eventually leads to region-wide lifeline utility failures. The context of a recovery can be extremely dynamic.

There are limitations to the extent to which impacts of hazards and circumstances can be fully anticipated. Work to better understand Auckland’s hazards and risks and their impacts is part of Auckland Emergency Management’s ongoing work programme.

Auckland Emergency Management and the Auckland CDEM Group are particularly focused on building capacity and capability for recovery and to addressing barriers that may inhibit or obstruct effective recovery.

Our approach to recovery planning takes a broad view to shaping the way we will work in recovery, and enabling the work we will do during recovery, informed by the community values and priorities.

The way we work – a partnership approach

Auckland Emergency Management and the CDEM Group takes a partnership approach, seeking the best of organic forms, supportive of community action and emerging solutions, and highly structured, institutional / governmental forms to provide resources, coordination and operate at scale. This will enable Auckland Emergency Management, Auckland Council and our partners to deliver a more effective and coordinated recovery informed by community values and priorities.

The partnership approach recognises and respects diversity to ensure recovery is inclusive and provides opportunities for community participation. It is implemented through:

- prioritising the wellbeing of individuals, families and communities and their recovery
- strengthening links between individuals, families, communities and institutional and government agencies
- restoring and/or improving the function of infrastructure, community facilities, structures, physical networks and urban fabric that support communities
- enabling the restoration and/or regeneration of natural environments and their habitats and ecosystems
- supporting the interactions between businesses, business people, employees, resources and assets, and the commerce and trade generated in the economic environment.

The partnership approach identifies scalable, flexible and adaptable coordinating structures, aligned to key roles and responsibilities. It is a mechanism to link local and central government, the private sector and non-government (NGO) and community organisations that play a vital role in recovery. For example – the larger the scale of a recovery the more likely it will orient towards larger government structures and processes. This raises the risk of inflexibility and of inhibiting innovation and empowerment of the recovery of individuals.

The partnership approach builds on the work of Auckland’s CDEM Group / Auckland Emergency Management across the 5 R’s – reduction, readiness, response, recovery and resilience, with our focus on communities, including strengthening resilience and bringing the strengths of the Auckland Council group and its partners.

The partnership approach provides opportunities for communities of practice to be activated; to guide and champion leaders in the community to play a role informing and supporting the recovery effort and assisting their communities.

Building upon existing partnerships the partnership approach will also work across wider groups to embrace new formal and informal partnerships.

**The way we work – collaborating across formal and informal partnerships**

Auckland Emergency Management provides the specialist roles serving Auckland Council’s civil defence function under the Civil Defence Emergency Management Act 2002 and would lead the initial stages of recovery.


Auckland Council’s governing body has delegated responsibility to the Civil Defence Emergency Management Committee as the decision maker for the Group.

Auckland Emergency Management and the CDEM Group works closely and collaboratively with many stakeholders. For example, the Auckland Welfare Coordination Group is made up of 26-member agencies active in a response to an emergency. Many of these emergency services, social and health service and non-governmental organisations will also support recovery.

Auckland Emergency Management engages Auckland Council’s local boards across the pre-event recovery work programme and will work closely with local boards when undertaking a recovery in their area. For example, recovery may involve working directly with a local board where its area affected. However, where multiple local board areas are affected there may be a need to work with representatives of each local boards.

Working relationships, roles and responsibilities and detail of how we will work together will be clarified through the next phase of our preparations.

This will include Auckland Emergency Management further developing relationships across the emergency management sector and Auckland’s communities through the
implementation of the associated work programme. Developing and building relationships with Auckland’s iwi and matawaka is a particular focus and a priority.

The work we do – building capacity and capability and addressing barriers to recovery

Recovery gives rise to a range of inherent challenges and issues, as multiple activities are delivered simultaneously across workstreams addressing recovery in the natural, social, built and economic environments.

Through our approach to planning for recovery engagement with the Ministry of Civil Defence Emergency Management, past recovery experience and engagement with our communities and partners we have identified five focus areas to assist in preparing for recovery. The five focus areas are:

- **develop capacity and capability** – we need to make sure we have the right people, qualified and experienced, ready to assist any recovery scenario
- **support collaboration** – we need to strengthen collaboration within communities, between communities, and between communities and governmental and other agencies
- **communicate recovery** – we need to make sure that the right messages are getting to the right people so that they can assist with effective recovery
- **understand recovery** – we need to continue to understand the impacts and circumstances which our communities may face so that they can be fully prepared.
- **monitor and evaluate** – we need to make sure that:
  - our planning and preparations improve delivery of recovery,
  - we can adapt a recovery to changing needs
  - we learn lessons from each recovery to improve the next one.

![Figure 3 – Five Focus Areas](image-url)
It is recognised that effective recovery requires supporting work programmes in addition to implementation of recovery planning, such as:

- refining Standard Operating Procedures for recovery
- implementing the readiness work programme of the Incident Management Team
- supporting the development of emergency management recovery networks, like the Northern Recovery Managers Group
- exercising, training and development.

Section 2 outlines high-level, short to medium-term actions (from page 14). Actions respond to the set of initial community values and priorities outlined earlier and are directed towards the five focus areas.

Actions drive the recovery work programme across the breadth of preparation, relationship building and communication. Delivering on the identified actions will progress us towards achieving the longer-term vision, ensuring that “Auckland people, communities, businesses and infrastructure are well placed to recovery from a disaster”.

Auckland Emergency Management will develop a prioritised work programme to deliver on the identified actions. This next phase of preparations will involve wider engagement with key stakeholders and community groups.

Our Civil Defence Emergency Management partners will be involved along the way to ensure inter-agency operability is maintained, operational needs are assured and to affirm our shared understanding.
Monitoring and evaluation are integral to programme management and the development of best practice. The response to, and recovery from an event are reviewed to identify what went well or what went not so well, to identify improvements for the future.

There are two approaches that may be taken to monitoring and evaluating a recovery; the difference from the previous normal, and progress made towards the new normal.

The extent of disruption or departure from previous norms can be identified from common high-level metrics, such as regional GDP or the unemployment rate. Comparisons can be made to previous data where of these types of metrics (when available) to lend themselves to debates on the progress or success of recovery from a disaster. These types of metrics are important and produced methodically by agencies external to a recovery.

More detailed indicators can able to track progress:

- on the tasks/actions identified in Recovery Action Plans, formulated after an event
- towards fulfilling the vision and objectives for recovery
- the extent to which the principles are being applied.

Our intention is that our monitoring and evaluation will also provide information on extent to which pre-event planning and preparedness supported effective recovery.

A key action will be the development of a monitoring and evaluation framework alongside the completion of other actions and able to be applied to:

- provide insight into the relevance of high-level independent metrics
- track the extent of progress towards achievement of the vision for recovery
- progress towards completion of the recovery work programme
- track progress towards the completion of actions and tasks under a Recovery Action Plan formulated for the recovery from an emergency event
- provide insight into the overall effectiveness of actions and tasks under a Recovery Action Plan formulated to address the consequences in a disaster.
- provide insight into the overall effectiveness of pre-event planning and preparations for recovery
### Auckland’s diversity

Auckland hosts a rich and diverse population by age, gender, religion, sexuality, nationality and culture. This is a strength of Auckland while also meaning specific needs might present themselves in a recovery.

Achieving effective recovery will require the flexibility to ensure recovery works for all Aucklanders and their communities.

Communication, understanding recovery, and being able to engage and participate may be challenging for some communities.

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cultivate improved cultural awareness to be able to understand specific concerns, to enable them to be addressed.</td>
<td>Access and tap into resources across the Auckland Council group and external groups to better communicate and engage Auckland’s diverse communities.</td>
</tr>
<tr>
<td>Leverage the potential of Auckland Council’s demographic Advisory Panels – Seniors, Ethnic Peoples, Pacific Peoples, Disability, Youth and Rainbow Communities.</td>
<td></td>
</tr>
</tbody>
</table>

### Building a better understanding of Recovery

Recovery is not well understood. It has a limited profile beyond the CDEM sector and people with personal knowledge.

The current level of understanding is a barrier to people’s ability to anticipate and prepare in advance of an emergency event.

Communication, understanding recovery, and being able to engage and participate may be challenge in some communities.

There is an opportunity to build a better understanding of recovery before disaster strikes.

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop a ‘Recovery story’ supported by key messages and education materials (translated into different languages).</td>
<td>Leverage opportunities to raise the profile and discuss recovery with new audiences through the CDEM Group, Auckland Council group, partners and communities.</td>
</tr>
<tr>
<td>Support and participate in Auckland Emergency Management’s education and outreach programme across the five R’s.</td>
<td></td>
</tr>
</tbody>
</table>

### Managing Expectations

The disruption to daily life and routines can be sudden and significant. Previously routine tasks become complicated and can subject to repeated change.

The level of disruption and upset can be exacerbated by ongoing change due to recovery activities. People’s previous plans go on hold.

Change of this magnitude can be disempowering and a source of frustration and distress for many.

Everyone is eager to return to something that resembles what was normal before the event, as soon as possible. The time that may require can be another source of frustration.

Uncertainty, at least in the initial stages exacerbates these concerns.

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strike a balance between ambition and achievability in planning and preparations for recovery / in a recovery.</td>
<td>Ensure community participation and engagement is supported with clear information about the situation faced that is as accurate as possible.</td>
</tr>
<tr>
<td>Ensure clear and consistent communication through the duration of recovery to maintain trust in the community.</td>
<td></td>
</tr>
</tbody>
</table>
### Capacity and capability is available

**Opportunities**

**Economy / Local Economy**

- Supporting the economy and ensuring its good health is essential to longer term recovery.
- Disruption can bring business, trade and commerce to a standstill. Orders and commitments may not be met, and employees may have not work. Everybody suffers hardships without cash flow or access to money to access necessities.
- Distinctions between rural and urban local economies are also important. For example, seasonal activities may have needs or requirements with potential consequences for production in the rural economy.
- New Zealand economy is an open, highly connected trading economy. Significant disruption in Auckland could precipitate longer term regional, national and international changes unless addressed or mitigated in a timely manner.

**Actions**

- Work with Business Associations to encourage uptake of Business Continuity Planning and practices amongst their member businesses.
- Investigate opportunities and mechanisms for local sourcing/procurement of goods and services during a recovery.
- Leverage a better understanding of the Auckland’s and local economies through engagement with potential Task Group members for the economic environment.
- Leverage opportunities to support the economy. For example, opportunities for youth employment contributes to the development of the future workforce.
- Engage with regional and national agencies to better understand economic implications and potential recovery activities.

### Funding and resources

- Replacing capital and social investment, restoring natural ecosystems and regenerating the environments that support social and economic well-being requires significant funding.
- The commitment of financial and human resources to prioritise recovery activities is also significant. Accessing needed skills and expertise can be additional challenges.
- Sustaining a recovery, prudent financial management, appropriate project management, while maintaining a focus delivering on the desired outcomes is complex in a pressured environment.
- The longer recovery continues the greater the pressure on resources as demand to deliver disrupted projects and work programmes builds. This can pose particular challenges where the event and recovery are limited to a part of the region.

- Building shared organisational understanding of what recovery may involve across Auckland Council group. CDEM group, Task Groups, Lifelines and progressively, with Auckland’s communities.
- Sharing of Standard Operating Procedures, plans and recovery documentation as appropriate, and subsequent updates.
- Generate a deeper shared understanding of arrangements regarding the servicing of recovery in respect of financial, information and project management, specialist and expert advice and general administration.
- Understanding the way business units across Auckland Council group deliver their services.
- Raising the profile of recovery arrangements and the understanding of what might be required of service delivery business units and their contractors.
- Identifying key skills, expertise and services contributing to recovery across Auckland Council group and partner organisations.
### Attachment A

#### Item 11

<table>
<thead>
<tr>
<th>Capacity and capability is available</th>
<th>Opportunities</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Māori communities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recent experience of response and recovery from disasters has benefited from the participation, support and leadership of mana whenua and local iwi at all levels – from delivering services to decision making.</td>
<td>Develop a shared understanding of recovery within Auckland Emergency Management’s wider engagement with mana whenua and mataawaka.</td>
<td>Build on the opportunities for collaboration to cultivate leadership, participation and outcomes for Māori.</td>
</tr>
</tbody>
</table>

| **Pre-existing issues**             |               |         |
| Any existing issues at the time of an event will be magnified in their effect and consequence. For example, pre-existing pressure on housing with elevated housing costs and associated social concerns make emergency and rebuild worker accommodation very challenging. Other examples include transport bottle necks or previously known weakness in networks may have a pronounced effect in a particular event. Changed conditions may mean that land use need to be revisited, regulation may impede solutions or institutional arrangements may not be sufficiently strong. | Environmental scanning to maintain general awareness of issues and challenges facing Auckland across the four recovery environments – natural, social, built and economic. | Maintain engagement with partners and stakeholders and leverage opportunities to gather information and intelligence:  
  - in recovery planning and preparations  
  - through the duration of recovery. |
|                                    |               |         |
| **Psychosocial recovery**          |               |         |
| International and more recent experiences in New Zealand has raised awareness of the way that emergency events can have very different impacts on people. Some may be unscathed, and others impacted to varying degrees. Impacts may only become apparent after the passage of time. A person’s individual circumstances can make it more difficult to cope with ongoing disruption and change, to make decisions and to support others. Equally, individual recovery from such impacts takes time and is non-linear or continuous, with many ‘ups’ and ‘downs’ possible. | Raise awareness of psychosocial impacts on responding agencies and staff and put support mechanisms in place. | Training and sharing best practice participating staff to ensure people involved in recovery maintain an awareness of the complexities of psychosocial recovery that individuals may be going through. |
## Task Groups

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Task Groups are established to provide advice, assistance and overseas activities for each of the recovery environments - natural, social, built and economic.</td>
<td>Establishing a 'pool' of potential Task Group members to ensure readiness and the ability to scale a recovery proportionate to the nature of the disaster.</td>
</tr>
<tr>
<td>Each Task Group has a Terms of Reference, setting out its functions, roles and responsibilities. Task Groups may also comprise sub-task groups.</td>
<td>The pool for each recovery environment may be comprised of both:</td>
</tr>
<tr>
<td>Potential members are practitioners, experts or leaders in their field whose knowledge would benefit a recovery. They are generally busy people, which can be a barrier to maintaining Task Groups, keeping informed and abreast of best practice in recovery.</td>
<td>• a <strong>core</strong> membership comprised of people within the wider Auckland Council group / emergency sector</td>
</tr>
<tr>
<td>Further, the membership of Task Groups needs to reflect the nature and scale of the of the task for each event.</td>
<td>• a <strong>wider</strong> membership of people who might only be called upon if the event demands it.</td>
</tr>
</tbody>
</table>

### Maintaining Available Capability

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>The intensity and pressure of a response is very demanding. People in lead roles will be exhausted. Their same agencies may have lead roles/key roles in recovery and they will need to identify specific staffing to support the recovery effort.</td>
<td>Explore the current capacity and capability for recovery within participating agencies.</td>
</tr>
<tr>
<td>Recovery from a significant disaster may initially seem daunting and may continue for a long time. People involved in delivering the recovery will likely be dealing with similar issues as other Aucklander’s outside of their working life.</td>
<td>Explore potential arrangements they may operate in a recovery and their staffing.</td>
</tr>
<tr>
<td>Ensure key staff in the recovery are different from key staff in response.</td>
<td>Ensure key staff in the recovery are different from key staff in response.</td>
</tr>
<tr>
<td>Train staff for recovery as required. (potentially based on common arrangements).</td>
<td>Train staff for recovery as required. (potentially based on common arrangements).</td>
</tr>
</tbody>
</table>
### Collaboration

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Collaboration</strong></td>
<td><strong>Operationalise Pathways to Preparedness through the next phase of preparations through:</strong></td>
</tr>
<tr>
<td>Recovery is affected through networks of networks requiring high levels of coordination and collaboration.</td>
<td><strong>establishing and documenting core processes including thresholds for activation (many of which result from or are influenced by other actions listed in this section)</strong></td>
</tr>
<tr>
<td>Effective collaboration is critical to successful recovery in what can be a dynamic multi-agency environment.</td>
<td><strong>the development of guidelines based on core processes, setting out key steps and considerations and explanation</strong></td>
</tr>
<tr>
<td>Participants could involve local, regional and national agencies from central and Auckland local government, business sector interests, NGOs, local and regional community groups and Auckland’s mana whenua and matawaaka.</td>
<td><strong>establish the means for servicing ICT requirements and arrange for activation as and when required</strong></td>
</tr>
<tr>
<td></td>
<td><strong>clarify roles and responsibilities amongst leading partners and key agencies</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Share key documentation amongst partner agencies as appropriate</strong></td>
</tr>
</tbody>
</table>

Achieving this level of collaboration is supported by:
- strong institutional and personal relationships
- clear roles and responsibilities
- a shared understanding of what is to be achieved in a recovery
- effective support systems and communication.

- Build and maintain institutional and personal networks and relationships amongst key agencies, stakeholders and Auckland’s communities.

- Formalise supporting arrangements in key areas through developing protocols, memorandum of understanding or similar.

(Key areas = support delivery of a critical service or critical resources or arrangements important in every recovery)

### Governance

<table>
<thead>
<tr>
<th>Good governance:</th>
<th>Confirm structures and governance mechanisms to support recovery of local, sub-regional and regional scale</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>provides leadership</strong></td>
<td><strong>Develop guidelines, principles and supporting tools and mechanisms based on community values and priorities and a partnership approach</strong></td>
</tr>
<tr>
<td><strong>facilitates coordination, collaboration and decision making to secure unity of effort</strong></td>
<td><strong>Develop principles and criteria for determining when to exit recovery and integrate any remaining activity into business as usual</strong></td>
</tr>
<tr>
<td><strong>supports direction setting and clear roles and responsibilities.</strong></td>
<td><strong>Support induction and training where appropriate</strong></td>
</tr>
</tbody>
</table>

Governance oversight can ensure effective consultation, management and accountability in navigating recovery and its inevitable tensions.
### Section 3

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Monitoring and evaluation</strong></td>
<td></td>
</tr>
<tr>
<td>Continuing to make improvements upon previous recovery preparations and implementation requires monitoring and evaluation</td>
<td>Develop a robust framework able to monitor and evaluate:</td>
</tr>
<tr>
<td>Being able to provide clear information on the progress being made is central to recovery communications</td>
<td>• the efficacy of recovery preparations</td>
</tr>
<tr>
<td></td>
<td>• progress on a recovery</td>
</tr>
<tr>
<td></td>
<td>• the success of a recovery</td>
</tr>
<tr>
<td></td>
<td>Integrate the development of monitoring indicators into the development and delivery of actions</td>
</tr>
</tbody>
</table>
Section 4

Next steps

Progress and improvements will be iterative over successive cycles of pre-event preparation and post-event recovery implementation.

Our preparations for recovery are being phased. This initial phase has focused on strategic planning for recovery.

Through implementation of the identified actions the next phase will operationalise the strategic direction set out in this document detailing how we will manage a recovery. This work will also take new Directors Guidelines on recovery management to be issued by the Ministry of Civil Defence and Emergency Management into account.

This latter phase will involve work across this document’s 5 focus areas, further engagement with our partner agencies, local boards, advisory panels and begin to engage the community.

Progress will be reported to the Coordinating Civil Defence Emergency Management Group Committee and support the review of the current 2016–21 Group Plan.
Health Update: Measles

File No.: CP2019/15721

Te take mō te pūrongo
Purpose of the report
1. To update the Civil Defence Emergency Management on the measles outbreak.

Whakarāpopototanga matua
Executive summary
2. The health update on the current measles outbreak document (refer to Attachment A) was prepared by Jocelyn Peach, Health Coordinating Executive Group representative, with input from the Auckland Regional Public Health Service.

Ngā tūtohunga
Recommendation
That the Civil Defence and Emergency Management Group Committee:
a) receive the health update on measles.

Ngā tāpirihanga
Attachments

<table>
<thead>
<tr>
<th>No.</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A0</td>
<td>Health Update: Measles Outbreak discussion document</td>
<td>163</td>
</tr>
</tbody>
</table>

Ngā kaihaina
Signatories

<table>
<thead>
<tr>
<th>Author</th>
<th>Jocelyn Peach, Health Coordinating Executive Group representative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authoriser</td>
<td>Sarah Sinclair - Acting General Manager – Auckland Emergency Management</td>
</tr>
</tbody>
</table>
Briefing: Measles Trends in Auckland and nationally as at 20/08/2019

'Measles ward' opens to manage three children admitted each day with the preventable disease

Michelle Duff - 10154, Aug 20 2019

Measles warning signs are plastered all over Middlemore Hospital, as doctors fight to prevent the spread of the highly contagious illness.

Middlemore Hospital has established a dedicated "measles ward" to deal with the influx of three children admitted each day with the vaccine-preventable illness.
Briefing: Measles Trends in Auckland and nationally as at 20/08/2019

National picture

Figure 1. Number of confirmed measles notifications by week, 1 January–16 August 2019

Table 1: Number of confirmed measles cases for Week 32–33/2019 and cumulative number of cases for 2019 by district health board

<table>
<thead>
<tr>
<th>District health board</th>
<th>Surveillance Week 32</th>
<th>Surveillance Week 33</th>
<th>Cumulative total 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northland</td>
<td>0</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>Waitemata</td>
<td>12</td>
<td>11</td>
<td>111</td>
</tr>
<tr>
<td>Auckland</td>
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<td>17</td>
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<td>Counties Manukau</td>
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<td>0</td>
<td>5</td>
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<tr>
<td>Bay of Plenty</td>
<td>2</td>
<td>0</td>
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<td>Taupō</td>
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<tr>
<td>Taranaki</td>
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</tr>
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<tr>
<td>Total</td>
<td>86</td>
<td>106</td>
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Briefing: Measles Trends in Auckland and nationally as at 20/08/2019

Table 2. Number of confirmed measles cases for Week 33/2019 and cumulative number of cases and hospitalisations for 2019 by age group

<table>
<thead>
<tr>
<th>Age group</th>
<th>Surveillance Week 33</th>
<th>Cumulative total 2019</th>
<th>Number of hospitalisations 2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;15 months</td>
<td>24</td>
<td>130</td>
<td>85</td>
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<tr>
<td>15 months–3 years</td>
<td>10</td>
<td>71</td>
<td>32</td>
</tr>
<tr>
<td>4–9 years</td>
<td>2</td>
<td>33</td>
<td>4</td>
</tr>
<tr>
<td>10–19 years</td>
<td>22</td>
<td>136</td>
<td>29</td>
</tr>
<tr>
<td>20–29 years</td>
<td>32</td>
<td>172</td>
<td>56</td>
</tr>
<tr>
<td>30–49 years</td>
<td>15</td>
<td>87</td>
<td>23</td>
</tr>
<tr>
<td>50+ years</td>
<td>1</td>
<td>10</td>
<td>8</td>
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<tr>
<td>Total</td>
<td>106</td>
<td>639</td>
<td>237</td>
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Table 3. Number of confirmed measles cases for Week 33/2019 and cumulative number of cases and hospitalisations for 2019 by ethnic group

<table>
<thead>
<tr>
<th>Ethnic group (prioritised)</th>
<th>Surveillance Week 33</th>
<th>Cumulative total 2019</th>
<th>Number of hospitalisations 2019</th>
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<tbody>
<tr>
<td>Maori</td>
<td>28</td>
<td>165</td>
<td>66</td>
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<tr>
<td>Pacific peoples</td>
<td>44</td>
<td>216</td>
<td>94</td>
</tr>
<tr>
<td>Asian</td>
<td>10</td>
<td>42</td>
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<td>MELAA1</td>
<td>2</td>
<td>4</td>
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<tr>
<td>European or Other</td>
<td>15</td>
<td>197</td>
<td>61</td>
</tr>
<tr>
<td>Unknown</td>
<td>7</td>
<td>15</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>106</td>
<td>639</td>
<td>237</td>
</tr>
</tbody>
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*Middle Eastern/Latin American/African

37% hospitalisation

Figure 3. Number of measles notifications by month reported, January 2009 to July 2019
Situational Awareness Project
File No.: CP2019/15251

Te take mō te pūrongo
Purpose of the report
1. To update the committee on the development and progress of the Auckland Emergency Management Situational Awareness project.

Whakarāpopototanga matua
Executive summary
2. Auckland Emergency Management identified the need to increase geographic information system (GIS) capability and utilise advances in technology, to enable increased situational awareness and better support decision making, co-ordination and allocation of emergency resources.
4. The first phase of the Situational Awareness project involved the setup of a situational awareness viewer to provide a geospatial common operating picture for Auckland Emergency Management to use during its readiness, response and recovery activities.
5. Future phases of the project are currently being scoped.

Ngā tūtohunga
Recommendation
That the Civil Defence and Emergency Management Group Committee:
a) note this update on the development of the Situational Awareness project, and endorse the intent to scope a second stage of development.

Horopaki
Context
6. The third edition of the Coordinated Incident Management System (CIMS) paper published in August 2019 contains a new section titled: Geospatial Support and Coordination. This recognises geospatial tools, support and capability have become an integral part of emergency management.
7. To increase geospatial capability and situational awareness, a suite of geospatial tools is being developed to assist Auckland Emergency Management to use the best available static and real time information available to enable a quick and accurate understanding of what is happening in the critical hours following an emergency event.
8. To develop our understanding of GIS for emergency management, consultations with Eagle Technology and discussion with a group of New Zealand GIS specialists were held. This confirmed the development of a situational awareness viewer as an early priority.
9. The situational awareness viewer will soon be available through the Auckland Council Portal for Auckland Emergency Management to use in response.
10. Phase two of the Situational Awareness project is currently being scoped and progress will be reported to the Civil Defence Emergency Management Group Committee as key milestones are reached.
Ngā tāpirihanga
Attachments
There are no attachments for this report.

Ngā kaihaina
Signatories

<table>
<thead>
<tr>
<th>Author</th>
<th>Celia Wilson GIS &amp; Data Integration Lead</th>
</tr>
</thead>
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<tr>
<td>Authorisers</td>
<td>Jennifer Rose - Head of Recovery</td>
</tr>
<tr>
<td></td>
<td>Sarah Sinclair - Acting General Manager - Auckland Emergency Management</td>
</tr>
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Update on the Tsunami Pilot Project

File No.: CP2019/15252

Te take mō te pūrongo

Purpose of the report

1. To update the Civil Defence and Emergency Management Group Committee on the Tsunami Work Programme including the ‘Tsunami Siren Pilot Project’ at Orewa.

Whakarāpopototanga matua

Executive summary

2. The Tsunami Work Programme identifies key actions and programmes aimed at understanding and reducing Auckland’s tsunami risk.

3. Auckland Emergency Management worked with the Coordinating Executive Group to prioritise the work programme by identifying high and medium priority actions.

4. Of the high-priority actions, all are currently underway including updating the Auckland region tsunami inundation and evacuation zones, developing a Public Education Strategy for communities with (and without) tsunami sirens, and a Public Alerting Framework that reflects advancements in the national alerting capability and Emergency Mobile Alert programme.

5. The ‘Tsunami Siren Pilot Project’ at Orewa is well developed and has assisted the overarching Tsunami Work Programme by providing an improved understanding of technical constraints and resource consent processes. It will help inform the larger regional strategy for tsunami education and local alerting options, to support the national programme. It is estimated that sirens will be installed in early 2020.

Ngā tūtōhunga

Recommendation

That the Civil Defence and Emergency Management Group Committee:

a) note the progress made on the Tsunami Work Programme, including the update on the Tsunami Siren Pilot Project at Orewa.

Horopaki

Context

6. A tsunami is a series of powerful waves caused by large, sudden disturbances on or near the ocean floor. All of Auckland's coastline is vulnerable to tsunami. Tsunami can hit the coast with massive force, creating strong currents and can travel considerable distances inland across low-lying areas. They are most commonly caused by earthquakes but may also be caused by underwater volcanic eruptions or landslides.

7. A tsunami risk review was carried out in Auckland in late 2018, which led to the development of a 10-year tsunami work programme.

8. At the 28 November 2018 Civil Defence and Emergency Management Group Committee meeting, Auckland Emergency Management outlined the high-level objectives of the Tsunami Work Programme, after a prioritisation exercise with the Coordinating Executive Group.

9. Many tasks can be developed concurrently, while some rely on outputs of key tasks and must be completed subsequently. Table 1 below outlines the tasks.
10. The work programme identifies the need to enhance Auckland’s tsunami evacuation zone mapping as a key priority. Given the importance of accurate data to minimise the risk of over-evacuation and of emergency planning efforts, the work programme signals intentions to increase the accuracy of Auckland’s tsunami evacuation zones as soon as possible.

11. The need to ensure the public responds appropriately to tsunami risk informs large parts of the subsequent work programme, including how we advise of risk, how we alert, and how the public responds in terms of knowing what to do, and doing it.

12. Since 2017, Auckland Emergency Management has had use of the Emergency Mobile Alerting (EMA) platform developed by the Ministry of Civil Defence and Emergency Management. This is intended to be the predominant tsunami alerting vehicle for New Zealand and is operated at a national level by the ministry to send tsunami warnings. This system substantially enhances the ability of response agencies to alert the public to significant life-safety events.

13. The ministry anticipates that close to 100 per cent capability to receive these alerts will be achieved over the next 3-5 years. However, that full capability to receive warnings on mobile phones does not necessarily mean that this system will be an effective warning system for the entire at-risk population in all circumstances.

### Table 1

<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Enhancements to Auckland’s tsunami inundation and evacuation zones</td>
<td>High Priority</td>
</tr>
<tr>
<td>2</td>
<td>Update of, and enhancement to, the Public Alerting Framework for Auckland (Public Alerting Strategy) including the ‘Tsunami Siren Pilot Project’ at Orewa *</td>
<td>High Priority – follows tasks 1, 3, alongside tasks 9 and 10</td>
</tr>
<tr>
<td>3</td>
<td>Development of a Public Education Strategy for Auckland (including social media plan, and plans for engaging hard-to-reach groups)</td>
<td>High Priority</td>
</tr>
<tr>
<td>4</td>
<td>Communication of Auckland’s tsunami risk, including recent GNS Science findings, Auckland’s vulnerabilities, gaps in public alerting capabilities etc. to the Auckland Civil Defence and Emergency Management Group and other elected members</td>
<td>High Priority, follows tasks 5 and 6</td>
</tr>
<tr>
<td>5</td>
<td>Development of tsunami vulnerability assessments*</td>
<td>Medium Priority - follows step 1</td>
</tr>
<tr>
<td>6</td>
<td>Audit of the tsunami-related research and identification of gaps in knowledge</td>
<td>Medium Priority – follows step 1</td>
</tr>
<tr>
<td>7</td>
<td>Tsunami risk reduction project with the Auckland Lifelines Group *</td>
<td>Medium Priority – follows task 1</td>
</tr>
<tr>
<td>8</td>
<td>Consideration of land-use activities and public information on tsunami-risk (including LIM reports) *</td>
<td>Medium Priority – follows task 1</td>
</tr>
<tr>
<td>9</td>
<td>Refinement and communication of Auckland’s tsunami Standard Operating Procedure (SOP)</td>
<td>Medium Priority</td>
</tr>
<tr>
<td>10</td>
<td>Finalisation of Auckland’s Operational Evacuation Plan *</td>
<td>Medium Priority – follows task 1</td>
</tr>
<tr>
<td>11</td>
<td>Consideration of Auckland Emergency Management’s and Auckland Council’s business continuity planning</td>
<td>Medium Priority</td>
</tr>
<tr>
<td>12</td>
<td>Resilient Recovery Strategy (now called the Pathways to Preparedness Recovery Strategy) to consider the recovery implications posed by a large tsunami event.</td>
<td>Medium Priority</td>
</tr>
</tbody>
</table>
14. Given that at present a substantial proportion of the population would be unable to be alerted using the EMA system, part of the work programme considers the types of, and need for secondary systems at high-risk locations.

15. Historically, two of the legacy councils (Waitakere and Rodney) installed sirens at some locations, prior to current tsunami zone modelling. These sirens emit tones rather than broadcasting of voice.

16. Technical standards released by the Ministry of Civil Defence and Emergency Management must be incorporated into existing siren systems by June 30, 2020. Where installed, tsunami siren networks must be consistent with fundamental principles, including:
   - Be one option in a wider, multi-channel tsunami warning system
   - Ideally being public address (PA) capable to allow for direct, event-related messaging
   - Capable of being used as an all-hazards alerting mechanism
   - Linked to continuous public education and evacuation planning activities
   - Use nationally consistent messaging and be attuned to the national warning system and ministry guidance.

17. A ‘Tsunami Siren Pilot Project’ was identified to test our understanding of what designing, consenting and installing compliant sirens based on modelled evacuation zones, to inform the alerting strategy, and consideration of raising public capability to plan and respond as part of our public awareness strategy. Orewa was chosen as a high impact site, based on the risk modelling, and the pilot project is underway.

Tātaritanga me ngā tohutohu
Analysis and advice

18. Some work programme actions are contingent on the completion of the enhancements to Auckland’s tsunami evacuation (and inundation) zones. Staff will return following the completing of the remodelling to discuss those initiatives. However, the key actions identified as “high priority”, and those actions not contingent on the evacuation and inundation remodelling will be updated here, as well as the ‘Tsunami Siren Pilot Project’ at Orewa.

Enhancements to Auckland’s tsunami evacuation (and inundation) zones

19. Scoping of a new model is underway, to understand key model components, interfaces and required outcomes.

20. Due to complexities in modelling Auckland’s intricate coastline, and the small number of organisations available to do this work, this project is unlikely to be fully delivered until late 2020. Therefore, the programme is being revised to stage delivery of key sections of Auckland’s coast, and start other elements as early as possible.

Update of, and enhancement to, the Public Alerting Framework for Auckland (Public Alerting Strategy)

21. The draft regional Public Alerting Framework, which included tsunami alerting, was endorsed by the Auckland Civil Defence and Emergency Management Group Committee at the 22 February 2017 meeting and consultation on the draft strategy was undertaken with local boards in late 2017.

22. Recently, GeoNet, the country’s natural hazard warning provider has moved to 24-hour operations, providing additional strength to the country’s national alerting programme. The ministry has also committed to operating a 24-hour duty system which strengthens national capability.

23. Recent improvements in information technology for other hazards has identified a greater opportunity to issue specific alerts and warnings. This will be reported on separately to committee when a proposal is developed.
Development of a Public Education Strategy for Auckland (including social media plan, and plans for engaging hard-to-reach groups)

24. The Capability and Public Awareness Team of Auckland Emergency Management are developing a collaborative Communications Strategy and Public Awareness and Education Strategy with partner agencies that will take an all-hazard approach but also include tsunami education and communication plans.

25. A pilot communication and education plan to support the ‘Tsunami Siren Pilot Project’ at Orewa is also being developed to integrate learnings into the wider strategy. This is described below.

Communication of Auckland’s tsunami risk, including recent GNS Science findings, Auckland’s vulnerabilities, gaps in public alerting capabilities etc. to the Auckland Civil Defence and Emergency Management Group and other elected members

26. The Capability and Public Awareness Team of Auckland Emergency Management are developing a collaborative Communications Strategy and Public Awareness and Education Strategy with partner agencies that will take an all-hazard approach but also include tsunami education and communication plans.

27. Specific workshops have been run with the Coordinating Executive Group over the past nine months, which include discussion and planning surrounding Auckland’s tsunami risk alerting, activation and evacuation response. These will continue to be run for other aspects of the tsunami work programme.

Tsunami Standard Operating Procedure (SOP)

28. Following a revision of the National Tsunami Advisory and Warning Plan in October 2018, the Auckland Emergency Management Standard Operating Procedure was updated. Standard Operating Procedures are used to plan and define the response process for an event.

29. The Auckland Emergency Management Tsunami Standard Operating Procedure will be revised again once the tsunami alerting strategy is finalised. There may be an interim iteration required after installation of the Orewa tsunami siren pilot, and other pilots.

Consideration of Auckland Emergency Management’s and Auckland Council’s business continuity planning

30. Auckland Emergency Management ensures the business continuity plans of the department and wider council organisation incorporate the risk of tsunami events. Additionally, tsunami events are used as a basis for table-top exercising and workshops with lead-teams from departments across council to test their business continuity plans and procedures.

Resilient Recovery Strategy (now called Pathways to Preparedness: a Planning Framework for Recovery) to consider the recovery implications posed by a large tsunami event

31. Pathways to Preparedness is currently in development and will be presented to the committee separately.
Update on the Tsunami Pilot Project at Orewa

32. While known generally at the ‘Tsunami Siren Pilot Project’, the project includes many elements of the overarching tsunami Work Programme as well as more in-depth reviews of key steps in the project. These include:
  - A risk and alerting review
  - A technical pilot, which includes consideration of the acoustic modelling, available technology and integration of sirens with Council systems
  - The resource consent and landowner approval process review
  - A public education and engagement strategy
  - An evaluation of the effectiveness of the entire alerting project at alerting tsunami risk.

33. In October 2018, the Hibiscus and Bays Local Board verbally approved the installation of two tsunami sirens and requested that staff undertake the necessary engineering investigations and acoustic modelling, and work with staff across council to find the most appropriate sites for siren installation.

34. On 8 August 2019 staff from Auckland Emergency Management met with the Hibiscus and Bays Local Board to update them on progress of the assessment of technology, acoustic modelling, and broadcasting capability. They also presented two proposed siren locations and discussed their potential constraints.

35. Siren hardware has been ordered and a working group consisting of technical experts from the project consortium, Auckland Emergency Management and Auckland Council ICT has been set up to ensure smooth integration and inter-operability of the new system within the current council ICT frameworks.

36. The final installation location and date of the sirens is contingent on the outcome of the resource consent applications lodged in early August and the landowner approval process currently underway. It is estimated that the sirens will be installed by early 2020.

37. For the Orewa sirens to be effective, a site-specific community education and engagement plan is being developed in parallel with a wider workstream within the public education strategy for communities with tsunami risk and the wider population that work, live or play in coastal areas.

Ngā whakaaweawe me ngā tirohanga a te rōpū Kaunihera
Council group impacts and views

38. Where applicable and possible, the wider council group will be included in the exercising, training and consultation of elements of the Tsunami Work Programme.

Ngā whakaaweawe ā-rohe me ngā tirohanga a te poari ā-rohe
Local impacts and local board views

39. All local boards were approached in 2017 during consultation on a revision of the Public Alerting Framework and Strategy. This included initial discussions regarding alerting methodologies or requirements the boards felt were most appropriate in their areas.

40. The Hibiscus and Bays Local Board area of Orewa was selected as the place for the ‘Tsunami Siren Pilot Project’ and have been involved in each step of the development process to date.

41. The board continues to voice it’s support for the ‘Tsunami Siren Pilot Project’ as it reflects the community’s wishes for enhanced local alerting in their area.

42. Other local boards with at-risk communities will be consulted based on the outcomes of the Tsunami Work Programme including the ‘Tsunami Siren Pilot Project’.
Tauākī whakaaweawe Māori
Māori impact statement

43. While there is no specific impact to Māori arising from this report, as the Tsunami Work Programme progresses, opportunities to collaborate with Māori communities identified in at-risk areas in risk reduction strategies and planning will be sought.

Ngā ritenga ā-pūtea
Financial implications

44. The 2015-2015 Long Term Plan assigned the entire Tsunami Work Programme a budget of $2.42 million over 10 years. It is expected that the tsunami work programme will be delivered from within existing budgets.

Ngā raru tūpono me ngā whakamaurutanga
Risks and mitigations

45. Large, potentially destructive tsunami, while rare, pose a significant life-safety risk for Auckland and New Zealand. The Tsunami Work Programme aims to implement various actions to reduce risk from tsunami in Auckland.

Ngā koringa ā-muri
Next steps

46. Auckland Emergency Management will continue implementing the individual programmes within the Tsunami Work Programme as prioritised by the Coordinating Executive Group.

Ngā tāpirihanga
Attachments

There are no attachments for this report.

Ngā kaihaina
Signatories

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<thead>
<tr>
<th>Author</th>
<th>Angela Doherty - Principal Science Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authoriser</td>
<td>Sarah Sinclair - Acting General Manager – Auckland Emergency Management</td>
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</tbody>
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Te take mō te pūrongo

Purpose of the report


Whakarāpopototanga matua

Executive summary

2. On 11 June 2019 the Ministry sought feedback on a proposed regulation framework for the safety of large dams. Feedback closed on 11 August 2019. As the opportunity for feedback fell outside the timeframes of the Civil Defence and Emergency Management Committee work plan, retrospective endorsement is sought for the submission.

3. The failure of a large dam has potential population impacts. Auckland Emergency Management supports the purpose of a dam safety framework, to better manage the potential risks of dams without imposing undue compliance costs. Taking a risk-based approach means that obligations on dam owners are proportionate to the risks their dams pose to the public, business and their properties and amenities.

4. Auckland Emergency Management expressed concerns that the framework did not include sufficient focus on practicalities of planning for dam failure, including communicating the risk to those at risk from the failure, and managing the additional risks posed by more vulnerable communities such as children, elderly and medically dependent, who may require more support to evacuate at-risk areas.

5. Auckland Emergency Management suggested that the dam owner should specifically have responsibility for defining alert and risk ‘triggers’ and for alerting those at risk.

6. The proposals relate to post construction, that is after land-use consenting and building consent has been obtained.

Ngā tūtohunga

Recommendation

That the Civil Defence and Emergency Management Group Committee:

a) endorse retrospectively the feedback to Ministry of Business, Innovation and Employment on the proposed dam safety regulatory framework which was submitted on 11 August 2019.

Horopaki

Context

8. The proposed new scheme is intended to pull together post-construction regulatory requirements into a single, consistent nationwide framework. The intent is to clarify that owners of dams will be responsible for ensuring that their dams are being managed appropriately, proportionate to the risk they pose.

9. The proposal aims to ensure that classifiable dams are well maintained and regularly monitored, and that potential risks of dam failure are reduced.

10. The framework also recognises that the dam safety requirements need to be regularly reviewed, because the consequences of dam failure can change over time due to factors such as site conditions, urban development or population growth.

11. A review of the documentation was undertaken, with guidance and input from Ross Roberts, council’s Geotechnical and Geological Practice Lead. A review of current evacuation practice was also undertaken with Auckland Emergency Management’s incident management team and Incident Management Team representatives from the Coordinating Executive Group.

12. The failure of a large dam has potential population impacts. Auckland Emergency Management supports the purpose of a dam safety framework, to better manage the potential risks of dams without imposing undue compliance costs.

13. Auckland Emergency Management supports dam owners taking a risk-based approach so that obligations on dam owners are proportionate to the risks their dams pose to the public, business and their properties and amenities.

14. Auckland Emergency Management expressed concerns that the framework did not include sufficient focus on practicalities of planning for dam failure, including communicating the risk to those at risk from the failure.

15. Auckland Emergency Management noted that some communities may be more vulnerable to dam failure, which should be considered specifically when planning for dam failure. These include children (in terms of schools and childcare facilities), elderly housing and those who are medically dependent, who may require more support to evacuate at-risk areas at pace.

16. Auckland Emergency Management suggested that dam owners should specifically have responsibility for defining alert and risk ‘triggers’ and for owning and operating the systems that would alert those at risk.

Ngā whakaaweawe me ngā tirohanga a te rōpū Kaunihera
Council group impacts and views

17. The submission was from Auckland Emergency Management only, as other parts of council and the Council Group are dam owners or dam regulators and would have a different focus in their feedback. However council’s technical advisor, Ross Roberts, worked with other council submitters to ensure consistency of technical assessment.

Ngā whakaaweawe ā-rohe me ngā tirohanga a te poari ā-rohe
Local impacts and local board views

18. Dam failure would impact extremely specific areas, depending on the dam location. There is a particular opportunity to work with specific local boards on the development and communication of response plans associated with dam failure planning.

Tauākī whakaaweawe Māori
Māori impact statement

19. Dam failure would impact extremely specific areas, depending on the dam location. An emergency event may adversely impact on land, water, sites of significance, waahi tapu flora or fauna affecting mana whenua and Māori wellbeing in general. The recovery from such an event would similarly affect mana whenua and Māori wellbeing.
Ngā tāpirihanga
Attachments

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Ngā kaihaina
Signatories

<table>
<thead>
<tr>
<th>Author</th>
<th>Jennifer Rose - Head of Recovery</th>
</tr>
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<tbody>
<tr>
<td>Authoriser</td>
<td>Sarah Sinclair - Acting General Manager – Auckland Emergency Management</td>
</tr>
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</table>
Proposed Regulatory Framework for Dam Safety

Submission for Auckland Council’s, Auckland Council’s Emergency Management Department

1. Introduction

The Ministry of Business, Innovation & Employment (MBIE) released a consultation document on the proposed dam safety regulations on 11 June 2019. This submission presents feedback from Auckland Council’s Auckland Emergency Management Department (AEM) on MBIE’s consultation document.

This submission focusses specifically on AEM’s role in Emergency Management, noting that Auckland Council has other roles in relation to dams, i.e. as a regulatory authority, as an asset owner, and via council-controlled organisations, such as Auckland Transport and Watercare. Council’s position for these other roles may be covered by separate submissions.

The submission is divided as follows:

- Section 1: Introduction;
- Section 2: Emergency Management
- Section 3: Key points from AEM’s submission;
- Section 4: Scope of the proposed dam safety regulations (comments on excluded structures and an)
- Section 5: Responses to discussion paper questions (following the sub-headings and questions in MBIE’s submission template); and
- Section 6: Further responses outside of the discussion paper questions (responses that do not readily belong under the sub-headings in MBIE’s submission template).

2. Key points of AEM’s submission

The key points of AEM’s submission are summarised as follows:

1. AEM supports the purpose of the dam safety framework that is stated in MBIE’s consultation document, i.e. to establish a nationally consistent approach to dam safety that better manages the potential risks of dams without imposing undue compliance costs.

2. AEM supports taking a risk-based approach whereby obligations on dam owners are proportionate to the risk their dam(s) pose to the public, business and their property and amenities.

3. AEM does not support the balance between risk management and compliance as currently represented in the proposed regulations. AEM has concerns that there is not enough focus on practicalities associated with planning for dam failure, including communication of risk to those at risk.

4. AEM does not support the proposed competencies for a ‘Recognised Engineer’. The benefits and costs of implementing the proposed regulations in detail will depend heavily on the judgement of a ‘Recognised Engineer’. A more specific and comprehensive description of competence is
recommended, similar to what has been developed by the New Zealand Geotechnical Society to inform the Chartered Professional Engineer (Geotechnical) assessment process\textsuperscript{1}.

5. \textbf{Additional guidance} will need to be developed to enable consistent practice by Recognised Engineers in areas that are more subjective and have significant impacts for dam owners. Potential Loss of Life estimates that govern PIC can be subjective. Minimum legal requirements for certifying compliance with a DSAP noting the New Zealand Dam Safety Guidelines (NZSOLD 2015) presents recommended rather than minimum practices, is not ideal from an emergency management perspective.

6. \textbf{Clarification} is recommended regarding the definition of ‘dam owner’ for the purposes of the proposed regulations. There are situations where the embankment/structure footprint, reservoir footprint, and appurtenant works are on land owned by different people/organisations. A dam may have multiple consents, which impose obligations and responsibilities on different parties. A dam may also have multiple purposes relevant to different owners/stakeholders. The purpose of storing, controlling or diverting the water, which makes the structure a ‘dam’, may be associated with a person/organisation that does not own the land on which the dam is situated. However, a defined owner must be responsible for public safety.

7. The proposed regulations need to be more robust in terms of planning for emergencies, with minimum requirements for public information, land information, evacuation planning, alerting and evacuation exercising.

The remainder of this submission includes further detail on the key points above.

3. \textbf{Scope of the proposed dam safety regulations}

\textbf{Introduction}

There are several structures that are not classifiable dams but may present a risk to people, property and the environment. Inadvertent dams, stopbanks, and dams in a cascade situation are discussed further below.

\textbf{Inadvertent dams}

AEM has assumed that inadvertent dams, i.e. structures that have the unintended but potential function of diverting, storing or holding back water, are generally outside the scope of the proposed dam safety regulations. As an example, an inadvertent dam could be a rail or road embankment that ‘heads up’ behind a culvert in a flood event but was constructed for the purpose of getting the rail/road across a stream rather than for the purpose of storing water.

Inadvertent dams are assumed to be excluded on the basis that these structures do not meet the definition of ‘dam’ in the Building Act 2004, due to not being constructed or used deliberately for the purpose of storing water. Nevertheless, some of these inadvertent dams can store volumes and depths of water comparable with ‘classifiable dams’, and thus present a significant risk to people, property, and the environment. It is not clear how local authorities and emergency managers can manage the risks associated with these structures without them being included in dam safety regulations.

\textsuperscript{1} To be clear, this is a parallel example for a different role, not intended to be adopted directly for a Recognised Engineer.
Stopbanks

AEM has assumed that stopbanks are outside the scope of the proposed dam safety regulations due to being a listed exclusion from the definition of ‘dam’ in the Building Act 2004.

Nevertheless, a failure of a stopbank could present a significant risk to people, property, and the environment and has done so in past failures. Given that they can pose as great a risk as some classifiable dams, serious consideration should be given to how stopbanks are regulated, such as including them in the regulations.

Dams in a cascade situations

AEM has assumed that a series of dams in cascade, which each individually do not meet the definition of ‘classifiable’, are outside the scope of the proposed dam safety regulations.

For example, a series of 3 m high dams in cascade each impounding 25,000 m$^3$ would be excluded from the regulations. However, failure of the upstream dam would likely result in failure of the dams located downstream. The failure of the series of dams in combination could potentially present a significant risk to people, property, and the environment.

Given that dams in this cascade situation can pose as great a risk as a single larger dam, AEM does not believe that it is appropriate for them to be excluded. A method for including these structures should be incorporated into the proposed regulations.

4 Practical Considerations of Dam Safety

PIC Ratings and vulnerable populations

The PIC rating of dams should take into account vulnerability of downstream population. Some parts of society (for example, occupants of residential care homes) may be significantly less able to evacuate in the event of an emergency. This is partially considered in Table 4 note 2, but should be strengthened by explicitly requiring consideration of the vulnerability of the population.

5. Responses to discussion paper questions

Proposed definitions of key dam safety terms

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Do you think the proposed definitions of key dam safety terms are appropriate?</td>
</tr>
<tr>
<td>2</td>
<td>If you do not think any of the proposed definitions are appropriate, can you make suggestions on how any of them can be improved?</td>
</tr>
</tbody>
</table>
(1) A definition of ‘dam owner’ for the purposes of the dam safety regulations should be added. For some dams, the land occupied by the reservoir, dam embankment/structure, and appurtenant structures, is owned by different organisations. Consents associated with the structure may also be held by different organisations, and impose conditions and monitoring obligations. The structure may have multiple purposes, each associated with different stakeholders or owners, and only one of these purposes may relate to the structure’s function as a dam that stores, controls, or diverts water. There may be service agreements already in place between the organisations that likely do not account for the proposed dam safety regulations.

(2) A classifiable dam is defined in MBIE’s consultation document as including either a ‘large’ dam, or a dam of less than 4m in height and holding 30,000m³ or greater volume. A minimum height should be specified for the second category to avoid capturing low risk dams, such as predominantly excavated ponds.

(3) The definition of ‘large’ dam and ‘classifiable’ dam should be aligned to provide a simpler, less confusing approach, and remove the apparent discrepancy between dams that require regulation in terms of building consents (‘large’ dams) versus post-construction dam safety management (‘classifiable’ dams). If the different definitions are kept, the reason the two activities warrant a different basis for regulation should be explained.

(4) The measured height and volume to identify classifiable dams needs to be consistently and clearly defined. Refer to further comments in the response to Question 11.

(5) There should be some definition of the vulnerability of existing downstream populations, which may include groups such as elderly, medically dependent and children, access or egress constraints, availability of communication resources, and variability in day time and night time populations.

<table>
<thead>
<tr>
<th>3</th>
<th>Do you have any comments on how these proposed terms will work in practice?</th>
</tr>
</thead>
</table>

_The practicalities of planning for a safe failure is expected to be one of the major challenges in implementing the proposed regulations, thus the recommendation above consider population constraints, and minimum standards for safety planning._
## Proposed ‘Recognised Engineer’ requirements

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>4</td>
<td>Do you agree with the proposed qualification requirements for a ‘Recognised Engineer’?</td>
</tr>
<tr>
<td></td>
<td>Yes, though noting this may be affected by proposed changes to occupational regulation within the building sector.</td>
</tr>
<tr>
<td>5</td>
<td>Do you agree with the proposed competencies for a ‘Recognised Engineer’?</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td>6</td>
<td>If you do not agree with the proposed qualifications and competencies, please comment on what they should be.</td>
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<td></td>
<td>AEM’s two key comments are:</td>
</tr>
<tr>
<td></td>
<td>• Some of the proposed competencies should be compulsory, rather than optional.</td>
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<tr>
<td></td>
<td>• A more specific and comprehensive description of competencies is warranted.</td>
</tr>
<tr>
<td></td>
<td>Further detail on these two comments is provided following.</td>
</tr>
<tr>
<td></td>
<td>At present, the definition states that the Recognised Engineer meets all or some of the competencies. Some of the listed competencies are essential to undertake the proposed activities of a Recognised Engineer, and thus should be compulsory, rather than optional.</td>
</tr>
<tr>
<td></td>
<td>The benefits and costs of the proposed regulations will depend on what PIC is assigned, the content of a DSAP, and what is deemed to represent compliance with a DSAP. These aspects of detailed implementation will have substantial implications for dam owners, are not rigidly defined, and will depend heavily on the judgement of a ‘Recognised Engineer’.</td>
</tr>
<tr>
<td></td>
<td>Given this dependence on Recognised Engineers, a more specific and comprehensive description of competencies is warranted. As an example, the New Zealand Geotechnical Society has prepared a Body of Knowledge and Skills (BOKS) to complement and inform the Chartered Professional Engineer assessment process: <a href="https://fl.nzgs-media.s3.amazonaws.com/uploads/2016/12/CPEng-Geotechnical-BOKS-2019-05.pdf">https://fl.nzgs-media.s3.amazonaws.com/uploads/2016/12/CPEng-Geotechnical-BOKS-2019-05.pdf</a> (To be clear, this is a parallel example for a different role, and is not intended to be adopted directly for a Recognised Engineer.)</td>
</tr>
<tr>
<td></td>
<td>In particular, many Engineers may believe they are familiar with emergency planning and emergency response, but a minimum requirement such as Foundation level CDEM training in the Region of the dam or proposed dam, should be mandatory.</td>
</tr>
<tr>
<td>7</td>
<td>What evidence should be attached to the certificate provided by the engineer (for example a CPEng registration number) to show the engineer is a ‘Recognised Engineer’?</td>
</tr>
<tr>
<td></td>
<td>CDEM evidence of training</td>
</tr>
</tbody>
</table>

### Role of the Recognised Engineer

The regulations should clearly identify whether a Recognised Engineer has to prepare a PIC or DSAP themselves, or whether they can audit / certify a PIC or DSAP prepared by others, and what level of review is required for audit / certification.

This clarification may affect whether PICs and DSAPs can be largely prepared in-house by experienced dam owners or by engineers that are not Recognised Engineers, and only audited and
certified by Recognised Engineers. In turn, this will have implications for the validity of competence assessment and the suitability of dam safety plans for evacuation purposes.

Implementing the proposed dam safety regulations

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
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<tbody>
<tr>
<td>8</td>
<td>The proposed timeframe for regulations to come into force is 12 months after they are gazetted. Do you think this timeframe is adequate?</td>
</tr>
<tr>
<td></td>
<td><strong>Probably not.</strong></td>
</tr>
<tr>
<td></td>
<td>The three month period between the regulations coming into force and dam owners submitting PIC for all classifiable dams seems optimistic. However, it may be difficult to change this period given it is part of the Building Act 2004. This overly short period could potentially be offset by providing a longer period between the regulations being gazetted and coming into force. A two year period between the regulations being gazetted through to submitting PICs for all classifiable dams seems more realistic. The Recognised Engineer register would need to be established before the regulations are gazetted, and most of the PIC assessments would need to be completed before the regulations come into force.</td>
</tr>
<tr>
<td></td>
<td>The time to develop and consult on safety plans should also be considered.</td>
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<tr>
<td></td>
<td>It would be preferable to change the timeframe between the regulations coming into force and dam owners submitting PICs directly, rather than compensating by extending the period between the regulations being gazetted and coming into force. Some dam owners may not take action until the regulations come into force given there is a history of regulations being deferred and revoked.</td>
</tr>
<tr>
<td>9</td>
<td>If you do not think the timeframe is adequate, please tell us how much time you would prefer.</td>
</tr>
<tr>
<td></td>
<td>As noted above, a two-year period between the regulations being gazetted through to submitting PICs for all classifiable dams seems more realistic, noting the timeframe should be confirmed based on the likely number of PICs required, average time to complete an assessment, and the likely number of Recognised Engineers, plus the potential minimum requirements for safety planning.</td>
</tr>
</tbody>
</table>

**Timeframes for implementation**

Several recommendations are made in relation to other timeframes embedded in the dam safety framework:

- In terms of implementing the regulations in the proposed timeframes, one of the major challenges is the time required to work through complex ownership situations. Refer to further discussion under Questions 2 and 29.
- Another major challenge for implementing the regulation in the proposed timeframes, is the time required to engage with stakeholders to obtain information as inputs to dam safety reviews and to work collaboratively on operation, maintenance, surveillance, and emergency response activities as part of a DSAP. Refer further discussion under the subheading ‘Responsibilities for stakeholders’ towards the end of this submission.
- Consideration could be given to enabling some staging of implementation where a dam owner has a very large number of dams, where ownership is complex, or where obtaining inputs from stakeholders is outside of the dam owner’s control. This may have benefits for staggering work load for Recognised Engineers, and thus resourcing the assessments within the proposed timeframes.
### Core elements: step 1 of the dam safety regulations

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
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<tbody>
<tr>
<td>10</td>
<td>Do you agree with the proposed classification threshold to determine if a dam is a classifiable dam?</td>
</tr>
<tr>
<td></td>
<td>No</td>
</tr>
<tr>
<td>11</td>
<td>If you do not agree, what other measure could be used?</td>
</tr>
<tr>
<td></td>
<td>(1) The dam classification should be able to look at downstream risk, even for smaller dams, if there is a vulnerable population at risk</td>
</tr>
<tr>
<td>12</td>
<td>Do you agree that it is unnecessary to have a separate category for referable dams (considering the proposed classification threshold and regional authorities’ powers under section 157 of the Building Act)?</td>
</tr>
<tr>
<td></td>
<td>AEM supports removing the referable dam category, given the latest proposed definition of classifiable dam.</td>
</tr>
</tbody>
</table>

### Core elements: step 2 of the dam safety regulations

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
</tr>
</thead>
<tbody>
<tr>
<td>13</td>
<td>Do you agree with the proposed Potential Impact Classification system in step 2?</td>
</tr>
<tr>
<td></td>
<td>The population at risk needs to have greater consideration of vulnerability and of the ability to remove (or self-direct) people from the hazard zone at short notice. There also needs to be clarity of the term ‘population’ being workers or those visiting/transiting through the hazard zone as well as residents.</td>
</tr>
<tr>
<td>14</td>
<td>If you do not agree with the proposed Potential Impact Classification system, what alternative system, or changes, do you suggest for classifying the potential impact of a dam’s failure?</td>
</tr>
<tr>
<td></td>
<td>We would suggest that consideration of the number of people at risk specifically needs to consider vulnerable populations such as elderly, children and medically dependant, and not include classifications of ‘minimal’ or ‘moderate’ damage for populations that include school, elderly, accommodation facilities or medical facilities, where any populations numbers are at risk.</td>
</tr>
</tbody>
</table>
### Core elements: steps 3 and 4 of the dam safety regulations

<table>
<thead>
<tr>
<th>Item</th>
<th>Question</th>
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<tbody>
<tr>
<td>15</td>
<td>Do you agree with the proposed content of a Dam Safety Assurance Programme?</td>
</tr>
<tr>
<td></td>
<td><strong>DSAP based on recommended practice versus ‘bottom line’ requirements</strong></td>
</tr>
<tr>
<td></td>
<td>There is a difference between recommended industry practice as represented in the New Zealand Dam Safety Guidelines (NZSOLD 2015), and ‘bottom line’ requirements below which fines, and legal action are appropriate.</td>
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<tr>
<td></td>
<td>The regulations should development of a DSAP based on recommended practice to best reduce dam safety risks, rather than minimum requirements before fines are incurred. We note that compliance against this DSAP will then be assessed on an ongoing basis through the Annual Dam Compliance Certificate process, which may discourage dam owners from adopting a more stringent DSAP at the outset.</td>
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<tr>
<td></td>
<td>To avoid this conflict, the Annual Dam Compliance Certificate should explicitly set a minimum standard for any areas where an Emergency response (by others than the dam owner) would be needed for failure risk. The process should also allow for non-compliance with elements of the DSAP that are above minimum legal requirements. Guidance on minimum legal requirements would also be valuable to support consistency when Recognised Engineers are assessing compliance with a DSAP. Refer also to the response to Question 30.</td>
</tr>
<tr>
<td></td>
<td><strong>Triggers and alerting</strong></td>
</tr>
<tr>
<td></td>
<td>In Table 5, Element 6, Emergency preparedness, should also include ‘triggers’ which work within CDEM requirements, and alerting to be carried out by the dam owner.</td>
</tr>
<tr>
<td></td>
<td>The DSAP should explicitly define how the dam owner will be alerting affected populations.</td>
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<tr>
<td></td>
<td>For high PIC dams the requirement to exercise the emergency plan should include a requirement for the exercise to be undertaken in conjunction with the affected communities so that their response to the emergency action plan can be assessed.</td>
</tr>
<tr>
<td>16</td>
<td>Do you think there are any elements in the Dam Safety Assurance Programme that are missing or are too onerous?</td>
</tr>
<tr>
<td></td>
<td><strong>Managing dam safety issues</strong></td>
</tr>
<tr>
<td></td>
<td>Table 5 of MBIE’s consultation document should include definition of the need to notify emergency authorities of any substantive dam safety concerns, with urgency.</td>
</tr>
<tr>
<td></td>
<td><strong>Other</strong></td>
</tr>
<tr>
<td></td>
<td>It is essential for emergency planning that dam break flood plain maps are available to the public, presented in a form is consistent between dam owners, and that allows the maps to be used in commonly available GIS systems.</td>
</tr>
<tr>
<td>17</td>
<td>Do you agree that there is no need for an accreditation regime at present?</td>
</tr>
<tr>
<td></td>
<td><strong>No comment.</strong></td>
</tr>
</tbody>
</table>
### Dangerous, earthquake-prone and flood-prone dams

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>18</td>
<td>Do you agree with the proposed definition of ‘moderate earthquake’?</td>
<td>No</td>
</tr>
<tr>
<td>19</td>
<td>Do you agree with the proposed definition of ‘moderate flood’?</td>
<td>No comment</td>
</tr>
<tr>
<td>20</td>
<td>If you do not agree with the proposed definitions of ‘moderate earthquake’ and ‘moderate flood’, what definitions do you consider more appropriate, and why?</td>
<td>Some flexibility should be enabled for flood detention dams (and stopbanks and the like, if included) in terms of the return period for a ‘moderate earthquake’. Many flood detention dams are dry most of the time, so the exposure time for uncontrolled release of water due to an earthquake is much lower than for a dam with a permanent pool of water. Even if a flood detention dam failed in a moderate earthquake, there may be minimal downstream consequences if the dam is dry at the time and if it is reasonable to expect the dam can be made safe before a subsequent flood occurs. Refer also to further discussion under the ‘Guidance and forms for compliance’ sub-heading.</td>
</tr>
<tr>
<td>21</td>
<td>For owners of dams: What impacts (if any) would the proposed definitions of ‘moderate earthquake’ and ‘moderate flood’ have on the management of your dams?</td>
<td>No comment</td>
</tr>
<tr>
<td>22</td>
<td>For regional authorities: What (if any) potential issues do you see in applying the definitions of ‘moderate earthquake’ and ‘moderate flood’?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Question</td>
<td>Response</td>
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</tr>
<tr>
<td>23</td>
<td>Do you agree with the proposed definition of ‘earthquake threshold event’?</td>
<td>No</td>
</tr>
<tr>
<td>24</td>
<td>Do you agree with the proposed definition of ‘flood threshold event’?</td>
<td>No comment</td>
</tr>
<tr>
<td>25</td>
<td>If you do not agree with the proposed definitions of ‘earthquake threshold event’ or ‘flood threshold event’, what definitions do you consider more appropriate and why?</td>
<td>Some flexibility should be enabled for flood detention dams (and stopbanks and the like, if included) in terms of the return period for an ‘earthquake threshold event’. Refer also to the response under Question 20 above.</td>
</tr>
<tr>
<td>26</td>
<td>For owners of dams: What impacts would the proposed definitions of ‘earthquake threshold event’ and ‘flood threshold event’ have on the management of your dams?</td>
<td>Not applicable</td>
</tr>
<tr>
<td>27</td>
<td>For regional authorities: What (if any) potential issues do you see in applying the definitions of ‘earthquake threshold event’ and ‘flood threshold event’?</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

**Guidance and forms for compliance**

<table>
<thead>
<tr>
<th></th>
<th>Question</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>28</td>
<td>For regional authorities: What information would you need to ensure the regulations are implemented effectively?</td>
<td>Not applicable</td>
</tr>
<tr>
<td>29</td>
<td>For owners of dams: What information would you need to ensure the regulations are implemented effectively?</td>
<td>Not applicable</td>
</tr>
<tr>
<td>30</td>
<td>Do you have any comments on the proposed content of the forms for a Dam Classification Certificate, Dam Safety Assurance Programme or Annual Dam Compliance Certificate?</td>
<td>See previous comments on smaller scale dams or non-classified structures within populations at risk down stream.</td>
</tr>
</tbody>
</table>
## Regulatory impacts

<table>
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<tr>
<th>Item</th>
<th>Question</th>
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<tbody>
<tr>
<td>31</td>
<td>Can you describe any other costs and benefits not discussed in Table 6?</td>
</tr>
</tbody>
</table>
|      | The regulations will provide greater emphasis and clearer requirements for dam safety management, which will provide a better basis for funding these activities. The example costs in Section 8 of MBIE’s consultation document are viewed as helpful for budgeting for dam owners. As an added benefit, the costs also provide a rough indication of the scale of assessment that is intended, which supports consistency of assessments. The following additional costs are not clearly identified in Table 6:  
- Developing policy around dam safety and associated hazard  
- Managing communications with stakeholders, public, and downstream residents, and particularly the costs of informing people who may be aware of being in a dam break area.  
- Investigations and physical works to address dam safety issues.  
- Updating LIMs (we recommend that dam break hazard is included on LIMs)  
- Updating land use zoning and associated consultation.  
- Processes and physical works associated with emergency preparedness, i.e. consulting residents, training and drills with civil defence and external parties, and installation of warning systems  
- Engaging with Māori as partners where there are customs and protocols in connection to a waterway or wastewater pond with a dam. |
| 32   | For regional authorities:  
In your experience what will be the likely cost of administering the proposed dam safety regulations e.g. additional resource requirements? |
|      | Not applicable |
| 33   | For owners of dams:  
Are you following the NZSOLD dam safety guidelines? |
|      | Not applicable |
| 34   | If you are following the NZSOLD dam safety guidelines, please tell us about any additional costs you may incur from implementing a Dam Safety Assurance Programme? |
|      | Not applicable |
| 35   | If you are not following the NZSOLD dam safety guidelines, please tell us about any additional costs you may incur from implementing a Dam Safety Assurance Programme? |
|      | Not applicable |

### 6. Further responses (outside of discussion paper questions)
Responsibilities for stakeholders

At present, it appears that stakeholders are not allocated any legal responsibilities under the regulations. However, a dam owner may need to obtain information from a stakeholder or work with a stakeholder collaboratively to fulfill obligations under the regulations.

For example, a stakeholder could comprise a separate organisation with a utility buried in the dam embankment, and it may be necessary to obtain information on the utility and monitor its condition as part of a DSAP. This would be even more complicated if the ‘dam owner’, does not own the land relevant to the stakeholder’s asset.

It is recommended that a mechanism is identified in the regulations for dam owners to engage with stakeholders, where the stakeholder influences dam safety directly.

Requirement for Alerting

The dam owner should specifically have responsibility for alerting those at risk, and defining ‘alert’ triggers (in conjunction with the Recognised Engineer).

Requirements to consult with affected parties and share flood maps

Regulatory requirements to mandate the following activities for those dams where the consequence/risk of failure is at a specified level:

- Communicating the dam break hazard to affected parties, such as local businesses, residents, and owner/operators of assets and infrastructure. Consideration should also be given to how the dam owner needs to inform parties that do not see LUMs, such as tenants and visitors.
- Communicating the dam break hazard maps and plans to local emergency management agencies, and involving such agencies in development of the plans (particularly evacuation planning) to ensure they are viable and practicable.
- Making dam break flood maps publicly available in an easily accessible location and in a useful GIS-based format.

The intent of the recommendations above is:

- To avoid people making uninformed decisions because they are unaware of the risks.
- To support local emergency management agencies to plan for these risks in terms of resourcing, expertise, and funding.
- Having minimum requirements for evacuation plan exercising.

Review of the regulations

Further detail is requested regarding the proposed process for reviewing the regulations following initial implementation, i.e. proposed timeframes and scope of that review.
Te take mō te pūrongo
Purpose of the report
1. To seek retrospective approval from the committee on its feedback to the consultation draft of Coordinated Incident Management System 3rd Edition.

Whakarāpopototanga matua
Executive summary

3. Auckland Emergency Management developed an initial draft for comment by member agencies of the Coordinating Executive Group, which was subsequently amended to include comments received from the Group.

4. The extent of change between the 2nd and 3rd editions of CIMS meant that comprehensive feedback was provided to the Ministry which generally supported the changes but also made comment seeking amendments.

5. The feedback supported greater recognition of the importance of community responses and to ensure integration of community and coordinated responses. There was also a need to ensure that the 3rd edition remained consistent with the Civil Defence Emergency Management Act 2002. The Group’s view was that the relationship between the Controller, Deputy Controller, Response Manager and Chief of Staff needed clarification, as did the allocated responsibility for safety. Recognition of Lifelines’ essential role in CIMS was also identified.

6. Feedback also recognised the role of mana whenua in supporting an emergency response; the intention to shift information collection from the planning function to the intelligence function; and confirmed that the Geographic Information Systems (GIS) is best located in the intelligence function. A copy of the Group’s feedback is attached as attachment A.

7. Retrospective approval is sought from the committee as the timeframe did not allow approval to be obtained in prior to the closing date.

Ngā tūtohunga
Recommendation
That the Civil Defence and Emergency Management Group Committee:

a) approve the Auckland Civil Defence Emergency Management Group’s feedback on the consultation draft of the Coordinated Incident Management System 3rd Edition.
Ngā tāpirihanga
Attachments

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<th>No.</th>
<th>Title</th>
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<tr>
<td>A</td>
<td>Auckland Civil Defence Emergency Management Group feedback on</td>
<td>193</td>
</tr>
<tr>
<td></td>
<td>Coordinated Incident Management System 3rd Edition</td>
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</tr>
</tbody>
</table>

Ngā kaihaina
Signatories

| Authoriser | Sarah Sinclair - Acting General Manager – Auckland Emergency Management |
Appendix 1 – Specific Comments

Coordinated Incident Management System (CIMS)


Feedback of
Auckland Civil Defence Emergency Management Group
Appendix 1 – Specific Comments

1.0 Introduction

1. Auckland, as part of New Zealand has been shaped by the country’s location along the intersection of the Australian and Pacific Plates. Auckland is centered on an isthmus between two harbours at the North Island’s narrowest point. Auckland’s volcanic cones and lava flows form a distinctive landscape. Development in the city region hugs the coast while expanding to the north and south, along the main transport corridors.

2. Auckland has New Zealand largest and most diverse population, greatest concentration of urban dwellers as well as large numbers of people across its peri-urban and rural areas, and off-shore islands. While only one of New Zealand’s 16 Civil Defence Emergency Management Groups the Auckland region hosts about a third of New Zealand’s population and around 40%\(^1\) of the economy. We understand the importance of the Coordinating Incident Management System working for Auckland.

3. Auckland Civil Defence Emergency Management Group appreciates the opportunity to provide comment on the Working Draft, Version 1.5 of the 3rd edition of the Coordinated Incident Management System and makes comment based on its experience in the Auckland context. Auckland Civil Defence Emergency Management Group provides the Auckland region’s civil defence emergency management functions for Auckland Council, New Zealand’s largest unitary authority. Auckland Emergency Management operationalises the Group’s role supported by the Coordinating Executive Group partners:
   - NZ Police
   - Fire and Emergency New Zealand
   - New Zealand Defence Force
   - St John Ambulance
   - Ministry of Social Development
   - Auckland Transport
   - Auckland Lifelines

1. In the remainder of this document references to:
   - CDEM refer to Civil Defence Emergency Management function
   - Auckland Group refer to Auckland Civil Defence Emergency Management Group
   - CEG are to Auckland’s Civil Defence Emergency Management Coordinating Executive Group
   - CIMS are to the Coordinating Incident Management System, 2nd or 3rd edition as indicated.

\(^1\) Auckland’s contribution to national GDP rose 2.1 percentage points (to 37.2 percent)-per most recent figures - 2016
Appendix 1 – Specific Comments

2.0 Comment

1. In this part, high level general comment is followed by comment on sections of the draft 3rd edition of CIMS. Attachment 1 set outs more specific comment and changes sought by the Auckland Civil Defence Emergency Management Group in the tabular form provided.

2.1 General Comment

2. The review of the 2nd edition of CIMS has been comprehensive and detailed with numerous changes throughout the draft 3rd edition enlarging its scope and intended audience. For example, the audience CIMS is aimed at now includes ‘organisations’ (p 4) including businesses (p 90) as emphasised by the addition of ‘business continuity disruption’ as a use of CIMS (p 4) and Example 2, (computer hacking) in Section 5 Application of CIMS (p 58).

3. The draft CIMS 3rd edition clarifies in writing aspects of CDEM response that were not included in the 2nd edition and have been handled in different ways across the country. Examples include:
   - acknowledging the role that mana whenua should play in response and recovery reflects the steps individual CDEM Groups have taken around the country to include them as a response partner, or, in some cases, a CIMS
   - the relocation of information collection activities from the planning function to the intelligence function
   - locating management of the GIS function within the intelligence function.

1. The review of CIMS 2nd edition also highlighted the need for greater acknowledgement of the community’s role in response. Auckland Emergency Management has also responded to this importance by creating a community liaison officer role separate from other response and welfare liaison officers in our current enhanced CIMS structure. This role sits in Operations, Welfare, or as a technical expert depending on the type of response required. This role enabled better connections with Auckland’s diverse communities when supporting New Zealand Police in Auckland, as they led the national response to the Christchurch shootings.

2. Recognition of the importance of engaging with iwi and Māori by the inclusion of representatives on the Incident Management Team (IMT) and Treaty of Waitangi obligations to be considered at all levels of incident are welcomed. The use of Māori translations for the CIMS principles is acknowledged.

3. The Auckland Group generally supports the changes introduced in the 3rd edition of CIMS but has made some recommendations for change both subsequently in this section and specific changes proposed in Attachment 1.

4. The enlarged scope and intent of the draft CIMS 3rd edition correspondingly requires a larger glossary and is supported by a refinement of higher order principles and the introduction of characteristics.
Appendix 1 – Specific Comments

5. This broader approach is viewed as supporting a greater shared understanding across participants in an emergency management environment. However, the operating environment is different for participants at different levels of the system and in different locations. Care is required to ensure that these differences are accurately reflected and accommodated in CIMS 3rd edition. For example, it is noted however, that this approach makes more extensive use of the word ‘incident’ than previously. CIMS 2nd edition defined “response” as;

“means the actions taken immediately before, during or after an emergency to save or protect lives and property, and to bring the consequences of the emergency to a point of stability that allows Recovery to take over”.

In contrast, the draft 3rd edition shortens “response” to;

“is the actions taken immediately before, during or after an incident to save or protect lives and property and that bring the consequences to a point of stability.”

6. It is appreciated that while this language enables the application of CIMS to a wider range of circumstances it also changes meaning and can be read as departing from the CDEM framework established under the Civil Defence Emergency Management Act 2002 as it applies to CDEM Groups. Further comment is made on this change of language elsewhere in the next section and in the appendix.

Recommendation

7. The Auckland Group recommends that great care is taken to ensure that in taking a wider approach to incident management, CIMS 3rd edition is not inconsistent with nor contradicts legislative provisions that govern emergency management in a particular context, such as the Civil Defence Emergency Management Act 2002.

8. While recognising the draft status of Version 1.5 of the 3rd edition of CIMS some inconsistencies are noted. For example, in section 4.10.1 (page 49) reference is made to the ‘delivery of welfare services to individuals, families/whānau and communities, including animals’. Thereafter the draft refers to ‘people and animals’.

Recommendation

9. The Auckland Group recommends a check on the consistent use of language to ensure consistent understanding of meaning before CIMS 3rd edition is officially adopted.
Appendix 1 – Specific Comments

2.2 General Comment by Section

10. Further comment is made in the following sections in respect of the corresponding section of the draft 3rd edition of CIMS. Specific comments and the corrective changes proposed are set out in Attachment 1.

Section 1 - Introduction

11. Under the heading ‘1.4 When to use CIMS’, the terrorism and cyber security incidents have been omitted although the Terrorism Suppression Act 2002 remains listed in section ‘1.2 – Mandates’. It is also noted that cyber security is used as Example 2 in Section 5 – Application of CIMS (page 60). Clarity is needed whether or not these are included.

Recommendation

12. The Auckland Group recommends:

the terms ‘terrorism’ and ‘cyber security’ are included in the list of incidents where CIMS can be used in section 1.4. unless it is government’s intention that CIMS not be used for these types of events.

Section 2 – CIMS Foundations

13. Content under the ‘Responsive to community needs / Uru pare ki nga hiaha hapori’ CIMS principle in 2.2.1 states ‘Response personnel need to effectively communicate with communities to understand, integrate and align with the community response” reversing the former statement that 2nd edition CIMS that ‘Community response actions need to be coordinated with the official response’. This proposition sees the community response prevail over the coordinated response.

14. It is possible that a community response may be inconsistent with the intent and accountabilities of a coordinated response. The clear preference is that coordinated, and community responses are not inconsistent and able to be integrated to ensure safety, delivery within available resources and time frames and without adverse implications for recovery. Clarity confirming that the coordinated response prevails in the event of conflict is required.

Recommendation

15. The Auckland Group recommends CIMS 3rd edition make it clear that:

- both community and coordinated responses are required
- the preference is that community and coordinated responses are integrated
- And that a coordinated response prevails over a community response where they are in conflict.

1. The Auckland Group has suggested some rephrasing to address this concern is included in Attachment 1.
Appendix 1 – Specific Comments

2. The CIMS 3rd edition contains changes to content on unified control, when to use it and what organisations may be involved. CIMS 2nd edition was more directive, requiring “a combined decision-making body’ and establishment of a ‘joint coordination centre’. Even with agreed ‘division of responsibilities’ there is potential for gaps in integration or less effective response coordination to arise.

Recommendation

3. The Auckland Group recommends that the 3rd edition CIMS state a preference for an agreed lead controller being appointed for a situation requiring unified control.

Section 3 – Supporting Protocols and Systems

4. Overall the 3rd edition of CIMs establishes a framework that is modular, scalable and flexible yet also providing direction. It is intended to be authoritative based on doctrine though requiring judgement (page 10).

5. The two main elements of this framework are incident classification and greater specificity of the IMT functions. On one hand, incident management is described as ‘fluid’, ‘not fitting cleanly’ with ‘many grey areas’ and based on discretion of the incident controller. On the other hand, the reworking of the IMT functions in Section 4 are very detailed, implying a reduction in the local control of implementation of functions, and a rigidity of application.

6. The Incident Classification System is a useful tool to help clarify the severity of an incident, the proportionate response and assists forecasting and understanding likely incident progression so long as it is not applied too rigidly. Incorporation of ‘trending’ into templates is also a useful addition.

7. The different nature of these two parts elevates the importance of getting the right incident classification, especially given that “the incident controller must consider all of the CIMS functions and perform those that apply” (page 58).

8. Incident classification will also help frame the scale/type/nature of a response in an appropriate context aiding readiness, the development of Standard Operating Procedures and contingency plans based on a potential incident’s severity. For example, staffing or resource plan guidelines can be made based on the potential requirements of a R2 event ahead of time, so that when the Controller activates the Emergency Coordination Centre and designates an incident level, the Logistics Manager has a better sense of the level of resourcing requirements.

9. Unlike previously, the approach to incident management is described as ‘networked hierarchy’. There is often a desire to solidify the structure into a single rigid system whereas “networked hierarchy” is expressly flexible. This is supported provided necessary lines of command are not undermined.

Recommendation (s)

10. The Auckland Group recommends that 3rd edition CIMS makes clear that its structure is flexible to meet the needs and the intent of the incident response.
Appendix 1 – Specific Comments

11. The Auckland Group recommends that 3rd edition CIMS makes sure that the network authority proposed does not undermine necessary lines of command.

Section 4 – The CIMS Functions

12. Responsibilities, key elements and sub-functions are each addressed in expanded content for each IMT function to provide greater clarity and specificity. However, some of these key elements may be successfully performed by other functions at present. This is discussed further below in subsequent comments.

Control

13. The function of a “Lead Controller” is detailed as being the individual with overall oversight of the response and the sole holder of extraordinary legislative powers.

14. Provision for the role of Deputy Controller is not clear in its intent. There is the opportunity to incorporate “Deputy Controllers” into a response but only in support of the Lead Controller. The relationship between the Controller, Deputy Controller and Response Manager/Chief of Staff should be better explained as we are concerned the proposed hierarchy under CIMS 3rd edition has too many layers in it.

Recommendation

15. The Auckland Group recommend better explaining the relationship between the Controller, Deputy Controller and Response Manager/Chief of Staff.

16. In an extended response or changing and dynamic decision-making environment, not being able to change the response priorities or Action Plan is detrimental and would require a single individual to be engaged in the response from start to end. In Auckland we are trialing a different system whereby Controllers are rotated on and off for blocks of time during a response. Under this system the original Controller’s intent prevails and is amended only if required to maintain ensure appropriate focus on response priorities. This allows flexibility in the way a response can develop within a changing situation.

Recommendation

17. The Auckland Group suggest clarity is provided on the use of legislative powers where another Controller needs to change a decision of the Lead Controller.

18. The title Response Manager should be bracketed with the title ‘Chief of Staff’ as they are both commonly used for the same role. This level of clarity is preferred to provision being made in the glossary alone.

Recommendation

19. The Auckland Group recommends the title of the Response Manager is bracketed with ‘Chief of Staff’ throughout 3rd edition CIMS – i.e. Response Manager/Chief of Staff.
Appendix 1 – Specific Comments

20. The role of the Controller’s Assistant is understated in the document. During a response this role is both vital and extremely involved. The reporting can be significant and scheduling, note-taking and the recording of key decisions may require the Controller’s Assistant role to accommodate multiple individuals. Clearer accommodation, guidance and advice would be appreciated for this role. The Auckland Group is happy to provide what the Group uses in Auckland for consideration.

Recommendation

21. The Auckland Group recommends the 3rd edition CIMS makes clear that the role of the Controllers Assistant can be performed by more than one person at a time, and provides more guidance on the role if the current level of detail on other roles is maintained in the final document.

Safety

22. The elevation of the importance of safety is understood, although it is not clear that the managerial/financial/decision-making responsibilities assigned to this CIMS Safety role are sufficient for it to be a discrete IMT function rather than the previous role of Advisor to the Controller. Responsibility for safety, well-being and related concerns is distributed through IMT functions, each in its own context, and all are subject to the Health and Safety at Work Act 2015.

23. The responsibilities of the proposed safety function (section 4.4.1) appear as administrative tasks. It is suggested by the Auckland Group that this responsibility should continue to be undertaken by an advisor to the Controller as is more consistent with the way CIMS 3rd edition distributes related responsibilities amongst functions. In a large event the Response Managers/Chief of Staff may have staff to assist them maintain their oversight. In turn staff under the direction of function leads also support this function.

24. If there is doubt, responsibility may be identified under the principle that primary responsibility is assigned to the function lead with reference to management and control exercised over activities within their ambit. For example:

   - Response Manager/Chief of Staff has responsibility for the wellbeing and safety of personnel in the Coordination Centre and has general oversight across the response.
   - Logistics is responsible for rostering all personnel, and briefing and deploying personnel on safety issues in accordance with safety plans.
   - Operations is responsible for the management of personnel tasked with activities in the field, and the implementation of those tasks to agreed and defined safety protocols.

Recommendation

1. The Auckland Group recommends that responsibility for safety remains with an advisor to the Controller rather than becoming a discrete function under 3rd edition CIMS.
Appendix 1 – Specific Comments

Intelligence

2. The revised expression of the sub function “Collection, Analysis, Dissemination” over the CIMS 2nd edition’s “Information, Situation Forecasting” is supported as being clearer, and a more realistic reflection of the Controllers needs and expectations of the Intelligence function. This should enable better managing and tasking of support staff by the function desk lead. The “forecasting” aspect is met by the “analysis” sub function with a focus on understanding the implications of the intelligence gathered.

3. The inclusion of GIS coordination under the Intelligence function is supported. This formalises what is already in place for most coordination centres.

4. The inclusion of Appendix C The Intelligence Cycle in the 3rd edition CIMS and its clarification of this cycle in terms of sub function responsibility is welcomed.

5. Specific guidance on the format and content of a SitRep and other intelligence outputs is still required as we believe this should be included in the CIMS 3rd edition document.

Recommendation

6. The Auckland Group supports the changes made under the Intelligence function and recommends specific guidance is provided on the format and content of the SitRep and other intelligence outputs to allow for shared understanding and consistency.

Planning

7. The planning function, its relationships with the Controller and other functions and the inputs successful planning is dependent on is clear, helpful and supported.

8. The revised planning ‘P’ is supported as clearer, more appropriately structured and logical.

9. The shift of activities for the collection of information from the planning function to the intelligence function is supported and reflects common practice.

10. Transition planning is more specifically included as a responsibility of the planning function than previously. The text under the heading Transition [to recovery] Planning on page 38 refers to transition plans being based on “the Recovery Managers intent, objectives and outcomes for the recovery phase and include input from the CIMS function including the controller”. Making transition planning a separate responsibility under 4.6.1 is recommended to give higher profile to these intentions and greater support for seamless transition between the responsibilities of controllers and recovery managers. This approach has been adopted and tested in Auckland.

Recommendation

11. The Auckland Group generally supports the changes made under the Planning function. However, we recommend that the review makes Transition Planning a separate role and responsibility, to support a seamless transition between Controllers and Recovery Managers.
Appendix 1 – Specific Comments

Operations

12. The Deployed Staff Management sub function touches on comments made above (paragraph 44-46) and elsewhere regarding responsibilities for the health, safety and wellbeing of staff and relation to communications.

Logistics

13. Similarly, we draw attention to comment made above (paragraphs 44-46). Our preference is that responsibility for safety remain with an advisor to the Controller. Other CIMS functions have responsibilities for safety, health and welfare where they are responsible for tasking or managing staff and volunteers.

Recommendation

14. The Auckland Group repeats the recommendation that responsibility for safety remain with an advisor to the Controller rather than becoming a discrete function under 3rd edition CIMS, so that function leads can manage the safety of their function.

Welfare

15. It is noted that the term ‘community hubs’ is used in description of welfare responsibilities under 4.9.1. It is assumed that this is intended to refer to centres that offer support for the community established or operated by community members or community organisations. Such places are defined as community-led centres, a key term in the Directors Guidelines for Welfare Services in an Emergency [DGL 11/15]. Community Hubs is a specific name for these places used by only a few CDEM Groups.

Recommendation

16. The Auckland Group recommends that 3rd edition CIMS is amended to reflect the use of language and guidance given in DGL 11/15.

Recovery

17. It is noted that recovery is distinguished from the other 4 R’s with ‘recovery function’ (page 90) being separately defined in the Glossary, in addition to the 4 R’s definition. There is concern that the way in which recovery is described is inconsistent with the definition of recovery set out in the Civil Defence Emergency Management Act 2002. Another example is the replacement of the word ‘emergency’ with the word ‘incident’ in the definition of ‘recovery’ (page 90) [though not in the definition of the 4 R’s (page 84)].

Recommendation

18. The Auckland Group recommends that the provisions for recovery in CIMS 3rd edition are brought into line with the Civil Defence Emergency Management Act 2002 which provides the functions, roles and responsibilities of civil defence emergency management groups.
Appendix 1 – Specific Comments

Lifelines

19. The Auckland Group include Lifelines as a separate function of its Incident Management Team. It is activated as a function desk in the Emergency Coordination Centre. Lifelines coordination is recognised as being of crucial importance in response and recovery. We note that whilst CIMS 3 allows this for ‘complex’ events, the specialist and coordination roles make the function very similar to welfare. The daily life of communities in urban centres relies on essential infrastructural services. The impacts of their disruption can be significant, driven by a variety of hazards and impacting on both response and recovery. Therefore, we recommend that the function is treated separately, even if it isn’t needed for every event.

Recommendation

20. The Auckland Group recommends the essential role of lifelines liaison is recognised in making lifelines a distinct function in 3rd edition CIMS.
Appendix 1 – Specific Comments

Section 5 – Applications of CIMS

21. The Auckland Group supports the statement that “CIMS can be scaled to manage any type or size of incident. Controllers may delegate functions to individual personnel or teams on a scale that reflects the requirements of the incident. A protracted response may scale up and down several times depending on the nature of the incident and the required response”.

22. The span of control should not determine the functionality of a response through its determination of how functions are structured, populated and relate to each other. The effective span of control is a variable and only one consideration that would influence how a controller structures a response.

23. The Auckland Group endorses the inclusion of ‘Section 5 Application of CIMS’ with examples for incident response levels for single organisation and multiple organisations – and the classification codes, noting that CIMS must be flexible in its application.

24. The Auckland Group offers the following comment on the examples provided from its perspective as a civil defence emergency management group:

25. 5.1.1 Incident level response: Single organisation.
   The example describes what most agencies practice to manage the day to day incidents they deal with under their own Standard Operating Procedures. Our own experience is that there will be thresholds of response where it is useful to let partner agencies know about the incident and its response, and these should be agreed and developed ‘locally’.

26. 5.1.2 Incident level response: Multiple organisations.
   This example describes the general process where responding agencies manage the incident under one incident controller and Incident Management Team across agencies. It is noted that activation of Emergency Coordination Centre and CIMs functions if required, as for example, in the case of people being displaced as a result of a boarding house fire, may require the coordination function provided by councils even when not lead agency.

27. 5.2 Local or Regional Level Response
   The inclusion of appointed representatives of the region iwi is acknowledged. There is also a preference for the introductory comment on activation of a local or regional response to more closely align the definition of emergency in the Civil Defence Emergency Management Act 2002 rather than introducing new language.

We believe that, given the likely cross agency use of CIMS a separate section on Unitary Authorities is needed. The example could then demonstrate how, in the case of a unitary authority, the regional Emergency Coordination Centre can be activated in place of an Emergency Operations Centres in the case of a local emergency.
Appendix 1 – Specific Comments

Recommendation(s)

28. The Auckland Group recommends:
   - making reference to how unitary authorities may operate as distinct from a region council or a territorial authority
   - aligning the introductory text in section 5.2 more closely with the definition of emergency in the Civil Defence Emergency Management Act 2002.

1. 5.3 National Level Response.

   This example outlines a situation where the National Coordination Centre or National Crisis Management Centre may be activated. It is noted that a regional response may be activated by a Civil Defence Emergency Group in their area before activation at national level where a response is triggered. The regional level would provide support once the national level is activated. However, this does not include or clarify the national welfare and lifelines roles, and their different reporting lines. This should be included, to minimise confusion, and to clarify reporting lines.

2. The guidelines around Handovers and Demobilisation are a useful addition but we suggest there is still a piece of work required around guidance for standing down and debriefing staff after an event, or a deployment. The transition from response to business as usual needs to be carefully managed.

Recommendation(s)

3. The Auckland Group recommends that welfare and lifeline national roles and reporting lines be included in the National activations.

4. The Auckland Group recommends further guidance on standing down and debriefing be provided.
Section 6 – Appendices

5. There are no additional comments in respect of templates other than general comments made in the preceding section or more specific comments and requests for change in the attachment.

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<tbody>
<tr>
<td>6</td>
<td>2.2.1</td>
<td>Responsive to community needs/ Uru pare k inga hia hia haporí</td>
<td>Response personnel must recognise an individual’s rights, treat individuals with fairness and dignity, and ensure the needs of affected people and animals are identified and met throughout the response and recovery. Communities actively participate in a response rather than wait passively for assistance.</td>
<td>Response personnel must recognise an individual’s rights, treat individuals with fairness and dignity, and ensure the needs of affected people and animals are identified and met throughout the response and recovery. Response activities should seek to enhance and not undermine existing community resilience to better address community aspects in section 3.1.</td>
<td>The CIMS principle needs to recognise the need to enhance and not undermine existing community resilience to better address community aspects in section 3.1. 2.2 CIMS principles and characteristics 2.2.1 CIMS principles The principles of CIMS are the fundamental tenets that incident management is based on.</td>
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<td>6</td>
<td>2.2.1</td>
<td>Responsive to community needs/ Uru pare k inga hiaha hepori</td>
<td>Response personnel need to effectively communicate with communities to ensure communities understand, integrate and align with the community response.</td>
<td>Response personnel and communities need to communicate effectively to create a shared understanding of the community needs and align and integrate their response.</td>
<td>To better ensure alignment between coordinated and community response.</td>
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<tr>
<td>28</td>
<td>Figure 7 Appendix A</td>
<td>4.1 Introduction Full CIM hierarchy</td>
<td>Illustration of IMT</td>
<td>No change</td>
<td>The direct relationship between the Controller and Recovery Manager is welcomed.</td>
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<td>28</td>
<td>4.1</td>
<td>Figure 7</td>
<td>Illustration of IMT</td>
<td>Should include 'Governance' above controller</td>
<td>To embed and demonstrate preceding governance explanation in Section 3.3 (pages 24-27)</td>
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<tr>
<td>33</td>
<td>4.4</td>
<td>Safety</td>
<td>Content of section 4.1 and 4.4.1</td>
<td>Make it explicitly clear that the responsibilities of the safety function can be satisfied by administrative staff reporting to the function with primary responsibility. See general comment on the safety function and also below on section 4.8.3, Health and Wellbeing (sub function of Logistics).</td>
<td>The absence of sub functions and management/financial responsibilities undermine the need for safety as a separate function when the obligations of the Health and Safety at Work Act 2015 apply in the ordinary course. The responsibilities assigned under 4.4 are more in the nature of &quot;tasks&quot; able to be performed under the responsibility of another function.</td>
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<td>34</td>
<td>4.3.4</td>
<td>Controller’s support</td>
<td>'Response Manager' description should include reference to 'Chief of Staff'. The relationship between Controller, Deputy Controller and Response Manager/Chief of staff should be better explained</td>
<td>Auckland Emergency Management refers to the Response Manager position as Chief of Staff.</td>
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<tr>
<td>36</td>
<td>4.5.2</td>
<td>Geospatial support and coordination</td>
<td>The geospatial support and coordination sub-function is responsible for providing geospatial services including the collection, processing, analysis and dissemination of geospatial intelligence products</td>
<td>Add the geospatial and support coordination sub-function in to the diagram on page 37 in Figure 10.</td>
<td>Geospatial support and coordination is referred to as a sub function of intelligence though absent from Figure 10.</td>
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<td>36</td>
<td>4.6</td>
<td>Planning</td>
<td>The Planning function must utilise the Planning P process as described in Appendix A to ensure that planning undertaken is effective.</td>
<td>The Planning function must utilise the Planning P process as described in Appendix B to ensure that planning undertaken is effective.</td>
<td>Correct cross reference.</td>
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<tr>
<td>37</td>
<td>4.6.1</td>
<td>Responsibilities</td>
<td>Add: Translate the Recovery Manager’s intent, objectives and outcomes into a transition planning for moving from response to recovery.</td>
<td>Elevating transition planning to a separate responsibility in this manner more clearly communicates the intent and supports seamless transition from response to recovery.</td>
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**Civil Defence and Emergency Management Group Committee**  
**28 August 2019**
### Appendix 1 – Specific Comments

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<thead>
<tr>
<th>Item</th>
<th>Specific Comment</th>
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<tr>
<td>38</td>
<td>Transition Planning involves developing plans for moving from response to recovery. This planning covers how coordination and accountability formally transitions to recovery and how the response phase will be wrapped up. A Transition Plan should be based on the Recovery Managers intent, objectives and outcomes for the recovery phase and include input from the CIMS functions including the Controller.</td>
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<tr>
<td>4.6.2 Transition Planning</td>
<td>Transition Planning involves developing plans for moving from response to recovery. This planning covers how coordination and accountability formally transitions to recovery and how the response phase will be wrapped up. A Transition Plan should be based on the Recovery Managers intent, objectives and outcomes for the recovery phase and include input from the CIMS functions including the Controller.</td>
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<td>Assign responsibility and sign-off for the Response to Recovery Transition Report and any transitional [to recovery] plans to the Controller and Recovery Manager jointly. See also comments in regard to the template H.5 for Response to Recovery Transition Report.</td>
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<td>The first sentence under 4.6 Planning, refers to responsibility for overseeing the development of plans, including transition plans. The second sentence under 4.6 Planning, refers to the Controller having 'ultimate responsibility' for these plans, developed by Planning on the Controllers behalf. It would better serve the purpose of a transition for both the Controller and Recovery Manager sign-off the Response to Recovery Transition Report and any transitional plans. Consistent with the supported statement in section 4.11.3 Transitioning to Recovery referred to the Controller and Recovery Manager both having leadership responsibilities to ensure a seamless process.</td>
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<tr>
<td>41</td>
<td>4.7.2</td>
<td>Responsibilities</td>
<td>• delivery of Welfare support or provision of support to Welfare services in coordination with the welfare function</td>
<td>This responsibility should be better defined/quantified</td>
<td>The parameters of this responsibility are unclear and ill defined.</td>
</tr>
<tr>
<td>40</td>
<td>4.7.3</td>
<td>Deployed Staff Management</td>
<td>Paragraph on deployed staff management</td>
<td>No change</td>
<td>Inclusion of content on deployed staff management welcomed</td>
</tr>
<tr>
<td>40</td>
<td>4.7.3</td>
<td>Volunteer Coordinatio n</td>
<td>Volunteer Coordination is responsible for establishing a connection with established and spontaneous volunteer groups, to ensure that their efforts and contributions are effectively targeted, utilised and coordinated with the rest of the response.</td>
<td>Volunteer Coordination is responsible for establishing a connection with established and spontaneous volunteer groups that require or have requested assistance, to ensure that their efforts and contributions are effectively targeted, utilised and coordinated with the rest of the response.</td>
<td>Efforts by CDEM groups to support community resilience needs to be supported and accommodated. These comments relate to those made in respect of section 2.2.1.</td>
</tr>
<tr>
<td>2/</td>
<td>4.8.1</td>
<td>Responsibilities (Information Technology)</td>
<td>• establishing and maintaining communication into and out of the Coordination Centre</td>
<td>Greater consistency and clarity required. Potential overlap between communications and information technology. Potential overlaps amongst distributed responsibilities under CIMS 3rd edition. Preferable to clarify through principle that primary responsibility determined with reference to the extent of management’s control and influence associated with the exercise of the functional responsibility.</td>
<td>Potential inconsistency and ambiguity. Question whether responsibility correctly assigned. In Auckland practical knowledge/expertise and maintenance of non-commercial communications (radio, satellite phone). Basic level IT attended to by Operations and Council’s IT department attend to the rest.</td>
</tr>
<tr>
<td>43</td>
<td>4.8.3</td>
<td>Information Technology (IT)</td>
<td>• establishing and maintaining information technology networks</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Page</td>
<td>Section Number</td>
<td>Paragraph heading</td>
<td>Original text</td>
<td>Suggested change</td>
<td>Reason for change</td>
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<tr>
<td></td>
<td></td>
<td>IT is responsible for establishing and maintaining equipment and information technology networks at the Coordination Centre and field operations</td>
<td>Also noted that Operations is responsible for Deployed Staff Management which requires communication. In Auckland case this includes AREC (Amateur Radio Emergency Communications) able to provide an alternative network if required. The role of the Liaison Officers often includes a communications component.</td>
<td></td>
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</table>
## Appendix 1 – Specific Comments

<table>
<thead>
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<th>Reason for change</th>
</tr>
</thead>
<tbody>
<tr>
<td>44</td>
<td>4.8.3</td>
<td>Sub functions</td>
<td>Facilities is responsible for securing buildings and land for use by response personnel and maintaining these through the response.</td>
<td>Facilities secure buildings and land for use by response personnel and manage these through the response.</td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>4.8.3</td>
<td>Health and Wellbeing (sub function of Logistics)</td>
<td>Health and Wellbeing is responsible for the planning and provision of welfare and health support for response personnel […] Health and wellbeing collaborated closely with the Safety function and may be combined with it.</td>
<td>Potential overlaps amongst distributed responsibilities under CIMS 3rd edition. Preferable to clarify through principle that primary responsibility determined with reference to management and control required for functional responsibility. For example, Response Manager/Chief of Staff responsible for health and safety of personnel in the Coordination Centre Operations is responsible for the health and safety of personnel working under its direction in the field.</td>
<td>In Auckland this Safety function rests with the Response Manager/Chief of Staff. Making this a separate IMT function increases and would appear unjustified by specific managerial accountabilities. As described the responsibilities of the safety function are more in the nature of tasks.</td>
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## Appendix 1 – Specific Comments

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<th>Reason for change</th>
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</thead>
<tbody>
<tr>
<td>46</td>
<td>4.9.1</td>
<td>Responsibilities</td>
<td>Ensuring online channels, social media, community hubs, I-Sites, call centres, helplines, reception personnel and civil defence centres (when activated) are updated frequently to have current public information and key messages</td>
<td>Replace 'community hubs' with 'community led-centres'</td>
<td>Consistent with the key terms utilised in the Directors Guidelines for Welfare Services in an Emergency [DGL 11/15]</td>
</tr>
</tbody>
</table>
| 47   | 4.9.2          | Public Information Management (sub function) | • Social Media Management  
• Internal Communications | No change | These additions are welcomed |
## Appendix 1 – Specific Comments

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<tbody>
<tr>
<td>50</td>
<td>4.9.2</td>
<td>Community engagement</td>
<td>Community Engagement carries out two-way communication directly with affected communities in consultation with other functions such as Operations and Welfare.</td>
<td>Community engagement needs more specific definition to distinguish the intended form of engagement from interaction with the community.</td>
<td>Refinement of what is meant by community engagement in the CIMS context required given level of engagement and interaction with community across other functions. In this context it is noted specific provision is made for engaging iwi/Māori (2.4) and elsewhere. Given the diversity of Auckland’s communities Auckland Emergency Management has recently added the role of community liaison to its IMT. This role helps to support verify and disseminate accurate information.</td>
</tr>
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## Appendix 1 – Specific Comments

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<th>Reason for change</th>
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<tbody>
<tr>
<td>51</td>
<td>4.10.1</td>
<td>Objectives</td>
<td>In a response (e.g. weather event), where delivery of welfare services requires more significant coordination, sub-functions and/or emergency welfare services under the National Civil Defence Emergency Management Plan Order 2015 may need to be activated.</td>
<td>In a response (e.g. weather event), where delivery of welfare services requires more significant coordination, all sub-functions of welfare under the National Civil Defence Emergency Management Plan Order 2015 (Needs Assessment, Registration, Inquiry, Care and Protection of Children and Young People, Psychosocial support, Household goods and services, Shelter and Accommodation, Financial Assistance and Animal Welfare) may need to be activated.</td>
<td>The delivery of the full breadth of welfare services in emergencies, especially larger scale emergencies is essential to meeting the common response objectives laid out on page 7. While two sub-functions are highlighted it is essential to ensure appropriate reference to the full range of welfare services that can be required.</td>
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## Appendix 1 – Specific Comments

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</table>
| 53   | 4.10.3         | Sub-functions     | Depending on the type, scale and complexity of the incident, Welfare may arrange its sub-functions into dedicated or combined functions, including (but not limited to):  
- Needs Assessment; and  
- Welfare Deliver Coordination | Depending on the type, scale and complexity of the incident, Welfare may arrange its sub-functions into dedicated or combined functions, including:  
- Needs Assessment and Registration  
- Inquiry  
- Care and Protection services of children and young people  
- Psychosocial support  
- Household goods and services  
- Shelter and Accommodation  
- Financial Assistance  
- Animal Welfare | Fully listing the Welfare Services that may be activated by welfare better enables scaling up of the response. In recent experience Auckland Emergency Management Welfare function has selectively activated the sub-functions appropriate for the response activities required. This also allows for the continued relationship and integration with other support agencies in welfare and the ability to coordinate other agencies becomes diluted. |
## Appendix 1 – Specific Comments

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</thead>
<tbody>
<tr>
<td>55</td>
<td>4.10.3</td>
<td>Figure 17: Examples of functions interdependent with Welfare.</td>
<td>Bullet points under the heading Inputs to Public Information Management</td>
<td>Add additional bullet point: Information from welfare function about emerging needs</td>
<td>To enable responsiveness to emerging public information and messaging requirements</td>
</tr>
<tr>
<td>56</td>
<td>4.11</td>
<td>Recovery in response</td>
<td>Like response, recovery is scalable; coordination arrangements are not ‘one size fits all’ as they need to be based on the actual consequences of each incident.</td>
<td>Like response, recovery is scalable; coordination arrangements need to be based on the actual consequences of the relevant incident.</td>
<td>To ensure consistency with the Civil Defence Emergency Management Act 2002 requiring recovery to address the consequences of an emergency.</td>
</tr>
</tbody>
</table>
## Appendix 1 – Specific Comments

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<th>Reason for change</th>
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</thead>
<tbody>
<tr>
<td>56</td>
<td>4.11</td>
<td>Recovery in response</td>
<td>Recovery is ‘activated’ when an incident impacts on a community or part of a community whether a geographical community or a community of interest. This includes communities and individuals that may be indirectly affected.</td>
<td>Recovery is ‘activated’ in response to consider the implications of recovery on response actions (including inaction) and decisions. Efforts are made to anticipate, plan and prepare for addressing consequences of the emergency, including impacts on a community or part of a community whether a geographical community or a community of interest.</td>
<td>The original text implies recovery follows an incident that impacts on the community, including indirect impacts. This is an over simplification and fails to take account of the definition of recovery in section 4 of the Civil Defence Emergency Management Act 2002 requiring recovery to address the consequences of an emergency.</td>
</tr>
<tr>
<td>57</td>
<td>4.11.2</td>
<td>Responsibilities</td>
<td>work with the Controller and Planning to plan and manage the transition to from response to recovery</td>
<td>No change</td>
<td>This statement is supported.</td>
</tr>
</tbody>
</table>
## Appendix 1 – Specific Comments

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<th>Reason for change</th>
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</thead>
<tbody>
<tr>
<td>57</td>
<td>4.11.3</td>
<td>Transiting to recovery</td>
<td>Both the Controller and Recovery Manager have leadership responsibilities during the shift from response to recovery to ensure that the process is seamless both from an internal organisational and community perspective.</td>
<td>No change</td>
<td>This statement is supported.</td>
</tr>
<tr>
<td>90</td>
<td>Appendix G</td>
<td>Recovery (function)</td>
<td>The function for ensuring that the response considers how the affected community can be supported to recover and that the decision or actions (or lack of) made during the response consider any implications for recovery. It is also responsible for beginning initial recovery planning and establishing recovery team resources.</td>
<td>The recovery function is responsible for considering the:</td>
<td>The original text of the draft 3rd edition presumes a recovery will be required following an incident whereas not every incident amounts to an emergency.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>• the implications for recovery of response decisions and actions • the impacts and consequences to be addressed through recovery</td>
<td>The recovery function also ensures planning, preparations and resources are undertaken as appropriate.</td>
</tr>
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</table>
### Appendix 1 – Specific Comments

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<tbody>
<tr>
<td>90</td>
<td>Appendix G</td>
<td>Recovery</td>
<td>One of the 4 R’s of emergency management. Recovery involves coordinated efforts and processes to bring about short-, medium- and long-term holistic regeneration and enhancement of a community following an incident.</td>
<td>One of the 4 R’s of emergency management. Recovery involves coordinated efforts and processes to bring about short-, medium- and long-term holistic regeneration and enhancement of a community following an emergency. (See section 4 of the Civil Defence Emergency Management Act 2002).</td>
<td>To ensure definitions are consistent with the definition of recovery in the governing legislation.</td>
</tr>
</tbody>
</table>
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<th>Suggested change</th>
<th>Reason for change</th>
</tr>
</thead>
</table>
| 98   | H.5            | Response to Recovery Transition Report | Response to Recovery Transition report approved by:  
  - Controller | Add Recovery Manager to approvers of Response to Recovery Transition report  
i.e. approved by:  
  - Controller  
  - Recovery Manager | The purpose of transition is better served by requiring the transition report, marking the official hand over from the Controller to the Recovery Manager to be signed by both Controller and Recovery Manager.  
Consistent with the supported statement in section 4.11.3  
Transitioning to Recovery referred to the Controller and Recovery Manager both having leadership responsibilities to ensure a seamless process. |
Te take mō te pūrongo
Purpose of the report
1. To update the committee on the Bledisloe House Seismic Risk report.

Whakarāpopototanga matua
Executive summary
2. The Building Code (Clause A3) defines the significance of a building by its Importance Level. This is based on the consequences of failure of the building, to define the importance of the building to society.
3. Importance Levels range from 1, the lowest, normally applied to structures with a low risk to life, such as walkways or outbuildings, to 5, the highest, relating to structures such as large dams, whose failure would have catastrophic consequences to a large area or a large number of people.
4. Level 2 is suitable for most office buildings. Level 4 rating refers to buildings that must be operational immediately after an operational event, such as ‘critical post-disaster infrastructure’. Whilst the ratings generally apply to new buildings, the Civil Defence and Emergency Management Act also raises the expectation that emergency centres such as council’s emergency coordination centre (ECC) are treated as Level 4, because of the requirement to ensure the ability to be able to function at the fullest extent possible, during or after an emergency.
5. Auckland Emergency Management employed Silvester Clark Structural Engineers to review the ECC seismic rating, as part of an ongoing wider strategic review of ECC capability provision post-event. An update of the findings will be presented at the meeting, prior to the final report being published at committee on 29 August 2019.

Ngā tūtohunga
Recommendation/s
That the Civil Defence and Emergency Management Group Committee:
a) receive the update on the Bledisloe House Seismic Risk Report.

Ngā tāpirihanga
Attachments
There are no attachments for this report.

Ngā kaihaina
Signatories

<table>
<thead>
<tr>
<th>Author</th>
<th>Matthew Bramhall - Senior Response Advisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authoriser</td>
<td>Sarah Sinclair - Acting General Manager – Auckland Emergency Management</td>
</tr>
</tbody>
</table>
Forward Work programme update
File No.: CP2019/15268

Te take mō te pūrongo
Purpose of the report
1. To provide the committee with an update on the refreshed forward work programme.

Whakarāpopototanga matua
Executive summary
2. An update on the Civil Defence Emergency Management Group's work programme is a standing item on the agenda for the Civil Defence Emergency Management Group Committee's quarterly meetings.
3. The February 2019 work programme update advised the committee that the work programme was being refreshed in response to independent reports on Auckland events and central government Technical Advisory Group recommendations.

Ngā tūtohunga
Recommendation/s
That the Civil Defence and Emergency Management Group Committee:

a) receive the August 2019 update on the forward work programme.

Horopaki
Context
4. One of the Auckland Civil Defence Emergency Management Group Committee functions is to "develop, approve, implement and monitor a civil defence emergency management group plan and regularly review the plan" under section 17 of the Civil Defence Emergency Management Act 2002.
5. An update on the Civil Defence Emergency Management Group’s work programme is a standing item on the agenda for the Civil Defence Emergency Management Group Committee’s quarterly meetings.
6. The February 2019 work programme update advised the Committee that the work programme was being refreshed in response to independent reports on Auckland events and central government Technical Advisory Group recommendations.
7. The Civil Defence Emergency Management Group Committee agreed that the work programme reflect inter-agency priorities to implement the intent of the Group Plan and priorities arising since publication of the Group Plan.
8. The attached forward work programme reflects and will continue to reflect these developments in an on-going manner.

Tātaritanga me ngā tohutohu
Analysis and advice
9. Progress on the current forward work programme is outlined in the following reports included on the agenda for the Civil Defence Emergency Management Group Committee:
   • Natural Hazards and Risks Management Action Plan
   • Pathways to Preparedness: Planning for Recovery
10. A workshop was held with the Coordinating Executive Group on 29 July 2019. The resulting work programme was endorsed by the Group on 5 August 2019 and is included as Attachment A.

11. Workshops have been held within Auckland Emergency Management to align future work programmes and overlaps.

12. A work programme has been scoped for the future Civil Defence Emergency Management Committee, with a prioritised programme to be discussed at the next committee meeting. This is attached as Attachment B.

Ngā whakaaweawe me ngā tirohanga a te rōpū Kaunihera
Council group impacts and views

13. The matters outlined in this report support fulfilment of the Civil Defence Emergency Management Group Committee’s role. There are no council group impacts arising from this report. Any impacts relating to items on the work programme are addressed when separately reported on.

Ngā whakaaweawe ā-rohe me ngā tirohanga a te poari ā-rohe
Local impacts and local board views

14. There are no local impacts arising from this report. Any local impacts and/or local board views relating to items on the work programme are addressed when separately reported on.

Tauākī whakaaweawe Māori
Māori impact statement

15. There are no impacts on Auckland’s Māori arising from this report. Any impacts for Auckland’s Māori relating to items on the work programme are addressed when separately reported on.

Ngā ritenga ā-pūtea
Financial implications

16. There are no financial implications arising from this report. Any financial implications relating to items on the work programme are addressed when separately reported on.

Ngā raru tūpono me ngā whakamaurutanga
Risks and mitigations

17. There are no risks arising from this report to be mitigated. Any risks and their mitigation relating to items on the work programme are addressed when separately reported on.

Ngā koringa ā-muri
Next steps

18. The Forward Work Programme is a live document that will be continuously updated based on the needs of the wider Auckland region and the suggestions of the Coordinating Executive Group and Civil Defence Emergency Management Group Committee.
Ngā tāpirihanga

Attachments

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<thead>
<tr>
<th>No.</th>
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<tbody>
<tr>
<td>A</td>
<td>Coordinating Executive Group Forward Work Plan 2019-2020</td>
<td>229</td>
</tr>
<tr>
<td>B</td>
<td>Civil Defence Emergency Management Group Committee forward work programme</td>
<td>231</td>
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</table>

Ngā kaihaina

Signatories

<table>
<thead>
<tr>
<th>Authoriser</th>
<th>Sarah Sinclair - Acting General Manager – Auckland Emergency Management</th>
</tr>
</thead>
</table>

Item 18
### CEG Work Plan (Draft)

<table>
<thead>
<tr>
<th>Activity</th>
<th>CEG Action</th>
<th>CEG Meeting / Workshop dates</th>
<th>Description</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receiving Reports</td>
<td></td>
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</tr>
<tr>
<td>MCDEM updates to CEG Chairs</td>
<td>Receive MCDEM update</td>
<td>Quarterly meetings</td>
<td>Receive MCDEM's monthly updates to CEG Chairs for discussion</td>
<td>AEM</td>
</tr>
<tr>
<td>Forward Work Programme</td>
<td>Endorse</td>
<td>Quarterly meetings</td>
<td>Update on Forward Work Plan</td>
<td>AEM</td>
</tr>
<tr>
<td>APEC and America's Cup Emergency Planning Progress</td>
<td>Receive Updates</td>
<td>Quarterly meetings</td>
<td>Receive update reports on progress towards hosting of APEC and Americas Cup in 2021 [In Confidence]</td>
<td>NZ Police</td>
</tr>
<tr>
<td>Debriefs on events outside of Auckland</td>
<td>Receive Updates</td>
<td>As needed</td>
<td>Receipt of Debriefs from events outside Auckland region [In Confidence]</td>
<td>TBC</td>
</tr>
<tr>
<td>Welfare Sub function Plans</td>
<td>Receive updates</td>
<td>Quarterly meetings</td>
<td>Progress Reporting</td>
<td>AEM</td>
</tr>
<tr>
<td>Lifelines Projects</td>
<td>Receive updates</td>
<td>Quarterly meetings</td>
<td>Updates on work programme and progress</td>
<td>LUC</td>
</tr>
<tr>
<td>Auckland Group Controllers list</td>
<td>Confirm list</td>
<td>As needed</td>
<td>Approval and maintenance of list of Group Controllers, Welfare Managers and Group Recovery Managers.</td>
<td>AEM</td>
</tr>
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</table>

### Auckland CEG Projects

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<tbody>
<tr>
<td>Hazards Risk Management Action Plan</td>
<td>Define risks and develop Action Plans for managing Auckland regions hazards and risks additional to NHRRAP - New item to be scoped</td>
<td>AEM</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potentially Hazardous Smoke</td>
<td>New item - to be scoped</td>
<td>TBC</td>
<td></td>
<td></td>
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<tr>
<td>Large Scale People Mobilisation</td>
<td>New item - to be scoped</td>
<td>TBC</td>
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### CEG Working Groups

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<tbody>
<tr>
<td>Joint Exercising Working Group</td>
<td>Working Group Participation</td>
<td>Dates to be advised</td>
<td>Shared exercisng, includes exercising to build capability</td>
<td>AEM</td>
</tr>
<tr>
<td>Joint Evaluation Action Plan Working Group</td>
<td>Working Group Participation</td>
<td>Dates to be advised</td>
<td>To ensure the lessons learned from events and exercises are realised.</td>
<td>AEM</td>
</tr>
<tr>
<td>Community Outreach Group (formerly Building Community Resilience)</td>
<td>Working Group Participation</td>
<td>Dates to be advised</td>
<td>To be rescoped following workshop</td>
<td>AEM</td>
</tr>
<tr>
<td>CDEMG Group Plan Review Working Group</td>
<td>Working Group Participation</td>
<td>Dates to be advised</td>
<td>New item - to be scoped</td>
<td>AEM</td>
</tr>
<tr>
<td>AF8 - Fall over and effects on Auckland Working Group</td>
<td>Working Group Participation</td>
<td>Dates to be advised</td>
<td>New item to be scoped</td>
<td>TBC</td>
</tr>
<tr>
<td>Public Education and Capability Working Group</td>
<td>Working Group Participation</td>
<td>Dates to be advised</td>
<td>To share public education initiatives</td>
<td>AEM</td>
</tr>
<tr>
<td>Agency Partner Data Sharing Working Group</td>
<td>Working Group Participation</td>
<td>Dates to be advised</td>
<td>As the common operating picture project is on hold an Auckland-wide initiative will continue to collaborate on shared data including vulnerable populations data</td>
<td>AEM</td>
</tr>
</tbody>
</table>

Noted: CEG partners are invited to attend AEM IMT meetings: 5 Sept, 4 Oct, 1 Nov, 6 Dec 2019.
<table>
<thead>
<tr>
<th>Activity</th>
<th>CDEM Group Committee Action</th>
<th>CDEM Group Committee Meeting dates</th>
<th>Description</th>
<th>Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Managers Update</td>
<td>Receive update</td>
<td>Quarterly meetings</td>
<td>standing item - Update from AEM General Manager on items of interest to the Committee not separately reported</td>
<td>AEM</td>
</tr>
<tr>
<td>Update on Coordinating Executive Group Meeting</td>
<td>Receive update</td>
<td>Quarterly Meetings</td>
<td>standing item - Update from AEM General Manager on the proceeding Coordinating Executive Group</td>
<td>CEG Chair</td>
</tr>
<tr>
<td>CDEM Group Feedback</td>
<td>Approve Feedback</td>
<td>As needed</td>
<td>Approve Auckland CDEM Group feedback on items for which group feedback is sought including Draft Directors Guidelines, Bills and implementation of TAG recommendations. NB: Feedback may have to be retrospectively approved where meeting dates do not allow prior approval</td>
<td>AEM</td>
</tr>
<tr>
<td>Natural Hazards Risk Management Action Plan</td>
<td>Endorse Final NHRMAP with prioritised work programme</td>
<td>February 2020</td>
<td>Programme to understand and respond to natural hazard risk and broader risks requiring collective mitigation</td>
<td>TBC</td>
</tr>
<tr>
<td></td>
<td>Endorse scope of broader risk management action plan</td>
<td>May 2020</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>receive progress reports on future work stream</td>
<td>Quarterly</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>receive progress reports on NHRMAP implementation</td>
<td>Quarterly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tsunami Work Programme</td>
<td>Receive Update</td>
<td>quarterly</td>
<td>Programme to understand and respond to the risk of tsunami hazards</td>
<td>AEM</td>
</tr>
<tr>
<td>Group Plan and strategy updates</td>
<td>Receive updates</td>
<td>Quarterly</td>
<td>Planning for strategic work programme and alignment with LTP planning and mayoral priorities</td>
<td>AEM</td>
</tr>
<tr>
<td></td>
<td>Workshop on future priorities and agree work programme for deliverables</td>
<td>May 2020</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Endorse future draft for consultation</td>
<td></td>
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<tr>
<td>Recovery work programme</td>
<td>Receive updates and endorse deliverables</td>
<td>Quarterly meetings as appropriate</td>
<td>Progress Reporting - updates on implementation of actions identified in Pathways to Preparedness and development</td>
<td>AEM</td>
</tr>
<tr>
<td>Lifelines work programme</td>
<td>Receive updates and endorse deliverables</td>
<td>Quarterly meetings</td>
<td>Updates on work programme and progress</td>
<td>LUC</td>
</tr>
<tr>
<td>Auckland Group Controllers list</td>
<td>Confirm list</td>
<td>As needed</td>
<td>Approval and maintenance of list of Group Controllers, Welfare Managers and Group Recovery Managers</td>
<td>AEM</td>
</tr>
<tr>
<td>Forward Work Programme</td>
<td>Endorse</td>
<td>Quarterly meetings</td>
<td>Update on Forward Work Plan</td>
<td>AEM</td>
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<tr>
<td>Public education Strategy</td>
<td>Receive updates and endorse deliverables</td>
<td>Quarterly</td>
<td>Reporting on implementation of the strategy</td>
<td>AEM</td>
</tr>
<tr>
<td>Exercising Programme</td>
<td>Receive updates and endorse programme from CEG</td>
<td>May 2020</td>
<td>Reporting on shared exercising and improvements across the Group</td>
<td>CEG working group chair</td>
</tr>
<tr>
<td>Community Resilience work programme</td>
<td>Endorse work programme</td>
<td>May 2020</td>
<td>Reporting on community resilience work programme and deliverables</td>
<td>AEM</td>
</tr>
<tr>
<td></td>
<td>Receive updates and endorse deliverables</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working Group Participation</td>
<td>Dates to be advised</td>
<td></td>
<td>Shared exercising, includes exercising to build capability</td>
<td>AEM</td>
</tr>
<tr>
<td>Joint Evaluation Action Plan Working Group</td>
<td>Working Group Participation</td>
<td>Dates to be advised</td>
<td>To ensure the lessons learned from events and exercises are realised</td>
<td>AEM</td>
</tr>
<tr>
<td>Recovery Preparations</td>
<td>Receive updates</td>
<td>Quarterly meetings as appropriate</td>
<td>Progress Reporting - updates on implementation of actions identified in Pathways to Preparedness</td>
<td>AEM</td>
</tr>
</tbody>
</table>