Meeting of the HB Civil Defence Emergency Management Group Joint Committee

Date: Monday 28 March 2022

Time: 1.30pm

 Venue: Council Chamber
                     Hawke's Bay Regional Council
                     159 Dalton Street
                     NAPIER

Agenda

HB CDEM GROUP JOINT COMMITTEE

Monday 28 March 2022

Subject: ACTION ITEMS FROM PREVIOUS HB CDEM GROUP JOINT COMMITTEE MEETINGS

Reason for Report

1.   **Attachment 1** lists items raised at previous meetings that require action, and each item indicates who is responsible, when it is expected to be completed and a brief status comment. Once the items have been reported to the Committee they will be removed from the list.

Decision Making Process

2.   Staff have assessed the requirements of the Local Government Act 2002 in relation to this item and have concluded that, as this report is for information only, the decision-making provisions do not apply.

Recommendation

That Hawke's Bay Regional Council receives and notes the *Action items from previous HB CDEM Group Joint Committee meetings.*

Authored by:

**Peter Martin
SENIOR GOVERNANCE ADVISOR**

Approved by:

**Ian Macdonald
CDEM GROUP MANAGER/CONTROLLER**

Attachment/s

1⇩   Action Items for HB CDEM Group Joint Committee - March 2022 meeting

Hawke's Bay CDEM Group Joint Committee

Monday, 28 March 2022

Action Items from Previous Meetings

22 November 2021 meeting

	Agenda Item	Action	Responsible	Status/Comment
1	HB CDEM review	Māori representation at CEG and / or CDEM JC level to be discussed with Ngati Kahungunu Iwi Inc. Report to be provided to next JC meeting	Ian Macdonald	Due to Covid situation we are having difficulties arranging this. Hopefully by the next JC meeting we will have a more positive update.
2	HB CDEM review	Direct CEG to formally report to the JC on progress with implementing the change programme	Ian Macdonald	On this agenda

HB CDEM GROUP JOINT COMMITTEE

Monday 28 March 2022

Subject: CALL FOR MINOR ITEMS NOT ON THE AGENDA

Reason for Report

1. This item provides the means for committee members to raise minor matters they wish to bring to the attention of the meeting.

2. Hawke's Bay Regional Council standing order 9.13 states:

    2.1 "A meeting may discuss an item that is not on the agenda only if it is a minor matter relating to the general business of the meeting and the Chairperson explains at the beginning of the public part of the meeting that the item will be discussed. However, the meeting may not make a resolution, decision, or recommendation about the item, except to refer it to a subsequent meeting for further discussion."

Recommendation

That the HB Civil Defence Emergency Management Group Joint Committee accepts the following "*Minor items not on the agenda*" for discussion as Item 12:

Topic	Raised by

Authored by:

Peter Martin
SENIOR GOVERNANCE ADVISOR

Approved by:

Ian Macdonald
CDEM GROUP MANAGER/CONTROLLER

Attachment/s

There are no attachments for this report.

HB CDEM GROUP JOINT COMMITTEE

Monday 28 March 2022

Subject: AMENDMENTS TO THE HAWKE'S BAY CDEM GROUP PLAN: RECOVERY MANAGERS

Reason for Report

1. Under the Civil Defence Emergency Management Act 2002 (CDEM Act) the Civil Defence Emergency Management Group Joint Committee makes appointments to the positions of Group Recovery Managers. These appointments and associated delegations are contained in the Hawke's Bay CDEM Group Plan and as such represent a minor change to this Plan.

2. This item seeks confirmation of proposed changes to Group Recovery Manager appointments and as a result, proposes resulting minor changes to the Hawke's Bay CDEM Group Plan.

Confirmation of the Appointment of Group Recovery Managers Hawke's Bay CDEM Group

3. Mr Mike Adye is currently appointed as a Group Recovery Manager for the Hawke's Bay CDEM Group. Mike is currently overseas for an extended period and has resigned from this role. Discussions will be had with the CDEM Coordinating Executive Group (CEG) over the future direction of recovery and this area is one of the projects identified in the implementation of the "Strengthening CDEM in the Hawke's Bay" report. Until then it is recommended that Mr Adye be removed from the role of primary Group Recovery Manager. As the Plan identifies three alternate Group Recovery Managers, the Group still has coverage in this area.

4. With the requirement in the CDEM Act to appoint Group Recovery Managers, it was agreed that Hastings District Council (HDC)and Napier City Council (NCC) would identify two alternates. Hastings District Council has asked that their alternate be changed to Mr Bruce Allan, their Group Manager Corporate.

5. Mr Allan has provided the following resume:

   5.1. Bruce is a Hawke's Bay local, who grew up on a farm on the Taihape Rd. Now a Chartered Accountant, Bruce's first appointment at HDC was as Strategic Financial Advisor in 2008. In addition to this role, he undertook a split role, working as Chief Financial Officer for Central Hawke's Bay District Council in 2014. Bruce was seconded to the role of Acting Chief Financial Officer with HDC in February 2015 and appointed Chief Financial Officer in April 2016. Due to a restructure in early 2020, Bruce now holds the title of Group Manager: Corporate, reflecting his new management portfolio which includes the finance, IT, customer services, procurement, risk management and security teams.

   5.2. *For nearly ten years, Bruce has been one of HDC's Recovery Managers, being involved in the Waimarama Road fire incident in 2017 and the Esk Valley Floods of 2018, developed the Council's Covid-19 post lockdown economic recovery plan and, most recently, as a member of the Covid response team managing the current challenges facing the workplace and the community.*

6. The following changes are therefore recommended to Appendix 5: Key Appointments to the Hawke's Bay CDEM Group Plan:

   6.1. Add the following to the Recovery Manager (Alternate) Hawke's Bay CDEM Group list:

   Bruce Allan

6.2. Remove the following from the Recovery Manager (Alternate) Hawke's Bay CDEM Group list:

John O'Shaughnessy

6.3. Remove the following from the Recovery Manager (Primary) Hawke's Bay CDEM Group list:

Michael Adye.

Strategic Fit

7. The recommendations are consistent with the Group Plan in that they provide for an effective response and recovery to an emergency, a key objective of the Plan.

Financial and Resource Implications

8. There are no significant financial or resource implications that may result from this decision.

Decision Making Process

9. Committee is required to make every decision in accordance with the requirements of the Local Government Act 2002 (the Act). Staff have assessed the requirements in relation to this item and have concluded:

9.1. The decision does not significantly alter the service provision or affect a strategic asset.

9.2. The use of the special consultative procedure is not prescribed by legislation.

9.3. The decision does not fall within the definition of the Administrating Authority's (Hawke's Bay Regional Council) policy on significance and engagement

9.4. No persons can be identified who may be affected by this decision.

9.5. The decision is not inconsistent with an existing policy or plan.

9.6. Given the nature and significance of the issue to be considered and decided, and also the persons likely to be affected by, or have an interest in the decisions made, the Committee can exercise its discretion and make a decision without consulting directly with the community or others having an interest in the decision.

9.7. The proposed amendments to the Group Plan meet the requirements of section 57 of the Civil Defence Emergency Management Act 2002 and can be considered as a minor change to the Group Plan that does not need public consultation.

Recommendations

That the Hawke's Bay CDEM Group Joint Committee:

1. Agrees that the decisions to be made are not significant under the criteria contained in the Administrating Authority's (Hawke's Bay Regional Council) adopted Significance and Engagement Policy, and that the Committee can exercise its discretion under Sections 79(1)(a) and 82(3) of the Local Government Act 2002 and make decisions on this issue without conferring directly with the community and persons likely to be affected by or to have an interest in the decision.

2. The Hawke's Bay CDEM Group Joint Committee resolves to amendment Appendix 5: Key Appointments of the Hawke's Bay CDEM Group Plan pursuant to section 57 of the Civil Defence Emergency Management Act 2002 and make appointments and changes to the roles of Local Controller as follows:

2.1. Add the following to the Recovery Manager (Alternate) Hawke's Bay CDEM Group list:

Bruce Allan

2.2. Remove the following from the Recovery Manager (Alternate) Hawke's Bay CDEM Group list:

John O'Shaughnessy

2.3. Remove the following from the Recovery Manager (Primary) Hawke's Bay CDEM Group list:

Michael Adye

Authored and Approved by:

Ian Macdonald
CDEM GROUP MANAGER/CONTROLLER

Attachment/s

There are no attachments for this report.

HB CDEM GROUP JOINT COMMITTEE

Monday 28 March 2022

Subject: HAWKE'S BAY REGIONAL ALERTING SYSTEMS REVIEW AND OPTIONS

Reason for Report

1. The purpose of this report is to provide the HB CDEM Group Joint Committee with a copy of the report Hawke's Bay Regional Alerting Systems Review completed by Massey University's Joint Centre for Disaster Research and to inform the Committee of the CDEM Coordinating Executive Group's (CEG) decision on the approach to public alerting moving forward.

2. It is asked that the Committee resolve to:

   2.1. Note the attached Massey report

   2.2. Endorse the decision of the CEG, that the Emergency Mobile Alert (EMA) system becomes the backbone system for public alerting in Hawke's Bay supported by mobile apps such as the Red Cross Hazard application (app)

   2.3. Support the implementation of this decision

   2.4. Support the Napier City Council's (NCC) decision to disestablish their tonal only siren system.

Executive Summary

3. Massey University conducted a gap analysis and reported on a review of the current suite of public alerting tools in the Hawke's Bay region. It also assessed the suitability of other alerting options for use across the region.

4. To be effective, public alerting systems should deliver information so that people can make an informed decision during a warning with as much time as possible for action that provides for their safety.

5. The critical considerations for alerting are providing a heads-up and instructions. The heads-up is the ability to gain people's attention and inform of the threat before it occurs. Instructions are the ability to provide details: what is happening, where, when, and what action is required to respond to the threat.

6. This review recommends a system of public alerting options including:

   6.1. Emphasis on natural warnings (e.g. for local tsunami Long or Strong, Get Gone)

   6.2. The use of the national EMA system as a backbone for public alerting

   6.3. The identification and use of infill systems where there is a lack of mobile phone coverage or there is a need to cover groups or communities for which cell alerts are not appropriate.

7. The report also recommends that the Hawke's Bay CDEM Group carry out further work with mobile phone providers to better map coverage areas and develop an end to end or one-stop system and process.

8. The Massey report is attached to this report.

Strategic Fit

9. The decisions in this report relate to the following Readiness Objective in the Group Plan:

    9.1. *RES5: Ensure that the Hawke's Bay CDEM Group maintains and where appropriate practices a coordinated, mass public alerting system.*

Background

10. Last year Group Office staff commenced working with Napier City Council (NCC) on the future of the Napier tonal siren system. The Group commissioned the Massey University Joint Centre for Disaster Research to undertake a technical review and develop options. It was subsequently decided that it was more effective and efficient to broaden the review to include the entire Group area.

11. On 3 February 2022 the Napier City Council People and Places Committee resolved to disestablish the existing outdated Napier siren system which no longer complies with New Zealand standards and has inherent operational risks. They agreed that the Emergency Management Alert (EMA) system was the best public alerting system for Napier backed up with related public education. They resolved to support the Group in providing the EMA and education. This decision was subsequently agreed to at a Council meeting on 17 March 2022.

12. On 28 February 2022 the CDEM Coordinating Executive Group (CEG) considered the report and its recommendations and agreed that for the Group area, the EMA system was the best back bone public alerting system with other systems such as opt in internet and messaging systems being used for infill where there was no cell phone coverage. It was also agreed that a project be developed to implement these decisions and develop an associated public education and media awareness programme.

13. The current situation with regards to mass public alerting nationally, and in Hawke's Bay is described in the report. This includes the characteristics of the EMA and other systems.

14. Currently the Group has access to the EMA portal and on the approval of a group controller, an EMA may be issued within Hawke's Bay. Obviously, there is a requirement for this to be tightly controlled and an EMA may only be issued for 'high-priority alerts' that meet set criteria for "certainty, severity, urgency". As such the Group needed to agree to a terms of use document with NEMA and mobile phone providers.

15. Group office staff have been trained and practiced on the system. NEMA tightly control access to the system. NEMA may also issue EMAs for a region if requested, while a further back up through the Fire and Emergency New Zealand (FENZ) Communications Centre can also be used by the Group.

16. The EMA utilises cell phone towers across all operators in New Zealand to deliver a message directly to an individual's mobile phone. This is an opt out service which can only be disabled in the phone settings. All new cell phones sold in New Zealand have this setting enabled by default.

17. The Group also has access to the Red Cross application (app). This is an opt-in internet based alerting system which is provided and maintained by the Red Cross and uses and individual's internet connection (as opposed to the cell phone network) to deliver alerts. This app is based on the Common Alerting Protocol (CAP), as is the EMA system. This allows for the two systems to be linked so the alert from one is transmitted across both systems almost simultaneously.

18. The report recommends that an internet app is a preferred solution for those people who live outside of cell phone coverage.

19. An important part of implementing this decision will be media, public education and information, signage, and other public engagement activities such as community resilience planning.

Discussion

20. The report identified, analysed, and recommended the different contemporary options for mass public alerting for Hawke's Bay.

21. The development of the national EMA system is a 'game changer' in public alerting for major emergencies in New Zealand. As the system has been used and tested on a number of occasions in the last few years, there is confidence in the resilience and reach of the system.

22. Whilst already having the capability to issue EMAs, further strengthening of the systems and processes underlying mass public alerting for the Group needs to occur. This could include:

   22.1. Further training and exercising on the EMA, Regional Warning System, and the Red Cross Hazards application (app)

   22.2. Development of Hawke's Bay specific templates for a range of regional/local hazards

   22.3. Development of end-to-end delivery between systems using the CAP

   22.4. Work with emergency services and councils to better identify protocols and processes that allow them to recommend issuing an EMA locally

   22.5. Development of a business case of opt-in alerting for members of the public who have a duty of care over others (e.g. coastal campgrounds)

   22.6. Public education on what the preferred systems are, how to access them and what to expect

   22.7. Working with community groups who need separate or different ways of alerting their community.

23. Group staff will develop a more detailed project plan to be included in the Group work programme currently being developed for 2022-2024, and this will be reported back to the CEG.

Next Steps

24. Group office staff will consult with our regional partners, develop a more detailed project plan, and report back to the CEG at its next meeting on 23 May 2022.

Decision Making Process

25. The Joint Committee is required to make every decision in accordance with the requirements of the Local Government Act 2002 (the Act). Staff have assessed the requirements in relation to this item and have concluded:

   25.1. The decision does not significantly alter the service provision or affect a strategic asset

   25.2. The use of the special consultative procedure is not prescribed by legislation

   25.3. The decision does not fall within the definition of the Administrating Authority's (Hawke's Bay Regional Council) policy on significance and engagement

   25.4. No persons can be identified who may be affected by this decision

   25.5. The decision is not inconsistent with an existing policy or plan

   25.6. Given the nature and significance of the issue to be considered and decided, and also the persons likely to be affected by, or have an interest in the decisions made, the Committee can exercise its discretion and make a decision without consulting directly with the community or others having an interest in the decision.

Recommendations

That the Hawke's Bay CDEM Group Joint Committee:

1. Receives and notes the *Hawke's Bay regional alerting systems review and options* staff report.

2. Receives and notes the Massey University report *Hawke's Bay Regional Alerting Systems Review December 2021* attached to this paper.

3. Endorses the decision of the CEG that the Emergency Mobile Alert (EMA) system becomes the backbone system for public alerting in Hawke's Bay supported by mobile apps such as the Red Cross Hazard app.

4. Supports the implementation of this decision.

5. Supports the NCC decision to disestablish their tonal only siren system.

Authored and Approved by:

Ian Macdonald
CDEM GROUP MANAGER/CONTROLLER

Attachment/s

1⇩   Massey University Report HB Regional Alerting Systems Review DSR Report 2021 4

JOINT CENTRE FOR DISASTER RESEARCH

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Hawke's Bay Regional Alerting Systems Review

December 2021

Executive Summary

The project's purpose is to conduct a gap analysis and review of the current suite of public alerting tools in the Hawke's Bay region. This project also assesses the suitability of other alerting options for use across the region.

Public alerting systems should deliver the best timely information so that people can make an informed decision during a warning with as much time as possible for protective action. Two of the critical considerations for alerting are providing (1) *heads-up* and (2) *instructions*. *Heads-up* is the ability to inform people ahead of the threat. *Instruction* is the ability to provide details: what is happening, where, when, and what action is required to respond to the threat. This review recommends a system of public alerting options.

Recommendations

Emphasis on natural warnings. The public must be aware that an official warning may not be possible for certain events, and natural warnings may be the only source of warning. For local source tsunami, natural warnings are the fastest warnings. The public must be able to know and recognise these warnings and be ready to respond without hesitation. An enhanced alerting system may cause a risk of people waiting for an official alert before taking appropriate actions. This risk of overreliance on alerting systems must be mitigated with public education. Aligned with developing warning systems, it is recommended that warning systems MUST be accompanied by public education and with annual drills and exercises. Public education is needed to emphasise the overriding importance of responding to natural warnings.

Backbone. Emergency Mobile Alerts (EMA) through cell broadcasting, supported by mobile apps, should be considered the backbone of public alerting in Hawke's Bay. These systems can reach the vast majority of the population and give heads-up and instructions. During the 2019 nationwide EMA test, 77% of New Zealanders had access to the alert. EMAs rely on mobile coverage; to ensure broader coverage to areas with blackspots, we recommend the support of mobile apps. Mobile apps can ingest and replicate EMA using the internet (e.g., through fixed-line networks). Public education should also support the backbone to remind people about natural warnings and limits of EMA and mobile app systems.

Infill options. Additional layers of regionally coordinated alerting are needed to cover groups and pockets. An alternative option where cellular coverage is lacking is the voice-over-internet-protocol (VOIP) auto dialler system. Engagements, public education, and coordinated warning arrangements should be pursued with self-maintaining networks and agencies with people in their care.

Mobile coverage mapping. Further assessment is needed to investigate the available telemetry and alerting options to cover blackspots. An extensive regional study for network coverage should be commissioned. Information from the coverage mapping can be used to lobby for better coverage from providers.

Multi-end-point platform and one-stop-shop. Reinforcement messages should also be distributed through the web and social media to cover redundancy in various channels. A multi-end-point platform is encouraged to distribute alert information to different end-points (e.g. EMA, mobile app, social media, CAP RSS, etc.). The existing webpage on Hawke's Bay public warning system (https://www.hbemergency.govt.nz/get-ready/public-warning-systems/) should be maintained to be act as the one-stop-shop that provides clear explanation and access to various warning services.

Existing systems: Napier siren system. The current signal-only siren system in Napier is not fit-for-purpose in the context of current-day alerting. Although it provides a *heads-up,* it cannot provide detailed *instructions.* The rise-and-fall signal only intends to communicate the need to seek more information. The public might not know what the siren signal means unless this system is accompanied by extensive education on the appropriate actions to take when the signal is heard. Upgrading the current system to a PA loudspeaker system can be considered, so *instructions* can also be provided. However, a PA loudspeaker system has a high start-up cost and will have substantial ongoing maintenance costs. Its coverage is also restricted to narrow geographical areas. Therefore, the costs may not outweigh effectiveness in areas with already existing or alternative alerting options. Napier City, as an urban area, already has good coverage with EMA and mobile apps. Inclusion of an extensive plan for public education and exercises on sirens in Napier should take place, if it is decided the system be maintained or upgraded. Costs for maintenance or upgrade are likely to be better spent on public education on natural warnings, increasing network coverage, and strengthening the backbone.

Staff resourcing must be increased to enhance education on natural warnings and public alerting awareness, including recognizing and responding to warnings. Higher levels of community engagement, education, and exercise are needed throughout the region. The costs for these should be sustained on an annual basis.

Method

This review uses the national Public Alerting Options Assessment methods by Wright et al. (2014) and the updated Excel decision support tool. The methods were streamlined and used for regional-level review in Waikato (Wright et al., 2015) and Bay of Plenty (Leonard et al., 2017). The Public Alerting Options Assessment uses an evidence-based scoring system. The effectiveness of each alerting option was determined using a range of criteria developed from information from international and national cases studies and theory-based research (Leonard et al., 2017; Wright et al., 2014, 2015). An indicative solution with cost estimates is given in this report. However, the values are utilised only to compare the cost-effectiveness of systems. A caveat on the approximations, the costs will most likely have increased from the past studies' estimates.

The project team worked with the Hawke's Bay CDEM Group to source and compile information that is pertinent to alerting. This Hawke's Bay review looks at identifying alerting options that could alert the majority of the people. The review also focuses on finding gaps in the coverage of current alerting options. This review identifies 'pockets' – spatial gaps and special demographic groups – that would need alternative or additional alerting channels because of gaps in the current coverage. Recommendations for covering these gaps focus on available national and regional alerting options and identifying additional 'infill' options – potential solutions to fill these pockets.

Context

Hawke's Bay key demographics. Relative to some other regions, there is a sizeable Māori population in Hawke's Bay Region. Māori represents over a quarter of the region's population with 11 iwi groups, 91 hapū, and 79 marae throughout Hawke's Bay. Based on the 2018 census (Stats NZ, n.d.), the majority of the population (81%) reside in urban areas. Hawke's Bay population is older than the national average, with a median age of 40.6 years. Eighteen per cent of Hawke's Bay population is over 65, with Napier City and Central Hawke's Bay District having the highest proportion of people over 65 (at 20% each).

Hawke's Bay CDEM. The Hawke's Bay CDEM Group covers the four territorial authorities in the region: Central Hawke's Bay, Hastings, Napier, and Wairoa. Hawke's Bay CDEM manages multiple hazards,

including hazards requiring rapid warnings for life safety. Rapid onset hazard events include tsunami from local or regional sources, serious chemical hazard incidents, heavy rainfall, surface flooding, wildfire, lifelines failure, and multiple urban fires. The Hawke's Bay CDEM Group provides the coordinated and integrated approach to how significant risks and hazards are managed in Hawke's Bay across the 4R's of emergency management: Reduction, Readiness, Response, and Recovery.

Regional and national alerting. Current arrangements for alerting in the region include using the following: EMA, social media, website, mobile app (Red Cross Hazard app), land-based sirens, helicopter public address system (PA), and door-knocking and outbound calling. Hawke's Bay regional alerting aligns with national initiatives for alerting, including EMA, Red Cross Hazard App, Common Alerting Protocol, and the National Geohazard Monitoring Centre.

Keywords

Bibliographic Reference

Tan, ML, Leonard, GS, Johnston, DM. 2021. Hawke's Bay Regional Alerting Systems Review. Wellington (NZ): Joint Centre for Disaster Research – Massey University. 1-50p. (Disaster Research Science Report 2021:4)

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1   Introduction

1.1   Purpose and context

The project's purpose is to conduct a gap analysis and review of the current suite of public alerting tools in the Hawke's Bay region. This project also assesses the suitability of other alerting options for use across the region.

The Sendai Framework for Disaster Risk Reduction (UNDRR, 2015) has emphasised developing people-centred multi-hazard warning systems and strong research and risk-based approaches to mitigation. New Zealand's National Disaster Resilience Strategy (Ministry of Civil Defence & Emergency Management, 2019) aligns with the Sendai Framework to gradually implement risk reduction efforts.

While at an overarching national level, various warnings are provided (e.g. Emergency Mobile Alerts (EMA), the Hawke's Bay Civil Defence Emergency Management (CDEM) Group and its Group members manage, maintain, and operate warning systems for the region. Communications and warning systems should have the components for effective alerting (Leonard et al., 2017). Ideally, the suite of alerting tool options for Hawke's Bay should:

- Reach Target Audience – The system should be able to alert or communicate with target groups effectively.
- Be Resilient – Individual systems should be resilient, and the comprehensive suite of systems should have redundancies. In addition, provisions should exist for backup systems and capabilities.
- Be Easy to Operate – Any system should be user-friendly and easy to operate for all the staff required to use it.
- Be Cost-Effective – Maintaining and managing systems should be cost-effective. The management of systems should consider ongoing and future costs for maintenance and operations.
- Use Multiple Channels – The comprehensive suite of systems should use different channels to ensure coverage.
- Operate Remotely – The systems should be accessible and operable remotely to guarantee warnings issuance and communication maintenance does not rely on fixed locations.
- Interoperable – Different warning systems, where possible, should be able to exchange information with each other.

1.1.1   Out of scope

Several areas will not be within the scope of the review:

- Public communication is an integral part of public warnings. However, the focus of this assessment will be on Hawke's Bay CDEM Group's alerting capability.
- The assessment will look at the set of available and existing tools and protocols of the Hawke's Bay CDEM Group. However, it will not assess or make recommendations on National Warning Systems-related alerting options.
- The assessment estimates costs for the alerting options, but these costs are indicative only based on the costs used in the Bay of Plenty Warning Alerting Systems review (Leonard et al., 2017). It is not within this project's scope to reassess these costs; however, it can be safely assumed that costs will have risen at least by the consumers' price index.
- The assessment will focus on the region-wide alerting options. The project will touch on Napier-specific issues and assess the Napier City Siren System's suitability against other options now available.

- The project will focus on public alerting and communication during an event and not assess the internal agency alerting and communication tools and protocols used within the Hawke's Bay CDEM Group and partners. Detailed assessments of the standard operating procedures to operate end-to-end warning systems are beyond this project's scope.
- The project provides recommendations to the Hawke's Bay CDEM group to consider but will not seek to identify any implementation plans for new alerting options.
- An overview of mobile coverage blackspots will be given in this report. However, detailed mapping for mobile coverage blackspots is beyond the scope of this project.

1.1.2   Current situation

The Hawke's Bay CDEM Group Plan indicates that the Group 'maintains an interagency warning and communication system, with the assistance of the administrative authority [...and] territorial local authorities maintain warning systems to alert their residents' (Hawke's Bay Emergency Management Group, 2014, p. 65) While the Hawke's Bay region has an adequate existing warning system, there is an opportunity to improve public alerting across the region. The Hawke's Bay region currently operates a suite of alerting tools as outlined in Section 2.4.

Tsunami warnings

The National Tsunami Warning and Advisory Plan by the National Emergency Management Agency (NEMA) states that:

> 'New Zealand is a member of the Pacific Tsunami Warning System (an international system under the auspices of the Intergovernmental Oceanographic Commission of UNESCO), that is designed to provide timely and effective information about tsunami or potential tsunami generated in the Pacific Basin. In New Zealand, the system is complemented by GeoNet geological hazards and sea level monitoring. The National Emergency Management Agency (NEMA) is the agency responsible for initiating national tsunami advisories and warnings to the communities of New Zealand' (NEMA, 2020, p. i).

> 'NEMA uses the National Warning System (NWS) to disseminate official tsunami notifications in the form of national advisories and warnings on a 24/7 basis. Section 25 of the Guide to the National CDEM Plan describes the NWS' (NEMA, 2020, p. 3).

> 'CDEM Groups and CDEM Group members are responsible for the planning, development, and maintenance of appropriate public alerting and tsunami response systems, including public education and evacuation zone identification for their areas' (NEMA, 2020, p. 5).

> 'All CDEM Groups and CDEM Group members receive official national tsunami advisories and warnings via the NWS. When time and expertise is available, CDEM Groups are responsible for further local threat assessment and deciding on appropriate local public alerting and response for regional and distant-source tsunami. For example, designating which evacuation zones are relevant to evacuate, dependent on the threat' (NEMA, 2020, p. 5).

CDEM Groups and CDEM Group members have responsibility for evacuations. The Tsunami Warning and Advisory Plan covers the three different categories of tsunami (distant-source, regional-source, and local-source). NEMA and GeoNet work to provide threat advice for all tsunami. However, an official warning may not be possible for local-source tsunami. Indeed, the National Tsunami Warning and Advisory Plan clarifies that official warnings are unlikely and should not be relied upon to take action. Natural felt signs are the primary warning for local-source tsunami.

'CDEM Groups, agencies, and the public should not wait for an official warning if long or strong shaking is felt ("Long or Strong, Get Gone"). They must take immediate action to evacuate predetermined evacuation zones, or in the absence of predetermined evacuation zones, go to high ground or go inland' (NEMA, 2020, p. 7).

Weather, flood, and volcanic warnings

The Meteorological Service of New Zealand Ltd. (MetService) is the Official Alerting Authority that provides information about potential severe weather. It provides information to the individuals and agencies through a suite of different tools for issuing warnings and watches, including its website, app, the Common Alerting Protocol (CAP), social media, via media, email, and other communication channels (MetService, n.d.-a). GNS Science, through GeoNet, provides information on volcanic hazards; official volcano status information is given through the Volcanic Alert Bulletins, which summarises volcanic status, recent activities, forecasts, and any developing or expected problems (GeoNet, n.d.). The information is provided through several channels, including website, app, social media, media, and via email. For volcanic ash, the MetService operates the Wellington Volcanic Ash Advisory Centre (VAAC) and provides ash cloud forecast – ash suspended in atmosphere affecting aviation – for New Zealand and surrounding areas of responsibility (MetService, n.d.-b).

The Hawke's Bay CDEM Group runs the Hawke's Bay Regional Warning System (RWS) within the region using the Whispir Platform via SMS and email. A Hawke's Bay CDEM duty manager receives all warnings and alerts for the region, and seeks additional regional interpretation as appropriate, usually from the Hawke's Bay Regional Council, before disseminating using the RWS. The additional interpretation usually includes communication of severe weather impact (including flood warnings) and other hazards, aim at identifying potential risks and target areas

Fire warnings and hazardous substances

The Fire and Emergency New Zealand Act 2017 combined urban and rural fire services into a unified organisation: Fire and Emergency New Zealand (FENZ). FENZ has the mandate to cover urban and rural fire incidents and provide a range of emergency management functions, including events involving hazardous substances (FENZ, 2020). In addition, FENZ provides public alerting for fire and hazardous substances to directly affected people and, more broadly, via the media. The FENZ regional teams work closely with CDEM Groups' where alerting can be via regional public alerting channels as well. There is some shared responsibility with the Ministry of Health and regional health agencies on communication for hazardous substances, including warnings regarding smoke from fire.

1.2   Related documents

There are key references available for public alerting in New Zealand:

1. An updated review of public alerting options (Wright et al., 2014),
2. Hawke's Bay CDEM Group Plan (Hawke's Bay Emergency Management Group, 2014),
3. Emergency Mobile Alert: Protocol for user agencies (Ministry of Civil Defence and Emergency Management, 2017),
4. Technical standard Common Alerting Protocol: CAP-NZ (Ministry of Civil Defence and Emergency Management, 2018),
5. Tsunami advisory and warning plan: supporting plan (NEMA, 2020), and
6. An analysis of public alerting options for Bay of Plenty Regional Alerting System (Leonard et al., 2017).

1.3   Structure of this review

The project uses streamlined versions of the methods used in past alerting reviews like that conducted for the Bay of Plenty and Waikato regions (Leonard et al., 2017; Wright et al., 2015). This review uses tools and lessons from the past reviews. The review process is outlined below.

- The project team worked with the Hawke's Bay CDEM Group to source and compile information that is pertinent to alerting. This Hawke's Bay review looks at identifying alerting options that could alert the majority of the people.
- The review focuses on finding gaps in the coverage of current alerting options. This review identifies 'pockets' – spatial gaps and special demographic groups – that would need alternative or additional alerting channels because of gaps in the current coverage. Recommendations for covering these gaps focus on available national and regional alerting options and identifying additional 'infill' options – potential solutions to fill these pockets.
- The review also looks at special considerations for Napier, considering its denser urban population and specific hazards to tsunami.

Stage 1 – Analysis

We assessed the cost, reliability, reach functionality, and effectiveness of each alerting tool utilised by the Hawke's Bay CDEM Group.

1. The Joint Centre for Disaster Research (Massey University) team analysed the 2018 Census data(Stats NZ, n.d.).
2. The Hawke's Bay CDEM Group provided specific contexts, needs, and options (summarised in Sections 2 and 3) to ensure local knowledge was considered for the review.

The following specific topics were analysed:

- population data (high and low density),
- elderly populations (used as an indicator for hearing, sight, and mobility impaired populations),
- hazards that need a specific alerting focus (e.g., tsunami for coastal areas),
- rural and urban population composition of the region,
- telecommunications coverage,
- approximate mobile phone coverage,
- transient populations, and
- pockets that need infill options:
    - o spatial gaps,
    - o specific demographic groups (e.g. ethnic, language, special needs), and
    - o agencies with people in care.

Stage 2 – Draft review

The draft review was subjected to feedback from the Hawke's Bay CDEM Group and was peer-reviewed by JCDR experts. As a result, further recommendations were made for improvements, modifications, and changes to the alerting suite.

Stage 3 – Review finalisation

Comments from Hawke's Bay CDEM Group on the draft review contributed towards the final recommendations presented in this report.

1.4   Capacity and relationship building

Data collection, partner agency contacts, and price indications were undertaken with consultation with the Hawke's Bay CDEM Group, wherever possible.

2   Context for alerting in the Hawke's Bay

2.1   Overview of the Hawke's Bay CDEM structure

The Hawke's Bay CDEM Group's role is to provide a coordinated and integrated approach to how significant risks and hazards are managed in Hawke's Bay across the 4R's of emergency management: Reduction, Readiness, Response, and Recovery. The Hawke's Bay CDEM Group covers the four territorial authorities (Figure 1): Central Hawke's Bay, Hastings, Napier, and Wairoa.

Figure 1. Hawke's Bay Territorial Authorities. Source: Hawke's Bay Emergency Management Group Plan 2014-2019

The Hawke's Bay CDEM Group is comprised of the following local authorities:

- Central Hawke's Bay District Council,
- Hastings District Council,
- Hawke's Bay Regional Council,
- Napier City Council, and
- Wairoa District Council.

The Joint Committee oversees the governance of the Group. The Joint Committee comprises the Chair of the Regional Council and elected representatives of each territorial authority in the region. The Coordinating Executive Group (CEG) oversees the management of the CDEM Group, membership to the CEG comprises of statutory or co-opted members. The Hawke's Bay CEG members include CEOs from the local authorities, representatives from the Fire Service Eastern Region, Police Eastern District, and Hawke's Bay District Health Board, CDEM Group Controllers, Group Recovery Manager, Chair of

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the Welfare Coordination Group, Medical Officer of Health, and the Chair of the Hawke's Bay Engineering Lifeline Group (Hawke's Bay Emergency Management Group, 2014).

Responsibilities for public alerting fall to members of CDEM Groups under the National CDEM Plan Order 2015. The order states:

'CDEM Groups;
- - must maintain arrangements to respond to warnings (s60(5));
- - Are responsible for (s62(6)):
    a. Disseminating national warnings to local communities; and
    b. Maintaining local warning systems. '

2.2 Hawke's Bay warnable hazards

The Hawke's Bay CDEM Group Plan describes the hazards managed by the Group. Table 1 summarises the hazards based on the need to disseminate rapid warnings from a life safety perspective. Rapid warnings require faster and more effective systems. In general, public alerting systems should have capabilities to warn the public of these rapid-onset hazards effectively. If alerts work for rapid warnings, they can also be expected to be effective for less time-critical events.

Table 1. Hazards applicable to the Hawke's Bay CDEM group (as per Part 1 of the Group Plan, 2014-2019) and the requirements for rapid warnings for life safety

Hazards requiring rapid warnings for life safety (short-onset, less than 3 hours)	Hazards NOT requiring rapid warnings for life safety but are still appropriate for alerting	Hazards that currently cannot be warned for
Tsunami – local source[1]	Flooding	Earthquakes[2]
Tsunami – regional source	Tsunami – distal source	Extreme geothermal events or unheralded small volcanic eruptions
Serious Hazchem incident	Coastal storm	
Heavy rainfall (Severe Thunderstorm/Flash flooding/debris flow)	Volcanic eruption with precursor (local or distal)	Landslides
Stormwater surface flooding	Animal disease epidemic	Localised subsidence
Wildfire/Rural fire	Human disease pandemic	
Large-scale lifelines failure (Major air accident, electrical failure, telecommunications failure, dam break, etc.)	Biological pests and new organisms	
	Drought	
	Coastal erosion	
Urban fire multiple	Windstorms	
	Snow	
	Hail	
	Pollution over unconfined aquifer	

[1]NEMA and GeoNet will seek to monitor, detect, and provide threat advice for all tsunami (including local-source). However, it may not be possible to issue warnings within sufficient time or accuracy. Natural warnings are still the best possible warnings in the immediate time. Groups, agencies, and the public should not wait for an official warning from NEMA (NEMA, 2020).

[2]The Android Earthquake Alerts System was initiated in New Zealand starting April 2021 and has issued a few earthquake early warning alerts to Android users. This alerting system was deployed without officials' involvement and should not be confused with alerts issued by civil defence authorities (McDonald, 2021).

2.3 Key demographic characteristics

This section describes the variation in demographics across the region that require consideration for different public alerting options. Agencies with people in their care are considered in Section 3.3.5 but not under specific demographic analysis.

2.3.1   Rural vs urban populations

The majority of the population (81%) reside in urban areas (based on the 2018 census). However, the range of effective and feasible alerting measures differs for high-density and low-density populations. Table 2 shows the distribution of urban-rural populations in Hawke's Bay.

Table 2. 2018 Census population summary giving total population and percentage in urban vs rural areas.

2018 Census Data	Population	Percentage
Urban Wairoa	4,527	54%
Rural Wairoa	3,840	46%
Urban Hastings	61,521	75%
Rural Hastings	20,016	25%
Urban Napier	62,241	100%
Urban Central Hawke's Bay	6,468	46%
Rural Central Hawke's Bay	7,674	54%
Region Total	166,287	
Region Urban	134,757	81%
Region Rural	31,530	19%

2.3.2   Ethnic group self-maintaining networks

Specific iwi communication channels provide an opportunity to reach a substantial part of the regional population. 6.8% of 2018 census respondents report speaking Māori (Stats NZ, n.d.). Relative to some other regions, there is a sizeable Māori population in Hawke's Bay Region. The Hawke's Bay Regional Council (2021) describes the culturally rich landscape of the region:

> *Hawke's Bay has a diverse and culturally rich landscape. Māori are Treaty partners as mana whenua and key members of our community.*
>
> - *Māori represent over a quarter of the region's population*
> - *There are 11 iwi groups, 91 hapū and 79 marae throughout Hawke's Bay*
> - *Eight iwi groups are represented post-settlement governance entities (PSGEs) on the Hawkes Bay Regional Planning Committee*
> - *Ngāti Kahungunu with Rongomaiwahine, coastal area is said to be from Paritū north of Mahia to Tūrakirae on the south Wellington Coast. Ngāti Kahungunu Iwi Inc composes six Taiwhenua with governance entities and operations on the ground, 4 of which are within the region*
> - *6.8% of Hawke's Bay speak Te Reo Māori*
>
> *Māori make a significant contribution to our region both as mana whenua and treaty partners and also through their ownership of assets; to economic development; participation in co-governance and their growing influence as kaitiaki in the conservation, preservation and management of our natural resources.*

Hawke's Bay CDEM Group needs to continue engaging with iwi group representatives to develop approaches to deliver alerts and collaborate with existing communication channels and community organisations. Hawke's Bay CDEM Group also needs to identify and follow up with other ethnic groups and communities for potential alerting.

2.3.3 Language barriers

According to the 2018 Census (Stats NZ, n.d.), 96.7% of the Hawke's Bay region population speak English. Two per cent (2.0%) do not speak a language (e.g., they are too young), leaving 1.3% – about 2,100 people – who may not speak English. Given the overall low proportion of the region who do not speak English and the diversity of other languages spoken, it is most effective to tie warnings directly into existing communication structures within these communities. Coordinating with self-maintaining networks is more effective than creating a regional system that warns in all languages.

Table 3. Spoken languages in Hawke's Bay as indicated in the 2018 Census

	Number of people	Of those who stated a language
English	160,908	96.70%
Maori	11,361	6.80%
Samoan	2,604	1.60%
Northern Chinese	435	0.30%
Hindi	696	0.40%
French	1,452	0.90%
Yue	525	0.30%
Sinitic not further defined	309	0.20%
Tagalog	633	0.40%
German	1,152	0.70%
Spanish	750	0.50%
Afrikaans	855	0.50%
Tongan	435	0.30%
Panjabi	1,125	0.70%
New Zealand Sign Language	948	0.60%
Other	5,436	3.30%
None (e.g., too young to talk)	3,357	2.00%
Total people stated	**166,365**	**100.00%**

2.3.4 Age

Hawke's Bay population is older than the national average, with a median age of 40.6 years. Eighteen per cent of Hawke's Bay population is over the age of 65. Napier City and Central Hawke's Bay District have the highest proportion of people over 65 (both at 20%), whereas Wairoa District and Hastings District have a slightly lower proportion of people over 65 (at 17%). See Table 4 for a summary of the district's age distribution of the region's population.

Table 4. Summary of Hawke's Bay population's age by district, based on the 2018 Census

	Wairoa		Hastings		Napier		Central Hawke's Bay	
	Count	% over total district pop.	Count	% over total district pop.	Count	% over total district pop.	Count	% over total district pop.
Under 15 years	1,965	23%	17,700	22%	12,321	20%	2,940	21%
15-29 years	1,503	18%	14,961	18%	10,740	17%	1,974	14%
30-64 years	3,465	41%	35,199	43%	26,712	43%	6,423	45%
65 years over	1,431	17%	13,689	17%	12,465	20%	2,799	20%

In terms of infill alerting demand, it should be noted that some rural parts of Hawke's Bay have a higher proportion of people over 65 years of age than the regional average; and these locations may also have mobile blackspots. Table 5 summarises the population counts of people aged over 65 in rural areas in Hawke's Bay using 2018 census data (Stats NZ, n.d.).

Table 5. Count and % population of people 65 years and over in rural Hawke's Bay

Rural areas	People 65 years and over	
	Count	% of the total area population
Tuai	27	12.50%
Other rural Wairoa District	477	15.96%
Frasertown	57	22.35%
Nuhaka	42	21.21%
Mahia Beach	60	32.79%
Other rural Hastings District	2331	13.84%
Whirinaki	87	22.48%
Whakatu	66	10.33%
Haumoana	150	12.95%
Te Awanga	150	19.53%
Waimarama	48	22.22%
Tikokino	27	14.06%
Ongaonga	45	26.79%
Takapau	102	17.17%
Otane	111	16.74%
Other rural Central Hawke's Bay District	939	15.87%
Porangahau	30	21.28%

highlighted cells indicate % higher than the regional average of 18%

Furthermore, there are many elderly communities and retirement villages in Napier, Hastings, and Havelock North. Several of the elderly care facilities in Napier are also in identified tsunami evacuation zones.

2.3.5 People with disabilities

Age also correlates with the proportion of people with disabilities. Figure 2 summarises people with overall disabilities (hearing, vision, physical, or psychological) based on the 2013 National Disability Survey (Stats NZ, 2014). People's disabilities may inhibit their ability to receive and respond to a warning. Infill considerations should be given on reaching people with disabilities through solutions with supporting agencies for the respective communities.
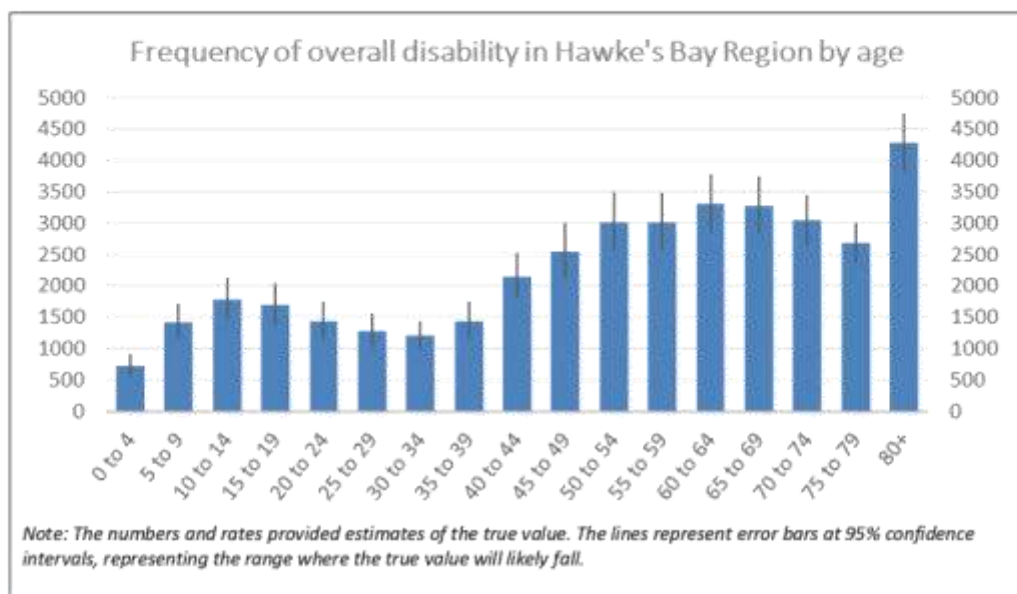
Figure 2. Frequency of people with disabilities in the Hawke's Bay Region by age. Data from the 2013 Disability Survey.

2.4   Existing regional systems and arrangements

Table 6 summarises existing alerting systems in use in Hawke's Bay region. Arrangements with media (usually via phone call, email, or fax) and uptake of press releases also provide widespread alerting.

Table 6. Existing systems summary. Costs are met by the CDEM Group.

	EMA	Social media & website	Red Cross Hazard App	Land-Based Sirens[1]	Stinger Siren[2]	Helicopter PA[2]	Door knocking and outbound calling
Capital/ purchase cost ($NZ)	N/A	0	0	$51,000 (including purchase and install for standalone and fire service setups)	$1,500	$20,000	N/A
Annual Maintenance cost ($NZ)	Costs included in council staff time	$9,000[4]	0	<$3,400	N/A	Ongoing cost estimated at $1,000/hr during event	Already included in council staff time
Annual Contract cost ($NZ)	N/A	0	0	N/A	N/A	N/A	N/A
Annual Testing Cost ($NZ)	NEMA is the operational custodian and responsible for testing	0	0	N/A (the only cost associated with the siren test is for advertising/ publicity)	N/A	N/A	Already included in council staff time
Number of Units	N/A	N/A	N/A	17 (in Napier)	1 remaining	1	N/A

	EMA	Social media & website	Red Cross Hazard App	Land-Based Sirens[1]	Stinger Siren[2]	Helicopter PA[2]	Door knocking and outbound calling
Locations	N/A	N/A	N/A	Eskdale School Bayview Fire Station – Shared Hawke's Bay airport Westshore School Napier Port – Shared Battery Road Napier Fire Station – Shared McLean Park Napier Library building Napier Awatoto site Maraenui Shop site Meeanee Sports Hall site Waverley/Tannery Road EIT Building Taradale Fire Station – Shared Anderson Park NCC Depot	Hastings District	Wairoa District	Region-wide
Number of subscribers	All mobile phone users in the region (non-opt out option)	36,602 Facebook 225 Twitter	Unknown	N/A	N/A	N/A	N/A

[1] Land-based siren capital cost and annual maintenance cost are approximated only; using proportional costs as estimated on the Bay of Plenty report by Leonard et al. (2017)

[2] Stringer sirens estimated capital cost was $15,000 for ten units. Hastings District Council previously owned these, but most have been gifted to Manawatu-Wanganui. Only one remained in the region but has been decommissioned.

[3] Helicopter PA costs based on minimum estimates per assessment tool Wright et al. (2014) review of public alerting options in New Zealand

[4] $9,000 is the estimated cost to maintain the entire Hawke's Bay CDEM website, not just the warning system-related pages.

2.5   National initiatives

2.5.1   Emergency Mobile Alert (EMA)

Emergency Mobile Alert (EMA) is a cell broadcast system used by authorised agencies 'to send alerts about actual or suspected threats, risks, hazards, or emergencies to mobile phones in selected area(s) via a dedicated cell broadcast channel' (Ministry of Civil Defence and Emergency Management, 2017, p. 3). The system works on a push basis, meaning the public does need to subscribe and cannot opt out of receiving the alerts. Mobile phones may show settings to opt-out from EMAs, as used in other countries, but New Zealand authorities use a special broadcast channel that is permanently on (National Emergency Management Agency, n.d.).

EMA is delivered over 3G and 4G on the three mobile networks (2degrees, Spark, and Vodafone). The specific mobile network will deliver to any mobile phone in coverage on any other network. Individual authorised agencies, including CDEM Groups, can distribute EMA to selected area(s). NEMA is the custodian of the EMA System and sets the restrictions on who and how it can be used. Since the nationwide launch test in November 2017, the EMA has been tested and used in actual events in New Zealand.

2.5.2   Red Cross Hazard App

The Red Cross Hazards App is a multi-hazard app that can receive alerts from participating alerting authorities via the app (New Zealand Red Cross, n.d.). The Red Cross Hazards app has been rolled out to the 16 Regional CDEM Groups. The Red Cross Hazards App complements the EMA system for areas without mobile coverage as it uses internet from various sources, including fixed-line broadband, Wi-Fi, and cell phone data. The Red Cross Hazard App can replicate EMA information and deliver the notification via the app through internet service. It is Common Alerting Protocol (CAP) compliant; it can read CAP feeds and provide a CAP origination form. The app is free of charge for the public to download. However, as for all apps, people need to download and install them to be effective. It is an 'opt-in' option, thus reducing effectiveness. A widespread and ongoing campaign is needed to keep the app installation rates high.

2.5.3   Common Alerting Protocol (CAP)

'Common Alerting Protocol (CAP) is an international XML1-based open, non-proprietary digital message format for exchanging all-hazard emergency alerts. It supports consistency in applying public warnings across Alerting Authorities and the dissemination of warnings over many channels simultaneously. The net result is increased effectiveness of warnings' (Ministry of Civil Defence and Emergency Management, 2018, p. 1)

CAP is used in New Zealand, where the CAP-NZ Working Group guides its implementation. NEMA leads the CAP-NZ Working Group. A technical standard for implementing CAP is available on the NEMA website[1].

CAP uses a consistent formalised structure for alerts; which means that CAP messages, once authored, can sit on a feed and be picked up immediately and automatically at the same time by all CAP compliant and compatible alerting end-points (e.g., Red Cross Hazard App and other alerting platforms).

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[1]   https://www.civildefence.govt.nz/assets/Uploads/publications/Common-Alerting-Protocol/Common-Alerting-Protocol-CAP-NZ-Technical-Standard-TS04-18-FINAL.pdf

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2.5.4   National Geohazard Monitoring Centre

Starting December 2018, New Zealand started enhanced monitoring of geohazards (earthquake, landslide, tsunami, volcano) on a 24/7 basis through the National Geohazards Monitoring Centre (NGMC). NGMC received live data feeds from GeoNet supported monitoring equipment located around New Zealand and from international stations. The NGMC is supported by the GeoNet programme and is part of GNS Science; the Geohazards Analysts staffing the centre are in contact with NEMA through which data, information, and advice is provided (NEMA, 2020).

3   Needs and options analysis

This section describes the multi-hazard public alerting needs and potential options for the Hawke's Bay region within the context given in Sections 1 and 2. The options discussed are in terms of alert channels that may reach each type of need, primarily dependent on the available telemetry (the telecommunication path).

3.1   Available alerting options

The alerting options considered in this review are listed here. Details on their effectiveness and cost basis are given in Section 3.5.2 and Appendix B.

1. Natural warnings
2. Independently self-maintained networks
3. System reliant on third-party hardware or staff
    - Aircraft banners
    - Helicopter PA loudspeaker
    - Billboards – static
    - Billboards – electronic telemetered
    - Break-in broadcasting*
    - Call-in telephone line
    - Emails
    - Emergency mobile alert (cell broadcast)
    - GPS receiver messaging*
    - Marine radio
    - Mobile PA loudspeaker (Police/Fire)
    - Mobile apps
    - Newspaper content
    - Pagers (triggering group of 200 people)
    - Power mains messaging
    - Radio announcements
    - Route alert (door-to-door)
    - Social media
    - SMS-PP text messaging
    - Telephone auto-diallers
    - Telephone trees
    - Television announcements
    - Tourist radio
    - Websites
    - Website banners

4. Systems using dedicated hardware
    - Fixed PA loudspeakers
    - Mobile PA loudspeakers
    - Bells, airhorns
    - Flares, explosives
    - Radio data systems*
    - Radio (UHF, VHF, or HF)
    - Sirens (signal-only) – Mobile
    - Sirens (signal-only) – Fixed
    - Tone-activated alert radio*

Not currently available in New Zealand

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3.1.1 The importance of available telemetry

The available telemetry channels and the pockets of isolated areas govern the options available for alerting; these include:

- Mobile networks
  - Wireless broadband – also known as Fixed Wireless Access (FWA), does not rely on a physical connection (e.g., fibre cable or copper line). Instead, it enables users to have access to high-speed data through radio waves. However, it still requires a modem to be installed. It uses radio waves and typically connects to cellular networks.
  - Mobile – text messaging, voice calls, and mobile data are provided through the three companies (2degrees, Spark, Vodafone) through their network of cell towers using different technologies available (3G, 4G, 5G, etc.).
- Fixed-line networks
  - Copper – copper lines are used for traditional telephone lines and copper broadband (ADSL and VDSL), but copper connections are being replaced by fibre and wireless and ultimately will be phased out in areas in New Zealand.
  - Fibre – fibre-optic cables deliver ultra-fast broadband speeds to users. 87% of New Zealanders will be able to connect to a fibre connection by the end of 2022 (NZ Telecommunications Forum, 2021).
- Satellite – accessed through a satellite dish, particularly useful in remote areas where fixed and mobile solutions are unavailable or of poor quality
- Radio – both as broadcast stations and as signals to alerting receivers on these frequencies
- TV broadcast stations
- VHF radios
- Audio-frequency signals through the electricity network – also known as ripple control – are used by New Zealand's Electricity Distribution Businesses; can be used to reduce the load in grid emergencies (EECA, 2020).
- Electric power -- Electric power supporting these networks is also a factor as Hawke's Bay is limited by the capacity of single main transmission routes. Alternative supply routes for electricity could maintain only a very restricted supply. Some channels may become dependent on limited alternative supplies such as batteries.

3.2 District specific needs

In general, most hazards will require wide coverage alerting throughout the region. However, some cases as listed below may require specific local attention:

- rural and urban fire risk
- flood plains and urban flood basins
- sites for hazardous chemicals
- large facilities such as stadium, airport, and seaport
- critical points in lifeline services
- tsunami inundation areas.

3.3 Regional needs

The multi-hazard alerting needs are assessed at a regional level given the scope outlined in Section 1.1, except for location-specific needs as highlighted in Section 3.2. In addition, some of the available alerting options rely heavily on mobile phone coverage; we discuss coverage in specific areas in this section.

3.3.1   Urban populations

Urban populations in the Hawke's Bay region concentrate on the following areas: Hastings and Napier as the two main large urban areas, Havelock North as a medium urban area, and Wairoa, Clive, Waipawa, and Waipukurau as small urban areas. The majority of the populations in the urban centres have mobile coverage; however, there may be blackspots on the hills and in outlying dwellings.

As mobile phones appear to cover most urban populations, options that utilise mobile networks are therefore a high priority in those locations.

3.3.2   Rural populations

Rural and smaller settlements exist throughout the region. The main exception would be in forested land in plantation or native forests. Plantation areas include those highlighted in Figure 3. In these plantation areas, rural fire alerting should be a priority.

Figure 3. Hawke's Bay Region Forest Plantations Location map by the Hawke's Bay Forestry Group. Original image accessible at https://hbforestrygroup.co.nz/wp-content/uploads/2020/12/HBRC_Forest_Location_Map_122020_v4.pdf

The remaining settlement areas are related to non-forestry agriculture. These have distributed small communities and dwellings throughout and, therefore, low-density. Mobile phone coverage over farming agricultural areas is variable depending on topography, but in many cases can be found at least somewhere on many farms.

In contrast, forested areas have many locations with minimal or no mobile coverage. Maps are provided by mobile phone companies (Figure 4 to Figure 6) to give a broad view of the level of coverage, but the exact coverage experience across any one square kilometre can vary from the coverage shown in these maps.

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Figure 4. Two-Degrees Coverage maps of Hawke's Bay. Top image shows 4G coverage, and the bottom image shows 3G-Boosted coverage. Snapshots taken from https://www.2degrees.nz/coverage/, accessed on 8 September 2021.
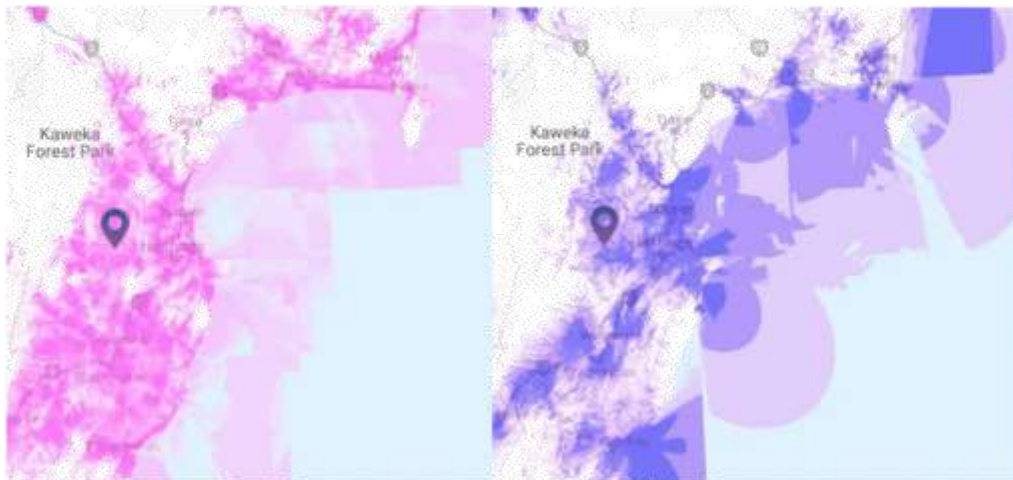
Figure 5. Spark coverage map for Hawke's Bay. Left image shows 4G coverage, and right image shows 3G coverage. Snapshots are taken from https://www.spark.co.nz/shop/mobile/network.html accessed on 8 September 2021.
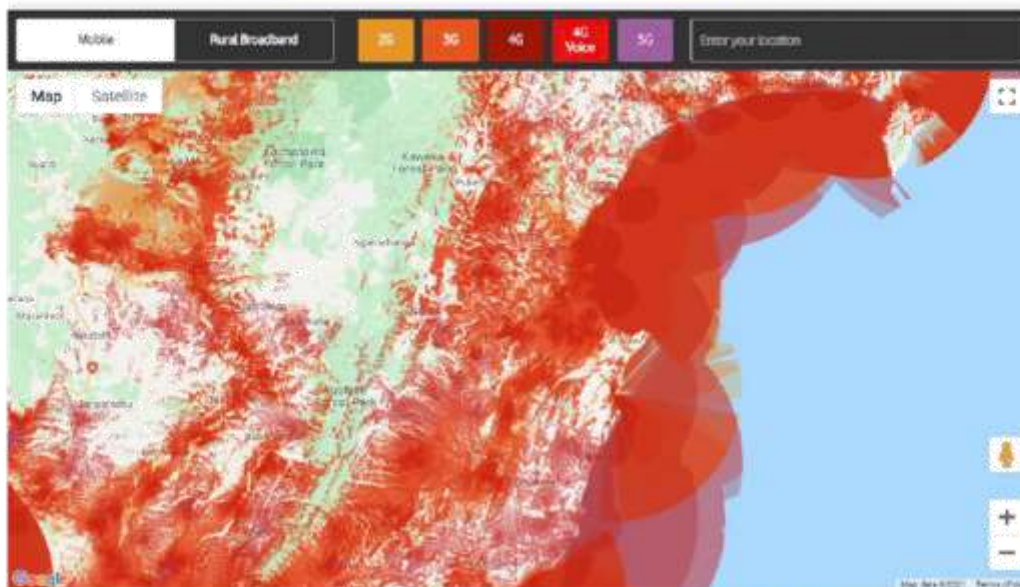
Figure 6. Vodafone coverage map in Hawke's Bay, including overlapping layers for 2G, 3G, 4G, 4G Voice, and 5G. Snapshot taken from http://www.vodafone.co.nz/network/coverage/, accessed on 8 September 2021

3.3.3 Isolated pockets

Isolated areas are referred to here as 'pockets', and the nature of the main pockets is discussed in terms of their common characteristics for public alerting needs.

Areas without mobile coverage

The urban areas, which contains 81% of the regional population, have mobile coverage. However, mobile coverage in rural areas may be highly varied. The maps provided in Figures 4 to 6 provide an overview of potential blackspots, but granular details on these blackspots are not within this report's scope. A project to conduct detailed mapping is recommended.

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Beaches

The Hawke's Bay Region includes four Surf Lifesaving clubs, each with a patrolled beach (variable daytime and seasonal hours): Westshore Beach, Napier's Marine Parade, Ocean Beach, and Waimarama Beach). Alerting options to reach these beaches include mobile phones, dedicated hardware at the locations, and existing communications to the Surf Lifesaving facilities in these locations. In addition, each of the surf clubs has phones and radios. The clubs also have active social media pages. The Hawke's Bay CDEM Group needs to agree to harmonise the approach and messaging with these groups.

Most of the popular beaches in Hawke's Bay have good mobile coverage, with some exceptions on Mahia Peninsula. People visiting beaches in the region would be reached through widespread alerting (particularly mobile-phone-based).

3.3.4   Specific groups

This section discusses some key groups that need alerting. It also refers to other sections of the report (e.g., for ethnic groups, seasonal workers, and children via schools).

English as a second language

No notable spatial clusters with English as a second language are apparent from the 2018 census data. The overall number of people for whom English is not spoken appears to be approximately 2,100 people. There remains an opportunity for additional alerting via ethnic groups' self-maintaining networks (Section 2.3.3) and into agencies with people in their care (e.g., seasonal workers, Section 3.3.5), potentially reaching most dispersed non-English speakers.

Elderly

Hawke's Bay population is older than the national average. There are areas with a high proportion of older populations (Section 2.2.4). The most significant impact of age is likely to be a decreased access to technology, which is relevant to internet and mobile phone-based alerting. In aged-care facilities, the elderly will have reliance on carers to disseminate information or take action. If alerting requires access to these technologies, other means may be needed to ensure notifications reach areas with older populations, especially in rural areas.

Limited access to technology

It is recognised that access to technology, particularly to mobile phones, is a factor in alerting coverage. Most people in New Zealand have access to smartphones. Although on average, people in New Zealand have more than 1.3 smartphones per person (Statista, 2021), this does not imply everyone has a smartphone. In fact, digital inclusion varies based on demographics. Older populations may have less digital access (Digital Government, 2019). The scope of the review is limited to approximating issues through known associations, such as an inverse correlation between mobile phone and internet use to the age (e.g., 65 and older).

People with disability

A proportion of the Hawke's Bay population may be affected by disability (hearing, vision, physical, or psychological). See Section 2.3.5 for a summary of people with disabilities in the region. People with disabilities may have an inhibited ability to receive and respond to a warning.

Most alerting solutions under consideration are audible; therefore, receiving the initial alert may not be an issue for the sight-impaired. However, receiving content details from a warning may rely on the

accessibility and availability of assistive/adaptive technologies for the sight-impaired population. Therefore, their ability to respond to the warning needs to be considered in broader community response planning. Reaching the hearing-impaired community through existing channels must also be considered (e.g., voice to text solutions). Considerations must be provided for other disabilities, including physical and psychological. The Hawke's Bay CDEM group needs to explore solutions for people with disabilities with the supporting agencies for the respective communities.

Transient populations

Transient populations are comprised of tourists in the Hawke's Bay region and people travelling on state highways and docking through Napier Port. Tourists can be in larger numbers in accommodation and attraction locations (assuming a return to pre-COVID-19 pandemic levels). This includes urban areas such as Napier and Hastings in terms of accommodation, where standard urban warnings may cover transient populations. However, remote attractions may need specific coverage. Special attention may need to be given to international tourists travelling to remote locations, as they may not have the same access to mobile coverage as domestic tourists.

3.3.5   Agencies with people in their care

Many agencies have substantial numbers of people in their care because they reside, visit, or work there. These agencies may include schools, the Department of Conservation, the Hawke's Bay Regional Prison, hospitals, aged care facilities, large employers (e.g., primary production and manufacturing sectors) and large sites (e.g., ports, stadiums, etc.).

Connecting with these agencies is an effective additional alerting channel to reach people in their care. Especially important for sites or areas where there are people who may not have access to regional public alerting options. The agency provides an additional opportunity to get an alert message to people in their care via their existing communication structures, reinforcing and providing redundancy to regional options.

As part of enhancing coverage, Hawke's Bay CDEM Group is already connected or needs to connect with agencies with people under their care, including

- Hawke's Bay District Health Board – may also be able to liaise with via their networks Mental Health Social Service providers
- Ministry of Education – to liaise with alerting Oranga Tamariki and Young People Social Service providers
- Ministry of Social Development (MSD) – may be able to liaise with via their networks for Older People, Homeless and Family Social Services providers
- Ministry for Primary Industries (MPI) – may be able to liaise with the Forestry Group, also horticulture, agriculture, and viticulture sector - via the Rural Advisory Group (Rural Network)
- Eastern Institute of Technology (EIT)
- Te Puni Kōkiri – for alerting marae
- Hawke' Bay Tourism
- Department of Conservation (DOC)
- Department of Corrections
- NZ Transport Agency (NZTA)
- Hawke's Bay Airport
- Port of Napier
- Camper van providers
- Campgrounds

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- Surf Lifesaving
- Large commercial entities (e.g., supermarkets and large format retailers)
- Regional Sport Park.

3.3.6　Cross border issues

Hazards can be shared across regional borders. Harmonisation of warning systems between neighbouring CDEM groups is essential to share consistent warning messages in impacted areas. Harmonisation will reduce confusion and improve responses to take protective action.

3.4　Napier specific considerations

Napier City is particularly vulnerable to earthquake and tsunami impacts due to its exposure to the Hikurangi Subduction Zone and other local faults (Payne et al., 2019). Around 62,000 people live in Napier as of the 2018 census (Stats NZ, n.d.). Napier's population mostly lives in low-lying land within tsunami evacuation zones. See Figure 7 for an overview of Napier City's tsunami evacuation zones. Populations north of the city will likely evacuate to Napier Hill. It is estimated that 20,000 people live in this area (Power et al., 2019). People west of the drainage channel separating Onekawa from Pirimai would evacuate to the Taradale Hills (Power et al., 2019).
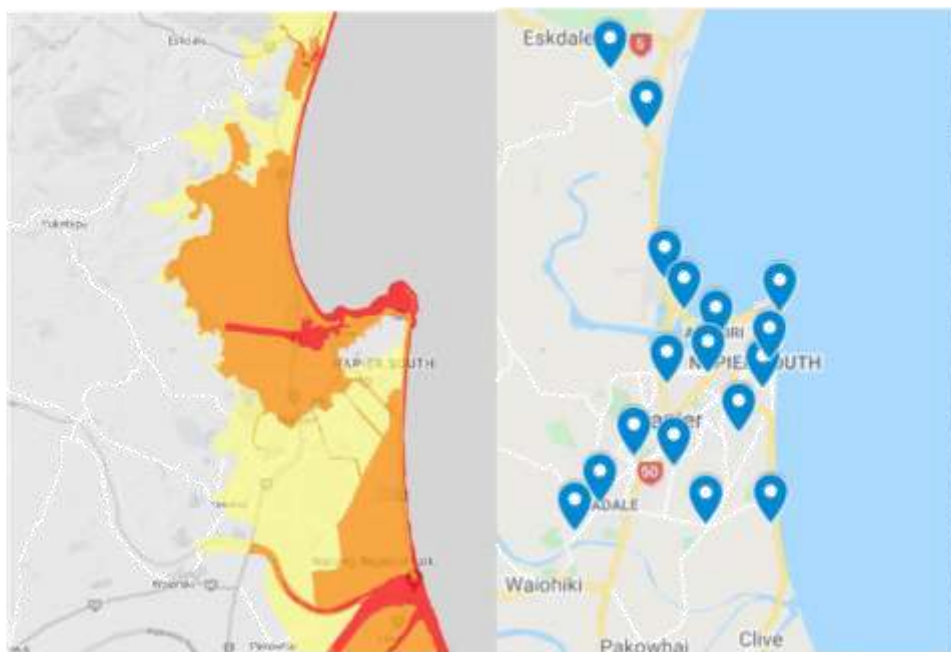
Figure 7. Overview of Napier City's Tsunami Evacuation Zones and Locations of Napier Siren System. The left figure shows three coloured zones in Napier per NEMA guidance on tsunami evacuation zones (2016). Red – shore exclusion zone, Orange – area evacuated in distant and regional-source official warnings, Yellow – coverage for all maximum credible tsunami events. The right figure shows the location of sirens in Napier. Images sourced from Hawke's Bay Emergency Management Group.

Systems are in place for public alerting to tsunami hazards in Napier. Napier has a siren system installed since the late 1960s and upgraded in about 2002 (Morris & Leonard, 2013). The initial development of tsunami sirens followed reviews after the unwarned damaging May 1960 tsunami (Johnston et al., 2008). The Napier Siren System is mechanical. They are fixed sirens mounted on establishments. Previously, tsunami sirens were mounted on fire stations around Napier. But according to Hawke's Bay CDEM, these have been disabled following FENZ's organisational directive across New Zealand that no tsunami sirens be located at fire stations.

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Napier's siren coverage is from Eskdale to Taradale with 17 sensors (see Figure 7 for a summary of the siren locations). The sirens use a rise and fall signal. The signal means that an emergency is imminent, and the public is advised to listen to the radio for more information (Morris & Leonard, 2013). NEMA has national guidance for tsunami warnings (Ministry of Civil Defence & Emergency Management, 2014). In addition, tsunami warning must employ a multi-channel system where sirens could be one of many public alerting options. Appendix A lists the key principles for tsunami warning systems.

It must be noted that the Emergency Mobile Alerts (EMA) system is used for public tsunami notifications in New Zealand. NEMA and CDEM Group Controllers may issue EMA for local, regional, and distant source tsunami where there is significant life-safety risk (NEMA, 2020).

However, for local tsunami sources, there is very little or no time to send official warnings; people will need to respond and make decisions based on natural warnings (NEMA, 2020). People in all three zones (in Figure 7) will need to self-evacuate immediately on feeling a long or strong earthquake to avoid the impacts of tsunami that could arrive within 15-40 minutes from the initial ground shaking (Hawke's Bay Emergency Management Group, 2021). Public awareness is vital, so people can recognise and respond to natural warnings. Local agencies such as the Hawke's Bay CDEM Group and Napier City Council work to enhance community readiness and resilience as an ongoing and critical focus (Payne et al., 2019).

3.5 Needs compared to options

3.5.1 Methods

This review uses the national Public Alerting Options Assessment by Wright et al. (2014) and the updated Excel decision support tool. The methods used were streamlined and applied for regional-level review in Waikato (Wright et al., 2015) and Bay of Plenty (Leonard et al., 2017). This assessment has been updated with developments in emerging options, including EMA, CAP, and other evolving capabilities available in New Zealand.

3.5.2 Scoring and basis

A Public Alerting Options Assessment was developed using an evidence-based scoring system. The effectiveness of each alerting option was determined using a range of criteria developed from information from international and national cases studies and theory-based research (Leonard et al., 2017; Wright et al., 2014, 2015). The tool contains base effectiveness scores, which are modified based on local and contextualised information added to the tool. The alerting options and the effectiveness evaluation tool are discussed more in Appendix B.

The tool used for this assessment used approximated costs for each alerting system based on the estimates from the Bay of Plenty review (Leonard et al., 2017). These values provide a way to compare the cost-effectiveness of systems. A caveat on the approximations, the costs will most likely have increased from the 2017 estimates. The range of criteria used to determine the effectiveness of each alerting system is shown in Table 7.

Table 7. Evaluation Criteria for Determining Effectiveness in the Public Alerting Decision Support Tool, taken from Leonard et al. (2017)

Evaluation Criteria	Explanation, implications
Activation time – Fast or nothing	Alerting and action time available
For fast onset, localised	Hazard, alerting and action time available
For fast onset, widespread	Hazard, alerting and action time, cost
For slow onset, localised	Hazard, alerting and action time available
For slow onset, widespread	Hazard, alerting and action time available, cost
Heads-up	Reach people whatever they are doing
Hearing-impaired	Vulnerable groups, receipt of message
High pop density	Cost, economy of scale, reach of system
Immobile	Vulnerable groups, action esp. evacuation
Institutions	Vulnerable groups, dependent
Instruction	Provides appropriate action information
Language	Vulnerable groups, understanding of message
Low pop density	Cost, economy of scale, reach of system
Mental capacity	Vulnerable groups, understanding of message
Ongoing effect (ability to update message)	Change in at-risk area or required action
Opt-in required	At-risk population must subscribe and cannot unsubscribe
Relies on (landline) telephony	Potential point of failure
Relies on electricity	Potential point of failure
Relies on internet connection	Potential point of failure
Robustness/resilience	Maintenance required, hazard resistant
Sight impaired	Vulnerable groups, receipt of message
Terrain	Topographic constraints on alert delivery
Time to reach all	Congestion of networks, delivery time
Transients/Visitors	Unfamiliar with local hazards, alerting systems, and required actions

Highlighted cells indicate showstoppers – most critical considerations

3.5.3   Showstoppers

The most critical considerations (i.e., 'showstoppers') for the evaluation are (1) *heads-up*, (2) *instruction*, (3) *opt-in required*, and (4) *time to reach all*. These are highlighted in Table 7 and discussed in more detail below.

- *Heads-up* and *instruction* are necessary for alerting to produce the appropriate response from the at-risk public during emergency events. *Heads-up* is the ability to inform people regardless of where they are and what they are doing. It needs to be attention-grabbing.
- *Instruction* is the content information of the alert for the recipient. It should contain *heads-up* information that indicates that something is happening. It should provide the following details: what is happening, where, when, and what action is required to respond to the threat.
    - For example, a severe Hazchem incident and a regional tsunami event may require different responses (e.g., staying indoors and sealing doors and windows vs evacuating tsunami hazard zone). *Instruction* is a critical part of alerting.

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- *Opt-in* criterion captures the need to subscribe or install components to be part of the alerting system. Examples for *opt-in* subscriptions include signing up to an email list, telephone-tree, telephone auto-dialler, SMS-text alert distribution list. Examples of *opt-in* systems that require installation include mobile applications (apps), audio-frequency signals through the electricity network (ripple control), and tone-activated alert radio. The need to subscribe or install to be part of the alerting system creates a potential barrier for uptake, especially if it involves costs or technological proficiency. An *opt-in* system most likely also allows people to opt-out. This would give capability and option for citizens to modify when they would receive alerts and can also turn off completely. Therefore, alerting opt-in options have lower effectiveness.
- *Time to reach all* is essential to maximise appropriate responses to warnings. Timeliness must be considered, including system activation time and the time to create and deliver the alert to all at risk.

3.5.4   Initial indicative cost comparison

Table 8 provides relative effectiveness scores for selected alerting options, with indicative costs if implemented across the Hawke's Bay CDEM Group. See the Public Alerting Options Assessment (Wright et al., 2014) for details on how the effectiveness scores were calculated. The costs in the table are not intended as a quote but rather an indication of relative cost based on the per-unit costs used in computation in past reports (Leonard et al., 2017).

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Table 8. Effectiveness scores and indicative costs for alerting options to reach 100% of the region's population. Sorted by effectiveness score under different coverage categories

	Effectiveness score	Low Density Population 31,530		High Density Population 135,000		
		Start Cost $k	Cost/ year $k	Start Cost $k	Cost/ year $k	
Rapid widespread coverage:						
EMA Cell Broadcast	84%	6	6	25	25	Already funded centrally
Mobile device apps	82%	14	14	58	58	Opt-in
Fixed PA loud-speakers	68%	NA	NA	2979	279	Maintenance, telemetry and testing
Coverage can reach 70%						
High effectiveness:						
Radio announcements	82%	1	1	4	4	No heads up, slow to reach 70%
Route alert (door-to-door)	71%	2049	2049	8775	8775	# staff available and time to walk/drive
Moderate effectiveness:						
Power mains messaging	66%	631	0	2701	1	Heads up only – slow response
Natural warnings	66%	114	114	486	486	Only for a few hazards **Good for coasts**
Telephone trees	65%	82	82	352	352	Slow to reach 70%
Telephone auto-dialler	64%	8	8	36	36	Slow to reach 70% **Good for pockets**
SMS-PP text messaging	63%	11	6	31	26	Slow to reach 70% **Good for pockets**
Pagers (triggering 200 people)	62%	99	49	422	211	Slow to reach 70%, phasing out
Lower effectiveness:						
Call-in telephone line	47%	669	649	2801	2781	Very slow to reach 70%
Sirens (signal-only) - Fixed	44%	3825	262	4226	314	Heads up only – slow response
Coverage cannot reach 70%						
Mobile PA loud-speakers	74%	316	0	139	1	Cannot reach 70% **Good for pockets**
Television announcements	73%	1	1	4	4	Cannot reach 70% **Good backup**
Website banners	66%	159	1	679	4	Cannot reach 70%
Independent self-maintaining networks	66%	6	6	24	24	Cannot reach 70% **Good for pockets**
Mobile PA loudspeaker (Police / Fire)	66%	1	1	4	4	# vehicles & staff; time required
E-mails	59%	20	5	38	23	Cannot reach 70%
Newspaper content	58%	0	0	1	1	Cannot reach 70%
Websites	56%	162	4	693	18	Cannot reach 70%
Marine radio	53%	1	1	4	4	Cannot reach 70%
Tourist/Iwi radio	49%	1	1	4	4	Cannot reach 70%
Billboards - static	47%	114	51	122	55	Cannot reach 70%
Billboards - electronic telemetered	45%	0	0	1	1	Cannot reach 70% **Good for pockets**

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4 Recommendations

Public alerting systems should deliver the best timely information so that people can make an informed decision during a warning with as much time as possible for protective action. This review recommends a system of public alerting options. Following the scope outlined in Section 1.1, the recommendations focus on public alerting. It must be noted that public alerting occurs in broader contexts of risk management, community engagement, planning, public education and exercises, and evaluation.

Recommendations discussed in this section:

- 4.1 Public alerting system to support response to natural warnings
- 4.2 Backbone of EMA supported by mobile apps
- 4.3 Infill options to cover pockets
- 4.4 Other considerations include multi-end point platform, one-stop-shop, low-cost reinforcement channels, and technologies to watch
- 4.5 Suggestions for existing systems
- 4.6 Example indicative solutions
- 4.7 Prioritisation of the recommendations.

4.1 Public alerting system must support response to natural warnings

The public must be aware that for certain events, an official warning may not be possible. For example, natural warnings are the fastest warnings for local source tsunami, and the public must be ready to act on these without hesitation.

If an earthquake is LONG or STRONG: GET GONE – is a natural warning message for tsunami. It is an important warning for people in Hawke's Bay and the rest of New Zealand, and people must know how to respond and do so without any hesitation. They must move immediately to the nearest high ground or as far inland as possible upon experiencing an earthquake that lasts more than a minute or makes it hard to stand up. People should not wait for an official warning. This is in addition to DROP, COVER and HOLD during the earthquake itself. Knowing the natural warning, the corresponding message, and appropriate action is important as it will give the maximum time and may be the only warning before impact.

An enhanced alerting system may cause a risk of people waiting for an official alert before taking appropriate actions. Over-reliance on official announcements and technical systems may have fatal consequences, as seen in the 2011 Tohoku earthquake and tsunami in Japan (Ishida & Ando, 2014). This was also seen following the 2005 Crescent City earthquake and tsunami warning in the USA, where a technical error led to the failure of the alerting system (Biever & Hecht, 2005; NOAA, 2005). In recent surveys in New Zealand, many people still indicated that they would wait for an official public warning before evacuating after a large earthquake (Dhellemmes et al., 2021).

This risk of over-reliance on alerting systems must be mitigated with public education. Regular exercises (e.g., annual tsunami hīkoi for all schools) can be an effective way to educate about correct actions for different warnings and regulate expectations on alerting systems. Resourcing adequate levels of public education and exercises requires substantial ongoing investment for staff resourcing. There is still a gap in educating the New Zealand public about natural warnings for tsunami. Aligned with developing warning systems, it is recommended that warning systems MUST be accompanied by public education and with annual physical evacuation exercises. Public education is needed to emphasise the overriding importance of responding to natural warnings.

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Public education campaigns around natural warnings, EMA, and supporting public alerting tools with evacuation exercises, require staff resourcing. Section 4.6 shows indicative costing for staffing support that includes community response plans, education campaigns, engagement with the whole community, and annual exercises. Note that the staff ratios are indicative only using estimates from more densely populated urban areas. For Hawke's Bay, staffing must consider the local context, including the geographical spread and risk exposure needs.

4.2   Backbone

EMA, supported by mobile apps, should be considered the backbone of public alerting in Hawke's Bay as the systems can reach the vast majority of the population whether they are at home or work. EMA and mobile apps are cost-effective and have high effectiveness scores. All EMA-compatible phones[2] can receive an alert if issued within the broadcast network. EMAs do not need to be installed and cannot be uninstalled.

However, FTE staff costs must be allocated to reinforce public education of these systems. Since its implementation in 2017, EMA has been tested nationwide annually (in 2017, 2018, and 2019). No tests were conducted in 2020 in consideration of the COVID-19 pandemic. However, the EMA system has been widely used in response to the pandemic, and notifications have been sent out to communicate about Alert Level changes. The New Zealand public is now well acquainted with the EMA. However, there is a risk that the public will over-rely on the EMA and may not respond to natural warnings. Public education should continue to remind people of natural warnings and the limits of the EMA system (especially to warn for local source tsunami). The cost for FTE should be accounted as part of the job of staffing to support response to natural warnings.

Mobile apps should be promoted to areas where there is limited mobile coverage but may have internet connectivity. The Hawke's Bay CDEM Group is promoting the Red Cross Hazard App. The Red Cross Hazard App is an app that is CAP-ready. In recent developments, the Hazard App can replicate the EMA in the app. This app alerting option will suit people whose phones cannot receive EMAs and those outside mobile coverage areas but are connected to the internet by other means. Apps have a lower penetration rate to the New Zealand public as substantial effort needs to promote the installation, educate about the correct configuration, test its effectiveness, and evaluate its uptake. There should be regular promotion, education, testing, and physical exercises (e.g., during annual ShakeOut/Tsunami Hīkoi) for the public. The cost for FTE staffing is indicatively costed in Section 4.12 for the support staff to support response to natural warnings.

The Red Cross Hazard App is currently in use for the region and has three substantial issues that need addressing before it achieves the high theoretical effectiveness of apps, besides the needs mentioned above:

1. Poor reviews in the app stores are contributing to people not installing the app.
2. Past performance on the volume of weather-related alerts may have contributed to alerting fatigue, causing people to uninstall the app. Too many alerts may dilute the likelihood that users will notice the important and less frequent life-safety alerts when they come through. Users may need to configure the app to the appropriate level of warnings they may want to receive.

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[2]   List of EMA Capable phones: https://getready.govt.nz/prepared/stay-informed/emergency-mobile-alert/capable-phones/

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3. The app does not effectively wake people up because alerts come through as a regular push notification (as with other apps). Therefore, the sound and vibration may be minimal. However, future enhancements to the app may include a loud alarm.

Because of the availability of Wi-Fi provided by non-cellular Internet Service Providers at most homes and workplaces, the mobile app support to the EMA backbone can be considered a partial redundancy in terms of channel.

4.3   Infill options

Additional layers of regionally coordinated alerting are needed to cover groups and pockets (as identified in Section 3.3). The layers for coverage will depend on the costs and the number of people that the backbone cannot reach.

4.3.1   Possible alerting options for infill

The following alerting options score high on effectivity while having relatively low-cost that can be considered:

- Voice-Over-Internet-Protocol (VOIP) auto-dialler system – should be investigated as an alternative option where cellular coverage is lacking. VOIP uses technology to allow high rates of simultaneous calling. It allows for multiple simultaneous callers, where many lines can call a single server to receive information.
- SMS can deliver messages to a list of people in areas with cell cover but with phones that are not EMA capable. However, more handsets are becoming capable of receiving EMA.

An effective and more expensive option is PA loudspeakers:

- Fixed PA loudspeakers allow alerts to be telemetered in areas that have no cell or internet cover. However, this option is costly.

4.3.2   Linking alerting options to pockets

Applying alerting options solutions for infill coverage should consider the following pockets and their intersections:

- places where there is no mobile coverage or internet
- places where there are people, and
- groups of distributed people (specific groups 3.3.4) that the backbone may not reach.

4.3.3   Determining areas that lack mobile coverage

Further work is needed to map the mobile coverage for the region fully (indicative maps in Figures 4 to 6). Different providers have different blackspots. Mapping will help identify which blackspots may not receive EMAs and for apps that will require mobile internet. These can be cross-analysed with the available telemetry and risk profiles to determine what alerting options will be best suited. This information can be used to lobby for better coverage from providers.

4.3.4   Population centres' mobile coverage and other telemetry

To understand appropriate infill options, further assessment is needed to investigate the population centres and their available telemetry and mobile coverage. For example, there may be areas with mobile blackspots, but they may have access to fixed-line systems (e.g., copper wire or fibre optic); in such cases, these areas can be covered by VOIP auto-dialler using a landline or mobile apps.

4.3.5   Specific groups

Further work is needed to fill in alerting options to specific groups:

- **Iwi groups.** Relative to some other regions, there is a sizeable Māori population in Hawke's Bay Region. Specific Iwi communication channels provide an opportunity to reach a substantial part of the regional population. Hawke's Bay CDEM Group needs to continue engaging with Iwi group representatives to develop approaches to deliver alerts and collaborate with existing communication channels and community organisations.
- **Non-English speakers** – there is a need to enhance engagements with ethnic groups and support their self-maintaining networks. It is recommended to identify groups and ensure that their networks would have access to public alerting.
- **Elderly** – Access to technologies for the older population, especially in rural areas, must be considered. Using and installing mobile apps may be a problematic alternative for the elderly that EMA can't reach. However, access to landlines may allow for the use of auto-diallers. In aged-care facilities, the elderly will have reliance on carers to disseminate information or take action.
- **People with disabilities** – Access and availability to assistive/adaptive technologies may be a barrier for people with disabilities. It is recommended that Hawke's Bay CDEM explore solutions for people with disabilities with the supporting agencies for the respective communities.
- **Transient populations**
    - To cover people travelling on highways, specific warning arrangements may be needed with NZTA. Future CAP compliant public alerting endpoints could be used as an integrated system (e.g., digital signboards).
    - To cover tourists, additional mobile alerting options should be explored. Most domestic tourists will have EMA-capable mobile phones. However, there may be potential variability with foreign handsets. Mobile apps (e.g., New Zealand Red Cross Hazard App) may be an alerting option for foreign tourists. It must be explored how to get tourists to install the apps on their phones. Blackspots may be an issue with tourists as both EMA and apps have reliance on mobile coverage.
- **Agencies with people in their care** – The list in Section 3.3.5 identifies the agencies that Hawke's Bay CDEM Group must connect with to ensure coverage. Hawke's Bay CDEM Group should coordinate specific warning arrangements into the internal and broader communication channels of these agencies.

4.4 Other considerations

4.4.1 Multi-end-point platform

We suggest considering using an alerting end-point platform to ingest alerts and distribute to other end-points, including but not limited to:

- EMA
- Red Cross Hazard App
- VOIP auto-dialler
- SMS lists (for groups within cell coverage but are not capable of receiving EMA)
- social media
- website
- CAP RSS feed for all other alerting end-points.

4.4.2 One-stop-shop

The Hawke's Bay CDEM Group currently has a web page where a list of public alerting channels is available: https://www.hbemergency.govt.nz/get-ready/public-warning-systems/. We encourage

using this page as a one-stop-shop portal to provide a clear explanation and access to warning services. It must be noted that the webpage in itself is not intended to be a warning system but a pre-warning portal of information. The page can be enhanced further to include what channels are available where, for whom, and what hazards. The current content is tsunami heavy for appropriate reasons, but the one-stop-shop must be balanced to include other hazards.

4.4.3   Additional Low-Cost Reinforcement Channels

The following should be enhanced and maintained at a regional level as they provide reinforcement to Hawke's Bay public alerting:

- Media arrangements
- Connection to self-maintaining networks
- Connection to large agencies with people in their care
- Social media
- Websites
- Other CDEM Group members alerting capacity.

4.4.4   Other technology to watch

More **CAP-compliant public alerting endpoints** will be available in the coming years. A public alerting endpoint is any piece of technology that can read CAP messages and deliver those messages to the public in a human-readable format (e.g., SMS, digital road signs, etc.). The Hawke's Bay CDEM Group should continue to work with the NZ CAP Working Group, where CDEM can originate CAP warnings that can be ingested and distributed to various end-points.

The **Android earthquake alerts system from Google** was initiated in New Zealand starting April 2021 and has issued out a few Earthquake Early Warning (EEW) alerts (which is intended to provide advanced notification of incoming earthquake shaking) to Android users. This alerting system was deployed without officials' involvement and should not be confused with alerts issued by civil defence authorities (McDonald, 2021). EEW is not an alerting option accessible for Hawke's Bay CDEM Group as this warning system is automated and run by Google. However, alerts coming from Android phones may confuse the public, and the Hawke's Bay CDEM Group must respond. It is recommended that the Group, with guidance and in coordination with NEMA, provide public education on the EEW alert and communicate its advice to the public about what they should do upon receiving the alert (e.g., include this in the one-stop-shop).

4.5   Existing systems

Existing systems should be maintained until consideration and implementation of installing new systems or decommissioning of old systems has taken place. The following are recommendations for the existing systems:

- Consider a **multi-end-point platform** that could deliver to multiple existing platforms at once. The platforms could integrate delivering consistent messaging to the existing end-points such as EMA, social media (Facebook and Twitter), the Hawke's Bay CDEM website, and the Red Cross Hazard App. The platform could integrate with future alerting options, including auto-diallers, etc.
- Consider **EMA** and **mobile apps** as a backbone to the alerting system. This should be accompanied by public education and exercises.
- **Social media** and **one-stop-shop webpage** should be maintained and enhanced for reinforcement alert messages and the public alerting system
- **Land-based siren**

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- o The current signal-only siren system in Napier is not fit-for-purpose in the context of current-day alerting. Although it provides a *heads-up,* it cannot provide detailed *instructions.* The rise-and-fall signal only intends to communicate the need to seek more information. The current Napier system does not comply with the NZ Standard for Tsunami Sirens and should not be used for this purpose.
- o The public might not know what the siren signal means unless this system is accompanied by extensive education on the siren signal meaning and the appropriate actions to take when the signal is heard. The public may not respond because they are unsure of the meaning (Fraser et al., 2013). Especially for tone-only sirens, there may be a disconnect between the intended message and what the people's perception of the message. In Napier, the siren signal means that the public should seek further information through radio, and not necessarily indicating of threat of tsunami (Fraser et al., 2013). However, staff report that in their previous education campaigns, they have struggled to change community perceptions that these fixed sirens are 'tsunami sirens.' For tone-only sirens to work, a public education component is needed to enhance awareness and understanding of the system (Fraser et al., 2013). Staff resourcing for public education must be budgeted with the use of the current siren system.
- o The existence of the siren system may increase the risk of over-reliance on the system and cause people to wait to hear the signal before acting on natural warnings. Potential earthquake damage itself can make the sirens fail. In a survey after the 2011 earthquake and tsunami in Japan, 17 out of 27 affected municipalities responded that their fixed tsunami alert transmission system failed from power cuts or earthquake damage and did not function properly at the time of the disaster (Hasegawa, 2013).
- o Public education and exercises must reinforce natural warnings and the LONG or STRONG: GET GONE message. Staffing costs must be budgeted for public education.
- o The costs of upgrading the current siren system to a PA loudspeaker system may not outweigh effectiveness in areas with already existing or alternative alerting options (i.e. good EMA or mobile app coverage). Although, a PA loudspeaker system has high effectiveness score, because it provides both *heads-up* and *instruction,* it has a high start-up cost and substantial ongoing maintenance costs (Wright et al., 2014). It is also considered to be prohibitive in low-density areas. Its coverage is restricted to narrow geographical areas and has audibility issues, especially in strong winds.
- o Napier City, as an urban area, already has good coverage with the high-reliability backbone of EMA and mobile apps. EMA and mobile apps provide both *heads-up* and *instructions.* Capital and maintenance costs are likely to be better spent on public education and strengthening the backbone, rather than maintenance or upgrading of the land-based Napier Siren System.
- One **Stinger Siren** exists in the region but is currently decommissioned. Careful consideration should be given if it will be used as an infill alerting option. Effectiveness is questionable due to deployment time, the added exposure of the operator to the hazard, and the rate of warning delivery.
- **Helicopter PA** (currently in Wairoa) should be maintained if it is an appropriate infill alerting option to areas where the backbone is ineffective. However, use with caution, as media reports on helicopter PA testing in Wellington showed that a significant number of the population could not hear the address message clearly and caused confusion (Leonard et al., 2017). Main issues include service level, availability, speed for deployment, and speed to reach the populations at risk.

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- **Door-to-door and outbound calling** should be maintained and integrated with public education and annual exercises. The effectiveness of the option is dependent on the availability and proportion of staff on duty and per per-person rate of visits. This option will not reach the majority of the population when peril is imminent but would be good as infill options for pockets. Appropriate staffing resources must be budgeted this option.

4.5.1   Requests for Proposals (RfP) and Implementation Process

Before implementing changes in the alerting system, the balance between the backbone and infill options will need to be agreed upon. After which, further specifications will be needed for RfPs from vendors. Points of clarity and alignment will be needed on national initiatives around EMA, CAP, mobile apps, and other technological trends.

4.6   Example indicative solution

Table 9 shows an indicative solution to implement the above recommendations. Table 9 is not a quote, and the costs are indicative only. The exact costs will be dependent on detailed proposals from vendors.

Note the following points for Table 9:

- The backbone of EMA and mobile apps is cost-effective as these alerting options will have rapid widespread coverage. However, the annual cost of staff time must be budgeted to account for the substantial amount of work to train, maintain procedures, and provide education and exercises around these options.
- Note that detailed pocket analysis was not in the scope of this report, so areas without access to EMA and mobile apps are indicative via population density only. This estimate must therefore be treated as speculative until Hawke's Bay has conducted a detailed pocket analysis.
- The infill via a telephone auto-dialler system and targeted SMS messaging has an annualised direct and staff cost. Charges per message will also be incurred.
- Upgrade of 17 Fixed PA loudspeakers are included as an example. These fixed PA systems could be targeted at the highest use beaches and tourist locations with limited cell coverage. The cost basis needs to be confirmed with RfP.
- It is necessary to budget staff time for additional redundancy and reinforcement systems. These must be annually sustained, and important to consider further infill options to reinforce warning messages.

Table 9. Example indicative approach to determining costs for alerting options for the Hawke's Bay region. Sorted by effectiveness score under the categories of rapid widespread coverage, can reach 70%, and cannot reach 70%. Costs are in proportion to the targeted reach (in terms of percentage population) of each alerting option.

| | Effectiveness score | LOW Density (100 ppl/sq.km) Population: 31,530 people | | | | HIGH Density (2500 ppl/sq.km) Population: 135,000 people | | | | |
		Reach	Start-up Cost	Annual Cost	Annual direct cost	Reach	Start-up Cost	Annual Cost	Annual direct cost	
Rapid Widespread Coverage:			$k	$k	$k		$k	$k	$k	
EMA	84%	60%	6	6	5	90%	35	35	29	Training, maintenance, education, and testing
Mobile apps	82%	90%	12	12	15	90%	52	52	58	Training, maintenance, education, and testing
Rapid targeted coverage:										
Fixed PA loud-speakers (17 units)	68%		NA	NA		10%	850	85	43	Maintenance, telemetry, and testing
Coverage can reach 70%										
High effectiveness:										
Radio announcements	82%	70%	1	1	0	70%	3	3	0	No heads up, slow to reach 70%
Moderate effectiveness:										
Natural warnings	66%	70%	79	79	22	70%	340	340	94	Required for tsunami. Cost = full plans, education, and exercises supported.
Slow to reach 70%										
Telephone trees	65%	10%	53	53	0	5%	18	18	0	
Telephone auto-dialler	64%	10%	1	1	1	5%	2	2	2	Good for pockets
SMS-PP text messaging	63%	10%	6	1	1	10%	9	4	3	Good for pockets
Cannot reach 70%:										
Mobile PA loud-speakers	74%	0%	0	0	0	5%	7	0	0	Good for pockets
Television announcements	73%	50%	1	1	0	50%	2	2	0	Good backup
Website banners	66%	50%				50%				Provided with CAP uptake
Independent self-maintaining networks	66%	10%	1	1	0	10%	2	2	1	Good for pockets
Mobile PA loudspeaker (Police / Fire)	66%	1%	0	0	0	10%	1	1	0	# vehicles & staff
E-mails	59%	10%	16	1	0	10%	17	2	0	
Newspaper content	58%	50%	0	0	0	50%	0	0	0	
Websites	56%	2%	3	0	0	2%	14	0	0	
Marine radio	53%	2%	0	0	0	2%	0	0	0	
Tourist/Iwi radio	49%	5%	0	0	0	5%	0	0	0	
Billboards – static	47%	10%	11	5	5	10%	12	5	5	
Billboards - electronic telemetered	45%	15%	0	0	0	15%	0	0	0	Good for pockets
TOTALS ($k)			190	161	49		1364	551	235	

Start-up total (year 1)	1554
Annual (Year 2 onwards)	712
Annual Direct Costs (no FTE) only	284

4.7   Prioritisation

1. We recommend that backbone options (both of which are currently in use) are costed in detail and implemented first.
2. Staff resourcing must be increased to enhance education on natural warnings awareness, including knowing how to act. Higher levels of community engagement, education, and exercise are needed throughout the region. The cost for this should be sustained on an annual basis. These programmes need to be appropriately evaluated.
3. A comprehensive regional study of network coverage should be commissioned. This mapping exercise should be cross-analysed with fixed-network systems, geographical risks, and an assessment for suitable infill alerting options for blackspots, recognising that different providers probably have different blackspots.
4. Ongoing research should be conducted or commissioned into infill needs to use the end-point platform options (particularly VOIP auto-dialler).
5. The system should be reviewed every three to five years
6. **IF** it be decided that the Napier siren system be maintained or upgraded, there should be inclusion of an extensive plan for public education and exercises. An RfP for enhancing the Napier Siren System with PA loudspeakers to match the above need (if any) should also be released.

5   Acknowledgements

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Appendix A: Principles for Tsunami Warning Sirens

From the Tsunami Warning Sirens Technical standard [03/14] (civildefence.govt.nz)

The following principles emerged as a part of consultation, and provide fundamental guidance to the use of sirens in tsunami warnings:

1. The term 'sirens' refers to a public alerting option only. The ability to detect earthquakes and tsunami, interpret that data, and trigger public alerting options (e.g. sirens) is a separate concept that should not be confused with activating siren hardware.
2. The use of sirens is a subset of CDEM Group/territorial authority warning systems, and is one public alerting option among many.
3. The use of sirens should be attuned with the national warning system and NEMA tsunami guidance.
4. The use of sirens must be risk based – that is, based on an understanding of CDEM Group/territorial authority tsunami hazards and risks.
5. Tsunami warning systems will employ the use of multiple alerting channels – one of which may be sirens.
6. Responsibility for activating sirens and the basis for activation must be clarified within CDEM Groups.
7. The use of sirens must be linked to continuous public education programmes and evacuation planning activities.
8. There should be national consistency in the signal and meaning of sirens.
9. Sirens should be used as an all-hazards alerting mechanism, and not only for tsunami warnings.
10. Sirens may be used for distant source tsunami events, and where possible, for regional source tsunami events, depending upon the policies of the CDEM Group and/or territorial authority. Activation of sirens must not be expected for local source tsunami events – the strong earthquake is the only reliable warning.
11. Communities should be involved in awareness raising, testing, and decisions on expanding or decommissioning siren systems, where possible. Testing must be done on a regular basis.
12. A realistic and achievable programme and budget must be developed for ongoing maintenance and operations.
13. Ongoing consideration of public alerting options by CDEM Groups is recommended – for both reach and cost effectiveness purposes.
14. Ideally, sirens should be public address (PA) capable to allow for direct, event-related messaging to be given. The use of sirens in tsunami warnings should not be inconsistent with the above principles.

Appendix B: Available Alerting Options

From the GNS Science Report: Bay of Plenty Regional Alerting Systems Review. https://doi.org/10.21420/G28043

Table B1. below shows the available alerting option, their costs-basis and effectiveness as per Public Alerting Options Assessment (Wright et al., 2014, 2015) and Leonard et al. (2017).

Table B1. Cost basis summary for alerting options

		Additional start-up	cost start-up / 1000 people	FTE / 100,000 people	cost annual / 1000 people (minimum - includes training, exercises etc.)	cost start-up / 1000 people	FTE / 100,000 people	cost annual / 1000 people (minimum - includes training, exercises etc.)	
	SCORE			LOW density			HIGH density		NOTES regarding cost basis
Natural warnings	66%			4.00	1,000		4.00	1,000	Based on education pre-event. Heads-up time depends on hazard. 1 FTE per 25,000 people, or four 6000 person communities or neighbourhoods. Estimated from effort over 6 years in Wellington region across 70,000 people. Provides wider benefit for resilience building and multi-hazard preparedness.
Independently self-maintained networks	66%			0.20	50		0.20	50	Based on staff effort to maintain relationships and testing.
Reliant on third party hardware and/or staff									
Aircraft banners	48%	5,000	400	0.01	200	100	0.01	50	Based on equipment purchase, flight time costs.
Helicopter PA loudspeaker	64%	20,000	1,600	0.01	8,000	400	0.01	100	Based on equipment purchase, flight time costs. 2 minute hover, 1 minute flight. 1000 per hover HD, 10 per LD
Billboards - static	47%	3,500	2,000	0.01	1,600	500	0.01	400	Based on monthly rental, reaching 10k people per board
Billboards - electronic telemetered	45%		unknown	0.01	unknown	unknown	0.01	unknown	
Break in broadcasting*	77%	large cost	not costed		not costed	not costed		not costed	LIKELY TO NEED NATIONAL ARRANGEMENT
Call-in telephone line	47%	20,000	20	0.01	20,592	20	0.01	20,592	Based on auto-dialler costs. Passive mechanism.
E-mails	59%	15,000	1	0.25	10	1	0.25	10	Database build (partially source from platforms, subscribers), using infinite size, rate of emailing limit? End user cap?
GPS receiver messaging*	57%		unknown		unknown	unknown		unknown	Needs INTERNATIONAL work to cover New Zealand, receivers must be changed to receive.

		Additional start-up	cost start-up / 1000 people	FTE / 100,000 people	cost annual / 1000 people (minimum - includes training, exercises etc.)	cost start-up / 1000 people	FTE / 100,000 people	cost annual / 1000 people (minimum - includes training, exercises etc.)	
	SCORE			LOW density			HIGH density		NOTES regarding cost basis
Marine radio	53%			0.05			0.05		Only reaches boats. Assumes exist in all boats, already have transmitter. Effort to maintain and exercise.
Mobile PA loud speaker (Police / Fire)	66%			0.05			0.05		Effort to maintain and exercise. Limited by number of units and speed.
Mobile device apps	83%		-	0.20	300	-	0.20	300	Rough estimate based on general 2016 experience
Cell broadcast	84%	-	-	0.05	150	-	0.05	150	Assumed scaled to 2016 mobile device apps. NO DATA
Newspaper content	58%			0.01			0.01		Press release
Pagers (triggering group of 200 people)	62%	312	1,560	0.01	1,560	1,560	0.01	1,560	One pager reaches 200 people, up to 100 pages per month. + effort to coordinate.
Power mains messaging	66%	250,000	20,000	0.01		20,000	0.01		$50 per house, 2.5 ppl/dwelling (2006 census)
Radio announcements	82%			0.05			0.05		Effort to maintain and exercise
Route alert (door-to-door)	71%			100.00			100.00		Limited by avg. proportion of staff on duty and per person rate of visits. Won't reach the majority if widespread diffuse areas
Social Media									
SMS-PP text messaging	63%	5,000		0.10	130		0.10	130	BULLETIN - Annual licence for web-based system. Cost to send message 13c per SMS. Cost is based on two tests. Subscribers must sign up.
Telephone auto-dialler	64%			0.10	200		0.10	200	TNZ - VOIP based system - no subscription but must create and upload database - 0.5 FTE to create and 0.25 FTE for maintenance. Capacity 700 calls per minute. Can be increased by request for emergency or 'burst' calls. Broadly consistent with informal indication (1c per second) of 2017 cost for platform multi-endpoint option in place for another region (ongoing discussion with BOP CDEM Group)
Telephone trees	65%			4.00	10		4.00	10	High effort required. Likely cap on completeness and accuracy of list
Television announcements	73%			0.05			0.05		
Tourist radio	49%			0.05			0.05		Reaches only maximum number of people listening to this station
Websites	56%		5,000	0.05	100	5,000	0.05	100	Price of one website and hosting, but limited to people viewing
Website banners	66%		5,000	0.05		5,000	0.05		Not currently in use. Cost basis would need investigation with ISPs.

	SCORE	Additional start-up	cost start-up / 1000 people	FTE / 100,000 people	cost annual / 1000 people (minimum - includes training, exercises etc.)	cost start-up / 1000 people	FTE / 100,000 people	cost annual / 1000 people (minimum - includes training, exercises etc.)	NOTES regarding cost basis
				LOW density			HIGH density		
Dedicated hardware									
Fixed PA loud-speakers	68%	20,000	80,000	0.10	8,000	20,000	0.10	2,000	Limited by proportion of people who know meaning.
Mobile PA loud-speakers	74%	1,000	10,000	0.05	-	1,000	0.01	-	TAUPO - Wellington build your own. $50k for 12, reaches 400 ppl/sq km dense, 1/4 of that diffuse. 10% annual maintenance
Bells, air horns	50%			0.01			0.01		
Flares, explosives	43%		10,000	10.00	2,000	200	10.00	40	Pack of 30 = $3k, flare reaches a few people in diffuse areas and a few hundred dense. Replace 20% every year
Radio Data Systems*	52%	5,000	25,000	0.50	100	25,000	0.50	100	Cost to reach 200 people + effort to coordinate response groups and exercise
Radio (UHF, VHF or HF)	64%	5,000	25,000	0.50	100	25,000	0.50	100	Cost to reach 200 people ($5,000) + effort to coordinate response groups and exercise - Gisborne costs?
Sirens (signal-only) - Mobile	56%								
Sirens (signal-only) - Fixed	44%	28,000	112,000	2.00	8,000	28,000	0.50	2,000	Based on $1,130,000 for 45 towers (varying siren numbers per tower)
Tone-activated alert radio*	82%	120,000	50,000	0.10	1	50,000	0.10	1	E60 per unit - unlikely to have high uptake unless paid-for and supplied

Effectiveness evaluation and public alerting options decision support tool

There is a wealth of information on the effectiveness of public alerting systems based on case studies from a range of hazard types and locations both national and international, as well as theory-based research applying psychology principles. The evidence for what constitutes an effective alerting system has been summarised and used to develop an effectiveness evaluation methodology for alerting systems in New Zealand (Leonard et al., 2005, 2006, 2008; Wright et al., 2014). The effectiveness of each option is determined using a range of criteria, with an evidence-based scoring system. This scoring system forms the basis for a Public Alerting Decision Support Tool. The tool contains base effectiveness scores and these are modified as more detailed information on local hazards and demographics are input to the tool.

The tool also applies an estimated cost for each alerting system, which provides for cost effectiveness comparisons of systems. The range of criteria used to determine effectiveness of each alerting system is shown in Section 3.4.2. The 'showstoppers' (most critical considerations for effectiveness) are highlighted in red and explained in Section 2.5.1.

Information required to populate the decision support tool

The Public Alerting Decision Support Tool requires information to be input to determine the effectiveness of each system for specific communities, such as towns, cities, districts or regions. Some of the information is available from the NZ Census on the Statistics NZ website. Other information is best sought from local CDEM practitioners or local authority and community representatives. The following information is necessary to apply the tool:

- Population count – low and high density population counts for the area of interest; high density = >200 people/km2).
- Demographics – information about groups of citizens who might have increased barriers to receiving certain types of alerts (e.g., communities with many elderly people, possibly having higher levels of sight or hearing impairment and lower rates of mobile device ownership). The tool asks for information on groups with sight, hearing, mobility or intellectual impairments, and those with English as a second language.
- Telephone coverage; mobile and fixed – many alerting systems require telecommunications through either mobile or landline networks.
- Transient populations – this includes the number of visitors to the area (tourists and others from outside the location such as seasonal workers) who may be unfamiliar with the local hazards and the local alerting systems.
- Those in the care of institutions – this includes the number of citizens who are housed in institutions such as hospitals; those who are temporarily in care such as pre-school, school and tertiary students; and those working in large campuses or workplaces. These people are likely to require an alert to be delivered to them via the institution in which they are housed.
- Hazards of interest – hazards are grouped into four classes based on the lead-in time from hazard trigger to impact and the range or extent of impact. Classes are as follows: short lead-in time localised impact, short lead-in time widespread impact, long lead-in time localised impact and long lead-in time widespread impact.
- Budget – each alerting system requires some budget resource, which could be in the form of staff time for education and exercises, resources for education, financial input for purchase, installation and maintenance of dedicated systems, and/or licenses or charges to use third party systems. Costs are determined on a per-thousand population basis and are separated into start-up (establishment) and ongoing.

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- Nearly forty alerting options are included in the decision support tool, including some options not yet readily available in NZ that are used overseas. These are categorised into third-party systems, dedicated hardware, natural warnings and independent self-maintained networks.
- Third-party systems are owned and operated by non CDEM agencies but can be used for alerting, e.g., TV, radio, mobile phone networks.
- Dedicated hardware is owned and operated by the CDEM agency e.g., PA systems or sirens.
- Natural warnings are those phenomena which are produced by the event that could indicate a hazard threat (e.g., strong or long shaking near the coast could indicate tsunami; heavy rainfall could indicate landslides or flooding).
- Independent self-maintained networks are non-CDEM agencies in contact with the public that could deliver an alert message to the public if agreements and arrangements are in place (e.g., surf-lifesaving groups, park rangers, neighbourhood watch). The decision support tool allows users to select which alerting options to include and exclude in any evaluation.

HB CDEM GROUP JOINT COMMITTEE

Monday 28 March 2022

Subject: GROUP MANAGER'S UPDATE

Reason for Report

1.   The purpose of this report is to inform and update the Joint Committee on matters not specifically addressed in other items on this agenda and to give the Committee an opportunity to ask questions and give feedback if desired.

Background

2.   The matters covered in this report include:

2.1.   Group Office Staffing

2.2.   Hawke's Bay CDEM Covid-19 Response and Business Continuance

2.3.   Central Government Emergency Management Reforms (Trifecta)

2.4.   Community Resilience Work Update

2.5.   Operational Readiness Work Update

2.6.   Financials update.

Discussion

Group Office Staffing

3.   The Group office team went through some significant change since the end of the first Covid-19 response. Since the last Committee meeting, we have recruited two new staff members into the EMA Community Resilience role based in Wairoa and the Recovery and Lifelines role respectively. This last role is new and was approved through the 2021 Long Term Plan process.

4.   Unfortunately, Lisa Pearse (Team Leader Risk Reduction) decided to retire and finished work last month. This is a huge loss in terms of Lisa's knowledge and standing across the country in hazard research/risk reduction and her experience over the years in responding to a wide range of events.

5.   Recently we have had another staff member resign to take up a role with NEMA. We are currently working through the process of recruiting for both roles.

6.   Looking at the team overall, we have recruited well, and the team has good unity, morale, and individual technical skills. However, what we are lacking in specific experience in CDEM responses and coordination in a multi-agency environment. This will be a challenge for the rest of the year as we rebuild from the ongoing responses of the last two years.

Hawke's Bay CDEM Covid-19 Response and Business Continuance

7.   The GECC is currently continuing to the support the Hawke's Bay District Health Board (HB DHB) and Ministry for Social Development (MSD) in the response.

8.   As a result of a request for support from the DHB, in the last two weeks we have deployed two staff members to advise and support the DHB led Covid Response Coordination Centre.

9.   The staff involved are the Group Welfare Manager and Team Leader Community Engagement. This secondment is for up to 6 weeks and 2 weeks respectively. This is primarily to assist in the further development of the processes and support for the initial clinical needs assessment for positive persons, and linkages with the welfare needs assessment.

10.   As part of the agreement with the DHB, these staff will be released should a concurrent event occur.

11.   In terms of the Group capability, currently the Group office is at full capability (less one vacancy and staff on secondment) with some staff having already recovered from Covid or completed self-isolation requirements.

12.   Of more concern is the ability of Council staff to support any significant response with most councils now operating at reduced levels. This is also a concern at a national level, and it is likely that if any significant event was to occur in any region, national resources would be deployed, and planning has occurred to enable this.

Central Government Emergency Management Reforms (Trifecta)

13.   This NEMA programme of work continues, and a discussion document for feedback was released just before the Christmas period. Several stakeholder workshops were held at the end of January and feedback closed on 11 February. The CDEM Group gave feedback on the limited information that was provided. This feedback was formulated in conjunction with the Joint Committee and CEG Chair and is attached to this item. Individuals and organisations were able to provide their own feedback if desired.

14.   The next stage of the process is for an Emergency Management Bill to be developed and it is expected this will be completed mid-year and be introduced into Parliament towards the end of the year.

15.   NEMA staff members will be at the meeting and will be able to answer any questions the Committee has on the proposed sector reforms.

Community Resilience Work Update

16.   Tsunami Hikoi Week was 7-13 March. This was led by East Coast LAB. The Group promoted this to all schools and early learning services via email, marae via the local Taiwhenua, tourism businesses via Tourism Hawke's Bay, and Napier business via the business associations.

17.   A new tsunami information board has been designed and installed in three Napier locations, with more to follow. We are now working with local council Māori advisors to create a bilingual tsunami information board.

18.   Tsunami signage installation is ongoing, with information boards, evacuation routes, and tsunami blue line installations being planned across the region. Group office staff will work with the councils' staff and agencies such as Waka Kotahi as part of this process.

19.   New tsunami public education collateral is being co-designed with NEMA.

20.   Translation of Te Hīkoi a Rūaumoko into five additional languages is underway, working with representatives from the Samoan, Tongan, Cook Island, Hindi, and Chinese communities. This is being funded by the NEMA Resilience Fund with the Group office supplying staff time.

21.   The Resilience Fund East Coast LAB project creating tsunami pou was completed with Waimarama school, marking their tsunami safe location. This was completed using donated Unison power poles. The Group office is looking at how this may be included in ongoing tsunami risk reduction work.

22.   Following the Tongan volcano event and tsunami, we coordinated a meeting to bring together local Tongan leaders, Tongan RSE representatives, Red Cross, and Hastings District Council, to acknowledge what had happened in Tonga and identify local Tongan community response ideas. Following this fono, we arranged for GNS to provide information to the Hawke's Bay Tongan community (in English and Tongan) about volcanoes and their impacts. We will also be providing support to the local Tongan container project, enabling local Tongan families to send

one drum each of clothing and non-perishable goods to their family in Tonga; This is being planned in March.

Operational Readiness Work Update

23. Leadership and support of the projects initiated under the *Strengthening CDEM Arrangements in Hawke's Bay* report have been a key focus of the operational team staff.

24. The Group office has purchased a prototype Starlink satellite unit, allowing broadband speed satellite connection. The cost/bandwidth/speed ratio is approximately 50 times better value for money than the Iridium network which most existing satellite technology use. This is very new and disruptive technology for resilient communications, and we are currently assessing its capabilities, with a view to it possibly replacing our current Iridium satellite communications infrastructure.

25. A Memorandum of Understanding (MoU) has been developed with the Amateur Radio Emergency Communicators (AREC) for the provision of VHF radio network management and advice before and during an emergency. This will mitigate some of the risks caused by aging VHF radio infrastructure and workforce.

26. Several CIMS training modules have been redeveloped into online modules and made available to staff in councils through council People and Capability teams. CIMS level three accreditation is now online, and the Group office is delivering face-to-face courses for staff to become accredited.

27. ArcGIS training has also been provided across a wide range of CDEM staff and partners to support the development of a Common Operating Picture.

28. Volunteer training has restarted this year with an emphasis on personal/situational safety and utilising the Multi-Habitation Unit (MHU) that was provided as part of the National Resilience Cache.

29. Support is being provided to TPK's Kāinga Rua project in partnership with FENZ by way of advice about Marae Resilience Caches and assistance to facilitate training/Wānanga for hapū on establishing a community led civil defence centre.

Financial update

30. The table below outlines the budget position as of 31 December 2021. It is likely that we will also deliver a small surplus for the next 6 months of the financial year due primarily to savings in salaries as we recruit staff replacements.

31. Overall, the budgets are on track to delivering a surplus of up to $100,000 which would be moved into the CDEM Reserves.

Workstream Description	ACTUAL 31 Dec YTD	BUDGET 31 Dec YTD	Unfavourable/ (Favourable) Variance
Reduction – Hazard Identification and Mitigation			
Revenue	($102,022)	($117,308)	$15,286
Expenses	$38,975	$41,884	($2,909)
Internal	$116,641	$150,243	($33,602)
	$53,594	**$74,819**	**($21,224)**
Operational Readiness			
Revenue	($379,288)	($343,313)	($35,975)
Expenses	$98,582	$147,453	($48,871)
Internal	$542,718	$469,236	$73,481
	$262,012	**$273,377**	**($11,365)**

Group Leadership and Governance			
Revenue	($291,804)	($284,858)	($6,946)
Expenses	$2,277	$14,120	($11,842)
Internal	$147,216	$114,908	$32,308
	($142,311)	**($155,830)**	$13,520

Community Engagement and Resilience			
Revenue	($365,486)	($352,469)	($13,017)
Expenses	$40,598	$30,305	$10,293
Internal	$297,172	$325,115	($27,943)
	($27,715)	**$2,952**	**($30,667)**

Emergency Management Totals	**$145,580**	**$195,317**	**($49,737)**

Decision Making Process

32. Staff have assessed the requirements of the Local Government Act 2002 in relation to this item and have concluded that, as this report is for information only, the decision making provisions do not apply.

Recommendation

That the Hawke's Bay CDEM Group Joint Committee receives the *Group Manager's update* report.

Authoredand Approved by:

Ian Macdonald
GROUP MANAGER/CONTROLLER

Attachment/s

1⇩   Modernising the Emergency Management Framework Initial Written Feedback

Modernising the Emergency Management Framework: Initial Written Feedback

Hawke's Bay CDEM Group

Introduction

This feedback is authorised by the Hawke's Bay CDEM Group in relation to the Modernising the Emergency Management Framework released on 14 Jan 22. Due to the short timeframes this feedback cannot represent the individual views of each member of the CDEM Group, however the views contained in this document have been agreed with the Chairperson of the Joint Committee and Chief Executives.

Individual councils have the option of giving individual feedback on the discussion documents provided.

In general, the Hawke's Bay Civil Defence Emergency Management group is supportive of the need for change to modernise the NZ emergency management system. This has been long signalled by various reviews since the Canterbury earthquakes in 2011.

We note that a fundamental principle of emergency management is that it is constant preparing, as there is no end state for preparation or readiness as we live in a dynamic environment which is always changing. Any changes to the Act need to reinforce this principle and result in an adaptive system that is flexible at all levels and can quickly adapt.

The feedback given will only focus on those areas where we have concerns on what is intended.

Timeframes

As you are aware there are a tsunami of significant reforms including RMA, three waters and the reform of local government itself which are impacting on local government and currently being progressed by the Government. As a result, the capacity of local government to meaningfully consider change material and develop commentary which would contribute to the policy development and decision-making process across a wide range of issues, is reduced.

We would recommend to the Minister that the pace of change of the Trifecta programme needs to be carefully managed to ensure the other reforms in local government are taken into consideration. As a key partner in emergency management, the ability of local government to meaningfully take part in the process needs to be maintained.

This is especially so given the current pressures and demands on local government and CDEM staff from the ongoing COVID-19 response.

Roles and Responsibilities

In principle we support the clarification of the roles and responsibilities of local authorities and the CDEM groups. The current Act essentially gives individual councils and the CDEM Group the same roles

and responsibilities. From our experience this can add to the confusion and uncertainty during readiness activities which then flow through into a response.

However, we have yet to see the detail of what this clarification means and a move to greater centralisation is a concern. We would emphasise that communities expect their local council to respond and look to Mayors and Chairs for leadership in response. Furthermore, CDEM at this level is funded by local authorities and if it is expected that this is to continue, they should remain responsible for how this is delivered to their communities.

The CDEM Group is a statutory body made up of the mandated local authorities of a region working together with equal participation in decision making. The decisions of the CDEM Group need to be enacted by the local authority members. It is acknowledged that by local authorities having the same functions, there is room for ambiguity and for individual local authorities with significant resources to duplicate or indeed ignore the decisions of the Group. This is not the current case in Hawke's Bay.

Therefore, we cannot definitively state our preference for any of the proposals (A, B, C or D) outlined in the engagement documentation. We note however that the Hawke's Bay CDEM Group operating model is currently more aligned to proposals C and D. What this allows for is for collective and binding decisions and planning in readiness, while allowing for local leadership in the response under a regional coordination/operational leadership. Any changes to the Act should strengthen and not weaken local leadership and control of local and regional events.

To a major extent the success of this type of approach depends upon the maturity of the relationships between councils and this cannot be legislated for.

Individual local authorities also have responsibilities with regards to critical infrastructure. These need to be reinforced and strengthened.

We would also suggest an option that strengthens the requirement for individual Group members to support and implement the decisions of the Group.

If this was to be the preferred option, we see the development of a robust national risk and assurance programme is vital to ensuring accountability across the Groups and their individual members.

Legal status of CDEM Groups

We would agree with option B giving CDEM Groups legal status, particularly during a response. However, this needs to be carefully framed to ensure that matters which better remain with the administrating authority are not also transferred. For example, health and safety, employment and other liability which best remain with a local authority.

Accessibility of CDEM Group Plans

We are uncertain as to what the issue is here. The Hawke's Bay CDEM Group Plan and supporting documents is published on the Group website. It would seem that this is good practice without the need to legislate. This could be an issue more appropriately dealt with in NEMA Group Plan Guidelines.

Disproportionately Impacted People

In general, the intent of these changes is supported. However, this will place a significant additional responsibility on CDEM Groups and will have associated resource implications.

Our view is that these provisions need to be more enabling in terms of the Group being able to assess the risk and prioritise how these new provisions will be implemented. For example, how are the needs of a so called disproportionately impacted community reconciled against a coastal community with a significant risk profile. The definition of a disproportionately impacted community will need to be clear and encompassing of more than just socio-economic factors.

There also needs to be consideration of existing structures and networks such as the Welfare Coordination Group and how they might be involved in this process.

The ability of the community or groups covered by these provisions to engage in a planning process should be considered and often their capacity is limited.

For the above reasons we would not support this being a mandatory requirement. One solution could be to strengthen current community resilience planning guidelines regarding the assessment of risk in developing community resilience work programmes. This would help to ensure that the hazard risk is also considered in hand with the socio-economic risks in identifying disproportionally impacted communities.

Iwi and Māori Participation

Provisions to further advance iwi/Māori participation and partnership in emergency management are supported.

The only concern, which is an issue in Hawke's Bay, is the capacity of iwi/Māori to partner with the Group in emergency management. It is acknowledged that NEMA and other government agencies such as TPK are proactively working on capacity and resourcing issues, however this is likely to be limited.

We therefore feel that these provisions should be more enabling between the Groups and iwi/Māori to allow for variations as to how this partnership is expressed. The arrangements entered into must not be prescribed by the centre but be mutually developed at the local and regional level to reflect local structures and leadership.

Imposing structures or requirements on both parties is not consistent with the overall principles trying to be achieved.

HB CDEM GROUP JOINT COMMITTEE

Monday 28 March 2022

**Subject: PROGRESS REPORT: STRENGTHENING CDEM IN HAWKE'S BAY –
IMPLEMENTATION REPORT**

Reason for Report

1.   The purpose of this report is to give the Committee an update on the work programme implementing the recommendations of the report "Strengthening CDEM in Hawke's Bay".

Background/Discussion

2.   At its last meeting in November 2021 the Committee discussed and endorsed an outline work program to implement the recommendations of the report "Strengthening CDEM in Hawke's Bay".

3.   Since this time the project leads for key projects have been identified and project scopes have been further developed. All of this has been against the background of further work and disruption through supporting the all off government planning and response to Covid-19 as we move into the next phase of the pandemic.

4.   This disruption and changing priorities have not just been to Group office staff, with staff from councils and partner agencies also needing to respond to BCP responsibilities and constraints on the ability to participate with the change process. Meetings of project groups will be more challenging now that Omicron is established in the community and organisations move to preserving operational capability through working from home and work isolation teams.

5.   Despite the challenges of the last couple of months the programme remains on track. An up-to-date Programme Monitoring Report and timeline is attached.

6.   These two monitoring reports will continue to be refined as the programme implementation continues.

Next Steps

7.   Reporting on the work programme against the recommendations and outcomes of the Report will be further developed and continue for the next Committee meeting.

Decision Making Process

8.   Staff have assessed the requirements of the Local Government Act 2002 in relation to this item and have concluded that, as this report is for information only, the decision making provisions do not apply.

Recommendation

That the CDEM Group Joint Committee receives and notes the *Progress report: Strengthening CDEM in Hawke's Bay – implementation report*.

Authored and Approved by:

Ian Macdonald
**CDEM GROUP
MANAGER/CONTROLLER**

Attachment/s

1⇩   Strengthening CDEM in HB Programme Monitoring Report

2⇩   Strengthening CDEM in HB Timeline

Strengthening CDEM in Hawke's Bay Programme Reporting

In April 2021, a review of Civil Defence Emergency Management arrangements based on the lessons from emergency events that had affected the region in 2020 was commission. The review was focused on response and recovery arrangements and was carried out by ContextusSolutions.

While the review found significant areas of strength within the Hawke's Bay CDEM Group, it made a number of recommendations aimed at strengthening response and recovery arrangements, including the establishment of a change programme to coordinate the various change and improvement initiatives identified.

Specific programme governance is provided on behalf of the Joint Committee and CEG by a Programme Governance Group, consisting of the CEG Chair and Deputy Chair. The council chief executives, having specific responsibilities for supporting and resourcing the CDEM response and recovery structures, also have an oversight role.

Supporting and reporting to the Programme Governance Group will be a Change Programme Manager (Ross McLeod), who will programme manage and monitor the overall programme, and the CDEM Group Manager, who will lead incorporation of agreed change into the CDEM operating approach, structure and work programme.

Together, Change Programme Manager and CDEM Group Manager will form the Programme Management workstream.

The Change Programme consists of nine projects and will have two phases – Phase A comprising of projects emerging from priority recommendations which are also the critical path for other projects, and Phase B comprising of workstreams relating to other recommendations. These phases will overlap in some areas. Phase A consists of the Operating Framework and Response Structure Reset and Shared Emergency Operating Systems (COP) Development projects.

This report provides the wider Joint Committee and CEG an overview and ability to monitor and provide feedback on the programme.

The following are the key risks identified to the work programme:

- Inherent risk of the need to respond to a Hawke's Bay or national CDEM emergency.
- CDEM, Council and partner agency staff availability due to COVID sickness and the need to support COVID response. This is a priority for the emergency management system.
- Funding for supporting the change programme and any identified implementation requirements have not been budgeted and need to be found from existing operational budgets.
- The current national emergency management reforms (Trifecta) may impact on some projects

The timeframe to complete this programme in November/December 2022.

1

*Risk is inherent vs residual risk (i.e., Red/Amber/Green status prior to mitigations and controls implemented).

Performance Indicators: Green = On Track, Amber = At Risk, Red = Off Track, Grey = Not started/On hold

Status Change Keys:

➡	Unchanged since last report
⬇	Worsened since last report.
⬆	Improved since last report

	Project Title	Schedule	Risks*	Budget	Comment	Status Change
1	Operating Framework and Response Structure Reset	🟢 ➡	🟡 ⬇	🟢 ➡	Engagement workshop and follow up sessions now held with all councils and operational partners. Paper/presentation on options for improvement and development prepared. Engagement Workshop 2 being planned for 1 April. Following Workshop 2 and finalisation of proposed changes, briefing proposed to be held with Mayors/Chair. Reports will then go to CEG (23 May) and CDEMG Joint Committee (27 June) for consideration and approval of proposed changes. Implementation steps will follow approval.	With the onset of current Omicron outbreak there are increased risks of the unavailability of key council and emergency services staff and increased workloads impacting on the ability to effectively engage.

2

	Project Title	Schedule	Risks*	Budget	Comment	Status Change
2	Shared Emergency Operating Systems (COP) Development.	🟢 ➡️	🟡 ⬇️	🟢 ➡️	Discovery phase wrapping up—all agency/council workstream members engaged with; other CDEM Group environments looked at; SWOT analysis complete; vision and mission developed. Still need to get Health input and possibly some community agencies. High commonality in systems and tools used in Hawke's Bay agencies. Next steps: • Gap analysis and 2-3 design workshops – fortnight commencing 21 March. • System architecture design for consultation. • Identify business benefits of proposed changes. • Discussion with NEMA on direction of travel and consistency with national approach. • Work on detail issues –licencing, costs, how integration happens. Key issues to be addressed: • Police organisational willingness to use MS Teams needs to be explored. • Governance compliance –may need to modify detail of way things are done in some organisations. • Data sharing and use. Approach is to make systems as simple and familiar to users as possible –collective methodology, workflow, process structure, naming. Next workstream meeting 13 April 2022. Programme steps: • Gap analysis/design workshops – f/n commencing 21 March • Workstream meeting and programme review 13 April • Solution design – 4-29 April • Report writing 2-6 May • Review with HB Emergency Manager – 2-10 May • Solution proposal to CEG – 23 May 2022 • Report to CDEMG – 27 June 2022 • Stage 2 – Implementation June –onward – programme to follow solution approval	With the onset of current Omicron outbreak there are increased risks of the unavailability of key council and emergency services staff and increased workloads impacting on the ability to effectively engage.

	Project Title	Schedule	Risks*	Budget	Comment	Status Change
3	Group Work Programme Review and Rebalancing	🟢 ➡️	🟢 ➡️	🟢 ➡️	Initial work started on review of existing work programme and identification of current projects being undertaken. Intent is to provide draft combined work programme to CEG at its meeting on 23 May and the Joint Committee at its 27 June meeting.	
4	GECC and EOC Operational Workforce Support Review	⚪ ➡️	⚪ ➡️	⚪ ➡️	To commence Q2 2022/23	
5	Collective Responsibility & Resource Commitment Monitoring	⚪ ➡️	⚪ ➡️	⚪ ➡️	'Stocktake' of implementation progress and organisational/network buy-in to occur April/May 2022. Report to Council CEs and CEG following stocktake	
6	Welfare Arrangements Reset	🟢 ➡️	🟡 ⬇️	🟢 ➡️	Inception meeting held with workstream leader. Initial project planning work has been undertaken. Demands across the welfare network due to covid have delayed the intended commencement proper of the workstream, however the workstream is not yet behind the overall programme schedule. A programme and resourcing assessment has been carried out (16 March 2022). After consultation with HBDHB personnel, it has been determined to commence the main components on this workstream from end April 2022. Further project scoping and specific partner engagement will take place ahead of the main commencement. A meeting of the Welfare Coordination Group (WCG) will be held in early May to help advance the main components of this project.	Group Welfare Manager has been assisting the DHB and MSD with current welfare response to Omicron outbreak.

4

|	Project Title	Schedule	Risks*	Budget	Comment	Status Change
7	Building Assessment Process Standardisation	🟢 ⬆	🟢 ➡	🟢 ➡	Ahead of schedule. Scope set and initial meetings held including SWOT and risk identification. Focus on ensuring alignment with MBIE's RAPID system and requirement. Purpose of project is to identify a recommended common process for building assessment in Hawke's Bay for a civil defence emergency that is statutorily compliant, provides for the health and safety of impacted persons and their ability to recover from an event. Initial public health input now provided (risk area due to significant workload pressure on public health teams due to COVID). Next workstream meeting 22 March 2022. Report to CEG: 23 May 2022.	One outlying set of views re inspections/placarding still to be reconciled with majority view/legal framework. This may need to be escalated depending on progress at next workstream meeting.
8	Recovery Capability Development	⚪ ➡	⚪ ➡	⚪ ➡	To commence May 2022 following completion of Response Structure workstream and receipt of direction of travel from COP workstream.	

5

Programme Summary

1	**Operating Framework and Response Structure Reset**

To design and implement an operational framework that will work at the local and regional level and for partner organisations and allow the region to efficiently and effectively respond and provide for the needs of the community during an emergency.

Framework and Structure initial design based on review observations and issues highlighted during reports. Including:

- Draft RACI (responsible, accountable, consulted, informed) Matrix
- Stakeholder engagement analysis and strategy design
- Local context analysis and HB specific requirements
- Appreciation of capacities and constraints of capability against levels of emergency
- Outside of region dependencies and reciprocation.

2	**Shared Emergency Operating Systems (COP) Development.**

Enable the development of a regional common operating platform shared emergency operating system which includes:

- Emergency operational information management and communication system.
- Common operating picture (GIS).
- Impact assessment system.

Key components of the project include:

- Technological environment analysis and stock take.
- Engage with key partner agencies on system needs and technical/operational constraints.
- Establish proposed project scope and system design/development approach.
- Ensure project scope/approach supports the implementation of a coordinated response methodology under NZ CIMS.
- Proposal to CEG and operational partners for consideration/approval.
- Proceed to COP design and implementation – detailed implementation programme to be produced.

3	**Group Work Programme Review and Rebalancing**

Reshape work programme to include as priority items in key response and operational readiness activities identified in Review. Key elements include:

- Review and reprioritisation of existing work programme commitments to identify those that can be given lesser priority.
- Draft revised Group work programme based on priorities identified in the review. Specific attention to resourcing maintenance and check on current operational readiness.
- Identify resource requirements for work programme, including in-kind resourcing requirements from Councils and other CDEMG partners.
- What are the priorities and sub-priorities and how are these resourced.
- Engage with key Group staff and CDEMG partner personnel on Draft proposed work programme.
- Prepare proposed work programme and report to CEG and CDEMG for consideration and approval.
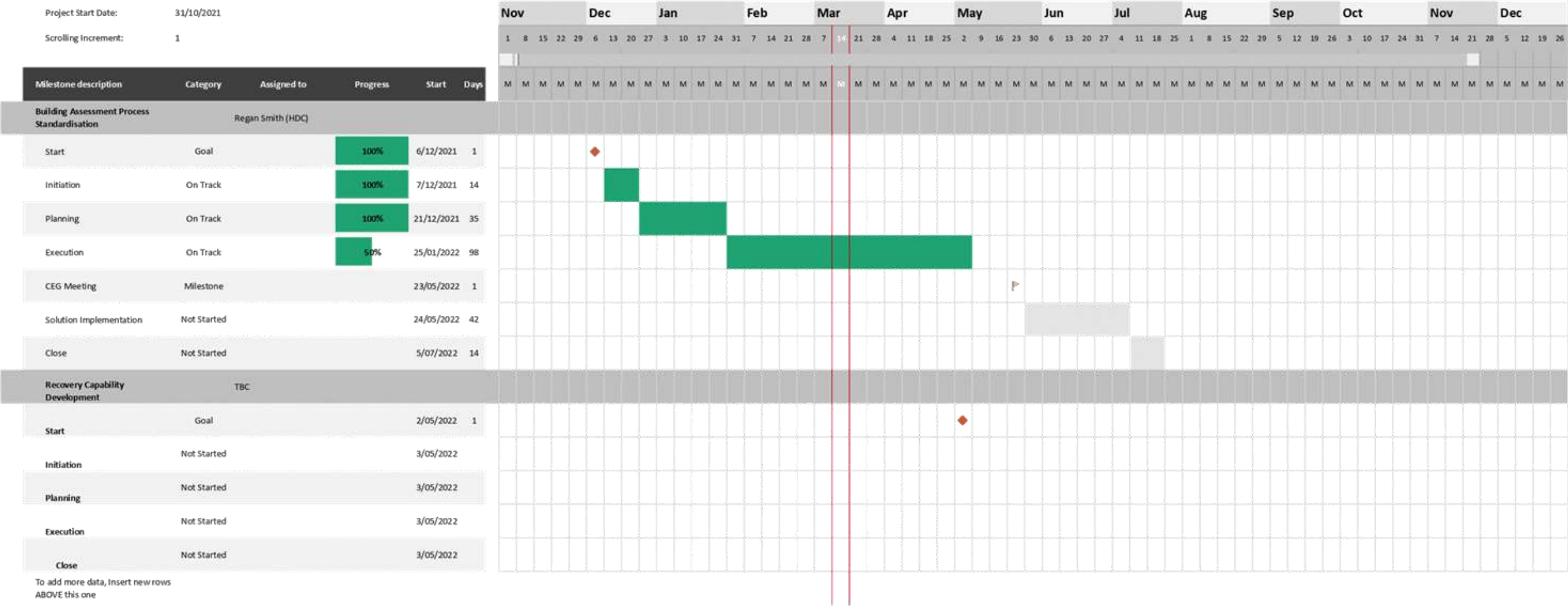
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4	**GECC and EOC Operational Workforce Support Review**
	Detailed scope yet to be developed.
	The objective of this project is to review and improve existing processes, systems and training to ensure the Groups' coordination centres are resourced in a timely manner with capable people who are able to manage and support the response to a CDEM emergency.
	This will include the identification, engagement ant deployment of suitable staff across the council and developing their capability through an integrated training and exercising programme.
5	**Collective Responsibility & Resource Commitment Monitoring**
	Detailed scope yet to be developed.
	The objective of this project is to ensure that collective CDEM decisions and commitments are embedded across the Councils and understood and delivered vertically withing those organisations.
6	**Welfare Arrangements Reset**
	Detailed scope yet to be developed.
	The purpose of this project is to review and if appropriate redesign welfare readiness and delivery systems to ensure that impacted persons can be identified, assessed, and delivered appropriate welfare assistance to ensure their wellbeing during and after an emergency event.
7	**Building Assessment Process Standardisation**
	The purpose of this project is to identify a recommended process for building assessment in a civil defence emergency that is statutorily compliant and provides for the health and safety of impacted persons and their ability to recover from an event.
8	**Recovery Capability Development**
	Detailed scope yet to be developed.
	The purpose of this project is to embed Recovery within the other "R"s – especially Response and further develop Recovery capability across the Group.
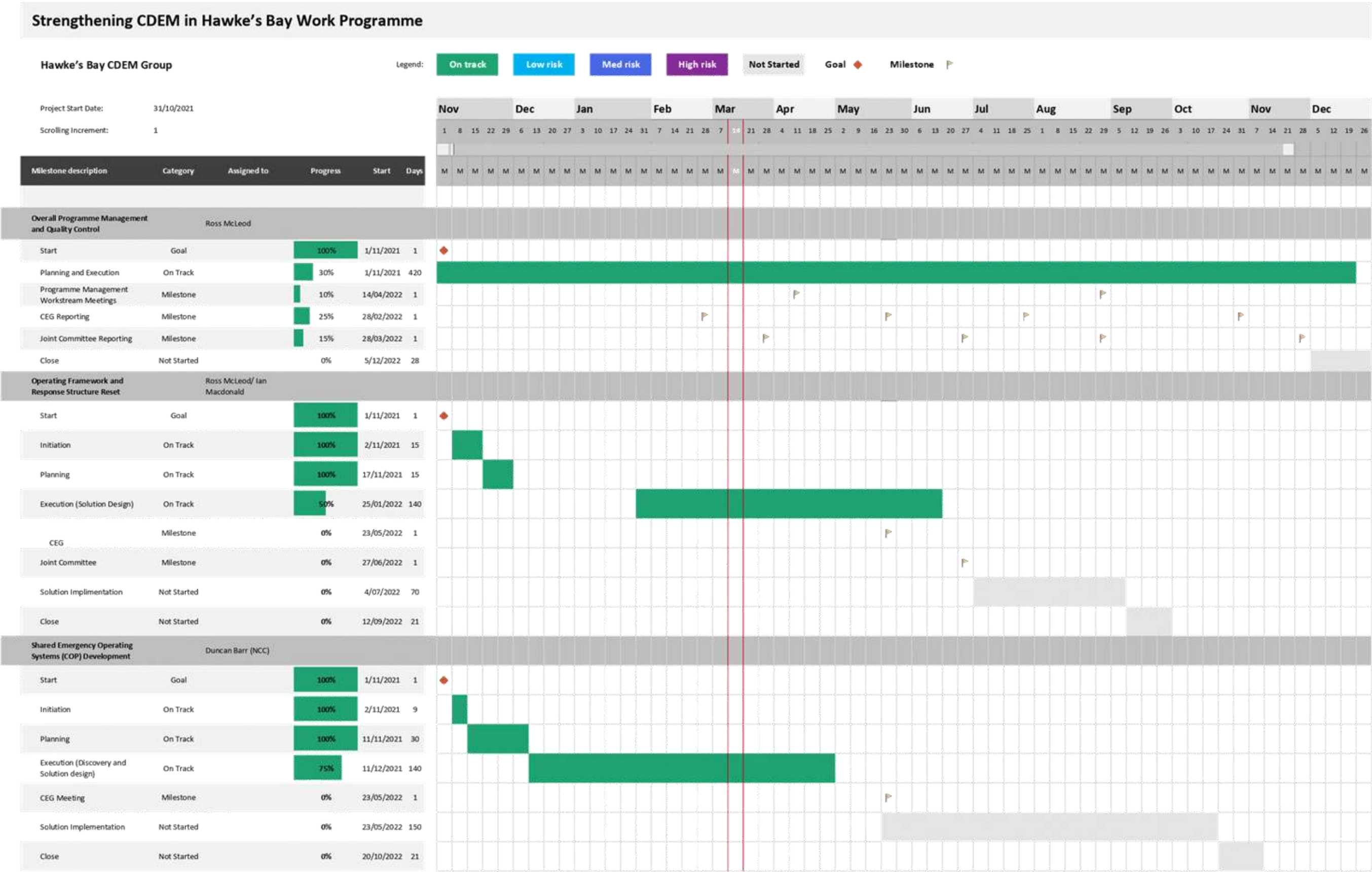
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Attachment 2 Item 10

| Project Start Date: | 31/10/2021 |
| Scrolling Increment: | 1 |

Milestone description	Category	Assigned to	Progress	Start	Days
Group Work Programme Review and Rebalancing		Ian Macdonald			
Start	Goal			14/02/2022	1
Initiation	On Track		75%	15/02/2022	28
Planning	Not Started			15/03/2022	28
Execution	Not Started			12/04/2022	56
CEG Meeting	Milestone			23/05/2022	1
Joint Committee Meeting	Milestone			27/06/2022	1
Close	Not Started			4/07/2022	21
GECC and EOC Operational Workforce Support Review		Edaan Lennan			
Start	Goal			6/06/2022	1
Initiation	Not Started			7/06/2022	
Planning	Not Started			7/06/2022	
Execution	Not Started			7/06/2022	
Close	Not Started			7/06/2022	
Collective Responsibility & Resource Commitment Monitoring		Ross McLeod/ Stephanie Rotarangi			
Start	Goal			2/05/2022	1
Initiation	Not Started			3/05/2022	
Planning	Not Started			3/05/2022	
Execution	Not Started			3/05/2022	
Close	Not Started			3/05/2022	
Welfare Arrangements Reset		Andrew Dunning (GWM)			
Start	Goal			14/03/2022	1
Initiation	On Track		10%	15/03/2022	21
Planning	Not Started			5/04/2022	
Execution	Not Started			5/04/2022	
Close	Not Started			5/04/2022	

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Project Start Date:	31/10/2021
Scrolling Increment:	1

Milestone description	Category	Assigned to	Progress	Start	Days
Building Assessment Process Standardisation		Regan Smith (HDC)			
Start	Goal		100%	6/12/2021	1
Initiation	On Track		100%	7/12/2021	14
Planning	On Track		100%	21/12/2021	35
Execution	On Track		50%	25/01/2022	98
CEG Meeting	Milestone			23/05/2022	1
Solution Implementation	Not Started			24/05/2022	42
Close	Not Started			5/07/2022	14
Recovery Capability Development		TBC			
Start	Goal			2/05/2022	1
Initiation	Not Started			3/05/2022	
Planning	Not Started			3/05/2022	
Execution	Not Started			3/05/2022	
Close	Not Started			3/05/2022	

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HB CDEM GROUP JOINT COMMITTEE

JOINT COMMITTEE

Monday 28 March 2022

SUBJECT: DISCUSSION OF MINOR ITEMS NOT ON THE AGENDA

Introduction

This document has been prepared to assist the CDEM Group Joint Committee members to note any minor items to be discussed, as determined earlier in the agenda.

ITEM	TOPIC	MEMBER/STAFF
1.		
2.		
3.		