



Central Plateau  
Volcanic Advisory Group

# Tongariro Volcanic Centre Contingency Plan



Image courtesy Geonet

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# 1 Purpose

The purpose of this plan is to confirm how the initial response to volcanic hazards from the 'Tongariro Volcanic Centre'<sup>1</sup> will be managed during significant events, including volcanic unrest and eruption, and hazards generated by significant earthquakes.

The focus of this plan is to provide a common operating framework for coordinating and integrating initial agency emergency response arrangements for volcanic hazards. This plan:

- Outlines the most likely volcanic hazard scenarios in the Tongariro Volcanic Centre
- Clarifies agency emergency response roles and responsibilities
- Outlines volcanic warning systems, notification of volcanic events and dissemination of warnings
- Details collective initial response actions for volcanic hazards and risks.

It is important to note that this plan covers the initial actions during unrest and eruption that will lead into longer term response arrangements as events progress. This plan is not designed to be a definitive, long-term response document, and relies heavily on more detailed supporting agency plans (refer to Appendix 1).

# 2 Background

The development of this plan is a result of the Central Plateau Volcanic Advisory Group (CPVAG) Strategy (2009). Under the strategy, the CPVAG agreed that there was a need to ensure that response arrangements for all volcanic events from the Tongariro Volcanic Centre are coordinated and integrated across agencies. The CPVAG Strategy originally identified development of a contingency plan as a part of its readiness work programme for the 2010/11 financial year.

This is the second version of the contingency plan, and includes updated:

- Volcanic hazard/risk scenarios
- Information on monitoring, warning, and notification systems
- Volcanic Alert Levels
- Definition of response actions for volcanic unrest, as well as for eruptions and other volcanic events, including a significant rework of public information management response actions.

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<sup>1</sup> Essentially volcanoes within the boundary of Tongariro National Park, as defined within the Central Plateau Volcanic Advisory Strategy (2009), and illustrated in Appendix 2.

## 3 Coverage of this plan

The coverage area of this plan is shown in Appendix 2, and is defined as:

*‘The area surrounding the three North Island volcanoes Mount Ruapehu, Mount Ngauruhoe and Mount Tongariro, bounded by and including State Highways 46, 149, 4 and 47.’*

The impacts from eruptions originating from within the Tongariro Volcanic Centre are not just confined to the area defined above. Therefore, member agencies will be responsible for undertaking additional response arrangements that affect areas outside the coverage area of this plan – such as Civil Defence Emergency Management (CDEM) Groups planning for ash fall impacts and effects on critical lifeline utilities across the wider Waikato or Manawatu-Wanganui regions.

## 4 Roles and responsibilities

### 4.1 Individual organisations

Individual organisations have various roles and responsibilities for response to emergencies, including volcanic events. These roles and responsibilities are normally well understood, and are expressed within the *National Civil Defence Emergency Management Plan Order 2015 Schedule*.

A summary of individual organisation roles and responsibilities of particular relevance to CPVAG and volcanic hazards is provided within Appendix 3.

### 4.2 Coordination of response

In addition to the individual organisation roles and responsibilities, there are benefits from coordinating responses to volcanic hazards that are almost certain to cross regional and jurisdictional boundaries (including CDEM Groups, emergency services, central government agencies (for example MPI) and local government).

The CPVAG has agreed that coordination is required for all volcanic unrest and eruption scenarios. The roles and responsibilities and arrangements are outlined within section 7.

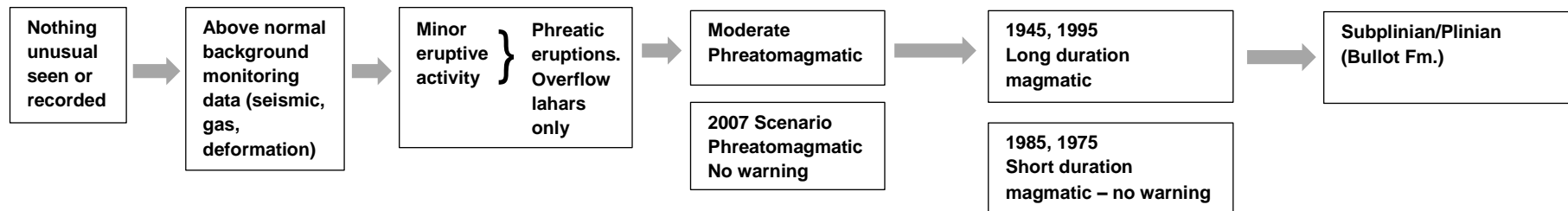
## 5 Volcanic hazard/risk scenarios

The volcanic hazard/risk scenarios within the Tongariro Volcanic Centre are outlined in the following figures:

- Figure 1: Ruapehu volcanic activity
- Figure 2: Ruapehu landslides
- Figure 3: Tongariro volcanic activity
- Figure 4: Ngauruhoe volcanic activity.

**Figure 1: Ruapehu Volcanic Activity Scenarios**

	Quiescence	Unrest	Small	Moderate	Large	Very large
<b>LIKELIHOOD</b>			1 per year	1 in 10 years	1 in 50 years	1 in 500 years
<b>AREA AT RISK</b>	None	None	Summit area Whangaehu Valley Lake edge	Summit area Whangaehu Valley Whakapapa Skifield	Summit area Whakapapa, Turoa and Tukino Skifields Ashfall beyond ringplain	
<b>MAGMA VOLUMES</b>			<0.001 km <sup>3</sup>	<0.01 km <sup>3</sup>	<0.01 – 0.1 km <sup>3</sup>	<0.1 km <sup>3</sup>
<b>LAHAR VOLUMES (% of lake volumes)</b>			<1%	<1-10%	<10-30%	<30%
<b>ASSOCIATED HAZARDS</b>	None	Increased gas at summit area. Possible felt seismicity	Geysering in lake, increased wave action	Ballistics to 3 km Lahars in 2-3 catchments Ashfall to <10 km	Ballistics, ashfalls to >10 km Lahars in multiple catchments	Ballistics and lahars in multiple catchments Significant ashfall
<b>TYPICAL DURATION</b>			Hours to Weeks	Days - Weeks	Days – Weeks - Months	Months - Years



**Figure 2: Ruapehu Landslide Scenarios**

	<b>Small</b>	<b>Moderate</b>	<b>Large</b>	<b>Very large</b>
<b>DESCRIPTION</b>	Minor Landsliding	Landslips at lake = lahar from lake overflow	Landslides from outlet area may result in lake breakout	Landslides from any flank = debris avalanche
<b>PHENOMINA</b>	Increased sediments to rivers	Overflow of lake	Size of breakout flood dependent upon landslide volume	Significant proportion of flank collapses
<b>VOLUME</b>	1-10 <sup>2</sup> m <sup>3</sup>	10 <sup>2</sup> -10 <sup>3</sup> m <sup>3</sup>	10 <sup>4</sup> -10 <sup>6</sup> m <sup>3</sup>	>10 <sup>6</sup> m <sup>3</sup>
<b>AREA AT RISK</b>	Steep slopes	Whangaehu Valley	Whangaehu Valley, possible overflow into Tongariro catchment	Any flank possible, but Whangaehu most likely
<b>LIKELIHOOD (estimated)</b>	1 per month	1 per year	1 in 50 years	1 in 5000 years

Note: This table does not include volumes or likelihood associated with a sudden collapse of the crater rim due to an earthquake however the phenomena and area at risk will likely be the same.

**Figure 3: Tongariro Volcanic Activity Scenarios**

	Quiescence	Unrest	Small	Moderate	Large	Very large
<b>ACTIVITY STYLE, ERUPTION EXAMPLE</b>		Steam and gas emissions 2013-2018	Explosive activity November 2012	Explosive activity and PDC's 1892, 1896-97, August 2012	Event about 500 year ago producing lava flow and the accompanying explosions	
<b>AREA AT RISK</b>	None	Active vents	Within about 500-1,000 m	Up to 3 km	Explosions; 3km Lava flow: Km's	
<b>ASSOCIATED HAZARD</b>	None	Increased gases	Ballistics, small PDC's, minor ashfall	Ballistics, small PDC's, moderate ashfall	Ballistics, small PDC's, moderate ashfall	
<b>MAGMA VOLUME</b>			About 0.00001 km <sup>3</sup>	About 0.0001 km <sup>3</sup>	About 0.001 km <sup>3</sup>	
<b>ERUPTION DURATION</b>			Hours - days	Hours - weeks	Weeks - years	
<b>CONSEQUENCE DURATION</b>	Years to decades	Months to Years	Months	Months to years	Years	
<b>COMMENTS</b>	Nothing unusual seen or recorded	Some form of volcanic unrest apparent	Minor eruptive activity, most likely phreatic in nature	Stronger eruptive activity, most likely phreatomagmatic in nature	Longer duration eruptive activity, primarily of a magmatic nature	



**Figure 4: Ngauruhoe Volcanic Activity Scenarios**

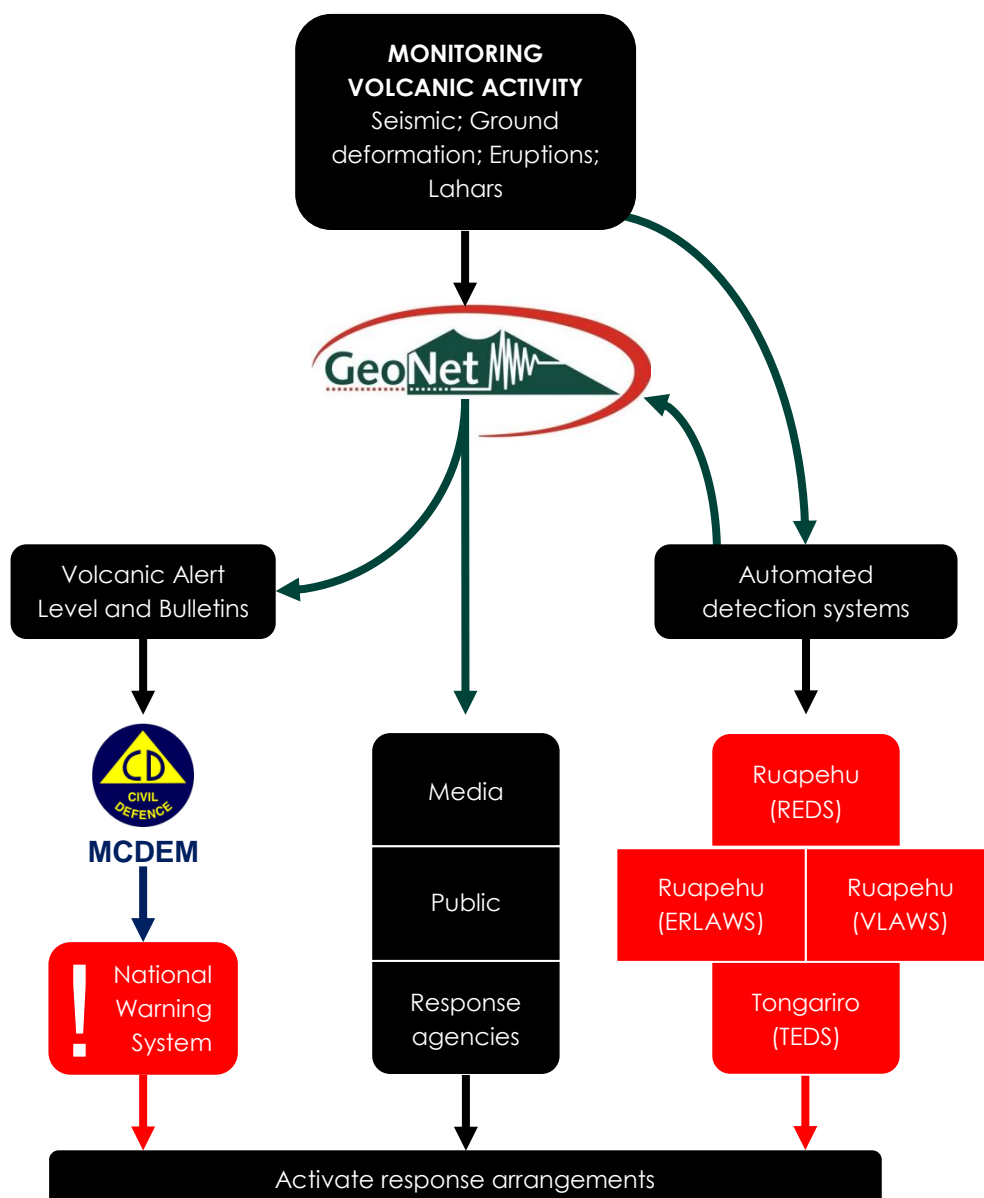
	Quiescence	Unrest	Small	Moderate	Large	Very large
<b>ACTIVITY STYLE, ERUPTION EXAMPLE</b>		Steam and gas emissions 1975-1990	Explosive activity 1904-1917, 1924-1928, 1934-37 etc.	Explosive activity and PDC's 1974, 1975	1870, 1949, 1954 producing lava flow and the accompanying explosions	
<b>AREA AT RISK</b>	None	Active vents	Within about 500 – 1,000 m	Up to 3 km	Explosions; 3km Lava flow: Km's	
<b>ASSOCIATED HAZARD</b>	None	Increased gases	Ballistics, minor ashfall	Ballistics, small PDC's, moderate ashfall	Ballistics, small PDC's, moderate ashfall	
<b>MAGMA VOLUME</b>			About 0.00001 km <sup>3</sup>	About 0.0001 km <sup>3</sup>	About 0.001 km <sup>3</sup>	
<b>ERUPTION DURATION</b>			Hours - days	Hours - weeks	Weeks - years	
<b>CONSEQUENCE DURATION</b>	Years to decades	Months to Years	Months	Months to years	Years	
<b>COMMENTS</b>	Nothing unusual seen or recorded	Some form of volcanic unrest apparent	Minor eruptive activity, most likely phreatic in nature	Stronger eruptive activity, most likely phreatomagmatic in nature	Longer duration eruptive activity, primarily of a magmatic nature	

## 6 Monitoring, warning, and notification systems

### 6.1 Overview

An overview of the monitoring, warning and notification systems in place for the Tongariro Volcanic Centre is provided in the following diagram. Further information about each system is provided in the following sub-sections.

**Figure 5: Overview of monitoring, warning and notification**



## 6.2 GeoNet and Volcanic Alert Bulletins

GeoNet is the national geological hazard monitoring system in New Zealand. It comprises a network of geophysical instruments, automated software applications and skilled staff to detect, analyse and respond to earthquakes, volcanic activity, large landslides, tsunami and the slow deformation that precedes large earthquakes.<sup>2</sup>

GNS Science, through the GeoNet Project, is the national source of volcanic monitoring and alerts. GeoNet is a core component of the Ministry of Civil Defence & Emergency Management (MCDEM) National Warning System for volcanic events. For volcanic unrest, GNS Science (GeoNet) notifies MCDEM of any change in Volcanic Alert Level status through Volcanic Alert Bulletins (see Figure 6 below). MCDEM then forwards this information to the Gisborne, Hawke's Bay, Manawatu-Wanganui, Waikato, Bay of Plenty and Auckland CDEM Groups via the National Warning System. GNS Science (GeoNet) also provides information to other agencies and the media.

Advisories for imminent or actual eruptions are issued by GNS Science via Volcanic Alert Bulletins in the same way as for volcanic unrest. MCDEM disseminates these to all agencies that are registered with the national warning system. Additionally, the GNS Science Duty Officer may notify MCDEM of significant volcanic activity by telephone. In consultation with GNS Science (GeoNet) or if deemed appropriate, MCDEM issues an appropriate advisory or warning via the national warning system.

GeoNet monitoring equipment includes the following:

- **Ruapehu:** 3 web cameras, 10 seismographs, 8 microphones and 9 continuous GPS stations (to record ground deformation). There are regular water and gas monitoring visits to the crater lake as well as airborne gas surveys
- **Tongariro/Ngauruhoe:** 3 web cameras, 9 seismographs, 1 microphone and 7 continuous GPS stations. Regular gas and water monitoring is also undertaken.

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<sup>2</sup> <http://www.geonet.org.nz/about/>

Figure 6: New Zealand Volcanic Alert Level System<sup>3</sup>

New Zealand Volcanic Alert Level System			
	Volcanic Alert Level	Volcanic Activity	Most Likely Hazards
Eruption	5	Major volcanic eruption	Eruption hazards on and beyond volcano*
	4	Moderate volcanic eruption	Eruption hazards on and near volcano*
	3	Minor volcanic eruption	Eruption hazards near vent*
Unrest	2	Moderate to heightened volcanic unrest	Volcanic unrest hazards, potential for eruption hazards
	1	Minor volcanic unrest	Volcanic unrest hazards
	0	No volcanic unrest	Volcanic environment hazards

**An eruption may occur at any level, and levels may not move in sequence as activity can change rapidly.**

**Eruption hazards** depend on the volcano and eruption style, and may include explosions, ballistics (flying rocks), pyroclastic density currents (fast moving hot ash clouds), lava flows, lava domes, landslides, ash, volcanic gases, lightning, lahars (mudflows), tsunami, and/or earthquakes.

**Volcanic unrest hazards** occur on and near the volcano, and may include steam eruptions, volcanic gases, earthquakes, landslides, uplift, subsidence, changes to hot springs, and/or lahars (mudflows).

**Volcanic environment hazards** may include hydrothermal activity, earthquakes, landslides, volcanic gases, and/or lahars (mudflows).

**\*Ash, lava flow, and lahar (mudflow) hazards may impact areas distant from the volcano.**

This system applies to all of New Zealand's volcanoes. The Volcanic Alert Level is set by GNS Science, based on the level of volcanic activity. For more information, see [geonet.org.nz/volcano](http://geonet.org.nz/volcano) for alert levels and current volcanic activity, [gns.cri.nz/volcano](http://gns.cri.nz/volcano) for volcanic hazards, and [getthru.govt.nz](http://getthru.govt.nz) for what to do before, during and after volcanic activity. Version 3.0, 2014.

<sup>3</sup> From the *Guide to the National CDEM Plan (2015)*, Figure 25.2, Section 25.5.2 National Warnings and Advisories.

In addition to the generalised list of volcanic hazards provided in Figure 6 above, the following hazards are noted that are specific to the Tongariro Volcanic Centre:

- **Ruapehu volcanic activity:** this will likely involve at least ejection of ballistic materials within the summit hazard zone, and may involve generation of eruption lahars on the eastern and/or western sides of the mountain, and significant quantities of ash
- **Ruapehu landslide/crater rim collapse:** this may involve collapse of the eastern rim of the Crater Lake, and production of a large lahar into the Whangaehu Valley
- **Tongariro/Ngauruhoe volcanic activity:** this will likely involve ejection of ballistic materials around the summit/craters and onto the flanks of the volcanoes, and may involve generation of pyroclastic flows, lava flows and/or significant quantities of ash.

### 6.3 The National Warning System<sup>4</sup>

The national warning system is a 24/7 process for communicating hazard information to alert recipients to the need for readiness and possible response to a potential or an imminent threat that may result in an emergency. MCDEM is responsible for overseeing the maintenance and function of the national warning system.

National warnings and advisories are provided by MCDEM to CDEM Groups, local authorities, emergency services, agencies, lifeline utilities, and broadcasters. CDEM Groups are responsible for disseminating national warnings to local communities and maintaining local warning systems.

With respect to volcanic hazards, MCDEM may issue one or more of the following notifications via the national warning system:

- National Advisory – Volcanic Activity: Minor Volcanic Eruption
- National Warning – Volcanic Activity: Moderate Volcanic Eruption
- National Warning – Volcanic Activity: Major Volcanic Eruption.

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<sup>4</sup> Per section 25.4 of the Guide to the National CDEM Plan (2015).

## 6.4 Automated systems

Four automated systems are operated by the Department of Conservation in partnership with GNS Science to help manage the risks associated with different uses within the Tongariro National Park.

### 6.4.1 Ruapehu Eruption Detection System (REDS)

The Ruapehu Eruption Detection System (REDS) uses seismometers on the mountain to measure volcanic earthquakes and air pressure sensors to detect sound waves if material is ejected explosively from the crater lake. Sensors have been placed near the summit at Matarangi, on the flank in several places (e.g. Far West T Bar), and at the Whakapapa and Iwikau Villages.

In the event of an eruption, warnings are broadcast across the skifields advising skiers and snowboarders to move to higher ground as lahars can be generated that travel down valleys. The REDS is a local network linked to the GeoNet data centre.

### 6.4.2 Tongariro Eruption Detection System (TEDS)<sup>5</sup> and supporting infrastructure

The Tongariro Eruption Detection System (TEDS) was installed in 2013 following the Te Maari eruptions. The purpose of the system is to automatically detect eruptions, and assist rapid responses.

TEDS utilises GeoNet sites on the Tongariro-Ngauruhoe massif, including additional sites<sup>6</sup> near Te Maari to automatically detect small seismic events and eruptions. TEDS is similar to REDS, as it uses the same types of GeoNet seismic and acoustic (blast) data as inputs.

Additional infrastructure was installed following the 2012 Te Maari eruption to help mitigate volcanic risk on the Tongariro Alpine Crossing. This includes gas monitoring equipment, a weather station and a system of electronic light-based signs that are deployed in response to increased levels of volcanic risk. The lights are changed when seismicity, gas emissions or other monitored parameters indicate volcanic unrest has changed. The electronic signs can be located anywhere on the Tongariro Alpine Crossing, such as:

- On each side of the Te Maari Active Volcanic Hazard Zone and on the shoulder of the Red Crater (red light only)
- Mangatepopo and Ketetahi parking areas (red, yellow and green lights).

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<sup>5</sup> Based on articles authored by Harry Keys in 'Tongariro the journal for Tongariro National Park', #20, May 2014 (pp. 12-23; 48-55) and subsequent amendments.

<sup>6</sup> Compared to the pre-2012 eruption network.

### 6.4.3 Eastern Ruapehu Lahar Warning System (ERLAWS)

The Eastern Ruapehu Lahar Warning System (ERLAWS) is intended to provide automatic warning of large energetic lahars from the Crater Lake into the Whangaehu River. ERLAWS was designed and built by the Department of Conservation, in collaboration with other parties, to mitigate the hazards and risks associated with the tephra dam that was created during the 1995-96 eruptions and led to the March 2007 lahar event.

The system uses acoustic flow monitors to detect the vibrations from passing lahars, and relays the information to Genesis Tokaanu, where it generates alarms that are automatically sent to emergency response agencies.

### 6.4.4 Whakapapa Village Lahar Alarm and Warning System (VLAWS)

VLAWS is designed to provide advance warning of possible lahars to low-lying areas within the Whakapapa Village, especially the Whakapapa Holiday Park.

VLAWS is triggered by the REDS, which provides immediate notification of possible threats down the Whakapapanui Stream. REDS automatically arms the Skipper's Canyon gate, and when a lahar breaks the gate, advanced warning is sent to responders indicating that a lahar is approximately 20 minutes from impacting Whakapapa Village.

Response arrangements for Whakapapa Village are an integral part of the system, including evacuation arrangements for Whakapapa Holiday Park and Heki Terrace residents to the safe zone at the Chateau Tongariro. Response arrangements also include the use of sirens, monthly alarm testing, traffic management, annual response exercises and review of 'false positive' alarms.

The system was completely remodelled using updated technology in 2013.

## 7 Coordination of agency arrangements

### 7.1 Overview

A coordinated, multiagency response to volcanic unrest or eruptions within the Tongariro Volcanic Centre is required in order to manage the range of hazards that could potentially occur.

Arrangements for all functions are provided within this section *except for Public Information Management arrangements*, which are provided in section 8.

Coordination arrangements are tied to the Volcanic Alert Levels (VALs) shown in Figure 6 as follows:

- **VAL 0:** this level is considered to be the 'normal' background level of volcanic environment hazards. No specific coordination actions are required at this level, with agencies performing business as usual functions (refer to the CPVAG Strategy 2009, and section 8.1 for Public Information Management at VAL 0)
- **VALs 1 & 2 'Unrest':** these levels reflect volcanic unrest from minor through to moderate and heightened. The coordination arrangements required are similar for both levels, and these are outlined within section 7.2 below and within section 8.1 for PIM
- **VALs 3 – 5 'Eruption':** these levels reflect minor, moderate and major eruptions respectively. The coordination arrangements required are fundamentally the same for all three levels, but increase in size and complexity of the management structures. The coordination arrangements are outlined within section 7.3 below and within section 8.2 for PIM.

**Note:** while the VALs 3-5 refer to 'eruptions', the levels also apply to volcanic events that may occur without an eruption, such as lahars or volcanic landslides that may be triggered by earthquakes rather than volcanic activity.

### 7.2 Coordination arrangements during Unrest (VALs 1&2)

Responsibilities for coordination arrangements during volcanic unrest at both VALs 1 and 2 are:

Role	Lead	Support
<b>Overall coordination</b>	CPVAG Chair	All CPVAG agencies
<b>Science and research</b>	GNS	DOC, universities
<b>Response planning</b>	CPVAG Chair	All CPVAG agencies
<b>PIM</b>	DOC	GNS, and if necessary, CDEM.



Responsibilities for all CPVAG agencies at both VALs 1 and 2 are:

- Keep up-to-date with unrest information
- Ensure staff available for meetings and coordination activities as required
- Review response plans and update organisational arrangements where required
- Participate in sector response groups as required
- Actively participate in PIM duties as outlined in section 8.

During Level 1, it is unlikely that there will be a significant need for coordination beyond general information provision and sharing.

During Level 2 (and Level 1 if required), the following actions may be considered within each of the roles as follows:

Role	Actions to be considered
<b>Overall coordination</b>	Consider the need for special briefing and meetings, and convene the CPVAG or sub-groups as required Initiate and ensure regular on-going communications with individual agencies or sectors, depending upon the potential hazards and risks Work with PIM to send out pre-event preparation material as required, such as ashfall response guidelines to nearby residents or the rural sector Liaise with MCDEM and national agencies as required Work with Territorial Authorities and other CDEM Groups to liaise with directly affected communities
<b>Science and research</b>	Undertake hazards and risk assessments, disseminate the results to the agencies and/or the public Coordinate research initiatives among key science providers Develop likely volcanic hazard scenarios Determine the need for and/or advocate for improved monitoring equipment, and deploy as required Provide on-going advice on warning levels Test eruption detection systems and improve as required
<b>Response planning</b>	Plan for response using risk assessments of likely scenarios, and develop or update arrangements as required Exercise collective response in advance, and revisit/amend arrangements as required Update contact lists and communications procedures Facilitate lifelines utilities to consider potential impacts to infrastructure, and take any precautionary steps required
<b>PIM</b>	Per arrangements in section 8.1.

## 7.3 Coordination arrangements during Eruption

Co-ordination arrangements for response during volcanic events (VALs 3-5) within Tongariro National Park are outlined within Figure 7.

Initial co-ordination of response to an event is the responsibility of the Police, with support from the other initial response agencies – GNS, DOC and Ruapehu Alpine Lifts. The aim of initial response co-ordination is protection of human life and safety.

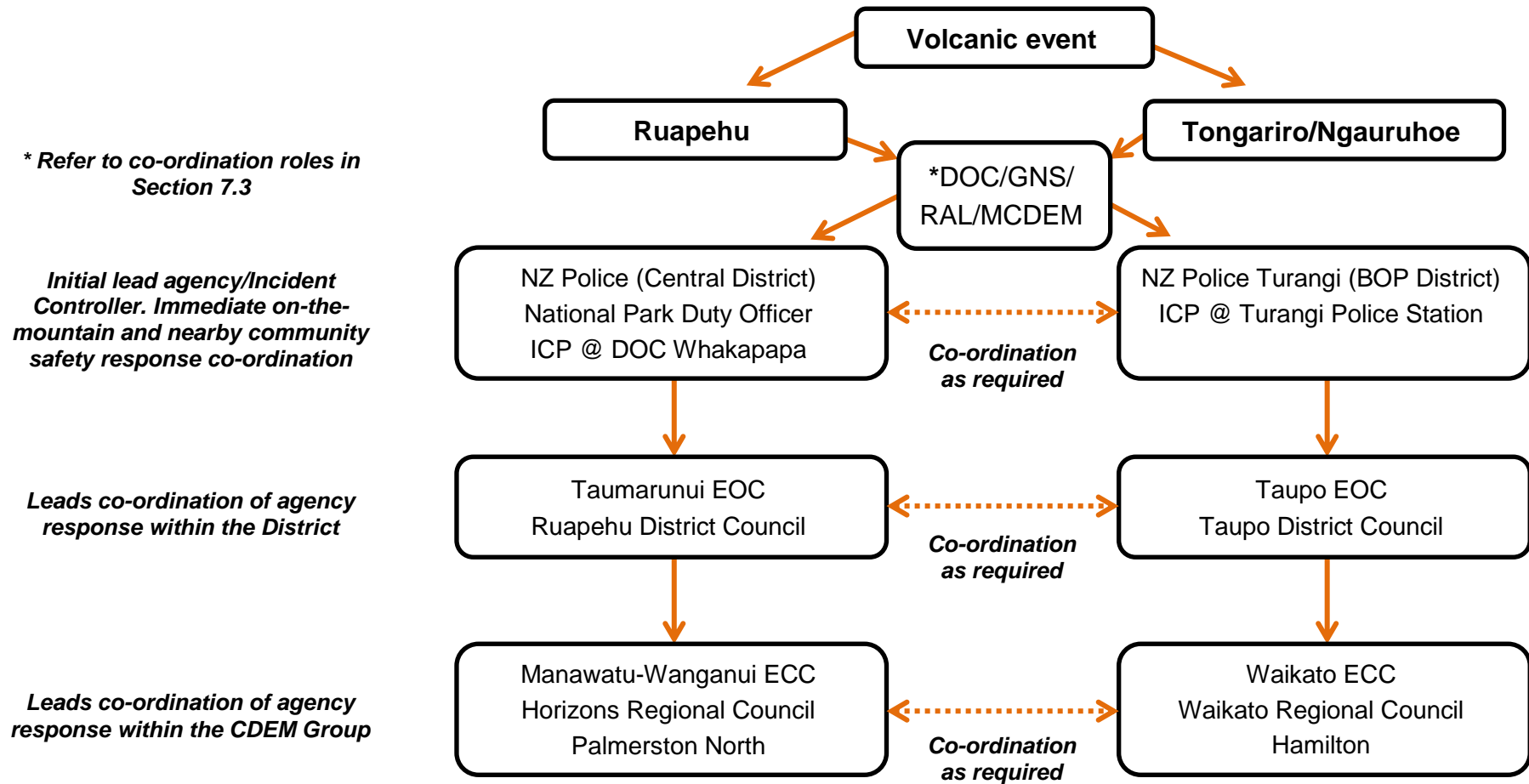
Co-ordination of response following a Civil Defence declaration is the responsibility of the Waikato and Manawatu-Wanganui CDEM Groups. At this time, the goal of co-ordination broadens towards ensuring that collectively, agencies are working together to achieve an effective and efficient response.

It is important to note the following notification and co-ordination roles in support of the Police:

- **GNS:** initial detection and confirmation of events via the GNS Duty Officer and GeoNet.
- **DOC:** initial notification of the event, initiation of a response agencies conference call and initial leadership of PIM and the PIM Managers Response Group
- **RAL:** implementation of the Ruapehu eruption response plan and liaison with DOC (Note: this only applies for Ruapehu)
- **MCDEM:** initiation of a National Controllers conference call following the initial response agencies conference call, and coordination of the New Zealand Volcanic Science Advisory Panel as required. This is to ensure that all parties are linked, and that near real-time information is exchanged regarding levels of volcanic activity and response.

Detailed response agency actions are provided within Appendix 5.

**Figure 7: Lead agencies and response co-ordination following volcanic events in Tongariro National Park**



## 8 Public Information Management

**Note:** the following information is taken from the updated PIM arrangements (dated August 2018). Some original phrases and references to figures and appendices have been modified to suit its inclusion within this plan, and these are noted within the footnotes.

Coordinated Public Information Management (PIM) by the Central Plateau Volcanic Advisory Group (CPVAG) is critical to effective volcanic event response. The primary purpose of PIM is to give timely advice to communities to enable them to take action to avoid risks to human life and safety. The scale of the event, and whether it is unrest or eruptive activity, should dictate the scale of PIM activity.

There is a need for PIM to be activated immediately after an eruption and for certain agencies to maintain a flow of information when in the 'unrest' state. GNS has the primary role in determining the Volcanic Alert Level (VAL), monitoring the type and scale of the event, and to provide primary advice to agencies. The Department of Conservation (DOC) has the initial PIM management response responsibility on the ground, regardless of which volcano erupts. DOC then contacts GNS and iwi as part of the pre-agreed order of notification identified in Figure 8<sup>7</sup>. Once the scale of the event is identified by GNS, DOC works with the appropriate CPVAG agencies to develop the appropriate response.

If a civil defence emergency is declared, different CDEM agencies will take the lead depending on which volcano is erupting. For Ruapehu it will be Ruapehu District Council and the Manawatu-Wanganui CDEM Group via Horizons Regional Council. For Tongariro and Ngauruhoe it will be Taupo District Council and the Waikato CDEM Group.

This document outlines response arrangements for coordinated PIM, in relation to the New Zealand Volcanic Alert Level (VAL) system. Factors to keep in mind when using the information in this section include:

- When GNS provide Volcanic Alert Bulletins (VABs) to advise a change in VAL, these are shared publicly at the same time.
- The type of event will heavily influence the required PIM actions. The information provided in this section strives to provide as much guidance as possible without knowing the details of the event.
- The required actions listed for each level will need to be flexible, especially between VAL 2 and 3 as a lot can change between these two levels.
- The arrangements in this section are expected to apply to the first 24-48 hours of an event.
- Police will also be involved in the response<sup>8</sup>.

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<sup>7</sup> Figure 1 in the original document.

<sup>8</sup> The original document identifies the Police role in an Appendix 2, but note that this appendix was not yet developed at the time of writing

## 8.1 UNREST

Volcanic alert level	Volcanic activity	Most likely hazard	Hazard detail
0	No volcanic unrest	Volcanic environmental hazards	May include hydrothermal activity, earthquakes, landslides, volcanic gases, and/or lahars (mudflows).
<b>PIM requirement</b>		<b>Lead PIM agency/agencies</b>	<b>Considerations</b>
No general warning information normally required, general preparedness for emergency messaging can be shared via channels.		DOC, GNS, CDEM agencies.	<p>This is essentially the 'business as usual' state.</p> <p>Public information/messaging regarding preparing for a volcanic eruption is available through MCDEM's consistent messaging document which can be shared with communities. Note: as at August 2018 this document is under review however the PIM Group has agreed to continue to use it in the interim. .</p> <p>Ensure information shared is relevant to the type of volcano and possible scenarios.</p>

Volcanic alert level	Volcanic activity	Most likely hazard	Hazard detail
1	Minor volcanic unrest	Volcanic unrest hazards	Occur on and near the volcano, and may include steam eruptions, volcanic gases, earthquakes, landslides, uplift, subsidence, changes to hot springs, and/or lahars (mudflows).
<b>PIM requirement</b>		<b>Lead PIM agency/agencies</b>	<b>Considerations</b>
GNS provide regular Volcanic Alert Bulletins (VABs) to the		DOC with support from GNS, and if necessary, CDEM.	This is essentially the 'business as usual' state.

<p>responding agencies within CPVAG within an hour of any change.</p> <p>Clarify to public what impact this unrest is having and on what areas – are any areas restricted?</p> <p>General preparedness messages to continue from CDEM as appropriate.</p>		<p>GNS and DOC are the points of media contact if required. GNS will comment on volcano status, DOC on park visitor information.</p> <p>DOC will likely be making management decisions if there is a possible impact on visitor safety and information within the park.</p> <p>Is the minor activity unsettling people or unusual? If suitable reiterate more targeted preparedness and reassurance messages. Ensure the correct mountain is identified when referring to activity.</p> <p>Make specific contact with CPVAG members as required.</p>
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<b>Volcanic alert level</b>	<b>Volcanic activity</b>	<b>Most likely hazard</b>	<b>Hazard detail</b>
2	Moderate to heightened volcanic unrest	Volcanic environmental hazards	May include hydrothermal activity, earthquakes, landslides, volcanic gases, and/or lahars (mudflows).
<b>PIM requirement</b>		<b>Lead PIM agency/agencies</b>	<b>Considerations</b>
<p>GNS provide regular Volcanic Alert Bulletins (VABs) to responding agencies within CPVAG.</p> <p>Clarify to public what impact this unrest is having and on what areas – are any areas restricted?</p>		<p>DOC with support from GNS and if necessary CDEM.</p> <ul style="list-style-type: none"> <li>▪ GNS are spokespeople for volcano status.</li> <li>▪ DOC are spokespeople for National Park and visitor safety information.</li> <li>▪ CDEM (TAs, Horizons and Waikato) are spokespeople</li> </ul>	<p>Ensure all CPVAG PIMs, including iwi, have been informed of change to volcanic state (VAL) by GNS and any changes to visitor information from DOC.</p> <p>Need to specify if any areas of the National Park have restricted access, which areas are safe, and if there's any impact beyond the Park (e.g. are the surrounding districts experiencing any issues) and what this means for locals and visitors. This includes any key messages regarding the matter progressing to a VAL 3 or above.</p>

If possible provide information regarding how long the unrest may last for and where updates will be available from.	for impact and public safety beyond National Park boundaries.	Agencies to share tools/resources as appropriate as a response to the increased volcanic unrest.  DOC will include key stakeholders as part of agreed process for decision making or provision of advice regarding management decisions within the National Park.
<b>Distributing information</b>		
<ul style="list-style-type: none"> <li>• A holding message will be released by DOC following a change of VAL to provide reassurance to the public that scientists are looking into the event and will provide an update as soon as possible.</li> <li>• A media release will be also prepared by DOC, as well as updates for websites/social media. Note: media release headline must be proportional to scale of event so it doesn't create panic.</li> <li>• This information will be distributed via DOC, TA and Regional Council websites and social media accounts. DOC will create this content and other agencies will 'share' it but not be expected to add any messages to it. This can include other CPVAG agencies where appropriate.</li> <li>• GNS and DOC will prepare appropriate media releases and online material in the first instance.</li> </ul>		

## 8.2 ERUPTION

Volcanic alert level	Volcanic activity	Most likely hazard	Hazard detail
3	Minor volcanic eruption	Eruption hazards near vent	May include explosions, ballistics (flying rocks), pyroclastic density currents (fast moving hot ash clouds), lava flows, lava domes, landslides, ash volcanic gases, lightning, lahars (mudflows), tsunami, and/or earthquakes.
4	Moderate volcanic eruption	Eruption hazards on and near volcano	May include explosions, ballistics (flying rocks), pyroclastic density currents (fast moving hot ash clouds), lava flows, lava domes, landslides, ash volcanic gases, lightning, lahars (mudflows), tsunami,

			and/or earthquakes.
5	Major volcanic eruption	Eruption hazards on and beyond volcano	May include explosions, ballistics (flying rocks), pyroclastic density currents (fast moving hot ash clouds), lava flows, lava domes, landslides, ash volcanic gases, lightning, lahars (mudflows), tsunami, and/or earthquakes.
<b>PIM requirement</b>		<b>Lead PIM agency/agencies</b>	<b>Considerations</b>
<p>GNS provide regular Volcanic Alert Bulletins (VABs) to responding agencies within CPVAG.</p> <p>Clarify to public what impact eruption is having and on what areas – are any areas closed?</p> <p>Provide advice of what action, if any, is necessary from the public.</p> <p>If possible provide information regarding how long the eruption may last for and where updates will be available from.</p>		<p>Initially DOC for first response as per the CIMS structure, then a shared, coordinated response by CDEM groups/CPVAG agencies if impacts are outside of the National Park.</p> <ul style="list-style-type: none"> <li>▪ GNS are spokespeople for volcano status.</li> <li>▪ DOC are spokespeople for National Park and visitor safety information.</li> <li>▪ CDEM (TAs, Horizons and Waikato) are spokespeople for impact and public safety beyond National Park boundaries.</li> </ul>	<p>It is critical to ensure that all communications are consistent and accurate. Ensure iwi are kept up to date with developments via CIMS arrangements.</p> <p>Need to specify if any areas of the National Park have restricted access, what areas are safe, and if there's any impact beyond it (e.g. are the surrounding districts experiencing any issues) and what this means for locals and visitors.</p> <p>Give reassurance as appropriate regarding people inside the National Park (e.g. they are all accounted for/are in safe zones or have been evacuated from hazardous areas) and what is happening for people in surrounding areas.</p> <p>Agencies to share tools/resources as appropriate as a response to the increased volcanic activity.</p> <p>State what impact the eruption is having on lifelines, roads, air quality, drinking water, livestock and air travel. Have there been any evacuations of areas?</p>
<b>Initial actions</b>			
<ul style="list-style-type: none"> <li>• GNS confirm eruption via VAB.</li> <li>• A holding message will be released by DOC within 10 minutes of the event to provide reassurance to the public that scientists are looking into the event and will provide an update as soon as possible.</li> </ul>			



- DOC PIM participate in initial emergency responders' conference call (DOC-led).
- CDEM and DOC Controller initiate Controllers' (GNS, Police, CDEM groups and MCDEM) conference call and include DOC and CDEM PIMs. Controller to decide if DOC or CDEM will take PIM lead from here depending on event circumstances (e.g. if impact is beyond National Park boundaries). Determine if an Emergency Mobile Alert is required to disseminate warning information.
- Confirm event information and provide an update to the public (even if brief) if possible.
- Lead PIM initiate a follow-up conference call with PIM Response Group Managers as soon as possible. The call should start within **1 hour** of the event.
- Lead PIM (DOC or CDEM) participate in National Controllers follow-up conference call (MCDEM-led).

The PIM Response Group will then:

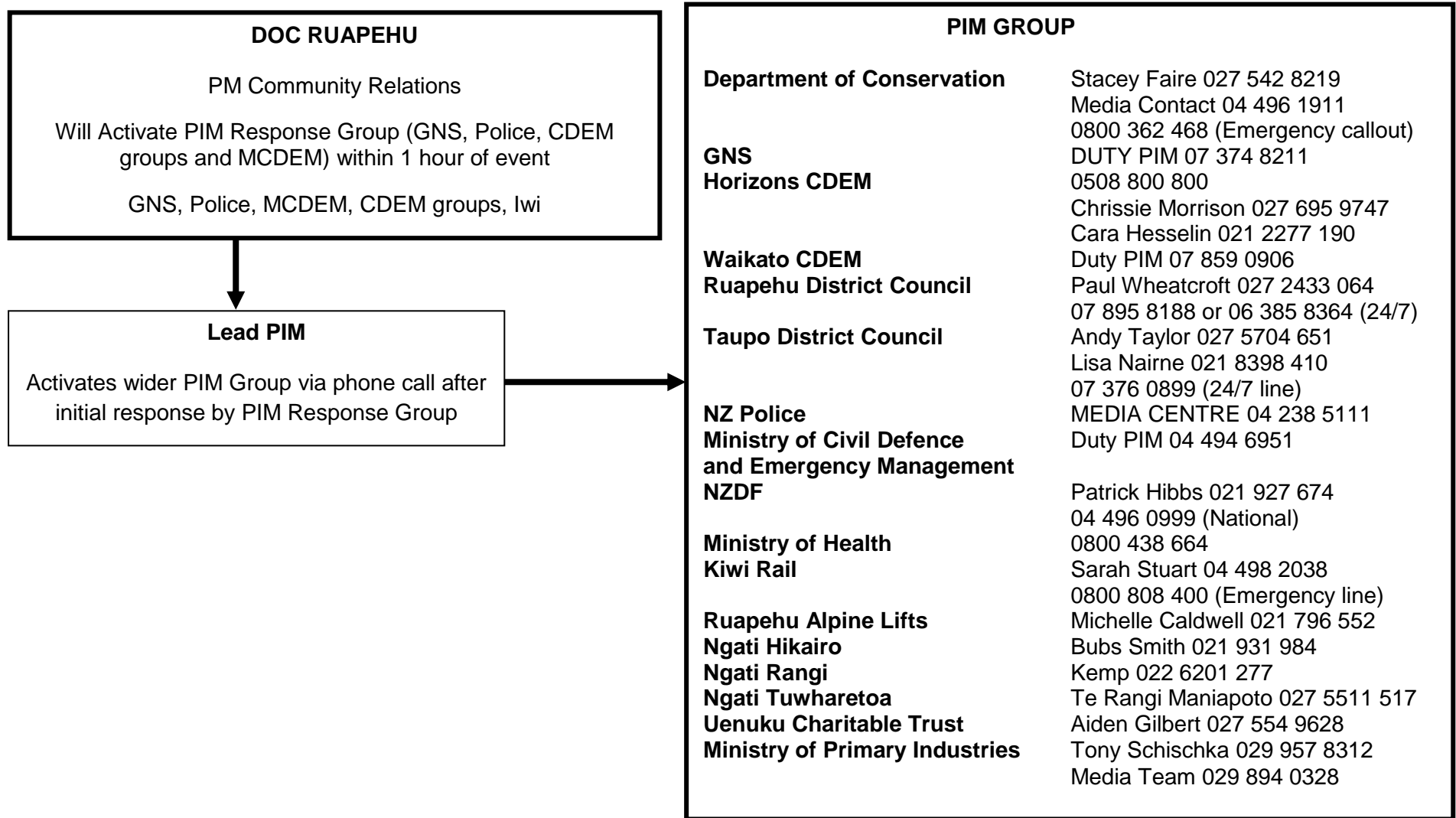
- Refer to agreed key messages/templates and establish any required additional collective key messages as per Appendix 1. Note: as at August 2018 these are in progress and are expected to be complete by the end of 2018.
- Activate web sites, social media, national cell phone alert messaging (if appropriate).
- Activate wider PIM Group (see Figure 1) as soon as possible.
- Agencies to prepare appropriate media releases and online material as discussed and required.
- Touch base with neighbouring regions to discuss potential impacts as required.

Responsibilities:

- **GNS Science:** all VABs and media releases relating to the scientific and technical information about the event, likely impacts and predictions.
- **DOC:** media releases on immediate response actions, risks and visitor safety messaging.
- **CDEM:** media releases on impact of eruption outside National Park including response actions, risks, wider public safety and the impact of the eruption on lifelines, roads, air quality, food supplies, drinking water and animals.
- **Other agencies:** to provide information on issues related to their areas of responsibility.

In terms of signing off of media releases/statements for social media, a 30 minute timeframe for comments on drafts is appropriate. However, some occasions will allow more time and any timeframe may be disregarded if required to share urgent information with the public (i.e. to save lives etc.). Note: headlines must be proportional to scale of event so it doesn't create panic.

**Figure 8: Activation of PIM Response Managers Group**



## 8.3 On-going actions for Alert 3-5 (from 1 hour onwards)

Coordination of PIM will involve on-going development and dissemination of event information in co-ordination with Police, GNS, MCDEM, CDEM groups and DOC, and in consultation with local iwi, support agencies, lifelines utilities and research institutions. These agencies are responsible for issuing media releases that pertain to their individual functions, and making sure that these messages are consistent with each other's' key messages, and made available to the Lead PIM.

### **Urgent information – use common sense to save lives**

The partners explicitly recognise that the coordination arrangements in this plan must not interfere with the sharing of urgent information with the public (i.e. to save lives etc.) However, any urgent information shared with the public will be shared with the PIM Response Group at the same time or as soon as possible after its release.

### Coordination mechanisms

- This pre-release coordination arrangement is NOT designed to cover routine releases about non-controversial information or updates (although this information should also be passed on as a matter of routine to other agencies). It is also a 'best endeavors' approach.
- The main purpose of this plan is for parties to co-ordinate messaging before the release of significant new information to the media or public.
- This is particularly relevant to co-ordination between GNS, DOC, Police, NZTA and CDEM (local and Group) over new information about risks, especially to the local community and local iwi. Agencies will need to make judgments about how widely they consult ahead of releases, but CDEM should be kept in the loop wherever possible. Parties need to be particularly careful about the release of scientific assessments, and the language in them, that can cause public alarm. Any such releases from GNS will be the subject of consultation between GNS, DOC, Police and CDEM before issuing wherever possible.
- The partners will each nominate a media liaison representative/s who will be responsible for message co-ordination under this plan via email and phone. Phone contact between the parties is recommended if the issue is particularly important and requires close co-ordination between agencies. To assist with this it is recommended that there is a PIM teleconference following any Controller teleconference.
- The partners will share with each other their significant, new planned written and verbal media releases before issuing and give each other a reasonable time to comment before issuing. The definition of a reasonable time is flexible depending on circumstances but should ideally be 30 minutes. All new release of information will also be shared with the wider PIM Group once it has been released so it can be shared as required.

- The agencies will endeavor to ensure that their messaging – whether verbal or written - is consistent in all forums. It is also important that the information is validated, succinct and timely.
- The partners will draw on the consistent messaging (based on MCDEM’s consistent messaging documentation)<sup>9</sup>.
- In all cases local iwi Ngati Tuwharetoa, Ngati Hikairo, Ngati Rangi and Uenuku Charitable Trust should be consulted prior to the release of any significant media statements provided this does not conflict with the need of agencies to share urgent information with the public. Again 30 minutes will be allocated to receiving any feedback.

### **Conflict resolution**

In the case that there is conflict in the PIM Response Group over messaging, it will be resolved through mediation with the Incident Controller.

## 8.4 Key messaging

Refer to MCDEM consistent messaging advice.<sup>10</sup>

## 8.5 From 48 hours onwards

The PIM Group has agreed to complete further planning work in this space. For now, it is agreed the Group will stay in touch and assess the situation and PIM needs via regular/as required teleconference calls following the first 48 hours.

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<sup>9</sup> The original document identifies that MCDEM consistent messaging is attached in Appendix, but note that this appendix was not yet developed at the time of writing.


<sup>10</sup> The original document states ‘Please see Appendix 1. Note: as at August 2018 these are in progress and are expected to be complete by the end of 2018.’

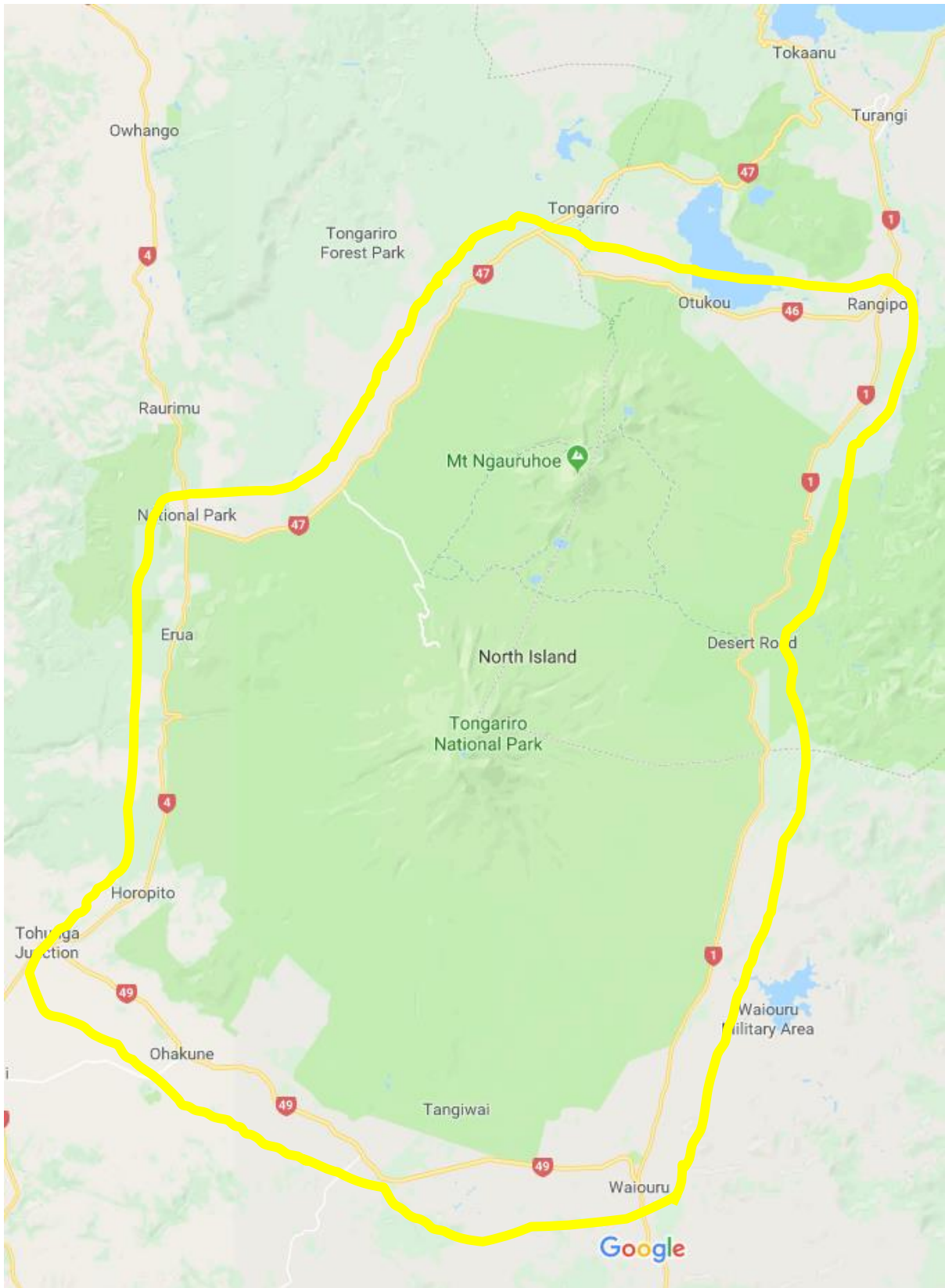
## Appendix 1: Agency Response Plans

This plan relies heavily on supporting agency plans across the Manawatu-Wanganui and Waikato CDEM Group areas. The relevant plans are listed in the table below.

Owner	Arrangement	Last Update	Next Update
Department of Conservation	Initial Response Plan for Volcanic Activity in TNP	2017	
	TNP Volcanic emergency reflex tasks and phone callout structure	2018	
	Guidelines for DOC's overall response to volcanic activity including unrest in TNP	2017	
	TNP Eruption Response Communications Plan	2018	
Ruapehu DC	Ruapehu Lahar Emergency Management Plan (Southern)		
Taupo DC	Ruapehu Lahar Emergency Management Plan (Northern)		
GNS	Volcanic Event Response Procedures	2018	
Ruapehu Alpine Lifts	Emergency Planning Manual	2009	
Horizons Regional Council	Manawatu-Wanganui CDEM Group Plan	2016	
	Horizons Emergency Response Manual	2018	
Police (Central District)	Central District Police Mount Ruapehu Eruption and Lahar Response Plan	2018	2020
Police (Bay of Plenty District)	Tongariro National Park Eruption Response Plan	2012	
Ministry of CDEM	Guide to the National CDEM Plan	2015	
Genesis Energy	Volcanic Activity Response Procedure		
Kiwi Rail	Whangaehu River Emergency Procedures	2009	
Transpower	Electrix Taupo Substation Emergency Preparedness Manual	2010	
New Zealand Transport Agency	National Incident Procedures Guideline	2012	
New Zealand Transport Agency	East and West Whanganui Networks State Highway Emergency Procedures Manuals	2011	
Downer (for NZTA)	Significant Hazard/Impact Control Plan (volcanic eruption, ash and dust)	2012	

## Appendix 2: Plan Coverage Area

 Approximate boundary of plan coverage area



## APPENDIX 3: Roles and responsibilities of CPVAG members

**Note:** the following information provides a snapshot based on long-standing roles and responsibilities. It is general in nature, and primarily relevant for volcanic hazards in relation to CPVAG roles and responsibilities.

For a full, updated description of all general CDEM roles and responsibilities refer to the *National Civil Defence Emergency Management Plan Order 2015 Schedule*.

### **Department of Conservation**

Responsible for minimising risks from natural hazards in conservation areas, and closing conservation areas for visitor safety or emergency reasons. As the manager of the conservation estate, the Department of Conservation therefore has significant responsibilities for public safety within Tongariro National Park.

### **New Zealand Police<sup>11</sup>**

Responsible for:

- Maintaining law and order
- Taking all measures within their power and authority to protect life and property
- Co-ordinating movement control over land, including communications and traffic control to assist the movement of rescue, medical, fire, and other essential services
- Assisting the coroner
- Conducting inland search and rescue
- Assisting with the dissemination of warning messages
- Providing security of evacuated areas, including the establishment of cordons
- Conducting initial evacuations
- Assisting with/supporting the registration and identification of casualties/evacuees
- Leading and coordinating the inquiry sub-function of welfare services in an emergency
- Identifying people who have been affected by an emergency and assisting family, whanau and significant others (e.g. next of kin) to make contact.

### **GNS Science**

Responsible for providing real-time monitoring data from GeoNet, and specific science advice in relation to earthquake, volcano, landslide and tsunami hazards. The details of this role have been agreed with the Ministry of Civil Defence & Emergency Management in a memorandum of understanding (MOU). The core component of this MOU specifies how and on what basis GNS Science capabilities can be mobilised in times of crisis to assist the Ministry of Civil Defence & Emergency Management. GNS inputs directly into the national warning system via its Volcano Event Response Procedures.

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<sup>11</sup> Refer to Chapter 7.2 of the Guide to the National CDEM Plan, 2006.



## **CDEM Groups<sup>12</sup>**

Responsible for:

- Maintaining an on-going response capability and capacity for Group response coordination via the Group Emergency Coordination Centres
- Monitoring events and issuing warnings over the Group areas
- Assessing Group response resources required for response to emergencies and activating those resources in support of local response
- Providing response coordination as required for local emergencies within and across the Groups
- Co-ordination of and arrangements for local delivery of welfare services
- Providing for transition to recovery at the Group levels
- Providing response coordination support between the Waikato and Manawatu-Wanganui CDEM Groups and the Ministry of CDEM, and assistance to other CDEM Groups as required.

## **Regional Councils<sup>13</sup>**

Responsible for:

- Provision of hydrological data
- Provision of flood warnings
- In channel river management as appropriate
- Assistance in environmental monitoring.

## **Territorial Authorities<sup>14</sup>**

Responsible for:

- Maintaining an on-going response capability and capacity within Territorial Authority boundaries
- Monitoring events and issuing warnings to local communities
- Assessing the local response resources required for response to emergencies and activating those resources
- Providing response coordination for local emergencies within Territorial Authorities
- Providing community leadership and on-going support to communities
- Providing for transition to recovery
- Providing response support and assistance as part of the Waikato and/or Manawatu-Wanganui CDEM Groups, and to other CDEM Groups as required.

## **Ministry of Civil Defence & Emergency Management<sup>15</sup>**

Responsible for:

- Providing national CDEM management and support to CDEM Groups
- Initiating and coordinating any national emergency response from the CDEM sector regardless of the emergency
- Ensuring the establishment of structures to provide the capability to manage and respond to civil defence emergencies

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<sup>12</sup> Refer to Chapter 5 of the Guide to the National CDEM Plan, 2006.

<sup>13</sup> Per draft points developed by Shane Bayley, Horizons Regional Council.

<sup>14</sup> Refer to Chapter 5 of the Guide to the National CDEM Plan, 2006.

<sup>15</sup> Refer to Chapter 4, Annex 4.A of the Guide to the National CDEM Plan, 2006.



- Providing support to sector stakeholders in their delivery of civil defence emergency management
- Managing central government response and recovery functions for large scale civil defence emergencies that are beyond the capacity of local authorities.

### **Fire and Emergency New Zealand<sup>16</sup>**

Responsible for:

- Fire fighting: to control, contain, and extinguish fires
- Containment of releases and spillages of hazardous substances
- Urban search and rescue (USAR) for entrapped victims: including national support team, USAR task forces and registered response teams with USAR capabilities
- Limitation of damage: salvage of essential material from endangered locations
- Redistribution of water for specific needs: preservation of health and hygiene in stricken areas
- Assisting with evacuations
- Assisting with Incident Control Point response arrangements.

### **District Health Boards<sup>17</sup>**

Responsible for:

- Provision of health services including public, primary, secondary, tertiary, mental, and disability health services in a civil defence or related emergency, and maintaining a response capability for significant incidents and emergencies
- Integrating the provision of health services with regional and national response
- Co-ordination with plans of other agencies such as local authorities, ambulance, fire services, and police
- Liaison with Territorial Authorities or Group Emergency Coordination Centres leading up to, during and after an emergency
- Requiring health providers to have plans and resources in place to ensure they can respond to emergencies in an integrated and effective manner
- Ensuring that hospitals and health services are ready to function to the fullest possible extent during and after an emergency.

### **Ambulance providers<sup>18</sup>**

Responsible for:

- Participation on District Health Board regional groups and CDEM Groups as required
- Preparing an incident and emergency plan that is integrated with that of the District Health Board regional group
- Continuing their services and managing any increased demand.

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<sup>16</sup> Refer to Chapter 8.2 of the Guide to the National CDEM Plan, 2006.

<sup>17</sup> Refer to Chapter 9.3 of the Guide to the National CDEM Plan, 2006.

<sup>18</sup> Refer to Chapter 9.5 of the Guide to the National CDEM Plan, 2006

## **Lifeline utilities<sup>19</sup>**

Responsible for:

- Establishing contact with and providing information on the status of their network to the Emergency Operations Centres and/or the Group Emergency Operations Centre as agreed pre-event. Lifeline utilities are expected to be able to provide the following information where possible:
  - The scale and extent of event impact on networks
  - Major disruptions experienced, including location and number of users affected
  - The nature and locations of critical immediate actions, such as shut down and sectorising – that require the support of access and tasking prioritisation
  - Estimated restoration times for known disruptions
  - Priority areas of response actions being undertaken
  - Alternative solutions available to users where appropriate
  - Precautions, and public information to be promulgated
  - Requests for support or specific information.
- Receiving Emergency Operations Centres and/or Group Emergency Operations Centre reports and taking action as appropriate – including requests for prioritisation of services to support the response effort.

## **Welfare<sup>20</sup>**

Welfare services support individuals, families and whānau, and communities in being ready for, responding to, and recovering from emergencies, which includes the following welfare services sub-functions:

- a) Registration
- b) Needs assessment
- c) Inquiry
- d) Care and protection services for children and young people
- e) Psychosocial support
- f) Household goods and services
- g) Shelter and accommodation
- h) Financial assistance
- i) Animal welfare.

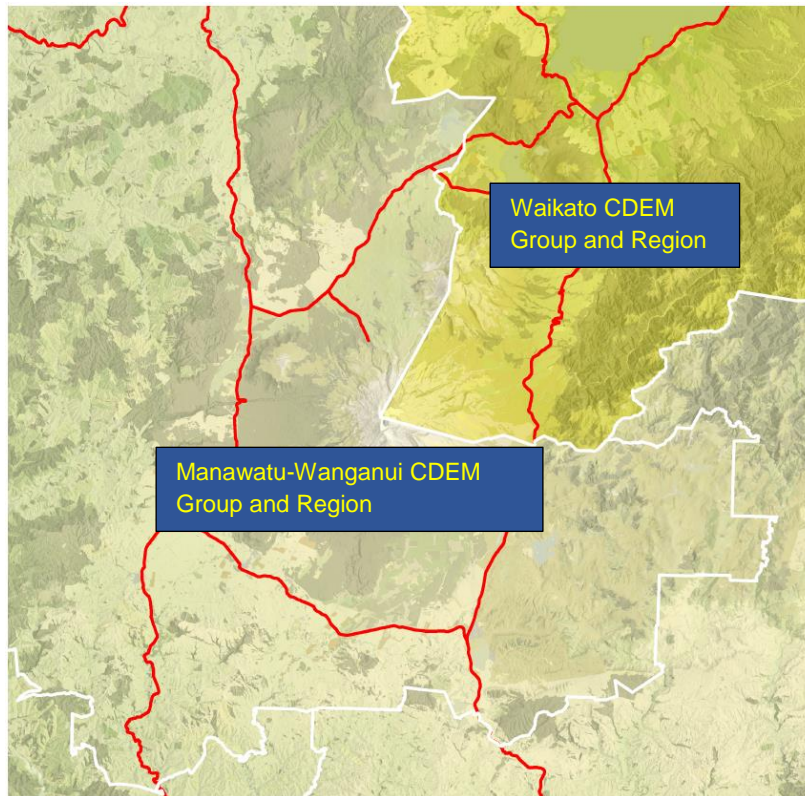
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<sup>19</sup> Refer to Chapter 10.4.1 of the Guide to the National CDEM Plan, 2006.

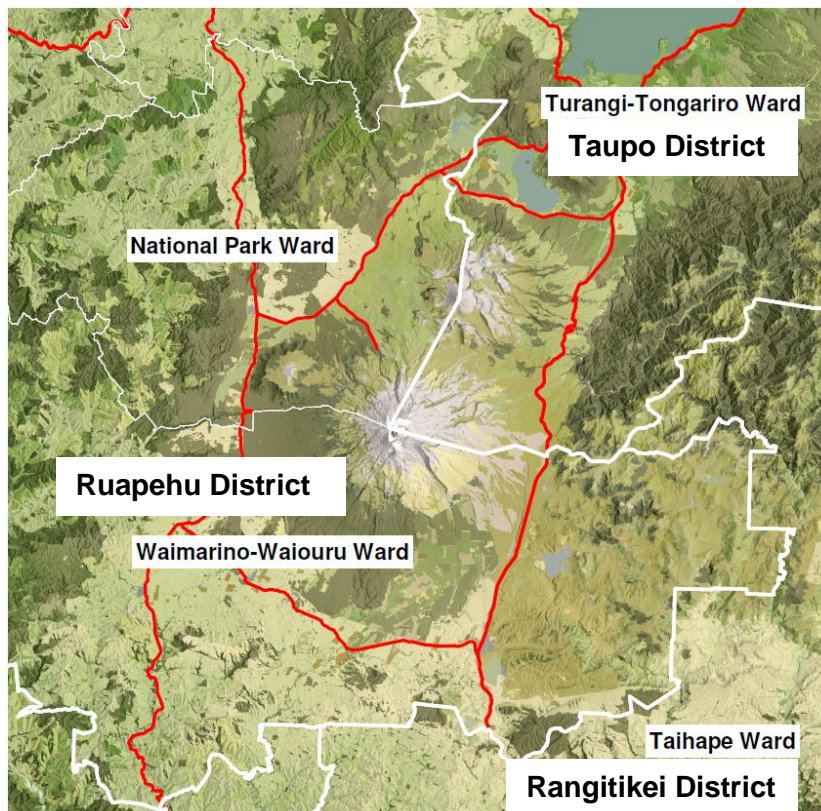
<sup>20</sup> Refer to Section 14 of the Guide to the National CDEM Plan, 2015.

## Appendix 4: Jurisdiction maps

### 8.5.1 CDEM Groups and Regional Councils

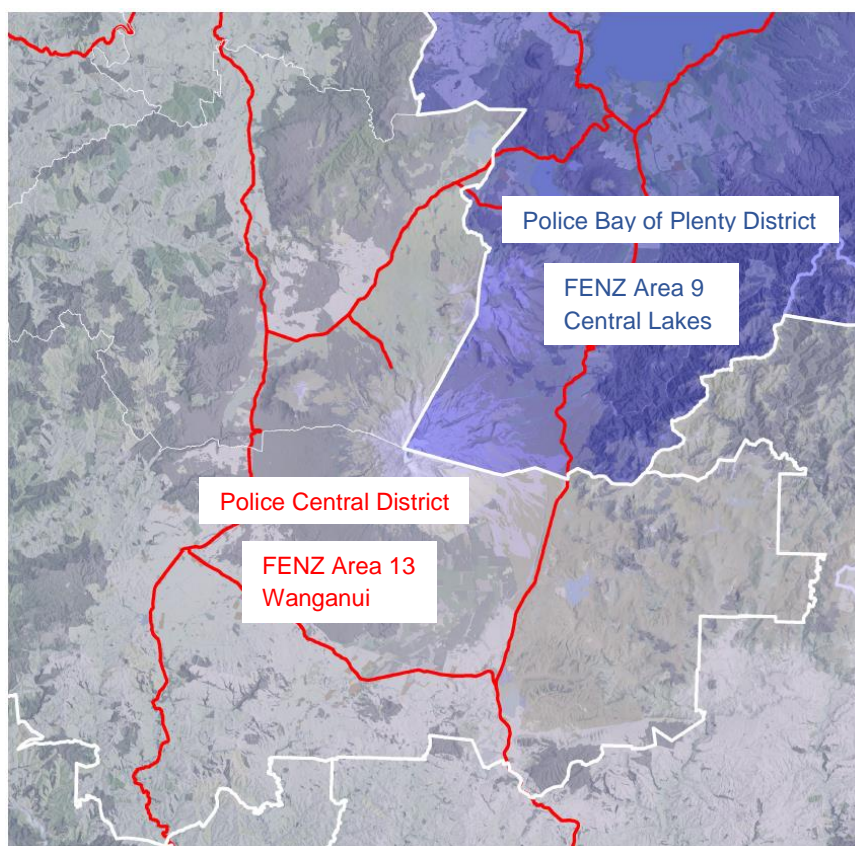


### 8.5.2 Territorial Authorities and Wards

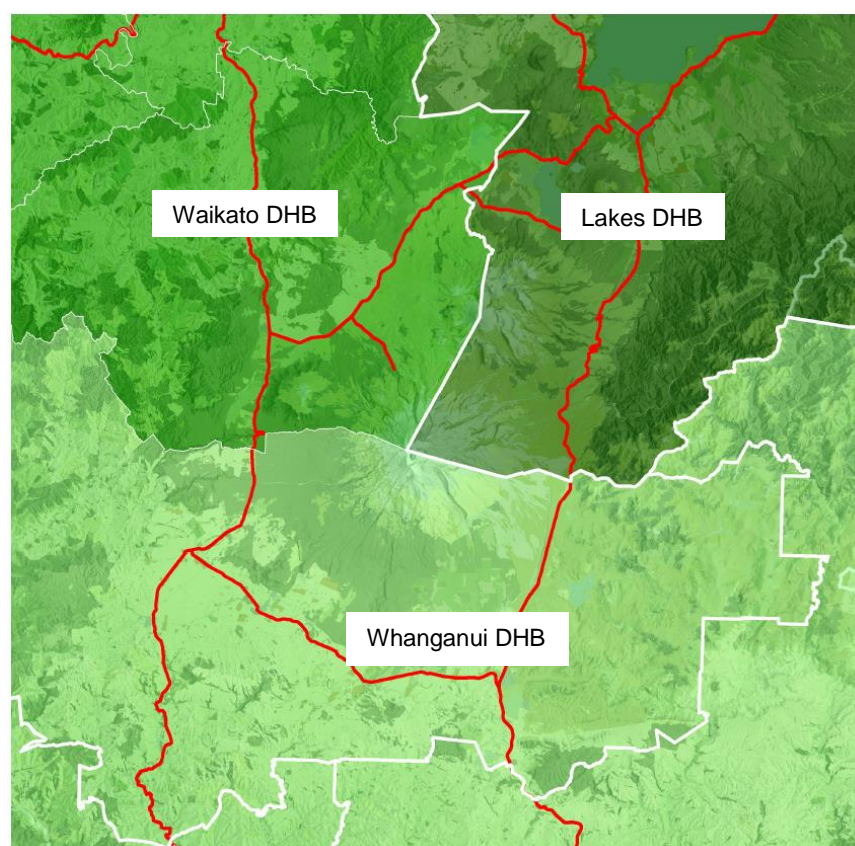




### 8.5.3 New Zealand Police and Fire and Emergency New Zealand (FENZ)



### 8.5.4 District Health Boards



## Appendix 5: Detailed Agency Response Actions during ‘Eruption’ (VALs 3-5)

Note: Response time is defined as the time to initiate the response. **E** is the time the eruption event occurs

Agency	Time	Immediate Actions	E + 1 hour <i>(Note – actions may be sooner than E+1 hour)</i>	E + 3 hours and/or on-going <i>(Note – actions may be sooner than E+3 hours)</i>
<b>Initial response agencies</b>				
<b>GNS Science</b>	<ul style="list-style-type: none"> <li>• Make initial assessment of event per response procedures</li> <li>• Initial notifications, set VAL and issue Volcanic Alert Bulletin. Key response notifications to MetService, Ministry of CDEM, DOC, Iwi (Ngati Rangi for Ruapehu events) and internal GNS staff</li> <li>• Initiate GNS staff response</li> </ul>	<ul style="list-style-type: none"> <li>• Continue to monitor data</li> <li>• If applicable (e.g. not night time), deploy staff to make observations</li> <li>• Review alert bulletin and issue more information as it becomes available</li> </ul>	<ul style="list-style-type: none"> <li>• Continue to monitor data</li> <li>• Review alert bulletin and issue more information as it becomes available</li> </ul>	
<b>Department of Conservation</b>	<ul style="list-style-type: none"> <li>• Receive initial notification of event via REDS, TEDS and/or ERLAWS</li> <li>• Contact GNS to confirm event</li> <li>• Initiate EDS response procedures for Whakapapa ski fields</li> <li>• Notify Police</li> <li>• Reset EDS</li> <li>• If Skippers alarm activates initiate Whakapapa Village evacuation procedures (includes general Ruapehu staff response)</li> </ul>	<ul style="list-style-type: none"> <li>• Notify senior RAL management at Whakapapa and Turoa</li> <li>• Confirm status of Whakapapa Village</li> <li>• Advise DOC Safety Watch</li> <li>• Set up ICP coordinating with RAL and checking with police that all relevant agencies are being notified</li> <li>• Notify Ruapehu District Council</li> <li>• Advise Tukino</li> <li>• Notify Whanganui Security for initiation of Ernslaw1 and WPI mill</li> </ul>	<ul style="list-style-type: none"> <li>• Continue to operate ICP and develop using CIMS</li> <li>• Notify Minister of Conservation and National office of DOC</li> <li>• Develop news bulletin coordinating with CPVAG agencies</li> </ul>	

<b>Agency</b>	<b>Time</b>	<b>Immediate Actions</b>	<b>E + 1 hour</b> <i>(Note – actions may be sooner than E+1 hour)</i>	<b>E + 3 hours and/or on-going</b> <i>(Note – actions may be sooner than E+3 hours)</i>
<b>Department of Conservation cont.</b>		<ul style="list-style-type: none"> <li>• Confirm if eastern Ruapehu lahar has been generated</li> <li>• Notify Genesis Energy Control at Tokaanu</li> <li>• Notify Army Range Control at Waiouru</li> </ul>	<ul style="list-style-type: none"> <li>• response plans</li> <li>• Notify Transpower</li> <li>• Notify Kiwi Rail</li> <li>• Conference call with GNS and others as necessary &amp; practical</li> <li>• Issue immediate information to media</li> <li>• Notify Ngati Hikairo and Ngati Rangi contacts</li> </ul>	
<b>Police</b>		<ul style="list-style-type: none"> <li>• Receive initial eruption notification</li> <li>• Liaise with DOC on initial actions required</li> <li>• Initiate immediate traffic management and SAR actions</li> <li>• Initiate agency notification</li> <li>• Take initial control upon arrival at ICP</li> </ul>	<ul style="list-style-type: none"> <li>• ICP – continue with command and control actions, or hand over to appropriate lead agency</li> <li>• Expand contact with agencies as required</li> <li>• Traffic and Search And Rescue management as required</li> </ul>	<ul style="list-style-type: none"> <li>• ICP – support command and control actions</li> <li>• Expand contact with agencies as required</li> <li>• Traffic and Search And Rescue management as required</li> </ul>
<b>Ruapehu Alpine Lifts</b>		<ul style="list-style-type: none"> <li>• Implement Eruption Response Plan</li> <li>• Liaise with DOC</li> </ul>	<ul style="list-style-type: none"> <li>• Establish outside communications</li> <li>• IMT and ICP established at base area.</li> <li>• Manage access road safety</li> <li>• Triage and treat injured at medical centre.</li> <li>• Implement Ski Area Evacuation Plan</li> </ul>	<ul style="list-style-type: none"> <li>• Implement Ski Area Evacuation Plan</li> <li>• RAL liaison officer to the ICP</li> </ul>

Agency	Time	Immediate Actions	E + 1 hour <i>(Note – actions may be sooner than E+1 hour)</i>	E + 3 hours and/or on-going <i>(Note – actions may be sooner than E+3 hours)</i>
<b>Support agencies</b>				
<b>Ruapehu District Council</b>	<ul style="list-style-type: none"> <li>• Duty EMO receives pager or phone call</li> <li>• Contact Manawatu-Wanganui CDEM Group Duty Officer (Horizons EMDO) for briefing</li> <li>• Confirm level of activation from lead agency and whether CD required</li> <li>• Brief Mayor, CEO and PIM</li> <li>• Arrange for staffing at ICP (Intelligence &amp; Planning)</li> <li>• Activate EOC (if required)</li> </ul>	<ul style="list-style-type: none"> <li>• Activation of welfare centres (if required)</li> <li>• Establish communications with ICP</li> <li>• Establish council website emergency page</li> <li>• Release information to media through PIM.</li> </ul>	<ul style="list-style-type: none"> <li>• Look at what evacuations may be required liaise with Police</li> <li>• Re-establishing council lifeline utilities or putting contingency plans in place (Refer to GHD or Veolia Water plans).</li> </ul>	
<b>Taupo District Council</b>	<ul style="list-style-type: none"> <li>• Receive initial assessment</li> <li>• Obtain GNS assessment and determine what impacts, if any</li> <li>• Consider public advisory</li> <li>• Consider activation of EOC</li> <li>• Contact Waikato CDEM Group</li> <li>• Inform CEO and Mayor</li> <li>• General email to all staff, customer service centres and infrastructure teams</li> <li>• Establish contact with communities</li> <li>• Determine welfare requirements</li> </ul>	<ul style="list-style-type: none"> <li>• On-going liaison with GNS</li> <li>• Issue media bulletins per SOP's</li> <li>• Interagency briefing</li> <li>• On-going liaison with Waikato CDEM Group</li> <li>• Initiate weather monitoring for wind direction</li> <li>• Liaise with MCDEM and REMA</li> <li>• Evaluate on-going consequences to community</li> </ul>	<ul style="list-style-type: none"> <li>• On-going impact of assessment of eruption</li> <li>• Monitor infrastructure</li> <li>• Updating media bulletins as appropriate</li> <li>• Issue SITREP to Waikato CDEM Group</li> <li>• Liaise with politicians and crisis management team</li> <li>• Monitor wellbeing of community</li> <li>• Ensure information flow to community</li> </ul>	

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<b>Ministry of Civil Defence Emergency Management</b>		<ul style="list-style-type: none"> <li>• Receive initial notification</li> <li>• Obtain GNS assessment and decide on National Warning/Advisory</li> <li>• Consider Public statement</li> <li>• Consider activation of NCMC</li> <li>• Make initial contact with CDEM Group</li> <li>• Inform Government</li> </ul>	<ul style="list-style-type: none"> <li>• Continue liaison with GNS and VAG's to monitor and assess</li> <li>• Update if required National Warning/Advisory</li> <li>• Consider deployment of REMA</li> <li>• Initiate National Controller conference call</li> <li>• Continue to inform Government</li> </ul>	<ul style="list-style-type: none"> <li>• Continue liaison with GNS and VAG's to monitor and assess</li> <li>• Continue National Warnings/Advisories</li> <li>• Continue to inform Government</li> </ul>
<b>Waikato CDEM Group</b>		<ul style="list-style-type: none"> <li>• Confirm advisory through Duty EMO 1/2 (WRC) &amp; REMA</li> <li>• Ensure Duty officer has carried out SMS alerting under GECC distribution list. <ul style="list-style-type: none"> <li>○ Support and carry out action if required</li> </ul> </li> <li>• Confirm latest Weather update. <ul style="list-style-type: none"> <li>○ Distribute where required.</li> </ul> </li> <li>• Confirm direct communications contact with Taupo</li> <li>• Confirm Duty Controllers direction.</li> <li>• Ensure Duty PIM has been alerted and aware of advisory <ul style="list-style-type: none"> <li>○ Update: <ul style="list-style-type: none"> <li>▪ Twitter &amp; Facebook</li> <li>▪ Be prepared to draft/issue media</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Assess activation of GECC and what level (Level 3 or 4).</li> <li>• Start GECC call in procedure for staff where required.</li> <li>• Confirm direct communications contact with DoC/Police ICP where possible</li> <li>• Ascertain direct contact with Taupo DC(if not already done)</li> <li>• Prepare to host Controllers IMT meeting with Emergency Services <ul style="list-style-type: none"> <li>○ Contact E/S and Health where required</li> </ul> </li> <li>• Arrange Tel Conference with EOA's (Managers/Local Controllers) <ul style="list-style-type: none"> <li>○ Be prepared for: <ul style="list-style-type: none"> <li>▪ CPVAG &amp; National tel conference</li> </ul> </li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>• Further assess GECC activation if not already activated <ul style="list-style-type: none"> <li>○ GECC activation procedures to be followed</li> </ul> </li> <li>• Prepare an IAP/Sitrep in conjunction with Controllers direction</li> <li>• PIM to be key advisor in media release <ul style="list-style-type: none"> <li>○ To work with WDHB on clear advise and potential health warning.</li> <li>○ Assess CPVAG/NCMC PIM advise</li> <li>○ Prepare for CEG/JC</li> </ul> </li> </ul>



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<b>Waikato CDEM Group cont.</b>		advisory in support of EOA's especially Taupo	<ul style="list-style-type: none"> <li>• Prepare an IAP/Sitrep in conjunction with Controllers direction</li> <li>• Continue to monitor Alert advisory/ CPVAG Advisory and NCMC sitreps</li> </ul>	briefing <ul style="list-style-type: none"> <li>• LUC to confirm critical lifelines issues</li> <li>• Issue IAP/Sitrep if not already</li> <li>• Continue to monitor Alert advisory/ CPVAG Advisory and NCMC sitreps</li> </ul>
<b>Manawatu-Wanganui CDEM Group</b>		Refer to Horizons Regional Council actions below		
<b>Waikato Regional Council</b>		<ul style="list-style-type: none"> <li>• Duty EMO 1 to confirm advisory with EMO 2 and Duty Controller</li> <li>• Advisory confirmed issue SMS to GECC distribution list to beware of issue and further direction to follow.</li> <li>• Phone confirmation with EOA managers that they have received advisory</li> <li>• Report back to Duty controller and carry out any tasks as directed</li> </ul>	<ul style="list-style-type: none"> <li>• EMO1/2 Carry out any tasks as directed by the duty Controller.               <ul style="list-style-type: none"> <li>○ Use GECC response advisory procedure</li> </ul> </li> <li>• Be prepared to contact WRC key personnel as directed</li> <li>• Continue to monitor Alert advisory/ CPVAG Advisory and NCMC sitreps</li> </ul>	<ul style="list-style-type: none"> <li>• Duty EMO1/2 will carry out any tasks as directed by the duty Controller &amp; WRC.</li> <li>• WRC EMT may activate as directed by CEO</li> <li>• Programme managers will ascertain advisory issues so far               <ul style="list-style-type: none"> <li>○ Will report back through GECC</li> </ul> </li> <li>• WRC will continue to monitor Alert advisory/ CPVAG Advisory and NCMC sitreps</li> </ul>

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<b>Horizons Regional Council</b>		<p>Should an eruption or lahar event be reported, the Emergency Management Duty Officer (EMDO) will pass on advice of the possible event to: Horizons staff, including</p> <ul style="list-style-type: none"> <li>• Manager Emergency Management Office;</li> <li>• Hydrology Duty Officer</li> <li>• Operations Duty Officer;</li> <li>• Incident Controller/Group Controller;</li> <li>• Communications Manager;</li> </ul> <p>TA Emergency Management Duty Officers, including:</p> <ul style="list-style-type: none"> <li>• Ruapehu District Council;</li> <li>• Waikato Regional Council;</li> <li>• Wanganui District Council;</li> <li>• Rangitikei District Council;</li> </ul> <p>Police Liaison Officer; and Ministry of Civil Defence &amp; Emergency Management Duty Officer.</p> <p>The EMDO will maintain a log of activities</p>	<p>Upon receipt of a confirmed eruption or lahar event, the Emergency Management Duty Officer will initiate a response by Horizons Regional Council; and undertake the following actions:</p> <ul style="list-style-type: none"> <li>• confirm the event to those people put on standby from the possible event notification (as listed);</li> <li>• notify the Call Centre and Horizons Regional Council reception of the situation and that the Group ECC is being activated at Level 2;</li> <li>• notify key Group EOC staff to respond to the ECC to perform the functions of: <ul style="list-style-type: none"> <li>◦ Public Information Management;</li> <li>◦ Planning/Intelligence;</li> <li>◦ Operations; and</li> <li>◦ Logistics.</li> </ul> </li> <li>• contact the Ruapehu EOC by phone or CDEM VHF radio; and</li> <li>• contact GNS Science and Department of Conservation (DoC) to ascertain situation reports.</li> </ul>	<p>Horizons staff will ensure the following tasks/issues are addressed:</p> <ul style="list-style-type: none"> <li>• River monitoring</li> <li>• Monitoring potential for overflows from log jams/obstructions</li> <li>• Contact procedures for Wanganui and Rangitikei District Councils – phone trees?</li> <li>• Declarations?</li> </ul>
<b>Fire Emergency New Zealand</b>		<ul style="list-style-type: none"> <li>• Contact DNS or RW to get SITREP</li> <li>• Notify Fire Region headquarters and determine level of Operations room set up.</li> <li>• Initiate Agency notifications.</li> </ul>		

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<b>Fire Emergency New Zealand cont.</b>		<ul style="list-style-type: none"> <li>• Provide FS liaison to lead agency</li> </ul>		
<b>New Zealand Defence Force</b>		<ul style="list-style-type: none"> <li>• Advise all units in Zone One of the warning and order their movement out of water courses</li> <li>• Advise Headquarters Joint Force New Zealand of the warning and request authority to assist with the provision of a liaison officer</li> <li>• Advise all service providers</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure all personnel have moved from Zone One</li> <li>• Have a liaison officer on standby to deploy in support of the ICP.</li> </ul>	<ul style="list-style-type: none"> <li>• Prepare available personnel and vehicles to deploy in support of the ICP</li> <li>• Place Medical Treatment Centre on two hours' notice</li> <li>• Request update from GNS</li> <li>• Monitor the existence of ash and plot direction</li> <li>• Decide on contingency plan or plans to safeguard water supply</li> </ul>
<b>District Health Boards</b> <i>(Note that timings are from point of initial notification – not the event)</i>		<ul style="list-style-type: none"> <li>• Receive initial eruption notification</li> <li>• Activate EOC HEPS if appropriate</li> <li>• Availability of Medical Officer of Health powers in an emergency if required</li> </ul>	<ul style="list-style-type: none"> <li>• CPVAG member DHBs ready to activate EOCs as required</li> <li>• Provide liaison where required</li> <li>• Prepare Public Health (PH) messaging regarding water and respiratory issues</li> <li>• Consider any HEP/MCI requirements if appropriate</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor eruption notifications</li> <li>• Activate EOCs HEPs and MCI plans if required</li> <li>• Provide local PH messaging around water and respiratory issues, any public health risk assessment and advice</li> </ul>
<b>Ministry of Health</b>		<ul style="list-style-type: none"> <li>• Receive initial eruption notification</li> <li>• Issue Code White/Yellow to health sector as appropriate</li> <li>• Consider NHCC activation</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor eruption notifications</li> <li>• Issue Code White/Yellow to health sector as appropriate</li> <li>• Consider NHCC activation</li> <li>• Provide appropriate liaison at NCMC or appropriate</li> </ul>	<ul style="list-style-type: none"> <li>• Monitor eruption notifications</li> <li>• Provide NHCC support to DHBs</li> </ul>

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<b>Lifelines utilities</b>				
<b>New Zealand Transport Agency</b>	<ul style="list-style-type: none"> <li>• Receive eruption notification via Transport Operations Centre (TOC)</li> <li>• Feed into Traffic Road Event Information Systems (TREIS) @ NZTA in Wellington from GNS</li> <li>• TREIS disseminates information to highway maintenance contractors, network consultants, various media sources and key stakeholders.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement response procedures per the Emergency Procedures Manual, including:               <ul style="list-style-type: none"> <li>○ Road closures</li> <li>○ Ash clean-up preparations – disposal sites identified in discussion with Territorial Authority; ash removal and transport asset requirements confirmed</li> </ul> </li> <li>• NZTA contractors initiate ashfall response procedures (especially for own vehicles and plant)</li> <li>• Key stakeholders advised as required per Emergency Procedures Manual</li> </ul>	<ul style="list-style-type: none"> <li>• On-going monitoring and assessment of roads by Consultants, and operational decision-making on closures and clean-up requirements</li> <li>• On-going dissemination of advice to motorists/road users on machinery effects and driving conditions and advice, and advice to key stakeholders</li> <li>• On-going monitoring of event, and escalation per National Incident Procedures Guideline as required</li> </ul>	
<b>KiwiRail, RDC, TDC, Genesis Energy, The Lines Company, Transpower</b>	<ul style="list-style-type: none"> <li>• Receive eruption notification</li> <li>• Monitor event</li> <li>• Complete initial notifications of staff and contractors</li> <li>• Implement agency-specific response procedures as required. Generally no impact to utility = no response other than information and on-going monitoring</li> </ul>	<ul style="list-style-type: none"> <li>• On-going monitoring, implementation of response actions and reporting as required</li> </ul>	<ul style="list-style-type: none"> <li>• On-going monitoring, implementation of response actions and reporting as required</li> </ul>	

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<b>Ernslaw One/WPI</b>		<ul style="list-style-type: none"> <li>• Receive eruption notification:</li> <li>• Implement response procedures</li> </ul>		
<b>Science and research - Universities</b>				
<b>Massey University</b>		<ul style="list-style-type: none"> <li>• Sharing of real-time, automatically recorded and transmitted, remotely sensed data (Doppler radar, camera footage, stage heights, automatic flow monitors, broadband seismometers) giving event magnitude, velocity of mass flows and fluctuations with time.</li> <li>• Discussions on the above</li> <li>• Activate immediate response lahar teams” for sampling lahars at bridges with response times</li> </ul>	<ul style="list-style-type: none"> <li>• Immediate ash sampling team</li> </ul>	<ul style="list-style-type: none"> <li>• Ash isopach mapping and sampling for agricultural analysis – also useful for general public purposes</li> <li>• Install further volcanic research equipment</li> <li>• Assist with media liaison</li> </ul>
<b>University of Waikato</b>		<ul style="list-style-type: none"> <li>• Send personnel to Whakapapa to support visual observations of activity</li> </ul>	<ul style="list-style-type: none"> <li>• Supporting scientific observational efforts</li> </ul>	<ul style="list-style-type: none"> <li>• Assist with sample collection and media liaison</li> </ul>