Emergency Management

Activity Management Plan 2021-31

August 2021

Ashburton
DISTRICT COUNCIL

www.ashburtondc.govt.nz

Document control

Revision	Name	Author	Reviewed by	Date
1	Emergency Management Activity Management Plan 2018-28	James Lamb		
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Contents

1. Introduction

The Ashburton District Council is a member of the Canterbury Civil Defence Emergency Management (CDEM) Group established under the Civil Defence Emergency Management Act 2002 (CDEM Act). CDEM Group members work together to manage Canterbury's hazards so that its communities face acceptable levels of risk. Arrangements for managing emergencies in a coordinated, multi-agency manner are specified in the Canterbury CDEM group plan. The Ashburton District Council has in place unique local operational arrangements for the Ashburton District and the communities within it.

2. Key issues for Emergency Management future planning

Climate change

The acknowledged effects from climate change as far as this district is concerned are expected to be increased dryness on the plains, increased coastal erosion and greater frequency of extreme weather events. These events will impact on the community involving interruption to infrastructure and the Council's ability to respond effectively at times.

Incident Management Team (IMT) recruitment and training

The Council is required to have staff appointed and trained to man an Emergency Operations Centre (EOC) 24/7 in times of an emergency or a declared event. Currently the ADC Incident Management Team (IMT) may be unable to provide sufficient coverage due to a number of the team living outside of Ashburton township. This places a reliance on the Canterbury CDEM Group and other stakeholders to "fill the gap" if and when required. This shortfall could be filled through a formalised project called Canterbury 10 (a Canterbury- wide joint Emergency Support Team). The concept of Canterbury 10 is to create a 24/7 on-call capability of a pool of well-trained and experienced EOC staff from Territorial Authorities across the region. Its purpose is to supplement (not replace) an activated EOC that requires more staff to help coordinate its emergency response.

The ADC EMO will continue to actively seek to recruit and train new IMT members to meet its obligations under the Canterbury CDEM Group Plan. If the event is so large that neither the local IMT nor Canterbury 10 can provide adequate EOC cover then normal procedures for seeking external support from elsewhere in New Zealand will be implemented.

Ministerial review – Better responses to natural disasters and other emergencies in New Zealand

The Government completed a Ministerial review into better responses to natural disasters and other emergencies in August 2018. The review's Technical Advisory Group (TAG) found that although New Zealand's emergency management system is fundamentally sound, several issues need to be addressed (5 year plan in progress).

The TAG report contained 42 recommendations to improve the system, including establishing a National Emergency Management Agency to replace MCDEM.

3. Activity description for Emergency Management

3.1. What we do

The provision of local arrangements to plan for and co-ordinate a response to emergency events plays an important role in protecting the lives and livelihoods of the residents of this community.

The Ashburton District Council has a responsibility to undertake civil defence and emergency management activities for the district.

Ashburton District's emergency/incident management team functions within the broader Civil Defence Emergency Management Group.

Council meets its emergency management obligations through its Ashburton District Emergency Management Plans, which are consistent with national and group civil defence emergency management plans.

Key elements of Council's emergency management planning role include:

- Identification of a Local Controller and Alternate Controller and those authorised to declare a local state of civil defence emergency
- Maintenance of an operational structure for the management of a local civil defence emergency, including training of key staff and maintenance of equipment
- Maintaining a schedule of additional volunteers to provide support as required
- Maintaining links with other service providers such as the Fire, Police, Ambulance, Health Sector, Electricity Ashburton and other support agencies.
- Provision of public information and publicity on how to prepare for and respond to emergencies

The Emergency Management Team is prepared to respond, in a management or support role, to a range of natural disasters and civil emergencies that threaten loss of life and property. The types of events include, but are not limited to:

- Natural events: flooding, snow, fire, earthquake, tsunami
- Essential service breakdown, e.g. potable water, waste water
- Technology failures, e.g. power
- Pandemic
- Other major hazards such as bus accidents, train derailment, major hazardous chemical spills.

The Council team works in conjunction with other emergency management service providers. The nature of the emergency will determine who takes the lead in terms of management of the event, as determined by legislation (for example a fire emergency will be led by Fire and Emergency New Zealand). There will invariably be some degree of cross over with determination of the lead agency decided by consultation between the groups at the outset.

When managing an event Council operates a Co-ordinated Incident Management System (CIMS). Beyond the setup of the Emergency Operations Centre, the key elements of the response structure within the district as a whole are the operation of Civil Defence Centres (CDC's) in Ashburton itself

and in various rural areas. CDC's are also established to either provide information or take care of affected people who have been removed from an emergency situation and require additional care and support. CDC's are made up by input from various social service agencies and volunteers.

3.2. Why we do it

To support our communities ability to respond to and recover from emergency events.

In broad terms this is done through the 4R's principles being;

Reduction

Using a mix of statutory and non-statutory mechanisms including legislation, policy, plans that provide for the integrated management of hazards and their effects. Other key actions will be in conjunction with Canterbury CDEM with regard to hazard research and maintaining an up-to-date risk assessment and a strategy for communicating risk to communities and partner agencies.

Readiness

In line with the Canterbury CDEM group the Council recognises two aspects to readiness;

- Engaging communities to increase their understanding of hazards and their consequences
- Developing community response planning through local community response plans

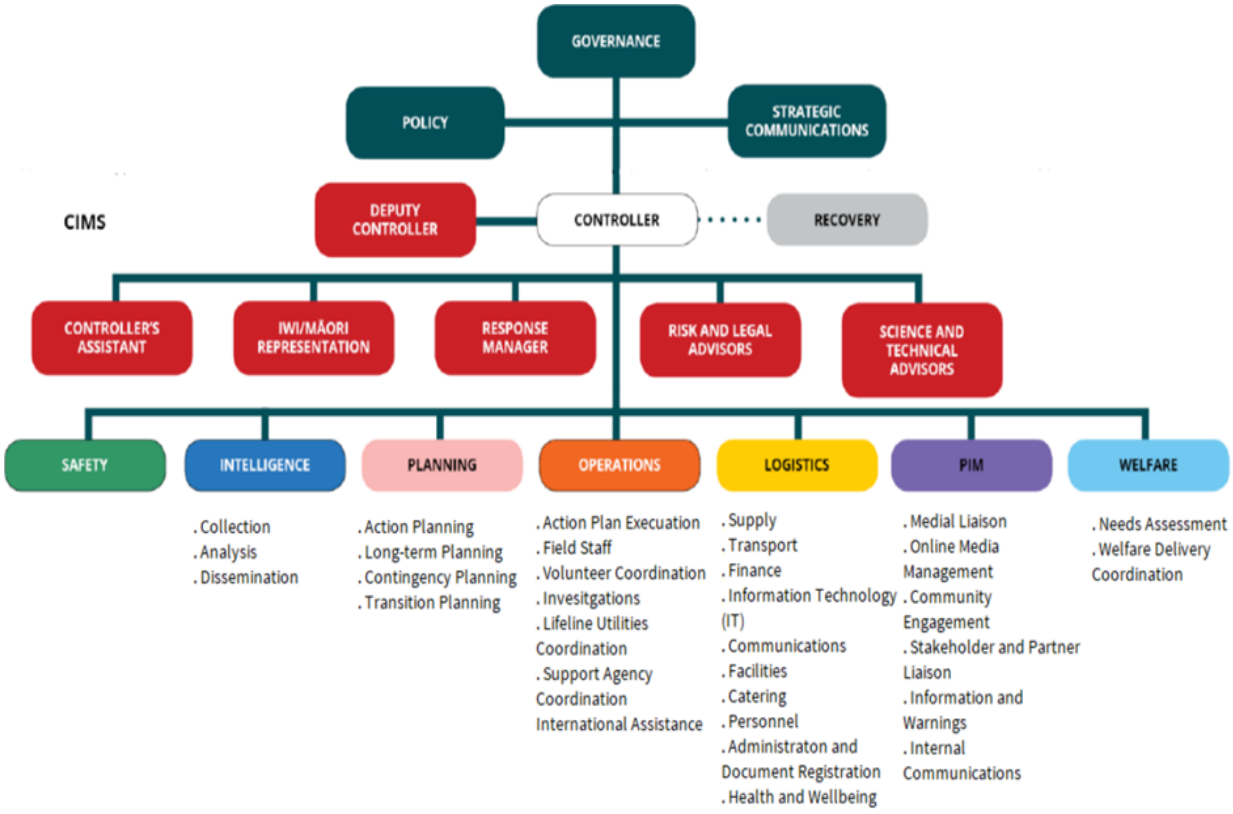
Response

Enhancing the ability of organisations to prepare for and manage civil defence emergencies is a priority for the Council. At a local level it includes the provision of an Emergency Operations Centre (EOC) to coordinate and manage emergencies, provide a trained incident management team (IMT) under the control of a local controller to run support structures under the coordinated incident management system (CIMS) i.e. Intelligence, Planning, Operations, Logistics, Public Information and Welfare and man the EOC 24/7 with support from the Canterbury CDEM group.

Recovery

The Council considers the recovery of the community to be as important as the response phase. To achieve this the Council has an appointed recovery manager to lead a recovery team to support the community. Recovery is a complex social process and it is recognised that it is a process that will last for weeks, months or even years, as is the case in the recent Canterbury earthquakes.

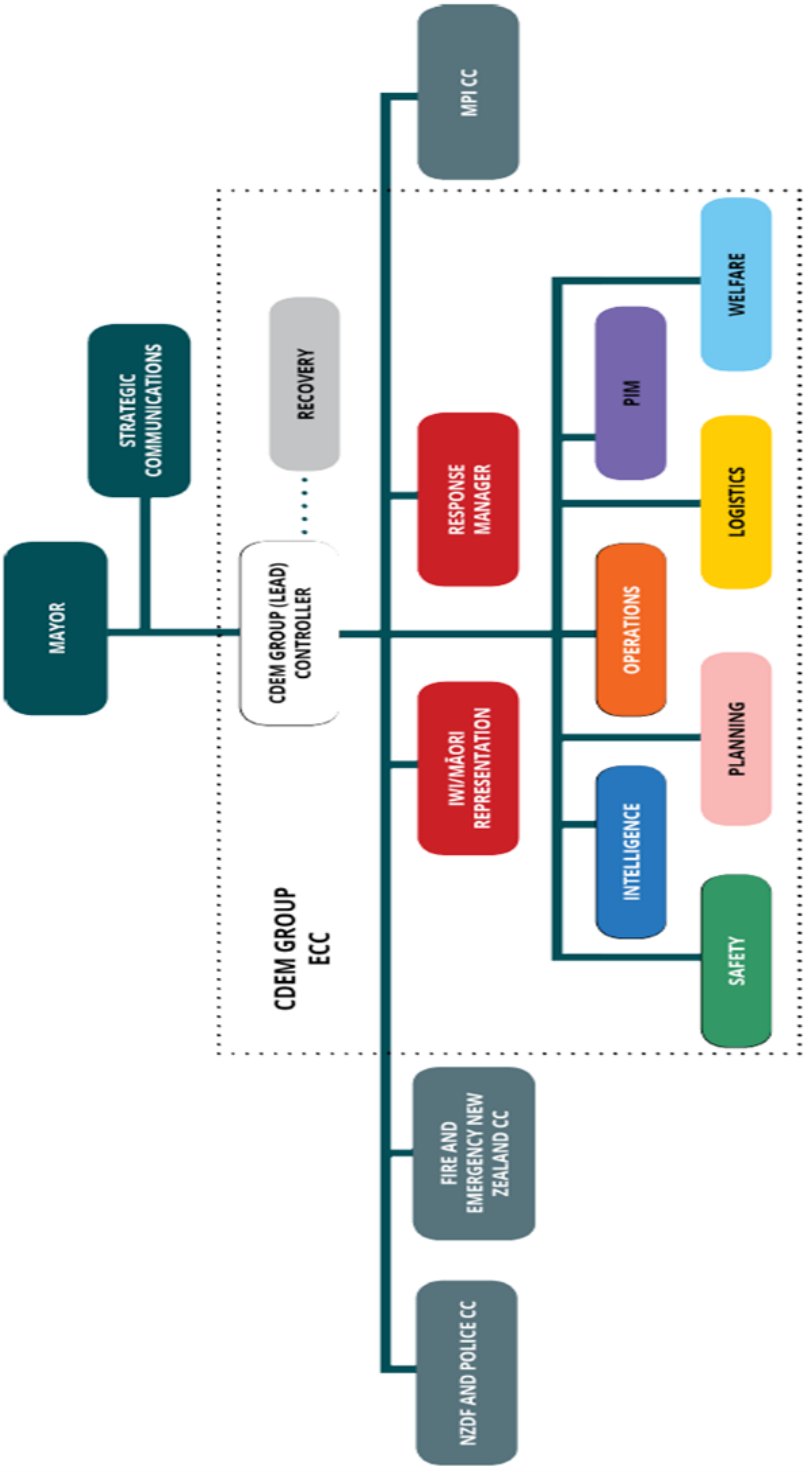
3.3. How we do it



(Source Coordinated Incident Management System (CIMS) Edition 3)

The above diagram illustrates an EOC set-up with full CIMS. CIMS is a scalable system that allows for some functions to be combined (i.e. planning & intelligence) for smaller more localised events. This is an example of a single agency coordination.

EOC SET-UP UNDER CO-ORDINTED INCIDENT MANAGEMENT SYSTEM (CIMS)
Multi-Agency



The above diagram illustrates a multi-agency emergency led by the CDEM Group for a state of local emergency at district level. At this level Canterbury CDEM group support and co-ordinate the event with assistance from other emergency services, NZ Defence force or government agencies.

4. Goals for ADC Emergency Management

To support the community's ability to respond to and recover from emergency events.

Our principles

These are the guiding principles for how we will function and deliver activities and services to the community.

- Plan and provide fit for purpose services.
- Work with the community and engage in meaningful conversations.
- Lead the community with clear and rational decision-making.
- Represent the district on regional / national issues and partner with others when needed.

Our contribution to community outcomes

	Residents are included and have a voice	A district of great spaces and places	A prosperous economy based on innovation and opportunity	A balanced and sustainable environment
Emergency Management		✓	✓	✓

5. Levels of service and performance measures for Emergency Management

5.1. What are we trying to achieve

- We support emergency preparedness through community-based emergency management
- The majority of residents are satisfied with the standard of our civil defence services

5.2. How will we know if we are achieving it

What we're aiming for: To support the community's ability to respond to and recover from emergency events

WHAT WE'RE WORKING TOWARDS (Levels of service)	HOW WE'LL MEASURE PROGRESS (Performance measures)	HOW WE'RE PERFORMING NOW (2019/20 results)	WHAT WE'RE AIMING FOR 2021/22	2022/23	2023/24	2024/25 – 2030/31
We support emergency preparedness through community-based emergency management	A community response plan is developed or renewed annually	1	1	1	1	1
The majority of residents are satisfied with the standard of our civil defence services	Residents are satisfied with the civil defence services provided by Council	96%	95%	95%	95%	95%

6. Changes happening in Emergency Management

National Emergency Management Agency

On 1 December 2019, the National Emergency Management Agency (NEMA) was established, replacing the Ministry of Civil Defence & Emergency Management (MCDEM). NEMA is an autonomous departmental agency, hosted by the Department of the Prime Minister and Cabinet.

The decision to establish the National Emergency Management Agency is part of the Government's response to a Ministerial review into better responses to natural disasters and other emergencies, commissioned after the November 2016 earthquake and tsunami and the 2017 Port Hills fire.

7. Key projects for Emergency Management

Seismic resilience Important Level 4 building (IL4)

The Council is currently embarking on a project to build a new combined Administration &Library building. As part of the development an adjoining IL4 building will be constructed which will have special post-disaster functions and will be the Council's designated Emergency Operations Centre (EOC). This office area will be self-supporting with emergency power, potable water, fibre optic connectivity, backup radio communication systems and a Broadband Global Area Network (BGAN) satellite internet and phone system.

D4H Incident Management program

The Council has recently purchased a licence for D4H Incident Management System for the EOC. This is a cloud based solution that enables real-time coordination for effective response to any emergency situation. The D4H system was already in use by ECAN, Waimakariri District Council, Selwyn District Council and Christchurch City Council. D4H will provide the following benefits & features for CDEM response in Ashburton and across Canterbury:

- Common operating picture for local and regional responses
- Real-time status updating
- Ability to integrate D4H mapping with ADC Esri ArcGIS to provide enhanced data information for incident planning
- Ability to work remotely, thus creating a virtual EOC when required
- Highly collaborative, allowing partner agencies (i.e. Police, FENZ) to quickly have access to incident logs

Canterbury CDEM Group have agreed to purchase a group licence for all Canterbury TA's. This will allow great inter-operability for IMT members deployed for emergency responses within Canterbury.

8. Management of activity for ADC Emergency Management

8.1. Programmed actions years 1 - 3

- Business as usual

- Identify Council staff for Canterbury 10 training to meet ADC commitments to this response group
- IL4 construction and commissioning
- ADC Repeater Upgrade EN 198 on Mount Hutt (see section 13 of this document)
- D4H Incident management rollout and regional development of plan templates
- Ministerial Review of Civil Defence; implementing of recommendations
- Recruitment and training of Civil Defence volunteers to support district CDC's

8.2. Future directions for years 4 – 10

- Professionalising of Local Controllers with NEMA development of mandatory national standards in technical and personal competency
- Possible development of shared emergency management services across the Canterbury region as part of the Ministerial review of Civil Defence
- Increasing community and business awareness of the risks from hazards and their consequences in order to create greater community resilience

9. Costs for Emergency Management

For Regulatory Services

	Annual Plan 2020/21 $000	Year 1 2021/22 $000	Year 2 2022/23 $000	Year 3 2023/24 $000	Year 4 2024/25 $000	Year 5 2025/26 $000	Year 6 2026/27 $000	Year 7 2027/28 $000	Year 8 2028/29 $000	Year 9 2029/30 $000	Year 10 2030/31 $000
Operating Funding											
Sources of operating funding											
General rate, UAGC*, rates penalties	1,722	1,377	1,734	1,975	1,997	2,082	2,158	2,255	2,141	2,321	2,367
Targeted rates	0	0	0	0	0	0	0	0	0	0	0
Subsidies and grants for operating purposes	0	0	0	0	0	0	0	0	0	0	0
Fees and charges	2,971	2,987	3,081	3,137	3,223	3,313	3,412	3,471	3,583	3,625	3,733
Internal charges and overheads recovered	121	96	99	101	104	106	109	112	115	118	121
Local authorities fuel tax, fines, infringement fees and other receipts	446	361	362	372	383	394	405	417	429	442	455
Total sources of operating funding	5,260	4,821	5,275	5,586	5,706	5,895	6,084	6,255	6,268	6,506	6,676
Applications of operating funding											
Payments to staff and suppliers	3,394	3,328	3,490	3,557	3,598	3,707	3,761	3,883	3,948	4,085	4,168
Finance costs	33	22	19	16	13	10	9	6	5	4	4
Internal charges and overheads	1,645	1,643	1,818	1,888	1,943	2,028	2,152	2,203	2,278	2,379	2,466
Other operating funding applications	2	2	2	2	2	2	2	3	3	3	3
Total applications of operating funding	5,075	4,995	5,328	5,463	5,556	5,746	5,924	6,094	6,234	6,471	6,641
Surplus/(deficit) of operating funding	185	(174)	(53)	123	150	149	160	161	34	35	35

	Annual Plan 2020/21 $000	Year 1 2021/22 $000	Year 2 2022/23 $000	Year 3 2023/24 $000	Year 4 2024/25 $000	Year 5 2025/26 $000	Year 6 2026/27 $000	Year 7 2027/28 $000	Year 8 2028/29 $000	Year 9 2029/30 $000	Year 10 2030/31 $000
Capital Funding											
Sources of capital funding											
Subsidies and grants for capital expenditure	0	0	0	0	0	0	0	0	0	0	0
Development and financial contributions	0	0	0	0	0	0	0	0	0	0	0
Increase/(decrease) in debt	(137)	(137)	(137)	(137)	(137)	(34)	(141)	(141)	(13)	(13)	97
Gross proceeds from sale of assets	0	0	0	0	0	0	0	0	0	0	0
Lump sum contributions	0	0	0	0	0	0	0	0	0	0	0
Other dedicated capital funding	0	0	0	0	0	0	0	0	0	0	0
Total sources of capital funding	(137)	(137)	(137)	(137)	(137)	(34)	(141)	(141)	(13)	(13)	97
Application of capital funding											
Capital expenditure											
- to meet additional demand	0	0	0	0	0	0	0	0	0	0	0
- to improve the level of service	0	0	0	0	0	103	0	0	0	0	118
- to replace existing assets	0	0	0	0	0	0	0	0	0	0	0
Increase/(decrease) in reserves	48	(311)	(190)	(14)	13	12	18	20	21	22	15
Increase/(decrease) in investments	0	0	0	0	0	0	0	0	0	0	0
Total applications of capital funding	48	(311)	(190)	(14)	13	115	18	20	21	22	133
Surplus/(deficit) of capital funding	(185)	174	53	(123)	(150)	(149)	(160)	(161)	(34)	(35)	(35)
Funding Balance	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Expenditure by activity

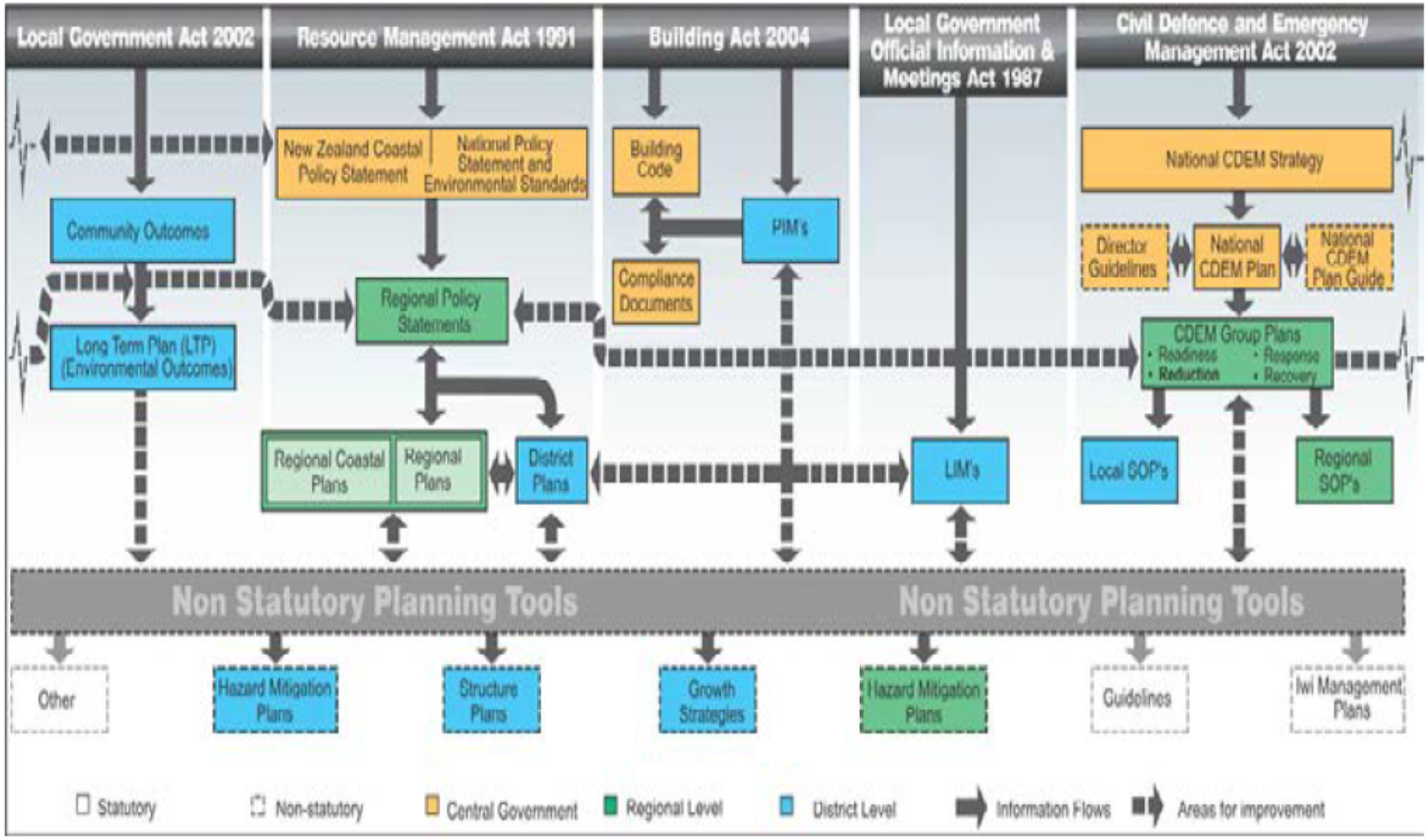
	Annual Plan 2020/21 $000	Year 1 2021/22 $000	Year 2 2022/23 $000	Year 3 2023/24 $000	Year 4 2024/25 $000	Year 5 2025/26 $000	Year 6 2026/27 $000	Year 7 2027/28 $000	Year 8 2028/29 $000	Year 9 2029/30 $000	Year 10 2030/31 $000
Emergency management	203	126	214	193	197	201	205	211	217	223	228
Environmental health	505	537	573	590	602	620	647	660	677	701	720
Building regulation	2,240	2,092	2,202	2,275	2,303	2,400	2,459	2,549	2,591	2,706	2,759
Alcohol licensing	191	199	210	217	222	229	237	243	250	258	266
Land information	118	99	102	105	108	111	113	116	120	123	126
Parking	329	291	288	287	291	299	321	330	339	350	361
Animal control	460	508	537	551	563	580	600	614	632	652	671
District planning	1,091	1,190	1,246	1,280	1,302	1,338	1,383	1,414	1,452	1,503	1,554
Total operating expenditure	5,138	5,041	5,372	5,498	5,588	5,778	5,966	6,137	6,277	6,515	6,685
less depreciation	64	46	44	35	32	31	41	43	44	44	44
Total applications of operating funding	5,075	4,995	5,328	5,463	5,556	5,746	5,924	6,094	6,234	6,471	6,641

10. Key legislation / industry standards and relationship with other planning / policy documents for ADC Emergency Management

- Civil Defence and Emergency Management Act 2002
- Civil Defence Emergency Management Regulations 2003
- Fire and Emergency Act 2017
- Local Government Act 2002
- Resource Management Act 1991
- Biosecurity Act 1993
- Hazardous Substances and New Organisms Act 1996
- Health Act 1956
- New Zealand Public Health and Disability Act 2000
- Maritime Transport Act 1994
- Soil Conservation and Rivers Control Act 1941
- Building Act 2004
- Local Government Official Information & Meetings Act 1987
- Health and Safety at Work Act 2015
- National Civil Defence Emergency Management Plan 2015
- National Civil Defence Emergency Management Strategy 2008
- New Zealand Influenza Pandemic Plan 2017
- Canterbury Civil Defence Emergency Management Group Plan 2014
- Canterbury Civil Defence Emergency Management Group Welfare Plan 2016
- Ashburton District Council Long Term Plan 2015-2025
- Ashburton District Council CDEM Organisation & Standard Operating Procedures
- Ashburton District Council CDEM Emergency Management Plan
- Ashburton District Council Tsunami Local Response Plan 2017
- Methven Community CDEM Emergency Response Plan 2017-2018
- Rakaia Community CDEM Emergency Response Plan 2017-2018
- Mt Somers Community CDEM Emergency Response Plan 2018-2019
- Hakatere Community CDEM Emergency Response Plan 2019-2020

LEGISLATIVE ROLES AND RESPONSIBILITIES FOR HAZARD MANAGEMENT IN NEW ZEALAND

Source: WSA Saunders, JG Beban and M Kilvington Risk-based land use planning for natural hazard risk reduction (GNS Science Miscellaneous Series 67, September 2013)



11. Risk management for ADC communities

The Ashburton District ranks 33rd in size out of the 67 districts in New Zealand, and has a population of 33,200 people (October 2015) making this one of the fastest growing rural districts in New Zealand.

The Ashburton District is a geographically diverse area, comprising of,

The Southern Alps

Rolling foothills

The alluvial fans of the Canterbury plains

Accessing risk is often subjective, but involves two main factors, the **likelihood** of the hazard itself and the effect or **consequence** the hazard has to impact on people/communities, and to what degree.

As a result of the Canterbury earthquakes in 2010/11 there is a changing perception of risk by communities. The experience of these earthquakes have increased peoples' awareness of how serious hazard events can be.

The whole Canterbury region sits across the boundary of the Pacific and Australian plates. A series of major fault lines lie below Canterbury and as a result all of Canterbury can be affected by large earthquakes.

It should be noted that experts believe that the Canterbury region is likely to experience a magnitude 6.0-7.0 earthquake about every 50 years, and there is a 10% chance of a magnitude 7.0-8.0 earthquake in the next 50 years on a smaller fault line.

The major alpine fault line runs down the length of the South Island under the Southern Alps. Experts believe there is a 30-65% chance of a magnitude 8.0 earthquake within the next 50 years.

The detailed risk profile of the Ashburton District is located in Appendix A (reproduced from the Canterbury CDEM group plan).

11.1. Common local hazard events

Local hazard definition

A hazard is defined as an event, either natural or man-made which may occur within the district and which is capable of causing loss of life, casualties or widespread distress to the public or place public safety at risk. There are many possible causes which could threaten the district.

Earthquake

Any major seismic activity along the Alpine Fault would create difficulties over the whole district with probable loss of power, telephone, and disruption to public utilities in the built up areas of Ashburton, Methven and Rakaia, and also in the smaller communities of Mt Somers, Mayfield, Hinds, Fairton and Chertsey.

If a major earthquake was to strike the district, access to the Ashburton and Rakaia Gorges could be restricted due to road damage.

Flooding

The major flood threat in the District is to Ashburton Township and would result from a stop bank breach on the North Branch of the Ashburton River in the area adjacent to Digby's Bridge. Recent studies conducted by Environment Canterbury indicate this could happen during a 200-year flood event in that river. Other flooding of Tinwald and Hampstead could result from stop bank overtopping or breaching on the main branch of the river adjacent to the town.

Surface flooding in various parts of Ashburton has occurred recently as a result of localised high intensity rainfall. The township of Hinds and farmland adjacent to the Hinds River have been subject to surface flooding in recent times due to overtopping of stop banks in what has been estimated at a 1 in 20 year event in the Hinds River.

The reach in the North Branch of the Ashburton River between Shearers Crossing and Thompsons Track Bridge has experienced a continuing build-up of shingle to a level where the river bed, in places, is higher than the adjacent farm land. This section of the river poses a very high flood risk to those properties downstream.

The South Rakaia Huts are in a high flood risk area and may be made uninhabitable through natural changes in the river flow paths.

Pandemic

Pandemics by their nature are unpredictable in terms of timing, severity and the population groups that are most affected. Impacts from these outbreaks can lead to deaths, serious illness and significant disruption to communities both socially and economically.

Tsunami

Tsunamis arrive at the New Zealand coastline at irregular intervals and are generated by submarine seismic activity occurring in waters close to New Zealand or in remote parts of the Pacific Ocean. As a tsunami enters the shoaling water of coastlines in its path, the velocity of its waves diminish and wave height increases. It is in shallow waters that tsunamis become a threat to life and property, and wave heights of up to 4 metres could be expected to strike the Mid Canterbury coastline.

Devastating tsunamis have occurred in various parts of the Pacific Ocean with wave heights in excess of 35 metres.

Tsunamis are a threat along the coastline of Ashburton district, and in particular to the river mouth settlement areas.

Wind storm

Very high winds are experienced over the region from time to time. While the normal emergency services can usually deal with these occurrences, experience has shown that assistance from Civil Defence may be required.

Deployment of selected Civil Defence resources in a 'non declaration' but supportive role has been necessary on one occasion in the last 10 years.

Fire

The area is subject to a very high fire risk during the dry summer season and fire control measures during this period are the norm. A fire started by natural or accidental causes during a strong Norwest wind could be very difficult to control and Civil Defence resources may be required to assist Fire and Emergency New Zealand.

Snow

Most of the district is subject to severe snow storms from time to time. They may cause disruption to telephones, power supply, road and rail traffic and the isolation of townships for several days.

Deployment of selected Civil Defence resources in a 'non declaration' but supportive role has been necessary on three occasions in the last 10 years.

Technological emergencies

The possibility of air crash, rail crash, hazardous chemical spillage, LPG incidents, water supply contamination or a combination exists.

Hazardous substances such as fossil fuels, bulk LPG, bulk resins, dairy products and dangerous goods are transported through the district by rail and road. Accidents with these substances have occurred over the years.

12. *Key stakeholders for ADC Emergency Management*

The CDEM Act, requires the Canterbury CDEM group to have responsibility for all CDEM functions and activities in the group's region, this relies on key relationships and collaboration, namely,

- Elected representatives of local authorities being, Kaikoura District Council, Hurunui District Council, Waimakariri District Council, Christchurch City Council, Environment Canterbury, Selwyn District Council, Ashburton District Council, Timaru District Council, Mackenzie District Council and Waimate District Council.
- Partner Agencies being, Iwi, New Zealand Police, Fire and Emergency New Zealand, St. John Ambulance, Canterbury District Health Board, Canterbury District Health Board, Ministry of Primary Industries, Ministry of Social Development, Work and Income (WINZ), Ministry for Vulnerable Children-Oranga Tamariki and Canterbury Chamber of Commerce.
- Community Agencies being, Rural Women NZ, Rural Support Trust, Safer Ashburton, Ministers Association, Women's Institute, Salvation Army, Red Cross, Ashburton Neighbourhood Support, Ashburton Community & Drug Service (ACADS), Presbyterian Support, Federated Farmers, Newcomers Network and the SPCA.
- Ashburton District Council Incident Management Group
- Communities within the Ashburton District.

13. Improvement Programme for ADC Emergency Management

13.1. Emergency generators for Civil Defence Centres (CDC's)

Civil Defence is responsible for delivery welfare services to individuals, families/whanau, and communities affected by an emergency. This may include the provision of emergency shelter in a CDC for a few hours to a few days. Specified CDC's in the Emergency Welfare plan, such as the EA Networks complex, should have the capacity to support people during the loss of mains electrical power. As part of the Welfare planning the following actions will be done;

- Identification of locations that could be used as CDC's for 'shelter' during an emergency event and would require an emergency power generator.
- Inspection and acceptance of the location by Building inspectors and Environmental Health Officers as a CDC.
- Electrical inspection of the identified buildings to establish the correct size generator, plus costings for installation.
- Application for funding of the generators, including on-going maintenance.

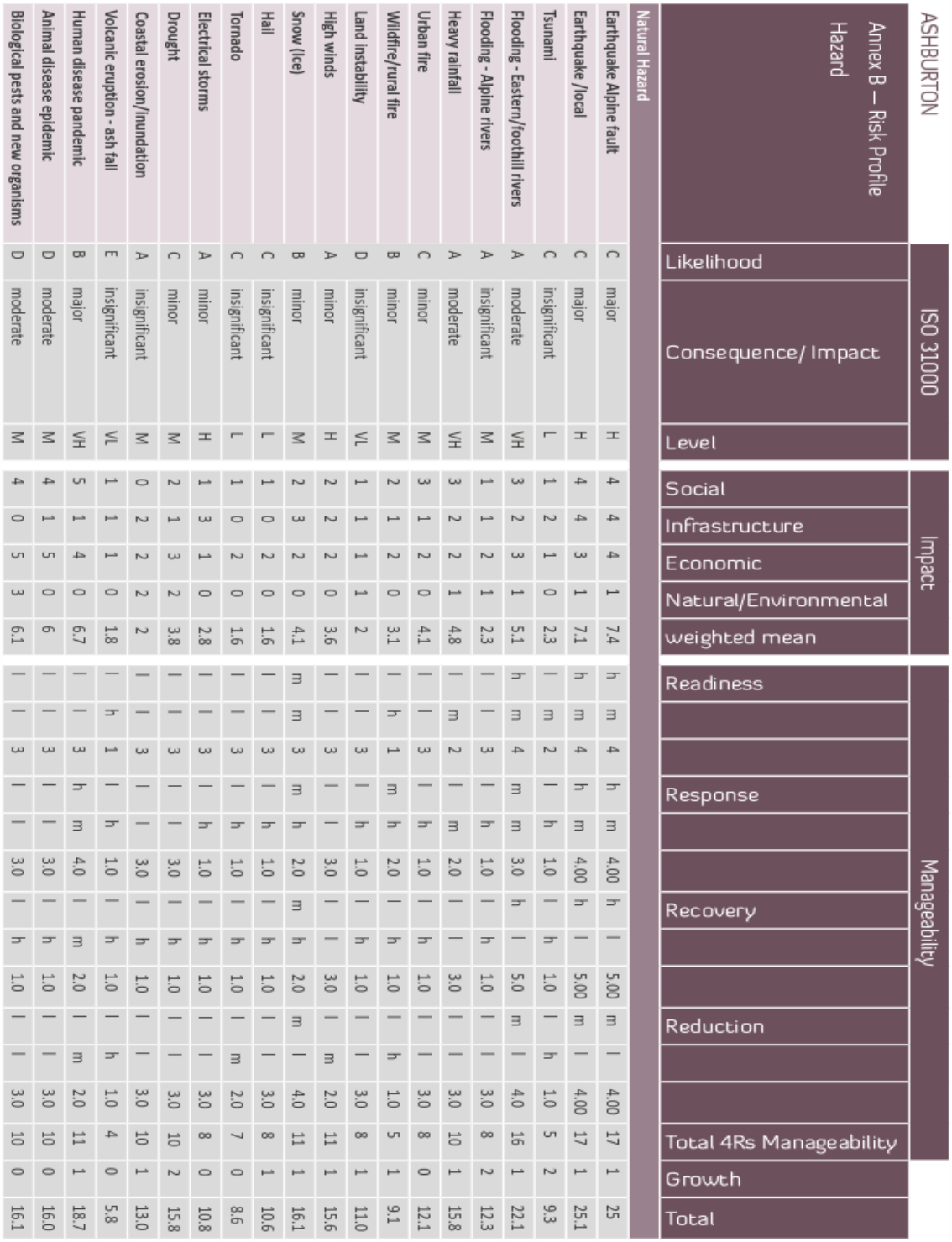
13.2. Emergency water supply plan

It is recognised that significant destruction or impairment of the Ashburton water infrastructure network by a powerful earthquake will require alternate supplies of potable water until the reticulated infrastructure can be restored. Council staff from Assets and Emergency Management are working with Council contractors to develop an Emergency Water Supply plan. This plan will detail the sourcing, treatment, storage and distribution of the potable water supply. In developing the plan the following steps will need to be completed;

- Sourcing of emergency water bladders of differing sizes to hold the potable water.
- Design and build of water manifolds to connect to the water bladders.
- Identification of suitable locations for the bladders to be placed during an emergency event.
- MOU developed with diary companies to use milk tankers to supplement existing potable water tankers in the district.

14. Appendices

14.1. Appendix A – Ashburton District risk profile



ASHBURTON	ISO 31000					Impact					Manageability														
Annex B – Risk Profile Hazard	Likelihood	Consequence/ Impact	Level			Social	Infrastructure	Economic	Natural/Environmental	weighted mean	Readiness			Response			Recovery			Reduction			Total 4Rs Manageability	Growth	Total
Natural Hazard																									
Earthquake Alpine fault	C	major	H	4	4	4	1	7.4	h	m	4	h	m	4.00	h	l	5.00	m	l	4.00	17	1	25
Earthquake /local	C	major	H	4	4	3	1	7.1	h	m	4	h	m	4.00	h	l	5.00	m	l	4.00	17	1	25.1
Tsunami	C	insignificant	L	1	2	1	0	2.3	l	m	2	l	h	1.0	l	h	1.0	l	h	1.0	5	2	9.3
Flooding - Eastern/foothill rivers	A	moderate	VH	3	2	3	1	5.1	h	m	4	m	m	3.0	h	l	5.0	m	l	4.0	16	1	22.1
Flooding - Alpine rivers	A	insignificant	M	1	1	2	1	2.3	l	l	3	l	h	1.0	l	h	1.0	l	l	3.0	8	2	12.3
Heavy rainfall	A	moderate	VH	3	2	2	1	4.8	l	m	2	l	m	2.0	l	l	3.0	l	l	3.0	10	1	15.8
Urban fire	C	minor	M	3	1	2	0	4.1	l	l	3	l	h	1.0	l	h	1.0	l	l	3.0	8	0	12.1
Wildfire/rural fire	B	minor	M	2	1	2	0	3.1	l	h	1	m	h	2.0	l	h	1.0	l	h	1.0	5	1	9.1
Land instability	D	insignificant	VL	1	1	1	1	2	l	l	3	l	h	1.0	l	h	1.0	l	l	3.0	8	1	11.0
High winds	A	minor	H	2	2	2	0	3.6	l	l	3	l	l	3.0	l	l	3.0	l	m	2.0	11	1	15.6
Snow (Ice)	B	minor	M	2	3	2	0	4.1	m	m	3	m	h	2.0	m	h	2.0	m	l	4.0	11	1	16.1
Hail	C	insignificant	L	1	0	2	0	1.6	l	l	3	l	h	1.0	l	h	1.0	l	l	3.0	8	1	10.6
Tornado	C	insignificant	L	1	0	2	0	1.6	l	l	3	l	h	1.0	l	h	1.0	l	m	2.0	7	0	8.6
Electrical storms	A	minor	H	1	3	1	0	2.8	l	l	3	l	h	1.0	l	h	1.0	l	l	3.0	8	0	10.8
Drought	C	minor	M	2	1	3	2	3.8	l	l	3	l	h	3.0	l	h	1.0	l	l	3.0	10	2	15.8
Coastal erosion/inundation	A	insignificant	M	0	2	2	2	2	l	l	3	l	h	3.0	l	h	1.0	l	l	3.0	10	1	13.0
Volcanic eruption - ash fall	E	insignificant	VL	1	1	1	0	1.8	l	h	1	l	h	1.0	l	h	1.0	l	h	1.0	4	0	5.8
Human disease pandemic	B	major	VH	5	1	4	0	6.7	l	l	3	h	m	4.0	l	m	2.0	l	m	2.0	11	1	18.7
Animal disease epidemic	D	moderate	M	4	1	5	0	6	l	l	3	l	l	3.0	l	h	1.0	l	l	3.0	10	0	16.0
Biological pests and new organisms	D	moderate	M	4	0	5	3	6.1	l	l	3	l	l	3.0	l	h	1.0	l	l	3.0	10	0	16.1

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ASHBURTON

Annex B – Risk Profile Hazard	ISO 31000			Impact						Manageability											
Technical Hazard	Likelihood	Consequence/ Impact	Level	Social	Infrastructure	Economic	Natural/Environmental	weighted mean		Readiness			Response			Recovery			Reduction			Total 4Rs Manageability	Growth	Total
Hazardous Substances	C	minor	M	2	1	1	1	3		l	l	3	l	h	1.0	l	h	1.0	l	m	2.0	7	1	13.7
Air Accident	E	minor	VL	3	1	1	0	3.8		l	l	3	l	h	1.0	l	h	1.0	l	m	2.0	7	1	11.8
Rail Accident	C	minor	M	2	2	2	0	3.6		l	l	3	l	h	1.0	l	h	1.0	l	m	2.0	7	1	11.6
Major Road Accident	B	minor	M	3	1	1	0	3.8		l	l	3	l	h	1.0	l	h	1.0	l	m	2.0	7	1	11.8
Dam failure	E	major	M	4	4	4	3	7.8		l	l	3	m	l	4.0	l	l	3.0	l	l	3.0	13	1	21.8
Port Incident	-	-	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marine Accident (at sea)	C	moderate	M	3	1	3	3	5		l	l	3	l	l	3.0	l	h	1.0	l	l	3.0	10	-	15.0
Water Supply Failure/Rural	C	insignificant	L	1	1	2	0	2.1		l	l	3	l	l	3.0	l	m	2.0	l	m	2.0	10	-	12.1
Water Supply Failure/urban	C	minor	M	2	1	2	0	3.1		m	l	4	m	l	4.0	m	l	4.0	l	m	2.0	14	-	17.1
Waste Water Failure	D	minor	L	2	1	2	3	3.7		m	l	4	m	l	4.0	m	l	4.0	l	m	2.0	14	-	17.7
Disruption of Fuel Supply	D	moderate	M	3	2	4	0	5.2		l	l	3	m	m	3.0	l	l	3.0	l	l	3.0	12	-	17.2
Electricity Failure	B	major	VH	4	5	4	0	7.7		l	l	3	m	h	2.0	l	m	2.0	l	l	3.0	10	-	17.7
Telecommunications failure	D	moderate	M	3	3	2	0	5.1		l	l	3	m	h	2.0	l	m	2.0	l	l	3.0	10	-	15.1
Extreme Temperature (hot/cold)	D	minor	L	2	2	2	0	3.6		l	l	3	l	m	2.0	l	h	1.0	l	l	3.0	9	-	12.6
Computer/Information System Failure	D	minor	L	2	1	2	1	3.3		m	h	2	h	h	3.0	l	m	2.0	h	h	3.0	10	1	4.3
Civil Unrest/ Terrorism	E	insignificant	VL	1	1	1	0	1.8		l	l	3	l	m	2.0	l	m	2.0	l	l	3.0	10	-	11.8
Space Debris	E	insignificant	VL	1	1	1	2	-		l	l	3	l	l	3.0	l	h	1.0	l	l	3.0	10	-	12.0
Meteorite	E	insignificant	VL	1	1	1	1	2		l	l	3	l	l	3.0	l	h	1.0	l	l	3.0	10	-	12.0

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