

# AUCKLAND LIFELINES GROUP PROJECT IMPLEMENTATION

*A Checklist for Lifeline Utilities on Actions Arising from ALG Projects.*

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# 1. INTRODUCTION

## 1.1 Aim of this Report

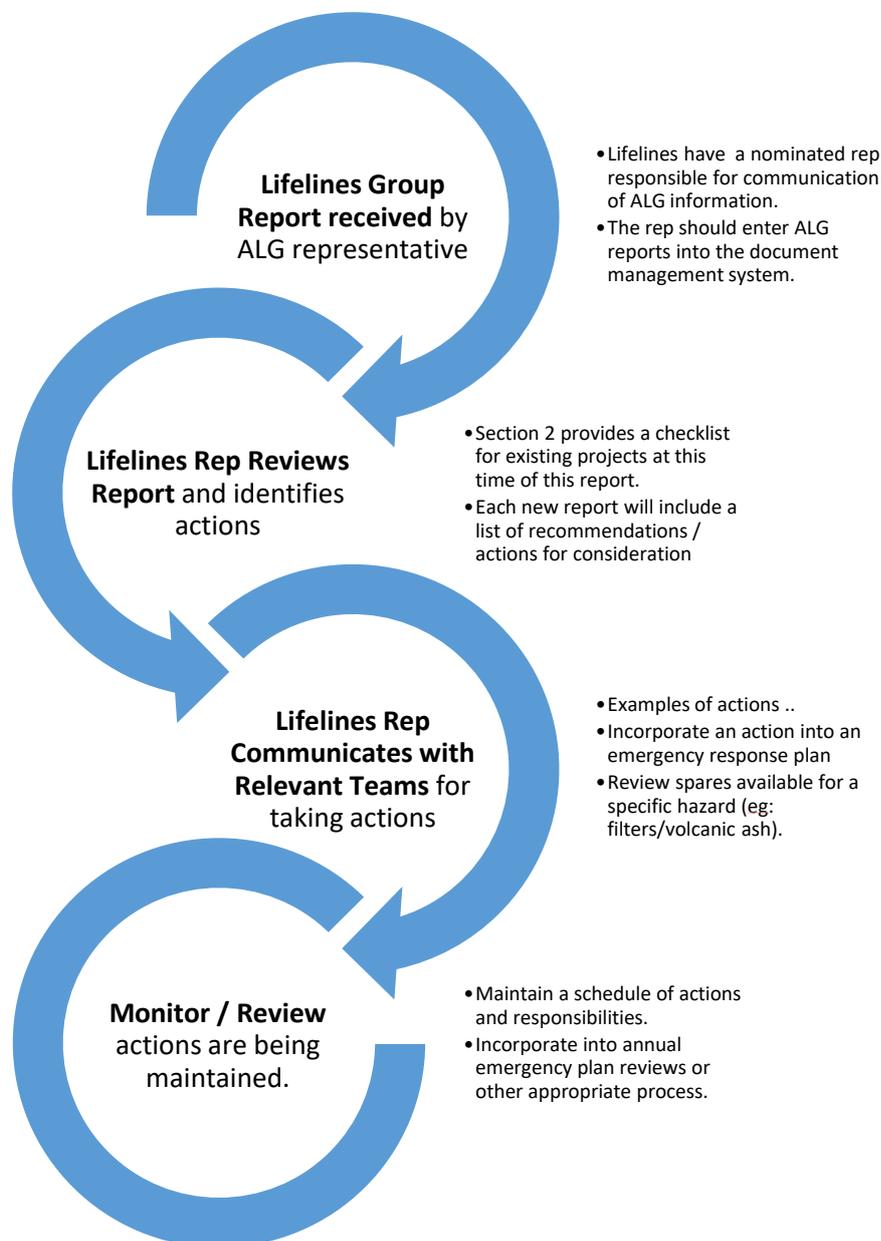
This report aims to assist Auckland lifeline utilities in applying the outputs from ALG activities and projects. It is intended to distil the large body of ALG work into a summary of actions that can improve Auckland's infrastructure resilience. It is recognised that many of these actions are completed or underway but the summary of actions in this report can provide a checklist for ongoing review.

The report provides:

- A recommended process for lifeline utilities to ensure that they take appropriate action in response to ALG projects and initiatives, including communication with the wider organisation (Section 1.2).
- A summary of actions that each lifeline utility should take to (Section 2).

The report also aims to assist lifeline utilities in demonstrating the benefits of ALG work and getting internal support for participating in ALG and Auckland Emergency Management (AEM) work.

## 1.2 Recommended Process for Using Lifelines Project Outputs



## 2. PROJECT ACTIONS

### 2.1 Auckland Lifelines Project ‘AELP-2’

Project / Summary	Lifeline Utility Action
Critical Infrastructure Sites / interdependencies	<ul style="list-style-type: none"> <li>▪ Criticality 1 and 2 infrastructure assets identified on the ALG Critical Sites spreadsheet and mapped in Auckland Council GIS.</li> <li>▪ Your own critical assets have been identified in other lifeline / contractor response plans as priority for restoration.</li> <li>▪ Other lifeline critical sites dependant on your service are identified as priority for service restoration in your response plans.</li> <li>▪ Business continuity plans are in place to ensure service continuity if critical assets fail, or if other dependant services fail.</li> </ul>
Volcano Assessment	<ul style="list-style-type: none"> <li>▪ All key actions have been incorporated into VISG Posters, refer Section 2.3.</li> </ul>
Earthquake Assessment	<ul style="list-style-type: none"> <li>▪ Undertake full seismic risk assessment of critical facilities.</li> <li>▪ Develop earthquake contingency plans that include consideration of impacts on other lifelines services and managing longer term after shocks (also refer ‘specific response activities’) in this Section for your sector.</li> </ul>
Tsunami Assessment	<ul style="list-style-type: none"> <li>▪ Undertake an assessment of tsunami risk to critical assets in tsunami zone (GIS shape files in ALG website).</li> <li>▪ Evacuation plans are in place for critical facilities in tsunami zone.</li> <li>▪ Road agencies have traffic management plans in place to evacuate tsunami risk areas (in consultation with AEM).</li> <li>▪ Have plans to maintain service continuity if critical assets in tsunami zone damaged and considering impacts on other lifelines services.</li> <li>▪ Also refer ‘specific response activities’ in this Sector for your sector.</li> </ul>
Severe Weather Assessment	<ul style="list-style-type: none"> <li>▪ Undertake an assessment of flood risk to critical assets identified as being in flood plain (GIS shape files in ALG website).</li> </ul>
Technological Failure	<ul style="list-style-type: none"> <li>▪ Plans in place to maintain service continuity under the service failure scenarios identified for other lifelines sectors.</li> </ul>
Recommendations and Monitoring	<ul style="list-style-type: none"> <li>▪ Use information in report to support business cases for mitigation projects – increased redundancy around critical assets, robustness to hazards, etc.</li> <li>▪ Plans in place for rapid impacts assessments at critical sites.</li> <li>▪ Audits of contractor contingency plans to ensure all key requirements are covered.</li> <li>▪ Review spare equipment arrangements (location and availability) for predicted impacts from hazards.</li> <li>▪ Staff training in hazard impacts and response processes using learnings from AELP-2.</li> </ul>

### 2.2 Volcanic Ash Posters

Note that the posters with an AELG reference number were supported by a more detailed report.

Project / Summary	Lifeline Utility Action
All  (includes advice from ‘Urban Cleanup operations’ poster)	<ul style="list-style-type: none"> <li>▪ Ensure access to back-up power generation.</li> <li>▪ Plan for equipment and labour requirements for increased maintenance and site cleanup – use dry cleanup methods where possible.</li> <li>▪ Plan for impacts on road and air transport (eg: stocks of essential items).</li> <li>▪ Coordinate plans and prioritise cleanup across agencies.</li> <li>▪ Ensure that field crews are supplied with adequate personal protective equipment (long-sleeved clothing, heavy footwear, fitted goggles and properly-fitted P2 or N95 dust masks). <a href="http://www.IVHHN.org">www.IVHHN.org</a> for guidelines for protecting people from ash hazards</li> <li>▪ Store collected ash in bags to prevent remobilisation</li> </ul>

Project / Summary	Lifeline Utility Action
Airports (AELG-9)	<ul style="list-style-type: none"> <li>▪ Along with the general advice above, refer CAA guidelines and ICAO Guidelines.</li> <li>▪ <a href="http://www.caa.govt.nz/meteorology/living_with_volcanic_ash.pdf">www.caa.govt.nz/meteorology/living_with_volcanic_ash.pdf</a></li> <li>▪ <a href="http://www.paris.icao.int/news/pdf/9691.pdf">www.paris.icao.int/news/pdf/9691.pdf</a></li> </ul>
Water Supply (AELG-11)	<ul style="list-style-type: none"> <li>▪ Treatment plant plans include provision for ashfall events, mitigation measures such as automatic shutdown of intakes based on a turbidity threshold; covering open-air sand filters; and increasing treated water storage volume.</li> <li>▪ Anticipate increased water demand following an ashfall and plan for use of alternative, non-potable sources of water for cleanup and firefighting.</li> <li>▪ Public messaging to encourage clean-up without water, practice water conservation, brief tap flushing before use.</li> <li>▪ In response- increased water quality monitoring, closing intake at turbidity thresholds, protect exposed equipment (incl. temporary covers over sand filters).</li> </ul>
Wastewater (AELG-14)	<ul style="list-style-type: none"> <li>▪ Treatment plants plans include provision for ashfall including ash monitoring in raw wastewater, monitoring torque on motor-driven equipment, shutting down non-essential equipment, covering exposed equipment.</li> <li>▪ In response - limit ingress of ash into stormwater drains and sewer lines, step up preventive maintenance, consider bypassing pumping stations and treatment plants.</li> </ul>
Roads (AELG-18)	<ul style="list-style-type: none"> <li>▪ Plans to include developing road closure and detour protocols, hierarchy of roads for clean-up ('critical sites and routes' maps), rapid clearing of critical evacuation routes.</li> <li>▪ Identify potential disposal sites.</li> <li>▪ During response, operate vehicles and machinery to minimise ash impacts (refer poster for details), dampen road surfaces,</li> <li>▪ Public messaging - avoid unnecessary travel, safety measures such as use of headlights, reduced speed limits, increased spacing.</li> <li>▪ Refer 'Advice for urban clean-up operations' poster for general cleanup.</li> </ul>
Electricity – Power Plant Operators (AELG-19)	<ul style="list-style-type: none"> <li>▪ Plans for at-risk facilities include turbidity monitoring and threshold for intake closure, priority schedule for inspecting/cleaning essential sites and components, pre-installed fall arrest anchor points and safe means of access for roofs.</li> <li>▪ In response, be aware of increased electrocution hazard if ash covers the ground. Isolate and earth energised apparatus before entering site.</li> </ul>
Electricity – Transmission/Distribution (AELG-19)	<ul style="list-style-type: none"> <li>▪ Ensure all insulator surfaces are cleaned, including undersides of weathersheds</li> <li>▪ Advise customers not to clean electrical equipment and to be careful when using hoses near electrical equipment.</li> </ul>
Facility Managers – Computers / electronics	<ul style="list-style-type: none"> <li>▪ If possible, move any outdoor electronic equipment indoors prior to an ashfall, seal off/cover areas housing sensitive and/or critical electronics.</li> <li>▪ If possible, shut down electronic equipment before cleaning to avoid possible short circuits, use low pressure compressed air, vacuum clear, soft brush.</li> </ul>
Facility Managers – Gensets / HVAC	<ul style="list-style-type: none"> <li>▪ Install hoods over air intake, add temporary filtration to external air intakes, monitor and replace as needed, seal or cover sensitive equipment.</li> <li>▪ Clean as above, then wipe down with a cloth, remove air filters before cleaning</li> <li>▪ Regularly check and service air and fuel intakes and filters (stock spares) – filters may require cleaning every hour or more.</li> </ul>
Facility Managers – Buildings	<ul style="list-style-type: none"> <li>▪ Plans for at-risk facilities include safe method for roof cleanup. identification of a single entry and exit point, areas for sealing (e.g. computer rooms), supplies of necessary equipment such as plastic sheeting and duct tape.</li> <li>▪ In a response, use a single entry/exit point for the building (preferably double doors which can act as an 'ash lock'), seal all remaining doors and windows (eg: damp towels, duct tape), shut down heat pumps and air conditioning units, disconnect inlet pipes from roof catchment rainwater tanks, cover sensitive equipment such as computers and electronics with plastic sheeting, or seal off rooms.</li> </ul>

## 2.3 Operational Plans

Project / Summary	Lifeline Utility Action
Lifeline Utility -CDEM Protocols:	<ul style="list-style-type: none"> <li>▪ Lifeline and contractor response plans include: <ul style="list-style-type: none"> <li>○ Triggers for contacting CDEM Duty Officer.</li> <li>○ Sitrep formats and processes for CDEM reporting.</li> <li>○ Sector coordination processes (where applicable).</li> <li>○ Inter-utility emergency contact lists.</li> </ul> </li> <li>▪ Lifeline is on the national and/or CDEM Group warning list with internal processes for distributing warnings.</li> </ul>
Fuel contingency plan	<ul style="list-style-type: none"> <li>▪ Staff and contractors are aware of CDEM-critical customer status.</li> <li>▪ Staff and contractors carry identification to demonstrate lifeline / contractor status.</li> <li>▪ Staff and contractors have means of payment for all fuel companies.</li> <li>▪ Lifeline has business continuity plans to maintain services in major fuel supply disruption.</li> <li>▪ Fuel companies have plans in place to ensure continued supply to CDEM-critical customers in major fuel supply disruption.</li> </ul>
Electricity contingency plan	<ul style="list-style-type: none"> <li>▪ Lifeline has supplied ICP number for critical assets on spreadsheet.</li> <li>▪ Lifeline understands risk of power failure to critical assets (feeder priority).</li> <li>▪ Lifeline has business continuity plans to maintain services in major power failure, including access to generators for critical assets and plans for re-fueling.</li> <li>▪ Electricity companies emergency response plans align with the Auckland electricity outage communications plan arrangements.</li> </ul>
Inter-Utility Communications	<ul style="list-style-type: none"> <li>▪ Have minimum three systems, one satellite, compatible with contractors</li> <li>▪ Plan for limited bandwidth</li> <li>▪ Have 72 hr standalone operation of comms equipment (battery and generator supplies)</li> </ul>

## 2.4 Other Projects

Project / Summary	Lifeline Utility Action
Infrastructure Hotspots	<ul style="list-style-type: none"> <li>▪ Incorporate the hotspots maps into emergency response planning arrangements, so that staff who respond to failures at those sites can be aware of the significance of other utilities at the site.</li> <li>▪ Consider re-location as an option during planning of future upgrades, if the risks warrant this.</li> <li>▪ Carry out their own risk assessment at each site and identify appropriate mitigation actions.</li> </ul>
Resources Available for Response and Recovery	<ul style="list-style-type: none"> <li>▪ Address identified contractor issues by sector</li> <li>▪ Consider more use of MoU and Mutual Aid Agreements.</li> <li>▪ Review priority contractual arrangements with consideration of the findings of the report</li> </ul>
Regional Generator Review	<ul style="list-style-type: none"> <li>▪ Review preparedness for widespread electricity outages – including generator ownership / hire agreements, ability to quickly connect generators on site and transport and re-fuelling arrangements (full checklist appended to the report).</li> </ul>