What are the effects of volcanic ash on infrastructure? What can infrastructure owners and operators do to reduce ash impacts and minimise damage caused by ash during a volcanic eruption?

Volcanic ash can clog air intake filters, block storm water drains, collapse roofs and cable towers, and disrupt electricity supply.

While observations and anecdotal reports of damage from volcanic ash are common, not much has been done to better understand these impacts, or look at ways of ash-proofing infrastructure prior to a volcanic event and reduce down-time during and post event.

The Volcanic Impacts Study Group (VISG) was established in 2004 and is part of the Auckland Engineering Lifelines Group (AELG) (www.aelg.org.nz). It has provided a national focal point in New Zealand for understanding how volcanic ash affects important lifeline utility infrastructure (e.g. airports, and road, water, wastewater, stormwater, power, fuel, gas and telecommunication networks).

Over the last 8 years the group has collated information, conducted research and improved awareness of, and understanding about, the impacts of volcanic ash on infrastructure and how best utility operators can mitigate these impacts prior to a volcanic event and what actions are needed post and during an event.

The group has produced a series of posters for different utility sectors (roads, airports, water supply, electricity and telecommunications) summarising the impacts of volcanic ash on each, and identifying simple actions utilities can take to mitigate the impacts and assist with response and recovery. These posters have been distributed around the country and are also in use in South America, where the information proved useful during the Chaiten (2009) and Puyehue (2011) eruptions.

Important to the success of the posters has been the involvement of utility operators in the design of the research, identifying practical mitigation and response steps to take, and ways to best communicate the information. The research has drawn on literature reviews, field visits to cities affected by volcanic ash, and laboratory testing. VISG is committed to continuing this research and assisting utility infrastructure organisations to better understand how to prepare and plan for a volcanic ash event in the future.