

# FUNDING A DISASTER – INFRASTRUCTURE RECOVERY

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## ABSTRACT

When a natural disaster strikes, the immediate and necessary response is to get the systems back up and running as quickly as possible. However, soon after the initial response effort, the funding of the response and recovery phases becomes an obstacle that must be addressed. This can be complex and time consuming. Understanding the claims process when the disaster strikes and taking steps to setup a Recovery Team and collect the right data will allow the claims process with the Crown and the insurers to progress more smoothly.

Typically, Local Authorities will have a number of funding streams to claim from following a disaster. Often this is made up as follows:

1. The Crown via Ministry of Civil Defence and Emergency (MCDEM) and the Department of Prime Minister and Cabinet (DPMC) may cover 60% of underground infrastructure damage.
2. The Local Authority Protection Programme Disaster Fund (LAPP) or a private insurer may cover the other 40% of the underground infrastructure damage.
3. A private insurer will cover the cost of the above ground damage (eg pump stations, treatment plants and reservoirs etc.)

In most cases these funding streams are administered separately and all have different requirements. These different requirements are described in this paper.

The Crown's 60% contribution covers the actual cost of the response and recovery but there is a long list of criteria that must be met to determine funding eligibility. The Crown is likely to stay engaged until the end of the infrastructure recovery.

40% of the underground costs may be claimed through LAPP, if the local authority is a member. This will likely be 40% of the asset valuation amount but the fund is discretionary and the final amount will be decided by the LAPP trustees. Nevertheless, there is a rigorous process where every cost needs to be assigned to an asset. Proof of damage is required for the claim that can be difficult to obtain.

All aboveground asset damage costs are claimed through an insurer or a panel of insurers. Claims will be limited to the asset valuation. If repairs can be made to bring the asset back into service, rather than replacing the asset, then this will likely form the basis of the claim. Any betterment to relocate the structure is paid for by Council. A financial settlement is possible if both parties can come to an agreement.

It is recommended that an Infrastructure Recovery Team is formed soon after a disaster to oversee the recovery process including claims. It is best that this team is driven from within Council but, more likely than not, it will include external resources to cover the short-term increase in work load.

## KEYWORDS

**Insurance, Infrastructure Recovery, Earthquake Response**

## **PRESENTER PROFILE**

**Paul Reed:** Paul Reed is a Principal Engineer with Beca. In the last 18 months he has been working with the Hurunui District Council as their Built/Infrastructure EQ Recovery Coordinator. Paul also works with the Waimakariri District Council as their Water and Wastewater Discipline Lead for their Earthquake Infrastructure Recovery and has done so for the last 7 years since the 2010/2011 Christchurch earthquakes. Paul has 24 years' experience in water and wastewater infrastructure design.

**David Edge:** David Edge is an Infrastructure Asset Manager at the Hurunui District Council with over 39 years' experience in Local Authority across all core engineering infrastructure. He has extensive experience in advanced asset management, leading his team on strategic asset planning and development projects within the Hurunui district. He gained his engineering qualification at the Cape Peninsula University of Technology and is member of the Society of Local Government Managers and the Institute of Public Works Engineering Australasia. "Every person on this planet has a story to tell, something that makes them unique by adding to the whole."

## **1 BACKGROUND**

### **1.1 THE EVENT**

A magnitude 7.8 earthquake occurred just after midnight on Monday 14 November 2016, centred approximately 15km northeast of Culverden.

The Kaikoura Township and its environs, together with the east coast, State Highway 1 and rail network, were badly damaged. Kaikoura was isolated in all directions. Land and infrastructure was extensively damaged throughout the area.

The earthquake was centered deep in the Hurunui district. It activated many old fault lines and created a large number of new fault lines, all of which spread north and north east towards Blenheim and Wellington. A total of 21 faults ruptured during the earthquake. Scientists estimate that there has been approximately 180km of surface fault rupture.

The earthquake produced the strongest ground shaking ever produced in New Zealand. An instrument located at Waiau recorded a vertical acceleration of approximately 3G, or three times the acceleration due to gravity. Until then, the greatest vertical ground acceleration recorded was the 2.2G recorded in the magnitude 6.3 Christchurch earthquake of February 2011.

### **1.2 PHASES OF AN EMERGENCY**

#### **1.2.1 EMERGENCY DECLARATIONS**

As a result of the 14 November 2016 earthquake, the Hurunui District Council (the Council) declared a local state of emergency on 14 November 2016. The Civil Defence Emergency Management (CDEM) Group declared an emergency on 15 November 2016. This declaration covered the immediate response to the emergency and lasted until Tuesday 6 December 2016.

#### **1.2.2 TRANSITION PERIOD**

A National Period of Transition Notice was put in place on Friday 9 December. The notice covered the districts of Hurunui, Kaikoura and Marlborough. This notice ended any Local Declaration of Emergency and concluded the "Response" phase. The purpose of the transition period is to enable a planned transition to "Recovery". The National Transition

Period provides for a National Recovery Manager to coordinate recovery activity if needed across Hurunui, Kaikoura and Marlborough District Councils, the Canterbury Regional Council, and all involved central government agencies. (For example, there could be a need to address complex or cross boundary issues such as repairing the road or rail network.)

The National Transition Period also gives both local and national CDEM the ability to act to protect people from any on-going dangers or new dangers that might arise during the transition period. It also allows communities to get on with their recovery activities.

The initial Transition Period lasted for 90 days ending on 9 March 2017. At that date, the Civil Defence Minister at the time, Gerry Brownlee, renewed the notice for a further 90-day period that ended on 7 June 2017.

### **1.2.3 RECOVERY**

Recovery requires cooperation, collaboration and coordination between various external agencies. To enable the Council to deliver its recovery commitments, a recovery team was established and led by a Local Recovery Manager.

The recovery team effort was divided into five work streams:

- Social Environment
- Economic Environment
- Natural Environment
- Rural Environment
- Infrastructure and Community amenities

For water and wastewater infrastructure, the Response phase was about getting the various networks working again. In most cases it wasn't the final solution but it involved 'patching' the system so it was operational. It included laying aboveground pipes, reducing the amount of water storage so damaged tanks could be taken out of service and temporarily changing treatment regimens. The Recovery phase was a more strategic look at how the system could be best repaired to suit future purposes. An emergency provides the opportunity to do it better than what it was done previously. This doesn't need to include 'betterment' (eg a higher cost for greater capacity) but might include doing it smarter for a similar cost.

Infrastructure Recovery is normally tangible and measurable and therefore progress is discernible. This is not necessarily the case for other parts of the recovery team (eg Social Recovery). Recovery is defined in the Act and Guidelines as follows:

*"Recovery means the co-ordinated efforts and processes used to bring about immediate, medium-term and long-term holistic regeneration and enhancement of a community following an emergency"* Civil Defence Emergency Management Act 2002

*"Recovery generally seeks to minimise the consequences of an emergency, restore essential community services and functions, reduce future exposure to hazards and their risks, and regenerate and enhance community well-being."* The Guide to the National Civil Defence Emergency Management Plan 2015

## **2 FUNDING STREAMS**

Three funding sources were available to Council for the recovery of the 3-water infrastructure.

1. A local government panel of insurers for 'aboveground' structures,
2. The Local Authority Protection Programme Disaster Fund (LAPP) for belowground horizontal infrastructure, and
3. The Crown, also for belowground horizontal infrastructure.

Each has different procedures for claiming, different people to facilitate the claims and different reporting requirements. The following is a summary of information on the three funding sources and the claims process.

## **2.1 LOCAL GOVERNMENT PANEL (ABOVEGROUND STRUCTURES)**

This category covers pump stations, treatment plants, intakes, reservoirs and other structures. They're not necessarily aboveground but they're generally accessible, when compared to buried infrastructure that is less accessible (reticulations, sewerage and drainage networks).

Due to the well-defined nature of these sites, this category is relatively easy to assess for damage. Has the structure risen out of the ground? Is it still level? Are there cracks in the walls that were not previously there? Although the structures may be damaged, in many cases the mechanical equipment can be salvaged and won't be included in any insurance settlement.

Even with visible damage to the structure of an asset, it may be reusable with some repairs. A pay-out for replacement will only be given if repair is not feasible.

Does the structure need to be moved to a more suitable location? Say, away from the edge of the river or closer to where the remaining houses are. This may be negotiated with the insurer but any pay-out is only likely to be for repair or replacement in the current location.

All structures will need to have an initial inspection soon after the event with a second inspection by a structural engineer for those structures where damage is suspected to be significant.

The claim progresses much like any personal insurance claim. Excesses are calculated for each site. In some cases the site may have several structures on it and therefore the excess will be calculated on the value of all structures. Further to the material damage claim there are various other claims that can be pursued, as follows:

- Business Interruption Insurance. What is the cost to keep the system operating while the repairs are completed? What is the operational cost to change from using the old asset to using the new asset? These costs can be calculated on a site by site basis.
- Claim Preparation costs and investigation costs are likely to be payable and should be claimed.
- Inflation costs. For various reasons it may not be possible to replace a structure for several years after the event that damaged it. There may be other assets that need to be repaired first, designs may need to be completed and consents may need to be obtained. Inflationary costs may be claimable.
- Construction Contingency Costs. When preparing cost estimates for replacement or repair of damaged infrastructure it is important that all costs are considered including a construction contingency. This type of contingency is often fully used during a construction project and therefore a percentage allowance is a legitimate cost and should be claimed from the insurer.

A lump sum pay-out can often be negotiated with the insurer. A pay-out allows Council to distribute the money around the damaged structures as they see fit albeit with a higher risk that the costs to complete the repairs will be higher than expected.

## **2.2 BELOWGROUND INFRASTRUCTURE**

Damage to belowground infrastructure is more difficult to prove and to claim. For example, what was the condition of the pipe prior to the event or where is the additional water being lost or does that dip in the sewer make any difference to its operation? There are two funding sources for belowground infrastructure repairs as follows.

### **2.2.1 LOCAL AUTHORITY PROTECTION PROGRAMME DISASTER FUND (LAPP)**

40% of eligible costs for earthquake damage to Hurunui District Council's underground services will be paid by LAPP.

LAPP was setup by Local Government New Zealand (LGNZ) and Civic Assurance as a charitable trust in 1993. LAPP originally provided insurance cover for essential services that couldn't be covered by other means, eg stormwater pipes and stop banks for flood protection. In 2009, LAPP extended the cover to include other council assets and some additional services (eg business interruptions). There are currently 21 Councils that are members of LAPP of a possible 78 Councils. LAPP exists solely for the benefit of its members.

Administration for LAPP has recently changed from Civic Assurance to Civic Financial Services Ltd. LAPP is governed by trustees who are appointed by Local Government NZ, Civic Financial Services and the Society of Local Government Managers (SOLGM).

LAPP is a "not for profit non-taxable discretionary mutual charitable trust". In 1991 the government changed its funding criteria to only fund 60% of damaged underground infrastructure, above a threshold. This remains the current funding criteria. Eligibility for the 60% is subject to the following:

- *the local authority has adequately protected itself through asset and risk management including mitigation, where appropriate, and the proper maintenance of infrastructure assets; or*
- *the local authority has made sound financial provisions (such as the provision of reserve funds, effective insurance or participation in a mutual assistance scheme with other local authorities) to a level sufficient to ensure the local authority could reasonably be expected to meet its obligation to provide for its own recovery."*

LAPP is a discretionary fund and the final amount payable is decided by the trustees. For the Hurunui District Council case, the claim was assessed by Cunningham Lindsay, a global loss adjusting and claim management company. Cunningham Lindsay is typically used for LAPP assessments and carry out a rigorous review of claims. All damage needs to be assigned to a particular asset resulting in long spreadsheets outlining the many damaged assets.

It is acknowledged that LAPP provided Hurunui District Council with a significant lump sum payment soon after the earthquake event. Although this lump sum will form part of the final reimbursement calculation it was helpful to Council to receive this initial contribution.

The LAPP fund has a threshold amount which is a fixed amount. Only claims above that threshold will be paid. Once the full extent of the claims is known, a lump sum settlement prior to completing all work, is an option that may be pursued.

## **2.2.2 GOVERNMENT FINANCIAL SUPPORT**

### **2.2.2.1 BACKGROUND GUIDANCE**

The government will reimburse the local authority 60% of all eligible costs associated with the emergency response and recovery. The question is, which parts of the response and recovery are eligible for that 60%? There are many exceptions as explained below.

*"Specific government financial support to local authorities during or after an emergency is based on a range of mandates, criteria, and triggers, which may be in statute, regulation or Cabinet decisions, or made by ministerial discretion. Depending on the type of assistance being sought, the Minister of Civil Defence or Cabinet will identify and approve the overall appropriate mix of government financial support to be provided."* The Guide to the National Civil Defence Emergency Management Plan 2015

The Guide goes on to say (underlining added by author):

*The objectives of any government financial support to local authorities are to:*

*(a) provide support by meeting some of the costs incurred in managing the response to and recovery from an emergency; and*

*(b) provide the minimum level of assistance required to restore to an affected community the capacity for self-help; and*

*(c) return an affected community to a state in which normal social and economic activity can be resumed as quickly as possible.*

The Government has set the following principles on which assistance will be based.

*(1) The Government considers local risks to be a local responsibility.*

*(2) Government financial support is based on the expectation that local authorities will be primarily responsible for bearing the financial costs of the impact of an emergency in their geographical and functional areas of responsibility.*

*(3) Government assistance is to provide solutions that are the most appropriate in the long term.*

*(4) Government financial support to local authorities does not imply an obligation to restore a community:*

*(a) to a better state than existed before the emergency; or*

*(b) to previous levels if those levels are not sustainable in the long term.*

*(5) Government policies should encourage agencies, local authorities, communities, businesses, and individuals to create resilience through proper management practices, for example, by:*

*(a) analysing local hazards and understanding risk exposure:*

*(b) preventing emergencies or reducing their likelihood or impact:*

*(c) adjusting infrastructure and practices to reduce vulnerability, to mitigate the consequences of emergencies, and to limit potential damage:*

*(d) providing for an efficient and effective response to emergencies:*

*(e) providing resources for recovery (that is, physical and financial provisions, including adequate emergency reserve funds and insurance).*

*(6) Risk management and its associated costs should be borne by the individuals, businesses, and local authorities that benefit from it and are best able to manage or mitigate the risk.*

*(7) Individuals, businesses, and local authorities have a responsibility to the extent possible to insure against, and to attempt to minimise or mitigate, risk*

Clearly the direction from government is to encourage Councils to cover the risk. Government funding will only be provided for the exceptional case and is not intended to improve the Council network. Furthermore, it is likely that Councils will have some ongoing operational costs due to the emergency event that will not be covered by government funding.

During the initial response phase government financial support focusses on costs incurred by local authorities to:

*a) care for directly affected people, including the costs of accommodating, transporting, feeding, and clothing people as a result of an emergency; and*

*(b) take the necessary precautions or preventive actions (whether by construction, demolition, or any other means) to reduce the immediate danger to human life, where those precautions or actions were begun during the response period; and*

*(c) take precautions or preventive actions aimed at reducing the potential consequences of an emergency, where those precautions or actions were begun in the period immediately before the emergency.*

However, the eligible costs do not include any Council overheads, staff time, or other indirect costs. Furthermore, there is no government assistance for neighbouring Councils that might provide resources after the event.

During the recovery phase the government financial assistance is more selective.

*(1) Government recovery assistance will normally be provided to local authorities only if:*

*(a) recovery procedures cannot be carried out without government assistance; or*

*(b) a statutory requirement for action exists or a need to invoke a statute to achieve the ends desired from the recovery process exists; or*

*(c) government assistance will aid the co-ordination of the recovery process to a significant extent; or*

*(d) the advantages of economies of scale are apparent.*

*(2) Specific principles for recovery assistance are that:*

*(a) the Government has a role in the recovery process after an emergency with significant consequences; and*

*(b) initial and primary responsibility for the co-ordination of recovery efforts rests with local authorities; and*

*(c) any government recovery programme should be designed to restore community capacity for self-help and be consistent with any government policies regarding mitigation and alleviation measures.*

Because of (b) above, there is no government assistance available for the costs of the local recovery office. However, there is assistance available for the repair of essential infrastructure.

Local authorities are initially responsible for meeting all emergency expenditure arising out of the use of resources and services provided under the direction of a CDEM Group or Local Controller. However, a "threshold" (or excess) applies.

Government policy is to reimburse 60 percent of the combined eligible costs (response and essential infrastructure costs), above the following thresholds:

- *0.0075 percent of the net capital value of the city council, district council or unitary authority involved*
- *0.002 percent of the net capital value of unitary authorities where the assets in question are of a type that ordinarily are managed by regional councils, or*
- *0.002 percent of net capital value in the case of regional councils.*

Council is required to pay, or organize cover for, the 40% of eligible costs and the threshold cost.

#### **2.2.2.2 FINANCIAL HEALTH CHECK**

As a background to any government financial assistance package, Councils may be subjected to a financial 'health check'. This was the case after the November 2016 earthquake. This 'health check' may consider:

- How the council is financially geared?
- How the council is funding depreciation?
- What the council debt limits are set at?
- What the council's strategy is for overall debt reduction?
- What capacity the council has to bear additional earthquake costs?

#### **2.2.2.3 ELIGIBILITY**

The following eligibility flow chart provides guidance on what could and couldn't be claimed.



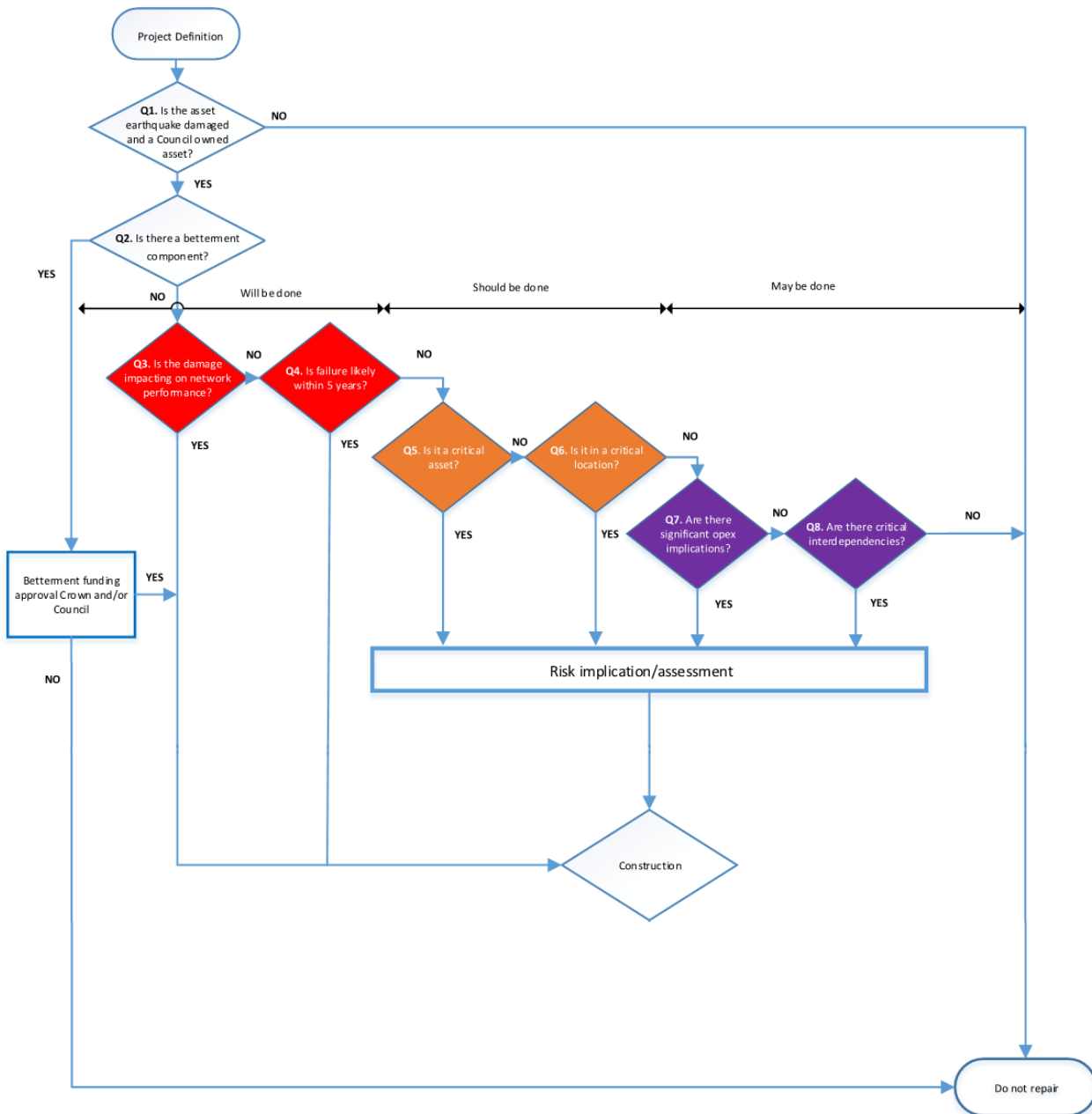


Figure 1: Eligibility Flow Chart (Created by DPMC)

The asset being claimed against had to be a Council owned asset that was not the subject of a subsidy from another source e.g. insurance cover, and was damaged by the earthquake.

**Betterment** – Betterment was encouraged. For example, the cost to increase the diameter of the pipe to increase the capacity of the system would be a relatively low cost but might greatly improve the system and therefore was promoted. However only some types of betterment were eligible for funding. Betterment was eligible for the 60/40 cost share when the work resulted in changes to the original infrastructure where the changes were required in order to restore network performance (e.g. using the latest materials or improving the alignment) and serviceability. Betterment is not eligible for the 60/40 cost share when there is 'deliberate' betterment, where betterment is intended to increase capacity, redundancy or add additional components and is over and above that required to restore network performance and serviceability. Any deliberate 'betterment' needed to be approved by the Crown, although it was unlikely to be denied. All costs for betterment were paid for by Council.

**Impact on Network Performance** - The damaged asset needs to impact on network performance before it is eligible for Crown assistance. Is there a large loss of water from the water reticulation beyond what was normal before the earthquake or is the water system compromised to such an extent that it has become a health hazard? Is the asset serviceable and able to function as intended? Proof will be required of the impact the damage is having on the network performance.

**Imminent Failure** – If the asset hasn't yet failed but is likely to fail in the next five years, to a point that it will impact on the performance of the asset/network or the ability for the asset to function as intended, then it may be eligible for replacement funding. This will require some engineering judgement based on previous experience of infrastructure failures.

**Critical Asset** – If the asset is a critical asset in the network it is more likely to be eligible, eg a large diameter water main or wastewater pipeline servicing a large number of customers rather than a small local service with very few customers. Is the asset critical to network performance and functionality? Asset criticality is likely to be assessed prior to the emergency event.

**Critical Location** - If the asset is servicing critical community infrastructure (schools, hospitals, fire stations etc.) or large commercial or industrial activities then it is more likely to be eligible for replacement or repair funding. Similarly, if the failure of the asset would result in damage to other infrastructure or property, then it may be more likely to attract funding.

**Operational Costs** – If not replacing or repairing the damaged asset would cause unacceptably high operational costs then funding is more likely to be approved. Calculations will be required to provide proof of the high operational cost.

**Interdependences** – Funding may be approved to replace or repair the damaged asset if the replacement of other adjacent assets is required. For example, if the road seal is to be replaced due to the emergency event it may be possible to obtain funds to replace a water pipe also even though the water pipe replacement doesn't fall into any of the criteria above.

#### **2.2.2.4 – CLAIMING, REPORTING AND SETTLEMENT**

DPMC managed the claim process on behalf of MCDEM. Regular contact was required with DPMC including quarterly reports. No lump sum settlement is possible with MCDEM. Payment was made to Council following review of invoices received by Council as work progressed.

### **3 FINDINGS**

There have been many findings during the earthquake recovery work at Council that may be helpful if similar work was undertaken in the future. Some of these are described below.

#### **3.1 USE LOCAL KNOWLEDGE**

Municipal water and wastewater systems are complex and can take many months, if not years, to understand. Information about where the potential damage could be, the strategy for repairing the asset and how the system will operate, is understood best by the local authority. Furthermore, the local authority is the 'owner' and has a vested interest in ensuring the right solution is chosen. Leadership for the infrastructure recovery should therefore be run from within the local authority, if possible. External

resources may be used to progress parts of the programme but regular meetings (most likely weekly at the beginning) will be required.

### **3.2 TIME**

There were no deadlines that Council had to achieve for submitting claims to any of the funders. An early settlement, especially with the aboveground insurer(s), puts more risk on Council that something may be missed (ie settling before all damage had been found). Conversely, an early settlement would allow the release of funds for completing the works. If issues aren't identified early in the assessment for the 60% Crown contribution the Crown may argue that the damage isn't impacting on network performance and therefore is not eligible for funding. An early and thorough investigation will put the asset owner in the best situation to settle promptly and with low risk.

### **3.3 ACCURATE ASSET DATA PRIOR TO THE EVENT**

The most common problem encountered when preparing damage claims for assessment was proving that the damage had been caused by the earthquake and not by other causes. The more accurate the asset data records prior to the event (including photos and CCTV footage) the easier it will be to determine the extent of the damage that was caused by an earthquake or some other emergency event. Likewise, the asset valuations become the base for most claims (particularly for aboveground structures) and need to be accurate to obtain sufficient funds for replacement. It is important to know that all assets are included in the valuation. If the existence of an asset is unknown then it may not be covered.

Another finding was to have established Levels of Services (LoS), performance measures and historical records of routine maintenance requirements for the network. When an event occurs, a huge spend will go into returning LoS. Later in the rebuild, maintenance costs could still be well above historical levels, indicating that further repairs are still required. Without the base information the target is unclear.

### **3.4 OBTAIN AND TRACK DAMAGE FOLLOWING THE EVENT**

During the Response phase there will be infrastructure repairs being undertaken by many teams throughout the district. It is easy, and maybe understandable, to focus only on completing the repairs without recording the location and extent of the repairs being made. However, for network repairs, the locations need to be recorded from an early stage so hot spots can be identified and a claim can be prepared. This is best recorded in GIS form that can be remotely accessed to allow various parties to access it and add to it.

Once the extent of damage is identified the repairs can be organised into a number of definable projects and a programme of work created. This programme of work becomes the backbone for the Recovery phase. Regular meetings are setup to review the progress and costs for the various projects until the programme of work is complete.

## **4 CONCLUSIONS**

Conclusions and lessons from the Infrastructure Recovery Work at Hurunui District Council following the November 2016 earthquake:

- As far as practicable have easily accessible asset data with up-to-date information on the asset condition. This data allows the damage claims to be produced far easier than they would otherwise be the case as 'before' and 'after' information can be provided.

- Lead the Response and Recovery from within Council to make best use of local knowledge.
- Investigate early and thoroughly, recording all damage location data, to create a programme of projects that will form the backbone of the infrastructure recovery effort.
- Understand the eligibility requirements and the limitations of the disaster funders. (ie what can and can't be claimed).

## **ACKNOWLEDGEMENTS**

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