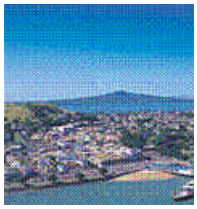
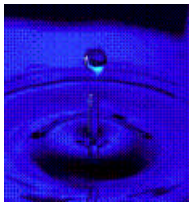
Auckland Engineering Lifelines Group
Project AELG-6





Resources Available for Response and Recovery of Lifeline Utilities

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Auckland Engineering Lifelines Group

AELG6

Resources available for Response and Recovery of Lifeline Utilities

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1. Executive Summary

The Auckland Engineering Lifelines Group engaged Kestrel Group to carry out a scoping exercise to gain a better understanding of the resource issues relevant to lifeline utilities during emergency response and recovery, and of the methods available to address those issues.

The findings of this report were discussed at the Auckland Engineering Lifelines Group meeting on 14 September 2005, and subsequently finalised.

This report includes a review of resource issues that arose for lifeline utilities in recent regional-scale emergency events in New Zealand (2004 and 2005 flood and storm events), a review of legal and contractual issues for lifeline utilities during an emergency, and the results of a survey of lifeline utilities and their contractors, undertaken to gather information and identify resource issues that need to be addressed.

Relevant lessons from recent emergency events include:

- It is important to have a range of contractors within a geographic area
- National-scale contractors are a valuable resource as they are able to call on their own resources
- Temporary solutions often use quite different resources than permanent fixes.
- Civil Defence Emergency Management (CDEM) agencies often play a role in bringing lifeline utilities together to establish priorities, but do not often direct lifeline utility activities.

A review of contractual issues for lifeline utilities concluded:

- CDEM agencies have limited and specific powers to direct lifeline utilities to take a particular action, and the execution of these powers is extremely rare.
- Operating within a declared emergency does not allow lifeline utilities to claim compensation for losses.
- The declaration of an emergency does not over-ride Commerce Act restrictions on lifeline utility interactions.

The responses by lifeline utilities and contractors to the project survey identified the following trends and observations:

- Delivery of lifeline utility services relies highly on activities carried out by contractors and subcontractors, including for the sourcing of resources and personnel.
- There is only a moderate level of confidence of lifeline utilities in the ability of their contractors to deliver services during an emergency.
- A number of similar human and physical resources are required by multiple lifeline utility sectors.
- In many instances, it is not clear whether priority agreements are in place between lifeline utilities and their contractors (including professional advisors).
- It is unclear the extent to which the same contractors are being utilised by multiple lifeline utilities, and multiple lifeline utility sectors.

An outcome of this report is the recommendation the follow-up activities are undertaken including:

- This report should be distributed to lifeline utilities and contractors in the Auckland region (AELG members and non-members), the Auckland CDEM Group, and other Lifelines Groups around New Zealand.
- Sector groups should meet to identify and address contractor issues such as duplication of resources and priority arrangements.
- Further work should be done to obtain information from contractors, as the level of response to the survey was low.
- Case studies into the use of Memoranda of Understanding and Mutual Aid Agreements should be undertaken with the view to providing this information to sectors without such arrangements in place.

2. Lessons from 2004-2005 flood and storm events.

Interviews were held, and comments sought from the following people in regard to the flooding events in Manawatu/Wanganui in 2004, and in Bay of Plenty (BOP) in 2004 and 2005:

- Mark Harrison (CDEM Group Recovery Manager – Manawatu/Wanganui floods 2004)
- Braden Austin (MWH, Recovery Infrastructure Taskgroup leader – Manwatu/Wanganui floods 2004)
- Richard Kirby (Manawatu District Council - Utility Manager Roading)
- John Tailby (Opus, Recovery Infrastructure unit manager – BOP floods 2004)
- Steve McDowell (Recovery Facilitator – Matata 2005)
- Lance Dixon (EQC)
- John Lucas (Insurance Council)
- Sarah Stuart-Black (MCDEM)
- Hans Brounts (MCDEM)

2.1. General Resource Issues

In general terms resources (both human and physical) were not a significant limiting factor for lifeline utility response and recovery in any of the flood events of 2004-2005. Some specific instances of resource limitations were identified, but these were generally able to be rectified by lifeline utilities, or by joint arrangements between lifeline utilities.

Some of the problems encountered during emergency response and recovery could not have been fixed even if more resources had been available (e.g. road clearance in a valley can typically only be achieved by advancing one slip at a time up the valley). The main issue then became one of setting appropriate community expectations and communicating with affected communities.

In some cases resource limitations were experienced because utilities had emergency stores in hazardous areas (e.g. gravel/aggregate stores near rivers which were washed away).

Damage to lifeline utilities was often rectified by temporary fixes put in place to provide short term solutions. These were things like temporary cabling, temporary culverts, pipelines of smaller diameter than normal, bailey bridges, services placed on alternative bridges, or the installation of generators and batteries. Sometimes these temporary fixes placed a greater demand on other facilities – for example road diversions put more pressure on the remaining road surfaces, particularly where these diversions were required to be kept in place for several months.

Road access was identified as the most critical service that was relied upon by the majority of utilities in order to carry out assessment or repairs. Priority was therefore afforded to road clearance and restoration of access. In Matata, a key contributor to a decision to retain a state of emergency was for work to be completed on critical road access routes. In the Manawatu/Wanganui floods, specific bridges were often identified as priorities because they supported multiple services.

Timeframes for particular resources could cause potential conflict. Generally, access restoration and telecommunications restoration were the services for which the fastest timeframe was required. In the Manawatu/Wanganui event, however, some communities were without water and this was also afforded a high priority for restoration.

Engineers have the potential to be a limiting factor because they have a responsibility to provide assessment and solutions specific to each site. To identify those detailed solutions can take time, and the pool of suitably experienced and available engineers is typically limited.

In the 2005 Bay of Plenty events this conflict did not eventuate as the Council required engineers in the first instance to assess damages to utility services, and then other agencies such as EQC required the engineers to assess residential properties, but at a later stage. However there were cases noted of engineers for different agencies carrying out assessments on the same properties.

As the duplication of resources is a relatively common occurrence, it highlights the need for over-arching co-ordination of resources and responses. Of particular important are systems for tracking expenditure and resource location and allocation.

In the Manawatu/Wanganui floods of 2004, resource limitations were most prevalent in the early stages of the emergency response. In most cases national contracting organisations filled these resource needs from within their own networks, although some resources were diverted to work on emergency work rather than capital works that had been planned for.

It is understood that ongoing resource limitations were experienced by those Councils who had Local Authority Trading Enterprises (LATEs) for works and professional services. The same issue is likely to be relevant for medium/small contractors to medium sized metropolitan Councils, as they do not have access to a national pool of resources.

Large national contractors preferred to carry out work for lifeline utilities than for owners of smaller commercial or residential properties.

Human resources

The following human resources were identified as being in short supply at various stages in at least one of the events in 2004-2005:

- Excavator operators - skilled and experienced (not a farmer with and old machine)
- Structural engineers
- Geotechnical engineers
- General construction personnel (builders, painters etc) were all stretched by normal workloads
- Team leaders to manage groups of contractors volunteering short term assistance
- General contractors (e.g. in the Manawatu/Wanganu event farmers wished to use contractors engaged by council/utilities)

In addition, human resource shortages for responding to damage to residential properties were reported. Limitations in the following areas may be relevant to lifeline utilities if they also have a requirement for the same resources:

- Insurance assessors/loss adjusters/valuers
- Council consent processing staff (most relevant to domestic premises e.g. in BOP event for issuing consents and making decisions to relocate or demolish residential properties)

Physical resources

The following physical resources were identified as being in short supply at various stages in at least one of the events in 2004-2005:

- Helicopters
- Railway iron (for stabilising/retaining areas of subsidence)
- Quality rock (not crushed) for erosion control etc
- Quarry rock
- Dump sites for materials
- Gabion Baskets (wire mesh to be filled with stones)
- Signage (particularly for safety warnings, to restrict access and for traffic redirection)
- Large diameter concrete pipes (for culverts)

2.2. Good practices and resource solutions

A number of solutions were employed during recent emergencies to ensure adequate supplies of resources. Examples of relevance for Auckland are summarised in the following section.

Human resources

National scale contractors were a valuable source of resources as they were able to source resources from around NZ using their own networks. The same was true of professional services providers. In the Manawatu/Wanganui floods of 2004 and the BOP events of 2004 and 2005 there was a spread of providers across the utilities so no one provider was stretched too far. In the Manawatu/Wanganui flood events the Contractors Federation was brought in to identify issues relating to contractors and identify additional available resources through their networks.

Local contractors and industry were used extensively for both lifeline utility operations and private properties, particularly in the BOP event in 2005, where resources from the forestry industry, for example, were used. Significant public goodwill was experienced by using local resources before calling in external agencies. In Matata some local contractors volunteered their time. This was helpful but required careful management. For example, one contractor volunteered their time for free, but did not have funding for the fuel required to complete the work they were carrying out.

Some sectors had MoUs or Mutual Aid Agreements under which they could call on specialist personnel. These were not extensively used, but when called upon were understood to have been effective. Other sectors had sector plans for response which were implemented and found to be reasonably effective (e.g. NGOCP for gas sector).

In the 2005 Bay of Plenty event different contracting agencies were working on private properties, compared to those working to restore lifeline utility networks. There was not therefore competition for contractor resources.

A 'trade-me' type website was developed for contractors and tradespeople during the recovery phase of the Manawatu-Wanganui event. The idea was for those people to post their details (particularly those from out of town) and individuals and organisations that needed services but couldn't find them locally could go to the site and arrange it themselves. The website was a helpful tool but did not capture suitable resources for utilities – larger organisations were preferred by utilities rather than individual operators etc.

Physical resources

Helicopter resources were pooled by multiple utilities or by task being carried out for more than one utility during each flight.

Temporary solutions were able to be employed to source some scarce resources. For example during the Manawatu/Wanganui floods recovery crushing plants were made available to grind up rocks to maintain supply. This solution may not be relevant to Auckland depending on the requirement for crushed rock, the location of crushing plants and the availability of rocks for crushing.

In situations where no pre-arrangements were in place for physical resources, creative solutions were sometimes employed. For example steel gas tubes were used instead of railway iron for ground retention when there was a shortage of supply.

In general terms, lifeline utilities in sectors with high levels of competition and commercial imperatives appeared to have the greatest levels of pre-planning and more access to pre-arranged resources.

2.3. Contractual issues

Some contracts between large national lifeline utilities and their contractors require the contractors to have arrangements for continuity of service during an emergency. In some cases (e.g. Telecom) a specific process must be undergone to ensure contractors have this capability before contracts are let.

Many contracts held by utilities include unit rates to carry out emergency works, and do not require specific approval to do emergency works. In some cases work may have been done beyond the standing pre-approved limits, but as the works clearly needed to be done this was not raised as a problem at any time.

In some cases there was evidence of individuals offering higher unit rates to contracted utilities. For example in the Manawatu/Wanganui floods there were reports of farmers offering higher rates to contractors engaged by lifeline utilities, in order to have urgent access work done on their private properties.

Resource Management Act issues were a source of frustration in the Manawatu/Wanganui flood event, particularly with regard to access restoration. The main issue was the time that it took to develop an understanding with the Regional Council about emergency actions under the RMA that would cover all situations, rather than require a formal process for each activity. This was achieved in the form of a guidance note prepared by the infrastructure Recovery Task Group leader and the Regional Council outlining the procedures to be followed.

At some times during this event the CDEM Recovery team had to be the intermediary between Council (both TA and Regional) and Utilities, for example to sort out issues relating to dumping of debris/dirt into rivers when clearing roads.

In many cases road maintenance and safety contracts were put on hold to do emergency work. The effect of this was effectively to defer maintenance, which may cause a greater workload of future maintenance. When funding is from a national/government source (e.g. Transfund, now LTNZ) this has a knock-on effect with respect to future contracts as timeframes need to be extended.

2.4. Interaction between CDEM and Lifeline Utilities

There was little evidence of CDEM Groups requiring specific physical actions to be undertaken by lifeline utilities.

In most cases priorities for restoration were set by the lifeline utilities and communicated to the CDEM Group. The role of the CDEM personnel was often to bring the lifeline utilities together and to communicate common issues between lifeline utilities and other agencies. In particular infrastructure taskgroup managers within the CDEM recovery teams fulfilled this role.

There is no evidence of the CDEM Group directing any activities on behalf of lifeline utilities. Instead the CDEM Group personnel focussed on identifying and communicating problem areas and providing updates on progress to all utilities. Individual utilities became aware of problems because of CDEM reports but took their own action to rectify them.

In the Manawatu/Wanganui event a process was established in case issues did arise. The process was to refer to the CDEM Group Co-ordinating Executive Group. However, no issues arose that required that level of input, and instead discussions were held with the CDEM Group recovery personnel, TAs and utilities and agreements were reached as required. Once priorities were agreed the CDEM Group did not need to take any action to support particular activities.

Political and media pressures were present and at times contributed to discussion about priorities. For example in the Manawatu/Wanganui event some access priorities were influenced by MCDEM informing the CDEM Group of areas of concern raised by central and local government politicians about particular isolated communities. These types of pressures are likely to be present in any emergency event and lifeline utilities may need to consider these pressures when determining restoration priorities.

2.5. Issues for Auckland

The areas affected by emergency events in 2004 -2005 were predominantly rural rather than large metropolitan centres, and this needs to be borne in mind in considering the relevance of the above observations to Auckland.

Auckland has a large pool of resources working on lifeline utility activities at any one time, simply due to the large number of customers being served. It may also be an attractive area for lifeline utilities and contractors to work during an emergency as there may be a larger potential gain, strategic value, funding pool, or potential for future work when operating in the Auckland area, rather than in rural areas.

However, expectations upon utility services with respect to the number of people and value of commercial activities affected are likely to be higher, and acceptable timeframes for disruption may be shorter in Auckland than in other areas of New Zealand.

It may therefore be that there is a limited pool of resources to take from if Auckland's own resources are exhausted. In addition, the characteristics of utility networks may be unique to Auckland e.g. high voltage cables not used in other parts of the country. This may require more specialist resources to be available, possibly from overseas.

Offers for support (personnel and resources) can be expected from across New Zealand. The standard and quality of these offers will be varied, although will be most useful for utilities if they are from larger organisations, rather than individual operators.

The surge capacity of the Auckland region to provide adequate resources for lifeline utility response and recovery during an emergency has not been quantified. It is recommended that an AELG working party be established to further identify this capacity.

3. Legal Issues

3.1. Interaction between Lifeline Utilities and CDEM

The nature of CDEM and lifeline utility interaction will vary between emergency events (both scale and type), and with the level of pre-event planning of the utilities involved in the emergency. The range of modes can be summarised as follows, reflecting an increase in the scale of impacts and resource criticality:

1. Utilities determine their own restoration priorities, CDEM gathers information and monitors
2. CDEM and lifeline utilities work together to identify priorities and implement these by agreement
3. CDEM determines priorities and requests utilities to act in accordance with set priorities (no formal direction under the Act)
4. CDEM direct specific actions calling on the powers of the CDEM Act (only available during emergency response).

Modes 1 and 2 are clearly the most preferred operating situation and this highlights the value of pre-event planning and engagement between CDEM agencies and lifeline utilities.

CDEM organisations generally do not resort to using the powers under the Act, but prefer to co-ordinate activities and work with lifeline utilities as they set priorities, rather than be responsible for directing the activities, assets and services of other organisations.

A consequence of this is that the legal powers available under the Act to direct lifeline utilities have not been exercised in historical emergency events, and have not been tested in a court of law either under the CD Act 1983 or the CDEM Act 2002 (personal comment from MCDEM staff).

It is important that lifeline utilities have adequate planning in place to be able to continue to deliver their services during an emergency. Pre-event planning with the CDEM sector is essential to identify the issues that may arise, and agree priorities in advance where possible. For example the National CDEM Plan User Guide (to be in place by the middle of 2006) will include priorities for lifeline utilities to work towards when responding to an emergency.

Powers to direct during an emergency

Powers to direct emergency activities in certain circumstances do exist in the CDEM Act 2002. None of these provisions are specific for lifeline utilities. Some provisions that may be relevant to resource allocation for lifeline utilities include the ability of a CDEM Controller to:

- S90 Requisition (only for preservation of human life)

- S91 Direct any person to stop any activity, or take any action (if it may contribute to an emergency or limit the extent of an emergency)
- S86-89 Evacuate people or places, enter premises, close roads and public places, remove vehicles (under certain conditions).

It is important to note that these powers all have conditions under which they may be exercised, and specific limitations. They may only be issued by a designated Controller and only in a declared emergency situation.

If a CDEM agency were to direct activities using powers under the Act they would become responsible for the oversight and management of those agencies' resources and services, a task for which CDEM are not skilled, and therefore a responsibility they would not take on lightly.

It is also unlikely that a lifeline utility would wish for CDEM to assume this control, and therefore every effort is normally made to make arrangements work without the need to exercise legal powers under the Act.

The most common interaction between CDEM Groups and lifeline utilities is therefore for agreements on priority activities to be reached, often after considering political and community interests (including media activities), and resource limitations.

Compensation for losses

The direction (under the Act) or agreement of a lifeline utility to carry out specific emergency functions may mean that a lifeline utility is unable to deliver on existing contracts for service. If this is the case a lifeline utility may suffer losses due to existing contracts being broken, in addition to incurring costs associated with carrying out the emergency works.

The declaration of an emergency, or the direction or request of a Controller to carry out particular activities, does not release a lifeline utility from its existing contractual obligations.

There is no compensation payable from the CDEM Group or local authority for losses incurred due to interruption of other contracts. The disruption to those contracts is a matter for the utility to sort out with their other contracted parties. In the same way the CDEM Group cannot force a lifeline utility to act in accordance with CDEM priorities without enforcing a specific provision of the Act, and assuming control of those activities.

The invoking of force majeure to suspend contracts would be a decision of the utility concerned, but would not incur any requirement for compensation on the part of the CDEM Group or local authority. The declaration of a state of emergency, or direction or request of a CDEM Controller does not constitute, in itself, grounds for force majeure to be declared on the part of a lifeline utility. The conditions of force majeure would depend on the specifics of the contract and of the situation being faced by the lifeline utility. Clearly a good

understanding by lifeline utilities of their legal position is required prior to an event occurring, along with access to specific legal advice at the time of an event.

The main recourse for lifeline utilities if they suffer losses during an emergency is their own insurance arrangements (particularly business interruption insurance).

Under the CDEM Act (S109) losses can only be claimed for damage to property when under the direction of a Controller under a specific section of the Act (and during a declaration). This only covers loss or damages that have not been covered by any other means (e.g. insurance).

In situations where special problems of risk management and hardship exist, government assistance as a special policy may be requested by trading utilities under the National CD Plan (Part 2 Recovery section 19(d) and paras 9-11, due to be replaced in 2005). The conditions listed in the existing National CD Plan for this assistance include:

- *Central government recovery assistance will normally only be provided where:*
  a. *recovery procedures cannot be carried out without central government assistance; or*
  b. *there is a statutory requirement for action, or a need to invoke a statute to achieve the ends desired from the recovery process; or*
  c. *central government assistance will aid the co-ordination of the recovery process to a significant extent; or*
  d. *there are advantages of economies of scale.*

Commerce Act limitations

The Commerce Act restrictions on joint agency planning within a number of utility sectors will continue to be an issue during an emergency.

No provisions of the CDEM Act, including the declaration of a state of emergency over-ride the Commerce Act restrictions with respect to pricing matters and decisions to supply particular customers. Therefore legal advice may need to be sought during an emergency to ensure that Commerce Act requirements are not breached.

MCDEM has prepared a guideline of protocols for working within the restrictions of the Commerce Act before and during an emergency. Although these have not been formally approved by the Commerce Commission, they are helpful for the utility sector, and are available from Hans Brounts at MCDEM (hans.brounts@dia.govt.nz).

4. Survey of Lifeline Utilities and Contractors to Lifeline Utilities

In order to gain a better understanding of the issues relating to resource availability during emergencies, and how these issues can be addressed, a survey was conducted of a sample of lifeline utilities and contractors to lifeline utilities.

The Objectives of the survey were:

1. To identify resources critical to lifeline utility response and recovery
2. To identify any critical resources needed by multiple lifeline utilities
3. To identify arrangements in place to ensure critical resources are available after an emergency
4. To identify limitations to the availability of critical resources during an emergency

The survey focussed on the availability of human and physical resources to restore critical services of lifeline utilities and their contractors following a major emergency in the Auckland Region. The survey was limited to immediate response activities, rather than long term rebuilding which will require formal tender processes and associated sourcing of resources.

A scenario was provided to enable survey respondents to identify the scale of situation they were to consider when completing the survey.

4.1. Survey Methodology and Respondents

Survey questions were developed with the assistance of the AELG 6 project team. The survey was conducted on-line using open source software. A small pilot survey was undertaken first to fine-tune questions and check the data collation properties of the software.

A sample of lifeline utilities (AELG members) and contractors involved in ensuring continuity of lifeline utility services (such as contractors that hold maintenance contracts) were asked to complete the survey.

The survey was intentionally limited to those lifeline utility members who were AELG members. The main reason for this was the limitation of the style of questions that a survey method enabled. It was considered that any issues raised by the survey would be better discussed subsequently in a workshop environment with a larger range of organisations rather than try and encapsulate all views through conducting a longer and more detailed survey.

Eleven lifeline utility organisations and three contractor organisations completed the survey. In addition two other contracting organisations partially

completed the survey, off-line. 55% of all lifeline utilities and 38% of all contractors invited to participate in the survey submitted a response. A list of those organisations that completed survey responses is attached to this report (Appendix 1).

Respondents to the survey represented many lifeline utility sectors including water supply, wastewater, stormwater, energy (electricity, fuel, gas), telecommunications (landline, mobile, internet and broadcast), and transportation (road, rail, marine/port, air).

The small sample size of the contractor organisations who responded to the survey should be considered by readers when interpreting the survey responses.

4.2. Survey Results

A copy of the survey instructions and scenario (lifeline utility and contractor) are attached to the report (Appendix 2).

The raw survey results are attached as (Appendix 3). These survey results exclude questions that may be commercially sensitive, or relate to relationships between a specific lifeline utility and a specific contractor.

Inter-dependence of lifeline utilities

Survey respondents identified those utility services that they rely upon to carry out their own activities.

Those most relied upon include road transportation (90.0% of lifeline utilities, 100% of contractors), mains electricity (81.1% of lifeline utilities, 100% of contractors), mobile telephone communications, and VHF radio (63.6% of lifeline utilities, 100% of contractors) and backup electricity (63.6% of lifeline utilities).

Lifeline utility survey respondents also identified those utility services which would be disrupted if they were unable to deliver their own services. Those most likely to be disrupted were water supply, waste water, mains electricity and mobile telephones. Waste water services and road transportation were most likely to be affected by disruption to the operations of the contractors who responded to the survey.

Motivation for restoring critical services

The most commonly reported motivation of lifeline utilities to restore their critical services was community expectation (reported by 81.8% of lifeline respondents). This was followed by contractual obligation and legislative requirement (72.7% of lifeline respondents).

For contractors the primary motivation for restoring their critical services was contractual obligation (100%) and then community expectation (66.7%).

Human resources

When asked to determine which percentage of critical services could be restored using human resources directly available to a lifeline utility or contractor the following results were achieved.

% of critical services that could be restored	No. of Lifeline Utility respondents	No .of Contractor respondents	% of respondents overall
0%			
20%	3		21.4%
40%	1	1	14.2%
60%	4		28.6%
80%	1	1	14.2%
100%	2	1	21.4%

The most common arrangement for accessing human resources during an emergency was the use of additional contracted personnel (reported by 90.9% of lifelines and 100% of contractors), this was followed by pooling of national staff (reported by 45.5% of lifelines and 100% of contractors). This may indicate that contractors are, in many cases, more able to pool national resources than lifeline utilities. Only 27.3% of lifeline utility respondents listed Memoranda of Understanding as an arrangement in place for accessing human resources during an emergency.

It is important to note that the question asked lifeline utilities and contractors about arrangements for accessing human resources that were already in place. The results to the question are therefore surprisingly high, possibly reflecting that respondents were identifying actions they would take during an emergency, rather than arrangements they already had in place.

Human resource limitations were most commonly attributed to inability to access work sites (81.8% of lifeline utilities, 33.3% of contractors), personnel being unavailable due to being affected by the emergency (72.7% of lifeline utilities, 66.7% of contractors), critical suppliers or contractors unavailable (72.7% of lifeline utilities, 33.3% of contractors), and OSH requirements (45.5% of lifeline utilities, 66.7% of contractors).

Human resources reported as being critical by more than one lifeline utility or contractor include (in general order of the most references):

- Plant operators
- Labourers
- Technicians
- Professional engineers
- Linesmen
- Riggers
- Drivers

Physical resources

When asked to determine which percentage of critical services could be restored using physical resources directly available to a lifeline utility or contractor the following results were achieved.

% of critical services that could be restored	No. of Lifeline Utility respondents	No .of Contractor respondents	% of respondents overall
0%			
20%	2	1	21.4%
40%	1		7.1%
60%	4	1	35.8%
80%	3		21.4%
100%	1	1	14.2%

The most common arrangement for accessing physical resources during an emergency was for contractor to source them (reported by 72.7% of lifeline utilities and 66.7% of contractors). Agreements with suppliers were particularly important for contractors as all of the respondents (100%) reported having these agreements in place, as did 54.5% of lifeline utilities. Emergency stores were also used by lifelines (45.5%) and contractors (66.7%).

Mutual aid agreements rated more highly for physical resources than for human resources, although still only 27.3% of lifeline utilities reported that these were in place to be activated during an emergency.

Physical resource limitations were primarily attributed to inability to source supplies form outside of Auckland (72.7% of lifeline utilities, 33.3% of contractors), competition for limited resources (63.6% of lifeline utilities) and just in time supply chain (45.5% of lifeline utilities, 66.7% of contractors).

Physical resources reported as being critical by more then one lifeline utility or contractor include (in general order of the most references):

- Transportation equipment (trucks, tankers, 4WDs etc)
- Fuel
- Aggregate/bitumen/concrete
- Generators
- Excavation plant
- Cranes/cherry pickers
- Rollers, pavers
- Steel
- Helicopters
- Cables and pipes (various)

Interactions between lifeline utilities and contractors

90.9% of all lifeline utilities reported that they engaged contractors to deliver components of their critical services. However, of these, only 54.5% of lifeline utilities reported that priority service was included in the contracts, and a further 36.4% reported that some elements of priority service were incorporated.

Interestingly, of the small sample of contractors responding to the survey 66.7% reported they did not have priority arrangements built into their contracts with lifeline utilities. If this trend represents the whole contracting sector (and is not due to the small sample size) there may be an issue to be resolved as lifeline utilities believe priority service is agreed in contracts, but their contractors do not.

Of the 54.5% of lifeline utilities who reported they had a priority agreement with their contractors, only 45.5 % believed that they were the only organisation with a priority agreement with that contractor, and 36.4% were unsure. All of the contractors who responded to the survey did not know if they have priority arrangements with more than one lifeline utility.

54.5% of lifeline utilities reported that their contracts included requirements for emergency repairs. In addition 45.5% of lifeline utilities reported their contracts specified maintenance, and 27.3% reported contracts covered CDEM emergencies or all situations. In comparison 66.7% of contractors reported

their contracts did not specify the specific situations they were to operate in with only 33.3% reporting that their contracts included a requirement to operate during a CDEM emergency, or carry out emergency repairs.

Lifeline utilities reported that incentives and penalties were sometimes built into contracts (18.2% reported there were penalties or incentives and 36.4% reported there were some penalties or incentives). 45.5% of lifeline utilities reported there were not any penalties or incentives in their contracts. Of the contractors who responded to the survey none had any penalties or incentives written into their contracts for carrying out activities during an emergency.

45.5% of lifeline utilities felt confident in the ability of their contractors to deliver their services during an emergency, a further 18.2% were somewhat confident and 36.4% were not confident.

All of the contractors surveyed used subcontractors to deliver components of their services. Of these, 33.3% of contractors were confident in the ability of the sub contractors to deliver their services during an emergency, and 66.7% were somewhat confident.

When asked which contractors were used by lifeline utilities, the responses showed a spread of providers was used. A small number of contractors were used by more than one lifeline utility. Interestingly however, of the 3 contractors who completed electronic survey forms, they reported that they served 19 different lifeline utility organisations.

This result may indicate that the small sample of contractors probably do not service the same pool of lifeline utilities that responded to the survey, or that the sample size of the contractors is two small to be reliable for any conclusions in this area.

The value of contracts awarded to contractors in the lifeline utility sector was seen to be sizeable. This indicates that an ongoing capability is being built in contracting organisations to service the contracts that they have with lifeline utilities.

Summary question

When asked how confident overall the lifeline utility or contractor was in their ability to restore critical services within a timeframe consistent with community expectations the following results were achieved:

Level of confidence in ability to restore critical services	No. of Lifeline Utility respondents	No .of Contractor respondents	% of respondents overall
0%			
20%	1		7.1%
40%		1	7.1%
60%	1	1	14.2%
80%	8	1	64.3%
100%	1		7.1%

Participants were instructed to consider community expectations in line with the timeframes identified in line with the recent AELG report: Priority Utility Sites for Recovery (Publication No. 214).

4.3. Discussion

The key observations of the results of the survey include:

- There seems to be a different perception between utilities and contractors as to what priority arrangements are in place in their contracts (although small sample size of contractors may be a factor here). Clarification of contracts between lifeline utilities and their contractors as to what services are expected during an emergency situation, and who has priority, may be needed.
- The level of confidence among lifeline utilities that contractors can deliver their services in an emergency is not very high (54.6% of utilities were only 'somewhat confident' or 'not confident'). Given that the confidence levels of contractors that they can complete the majority of tasks within acceptable timeframes is relatively high, this may suggest that more communication is needed between contractors and their clients to reassure them that contractual obligations are able to be met.
- The number of contracts including specific provision for carrying out emergency activities in CDEM situations is low. Only approximately 30% of lifeline utility and contractor respondents reported that this provision was in place.

- A range of mechanisms are in place to access physical and human resources during an emergency. These will not be sufficient to meet all of the emergency needs, but lifeline utilities and contractors feel comfortable that the majority of their critical tasks will be achieved within acceptable timeframes.
- Substantial reliance is placed on contractors and subcontractors to provide physical and human resources during times of emergency. This may be an area of potential risk as those letting the contracts are therefore dependent on the ability of another organisation for delivery of their service, and may not be able to identify if adequate arrangements are in place for use during an emergency.
- A number of physical and human resources are required by the same lifeline utilities and contractors. Work may be needed to identify whether the pool of suppliers of these resources is large enough to satisfy all lifeline utilities and contractors.
- A critical issue for all lifeline utilities and contractors is road transportation access as this will limit the availability of human and physical resources. Of particular importance are links out of Auckland.
- Mutual Aid Agreements and Memoranda of Understanding are not widely used, particularly with contractors who prefer to rely on sourcing resources through their own national pool of resources.

5. Future steps: Recommended methodology

5.1. Promulgating information contained in this report

There are a number of potential audiences who would benefit from being made aware of the information and lessons learned contained in this report. These include:

- AELG members
- Non-AELG members (lifeline utilities)
- Contractors to Auckland lifeline utilities
- Auckland CDEM Group
- Other Lifelines Groups in New Zealand

Lifeline utility and contractor presentation and workshop

For those organisations operating in Auckland it is recommended that a copy of the report be distributed to them, along with a request to attend a presentation of the findings and a workshop on some of the key issues that arose through the project.

The presentation and workshop would also be an opportunity to present the survey results and gain feedback from the organisations about whether the results can be extrapolated to the lifeline utility or contracting sectors as a whole, or whether more organisations need to be sampled to gain a clearer picture.

This workshop could be open to AELG members, and non-members. If preferred, separate lifeline utility sector workshops could be held.

Auckland CDEM Group

It is recommended that AELG hold discussions with the Auckland CDEM Group to ascertain whether the CDEM Group has a preferred approach to the use of emergency powers under the CDEM Act, and to communicate the consequences to lifeline utilities if the CDEM Group were to exercise those powers.

It is also recommended that AELG communicate to the CDEM Group the resources identified as being essential for lifeline utility response and recovery. This information would be useful for CDEM Group recovery planning purposes.

Other Lifelines Groups

A number of the lessons learned from past events, and the legal and contractual issues investigated in this report will be of relevance to other Lifelines Groups around New Zealand. It is recommended that a copy of the

report be offered to other Lifelines Groups, and distributed if they wish to receive a copy.

5.2. Further investigation

A number of issues arose through this stage of the project which the AELG may deem warrant further investigation. It is recommended that the AELG particularly considers the following issues.

Priority agreements in contracts

There appears to be a difference of understanding between lifeline utilities and contractors in terms of the inclusion of priority agreements in contracts. In addition, it appears there is a low level of understanding by lifeline utilities of the resource arrangements of their contractors (including professional service providers).

This issue is probably best handled by each lifeline utility in communication with their own contractors. The AELG may draw attention to this issue through a letter to lifeline utilities, and request that lifeline utilities take the necessary actions. Sector workshops could be held to discuss any contractor limitations or overlaps.

Level of resources available to contractors

Only a small number of contractors responded to the survey. It may therefore be appropriate to re-survey a wider sample size to gain a more accurate picture of the contractor issues. This should be considered following the presentation and workshop recommended above to which contractors should be invited.

Mutual Aid Agreements and Memoranda of Understanding

If it is recommended that small case studies of the arrangements already in place are carried out, including an analysis of what should be in such agreements and how they are activated. These could then be taken up by agencies without such agreements, as the reported level of mutual aid agreements and memoranda of understanding was low in the respondents surveyed in this project.

This should be considered following the presentation and workshop recommended above, if those organisations who do not have these arrangements in place indicate this would be helpful.

Appendix 1: Survey Respondents

Organisation	Category
Auckland International Airport Ltd	Lifeline utility
Blacktop Group	Contractor
Broadcast Communications Ltd	Lifeline utility
Counties Power Ltd	Lifeline utility
Downer	Contractor
Manukau City Council	Lifeline utility (X2)
Northpower	Contractor
Ontrack	Lifeline utility
Shell Distribution (Terminals) Wynyard Wharf	Lifeline utility
Telstra Clear	Lifeline utility
Transfield Services	Contractor
Vodafone (NZ) Ltd	Lifeline utility
Watercare Services Ltd	Lifeline utility
Wiri Oil Services ltd	Lifeline utility
Works Infrastructure	Contractor

Appendix 2: Survey instructions and scenario

Resources for Response and Recovery

Survey of Auckland Lifeline Utilities and Contractors to Lifeline Utilities

The Auckland Engineering Lifelines Group (AELG) wishes to gain a better understanding of the issues relating to resource availability during emergencies, and how these issues can be addressed. AELG has commissioned Kestrel Group to conduct a survey of lifeline utilities and their contractors to identify the resource issues that could arise during an emergency.

As a lifeline utility, or a contractor to a lifeline utility, you are asked to complete a short survey. It is estimated that the survey will take 10-15 minutes to complete. Surveys are to be completed on-line by 15 August.

Introduction

During an emergency the restoration of lifeline utilities is essential for community recovery. Limitations on resource availability for lifeline utilities to restore their services may hinder community recovery processes, as well as the operations of key commercial customers.

In the context of emergencies, 'resources' can refer to human resources such as personnel and contractors, or physical resources such as equipment and materials. As many lifeline utilities engage contractors to deliver parts of their services, the availability of resources to contractors, and the availability of the contractors themselves are also of interest to the AELG.

The focus of this survey is on the availability of resources to restore critical services of lifeline utilities following a major emergency in the Auckland region.

Immediate response activities and temporary fixes to restore services are the primary consideration of this survey, rather than long term rebuilding which will require formal tender processes and associated sourcing of resources. The survey therefore refers to resources directly available, meaning those that are held by the organisation or that arrangements are in place to access immediately following an emergency.

If it is helpful for context, consider this scenario when answering the survey. The scenario represents an event causing widespread disruption to multiple utility services.

Contact Details

If you have any problems with the survey, or any feedback please contact Debbie Cunningham at 04 4994433 for assistance.

Survey Instructions

Please answer each question in as much detail as possible. Information collected in this survey will be summarised into a final report, and not used for other purposes. Issues relating to lifeline utility sectors will be described rather than references to individual organsations.

The AELG Project Priority Sites for Recovery may be a useful reference to assist identification of critical services, and service restoration expectations.

Scenario to consider when completing survey

A large ex-tropical cyclone from the north-east has been buffeting the entire upper North Island. High intensity rainfall and strong winds have been experienced for a period of 2 days. The cyclone is the largest cyclone experienced in over 100 years in the upper North Island. It follows after a month of unsettled weather. Antecedent ground conditions are wet and saturated.

The combination of strong winds and heavy rain across the region has led to surface flooding in all districts, and widespread landslides and subsidence.

Effects on utilities include:

- Many stormwater systems and small watercourses have been unable to hold the capacity of rainfall and have failed, overtopped or been structurally damaged.
- Multiple transformer stations have been flooded or damaged by tree falls, cutting electricity supplies to many suburbs and to parts of the Central Business District. Estimated timeframes for partial restoration are at least 48 hours. Over 100 incidents of downed overhead lines have been reported in the last 4 hours across the region.
- Water supplies are limited due to potential contamination of waste water from flooding, and flooding and structural damage to pump stations.
- Road networks have experienced considerable damage with multiple bridges impassable and requiring assessment, as well as portions of motorway impassable. Access between districts and out of the region (particularly to the north) is limited due to slips and road subsidence. Rodney District is isolated from the rest of the region due to road slippages.
- Rail networks have suspended all operations due to slips and flooding. It is expected that repairs will take over 1 week.
- Numerous coastal areas have experienced significant landslides, erosion and coastal flooding, affecting coastal infrastructure assets.
- Landslide effects are particularly pronounced in Waitakere City as well as Whitford and Hunua, with up to 20% of all slopes having failed.

- The airport and port facilities have experienced structural damage resulting in closure for at least 2 days until assessment and temporary repairs can be carried out.
- Damage to the Wiri oil terminal and access routes to the depot mean that fuel and aviation gas are not able to be delivered or transported from that location.
- Telecommunications are intermittent with mobile networks physically unaffected in most locations, but subject to overloading. Landline and related services have been disrupted by flooded exchanges and loss of underground cabling in some areas.
- Gas supplies have been affected by localised breakages caused by land subsidence and landslides.

Appendix 3: Survey Results

Lifeline Utility Survey Responses

General Questions

1. Please list the critical services your agency will be attempting to restore immediately following an emergency. For example: restore power to hospital, repair damaged pipelines, secure road subsidence etc.

#	Response
1	Allocate or restore power to Hospitals, cowsheds, industry
1	Asset integrity i.e. tanks & pipelines, power, water, communications
1	Communications, Radio, TV
1	Ensure suitability of Airfield for aircraft movements including navigational equipment and power supplies to those. Check power supply availability after generators have started. Check roading networks are still operating. Check aviation fuel supply. See if water supply is still connected, also sewerage and stormwater. Review any building damage and agree with Airlines and government agencies on any temporary measures for facilitation. It is anticipated radio and communication facilities will not be affected however cellphone towers could be an issue. Some facilities can cope for 24 to 48 hours such as quarantine waste, power, water, aviation fuel.
1	Restore all 021 mobile services throughout NZ
1	Restore Fuel Supply to Upper North Island (40% of National Supply - Road Grades and Airports from Taupo northwards.) 96,91,Diesel,and Jet Fuel.
1	Restore rail tracks to service, restore rail communication systems and signalling systems to service
1	Restore telecommunications for customers who are named Lifeline Entities or Lifeline Utilities. These vary by district but may include at anytime the full range of emergency services and lifeline facilities.
1	Roads as per priority road map.
1	Water Supply systems - water treatment plants , dams, transmission networks - pipelines, tunnels, pipe bridges, storage reserviors, pumping stations. Wastewater collection systems - trunk sewers, pumping stations and treatment plant.
1	Water supply, wastewater services(pipelines, pumpstations etc)

2. Do you rely on the availability of any of the following services to deliver your critical services?

Water - supply	54.5%	(6)
Water - waste water	36.4%	(4)
Energy - mains electricity	81.8%	(9)
Energy - backup/generator	63.6%	(7)
Energy - natural gas		(0)
Energy - fuel/oil	45.5%	(5)
Communications - VHF radio	63.6%	(7)

Communications - landline telephone	54.5%	(6)
Communications - mobile telephone	63.6%	(7)
Communications - internet	36.4%	(4)
Communications - broadcast media	9.1%	(1)
Transportation - roads	90.9%	(10)
Transportation - rail		(0)
Transportation - marine/port	18.2%	(2)
Transportation - air	18.2%	(2)

3. Would disruption of your services impact on the ability of any of the following services to continue to function?

Water - supply	36.4%	(4)
Water - waste water	36.4%	(4)
Energy - mains electricity	36.4%	(4)
Energy - backup/generator	9.1%	(1)
Energy - natural gas		(0)
Energy - fuel/oil	18.2%	(2)
Communications - VHF radio	9.1%	(1)
Communications - landline telephone	18.2%	(2)
Communications - mobile telephone	36.4%	(4)
Communications - internet	18.2%	(2)
Communications - broadcast media	18.2%	(2)
Transportation - roads	18.2%	(2)
Transportation - rail	9.1%	(1)
Transportation - marine/port	18.2%	(2)
Transportation - air	18.2%	(2)
None		(0)

4. What obligations/motivations do you have to restore your critical services in an emergency?

Contractual obligation	72.7%	(8)
Community expectation	81.8%	(9)
Legislative requirement	72.7%	(8)
Safety/security	36.4%	(4)
Competitive Opportunity	36.4%	(4)
Other: Oil Company values - "the welfare of our nation"	9.1%	(1)
Other: public health, fire fighting	9.1%	(1)

Human Resources

5. Considering the human resources directly available to your organisation (i.e. your employees, engaged contractors/subcontractors), what proportion of your critical services would be able to be restored following an emergency causing widespread damage and disruption, using those personnel?

0%		(0)
20%	27.3%	(3)
40%	9.1%	(1)
60%	36.4%	(4)
80%	9.1%	(1)
100%	18.2%	(2)

6. What types of arrangements do you have in place to ensure access to additional human resources you may require to restore your critical services?

Additional contracted personnel	90.9%	(10)
Federation/Association agreements		(0)
Memorandum of Understanding with other agencies	27.3%	(3)
Mutual Aid Agreement	9.1%	(1)
Pooling of national staff	45.5%	(5)
None		(0)
Other: Maintenance agreements only	9.1%	(1)
Other: Oil Company Assistance	9.1%	(1)

7. What are the major human resources you would require to restore your critical services? Examples of human resources may include labourers, engineers, plant operators, technicians, linesmen etc.

#	Response
1	All labour and plant required to maintain and reconstruct roads.
1	Depending on extent of damage to services and buildings all forms of labour would be required from design personnel to builders, labourers ,etc.
2	engineers, plant operators
1	labourers, engineers, plant operators, technicians
1	labourers, engineers, plant operators, technicians, linesmen, technical management, outside plant technicians, cable jointers, ...
1	Linesmen
1	multi-discipline engineering, multi-discipline trades, technicians, labourers, project managers.
1	Qualified electronics technicians, riggers, IT experts
1	Riggers, technicians
1	Specialist Oil Terminalling and Refining Expertise: (Maybe imported from International Oil Company Offices)- Engineers, Technicians, Operational Personnel, Logistics Experts. Also Media/Communications Counsel and HR Resource to support staff on 24/7 shiftwork

8. What human resource limitations do you perceive may affect your ability to restore your critical services after an emergency?

Critical suppliers/contractors staff unavailable	72.7%	(8)
Lack of suitably trained personnel	36.4%	(4)
Occupational Safety and Health requirements	45.5%	(5)
Personnel unable to access work sites	81.8%	(9)
Personnel unavailable due to being affected by emergency	72.7%	(8)
Other: Nil	9.1%	(1)

Lifeline Utility Questions

9. Do you engage contractors to deliver components of your critical services?

Yes	90.9%	(10)
No	9.1%	(1)

10. Do the terms of those contracts afford your organisation priority service from your contractors?

Yes	54.5%	(6)
Some	36.4%	(4)
No	9.1%	(1)

11. If you answered Yes/Some to Question 10, is this priority specific for CDEM emergencies, or general in terms of ongoing maintenance and repairs etc.

CDEM emergency	27.3%	(3)
Maintenance	45.5%	(5)
Emergency repairs	54.5%	(6)
Unspecified	18.2%	(2)
All situations	27.3%	(3)
Other: it varies	9.1%	(1)
Other: More communication emergency repairs	9.1%	(1)

12. If you answered Yes/Some to Question 10, is your organisation the only one with priority agreement with those contractors?

Yes	45.5%	(5)
No	18.2%	(2)
Don't know	36.4%	(4)

13. Are there penalties or incentives in your contracts to ensure service delivery by your contractors during an emergency?

Yes	18.2%	(2)
Some	36.4%	(4)
No	45.5%	(5)

14. Do you feel comfortable that your contractors have arrangements in place to deliver their contracted services during an emergency?

Yes	45.5%	(5)
Somewhat	18.2%	(2)
No	36.4%	(4)

Physical Resources

17. Considering the physical resources directly available to your organisation (i.e. without having to order or source), what proportion of your critical services would be able to be restored following an emergency, using those resources?

0%		(0)
20%	18.2%	(2)
40%	9.1%	(1)
60%	36.4%	(4)
80%	27.3%	(3)
100%	9.1%	(1)

18. What types of arrangements do you have in place to ensure access to additional physical resources you may require to restore your services?

Contractors to source	72.7%	(8)
Emergency stores	45.5%	(5)
Federation/Association agreements		(0)
Mutual Aid Agreement	27.3%	(3)
Memorandum of Understanding	18.2%	(2)
Supplier agreements	54.5%	(6)
Other: Memorandum of understanding is with govt agencies,airlines and Airways not great deal of help in restoring infrastrcuture.	9.1%	(1)
Other: Oil Industry Assistance	9.1%	(1)

19. Considering the physical resources for which you have arrangements to access during an emergency, what proportion of your critical services would be able to be restored in a timeframe consistent with community expectations?

0%		(0)
20%		(0)
40%	9.1%	(1)
60%	18.2%	(2)
80%	54.5%	(6)
100%	18.2%	(2)

20. What are the top 10 physical resources you would require to restore your critical services? Examples of physical resources may include cabling, piping, fuel/oil, aggregate/rock, bitumen, excavation plant, railway iron, helicopters, 4WD vehicles etc.

#	Response
1	Access to remote sites, portable generators and air cond units. 4WD and other vehicles, Cherry pickers, temporary towers, petrol and diesel for generators, spares, test equipment
1	aggregate, hard fill, railway ballast, railway mtce vehicles, civil plant, railway plant, railway track materials, cables, structural materials (basic for retaining walls etc), railway signalling materials
1	Electricity,Steel, Pipework, specialist equipment not able to be sourced in NZ eg valves etc,cabling, excavators,cranes,extra fuel tankers, concrete, bitumen,electronic components, computer and technology components.
1	fuel/oil, aggregate/rock, diggers, pipe materials
1	Hiab trucks, Power poles, Insulators, Transformers, fuel, 4WD utilities, conductor, crossarms,
1	Labour Plant Trucks, Rollers, Pavers, Sealing Tankers, Excavators Aggregate, concrete, ashalt. There is plenty of hire plant and labour available form the general construction industry.
1	Optical cables, ducting, fuel/oil, electricity, excavation plant, vehicles, site access, backup generators, mobile communications.
1	Piping and misc associated fittings
1	Standby power generators, excavation plant, fuel (for generators and transportion/ construction plant), aggregate, concrete, pipe large steel dia, special pipe fittings, continuity of supply water/wastewater treatment chemicals, trench support materials.
1	tower steel, antennas, feeder cable, 4WD vehicles, helicopters, fuel/oil, bolts/nuts, lifting equipment,
1	Water supply (though non drinking water is available through a bore). Aviation fuel Concrete for runway repairs Asphalt and aggregate for roading work. Pumps for sewerage systems Extra generators and cabling contractors to joint power or comms cables. Design personnel to assist with recovery process and management of contractors to implement repairs. Plant items which are not stocked on Airport eg stormwater pipes and manholes, sewer pipes,

21. What physical resource limitations do you perceive may affect your ability to restore your critical services after an emergency?

Competition for limited resources	63.6%	(7)
Inability to source resources from outside of Auckland due to disrupted transportation networks	72.7%	(8)
Just-in-time supply chain	45.5%	(5)
No emergency stores	18.2%	(2)
Not available in New Zealand	18.2%	(2)
Other: None	9.1%	(1)
Other: remote location of many BCL sites	9.1%	(1)

Final Questions

22. Overall, how confident are you that you will be able to restore your critical services, using physical and human resources you have arrangements to access, within a timeframe consistent with community expectations?

0%		(0)
20%	9.1%	(1)
40%		(0)
60%	9.1%	(1)
80%	72.7%	(8)
100%	9.1%	(1)

26. What sector(s) do you work in?

Water - supply	18.2%	(2)
Water - waste water	18.2%	(2)
Energy - mains electricity	9.1%	(1)
Energy - backup/generator	9.1%	(1)
Energy - natural gas		(0)
Energy - fuel/oil	18.2%	(2)
Communications - VHF radio		(0)
Communications - landline telephone	9.1%	(1)
Communications - mobile telephone	18.2%	(2)
Communications - internet	9.1%	(1)
Communications - broadcast media	18.2%	(2)
Transportation - roads	18.2%	(2)
Transportation - rail	9.1%	(1)
Transportation - marine/port	9.1%	(1)
Transportation - air	18.2%	(2)
Other: stormwater reticulation	9.1%	(1)

Contractor Survey Responses

General Questions

1. Please list the critical services your agency will be attempting to restore immediately following an emergency. For example: restore power to hospital, repair damaged pipelines, secure road subsidence etc.

#	Response
1	Clearance and maintenance of roads, gas, water, power lines
1	Restore Power predominantly in the southern Auckland region served by Vector and supporting other Vector Contractors dependant on extent and severity of event, Supporting Vector gas reticulation contractor
1	Restore Roads Manage traffic flows on State Highway including Auckland Harbour Bridge Restore operation of waste water treatment plant

2. Do you rely on the availability of any of the following services to deliver your critical services?

Water - supply	33.3%	(1)
Water - waste water		(0)
Energy - mains electricity		(0)
Energy - backup/generator	33.3%	(1)
Energy - natural gas		(0)
Energy - fuel/oil	66.7%	(2)
Communications - VHF radio	100.0%	(3)
Communications - landline telephone	33.3%	(1)
Communications - mobile telephone	100.0%	(3)
Communications - internet	33.3%	(1)
Communications - broadcast media		(0)
Transportation - roads	100.0%	(3)
Transportation - rail		(0)
Transportation - marine/port	66.7%	(2)
Transportation - air		(0)

3. Would disruption of your services impact on the ability of any of the following services to continue to function?

Water - supply		(0)
Water - waste water	66.7%	(2)
Energy - mains electricity	33.3%	(1)
Energy - backup/generator	33.3%	(1)
Energy - natural gas		(0)
Energy - fuel/oil		(0)
Communications - VHF radio		(0)
Communications - landline telephone		(0)

Communications - mobile telephone		(0)
Communications - internet		(0)
Communications - broadcast media		(0)
Transportation - roads	66.7%	(2)
Transportation - rail		(0)
Transportation - marine/port		(0)
Transportation - air		(0)
None		(0)
Other: clarance of floods and slips	33.3%	(1)

4. What obligations/motivations do you have to restore your critical services in an emergency?

Contractual obligation	100.0%	(3)
Community expectation	66.7%	(2)
Legislative requirement	33.3%	(1)
Safety/security	33.3%	(1)
Competitive Opportunity	33.3%	(1)

Human Resources

5. Considering the human resources directly available to your organisation (i.e. your employees, engaged contractors/subcontractors), what proportion of your critical services would be able to be restored following an emergency causing widespread damage and disruption, using those personnel?

0%		(0)
20%		(0)
40%	33.3%	(1)
60%		(0)
80%	33.3%	(1)
100%	33.3%	(1)

6. What types of arrangements do you have in place to ensure access to additional human resources you may require to restore your critical services?

Additional contracted personnel	100.0%	(3)
Federation/Association agreements		(0)
Memorandum of Understanding with other agencies		(0)
Mutual Aid Agreement		(0)
Pooling of national staff	100.0%	(3)
None		(0)

7. What are the major human resources you would require to restore your critical services? Examples of human resources may include labourers, engineers, plant operators, technicians, linesmen etc.

#	Response
1	labourers, machine operators and truck drivers
1	Managers/engineers, dispatchers, linemen, jointers, stores, UG Trades, electricians electrical fitters, Technicans, vehicle workshops, Generator operators, switching operators
1	TRaffic Management personell Mechanical Fitters Engineers

8. What human resource limitations do you perceive may affect your ability to restore your critical services after an emergency?

Critical suppliers/contractors staff unavailable	33.3%	(1)
Lack of suitably trained personnel	33.3%	(1)
Personnel unable to access work sites	33.3%	(1)
Personnel unavailable due to being affected by emergency	66.7%	(2)
Occupational Safety and Health requirements	66.7%	(2)
Other: time	33.3%	(1)

Contractor Questions

9. Do the terms of your contracts require you to give priority services to lifeline utilities?

Yes		(0)
Some	33.3%	(1)
No	66.7%	(2)

10. If the terms of your contracts require you to give priority service to lifeline utilities, is this priority specific for CDEM emergencies, or general in terms of ongoing maintenance and repairs etc.

CDEM Emergency	33.3%	(1)
Maintenance		(0)
Emergency repairs	33.3%	(1)
Unspecified	66.7%	(2)
All situations		(0)

11. If the terms of your contracts require you to give priority service to lifeline utilities, do you have priority arrangements in place with multiple lifeline utilities (or other organisations)?

Yes		(0)
No		(0)
Don't know	100.0%	(3)

12. Are there penalties or incentives in your contracts with lifeline utilities to ensure you deliver services to them during an emergency?

Yes		(0)
No	100.0%	(3)

13. Do you engage sub-contractors to deliver components of your critical services?

Yes	100.0%	(3)
No		(0)

14. Do you feel comfortable that your sub-contractors have arrangements in place to deliver their contracted services during and emergency?

Yes	33.3%	(1)
Somewhat	66.7%	(2)
No		(0)

Physical Resources

17. Considering the physical resources directly available to your organisation (i.e. without having to order or source), what proportion of your critical services would be able to be restored following an emergency, using those resources?

0%		(0)
20%	33.3%	(1)
40%		(0)
60%	33.3%	(1)
80%		(0)
100%	33.3%	(1)

18. What types of arrangements do you have in place to ensure access to additional physical resources you may require to restore your services?

Contractors to source	66.7%	(2)
Emergency stores	33.3%	(1)
Federation/Association agreements		(0)
Memorandum of Understanding		(0)
Mutual Aid Agreement		(0)
Supplier agreements	100.0%	(3)
Other: We stock some componentry	33.3%	(1)

19. Considering the physical resources for which you have arrangements to access during an emergency, what proportion of your critical services would be able to be restored in a timeframe consistent with community expectations?

0%		(0)
20%		(0)
40%	33.3%	(1)
60%	33.3%	(1)
80%	33.3%	(1)
100%		(0)

20. What are the top 10 physical resources you would require to restore your critical services? Examples of physical resources may include cabling, piping, fuel/oil, aggregate/rock, bitumen, excavation plant, railway iron, helicopters, 4WD vehicles etc.

#	Response
1	aggregate, bitumen, excavation plant, trucks, pavers, tankers, piping, fuel/oil,
1	labour mechanical parts
1	Poles, hardware, conductor, cable, generators, transformers, UG switchgear, cable joints and terminations, Deisel vehicle and generator fuel,

21. What physical resource limitations do you perceive may affect your ability to restore your critical services after an emergency?

Competition for limited resources		(0)
Inability to source resources from outside of Auckland due to disrupted transportation networks	33.3%	(1)
Just-in-time supply chain	66.7%	(2)
No emergency stores	33.3%	(1)
Not available in New Zealand		(0)
Other: time	33.3%	(1)
Other: Volume of materials available and or accessible, transporting to site, Some major equipment has very long lead times and are not stocked eg Zone Transformers and switchgear	33.3%	(1)

Final Questions

22. Overall, how confident are you that you will be able to restore your critical services, using physical and human resources you have arrangements to access, within a timeframe consistent with community expectations?

0%		(0)
20%		(0)
40%	33.3%	(1)
60%	33.3%	(1)
80%	33.3%	(1)
100%		(0)

26. What sector(s) do you work in?

Water - supply		(0)
Water - waste water	66.7%	(2)
Energy - mains electricity	33.3%	(1)
Energy - backup/generator		(0)
Energy - natural gas	66.7%	(2)
Energy - fuel/oil		(0)
Communications - VHF radio		(0)
Communications - landline telephone		(0)
Communications - mobile telephone		(0)
Communications - internet		(0)
Communications - broadcast media		(0)
Transportation - roads	66.7%	(2)
Transportation - rail		(0)
Transportation - marine/port		(0)
Transportation - air		(0)
Other: Construction	33.3%	(1)