



**Annual Activity Summary and Status Report  
from Lifelines Groups and the  
National Engineering Lifelines Committee**

**National Lifelines Forum**

**16 & 17 October 2007, Auckland**





## National Engineering Lifelines Committee

The past year for the NELC has featured an increase in engagement with a wider range of national lifeline utilities, completion of the review of the scope of the NELC's activities, and changes in representation from the member organisations that comprise the NELC.

The NELC established a new series of Wellington-based seminars on topics of interest to which a wide range of national lifeline utility organisations have been invited. The three seminars this year have covered infrastructure resilience (with Professor Tom O'Rourke of Cornell University), operational hazard warning and monitoring, and lessons from recent events and exercises.

This increased engagement with a wider range of utilities was one of the direct outcomes of the review of the scope of NELC's activities which commenced in 2006. The review process highlighted that in addition to supporting the various Engineering Lifelines Groups, a core role of the NELC should be to provide a networking (connection) function to keep the various national utility players in contact.

The review established the following statement of purpose for the NELC:

***'Enhancing the connectivity of lifeline utility organisations across agency and sector boundaries in order to improve infrastructure resilience'***

The review has resulted in an expanded role as summarised by the three elements below:

- *greater presence at regional Engineering Lifeline Group meetings and workshops*
- *a forum for member national utilities to meet and exchange views, providing active engagement and a more systematic approach to information exchange*
- *more active research linkage between the lifeline utility sector and research providers*

In support of this expanded role, EQC is providing significant additional funding into the enhanced activities that relate to their 'science to practice' portfolio. The national lifeline utility member organisations are providing additional funding for activities relating to greater interaction between national lifeline utilities.

Other activities included facilitating the series of Climate Change workshops for Lifelines Groups that have been led by the Ministry for the Environment.

The NELC has farewelled members Roger Crimp of Telecom, Hans Brounts of MCDEM, Bruce Shephard of EQC, Dave Bates of Transit New Zealand and Hugh Steed of Transpower, with acknowledgement of their considerable contribution over many years.

The current members of the NELC are:

- |                  |                          |               |                    |
|------------------|--------------------------|---------------|--------------------|
| • Dave Brunsdon  | <i>NELC Co-ordinator</i> | • Alan Walker | <i>MCDEM</i>       |
| • Ian Cox        | <i>Transit NZ</i>        | • Peter Wood  | <i>MCDEM</i>       |
| • Ian Burgwin    | <i>Transpower</i>        | • Hugh Cowan  | <i>EQC</i>         |
| • Nick Wealleans | <i>Telecom</i>           | • Andrew King | <i>GNS Science</i> |
| • Rachel Palmer  | <i>Vector</i>            |               |                    |

## Northland Lifelines Group

The Northland Lifelines Group (NLG) was convened by the Northland Regional Council in 2004. Sixteen organisations actively participate in the group (Northland Regional Council, Kaipara District Council, Whangarei District Council, Far North District Council, Transit New Zealand, Whangarei District Airport, Northport, Northpower, TelstraClear, Top Energy, New Zealand Refining Company, Transpower, Vector Gas, Vodafone, Telecom, Ministry of Civil Defence & Emergency Management).

Over the last year, the group has developed *Lifelines Utility Coordination Protocols* for the Northland utilities and the CDEM Group. There have been 3 NLG meetings, which have focused on debriefing utility/CDEM response to a number of significant emergency events.

- The first meeting in December 06 was to agree draft lifelines coordination protocols and to debrief a recent power outage event.
- The other two meetings in July and September focused on debriefs on the March and July storms respectively, with a focus on identifying learnings for lifelines coordination processes.

Over the next year, the NLG and its member utilities have a number of goals:

- To update the *Northland Lifeline Utility Coordination Protocols*, *emergency contact lists* and *Priority Utility Sites* report to make them more useful for utilities, taking into account feedback from recent events.
- To provide training on the lifelines utility coordination processes (and supporting documents as referenced above) to operational staff and contractors in member organisations.
- To actively participate in Exercise Ruaumoko.
- To provide an opportunity to share and learn from each others business continuity planning processes.
- To review options for establishing a radio network/channel to provide an alternative emergency communications system for lifeline utility and CDEM communication.
- To facilitate the climate change workshop developed for lifelines groups.

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The Auckland Engineering Lifelines Group continues to be an active group with 24 funding organisation members. The Volcanic Impact Study Group (a committee of AELG) continues to be very active in promoting research into volcanic ash impacts on infrastructure. The AELG Chair continues to represent utilities on CEG.

Over the last year we have completed the following major projects, with project information available on the [www.aelg.org.nz](http://www.aelg.org.nz) website:

- AELG-3: Infrastructure Hotspots
- AELG-4: Exercise Marconi
- Partial development of an Auckland Fuel Contingency Plan
- Revision to our 2006-08 Business Plan.

Over the next year we plan to:

- Complete a project on the volcanic ash impacts on wastewater networks (VISG-led project)
- Complete the Auckland fuel contingency plan
- Complete a poster on clearing ash from roads (VISG-led project)
- Carry out a scoping study for potential *Auckland Engineering Lifelines Project Phase 2* (the first project was completed between 1995 and 1999)
- Review regional generator resources against lifeline utility emergency demand
- Further investigate, and possibly implement, a radio network for lifeline utility / CDEM communications.
- Members will participate in Exercise Ruaukoko and a number of other CDEMG-led projects such as the Auckland region evacuation plan and tsunami plan.

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It has been a busy year, especially with the continuation of pandemic planning and addition of climate change and involvement in national exercises. The year culminated in another successful breakfast seminar.

The Emergency Communications Plan has been completed and disseminated to appropriate personnel involved in emergency management activities. The currency of the information is maintained by document holders advising of changes which are then sent out as electronic updates. Newsletters continue to be produced and are available in either hard copy or on the WELG website.

The focus is still on hazard identification and risks and, to date, one workshop and numerous individual training sessions have been held and utilities are currently compiling their individual vulnerability assessments.

The Group is currently preparing a brief to determine the costs and practicality of either a Sub-Regional or Regional Climate Change Impact Study.

The WELG Business Plan for the next five years has been completed and awaiting sign off by the Steering Committee.

Ongoing and specific activities to June 2008 are:

- Increasing the involvement with utility companies;
- Utility Vulnerability Assessment & Prioritisation Project;
- Publication of quarterly newsletters and maintenance of the web site;
- Maintenance of the Emergency Communications Plan;
- Exercise Ruaumoko
- Pandemic Planning
- Climate Change Impact Project
- Supporting Asset Managers in the production and maintenance of their Management Plans, especially in terms of risk management.
- A breakfast seminar in June 2008.

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**Bay of Plenty**

**Lifelines Advisory Group**



A new Project Manager has been appointed and two meetings have been held. The interest shown by the utilities in the Bay has been encouraging, especially from the petroleum sector.

A five year Business Plan has been produced and is currently awaiting sign off by the Steering Committee and investigations are underway to develop a BOPLAG website.

The focus of the Group over the next few months is to firmly establish itself as an entity in the Bay of Plenty, to prepare an Emergency Communications Plan, similar to that developed by the Waikato Engineering Lifelines Group, and the identification of priority utility sites throughout the Region.

Storms experienced by the Region over recent years and the current earthquakes in the Matata area serve as timely reminders of the necessity of readiness and reduction planning by the utilities and to strengthen the importance of Lifeline Groups.

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### **Gisborne Lifelines Hui Group**

The Gisborne Lifelines Group held its first full meeting on 3 May of this year. At this meeting there was good support from the lifeline utilities present to engage further to learn more about the region's hazards and to exchange network information electronically.

The Gisborne team met for the second time in September, with an excellent attendance from all the lifeline utilities, MCDEM and the Police. We started with a presentation about Transpower followed by a session on GIS, discussing what lifelines infrastructure was already recorded and what else could be added. The session was made more worthwhile when the new GDC Utilities Manager noticed the active fault line across the face of Gisborne water supply dams and Transpower noticed that their main substation in the city was actually in an area that floods. There was some doubt at this revelation, but further digging found that the area had flooded in 1977 and 1985. The session concluded with a round table with two of the local radio stations managers about information sharing and co-ordination of messaging.

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## Hawke's Bay Engineering Lifelines Group

During the year the Group met on five occasions and maintained its activities.

In its programme for the year, the Group decided to prioritise projects related to developing a lifelines cell for emergency response information, co-ordination and dissemination, and planning immediate reconnaissance following a major disaster.

The first project was advanced with a "Communications in Emergencies" workshop held in March 2007 that showed the value of inter-utilities communications during the 2006 South Island "big snow" event, and provided the group with a number of issues that a lifelines cell would need to deal with. This has led to further refining of what is being sought.

Following Noel Evans' attendance as an observer/participant in the AELG's Exercise Marconi, draft Protocols for Lifelines Cell Co-ordination were developed and are being reviewed prior to adoption. These clarify many of the issues for lifeline utilities in emergencies from business as usual events to national disasters. They will be publicised when adopted.

An ongoing task resulting from the workshop is the preparation of a brief for a communications tool. This needs to be very clear on what is required because we are finding there are a multitude of software "solutions" that do not quite provide what is being sought. This work is proceeding.

We were grateful to receive MCDEM sponsorship to develop the second project. For this, likely utility participants have been contacted and their inputs to what they would see as being desirable have been collated and refined in a draft report that will include briefings for helicopter reconnaissance immediately following a major event to obtain an overall view of the extent and types of any damage. This is expected to be completed in 2007.

The first project has emphasised the need for projects to identify priority utility sites and recovery priorities following a disaster. It is intended that these be introduced at our next workshop which will publicise the lifelines co-ordination cell protocols and update progress on the co-ordination cell and reconnaissance projects.

The Lifelines Group will update and revise its programme for future projects.

The Steering Committee has been remarkably consistent over many years but latterly with retirements and staff movements the representation of the committee has welcomed new participants who have contributed greatly to ensuring utilities will get best value from the Group's activities.

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## Manawatu Wanganui Lifelines Advisory Group

The Group has had another low-key year and is now ready to commence the review of the 2005 Manawatu-Wanganui Lifelines Project Report.

The Group has met twice since last year's national forum. On 29 March 2007, the Group met and agreed on a number of items including:

- Models of lifelines group operation were discussed and it was agreed that the purpose of the group was to share resources, information and tasks during normal and emergency conditions. No representation on CEG is required.
- Agreed key outputs of the group included:
  - Updating existing hazard and risk assessment
  - Cooperative research and risk assessment for hazards not yet assessed.
  - Reviewing the Risks and Responsibilities report
- A terms of reference for the group was agreed upon
- The Risks and Responsibilities Report is to be put on the web (not yet done)

On 13 September 2007, the Group met and agreed on further actions including:

- Water services managers would look to agree on a formal arrangement for mutual assistance during an emergency. This would possibly be based on the Memo of Understanding developed between regional councils following the 2004 floods.
- Feedback would be provided on the NIWA Tsunami report tabled.
- The Risks and Responsibilities report would be subject to full review every 5 years and minor updates would be undertaken more frequently as required. Alignment with the annual review of asset management plans was agreed to.
- The next meeting is scheduled for 13 December 2007.

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At the AGM held in June an Executive Committee with Colin Wright CEO Carterton District Council as Chairman was appointed. A proposed three year project plan for WELA was also confirmed.

The Project Plan covers six projects; the preparation of priority emergency route maps of urban and district areas and also one Wairarapa-wide, the provision of a matrix of critical sites and interdependencies together with geographical representation covering priority utility sites for response and recovery (with WeLG), annual audits of mitigation and changes to infrastructure affecting vulnerability and levels of risk in the WELA report of 2002, a study to provide protocols and procedures for local lifelines co-ordination during response and recovery, further studies on

the Tararua segment of the Wellington fault to better define the likely impact of rupture on the Wairarapa, and a study to provide utilities operators and emergency management with a better understanding of the fuel supply arrangements in the Wairarapa and the likely impact on response and recovery.

Two of the projects have almost been completed:

- **Priority Emergency Routes:** Based on the AELG 2001 model, the project includes the PER roading network, seismic and scour risk for bridges, large historical landslide sites, and areas of potential and historical liquefaction. The field work is complete and draft maps have been prepared with overlays of the risk and hazard data in urban, district and Wairarapa wide format. It is expected that the maps will be confirmed at a meeting of the project committee later in October and published soon after.
- **Priority Utility Sites for Response and Recovery:** A joint project with WeLG. See the WeLG report for details of current status.

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2007 has seen a number of changes with respect to WeLG organisational structures and key personnel, as well as the initiation of some new and exciting projects.

In July, WeLG Chair Stuart Macaskill stepped down from his long-standing position as Chair of the Wellington Lifelines Group. Life Membership of WeLG was awarded to Stuart in recognition of his outstanding commitment and contribution as WeLG's Inaugural Chairperson from 1993 to 2007. Stuart's involvement in Lifelines Engineering commenced in 1987 as the Chair of the Centre for Advanced Engineering's original project committee, and therefore has spanned 20 years, during which time he provided immense leadership.

WeLG was very pleased to welcome Councillor Ian Buchanan, Chair of Greater Wellington Regional Council, as our new Chairperson. Ian brings a wealth of knowledge on environmental management including hazards management, and has been a strong supporter of WeLG during his time on Council.

WeLG also farewelled Roger Crimp, who retired from Telecom at the beginning of August. He has been an active member of the Executive since 1994, leading various WeLG communications-related projects and contributing significantly to others.

At the Annual General Meeting in July, the decision was taken to re-organise WeLG around Sector groups, in addition to the establishment of a wider Steering Committee to meet quarterly. Both elements are a feature of how the Auckland Engineering Lifelines Group and others have successfully operated, with the more systematic involvement of member organisations being seen as key ingredients in encouraging greater outputs. Sector groups covering Energy, Water, Telecommunications, Transport, Hazards and CDEM Liaison are being established.

The major project *Priority Utility Sites for Response and Recovery* was commenced during the year. This project is proceeding well, but it is taking longer than anticipated due to the range of organisations from which inputs have been sought, and the typically slow responses from many lifeline utilities.

The project to review the recommendations and lessons for New Zealand contained in the WeLG reports of the 1994 and 1995 Lifelines Study Tours following the Kobe & Northridge earthquakes was also commenced. Broad assessments of the level of uptake and implementation of the 16 recommendations have been made, and presentations given at both the North Island and South Island CDEM conferences. These preliminary assessments will now be reviewed by WeLG sector groups, with input from national utilities.

Other activities from earlier this year included the pilot Climate Change workshop led by the Ministry for the Environment and a special presentation by Professor Tom O'Rourke of Cornell University during his recent visit.

WeLG continues to be well supported by 15 member funding organisations, with good engagement with a range of other agencies.

WeLG projects to be undertaken during 2007/ 08 include:

- **Updating the Critical Areas summary of 'Hot Spots' from 1993** - an update of the list of 23 Critical Areas listed in the 1993 WELG Report to reflect the risk reduction measures that have been implemented since then
- **Post-earthquake Reconnection Protocols for Electricity & Gas** - facilitation of the development of protocols between electricity and gas companies to avoid the fire following earthquake situation that developed after the Kobe earthquake

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## West Coast Engineering Lifelines Group

The WCELG is continuing to meet twice a year with a very high commitment from its thirteen member organisations.

Following on from the completion of the West Coast Engineering Lifeline Reports, member organisations are committed to implementing the resulting recommendations. Progress on recommendations are reported on to the WCELG at each meeting.

The Group has worked to establish closer links with the West Coast Co-ordinating Executive Group (CEG), with the Chair of the WCELG now attending CEG meetings.

Exercise Pandora, run over 24 hours on the 14 and 15 of September, saw a new position in the Group Emergency Operations Centre trialled with the introduction of a Lifelines Co-ordinator. This was particularly valuable with the Controller being able to access up to date information from one source on the state of Lifelines for the region over the Exercise.

Focus for the coming year will continue on the recommendations put forward in the Lifelines reports as well research into the current supply and storage of fuel on the West Coast – a particular issue if access to the region is severed in a major event such as an Alpine Fault Earthquake.

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## Canterbury Engineering Lifelines Group

The initial Christchurch Engineering Lifelines Project was completed and reported in “Risk and Realities” in November 1997. This book continues to be sold as a reference for new projects and for new staff. Since then the work was extended with the object of covering the whole of Canterbury.

### **Lifelines & Emergency Management**

Canterbury Engineering Lifelines Group’s (CELG) Manager is a member of the Co-ordinating Executive Group (CEG) of the Canterbury Civil Defence and Emergency Management Group (CDEMG) and this link has had very real benefits in that funding is now being provided for several Engineering Lifelines projects. These projects have been the main focus of activities this year.

Three major projects were included in the 2007 budget - Hazard Assessment for Petroleum (storage transportation and supply), a Lifelines Inventory Project, and Priority Sites and Routes for Recovery (spread over 2 years). The results of the second stage of the Petroleum project are to be presented to CELG on 28 November.

### **Annual Monitoring**

Works of lifelines significance are being done as part of normal planned works as part of Asset Management Plans (AMPs) with some annual monitoring of progress. A major achievement has been the lodging of the resource consent for a new Ferrymead Bridge which was identified as a “hot spot” during the Lifelines Project in 1994. This was reported last year – the resource consent has been received but approval from the Minister of Conservation is still awaited.

### **Asset Management Plans**

As reported last year - in Canterbury, the days of the traditional, old style Lifelines Project with its principal output being a Lifelines Book, have now gone and AMPs prepared incorporating the lifelines work as the first stage is accepted as the appropriate method of introducing lifelines principles. However, this process omits several of the benefits of a full lifelines project, meaning some utilities never will do one and the interdependencies are often overlooked. Attempts are still being made to try to get some understanding of interdependencies as a side benefit from workshops. Selwyn District Council has recently completed a Utilities Response Plan which was originally proposed as a lifelines project.

### **Disaster Resilience Summaries**

The preparation of Disaster Resilience Summaries is continuing slowly with most of the larger utilities having completed these. The recommended format is still the best currently available, and is being used by larger utilities. As an example for smaller authorities, a simple method of preparing a DRS was trialled in Waimate DC with the results presented to a South Canterbury Workshop in Timaru. There has been some interest in using this and hopefully some LAs will use this method this year.

With a view to encouraging agencies with responsibilities for lifelines infrastructure to increase resilience, level of service and measures have been agreed by the CDEM Group. The progress in agencies meeting the targets set out in three measures are the subject of a baseline survey at present being completed. This is being done by a simple self assessment by the service provider answering three questions related to the extent the organisation has identified hazards, determined the effects of them and set in place a mitigation programme.

### **Pandemic planning**

The role of CELG assisting in pandemic planning has continued to be mainly as a conduit passing on the information from various sources as it becomes available.

### **Pandora Exercise 14-15 September**

The Canterbury CDEM Group now has two Lifelines Co-ordinators appointed to assist/advise the Group Controller in the Emergency Co-ordination Centre, and the exercise based on an Alpine Fault Earthquake was well worthwhile.

### **Conclusion**

The same conclusion applies as for last year - CELG still suffers from difficulty in getting active participation in lifelines work by local authority utility managers with Civil Defence and Emergency Management staff attending most meetings. However there is no doubt that the application of engineering lifelines principles contributed significantly to the resilience of Canterbury in the face of adverse events.

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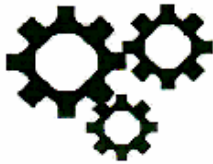
## Otago Engineering Lifelines Group

In order to improve capability and address some of the gaps in Group capacity, the Otago Civil Defence Emergency Management Group has decided to undertake an engineering lifelines project. This will involve relationship building and setting up an Otago Engineering Lifelines Group (OELG) this financial year; and it is recognised that there has been considerable evolution in engineering lifelines practice in the last 10 years.

It is expected that once set up, this Group will develop their own Terms of Reference and will very much follow current best practice in terms of membership, work programmes, discussions on funding, risk identification/management and looking for common themes in community resilience-building. It is also anticipated that surveys for Lifelines member organisations will be undertaken in order to complete a picture of community/utility risk as a whole and to more clearly determine interdependencies within the engineering and utilities lifeline organisations. This will be further enhanced by workshops that can focus on current and related research of significance for the Otago region.

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## DUNEDIN CITY LIFELINES

The Dunedin City Lifelines Group has not met in the past year as we have been waiting for the updated climate change predictions. Climate change/sea level rise is to be the next focus of activity.

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### Southland *Lifelines* Project

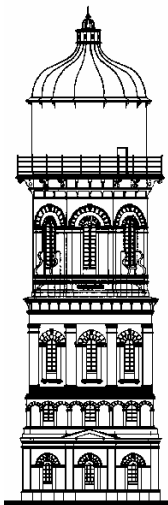
The Southland Lifelines Group met in November in conjunction with the Invercargill Group. At this meeting the process for sharing utility information and downloading it to a common website was agreed. The agreed strategy is to focus first on regionally important networks and then progressively move down to the level of local communities throughout Southland.

A new co-ordinator will be sought once a brief for this work has been prepared.

Southland's framework and processes can be viewed at <http://lifelines.southlanddc.govt.nz/>.

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### Invercargill Lifelines Group



The Invercargill Lifelines Group held its Annual Meeting on 1 November 2006, as part of a combined day with the Southland District Council-led Southland Lifelines Project, which includes the Gore District Council area.

The morning was set aside for the Invercargill Annual Meeting, with the afternoon set aside for the inaugural Southland Lifelines Project meeting. Many of the participants are involved with both projects, and part of the reasoning behind the combined meeting was one of cost (time and travel) to those participants outside Southland.

The participants outlined any organisational, technical and legislative changes as they related to their areas of activity, as well as outlining any works undertaken to remedy issues highlighted during or following the Project. One of the pleasing outcomes was the level of involvement by the majority of utilities, and the improvements made, underway, or planned.

There are still a number of issues to be addressed, and we are slowly working our way through these.

We are fortunate to have secured the services of a local civil engineer, Darryl Kensington, as our Lifelines Co-ordinator.

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