Auckland Engineering Lifelines Group

Seminar Highlights

23 November 2011, Auckland Town Hall

Welcome: Councillor Michael Goudie

- Councillor Goudie stressed the importance of relationships and working together to achieve the best possible outcomes. For Auckland to be strong we need to strengthen the communities and the communities are underpinned by infrastructure that is Lifelines.
- The Auckland CDEM Group has developed a second generation Group Plan (June 2011) as part of the readiness and preparation of Auckland for an emergency.
- The CDEM Group acknowledges the essential input from AELG and the importance of continuing to work together and move forward.

AELG: Providing Essential Services for the Wellbeing of Auckland City: Allan Mordecai

- An outline of the purpose of AELG , who the members are and how they work together.
- Focus of AELG is about working together to increase the resilience of Auckland's infrastructure by preparing for things that are not predicted.
- Why? We...
  - Learn from others
  - Are sought for advice and input
  - Cooperate and collaborate on projects
  - Identify interdependencies
  - Collaborate with CDEM
  - Network and develop relationships
  - Share knowledge and resources
- Most importantly, AELG assists lifelines to develop pre-incident relationships that allow us to be more effective during an emergency.

AELG: Project Overview and Update: Lisa Roberts

- A summary of completed projects, resources available and current projects underway.
  - AELP – 1: Auckland Engineering Lifelines Project completed in 1999 which involved mapping a range of hazards, critical infrastructure and identified impacts, interdependencies and redundancies.
  - AELP – 2: Currently underway (as above, updated infrastructure and hazard information).
  - Volcanic Ash Impacts on Infrastructure
  - Critical Infrastructure: Mapped and listed nationally and regionally significant infrastructure.
  - Infrastructure Hotspots: Identifies points of vulnerability where critical infrastructure is co-located.
  - Auckland Fuel Plan
  - Auckland Power Plan
- All of the projects and resources can be accessed by the website: www.aelg.org.nz

Building Issues for Lifeline Utilities Following Major Earthquakes: Dave Brunsdon, Chair DBH Engineering Advisory Group

- The DBH Engineering Advisory Group was established following the September earthquake to provide advice on repairs and reconstruction to the residential sector. A second work stream was developed for the commercial sector following the February earthquake.
- The building safety evaluation process included an overall damage survey, level 1 rapid assessment, level 2 rapid assessment and a detailed engineering assessment. The rapid assessments were most commonly considered and used the colour coded system (green, yellow and red).
- Key points for lifelines are that your building may be ok but may be threatened by an adjacent building resulting in it being coded red. Lifelines should be undertaking assessment of critical infrastructure immediately following the event.
- Dave provided an overview on the USAR response including the process for managing controlled deconstruction, particularly with buildings containing critical infrastructure that was still operating.

- The key operational issues and learnings for lifeline utilities involve working in and around the cordon and an assessment of the likely seismic performance of your premises. Have you considered good access to structural engineers for immediate safety assessments?

Christchurch Earthquakes – Impact on Infrastructure and Services: Peter McDonald, Pavement Maintenance Team Leader, Christchurch City Council

Peter provided a summary of the local road corridor damage including roads, retaining walls, bridges, fencing, containers and silt removal. Key points:

- A prepared and resilient community is vital for the response effort.
- Volunteer management needs to be considered early.
- Create a platform to deliver the recovery phase.
- What is an acceptable level of risk?
- Us being prepared helps a little, everyone being prepared helps a lot.
- Don't underestimate the value of institutional knowledge.
- Model worst case scenarios and have alternatives.

Canterbury Earthquakes – A contractors Perspective: Tim Gibson, City Care

Tim summarised the networks that City Care maintain on behalf of Christchurch City Council and focussed on the damage to the water and wastewater networks. Key points:

- Electronic logging system for requests for service vital when receiving 40,000 requests.
- Amount of traffic management reduced resources available (road cones etc)
- September provided them with a practice run to enable them to be better prepared for February.
- Managing subcontractors and their health and safety is essential
- Providing welfare to staff (food, drinking water etc)
- Business continuity planning needs to be comprehensive

Canterbury Earthquakes: Barry Stratton, New Zealand Transport Agency

Preparedness and readiness showed their value for NZTA during the earthquakes and Barry gave great examples of where it worked and savings that were made.

Key points:

- Define roles and responsibilities beforehand (internally and externally)
- NZTA undertook seismic retrofitting of 17 bridges in Canterbury before the earthquakes
- Structural inspection of key bridges in first five hours
- Damage primarily associated liquefaction induced subsidence and lateral spreading
- Significant rockfall caused roads to close although they might be structurally sound
- Restricted traffic to Lyttelton tunnel, regulations loosened to allow dangerous goods vehicles (i.e. fuel tankers) and heavy machinery
- Robust business continuity and emergency response plans were effective in the NZTA response

Business Continuity – Christchurch Earthquakes: Ford Robertson, Christchurch Airport

Christchurch airport is vital in any emergency response for both evacuations and bringing in emergency personnel and resources. Key points:

- Following the strategy of the 4 R's in emergency planning
- EOC was unusable due to damage (location and an assessment of risk needed for any EOC)
- National airspace was closed, runway closed, phone and power down
- 10,000 people left, 400 slept in the terminal the first night, queues for showers and amenities, needed to provide welfare (blankets and food) for those staying
- Managing the media and controlled release of information is essential
- Set priorities early in response
- Tailor CIMS to fit your organisation
- Go bag with emergency resources and have equipment designated to the position not the person, backups for each position
- Categorised levels of response for future events
- Don't underestimate the trauma on staff

Christchurch Earthquake Response: Julie Rea, Mobil Oil NZ Ltd

Mobil own a bulk fuel terminal in Lyttelton and the pipeline from there to the Woolston terminal which is accessed by other fuel companies for distribution.

Key points:

- Extensive damage to Mobil's business across all locations, sites and business types
- Emergency support group activated across 6 cities internationally, time zones a challenge
- PEAR principles – People, Environment, Assets, Reputation
- Tracking of Mobil terminal, service station and other staff was activated immediately
- No indication of loss of containment at any Mobil location
- Initial fuel demand was high with panic buying
- Documentation, practice, training and review of emergency response plans essential
- Effective relationships within and across sectors is vital

Christchurch Earthquakes from a Transmission Grid Infrastructure Perspective : Andrew Renton, Transpower

Transpower is the 'national grid'. They plan, build and maintain the grid to transmit electricity between generation points and distribution. Key points:

- Transpower network performed well in both events with only short loss of services (approximately 4-5 hours)
- The benefits of the seismic restraint programme undertaken in the 1990's following the Edgecumbe earthquake were realised in these events
- Further identification and mitigation of earthquake risk to the transmission network is required to ensure resilience going forward

Earthquake Performance of Telecoms Infrastructure in Christchurch: Colin Foster, Chorus

The chorus network is made up of numerous cables, cabinets and cell sites to keep customers connected through land line, internet and cellphones. Key points:

- Strong resilience in the network through duplicate sites, ring fibre networks, back up generators and batteries
- Most impact was caused by power outages, traffic congestion and cable damage
- Continued operation of the network through both events. Needed to prioritise generator usage on cabinets to maximise effect of resources deployed
- High level pre-planning essential although detail can be planned through the event due to account for specific circumstances
- Mixture of local and national resources required
- Relationships and liaison with CDEM early on is essential

Canterbury Earthquakes 2010-2011: John O'Donnell, General Manager Infrastructure, Orion NZ Ltd

The earthquakes are the most significant event ever responded to by Orion and caused the largest power outages in the Canterbury region. Key points:

- Central administration buildings were severely damaged and neighbouring buildings collapsed
- Key management staff were out of town and many onsite staff were in shock
- Hot standby site available and operational within 2 hours
- Developed a 'plan to plan' approach
- 15 years of seismic mitigation paid off, critical infrastructure was resilient
- Established overview of damage and worked to restore power
- Strong liaison with CDEM and media was critical, allowed National Controller to make decisions for faster restoration
- Access to cordon was an issue, constantly changing process