

Tasmanian Lifelines Project



HOBART LIFELINES PROJECT REPORT



July 1997

FOREWORD

As the Chairman of the Tasmanian State Disaster Committee it gives me great pleasure to provide a foreword for the third report on Lifelines Projects that have been conducted in Tasmania.

Proactivity is now a common approach in many government activities, and the emergency management strategies that have been adopted in this State have for many years been an excellent example to other States of the effectiveness and benefits that are derived from proactive emergency management.

The Lifelines Projects have been another example of Tasmania leading the nation in the application of a planning process that investigates, identifies and reports on the critical infrastructure dependencies within our major cities

The Lifelines Projects methodology is one of fostering liaison between organisations and applying a planning process that results in the identification of opportunities to reduce risks to critical community infrastructures or lifelines.

The Projects would not be possible without considerable support from many organisations, all of whom are recognised within the report.

The challenge now is to use the information obtained through the process to reduce the potential impact of emergency events on our community.

R.McCreadie
Commissioner of Police
Chairman State Disaster Committee

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- Mr. Joe Paul, Director, State Emergency Service
- Mr. Tom Griffiths, Federal Airports Corporation
- Mr. Hugh Hutchinson, Director, Bureau of Meteorology
- Alderman Doone Kennedy, Mayor, Hobart City Council
- Mr. Ted Taylor, Chief Executive Officer's Representative, Tasmania, Telstra
- Mr. Garry Baker, Acting Chief Executive Officer, Hydro Electric Commission
- Mr. Barry Cash, Engineer Manager, Rivers and Water Supply Commission
- Dr. Christine Mucha, General Manager, Hobart Water
- Emergency Management Australia

This report was produced by Mr Geoff Marsh, State Emergency Service, based on the Launceston Lifelines Project Report by Mr Ian Manock, State Emergency Service.

1. PROJECT WORK GROUPS

1.1 PROJECT DEVELOPMENT TEAM

| NAME | POSITION | ORGANISATION |
|-------------------|--|-------------------------|
| Mr. John Lunn | Manager Training & Development (Tasmanian Lifelines Project Manager) | State Emergency Service |
| Mr. Allan Dodds | Regional Emergency Management Officer | State Emergency Service |
| Mr. Ian Manock | Assistant Regional Emergency Management Officer (Launceston Lifelines Project Coordinator) | State Emergency Service |
| Mr. Bevis Dutton | Regional Emergency Management Officer | State Emergency Service |
| Mr. Garry Muldoon | Assistant Regional Management Officer | State Emergency Service |

1.2 INITIAL WORKSHOP REPRESENTATIVES

| NAME | POSITION | ORGANISATION |
|--------------------|---|-------------------------|
| Mr. John Lunn | Manager Training & Development (Tasmanian Lifelines Project Manager) | State Emergency Service |
| Mr. Geoff Marsh | Regional Emergency Management Officer (Hobart Lifeline Project Coordinator) | State Emergency Service |
| Mr. Garry Muldoon | Assistant Regional Emergency Management Officer (South) | State Emergency Service |
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| Mike Ball | Meteorologist | Bureau of Meteorology |
| Rod Street | Chairman AIP Tas Branch | Australian Institute of Petroleum |
| Graham Gale | Secretary AIP | Australian Institute of Petroleum |

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| Terry Gill | Manager Infrastructure Maintenance | A.N. Tasrail |
| R Careless | Area Supervisor Rail Yard | A.N. Tasrail |
| P Cairnduff | Occupational Health & Safety Adviser | A.N. Tasrail |

2. INTRODUCTION

2.1 AIMS

The aim of the Hobart lifelines project was to identify the vulnerability of Hobart's essential services (lifelines) to the impact of emergency events.

2.2 OBJECTIVES

The objectives of the project were :

- identify the geographic parameters for the project;
- identify appropriate representation from the essential service lifeline agencies;
- conduct an initial workshop with lifeline agencies and provide a study process;
- conduct a series of follow up workshops for the lifeline agencies;
- identify appropriate essential service lifelines for study;
- identify interdependency issues relating to lifelines;
- conduct a risk assessment for individual lifelines resourced by individual lifeline agencies;
- identify emergency management measures which will improve the management of risk for the individual lifelines;
- produce individual lifeline reports, resourced by individual lifeline agencies; and,
- produce a project report on the risk assessment process and findings.

2.3 SCOPE

The project is the second of three Tasmanian lifeline projects scheduled for conduct during the period 1995 - 1997. The initial project commenced in Launceston in 1995. A third project commenced for the North West Region in 1996.

This project examined the following essential services:

- water supplies;
- water reticulation;
- sewerage reticulation;
- sewerage treatment;
- stormwater;
- solid waste disposal;
- roads;
- power; and,
- telecommunications.

The geographical area covered by the project was the area managed by the City of Hobart, a total area of 76.8 square kilometres. The population of the study area was 46,926(1996 Census)

The initial hazards used for the project were based on those identified within the Hobart Emergency Management Plan, and included :

- flooding;
- fire / explosion;
- bush fire;
- severe weather events;
- major road accident;
- multiple casualty incident;
- marine pollution;
- storm / tempest / landslide;
- human epidemic;
- food / water supply contamination;
- exotic animal disease; and,
- hazardous substance incidents.

2.4 AUTHORITY

The project was undertaken with the full support of the Tasmanian State Disaster Committee and the managers of the individual lifeline agencies who participated.

2.5 RELATED DOCUMENTS

- Emergency Services Act 1976.
- Hobart Emergency Management Plan
- Southern Region Emergency Management Plan.
- Individual lifeline agencies' risk, emergency and operational management plans and procedures.

2.6 PROJECT REPORT

This report is divided into two parts. Part 1 contains a summary of the actual outputs from the project and is provided for use by those wishing to obtain information regarding the individual lifeline investigations. Detailed information regarding the examination of each essential service lifeline is kept by that particular organisation. Further information regarding individual lifeline examinations may be obtained from the organisation or by contacting the Tasmania State Emergency Service. Part 2 contains an outline of the project's methodology, the strengths and weaknesses of the project's methodology and recommendations for future lifeline projects. This part is aimed at those wishing to understand why the project was initiated, how it was initiated, the processes used and how future projects can be enhanced as a result of the lessons learnt from this project.

2.7 FURTHER INFORMATION

Further information regarding the project methodology, processes, work group activities and work group contact details can be obtained by contacting the Tasmanian State Emergency Service at the following address :

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PART 1

3. EXECUTIVE SUMMARY

This project is the first of its kind conducted in Australia. It was initiated by the Tasmanian State Emergency Service and supported by Emergency Management Australia for two reasons:

- to enable essential service providers to identify the vulnerability of their assets to the impact of emergency events, and
- to provide and apply a risk assessment process which could be used by all essential service providers.

The risks to the essential services (lifelines) were identified and management strategies which could be developed and implemented were discussed. These strategies included the prevention from, the preparation for, the response to and the restoration of essential lifelines.

As a result of the project, essential service providers have identified a number of ongoing activities and recommendations which, when implemented, will reduce risks to lifelines and better enable their organisation to recover from the impact of an emergency event.

The project methodology and risk assessment process was enhanced throughout the project. Minor changes were made as a result of the application of the process, reflecting the continual improvement philosophy of the project team. These changes will further improve future lifelines projects.

The methodology and processes used for the project were complementary to existing emergency management planning strategies that have been adopted by organisations and reflected by existing emergency management plans. The project provided the opportunity to further investigate hazards and identify the dependency of major assets on other essential services. This reliance (interdependency) has been researched, alternatives identified and strategies developed to reduce risks to these lifelines.

4. PROJECT RECOMMENDATIONS

4.1 HOBART CITY COUNCIL

It is recommended that:

- HCC adopts the emergency management strategies identified as a result of the Lifelines Project;
- HCC includes the lifelines risk assessment as part of the emergency management planning process for Hobart City;
- HCC develops redundancy into the most vulnerable lifelines to an acceptable risk level; and,
- HCC incorporates the lifelines risk reduction strategies as priorities for works programs.

4.2 HOBART WATER

It is recommended to:

- complete dam safety reviews and upgrade flood capacity as required;
- produce written system operation procedures as a high priority with particular emphasis on continuity of supply and protection of pipes and fittings from excess pressure;
- undertake a review of water contamination risks and minimisation strategies and implement improvement as required;
- commission a comprehensive geological investigation of the route of the pipelines between the North West Bay River and Fern Tree and develop appropriate mitigation measures; and,
- investigate fire detection measures in critical areas of the bulk water supply system with particular emphasis on electrical equipment.

4.3 DEPARTMENT OF TRANSPORT

It is recommended to:

- continue to provide adequate human and physical resources and funding to inspect, maintain and manage road, bridges and water lifelines;
- develop and maintain standards to ensure the risk of significant hazards interacting with the lifelines is acceptably low; and
- review emergency management plans of organisations that are responsible for managing lifelines to ensure that they recognise interdependencies between lifelines and regularly exercised to ensure that the necessary interaction occurs during significant events.

4.4 TELSTRA

It is recommended that:

- Telstra adopts the risk assessment of the telecommunications assets identified through the project;
- the identified risks be included in the determination of maintenance and upgrade programs and considered as priority works; and,
- Telstra further investigate opportunities to enhance power supplies to critical lifeline locations.

4.5 HYDRO ELECTRIC CORPORATION

It is recommended that:

- HEC to continually liaise with other lifeline agencies to predict interdependency implications of power failures;
- HEC continue to recognise the priorities of lifelines in the restoration of services;
- emergency management planning and strategies be incorporated into the Hydro Safe programme; and,
- review and enhance existing emergency management plans and procedures.

4.6 STATE EMERGENCY SERVICE

It is recommended that the State Emergency Service continue:

- to develop emergency management planning and risk assessment processes and promote their application by owners of lifeline assets; and
- liaison with owners of lifelines and promote liaison between lifeline owners.

5. LIFELINE ASSESSMENT FINDINGS

5.1 INTRODUCTION

The purpose of this section is to, having considered the vulnerability of the lifeline and making an assessment of the risks and prioritised those risks, identify and develop strategies and actions which will reduce the vulnerability and risk of the lifeline or measures that will improve the emergency management of the impact of a hazard upon the lifelines.

5.2 WATER SUPPLIES LIFELINE

Hobart Water is the supplier of bulk water to the Hobart reticulation system via three supply systems - Lake Fenton System, Hobart Mountain System and West Derwent System.

Hobart is entirely dependent on Hobart Water for the bulk supply other than some reticulation storage that has a capacity to cater for the short term(24 hours) disruption to the bulk supply. There are some areas that have no reticulation storage and therefore no buffer against failure of bulk supply.

Hobart Water is dependent on HEC power supplies to maintain full supply, and road access to facilities for maintenance and water treatment requirements.

Many essential services are dependent on Hobart Water bulk supplies and the HCC reticulation supply. These include the sewerage reticulation system, industries, and the Fire Service.

5.3 WATER RETICULATION LIFELINE

5.3.1 Bulk / Distribution Mains

As the majority of the bulk distribution system contains some form of redundancy, the most vulnerable elements are those that currently have no redundancy.

The following emergency management measures would be appropriate:

- Build in redundancy to most vulnerable lifeline elements:
 - Bend 7 - 200mm main should be duplicated in nearby location. Would give redundancy as well as significant pressure boost.
 - Fenton Main – Barossa Reservoir to Arthur Street reservoir should be examined to determine potential alternative feed options.

5.3.2 Reservoirs & Zones

The reservoirs and associated feed zones need to be examined to ensure there is adequate flow available in bushfire situations, as well as ensuring that security measures are adequate to prevent contamination.

Suggested measures are:

- Examine alternative feed options to Fern tree reservoir.
- Undertake modelling study to determine storage times / augmentation options for all reservoirs in the event of a significant bushfire occurring.
- Undertake a security check of all reservoir sites to reduce potential for contamination.

5.3.3 Pump Stations

As the Hobart City Council owned pump stations do not serve significantly large population areas, there is a limited need to undertake emergency management planning. Minor steps would be to:

- Examine and audit pump stations to ensure that electrical items are protected from fire or flood damage, or deliberate acts of vandalism.
- Liaise with the Hobart Water to audit the Hobart Water owned pump stations in the Hobart City Council area in the same manner.

5.4 Sewerage Reticulation Lifeline

- Maintain the lifeline in good condition with regular inspection and programmed maintenance.
- Ensure that parts and equipment are readily available for emergency repairs.
- Ensure that suitably trained and experienced personnel are available to lifeline failures.

5.5 Sewerage Treatment Lifeline

5.5.1 Macquarie Point Sewerage Treatment Plant

The treatment plant has built in redundancy for all mechanical equipment involved in process operations. Although the site has dual supply transformers the most vulnerable aspect of the premises is the supply of power. There is no backup power unit on site.

Effluent from this plant is discharged by gravity directly into the Derwent River.

The treatment plant is capable of being run in a manual mode should failure of the automatic control system occur.

Further discussions should be undertaken with the HEC regarding alternate power supplies and the feasibility of diesel generation should also be investigated.

Existing emergency management procedures and plans for the site should be reviewed and updated as a result of the Lifelines study.

5.5.2 Selfs Point Sewerage Treatment Plant

The treatment plant is designed with redundancy in mechanical equipment and has a on-site generator to ensure retention of process integrity during a power supply failure.

In event of a failure of power supply to the site or integrity of the effluent pump station, the sewage can discharge by gravity into the existing New Town outfall.

The treatment plant is capable of being run in a manual mode should failure of the automatic control system occur.

Existing emergency management procedures and plans for the site should be reviewed and updated as a result of the Lifelines study.

5.6 Stormwater Lifeline

- Undertake flood mapping projects for the Hobart and New Town Rivulet catchments as a priority with other significant catchments in due course.
- Undertake hydraulic modelling of the piped portion of the system to check capacity against normal urban design standard and identify any deficiencies.
- Undertake inspections of all major elements of the system with a view to testing the assumptions made in this analysis and reviewing the outcomes from the analysis.
- Document and develop where necessary wet weather operating procedures.
- In conjunction with the flood mapping for the New Town Rivulet catchment develop detailed strategies for sediment retention and reduction.
- Develop specific emergency procedures dealing with a hazardous substance spillage likely to find its way to the Hobart Rivulet along the CBD section.

5.7 Solid Waste Disposal Lifeline

- Undertake extensive fire break maintenance program.
- Assess and upgrade where necessary, the fire fighting capabilities at the disposal site.
- Undertake inspections of the stormwater a leachate systems at regular intervals and assess the capacity of the systems and upgrade where necessary.
- Document and develop where necessary wet weather operating procedures.
- Develop detailed strategies for sediment retention and reduction.

5.8 Roads Infrastructure Lifeline

The road network surrounding and within Hobart is managed by either the DOT or HCC. For the purpose of the project, the road transport lifeline for study was the main arterial and feeder roads serving Hobart and the local road network within the Hobart area. Roads included culverts, traffic signals and bridges, in particular the Tasman Bridge.

The primary requirement identified was the development of emergency traffic management plans to cater for blockages/emergency closures of the Davey/Macquarie Streets, Southern Outlet and the Brooker Avenue.

5.9 Power Supplies Lifeline

The commencement of the Lifelines Project coincided with other risk management strategies being introduced within the HEC. These strategies have been developed and applied to the entire Tasmanian power grid with the intention of developing additional redundancy within the system. This concurrent work has diminished the need to complete a similar assessment for one limited geographic area, Hobart. The lifelines process has been one of several risk management models that have input to the HEC strategies.

As a result of the risk management processes, the HEC has been able to identify elements of the electricity system that are susceptible to high risk levels. Emergency management aspects are now included within the broader context of risk management of the HEC operations. This process is being conducted on a state wide basis as part of the Hydro Safe Program.

The program activities to date have identified a need for the HEC to examine their existing contingency plans and re-assess the appropriateness of them.

5.10 Telecommunications Lifeline

Telstra established an internal work group to examine their telecommunications lifeline system. The divided the project into two stages, the first to look internally at the hazards to the lifeline system and its elements, the second stage examined the interdependency and other external organisations.

The telecommunications system serving the Hobart area was identified as the lifeline system for the project. The system has been broken down into its relevant operational components and individual elements. As a result of this analysis, the various elements were able to be categorised in relation to their relative importance to the system and appropriate time frames for restoration and repair of services identified.

As a result of the project, a number of risks to the lifeline and its various components have been identified. A number of emergency management measures have been initiated to address these problems.

Telstra have recognised the importance of the project and the risk assessment process will be ongoing and become part of their emergency management planning and strategies.

PART 2

6. PROJECT METHODOLOGY

6.1 INTRODUCTION

All Tasmanian local government areas have emergency management plans that have been developed using internationally accepted processes. The plans describe a set of arrangements for dealing with emergencies that could arise from a number of identified hazards and are based on descriptions of the hazards, the communities which they could affect and the consequences or results that could occur should they impact.

The arrangements described in the plans provide for management structures that will oversee and coordinate the combined activities of all agencies in the event of an emergency occurring. The plans do not deal in detail with the nature of essential services, the combinations of organisations required to provide such services or the requirements for managing an emergency from the perspective of single agencies and services. This will entail, among other matters, a consideration of the extent that one agency relies for its function upon the resources of one or several other agencies. It is clear however that there are a number of fundamental services without which a community cannot function effectively, and which will be a necessary priority for restoration following an emergency.

Identification of the requirements for restoration of these services and the interdependence between services for and during restoration is therefore an necessary supporting activity to the planning process. It should lead to a strengthening of organisational plans and the implementation of vulnerability reducing actions where appropriate. Without these changes the emergency event may be unduly serious or prolonged and lead to increased levels of hardship within the community.

Other communities around the world, most recently Christchurch, New Zealand, have undertaken study on what have come to be known as “engineering lifelines”, and many benefits have flowed from such studies.

6.2 PROJECT DEVELOPMENT

The project development team identified at 1.1, utilised existing emergency management planning concepts and processes and adapted them for use in the area of lifeline emergency management planning. The following methodology was based on that used by the City of Christchurch, but in the context of the planning process used within Tasmania. The significant assistance given to us by the Christchurch project organisers is gratefully acknowledged.

6.3 EMERGENCY MANAGEMENT

Emergency management is a necessary consideration for all providers of essential services. Emergencies can arise from all aspects of the provision of essential services and can result in death or injury to members of the public, death or injury to staff, partial or total loss of service, environmental damage, loss of confidence or reputation, job losses, media scrutiny, increased running costs and increased borrowings.

Decisions regarding the management of emergencies within each essential service are the preserve of the management of each service. Contributing factors to these decisions are the perceptions, expectations and regulatory requirements of local and state governments. Some of the information needed to make those decisions however, is not readily available within all the relevant organisations, and the operation of these organisations may depend at least in part on the activities of other organisations. An element of one of the project objectives is to examine in detail the interdependence of organisations in order that any information gap can be identified and addressed. The outcomes of the project can then be incorporated in the emergency management activities of each organisation, and appropriate adjustment programmes identified, costed and implemented to suit the needs and priorities of each individual organisation.

It is anticipated that organisations use the outcomes of the project to:

- initiate or further develop emergency management policies and strategies;
- recognise that events will impact upon their organisation in varying ways;
- initiate quantitative risk assessments or other analyses as appropriate; and
- educe risks to lifelines.

6.4 IDENTIFICATION OF LIFELINES

For the purposes of the Hobart project, the following essential engineering services were identified as lifelines for study and investigation:

- water supplies;
- water reticulation;
- sewerage reticulation;
- sewerage treatment;
- stormwater;
- solid waste disposal;
- roads;
- power; and,
- telecommunications.

6.5 IDENTIFICATION OF REPRESENTATIVE ORGANISATIONS

After identifying the various essential service lifelines in the Hobart area, the owners and operators of those lifelines were approached to nominate appropriate personnel to attend the first workshop and progress the project within their own organisation. In addition to the owners and operators of the lifelines attending the workshop, it was also recognised that there were other stakeholders within the community who might play an integral part in the lifeline project process. It was therefore decided to approach the following organisations to nominate representatives to attend the workshop:

- Bureau of Meteorology
- Department of Community and Health Services
- Department of Premier and Cabinet
- Emergency Services
- Department of Transport
- Federal Airports Corporation
- Hobart City Council
- Hobart Municipal Emergency Management Planning Committee
- Hobart Water
- Region Disaster Controllers
- Tasrail
- University of Tasmania

6.6 RISK ASSESSMENT PROCESS

The risk assessment process used for the project (fig. 6.1) is one that has been adapted by the project development team from a hazard analysis process developed by the Tasmania State Emergency Service in 1988.

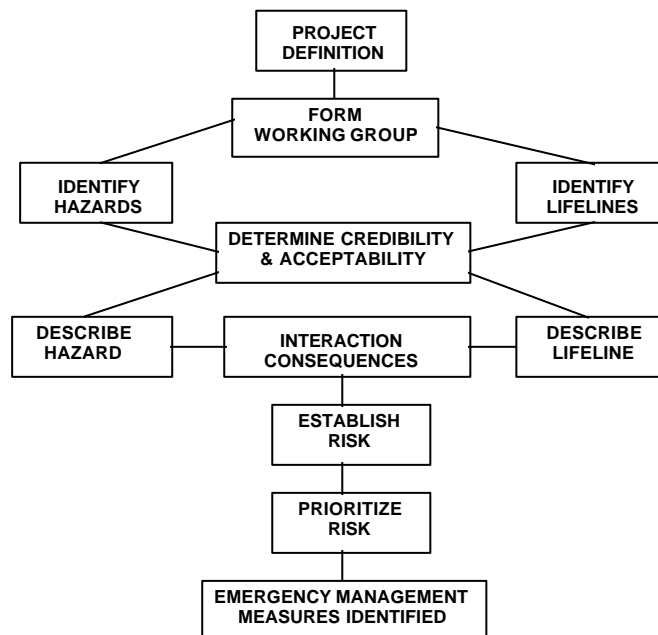


Figure 6.1 Risk Assessment Process

6.6.1 Project Defined

The project is defined in relation to its aim, objectives, scope, authority, expected benefits, resource requirements and timetable.

6.6.2 Working Group Formed

At this stage in the process, the individual working groups and lifeline owners, operators and agencies with a vested interest are identified. Appropriate individual working group chairpersons are chosen and working group membership identified. Criteria to identify suitable working group members should include:

- knowledge;
- skills;
- experience;
- specialist ability;
- commitment to project; and,
- agency approval, commitment and support.

6.6.3 Hazards Identified

At this stage all those hazards that exist in the lifeline system's area of operation should be identified. Methods to ensure that all hazards are identified include:

- involving all members of the work group in the process;
- examining historical records for previous events;
- be completely objective, look at both natural and man made;
- brainstorming;
- physical inspection of lifeline area;
- examining events in other communities; and,
- considering hazards identified by higher level planning committees.

6.6.4 Lifelines Identified

At this stage relevant essential service lifelines are identified. Each community has a differing view as to what type of service is essential and is classified as a lifeline. For the Hobart project, the essential engineering services were identified as being the lifelines for study. In other communities, lifelines have included the media, building services, health services and food supply.

6.6.5 Credibility and Acceptability Determined

This stage examines the political, social and economic effect that each hazard has on the lifeline. This examination will enable the hazards to be prioritised in order that the hazards with the greatest priority are described and dealt with first.

6.6.6 Hazards Described

Here each hazard is described in relation to its:

- intensity
- frequency or likelihood
- extent or area of coverage
- time frame
- manageability, and
- anything else that will provide a “picture” of the hazard, eg. maps, tables, identification charts.

6.6.7 Lifeline Described

The lifeline is described in relation to its:

- construction;
- size;
- capacity;
- location and area of coverage;
- key elements;
- owner / operator;
- redundancy or backup systems;
- maintenance;
- dependence on other services;
- lead time for repair; and,
- anything else that will provide a better picture of the lifeline, eg. maps, charts, GIS.

6.6.8 Interaction Consequences Described

At this stage the working group identifies what would happen should each identified hazard occur and impact upon the lifeline. The effects include:

- damage to lifeline elements;
- disruption to lifeline elements;
- social disruption;
- economic disruption; and,
- vulnerability relating to the susceptibility versus the resilience.

6.6.9 Risk Established

At this stage the work group can establish whether risk to the lifeline exists by examining the answers to two questions:

- Is the lifeline at risk? and
- Which particular elements of the lifeline are at risk and to what extent?

6.6.10 Risk Prioritised

Once the risks to the lifeline and its elements have been established, they need to be prioritised. There are a number of prioritisation methods available, however for the Hobart project we used an adapted version of the SMUG hazard prioritisation system. We added another criteria “acceptability” to the prioritisation system which resulted in SMAUG: This method examines each risk in relation to its **S**eriousness, **M**anageability, **A**ceptability, **U**rgency and **G**rowth and requires each of these criteria to be rated either high, medium or low. The higher the aggregate rating the higher the priority.

6.6.11 Emergency Management Measures Identified

This is the last stage of the process, and involves the identification of measures that could:

- prevent the hazard from occurring or mitigate its effects;
- prepare the lifeline agency for the impact of the hazard on the lifeline;
- be used in response to the impact of the hazard; and,
- be used in the recovery and restoration of the lifeline following the impact of the hazard.

To aid the work groups identify these measures, it was suggested that they consider undertaking a potential problem analysis, where they :

- identify the potential problems;
- identify likely causes;
- identify any preventative actions;
- identify any contingent actions; and'
- identify trigger events for the contingent actions.

6.6.12 Documentation

There is a continual need for documentation to be kept throughout the entire project process. Documenting actions taken, decisions made, how decisions were made, reasons for specific activities etc. as they occur will enable others to better understand the progress of the project and will stand as a record of the project's methodology.

6.7 INITIAL WORKSHOP

The initial workshop was conducted over three days. Participants were asked to:

- examine the outcomes of previous lifeline projects;
- examine the methodology required to undertake the project;
- review the effects of a recent Australian emergency;
- identify credible hazards;
- analyse identified hazards;
- compare the potential effects of each hazard on each lifeline;
- describe the relative vulnerability of each lifeline and its elements;
- examine typical lead times for restoration of services;
- examine the interdependence of each lifeline;
- identify options for preventing or mitigating the effects of the hazards on the lifelines; and,
- identify appropriate individual work group members.

6.8 INTERMEDIATE WORKSHOPS

Intermediate workshops were conducted throughout the project. The aim of these was to bring the organisational representatives together and re-examine and identify in more depth the general interdependency issues relating to lifelines. This information was then used to examine and identify the dependency issues affecting their individual lifelines.

6.9 REPORTING PROCESS

Each organisation will provide a report for use by their respective agencies in their emergency management processes. The reports will highlight areas where action may be required and provide an initial justification to take further action, should this be decided.

An overall project report will be produced which will explain the project methodology, processes used, individual lifeline summaries, achievements, future strategies and activities and recommendations for future lifeline project management.

6.10 CONFIDENTIALITY

Because of potential commercial confidentiality and security implications, the overall project report will not contain in depth analyses of individual lifeline systems. These analyses will remain the sole property of the individual lifeline owners and operators.

7. STRENGTHS AND WEAKNESSES

7.1 STRENGTHS

7.1.1 Asset protection strategy

An all hazard approach was utilised and focussed on the need to protect the asset rather than combat the hazard. This approach enabled lifeline agencies to assess the vulnerability of their systems and key elements and specify ways in which the resilience of the system could be increased and susceptibility decreased.

7.1.2 Adaptability of risk assessment process

The risk assessment process was well commented on by the work groups in general. It was adapted from internationally accepted processes and was able to be added to, where appropriate, by work groups who identified the need for additional information or criteria.

7.1.3 Involvement of State Disaster Committee

The support from the outset of the State Disaster Committee was seen as a great benefit to obtaining support and commitment from lifeline agency heads and giving credibility to the project and potential outcomes.

7.1.4 Support and commitment of agency heads

Seeking the support and commitment of lifeline agency heads from the outset enabled the project coordinators and work groups to have a clear understanding of the agencies' commitment to the project.

7.1.5 Studies conducted by practitioners

The project benefited from having practitioners within each lifeline area involved in the study of those lifelines. These people were able to use their practical knowledge and experience of their lifeline system to aid the risk assessment process.

In many instances the practitioners involved had previously not had much, if any, exposure to emergency management planning principles or processes and the engineering lifelines project provided invaluable awareness, involvement and commitment to these concepts.

7.1.6 Intermediate workshops to check progress

The conduct of intermediate workshops proved to be very beneficial. They provided the opportunity to check progress and re-examine the interdependency issues. These workshops proved of great benefit in re-focussing the work groups on their individual project objectives, goals and time schedules.

7.1.7 Project seen as a part of the ongoing emergency management planning process

Some agencies saw the benefits of the project and have adopted the process into their ongoing emergency management strategies. They see the process as an integral part of their emergency management planning.

7.1.8 Increased cooperation and liaison between lifeline agencies at local, regional and State levels

The project increased the cooperation and liaison between agencies involved in lifelines and general emergency management at local, regional and State levels. This liaison has increased the awareness of agencies to interdependency issues, lifeline management issues, risk management and the emergency management structures and processes.

7.2 WEAKNESSES

7.2.1 All hazards approach

There were some negative aspects in adopting an all hazards approach. The main one was the increase in time frame needed to examine each and every hazard. Some agencies had to re-evaluate their time frames and also reduce the scope of their investigations to enable the project to progress and not stall at this stage.

7.2.2 Project involved only engineering lifelines, not all lifelines

The Hobart project only involved engineering lifelines. Other services identified and examined in overseas studies including the media, health services and food services were not examined in this project. It could therefore be said that the project was not an "all lifelines all hazards" project.

7.2.3 Not all essential service agencies were represented or took part

Although all agency heads were contacted and appraised of the project and their support sought, not all agencies were able to support the project. This lack of support possibly stemmed from both a lack of understanding of the projects worth and a lack of available resources to take part. This lack of involvement had an effect on the other participating agencies, in that interdependency issues were harder to identify and deal with.

7.2.4 Motivation given other priorities within their agencies

It was very difficult for some of the agencies to remain highly motivated throughout the project. Organisational priorities often overtook the project which resulted in a stop start process. This increased the time frame and decreased the commitment the work group members were able to give to the project.

7.2.5 Enormity of task and resource needs not appreciated at beginning

The enormity of the task was not really appreciated by the project coordinators or the participants in the initial stages. The all hazards approach and the size and complexity of some of the lifeline systems meant that the resources and time required for a thorough examination of the lifelines needed to be increased. In some cases this increase was three to four times that initially projected.

The intimate knowledge that some practitioners may hold with respect to their engineering lifelines, could in some cases lead to the high risk elements of the lifeline being identified intuitively without necessarily following a rational process. However the process does provide a more objective rigour to the end result, even though at certain stages of the process some subjective judgements still have to be made.

In addition, a number of emergency events impacted Tasmania mid way through the project. Due to the small nature of Tasmania's community and the statewide responsibility of some of the major lifeline agencies, the project had to be paused whilst emergency management activities were conducted.

7.2.6 Time frame imposed initially was unrealistic

The initial time frame for the project was set at 6 months, however following the initial workshop and during the early stages of the project it became evident that this was unrealistic. Some agencies have stated that it could take between 12 months and two years to complete a thorough investigation of their lifelines.

7.2.7 Lack of Memorandum of Understanding

Although agency heads were contacted and their support for the project sought, there was a perceived lack of control and ownership from the project coordinator's view point. The coordination of the project and cohesion of the work groups could have been better handled with the agency support and commitment being backed up with a Memorandum of Understanding. The project coordinator would have felt more confident with such arrangements in place, to approach agencies when problems arose.

8. RECOMMENDATIONS FOR FUTURE PROJECTS

8.1 SCOPE OF INVESTIGATIONS AND STUDIES

The scope of the project needs to be carefully considered before the main part of the study commences. In the case of the Hobart project, the geographical area of coverage was initially delineated, however individual lifeline agencies had to then re-define the geographical project area according to their lifeline's parameters. Some of the lifelines identified were localised, whereas others had a Statewide coverage. Agencies must bear this possible need to expand the geographical area in mind when identifying their particular scope.

8.2 TIME FRAME FOR THE PROJECT

Project coordinators and work groups should carefully consider the time frame required for the project and make a realistic assessment of time needed for the tasks required. Organisations with limited staff numbers should be aware that operational commitments and changing organisational priorities will have an effect on the conduct of the project activities.

Staff and work group members will feel more at ease and comfortable if the project's priority is identified from the very start and provided with appropriate resources.

8.3 IDENTIFICATION OF REPRESENTATIVE ORGANISATIONS

It is very important that all the relevant owners and operators of the identified lifelines together with those outside agencies who have a stake in the various lifelines are identified and involved in the project. In the Hobart project, some of the lifeline operators and owners were not involved due to other priorities. This resulted in the project missing the valuable input of some lifelines, especially in the area of interdependency.

It is recommended that project coordinators make all efforts during the development stage of the project to involve all agencies and gain their commitment to the project to ensure that no gaps in the lifeline studies result.

8.4 COMMITMENT OF REPRESENTATIVE ORGANISATIONS

In order to ensure that organisations recognise the importance of the lifeline project and investigations, it is strongly recommended that contact with the individual lifeline agencies and stakeholder organisations is made through their Chief Executive Officers and supported by the State or regional emergency management executive. In this way, the commitment of organisations to the overall project can be obtained and appropriate priorities within each agency established. In the case of the Hobart project, agency CEOs were written to by the Chairman of the Tasmanian State Disaster Committee,

outlining the proposed project and seeking the commitment of their organisation to the project. It was felt that this approach was very helpful in that organisations understood the importance of the project from the very outset and approval and commitment to the project was obtained prior to major organisational involvement taking place.

8.5 WORKING GROUP MEMBERSHIP

It is recommended that project coordinators must work closely with agencies to ensure that appropriate representation is provided from the very beginning. In addition, coordinators and lifeline agencies should examine the need for establishing two work groups, one to study the internal implications, the second to study the external implications of the lifeline.

8.6 CONFIDENTIALITY AND SECURITY IMPLICATIONS

Project coordinators and lifeline owners and operators must be aware of the possible implications their investigations will have regarding commercially confidential information and the security of their lifeline systems. All information regarding the lifelines should remain the property of the individual lifeline owners and operators. No disclosure of such information should be made without the approval of the relevant agencies.

8.7 USE OF NEW TECHNOLOGY AND INNOVATION

Work groups should make themselves aware of existing technological capabilities within their own agencies eg. Geographical Information Systems (GIS), which may be of use during a lifeline study.

8.8 MEMORANDUM OF UNDERSTANDING (MOU)

Project coordinators in conjunction with essential service agency heads should develop and instigate a MOU for the project. The MOU should ensure that all involved parties are aware of the project requirements, commitment needed, project authority and agreed agency activities.

8.9 ROUTINE PROJECT MEETINGS

It is recommended that project coordinators conduct regular meetings of the work group coordinators to ensure that the project process is continuing, work groups have not deviated from their objectives and any problems are dealt with as soon as possible. An additional benefit of holding such meetings is that work groups continue to liaise with each other.