



LAKE GEORGE LOCAL EMERGENCY MANAGEMENT COMMITTEE

Palerang and Queanbeyan City Local Government Areas



EMERGENCY RISK MANAGEMENT REPORT



Developed by Echelon Australia
November 2010

Document Issue & Control

This report has been prepared by Echelon Australia specifically for reference by members of the Local Emergency Management Committee for the Palarang and Queanbeyan City Local Government Areas.

Electronic copy of the final document will be made available to the Lake George EMA.

Hard copies of the final document have been made available as follows:

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The Emergency Risk Management assessments contained within this manual have been developed based solely on the site-specific information supplied by members of the Local Emergency Management Committee Working Group and have been prima facie accepted by the authors of this manual and have not been independently verified for accuracy. Echelon Australia accepts no responsibility for any loss that arises out of the Lake George Local Emergency Management Committee having failed to bring all relevant facts to our attention or having provided inaccurate information.

Report Revision

Whenever this report is reviewed or amended, details must be recorded on this page.

Date	Revision Summary
November 2010	Issue One - Original document

Table of Contents

Document Issue & Control	2
Report Revision.....	3
Executive Summary	6
1 Introduction	9
2 Project Management Plan	10
3 ERM Context Statement.....	11
3.1 Identified Problems	11
3.2 Process Limitations.....	11
3.3 Management Framework.....	13
3.4 Risk Evaluation Criteria.....	14
4 Communication and Consultation Strategy	15
4.1 Process Documentation (Evidence of Process)	16
5 Risk Identification	17
5.1 Hazard Identification - Lake George Emergency Management Area (Palerang and Queanbeyan City LGAs)	17
5.2 A National Perspective	20
5.3 A Local Perspective.....	21
5.4 Natural Hazards Descriptions.....	24
5.5 Technological Hazards Descriptions.....	29
5.6 Biological Hazards Descriptions.....	37
6 Community & Environmental Description	39
6.1 Palerang Local Government Area	39
6.1.1 General Profile.....	39
6.2 Queanbeyan City Local Government Area	42
6.2.1 General Profile.....	42
6.3 Lake George Emergency Management Area.....	45
6.4 Vulnerable Communities.....	46
7 Risk Analysis & Evaluation.....	48
7.1 Natural Hazards	49
7.2 Technological Hazards	55
7.3 Biological Hazards	66
7.4 Summary of Assessments	69
7.5 Hazard by Risk Rating Priority	70
7.6 Hazards by Combat Agency/ Controlling Authority	71
8 Treatment	72
8.1 Additional Treatment Options and Evaluation Criteria.....	72
8.2 Risk Treatment Plan for selected treatment options.....	79
9 Monitor and Review	85
10 Appendices.....	86
Appendix 1 Management Framework.....	87

Appendix 2 Members of the Lake George Emergency Risk Management Working Group.....	88
Appendix 3 Member Agencies of the Lake George Local Emergency Management Committee	89
Appendix 4 Lake George LEMC – ERM Workshop Record of Attendance.....	90
Appendix 5 Consequence Descriptors.....	91
Appendix 6 Likelihood Descriptors.....	92
Appendix 7 Risk Statements	93
Appendix 8 Press Release.....	96
Appendix 9 Earthquake Zone within Australia.....	97
Appendix 10 Supporting Plans	99
Appendix 11 Palerang Community Demographics	101
Appendix 12 Queanbeyan Community Demographics.....	103
Appendix 13 Definitions	105
Appendix 14 Abbreviations	107

Executive Summary

Local Emergency Management Committees throughout Australia have been requested to conduct a study and develop a report on how well prepared they were to manage serious disasters in their area. The request came from the Council of Australian Governments (COAG) and was coordinated by the Emergency Management Committees (EMCs) in each State.

This Emergency Risk Management Report has considered those risks associated with a range of natural, technological, biological and other hazards that, if a disaster occurred as a result of any of these hazards, would require a “significant and coordinated multi-agency emergency response” within the meaning of *Section 4 of the State Emergency and Rescue Management Act 1989* (as amended).

The Lake George Local Emergency Management Committee (LEMC), comprising Palerang and Queanbeyan City Local Government Areas, established the Emergency Risk Management Working Group to work on the project and develop the Emergency Risk Management report.

The Working Group firstly identified all the types of hazards that could occur within the Palerang and Queanbeyan Local Government areas that would require a coordinated response.

These hazards were then analysed and evaluated by the Working Group to see how significant the impact would be using the Likelihood and Consequence Assessment Matrix, found on pages 86 & 87, to rate the level of risk from LOW to EXTREME.

As a result, a total of 17 hazards were identified within the Local Government area to form part of this study. These hazards were analysed as having the following severity rating:

- Five hazards were rated Extreme;
- Six hazards were rated High;
- Six hazards were rated Moderate;
- No hazards were rated Low.

The detailed analysis of each of the hazards can be found in Section 7 (page 48) of the report under ‘Risk Analysis and Evaluation’.

The following is a summary of the five Extreme hazards as rated by the Emergency Risk Management Working Group. More information about these and all the other hazards can be found in Section 7 (page 48).

Hazard	Hazard Id	Risk Rating	Agency
Fire – Bush/Grass	NH03	Extreme	NSWRFS
Risk Statement: There is a risk that a class 2 or 3 Bush/Grass fire could result in significant property damage, loss of life, loss and damage to critical infrastructure, environmental impact, loss of livestock, contamination of water supply, impact on forest industry, viticulture, horticulture, damage to cultural assets, physiological and psychological trauma of affected community. Overview of Treatment/Mitigation: See Page 52 for identified treatment and mitigation strategies.			

Hazard	Hazard Id	Risk Rating	Agency
Flood –(natural occurrences)	NH04	Extreme	SES
Risk Statement: There is a risk that a moderate to major flood event could result in road closures, isolation of communities, major infrastructure collapse, property damage, damage to infrastructure, loss of life, displacement of people, loss of livestock, environmental impact and there could also be impact on the ACT (flooding of Lake Burley Griffin). Overview of Treatment/Mitigation: See Page 53 for identified treatment and mitigation strategies			

Hazard	Hazard Id	Risk Rating	Agency
Severe Storm Emergency	NH05	Extreme	SES
Risk Statement: There is a risk that a Severe Storm could result in road closures, disruption to power, utilities, key infrastructure, major infrastructure collapse, railway and road, moderate to major damage to property, multiple personal injuries, isolation of vulnerable communities, impact on environment and livestock. Overview of Treatment/Mitigation: See Page 54 for identified treatment and mitigation strategies			

Hazard	Hazard Id	Risk Rating	Agency
Communicable Disease – affecting Humans	BH01	Extreme	NSW Health
Risk Statement: There is a risk that a communicable (pandemic) disease affecting humans could result in multiple deaths, exclusion zones, isolation, quarantine, civil/ social unrest and complete shut down of the community including emergency services. Overview of Treatment/Mitigation: See Page 66 for identified treatment and mitigation strategies			

Hazard	Hazard Id	Risk Rating	Agency
Communicable Disease – affecting Animals	BH02	Extreme	NSW I&I
<p>Risk Statement:</p> <p>There is a risk that a communicable disease affecting animals could result in massive death and destruction of livestock, economic impact, job losses, food production, social impact, environmental impact, animal exclusion zones, quarantine zones for people and potential human health risks.</p> <p>Overview of Treatment/Mitigation:</p> <p>See Page 67 for identified treatment and mitigation strategies</p>			

For all Extreme hazards listed above, as well as those rated High, a treatment action plan was developed with additional measures to improve the existing arrangements, to be better prepared to deal with these disasters.

1 Introduction

Local Emergency Management Committees throughout Australia have been requested to conduct a study analysis and develop a report that considered how well prepared they were to manage serious disasters in their area. The request came from the Council of Australian Governments (COAG) and was coordinated by the Emergency Management Committees (EMCs) in each State.

Australia has adopted a **comprehensive** and **integrated** approach to the development of its arrangements and programs for the effective management of emergencies and disasters.

This approach is:

- **Comprehensive**, in including *all hazards* and in recognising that dealing with *risks* to community safety, caused by these hazards, requires a range of *prevention/mitigation, preparedness, response and recovery* (PPRR) *programs* and other risk management treatments; and
- **Integrated** in making sure that the efforts of governments, all relevant organisations and agencies, and the community are coordinated and contribute to the development and maintenance of a safer, sustainable community.

The New South Wales State Emergency Management Committee (SEMC) has adopted the methodology of **Emergency Risk Management** (ERM) to facilitate the integrated national approach. This process involves dealing with risks to the community arising from emergency events. It is a systematic method for identifying, analysing, evaluating and treating emergency risks.

At community level, Local Government is a key player in Emergency Risk Management because it is the first level of support for communities in emergencies and plays an essential role in supporting the Local Emergency Management Committee (LEMC).

The LEMC for Lake George created a Working Group to undertake this study and prepare this report.

Purpose

The Lake George Local Emergency Management Committee is working to conduct a holistic, community based, Emergency Risk Management Study that looks at how natural, technological and biological disasters may affect this community in order to create a better-prepared and safer community in the event of major disasters.

The Emergency Risk Management Project identifies all large-scale hazards that could pose a danger to the Queanbeyan and Palerang Local Government Areas (LGAs), be they natural, technological or biological risks. The level of risk is then evaluated for each hazard and treatment options given based on the "Implementation Guide for Emergency Management Committees" developed by the NSW State Emergency Management committee.

Authority

The Emergency Risk Management Working Group has been given the task of developing this report to draft stage only. The draft report will be referred to the Local Emergency Management Committee (LEMC) for approval and adoption following consultation with the community.

Reference & Supporting Plans/ Documents

See Appendix 10 of this document.

2 Project Management Plan

The following sets out the steps taken to complete the study and prepare this report.

STAGE 1	Research, Establishment of Working Gp, Development of project context		
STAGE 2	Hazard Identification / Risk Assessment		
STAGE 3	Determine & Evaluate Treatment / Mitigation options		
STAGE 4	Draft Plan Developed / Stakeholder Consultation		
STAGE 5	Consultation outcome review / Plan amended		
STAGE 6	Consultation / Publication Final Document		
Stage	Milestones & Activity Measures	Responsible Agency / Organisation	Target Completion Date / Comments
1	Working Group established by LEMC Process context and limitations developed Community profile developed Sources of risk identified Elements at risk identified Historical information analysed	LEMC LEMC Working Gp & Echelon	March and April 2010
2	Development of LGA's specific risk statements Risk statements analysed (likelihood & consequence) Assessments reviewed against risk criteria	LEMC Working Gp & Echelon	May 2010
3	Stakeholder consultation to confirm existing treatment and mitigation strategies Determine gap treatment and mitigation strategies	LEMO LEMC Working Gp & Echelon	June & July 2010
4	Selection of treatment options and development of Treatment Plan	LEMO LEMC Working Gp & Echelon	August & September 2010
5	Working Draft document prepared Draft Plan finalised Draft Document advertised inviting public comment	Echelon LEMO LEMC Working Gp	September 2010
6	Community and Stakeholder consultation on Draft Document Feedback (if any) considered and where relevant Document amended	Council LEMO LEMC Working Gp	October 2010
7	Final Emergency Risk Management Report published Adoption of Plan by LEMC & endorsed by Council ERM Report sent to SEMC for endorsement	LEMC and Council	November 2010

3 ERM Context Statement

The aim of the Lake George LEMC Emergency Risk Management project is to develop and implement a community 'Emergency Risk Management Plan' for the Local Government Areas of Queanbeyan and Palerang, in consultation with the wider community.

The process has considered natural, technological and biological hazards that in the event of an emergency, would require a "significant and coordinated emergency response" within the meaning of *Section 4 of the State Emergency and Rescue Management Act 1989 (as amended)*.

The Lake George Local Emergency Management Committee (LEMC) is managing the emergency risk management process through a Working Group comprising emergency services and relevant organisations and agencies.

The NSW State Emergency Management Committee 'Implementation Guide for Emergency Risk Management (NSW)' has been used in this process.

A community consultation strategy has also been prepared by the Working Group to ensure that the community is informed and consulted during the process.

3.1 Identified Problems

There is a concern that existing emergency management arrangements used to deal with major disasters may not be as effective as they could be. It is also recognised that a more holistic approach to viewing and preparing for emergencies would greatly assist not only in the way an emergency is managed but also give greater consideration to the value of prevention and preparation. This approach goes further by taking into consideration the impact an emergency has on a community, the environment, economy and overall social fabric of an area.

Therefore, the Local Emergency Management Working Group has been charged with the task of reviewing and or identifying natural, technological and biological hazards that impact on the Queanbeyan and Palerang Local Government Areas to ensure that the community is prepared.

3.2 Process Limitations

Legislation that affects the project:

1. The functions of the LEMC are defined in Sections 29 (1) and 29 (2) of the State Emergency and Rescue Management Act 1989 (SERM Act) as being "...responsible for the preparation of plans in relation to the prevention of, preparation for, response to and recovery from, emergencies in the local government area for which it is constituted" and the LEMC is "responsible to the relevant District Emergency Management Committee" (in this case the Monaro District Emergency Management Committee).
2. The LEMC is an "emergency management organisation" in terms of the SERM Act.
3. Schedule 2 of the SERM Act states the provisions relating members and procedure of emergency management organisations.
4. Other functional areas working with and through the LEMC and operating under the SERM Act also have organisation specific policy and legislative requirements that may affect their ability to share and provide operational information to the LEMC.

5. The following legislation also applies to each of the positions within the LEMC:

Combination of Section 27

Local Government Areas

If the councils of 2 or more local government areas agree (with the approval of the Minister) to combine their emergency management arrangements under this Part, a reference in this Part:

- (a) to a local government area is a reference to the combined local government areas concerned, and
- (b) to the council of that combined local government area is a reference to the principal council nominated in the agreement.

Chairperson

Section 28 2(a)

Each Local Emergency Management Committee is to consist of

“a senior representative of the council of the relevant local government area nominated by that council, who is to be the Chairperson of the Committee”.

Section 28 (3)

“The Chairperson of a Committee is to be a person who has the authority of the council to co-ordinate the use of the council's resources in the prevention of, preparation for, response to and recovery from emergencies”.

Emergency Services Representative

Representation on the Local Emergency Management Committee is to consist of:

Section 28 (2):

- a) a senior representative of the council of the relevant local government area nominated by that council, who is to be the Chairperson of the Committee, and
- b) a senior representative of each emergency services organisation operating in the relevant local government area” and
- c) representatives of such organisations providing services in functional areas in the relevant local government area as the council of that area may from time to time determine, and
- d) the Local Emergency Operations Controller for the relevant local government area.

Section 28 5

“The representative of an organisation is to be nominated by the organisation”.

Functional Area Representative

Section 28 (2)(c)

“Representatives of such organisations providing services in functional areas in the relevant local government area as the council of that area may from time to time determine”.

Legislated Council Responsibilities

See Sections 28 (2)(a)

Councils to provide executive support for Local Emergency Management Committee and the Operations Controller.

- (1) A council is to provide executive support facilities for the Local Emergency Management Committee and the Local Emergency Operations Controller in its area.
- (2) The principal executive officer is to be known as the Local Emergency Management Officer.

Policy Issues

Members of the LEMC operate within individual policies that are specific to their organisations some of which are restricted and will not be recorded within the Emergency Risk Management Study. However, these issues are discussed at a local and district level within the management committee structure to ensure an all agency and whole of LGA response is adopted.

Scope

1. The LEMC is only required to consider hazards that impact on people, property, animals and or the environment within its Local Government Area that would have the potential to require a significant and coordinated multi-agency response.
2. The Lake George LEMC and its Working Group are to document the process as outlined within the NSW State Emergency Management Committees' *"Implementation guide for emergency management committees"*.
3. The LEMC is not required to implement treatment plans.
4. Where a Combat agency or functional area has been identified as having a legislative requirement to plan for and / or mitigate for identified hazards the LEMC is restricted to asking that agency to produce current planning and mitigation documents or status reports.
5. The SEMC comments on plans developed by a LEMC via its Assessment Checklist released in December 2006.
6. As per the SEMC "Emergency Risk Management Implementation Guide", the Local Displan and this ERM study are approved at local level.

Resources

Many members of the LEMC are volunteers that represent their agency or private companies and attend meetings out side of normal working hours. This requires the meeting of the Working Group to be scheduled at a time that these members are available as they are a valuable resource to the process, and in many cases have a greater knowledge of the history of local events than response agencies that have periodic staff changes. Every effort has been made to ensure agency volunteer staff have been able to contribute to the ERM process.

3.3 Management Framework

1. The management framework for the Lake George LEMC and its relationship to the Working Group is identified in Appendix 1 of this document.
2. A summary of the project management plan appears on page 10 of this document.
3. Management framework overview:
 - Working Group formed as sub committee of LEMC and charged with undertaking the Emergency Risk Management Study.
 - At each stage as identified in the project plan Working Group consensus is achieved before moving to the next stage.
 - At the completion of the Study the document will be presented to the LEMC for adoption and then to Council for information. The completed document will then be forwarded to the SEMC via the DEMC.
4. A list of the members of the Lake George Local Emergency Management Working Group is found on page 88, Appendix 2 of this document.

3.4 Risk Evaluation Criteria

As part of evaluating the consequences of potential incidents, the Working Group established the following criteria to identify events considered 'unacceptable' and where measures are required to minimise impact.

It was agreed that any reasonably preventable situation:

- ✗ Resulting in loss of life.
- ✗ Resulting in multiple serious injuries.
- ✗ That will affect the health and wellbeing of the community.
- ✗ That will have a medium to long-term or permanent effect on the environment
- ✗ That will have a long-term or permanent effect on the cultural assets and values of the community.
- ✗ That will seriously disrupt whole of community business activities.
- ✗ That will seriously disrupt community lifelines or services.
- ✗ That could lead to the introduction of exotic diseases or pests.
- ✗ That could lead to severe loss or financial hardship to the community.

is considered UNACCEPTABLE by the LEMC and measures will be determined to prevent or minimise this outcome.

4 Communication and Consultation Strategy

Local Government by its very nature is constantly engaging and consulting with its community on a range of issues.

It understands that working collaboratively and consulting with local community has significant benefits particularly when it comes to situations affecting their well-being.

As such, a number of strategies and consultative networks existing within local government can be used to inform and consult with the community on the Emergency Risk Management Process.

Community engagement involves consultation (information sharing) and active participation between the stakeholders. It strengthens the capability of communities to take action that produces positive and sustainable changes locally.

The intent of the Local Emergency Management Committee is to tap into these existing networks to engage and consult with the community on the Emergency Risk Management Study in order to:

1. Enable the community to be better informed about hazards within their community.
2. Reduce the level of misconception or misinformation about the ERM process.
3. Ensure commitment and greater ownership of the final decisions reflected within the Emergency Risk Management Study.
4. Encourage the community to put forward ideas and assist in the recording of hazard history for the local government area.
5. Enable the Local Emergency Management Committee to gain a better understanding of local expectations in relation to Preparation Preparedness Response and Recovery issues.
6. Help to identify issues that may not otherwise have been considered by the LEMC.

Consultation Model



Charter for Community Engagement Queensland Government Dept of Emergency Services 2001

The Lake George LEMC considered various methods available for consultation and decided on the following strategy for this project:

- Publication of a series of media releases via the local print media and radio media. (template to be provided by Echelon);
- Formal briefing of elected members of Queanbeyan City and Palerang Councils;
- Community access to echelon ERM project website: www.echelonaustralia.com.au and email address as follows: lakegeorgeerm@echelonaustralia.com.au
- Public display of Draft Report through Palerang and Queanbeyan City Councils in line with public consultation procedures
- Members of the LEMC & LEMC Working Group to inform and engage within their own agency to ensure ERM process has the widest exposure possible

4.1 Process Documentation (Evidence of Process)

At each of the ERM Working Group meetings minutes were taken by the Echelon Consultant and LEMO that outline the content of the meeting, those present, the decision making and direction setting process.

1	March 2010	Preliminary Meeting	Introductory meeting with ERM Steering Committee.
2	April 2010	Meeting One	"Setting the Context".
3	May 2010	Meeting Two	"Hazard Identification and Risk Statements".
4	June 2010	Meeting Three	"Risk Analysis/ assessments", vulnerable communities.
5	July 2010	Meeting Four	"Risk Treatment" existing mitigation strategies and additional treatment options.
6	August 2010	Meeting Five	Risk Treatment – Selection of Treatment Options and Treatment Plan development.
7	September 2010	Meeting Six	Finalise Treatment Plan
		Stage 4	"Report Consolidation".
8		Stage 5	Presentation to LEMC for endorsement of Draft Report to Council for information.
9	September - October 2010	Stage 6	Community Consultation.
10		Final Stage	Consolidation of feedback and final adoption of Report.

5 Risk Identification

5.1 Hazard Identification - Lake George Emergency Management Area (Palerang and Queanbeyan City LGAs)

The following tables represent the initial assessment carried out by the Working Group to identify what hazards, should any of them occur, could be of such a severity that would require a significant and coordinated response by emergency services.

Other hazards that have been considered but have not been included in this study would be managed by the responsible combat agency, are also listed in the table below noting the reason for their exclusion.

The hazards included in the report have been assessed in accordance with the State Emergency Management Committee SEMC implementation guide.

Natural Hazards	City	Villages	Rural	Significant Multi-Agency Response Required (EOC)?	(if YES) Combat Agency/ LEOCON/ EOC
Avalanche (snow/ other)	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palerang or Queanbeyan LGAs it has not been included in this study.				
Snow Storm	N	Y	Y	YES	SES
Cyclone	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palerang or Queanbeyan LGAs it has not been included in this study.				
Tornado	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palerang or Queanbeyan LGAs it has not been included in this study. Refer to Severe Storm.				
Earthquake	Y	Y	Y	YES	LEOCON/ EOC/ EOC
Fire Bush/Grass	Y	Y	Y	YES	NSWRFS
Fire Urban (incl residential & CBD)	The Working Group considered this hazard (11 May 2010) and agreed that, whilst there is a probability of this occurring, it is low and unlikely to warrant a significant and coordinated multi-agency response and the activation of the EOC for management.				
Fire Building in CBD	The Working Group considered this hazard and agreed that, whilst there is a probability of this occurring within the Region, it is unlikely to warrant a significant and coordinated multi-agency response and the activation of the EOC (13 April 2010).				
Fire Grass	The Working Group considered this hazard (13 April 2010) and agreed that Grass Fire would be considered in conjunction with the Bush Fire Hazard in this report.				
Flood (natural occurrences)	Y	Y	Y	YES	SES
Fog	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palerang or Queanbeyan LGAs it has not been included in this study.				
Extreme Cold	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palerang or Queanbeyan LGAs it has not been included in this study.				
Extreme Heat	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palerang or Queanbeyan LGAs it has not been included in this study.				

Natural Hazards	City	Villages	Rural	Significant Multi-Agency Response Required (EOC)?	(if YES) Combat Agency/ LEOCON/ EOC
Landslip/Rock	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palarang or Queanbeyan LGAs it has not been included in this study.				
Mudflow	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palarang or Queanbeyan LGAs it has not been included in this study				
Infestation - Animal	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palarang or Queanbeyan LGAs it has not been included in this study				
Infestation - Insect	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palarang or Queanbeyan LGAs it has not been included in this study				
Infestation - Plant	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palarang or Queanbeyan LGAs it has not been included in this study				
Severe Storm – Electrical, Wind, Rain, Hail	Y	Y	Y	YES	SES
Tsunami	Considered by the Working Group (13 April 2010) and determined that this hazard is not relevant to the Palarang or Queanbeyan LGAs and therefore has not been included in this study				

Technological Hazards	City	Villages	Rural	Significant Multi Agency Response Required (EOC)?	(if YES) Combat Agency/ LEOCON/ EOC
Aeronautical	Y	Y	Y	YES	LEOCON/ EOC
Space Debris re-entry (impact)	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard ever occurring to a level that would warrant a significant and coordinated multi-agency response within the Palarang or Queanbeyan LGAs it has not been included in this study.				
Bridge Collapse	Considered by the Working Group (13 April 2010) and determined that whilst there is a probability of this occurring, it is very unlikely and the conditions under which it may occur are such that would be dealt with as part of hazards already covered in this study.				
Major Structure Collapse	The Working Group considered this hazard and agreed that, whilst there is a probability of this occurring, the conditions under which it may occur are such that would be dealt with as part of hazards already covered in this study (11 May 2010)				
Dam Failure (incl flooding)	Y	Y	Y	YES	SES
Hazardous Materials	Y	Y	Y	YES	NSWFB
Infrastructure failure –Power (>12HRS)	Y	Y	Y	YES	LEOCON/ EOC
Infrastructure failure –Water (>12HRS)	Y	Y	Y	YES	LEOCON/ EOC
Infrastructure failure – Sewerage (>12HRS)	Y	Y	Y	YES	LEOCON/ EOC

Technological Hazards	City	Villages	Rural	Significant Multi Agency Response Required (EOC)?	(if YES) Combat Agency/ LEOCON/ EOC
Infrastructure failure - Sewerage contamination	Considered by the Working Group (11 May 2010) and determined that this hazard would be dealt with under the Infrastructure failure - Sewerage hazard assessment within this study.				
Infrastructure failure – Communications	Considered by the Working Group (2 June 2010) and determined that as there is no history of this hazard occurring within the Palerang or Queanbeyan LGAs to a level that would warrant a significant and coordinated multi-agency response it has not been included in this study.				
Infrastructure failure – Gas	Y	Y	Y	YES	LEOCON/ EOC
Infrastructure failure – Gas Pipeline Rupture	Y	Y	Y	YES	LEOCON/ EOC
Mine Accident	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring within the Palerang or Queanbeyan LGAs to a level that would warrant a significant and coordinated multi-agency response it has not been included in this study.				
Radiological Hazard	Considered by the Working Group (13 April 2010) and determined that this hazard would be dealt with under the HAZARDOUS MATERIAL hazard assessment within this study.				
Pollution - Chemical	Considered by the Working Group (13 April 2010) and determined that this hazard would be dealt with under the HAZARDOUS MATERIAL hazard assessment within this study.				
Pollution - Oil/Fuel	Considered by the Working Group (13 April 2010) and determined that this hazard would be dealt with under the HAZARDOUS MATERIAL hazard assessment within this study.				
Pollution - Hazardous Waste	Considered by the Working Group (13 April 2010) and determined that this hazard would be dealt with under the HAZARDOUS MATERIAL hazard assessment within this study.				
Land Subsidence	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palerang or Queanbeyan LGAs it has not been included in this study.				
Transport Emergency - Rail	Y	Y	Y	YES	LEOCON/ EOC
Transport Emergency – Road	Y	Y	Y	YES	LEOCON/ EOC
Explosion	The Working Group considered this hazard and agreed that, whilst there is a probability of this occurring, the conditions under which it may occur are such that would be dealt with as part of hazards already covered in this study (11 May 2010)				
Fire Residential	The Working Group considered this hazard (11 May 2010) and agreed that, whilst there is a probability of this occurring, it is unlikely to be at a level that would warrant a significant and coordinated multi-agency response and the activation of the EOC for management.				

Biological Hazards	City	Villages	Rural	Significant Multi Agency Response Required (EOC)?	(if YES) Combat Agency/ LEOCON/ EOC
Communicable Disease - affecting humans	Y	Y	Y	YES	NSW HEALTH
Communicable Disease - affecting animals	Y	Y	Y	YES	I&I (NSW Dept of Industry and Investments)

Biological Hazards	City	Villages	Rural	Significant Multi Agency Response Required (EOC)?	(if YES) Combat Agency/ LEOCON/ EOC
Communicable Disease - affecting plants	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palerang or Queanbeyan LGAs it has not been included in this study.				

Socio Political / Other	City	Villages	Rural	Significant Multi Agency Response Required (EOC)?	(if YES) Combat Agency/ LEOCON/ EOC
Public Order or similar Disturbance	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palerang or Queanbeyan LGAs it has not been included in this study.				
Terrorism	Considered by the Working Group (13 April 2010) and determined that as there is no history of this hazard occurring to a level that would warrant a significant and coordinated multi-agency response within the Palerang or Queanbeyan LGAs it has not been included in this study.				

5.2 A National Perspective

The European colonisation of Australia – and its written history – began at Sydney Cove in 1788. With only 20 million people spread across 7.7 million Km², even today parts of the continent are not exactly overcrowded. As an example, Australia Post divides the country into 2,433 postcodes, each with an average population of about 8,200. The largest postcode (872 in Western Australia), had a population at the 2001 Census of 20,400; the postcode covers an area of 621,400 km² an area significantly larger than continental France. While it could be argued that nothing much happens, from a natural hazards point of view, in postcode 872, that was exactly the rest of the nation's view of Canberra, the national capital – except that this view changed in January 2003. (R. Blong 04).

Nearly twenty years ago, researchers at Macquarie University, in what was later to become the insurance industry-sponsored research centre known as Risk Frontiers, began compiling databases on natural hazards and their impacts in Australia. An integrated data base is the result that contains more than 5,000 hazard occurrences and information about human deaths and damage to the built environment resulting from nine natural perils – Tropical cyclones, bushfires, floods, wind gusts, tornadoes, hailstorm's, earthquakes, landslides and tsunamis.

Summary of Deaths Due to Natural Hazards 1788 – 2003 (National Figures)

PERIL	FIRST RECORDED DEATH	NUMBER OF DEATHS	%TOTAL DEATHS
Earthquake	1902	16	0.3
Landslide	1842	95	1.6
Bushfire	1850	696	11.4
Thunderstorm	1824	774	12.7
Tornado	1861	52	0.9
Cyclone	1839	2163	35.5
Flood	1790	2292	37.6
Tsunami		0	0.0
Total		6088	100

Issues in Risk Science 2004

Tropical cyclones and floods together account for more than 70% of known natural hazard deaths since the European colonisation of Australia in 1788. Thunderstorms, particularly lightning, and bushfires

each account for 11 to 13% of deaths, indicating that the other hazards considered have produced very few human deaths, at least in the last 200 years.

At the other end of the spectrum, deaths in earthquakes, landslides and tsunamis combined account for less than 2% of all deaths. This paltry total reinforces the view that Australia is a land of meteorological perils; a low lying, ancient continent with all its sea coast remote from the active boundaries of tectonic plates is unlikely to be dominated by geological hazards.

If we delve into the totals a little further we discover, for example that while flood deaths average 10-11 per year, one quarter of all flood deaths have occurred in New South Wales. Bushfire deaths have averaged about four per year with 50% of all deaths in just eight fires or, more accurately, on just eight days of extreme fires. Lightning deaths (that is most of the thunderstorm deaths) average about 3.5 fatalities per year, with nearly half in NSW.

Events by Zone

Further statistics on the impacts of natural hazards were sourced from the Emergency Management Australia website. The Zones view lists disasters by their Zone. Currently these are: Victoria, New South Wales, Queensland, Western Australia, South Australia, Tasmania, Northern Territory, ACT and Offshore - (All Regions / Coastal Waters / Territorial Waters / Outside Territorial Waters). Disasters which overlap Zones are referred to as Australia-wide. The database hierarchy is Zone Region Map. The brief description contains a link to full details for each event.

The table below contains records of all natural and non-natural disasters within Australia (where information is available) since European settlement.

Zone	No. Deaths	No. Injured	No. Affected	No. Homeless	Total Cost by Zone
ACT	82	1,027	372,650	6	389,800,000
Northern Territory	489	1,097	85,249	45,165	967,914,000
New South Wales	3,530	13,124	10,009,750	28,529	7,234,940,630
Queensland	2,495	5,105	2,722,852	28,740	3,096,300,000
South Australia	386	2,139	668,024	681	333,000,000
Tasmania	1,108	1,407	123,229	13,244	289,200,000
Victoria	1,969	7,743	6,864,977	21,271	1,128,050,000
Western Australia	1,872	620	896,571	8,460	554,489,266
	11,931	32,262	21,743,302	146,096	13,993,693,896

(Source: www.ema.gov.au)

5.3 A Local Perspective

Significant Weather Summaries Jan 2005 – June 2009 Palerang and Queanbeyan City Local Government Area and surrounds, NSW

This information was taken from Bureau of Meteorology, Monthly Significant Weather summaries:

2009
<u>January</u> <ul style="list-style-type: none"> On the 20th a thunderstorm with 2cm diameter hail was reported at Yarralumla, an inner suburb of Canberra. Heavy rain caused flooding of stormwater drains after 38mm fell at Curtin and 37mm at Watson. Roads were blocked when strong winds brought down trees Dust storm on the South West Slopes, with a wind gust of 100 km/h at Khancoban. The strong winds brought down over 80 trees in the Howlong area and caused power outages affecting over 4,000 homes. In the northern suburbs of Canberra a 2 kilometre trail of damage in Harrison, Dunlop and Palmerston was possibly caused by a tornado

- A severe heatwave at the end of the month caused record high temperatures on the Southern Tablelands and a record number of consecutive days above 40°C over parts of the Riverina and South West Slopes

July

- The heaviest snowfalls in the Snowy Mountains during July occurred from the 1st to 4th with strong winds causing blizzard conditions at times. The 4-day snow accumulation was about half a metre. Another 30cm or so fell mid month associated with low pressure systems. The total snow depth for the season at Charlotte Pass was 121cm at the end of July.

2008

February

- On the 21st at Queanbeyan (Southern Tablelands) a thunderstorm and heavy rain caused minor flash flooding and a roof to collapse

September

- The Australian Capital Territory experienced the strongest winds since December 2005 with a wind gust of 98 km/h at Canberra Airport. Mount Ginini in the mountains south west of Canberra recorded a similar gust. There were many reports of falling trees causing damage to buildings and several houses were unroofed. One person was injured in the suburb of Kambah by a fallen tree

October

- On the 13th a thunderstorm produced small hail and strong winds brought down trees in northern Canberra. The winds caused minor structural damage in the Queanbeyan area

2007

February

- At Canberra a severe thunderstorm occurred in the Kambah-Weston Creek area (southwest Canberra). Flash flooding damaged many houses. The highest fall of 56mm occurred at Stirling College.
- At Long Plain Complex, Snowy Mountains, a bushfire started by lightning burnt 18,000 hectares. The Snowy Mountains Highway was closed for several days. Smoke covered much of the Monaro district

June

- Heavy snow between Canberra and Braidwood closed Kings Highway. Up to 15cm of snow was reported at Bungendore, east of Canberra. In the hills south east of Canberra, falls of 20-30cm were reported, closing all local roads. The weight of snow broke large branches off many trees. Falls up to 10cm were reported from higher ground of the Central Tablelands
- The Monaro district recorded significant snowfalls which closed roads between Cooma, Nimitabel, Berridale and Jindabyne. At Michelago, south of Canberra, 10-15cm of snow closed the Monaro Highway for several hours

November

- On the 3rd at Canberra thunderstorms with heavy rain and local flash flooding were reported in the central business district

2006

January

- On the 16th at Canberra (Southern Tablelands) a thunderstorm with heavy rain and flash flooding caused flooding to some roads and buildings.

February

- At Gundaroo (Southern Tablelands) hail 6cm in diameter with heavy rain and strong winds were reported. Hail broke windows and killed birds near Canberra. In Canberra a thunderstorm with heavy rain in the suburb of Higgins produced flash flooding with 43mm of rain in 30 minutes.

April

- Wind gusts greater than 90 km/h were reported in Thredbo on the following days: 5th - 109 km/h; 11th - 98 km/h; 12th - 94 km/h; 17th - 113 km/h; 18th - 124 km/h; 19th - 109 km/h and 20th - 104 km/h.

September

- The highest wind gusts recorded were: Thredbo 137 km/h,

December

- On the 29th 3cm hail in the northern suburbs of Canberra and Queanbeyan were reported, with significant amounts of damage to the National Museum of Australia.
- On the 30th golf ball sized hail was reported in the suburb of Cook in Canberra. There was some damage to roof tiles.

2005

January

- Severe storms with hail and strong winds swept across southern New South Wales during the end of the month. Hundreds of houses were damaged with power outages to over 30,000 homes due to lightning strikes. The worst hit area was the Riverina where over 100 houses were damaged.
- Thunderstorms and winds were reported in most states. Severe storms with hail and strong winds swept across southern New South Wales towards the end of the month causing much damage.
- At Lake Bathurst (Southern Tablelands) hail 4cm in diameter stripped leaves off trees. At Tallaganda (Southern Tablelands) hail 2cm in diameter was reported. At Canberra hail up to 3cm in size was reported in Belconnen (western Canberra suburb). In Dickson hail up to 2cm with heavy rain and local flooding occurred.

February

- On the 3rd the Snowy Mountains experienced gale to storm force winds with Thredbo AWS recording sustained wind speeds of over 115 km/h for a 5 hour period. Wind gusts reached 154 km/h, the equal highest speed on record.
- It was unseasonably cold in southern New South Wales between the 2nd and the 4th. About 10-15cm snow fell in the Snowy Mountains and temperatures reached as low as -5°C. Snow settled several centimetres deep on the Brindabella Ranges near Canberra on the Southern Tablelands.

April

- From the 5th to the 17th a bushfire burnt out 1,050 hectares at the Tindery Nature Reserve, near Cooma (Southern Tablelands)

June

- A cold outbreak on the 23rd brought gale force winds and heavy snowfalls to the Snowy Mountains and snow to the higher ground of the Central and Northern Tablelands, closing several roads.

July

- A cold outbreak on the 8th and 9th brought gale force winds and heavy snowfalls to the Snowy Mountains with heavy snowfalls to low elevations in the Monaro district of the Southern Tablelands

August

- A cold outbreak on the 11th brought light snowfalls down to 600 metres on the Southern and Central tablelands and the higher ground of the South West Slopes. Oberon (Central Tablelands) recorded 5cm snow on the ground. Moderate to heavy snowfalls were recorded in the Snowy Mountains and on the Brindabella Mountains near Canberra, closing some Australian Capital Territory roads. Light snow settled in some western suburbs of Canberra. Another burst of cold air with a cold front on the 22nd caused snowfalls at low elevations along the Monaro highway from Cooma to Nerriga. Snow was reported up to 5cm deep in the Cooma-Michelago area

October

- Hail 3cm in diameter caused minor tree and roof damage in Canberra on the 13th. At Peak Hill a thunderstorm caused heavy pea-size hail which accumulated to a depth of several centimetres on the ground. Minor damage was reported

December

- On the 2nd at Yass (Southern Tablelands) hail 0.5cm in diameter and strong winds caused large branches to be broken off trees. At Canberra (Southern Tablelands) a thunderstorm and heavy rain caused strong winds which brought down hundreds of trees near Canberra in the Griffith-Fyshwick area. Buildings were unroofed in a possible tornado. One person was killed by a falling tree in Curtin. The damage bill is estimated at \$10 million

5.4 Natural Hazards Descriptions

The following tables provide information on the characteristics of each natural hazard included in the study. This information was used by the Working Group to assess the level of risk posed by each of these hazards, should they occur in the Palerang or Queanbeyan City Local Government Areas.

Information provided for each hazard includes:

History	Records of past events in the local area/community or elsewhere.
Intensity	How big, how fast, how powerful, how heavy.
Extent	Size of the physical area, communities or population affected.
Speed of onset	Event duration, warning time, time of year.
Vulnerabilities	What other aspects of the community not directly affected by the hazard could suffer some kind of impact?
Secondary Hazards	Other hazards that may result from the occurrence of the main hazard.
Mitigation in place	What the LEMC currently refers to and has implemented, to deal with such events (documents, equipment, resources, etc).

HAZARD	SNOW STORM
AGENCY	NSW SES
History	Snowfalls across the Palerang / Queanbeyan areas occur generally during the winter months, associated with snow falls in the Alpine, Monaro and higher parts of the ACT and South West slopes. Most recent significant events were 2007 and 2009 winters.
Intensity	Snow falls significant enough to cause disruption to traffic and normal day to day activities are generally confined to the southern and higher parts of Palerang and Queanbeyan LGAs. BoM forecasts generally provide at least 24 and often 48 hours advance notice, and the snow events usually do not exceed 24 hours duration. Snow depths are usually less than 10cm.
Extent	Extent of snow coverage can include Lake George range, Tinderry Range, parts of Wamboin & Bywong, Captains Flat and Michelago. Populations impacted are mostly rural, hobby farms. Major roads impacted include Kings Highway between Queanbeyan & Bungendore. Many minor roads closed for varying lengths of time.
Speed of onset	Generally part of a deep low pressure system impacting southern NSW, with BoM providing adequate warnings allowing media bulletins by ACT & NSW SES. Whilst generally confined to winter, snowfalls have occurred as late as November.
Vulnerabilities	Disruption to traffic and travel may occur affecting school bus travel, workers travelling to major centres. Often traffic accidents result from driving on snow and ice covered roads, exacerbating traffic disruptions. Fallen trees and power lines can present an additional threat to safety of travelling motorists. Isolation of remote rural properties possible as are widespread power outages
Secondary Hazards	Environmental damage; Potential loss of services to the community loss of income to local business; Disruption to travellers passing through the areas; Increased risk of house fires from use of lighting and heating that residents are not familiar with during power outages
Mitigation in Place	Pre snow season community education, Monaro Snow Plan describes roles and responsibilities for EM and support organisations. Local communities generally aware from previous experience. Palerang Snow Plan under development

HAZARD	EARTHQUAKE
AGENCY	LEOCON/ EOC
History	<p>The Canberra region including the Queanbeyan and Palerang Council areas currently sit on a major eastern fault line.</p> <p>The area currently experiences at least one earthquake per year – records for the past 50 years.</p> <p>Earthquakes are concentrated within a north eastern to south western belt of epicentres.</p> <p>The largest earthquake was in 1989 which measured 5.6 – same as the Newcastle earthquake the same year.</p> <p>There is a major fault line east of Queanbeyan running north south to Googong.</p> <p>The nearest seismic zone is 60 km away, north of Gunning.</p> <p>A large earthquake is predicted for area in the one in every 4000 year mark</p>
Intensity	<p>Little if any warning time will be available.</p> <p>If warnings occur by way of small tremors, emergency services will not react as there may not be any further earthquakes occurring.</p> <p>Notification of an extensive earthquake occurring will be by way of reports of damage to property from the public.</p> <p>EOC will not be running immediately until initial assessments are formalised.</p>
Extent	<p>Any large scale earthquake in the area will be extensive.</p> <p>Occurring in both rural and urban areas.</p> <p>Queanbeyan – large scale structural collapse.</p> <p>Bungendore and Braidwood – small structural collapse.</p> <p>Loss of utilities:</p> <ul style="list-style-type: none"> o Water o Sewerage o Communications – telephone, radio, internet o Electricity o Gas <p>Although not every one may be directly affected by loss of life and property, all persons within the Zone will be affected in some way.</p>
Speed of onset	<p>Earthquakes could occur at any time with no warning.</p> <p>When they occur they generally last only several minutes.</p> <p>The length of time is not relevant, but the damage and intensity of the actual earthquake for emergency services.</p> <p>Additional Agencies required would be Welfare services to provide relief supplies.</p>
Vulnerabilities	<p>All communities will be affected:</p> <ul style="list-style-type: none"> o Rural o Urban <p>All services will be affected:</p> <ul style="list-style-type: none"> o Utilities o Transport o Public o Government <p>If localised event assistance will be sought from neighbouring emergency and welfare services such as ACT.</p>
Secondary Hazards	<ul style="list-style-type: none"> o Explosions o Fires o Persons trapped o Gas leaks

	<ul style="list-style-type: none"> ○ Live damaged electricity lines and sub stations ○ Railway damage ○ Dam wall damage – Googong ○ Road damage ○ Land subsidence ○ Loss of water supply ○ Infrastructure damage ○ Disruption to emergency services; damage to infrastructure, vehicles at emergency services stations, hospitals. ○ Damage to critical infrastructure such as: sub stations, sewerage treatment plants, communication towers and lines. ○ Reduced capacity for Emergency personnel to respond due to their own damage/ family situation ○ Stray animals – stock
Mitigation in Place	DISPLAN

HAZARD	FIRE – BUSH/ GRASS
AGENCY	NSWRFS & NSWFB
History	<p>The Lake George Zone BFMC area has on average 80 bush fires per year, of which 6 on average can be considered to be major fires.</p> <p>The main sources of ignition in the Lake George Zone BFMC area are:</p> <ul style="list-style-type: none"> • Illegal Burning Off – these ignitions are mainly concentrated in the rural areas, and largely occur during mid to late spring; • Legal Burning Off – these ignitions again are mainly concentrated in the rural areas, and occasionally fire escapes during these activities. This type of activity is generally concentrated in late August and September; • Lightning; • Incendiaries; Camp Fires – ignitions have been experienced from fires lit by campers at the popular camping spots in the district; and Accidental
Intensity	<p>The intensity of bushfires depends on the fuel load and weather conditions. In the Lake George Zone, the larger fires are always in timbered country where the fuel loads can be quite high.</p> <p>Grass fires are usually fast-running and over relatively quickly, but as these occur in grassed valleys surrounded by wooded hills, they can become forest fires in a short time if not contained quickly</p>
Extent	<p>The Lake George Zone covers approximately 5,330 square kilometres. The bushfire-prone land map shows areas of bush and unmanaged grassland that are considered to be bushfire-prone. Most of Lake George Zone is mapped as being bushfire-prone.</p> <p>The population of the Lake George Zone is approximately 47 000 people. The major population centres are Queanbeyan, Bungendore, and Braidwood as well as densely populated rural residential areas of Wamboin, Bywong, Jerrabomberra Creek and Carwoola</p>
Speed of onset	<p>Bushfires can range in duration from less than one hour to several weeks, depending on time of year, prevailing weather conditions, fuel type, location etc. Warning times vary depending on the location of the fire and proximity to population, the time of detection and the time of reporting to the appropriate authority. Fire spotting towers can detect smoke rising, but are only manned during the fire season. The length of time of manning varies with the fire danger rating for the day. The bushfire season nominally runs from 1st October to 31st March, although significant fires have occurred outside this date range</p>
Vulnerabilities	<p>The impact of bushfire goes beyond the actual fire ground. Areas downwind will suffer from smoke which can affect vulnerable members of the community.</p>

	Employers of emergency services volunteers and self-employed volunteers can find themselves out-of-pocket while the fire is being actively fought
Secondary Hazards	Infrastructure such as roads, powerlines and communication facilities can be affected, with flow-on effects for the greater community. Smoke columns from larger fires can impact flight paths. Water catchments can be affected by runoff from larger fires, especially given that these fires are often followed by heavy rain events.
Mitigation in Place	<p>The aim of the Bushfire Risk Management Plan is to minimise the risk of adverse impact of bush fires on life, property and the environment.</p> <p>The objectives of this BFRMP are to:</p> <ul style="list-style-type: none"> • reduce the number of human-induced bush fire ignitions that cause damage to life, property and the environment; • manage fuel to reduce the rate of spread and intensity of bush fires, while minimising environmental/ecological impacts; • reduce the community's vulnerability to bush fires by improving its preparedness; and • effectively contain fires with a potential to cause damage to life, property and the environment

HAZARD	FLOOD (natural occurrences)
AGENCY	NSW SES
History	Flooding in Palerang & Queanbeyan LGAs has occurred to varying degrees in the past, but a decade or more of drought had resulted in few flood events in recent years. Early 2010 saw minor flooding in and around Queanbeyan, with rural areas of Palerang also impacted. Most recent flood events were 1988/89, 1974 (most recent significant flood) & 1976, 1925 produced the flood of record.
Intensity	Queanbeyan City flooding is generally riverine, with overflows from the Queanbeyan and Molonglo rivers impacting the CBD and low lying residential areas. The CBD may be cut in half by significant flooding. Googong Dam mitigates major flooding in Queanbeyan unless the dam is full. Captains Flat is protected from flooding by the Captains Flat Dam but flooding of the Molonglo River effects areas downstream of town with rural road closures the main effect. Bungendore and Braidwood may be flooded by heavy rainfalls swelling local creeks and streams, as well as from stormwater runoff flooding in the town centres
Extent	Rural flooding in Palerang (and parts of Queanbeyan) LGA impacts rural roads and river / creek crossings. Most areas have adequate alternate access and rural inundation rarely causes significant rural property isolation
Speed of onset	<p>Heavy rainfall may result from East Coast Low pressure systems for which the BoM provides adequate and timely warnings. Other events include low depressions in southern NSW for which the BoM provides adequate and timely warnings. Flooding times are generally short (maximum 24 – 48 hrs) and are possible any time of year.</p> <p>Warnings to the public commence from the first notifications from BoM and include rural flood advice, flood warnings and evacuation warnings and orders if required.</p>
Vulnerabilities	<p>Potential for injury and death to public trying to drive or walk through flooded rivers, crossings etc.</p> <p>Environmental damage;</p> <p>Damage to roads and infrastructure;</p> <p>Potential loss of services to the community;</p> <p>loss of income to local business;</p> <p>Disruption to travellers passing through the areas</p>
Secondary	Inundation of sewerage systems may cause a local public health hazard, and

Hazards	floodwaters may be contaminated by dead and dying stock, farm chemicals. Failure of Googong or Captains Flat Dams would have major consequences in Queanbeyan, Captains Flat and the ACT
Mitigation in place	SES Flood plan for Queanbeyan, Dam Safety Plans for Googong & Captains Flat Dams identify PPRR measures and responsibilities of other EM and support agencies. Palerang (Braidwood and Bungendore) Flood Plans are under development

HAZARD	SEVERE STORM (including strong winds, hail, lightning)
AGENCY	NSW SES
History	Storms occur across Palerang and Queanbeyan LGAs at regular intervals, and at least annually, with resultant building and infrastructure damage, power outages and transport disruptions
Intensity	Storms may be localised intense events including tornadoes and micro bursts, or widespread but generally less intense events affecting wider areas.
Extent	Major wind storms in Palerang and Queanbeyan LGAs generally also impact surrounding LGAs to the south, west and north. All parts of the LGAs are impacted by storms to some degree.
Speed of onset	BoM forecasts generally provide adequate warning of impending strong winds, rain and hail, but cannot forecast localised events. Spring is traditionally the main storm season; however major events have occurred during most months over time.
Vulnerabilities	Potential for injury and death to public from falling trees, branches, wind driven debris Environmental damage; Damage to roads and infrastructure; Potential loss of services to the community; loss of income to local business; Disruption to travellers passing through the areas
Secondary Hazards	Hazmat situations when hail and other roof damage occurs on asbestos fibro roofs Danger to public from fallen power lines Straying and injured stock
Mitigation in place	NSW SES Storm Plan identifies clear roles and responsibilities of other EM and support agencies. SES community education material provides guidance on preparing residences and rural properties to be "storm safe" Annual Storm Safe Week with associated widespread media campaigns

5.5 Technological Hazards Descriptions

The following tables provide information on the characteristics of each technological hazard included in the study. This information was used by the Working Group to assess the level of risk posed by each of these hazards, should they occur in the Palerang or Queanbeyan City Local Government Areas.

HAZARD	AERONAUTICAL
AGENCY	LEOCON/ EOC
History	<p>Our LEMC does not have an airport, but it is under the air corridors that service the International Airport at Canberra.</p> <p>Canberra airport in 2007/08 recorded 88,576 aircraft movements. It is proposed that this will increase to 145,000 per annum by 2028.</p> <p>Canberra airport is increasing its passenger and freight handling capacity.</p> <p>Although no large scale aeronautical accidents have occurred there have been some including:</p> <ul style="list-style-type: none"> ○ Aug 1940 – 6 people killed during WWII ○ Jan 2001 – 4 persons killed ○ July 2004 – near miss over the Tinderry mountain ranges, low level alert at 600ft QF720 i.e. Boeing 737. ○ April 2010 – QF779 conducted an emergency landing at Canberra with a defective flap i.e. Boeing 737. <p>There are also many other variables that will contribute to an air emergency in our local area:</p> <ul style="list-style-type: none"> ○ Frequency and intensity of fog in Canberra ○ Snow and cold climate conditions – freezing ○ Narrow air corridor over urban areas – intensity of aircraft into narrow zones ○ Limited air traffic controllers available – non 24hr ○ Shorten runway ○ Urbanised area surrounding airport ○ Increased use of jet aircraft and multi-props ○ International status of airport – increase level of activity
Intensity	<p>There are a number of contributing factors:</p> <ul style="list-style-type: none"> ○ Type of aircraft involved – freight or passenger ○ Collision occurred over rural or urban setting ○ Explosion or crash landing ○ Number of passengers and crew on board ○ Amount of fuel on board ○ Accessibility to area may be a problem
Extent	<p>In general terms, local LEMC resources will not be called to attend an air emergency at the airport. They may assist or back up normal services in the ACT whilst they are in attendance at the airport.</p> <p>An accident will most likely occur over our LEMC. They may include:</p> <ul style="list-style-type: none"> ○ Mid-air collision ○ Ground collision ○ Explosion ○ Crash landing
Speed of onset	Unless a crash landing, this type of accident will involve no warning time.
Vulnerabilities	<p>Large area of rural or forest can be impacted.</p> <p>Large area of urban development would be damaged and not able to be used for a long period of time with persons not being allowed back into that area.</p>

Secondary Hazards	<ul style="list-style-type: none"> o Large scale loss of life from aircraft or building involved o Explosions o Fire o Building collapse o Environmental contamination o Potential radioactivity o International relations o Political impact
Mitigation in Place	<p>Representative, Operations Mgr from Canberra Airport now invited to attend LEMC meetings on a regular basis.</p> <p>DISPLAN</p> <p>CASA regulations</p> <p>BASI</p>

HAZARD	DAM FAILURE
AGENCY	SES
History	Dam failures in Australia are rare. They do occur overseas. There have been several incidents recorded in Australia with the most prolific being in Lenthall, QLD where the failure to open the dam crest gates occurred. There are two major dams in our LEMC; the Googong Reservoir and Captains Flat Dam. Both dams have large urban city and settlements respectively downstream.
Intensity	<p>The dam may do two of the following things:</p> <ul style="list-style-type: none"> o Slow leak over a short / long period o Large failure over a short period of time <p>Lead up time may be over days or hours or no time at all. This would depend on the water level in the dam at the time, spillway capacity to direct overflow or "Sunny day" or rainy day prior to incident.</p>
Extent	<p>Very limited 'floodplain' downstream of the Queanbeyan river able to take the excess water. Not until it reaches Lake Burley Griffin at Fyshwick/ Jerrabomberra wetlands.</p> <p>The Molonglo on the other hand has a large floodplain several kilometres after and downstream from the town better able to absorb the excess water before reaching the ACT.</p>
Speed of onset	Once the dam wall collapses the impact will be immediate, allowing very little warning to be given.
Vulnerabilities	<p>Accessibility to these two areas will be a problem as they only have one way in and out, unless a longer route is taken which would be through dirt roads.</p> <p>Security of evacuated areas and properties</p>
Secondary Hazards	<p>Catastrophic flooding</p> <p>Rubble and mudslides</p> <p>Large scale evacuations – downstream</p> <p>ACT – Lake Burley Griffin, Scrivener Dam, Queanbeyan river and Molonglo river</p> <p>Close of traffic and railway bridges downstream</p> <p>Murrumbidgee river</p> <p>Loss of fresh water supply to ACT and Queanbeyan</p> <p>Initial flood wave will create building and infrastructure collapse at Queanbeyan and Captains Flat.</p> <p>Massive loss of life if evacuations not in place prior</p>
Mitigation in Place	<p>Flood plan – SES</p> <p>DISPLAN</p> <p>QCC Flood Mitigation plan – 2009</p> <p>Dam Safety Emergency Plans</p>

HAZARD	HAZARDOUS MATERIALS
AGENCY	NSWFB
History	The annual number of Hazardous Materials incidents in the Queanbeyan region was 46 for the 2008-2009 period.
Intensity	Ranging from small diesel spills on roadway to transport accidents involving a release of hazardous chemicals into drains or into other aspects of the environment.
Extent	The entire population can be affected due to the need to evacuate the NSWFB emergency area (3 zone system for handling incidents – Hot, Warm, Cold Zones)
Speed of onset	A wide range of variables control this – such as terrain, wind direction, time taken to successfully contain the substance and render area safe.
Vulnerabilities	Traffic flow, business continuity, utilities (electricity, water supply etc)
Secondary Hazards	Release of hazardous chemicals/ gas plume into the atmosphere or into waterways. Potential disruption to local businesses
Mitigation in Place	NSWFB SOG's NSW State Disaster Plan (DISPLAN) HAZMATPLAN 2005 (Sub Plan to the State DISPLAN) All NSWFB appliances can deal with HAZMAT All NSWFB officers trained in dealing with Hazardous Materials incidents and Decontamination procedures Can call on specialists Hazmat Resources ex Goulburn, Batemans Bay, Shellharbour, etc.

HAZARD	INFRASTRUCTURE FAILURE – POWER
AGENCY	LEOCON/ EOC
History	Although there is some local history of electricity failure within our LEMA, it is usually handled within a short period of time. The LEMA has four main and large areas where failure would be more dramatic they are: Queanbeyan Bungendore Braidwood Captains Flat The onset of this would be generally as a result of another hazard such as earthquake, bushfire, severe storm.
Intensity	The intensity is very dramatic. It affects all actions by our community. If failure is for a short period it can be handled well by communities but for long periods of time it becomes more intense.
Extent	All areas can be affected from the urban to the rural communities. Rural communities are in a better position to deal with this domestically, but if they rely on electrically / power for commercial / industry purposes then there are major problems such as for the milk processing etc.
Speed of onset	No warning time. Most probable time is during a severe storm.
Vulnerabilities	All communities are affected.
Secondary Hazards	Loss of critical infrastructure such as hospitals, sewerage, water pumping facilities.
Mitigation in Place	Unknown, the LEMC is not privy at this point in time to any information from Country Energy, Transgrid and ACTEWAGL which manages this infrastructure at various levels.

HAZARD	INFRASTRUCTURE FAILURE - WATER
AGENCY	LEOCON/ EOC
History	<p>Although there is some local history of loss of water within our LEMA, it is usually handled within a short period of time. The LEMA has four main and large water processing plants as well as urban areas in which this can be affected and they are at:</p> <p>Queanbeyan Bungendore Braidwood Captains Flat</p> <p>The onset of this would be generally as a result of another hazard such as earthquake, bushfire, severe storm.</p>
Intensity	The intensity can be very dramatic. Water is vital not only to sustain life, communities may be able to handle water loss for short periods, but the longer the problem goes on for the more dramatic the effects of that loss are.
Extent	Extend of the loss can be from localised areas affected a particular home, street, suburb, a whole town or city or even our whole region. Although this has not be evident in Australia is has occurred in other parts of the world where the whole US Eastern sea board lost power for days and weeks on end.
Speed of onset	Very fast initially, but can be dependant on what redundancies are in place and how many of those have failed. It may hours or days. Anytime of the year. The problem is that there are several companies that have jurisdiction over various facets of power i.e.: generating power, power lines and towers, power sub stations etc
Vulnerabilities	All communities are affected, but in particular large scale accommodations such as hospitals, nursing homes, hotels, motel, schools etc where these locations can place a large demand on water.
Secondary Hazards	<p>Environmental damage;</p> <p>Potential loss of services to the community</p> <p>loss of income to local business</p> <p>Loss of industry and commerce.</p>
Mitigation in Place	Unknown, the LEMC is not privy at this point in time to any information from QCC.

HAZARD	INFRASTRUCTURE FAILURE – SEWERAGE (incl contamination)
AGENCY	LEOCON/ EOC
History	<p>Although there is some local history of sewerage failure within our LEMA, it is usually handled within a short period of time. The LEMA has four main and large plants at:</p> <p>Queanbeyan Bungendore Braidwood Captains Flat</p> <p>The onset of this would be generally as a result of another hazard such as earthquake, bushfire, severe storm.</p>
Intensity	The intensity is very dramatic. At Queanbeyan for example the sewerage has flown directly into the Molonglo river which in turn flows into Lake Burley Griffin which attracts vast media and political attention. In one case the ACT Government has taken the Local Council (QCC) to court for damages occurred

	to this ornamental lake. The problems occurred when the following occur: 1. Failure of electricity to run the machines 2. Failure of water 3. Flooding of the sewerage treatments holds 4. Failure of the plant and machinery
Extent	As these plants are normally not manned full time therefore there effects initially are great, until the failure can be responded to, affecting the environmental, local communities where sewerage can be blocked up, and health implications.
Speed of onset	Very fast initially, but can be dependant on what redundancies are in place and how many of those have failed. It may be hours or days. Anytime of the year.
Vulnerabilities	All communities are affected, but in particular large scale accommodations such as hospitals, nursing homes, hotels, motel, schools etc where these locations can place a large demand on the sewerage
Secondary Hazards	Environmental damage; Potential loss of services to the community Loss of income to local business
Mitigation in Place	Unknown, the LEMC is not privy at this point in time to any information from both Palerang and QCC.

HAZARD	INFRASTRUCTURE FAILURE - GAS
AGENCY	LEOCON/ EOC
History	Although there is some local history of gas failure within our LEMA, it is usually handled within a short period of time. The LEMA has two main areas where this would affected: Bungendore Queanbeyan The onset of this would be generally as a result of another hazard such as earthquake, bushfire, severe storm.
Intensity	The intensity is very dramatic for longer periods of time. Communities can normally hand loss for short periods of time, but for larger periods this would pose all sorts of problems for example in winter when communities rely on gas for heating, coupled with the cold nature of our area where temperatures drop below zero, there could loss of life in our vulnerable communities.
Extent	There may be several problems associated with gas failure i.e.: Lines problems, plant problems and loss of gas completely.
Speed of onset	Very fast initially, but can be dependant on what redundancies are in place and how many of those have failed. It may be hours or days. Anytime of the year.
Vulnerabilities	All communities are affected, but in particular large scale accommodations such as hospitals, nursing homes, hotels, motel, schools etc where these locations can place a large demand on the gas for heating and cooking.
Secondary Hazards	Potential loss of services to the community Loss of income to local business
Mitigation in Place	Unknown, the LEMC is not privy at this point in time to any information from both ACTEW AGL and Jemena.

HAZARD	INFRASTRUCTURE FAILURE – GAS PIPELINE RUPTURE
AGENCY	LEOCON/ EOC
History	<p>There are two pipelines, DN450 EGP & DN250 Hoskinstown to Fyshwick Pipeline, in the area. No history of failure is recorded of these pipelines but the potential of failure still exists. If the pipelines are punctured by machinery excavation / boring operation it could penetrate the pipe wall when the penetration resistance of the pipe is exceeded.</p> <p>Pipeline incidents of this nature have occurred recently in the US with catastrophic effects.</p>
Intensity	The pipeline failure mode is rupture if the damage exceeds the allowable defect length of the pipe. Rupture means that full bore failure of the pipe with full pressure gas release at 14.5MPa and 14.9 MPa of EGP and Hoskinstown respectively.
Extent	If the gas is ignited, the heat radiation contour can extend up to 530m (EGP) and 300m (Hoskinstown) radius respectively from the ignition source. People within the heat radiation zone can either suffer injury (3 rd degree burn) or fatality.
Speed of onset	When gas fire is involved the effect is instantaneous within minutes.
Vulnerabilities	The pipelines supply natural gas to large gas customers in NSW (EGP) and Canberra (Hoskintown). Where the pipeline is ruptured and suffers significant damage, there will be major commercial impact on these customers with long lead time to restore gas supply.
Secondary Hazards	Property damage and environmental damage are other major consequences from a pipeline rupture.
Mitigation in Place	There are physical and procedural measures in place to minimise the risk of pipeline damage. Physical measures include depth of pipe cover and pipe thickness. Procedural measures are in the form of administration protection and controls: DBYD, pipeline markers, patrol and public awareness program. The combination of these control measures is to prevent external activities to work near the pipeline without authorisation and appropriate supervision. In addition, there are pipeline emergency response procedures which are applied to manage the pipeline incident and its attendant consequences.

HAZARD	TRANSPORT EMERGENCY - ROAD
AGENCY	LEOCON/ EOC
History	<p>Our area has a long history of transport accidents. Most accidents are motor vehicle accidents involving one or two vehicles. There have been several heavy vehicle transport (tanker) accidents in recent times. Our LEMC is serviced by two highways: the Kings Highway and the Federal Highway and many other important roads. There has been an increased use of road transport in recent times. Since 2008, Shell Petroleum have stopped shipping fuel to Canberra on rail and are instead using road transport, the estimate of this is some additional 80 petrol tankers on the road along. Tourist bus activity has also increased to and from Canberra, due to the snowfields and the coast</p>
Intensity	<p>If an incident occurs it is rapid. There are many variables, such as:</p> <ul style="list-style-type: none"> ○ Vehicle collides with vehicles, buses and hazardous material ○ Vehicle collides with train

	<ul style="list-style-type: none"> Vehicle collides with other structure i.e.: bridge, building (station) <p>It may involve multiple fatalities and injuries or extensive property damage to vehicles and other structures.</p>
Extent	<p>The incident will be localised.</p> <p>The area affected may be small or large depending on the freight. Danger area may be under or over 1km radius.</p> <p>The population affected may be small in a rural setting such as Tarago or Burbong or large such as near Bungendore or Queanbeyan.</p> <p>Population may or may not have to be evacuated depending on any hazards being transported. If the incident involved freight more than likely population will be evacuated.</p>
Speed of onset	<ul style="list-style-type: none"> No warning time, immediate. Casualties and hazardous material will require more resources Queanbeyan, Bungendore and Braidwood will generally respond. Goulburn, Cooma, Yass, Batemans Bay Emergency Services may be called. ACT Emergency services may be called. <p>All emergency services will need to be used i.e.:</p> <ul style="list-style-type: none"> NSWPF ASNSW NSWFB SES RFS <p>Additional services may be required such as:</p> <ul style="list-style-type: none"> Agriculture, animal services – if stock involved Environmental services – if hazardous materials involved Health Services – impact on affected persons Workcover – investigation of accident RTA & ARTC– due to complex nature of this infrastructure may need all relevant authorities Transport services – to take away vehicles and freight, stranded passengers Utilities if affected such as electricity lines normally follow roads
Vulnerabilities	<ul style="list-style-type: none"> Travellers Freight transport Road travel – users Infrastructure collapse – bridges crossings Residential properties – if close to urban areas or rural estates such as Carwoola. Local rivers (Lake Burley Griffin – ACT) Disruption to business in areas such as: Bungendore, Queanbeyan and Fyshwick – ACT.
Secondary Hazards	<p>Explosions</p> <p>Environmental – leakage and cross contamination of materials</p> <p>Fire – bushfire starting, localised</p> <p>Structural collapse</p> <p>Transport services disruption</p> <p>Evacuations – looting welfare issues</p>
Mitigation in Place	DISPLAN

HAZARD	TRANSPORT EMERGENCY - RAIL
AGENCY	LEOCON/ EOC
History	Although there has not been a recorded incident in the region for the past 50 years, there have been numerous railway accidents across NSW and Australia. They are common. Granville in 1977, Beresfield in 1997, Glenbrook in 1999, Benalla level crossing in 2002 and Waterfall in 2003.
Intensity	If an incident occurs it is rapid. There are many variables such as: <ul style="list-style-type: none"> o Train collides with vehicles, buses and hazardous material freight, other structure o Train collides with other train o Train derails
Extent	The incident would be localised. The area affected may be small or large depending on the freight. Danger area may be under or over 1km radius. The population affected may be small in rural localities such as Tarago or Burbong or large towns such as Bungendore or Queanbeyan. Population may or may not have to be evacuated depending on any hazards being transported. If the incident involved freight more than likely population will be evacuated. If a passenger train collides with a road petrol tanker, same scenario applies.
Speed of onset	<ul style="list-style-type: none"> o No warning time, immediate, develops rapidly. o Casualties and hazardous material will require more resources o Queanbeyan, Bungendore and Braidwood will generally respond. o Goulburn, Cooma, Yass, Batemans Bay Emergency Services may be called. o ACT Emergency services may be called. All emergency services will need to be used i.e. NSWPF; ASNSW; NSWFB; SES; RFS Additional services may be required such as: <ul style="list-style-type: none"> o Agriculture, animal services – if stock involved o Environmental services – if hazardous materials involved o Health Services – impact on affected persons o Workcover – investigation of accident o Railway authorities (Railcorp, State Rail and Urban Rail)– due to complex nature of this infrastructure may need all relevant authorities o Transport services – to take away railway carriages, locomotives, stranded passengers and freight. Utilities if affected such as electricity lines normally follow railway line
Vulnerabilities	<ul style="list-style-type: none"> o Train travellers o Freight transport o Road travellers - users o Infrastructure collapse - bridges, level crossings o Residential properties – if close to urban areas or rural estates such as Carwoola. o HQJOC – railway passes within 500m of complex o Molonglo river (Lake Burley Griffin – ACT) o Disruption to businesses and community life in areas such as Bungendore, Queanbeyan and Fyshwick – ACT.
Secondary Hazards	Explosions Environmental – leakage and cross contamination of materials Fire – bushfire starting, localised Structural collapse Transport services disruption Evacuations – looting welfare issues
Mitigation in Place	Rail corporation representative contacted and invited to LEMC meetings. DISPLAN

5.6 Biological Hazards Descriptions

The following table provides information on the characteristics of each biological hazard included in the study. This information was used by the Working Group to assess the level of risk posed by each of these hazards, should they occur in the Palerang or Queanbeyan City Local Government Areas.

HAZARD	COMMUNICABLE DISEASE - AFFECTING HUMANS
AGENCY	NSW HEALTH
History	<p>While any disease may cause a pandemic, the most common pandemics of the last century were caused by influenza. The likelihood of another influenza pandemic whilst unknown, it is probably at its highest level in several decades.</p> <p>The 'Spanish flu' pandemic of 1918-1919 is estimated to have killed at least 40 million people. The influenza pandemic of 1957-58 was called the Asian flu. Although the proportion of people infected was high, the illness was relatively mild compared to the Spanish flu, resulting in milder effects and fewer deaths.</p> <p>The first wave of the pandemic was concentrated in school-children and the second in the elderly. Infants and the elderly were more likely to die. It is estimated that the Asian flu caused two million deaths worldwide.</p> <p>The 1968 – 70 pandemic called Hong Kong flu although relatively mild compared to the Spanish flu affected mainly the elderly and is thought to have caused about one million deaths worldwide.</p> <p><u>Swine influenza (H1N1) flu</u>, also referred to as Swine flu, is a respiratory disease caused by Type A influenza viruses. A new strain of influenza A (H1N1) virus that is a mix of swine, human and/or avian influenza viruses was introduced into Australia in 2009. Admission to NSW emergency departments peaked in mid July 2009 at around 1300 presentations per week, approximately three times the previous highest peak of 2007.</p>
Intensity	Illness in most people has been mild, but severe in some, and broadly similar to seasonal influenza
Extent	It can affect anyone in the community (children, elderly, Health care professionals; Child Care Facilities; Church services) can close down a community/ township or region potentially setting exclusion or quarantine zones.
Speed of onset	During winter months it is likely to spread rapidly
Vulnerabilities	High demand on Health services; services business and schools having to close; Impact on travel and local and regional businesses/ trade
Secondary Hazards	<p>Loss of income due to lack of sick leave</p> <p>Increased hospital waiting lists</p> <p>Tourism</p>
Mitigation in Place	<p>Uptake of H1N1 vaccination has increased over time since data became available in November 2009 to 43.4% in August 2010</p> <p>Strict infection control processes through out the community and within health services</p> <p>Financial support of the public health infrastructure including surveillance, prevention, communication, adherence techniques to support and address potential infectious disease threats.</p>

HAZARD	COMMUNICABLE DISEASE - AFFECTING ANIMALS
AGENCY	Industry & Investment
History	None in the community in recent times. Elsewhere in the state recent events have included Equine Influenza in 2007 and Newcastle disease in 2001-2002. Many diseases have potential in the area including Hendra and Anthrax
Intensity	None have occurred in the area recently. Intensity will depend on mode of spread and impact on animals
Extent	None have occurred in the area recently. Extent will depend on mode of spread and impact on animals
Speed of onset	None have occurred in the area recently. Speed will depend on mode of spread and impact on animals
Vulnerabilities	Tourists may be affected if movements are restricted and if animals that are attractive to tourism are affected. Landholders/animal owners will be affected if movement is restricted and quarantine zones established. Isolated communities
Secondary Hazards	Some secondary hazards include: Increase in food prices due to reduction of livestock numbers or restriction of movement Shortage of food Tourism Quarantine Social isolation Economic impact on small businesses related to the segment being affected. Disease/pollution risk from disposal of animals Loss of income Companion animal owners affected by culls, quarantines and movement restrictions
Mitigation in Place	I & I has a number of plans including: State Agricultural and Animal Services Plan – Part of Displan Ausvetplan Avian Influenza Preparedness Plan NSW Animal Health Emergency Sub Plan – part of Displan Operational Guide for Multi Agency Response to Suspicious Substance Incidents ACT/NSW Cross Border Regional Management Framework

6 Community & Environmental Description

6.1 Palerang Local Government Area

6.1.1 General Profile

Palerang Local Government area is situated in the south-east of New South Wales, bordering the ACT. The LGA extends to Lake George in the north, the Tallaganda State Forest in the south, Queanbeyan City to the west and the Morton and Budawang National Parks to the east.

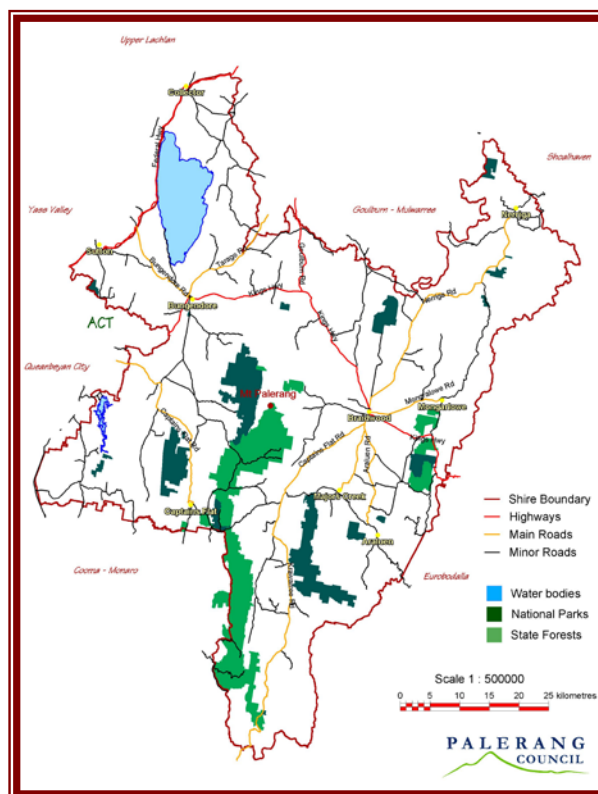
Proclaimed on 11 February 2004, the Palerang Local Government area now includes the towns of Braidwood, Bungendore and Captains Flat and the outlying villages of Araluen, Majors Creek, Mongarlowe and Nerriga. It also includes the areas of Wamboin, Burra, Bywong, Hoskinstown, and parts of Sutton, Royalla and Carwoola.

The Palerang region covers 5144.47kms square and is ideally serviced by two major transport routes; the Kings Highway, Federal Highway

Palerang has the biggest recreational horse population in the southern tablelands

Its closeness to the ACT makes Palerang an area with highly political influences.

Medical and hospital facilities are available in Braidwood.



Demographic factors

Population

With a population increase from just under 13,000 in 2006 (census), to recently released ABS statistics indicating the population number is now approximating 14,300, Palerang is the sixth fastest growing LGA for 2008-2009 at 3.7% and the fastest growing in its region including ACT.

Projections from the Department of Planning estimate that, by 2036, the population of Palerang will reach 21,900.

The number of children in the Palerang LGA represents 16.2% of the total population. Young people (aged 12-24 years of age) currently represent around 14.8%. Females comprise approximately 49.7%

Older Persons - In 2005, older people in the Palerang LGA area represented approximately 24.1% of the population.

The community of Palerang, like many others across Australia is ageing. This growth is an important factor to consider, as it will change the social make-up of the region and has considerable implications in terms of health, welfare, self care and support service provision as well as town planning and transport services.

A survey conducted by the Australian Bureau of Statistics (ABS) reported that one in five people in Australia (3,958,300 or 20.0%) had a reported disability 2003. Disabilities range from hearing loss mobility difficulty, to advanced dementia requiring constant help and supervision (ABS, 2004).

Employment

The main source of employment for residents of Palerang Council is in Canberra and Queanbeyan. Local industries are generally restricted to the service, tourism or rural sectors. There are no large manufacturing industries or large-scale intensive livestock operations.

There are increasing numbers of residents operating businesses from home. These range from service-based consultancies to bed and breakfast establishments.

In the rural areas of Palerang Council, sheep and cattle farming continues; however, there are very few farmers in this area who rely solely on their property as a source of income. There is a strong trend in the Council area towards newer forms of agriculture, such as the growing of grapes and olives and keeping of alpacas.

The Defence Joint Operation Headquarters (HQJOC) is located off the Kings Highway seven kilometres from Bungendore towards Queanbeyan. This was the largest construction in the ACT region since the new Parliament House in Canberra. The facility is designed house up to 750 employees, many of whom have transferred from elsewhere.

Industry

Its residents enjoy a rural lifestyle, with principal industries being beef and sheep production, alpacas, stone fruit orchards, vineyards, lavender farms and berries. There is a thriving artistic community of writers, poets, film-makers, musicians and specialty craftspeople.

The area is in general climatically unsuitable for extensive crop production.

In recent years boutique rural industries like vineyards and olive orchards and alpaca studs have proliferated across the shire.

Private plantations, primarily of radiata pine, are generally located on marginal agricultural land in the north-eastern part of the Council area, north of Mongarlowe and the Durrant Range. Other pockets of pine plantation exist to the west of Braidwood and south in the Parish of Krawarree.

Transport

Transport in Palerang Council Area is predominantly in the form of motor vehicle use. Bungendore Township is connected by rail to Sydney and Canberra. Private Coach Services run from Canberra through Bungendore and Braidwood to the South Coast. School bus services run throughout the council area. A taxi service is available to residents in Bungendore Township, but the town has no other public transport services

Numerous small roads radiate outwards from each of these towns to smaller rural villages and settlements. As much of the western half of the Council area is within easy commuting distance to Canberra and Queanbeyan, Palerang Council has become one of the major providers of rural residential land within the Australian Capital Region. There are now thousands of rural residential lots, which are typically between two and 16 hectares in size and house more than three-quarters of the Council's population.

Heritage

Number of historical/ significant areas of historical or cultural – Braidwood village declared Heritage

One hundred and fifty nine places in Palerang Council Area have been listed on various heritage registers, the majority of them of cultural or historic significance.

The condition of heritage places in Palerang Council Area or their management arrangements is not clearly known. It is therefore difficult to assess whether they are well managed. Council allocated \$8000 annually during the reporting period to access the services of a Heritage Adviser.

Geographic factors

Landform and Topography

Palerang is a combination of mountains and flat landscape. Landforms are generally steep dissected and rugged ranges extending across southern and eastern Victoria and southern NSW.

Unique features of Palerang Council Area include the Budawang Range, Araluen Valley, Braidwood landscape and a number of proposed or potential wilderness areas. The Council area boasts some areas of significant, high quality native forests.

Major rivers and dams are located in the LGA including the Googong Dam and Captains Flat Dam and Braidwood Dam

Some areas are flood prone; bush fire prone, high winds and / or snow prone

Environment

The region of Palerang boasts two State forests, controlled and managed by NSW State Forests and occupy land within the Council area.

The National Parks & Wildlife Service has established some 63,422ha of national park within the local government area.

Exploitable reserves of sand and gravel are scattered throughout the local government area. The major extractive operation is currently for processed and unprocessed sand for the ACT building industry. Three extraction sites are operating intermittently.

The 67-turbine Capital Wind Farm at Bungendore overlooking Lake George is the largest renewable electricity generator commissioned in NSW since the Snowy Hydro Scheme.

Most of Palerang Council Area is within the South Eastern Highlands bioregion. Based on dominant landscape attributes, the vegetation of the South Eastern Highlands bioregion is described by Thackway and Cresswell as consisting of predominantly wet and dry sclerophyll forests, woodland, minor cool temperate rainforest and minor grassland and herbaceous communities.

One fifth of Palerang Council Area is managed by New South Wales agencies, with 5% under State Forest control and a further 15% under the control of the Department of Environment and Conservation (formerly National Parks). The major areas of conservation and State forests are located around the higher-elevation perimeter of the council area.

Climate

Rainfall in the Braidwood Township was lower for the period 2003-04. In 2002-03, rainfall was 40% below the long-term average and in 2003-04 this increased to 42% below average.

Rainfall in Bungendore Township was lower in all four years of the reporting period. In 2002-03 rainfall was 39% below the long-term average.

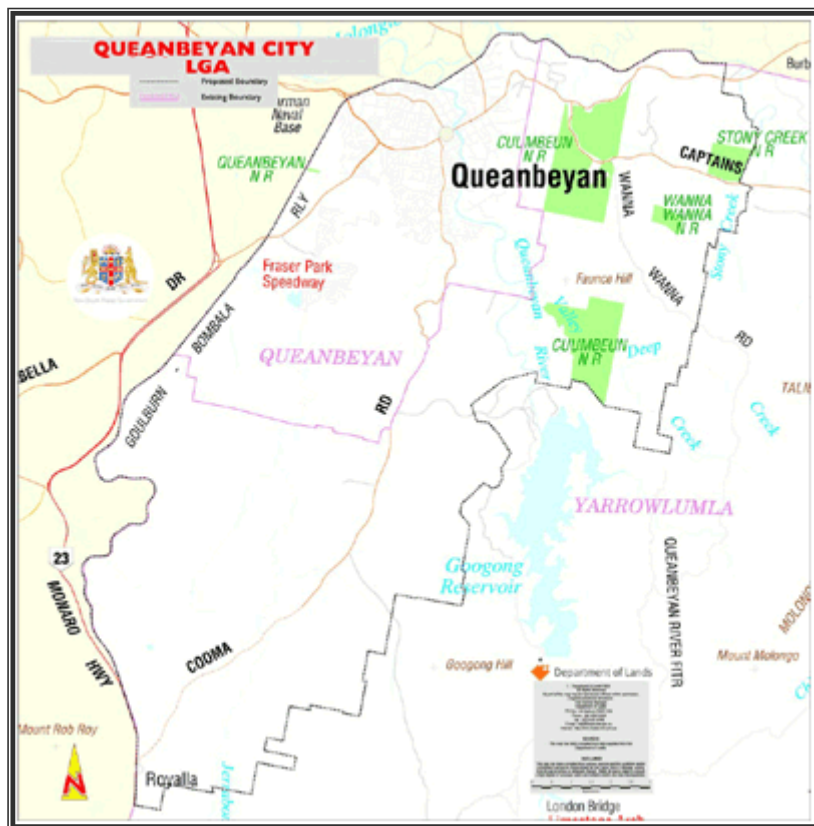
Temperatures in the region showed an overall increasing trend across the reporting period

The 2002-03 drought was one of the worst on record, not only because it was dry but also because it was very hot. It also affected more of Australia than usual. As with much of the region's climate, it was driven partly by the combined effect of ocean surface temperatures and atmospheric pressures in the Pacific Ocean (see the box on drought).

Additional statistical data can be found in Appendix 10 of this document

6.2. Queanbeyan City Local Government Area

6.2.1 General Profile



Established in 1838, Queanbeyan City is located in New South Wales, on the eastern border of the Australian Capital Territory, about 12 kilometres from Canberra and 250 kilometres south-west of Sydney. Queanbeyan City is bounded by the Australian Capital Territory in the north and west, and the Palerang Council area in the east and south.

Queanbeyan is bounded by three major roads; the Federal Highway, the Kings Highway and the Monaro Highway and includes the suburbs and localities of Carwoola (part), Crestwood, Environa, Googong (part), Greenleigh, Jerrabomberra, Karabar, Queanbeyan, Queanbeyan East, Queanbeyan West, Royalla (part), The Ridgeway and Tralee.

Queanbeyan LGA is a predominantly rural area, with growing residential areas, particularly in the north-west, closest to Canberra. The City encompasses a total land area of about 173 square kilometres. Rural land is used mainly for sheep and cattle grazing, nurseries, honey production, crop growing and wineries.

Queanbeyan is named from an Aboriginal word meaning “clear waters”. The original inhabitants of the Queanbeyan area were the Ngambri and Ngunnawal Aboriginal people.

European settlement dates from 1824 when settlers established stock stations in the area.

In the first half of the Twentieth Century Queanbeyan played a critical role in the establishment of Australia's new capital city—Canberra with many of Queanbeyan residents helping to build the new city.

Major features of the City include the Queanbeyan River, Riverside Plaza (Shopping Centre), TAFE NSW - Illawarra Institute (Queanbeyan Campus), Googong Foreshores, Cuumbien Nature Reserve, Jerrabomberra Mountain Reserve, Stony Creek Nature Reserve and Wanna Wanna Nature Reserve. The City is served by the Kings Highway and the Canberra railway line

Water

Drought was the most significant factor that affected water demand in Queanbeyan City Council Area during early to mid 2000. Average annual use of reticulated (tap) water was slightly higher than in the previous period. However water use dropped by 0.05 mega litres per household per year since the last reporting period. Water use in between 2002 and 2004 was highest during drought conditions even though water restrictions were in place.

The Queanbeyan and Molonglo rivers were at low and medium environmental stress levels (respectively) at the end of 2003.

Heritage

There are some 45 places in the Queanbeyan City Council Area that are listed on various heritage registers at the end of the reporting period, the majority of them of cultural or historic significance. Seven places were listed on the State Heritage Register, four places were on State agency section 170 (s.170) heritage registers, and 30 places were included in the local environment plan. The latter also included a Heritage Conservation area.

It was not possible to directly assess whether listed places in the city council area are well managed, as no information was available on the physical condition of places, whether places had management plans in place or on the number of places that had undergone restoration works.

Queanbeyan City Council allocates an average of \$100,000 for heritage work each year, and continued to employ a part-time Heritage Advisor. Council also continues to encourage good heritage management by private owners through annual grants under its Local Heritage Assistance Fund and through annual heritage awards.

Demographic factors

Population

The 2006 ABS Census states that the population is approximately 35,962 being one of the fastest growing regional centres in New South Wales.

Queanbeyan was declared a municipality on February 3 1885. By 1891 the population had grown to 1300 with the town providing services to the surrounding farming community.

Queanbeyan's growth really took off after the Second World War and in 1972 Queanbeyan was declared a city. Since that time Queanbeyan's growth has steadily continued with the city. In 1991 the population was 26,000 and by 2001 it had grown to 32,000.

The population growth in Queanbeyan is expected to continue with most of the growth being in the city and it is expected to double its current level by 2031.

Housing

Queanbeyan City Council has identified a number of issues in relation to housing in the LGA. These include:

- accommodation for an ageing population in suitable and adaptable housing
- suitable housing for people with disabilities
- Indigenous housing
- affordable housing for young people and single income families.

Housing in Queanbeyan City Council Area is discussed further in Council's social plan

Employment and Industry

According to the ABS Census, the average weekly income in Queanbeyan is about \$673 for men and \$484 for women; considerably less than average wages of ACT earners.

Low incomes are regarded as those that are less than half the average weekly earnings (i.e. under \$390 for men, \$200 for women in mid-2001). Based on this measure, 33% of men and 54% of women in Queanbeyan had low incomes. Men, women and families with low incomes are most commonly located in the suburbs of Letchworth and Karabar.

Queanbeyan provided a total labour force (people working or seeking work) of approximately 17,000 people in 2001 (9,320 men and 7,680 women), an increase of 14% since 1996.

Government provided the majority of Queanbeyan residents with work in 2001. Government and Defence employed some 2,700 people: 16% of men and 18% of women in Queanbeyan's workforce.

The next largest employers are in retail, trade and construction. Between 1996 and 2001, the fastest growing industries amongst Queanbeyan workers were property and business services.

Transport

Private motor vehicle is the most accessible and popular form of transport for residents of Queanbeyan City Council Area. Journey to work information from Census night in August 2001 shows that of the 7,665 people who traveled outside the home to work, 79% traveled as a driver in a car with a further 10% traveling as a passenger, while 3% of residents drove a truck to get to work. Walking accounted for only 4.5% of journeys (Australian Bureau of Statistics 2003).

A private bus company operates within Queanbeyan City, and links with services to Canberra City and Woden in the ACT. A taxi service also operates for Queanbeyan residents. Queanbeyan's location abutting the ACT border means that access to the Canberra airport is only minutes away by car. The train line between Canberra and Sydney runs through Queanbeyan. Coach services to the South Coast of NSW are available from Queanbeyan.

Community Transport, a Home and Community Care program provides a door-to-door transport service to eligible people living in Queanbeyan for medical appointments, shopping, social or recreational activities.

Queanbeyan typifies Australian transport trends with 89% of the population using car-based transport for journeys to work with only 10% reporting sharing car transport and less than 2% using public transport. Given that 65% of Queanbeyan residents work in the ACT, this represents a significant issue which will continue to grow as our population grows unless other options are explored and developed

Geographic factors

Landform and Topography

Queanbeyan Nature Reserve is characterised by low, undulating terrain with open grasslands and areas of open woodland.

Queanbeyan City, at an altitude of 576 m, sits astride the Queanbeyan River. It is bounded by wooded hills with Mount Jerrabomberra rising to 779 m above sea level. Rural Queanbeyan extends out from the City into grasslands and open woodlands with Jerrabomberra Creek being the significant water course to the south and west. The escarpment to the east is a major wildlife corridor

Climate

Queanbeyan's climate is considered temperate, indicating that it experiences mild to warm summers and cool winters. In recent years Queanbeyan has experienced a warmer than usual summer, with temperatures reaching up to 39.9oC (Sun 1st Jan 2006).

Rainfall in the past year has been erratic. The drought is still a very present issue; however certain times of the year received higher than average rainfall.

Additional statistical data can be found in Appendix 11 of this document.

6.3. Lake George Emergency Management Area

Lake George Local Emergency Management Area (LEMA) combines the two Local Government Areas (LGA's) of Queanbeyan City Council and Palerang for the purpose of Emergency Management Arrangements.

Lake George Emergency Management Area is located in the south eastern part of New South Wales, known as the Southern Tablelands. Its area commences south of Goulburn near Lake George, borders the Australian Capital Territory (ACT) and reaches as far south as Royalla, stretching east to Braidwood. The area comprises one city; Queanbeyan, three major towns; Braidwood, Bungendore and Captains Flat and various hamlets and small villages such as Araluen, Majors Creek, Mongarlowe and Nerriga. There are also semi-rural / urban fringe settlements of Wamboin, Burra, Bywong, Hoskinstown and parts of Sutton and Carwoola.

There are a number of major roads servicing the region including the Kings Highway – MR51 (east–west), the Federal Highway – SH3 (north–south) and the Monaro Highway borders our boundary. The area is landlocked with the major Sydney – Canberra railway line running through it and into the ACT. Although we do not have a major airport, there are numerous airfields and all of the flight paths of the international Canberra Airport are within the Lake George region.

There is a strong bond with our emergency services neighbours in the ACT sharing information and resources due to our unique geographical location with all major roads going through the ACT and the occasional cross-border emergencies requiring action by both jurisdictions.

The towns of Bungendore and Captains Flat have representation with the NSW Police Force, SES & RFS. Within Captains Flat the SES also undertake the role of Ambulance First Response. All units are well resourced, manned and accredited. Queanbeyan, Bungendore and Braidwood's primary rescue unit is the NSWFB. Queanbeyan SES is also our Vertical Rescue accredited unit for our LEMA. NSWPF, NSWFB and ASNSW are the only members to have 24 hour coverage at Queanbeyan. The remaining units can respond reliably with 10 minutes of notification

The main hospital in the area is located at Queanbeyan, with a smaller hospital at Braidwood.

The Lake George Local Emergency Management Committee (LEMC) meets quarterly to discuss emergency planning issues with representatives from each of the combat agencies and the occasional attendance by Functional Area Representatives. Our LEMA has a dedicated Emergency Operations Centre (EOC) located at Queanbeyan, which is only activated and manned in times of large scale emergencies. The EOC is not open to the public.

The Committee's most significant emergencies are Bushfires, Severe Storms (including snow storm), and Floods. Earthquakes affect our area from time to time however they have been minor in nature.

The Lake George region experiences large volumes of traffic passing through the major roads going to the coast in summer, to the snowfields in winter and visiting the ACT all year round. Traffic can be a problem in our LEMA. The major types of rescue conducted in our LEMA are road trauma rescues.

The committee is taking a proactive approach to planning and we have started several emergency preparation education seminars. These are and can be delivered to your local community groups by contacting the Local Emergency Management officer (details below). Representatives from the committee will attend and discuss emergency options, the Lake George Local Emergency Management Committee and response / preparations to emergencies.

The Lake George Local Emergency Management Committee is part of the Monaro District Emergency Management Area which incorporates: Batemans Bay, Bega, Cooma, Jindabyne and Bombala LGA's.

6.4. Vulnerable Communities

Vulnerable communities for the purpose of this study are those that, by their nature or location, would be at a greater disadvantage than the mainstream part of the community and would therefore require special attention in the event of an emergency.

In order for the emergency services to provide effective assistance, this part of the community was identified and its needs considered.

The degree of vulnerability was assessed in relation to the community's:

- proximity to the hazard (i.e. fire front, flooding river, collapsing building, etc);
- age and condition of the community (health, social);
- ability to communicate with community (to understand warnings or inform of an emergency); and
- access to the community in need during an emergency (is there only one access road, no phone contact, etc).

The applicability of the above elements to identified vulnerable communities is summarised below:

Vulnerable Communities					
Community	Elements of Vulnerability				Remarks/ Action/ Recommendations
	a) Proximity to hazard	b) Age or condition of community	c) Ability to communicate with the community	d) Access to community in need during emergency	
Medically Dependent residents?	Yes	Yes	Yes	Yes	Investigate if a list exists that identifies people who are medically dependant and living at home that would be available to the LEMC if required. (Country Energy may maintain a register for people relying on electricity but it's up to the people themselves to register).
Nursing Homes <u>Queanbeyan:</u> Erin St; Campbell St George Forbes <u>Braidwood:</u> Monkittee St	Yes for Erin St	Yes	No	No	(George Forbes House have plans) – Make enquiries to check if all nursing homes have emergency/ evacuation plans in place and confirm current contact details in the LEMC Emergency contact list
Pre Schools and Child Care Centres Queanbeyan, Braidwood, Bungendore, Captains Flat	No	Yes	No	No	Make enquiries to check that they all have emergency/ evacuation plans in place and confirm current contact details in the LEMC Emergency contact list

Vulnerable Communities					
Community	Elements of Vulnerability				Remarks/ Action/ Recommendations
	a) Proximity to hazard	b) Age or condition of community	c) Ability to communicate with the community	d) Access to community in need during emergency	
Housing Developments with one road access in and out	Yes	No	Possible	Yes	Liaise with Queanbeyan City and Palerang Councils and research LGAs for those developments considered vulnerable areas.
Hospitals Braidwood and Queanbeyan	No	Yes	No	No	Enquire as to what current emergency arrangements they have in place and confirm current contact details to include in LEMC Emergency Contact list
Primary and Secondary Schools <u>Queanbeyan:</u> Karraba, St Gregorys East & West, Queanbeyan High, East, West & South, Izabella, & Jerrabomberra <u>Braidwood:</u> St Bedes Braidwood Central <u>Bungendore Primary</u> <u>Captains Flat Primary</u>	No	Yes	No	No	Make enquiries to check that they all have emergency/ evacuation plans in place and confirm current contact details to include in the LEMC Emergency contact list
Caravan Parks Queanbeyan Riverside & Crestview Camping grounds: Googong, Stewarts Crossing, "Big Hole", Berlang Oallen Ford Lowden Prk Warri	Yes	No	Yes	Yes	LEMC to check that they all have evacuation plans in place and confirm the LEMC Emergency contact list is complete and current
Araluen Seasonal Fruit Pickers (overseas and other areas/states of Aust)	No	Yes	Yes	Yes	Need to check that they all have evacuation plans in place and confirm current contact details to include in the LEMC Emergency contact list

*Recommended actions have been included as part of the treatment plan for monitoring and review (refer page 84).

7 Risk Analysis & Evaluation

This section of the report details the comprehensive assessment conducted on each of the 16 identified hazards.

The process used for the assessment is adapted from the former Australian New Zealand Standard 4360; which now forms part of the new ISO31000 international standard for Risk Management - Guidelines and Principles, as well as the Implementation Guidelines for emergency Risk Management issued by the NSW State Emergency Management Committee.

The assessments of all 17 identified hazards are given in the following tables (Sections 7.1 to Section 7.6) and include:

- 1- Hazard Category – Natural, Technological or Biological;
- 2- Hazard Identification number;
- 3- Name of the hazard;
- 4- The Risk Statement – describes how this hazard could impact on people, property, environment, etc;
- 5- Date when the risk statement was confirmed by the Working Group;
- 6- The consequences/ impact this hazard would have on the following elements at risk:
 - people
 - social impact
 - extent of evacuation
 - property
 - demand on community services
 - impact on animals
 - impact on the environment
 - financial loss
 - emergency resources required (local, regional, state or national)
 - level of operational management (local, state or national)
- 7- The likelihood of this incident occurring at this level;
- 8- The level this hazard risk was assessed at LOW, MODERATE, HIGH or EXTREME;
- 9- Agency support to deal with this emergency event;
- 10- Existing strategies in place to deal with the emergency event;
- 11- Review dates and endorsement details.

This information and the risk level in particular, are used to prioritise each hazard.

7.1. Natural Hazards



IDENTIFY	Hazard Category	Natural	Hazard Name	SNOWSTORM			Hazard ID:	NH01
	Risk Statement	There is a risk that a severe snowstorm in the corridor of Captains Flat and Bungendore could result in road closures, disruption to power, structural collapse, and impact on utilities, key infrastructure, railway and road, moderate damage to property, injuries through accidents, isolation of vulnerable communities, impact on environment and livestock.						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People			X				
	Social			X				
	Evacuation		X					
	Property			X				
	Community Services		X					
	Animal		X					
	Environmental			X				
	Financial				X			
	Resources					X		
	Operational Mgt			X				
	Overall Rating			X				
			Insignificant	Minor	Moderate	Major	Catastrophic	
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme	
		Likely	Moderate	High	High	Extreme	Extreme	
Possible		Low	Moderate	High	Extreme	Extreme		
Unlikely		Low	Low	Moderate	High	Extreme		
Rare		Low	Low	Moderate	High	High		
TREAT	Combat Agency/ Controlling Authority		SES					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	Community education, experienced local community					
		Preparation	Monaro Snow Plan, Lake George Snow Plan (under development); Local Displan;					
		Response	Monaro Snow Plan, Lake George Snow Plan (under development); Local Displan; Emergency Contact List; Kings Highway, Monaro Highway and Federal Highway Traffic Mgt Plans; Amplan;					
		Recovery	Monaro Snow Plan, Lake George Snow Plan (under development); State Health Plan; State Recovery Plan					
(After consideration of existing mitigation strategies) - Residual Risk Rating		Minor / Possible				MODERATE		
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Seek functional area representation from RTA; ensure Emergency Contact List is regularly updated General Recommendation: need for upgrade of the Local Emergency Operation Centre to better manage emergency support.						
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010		Assessment Conducted by:		LEMC Working Group.		
	Date Approved by LEMC	14 Sept 2010		Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.		

IDENTIFY	Hazard Category	Natural	Hazard Name	EARTHQUAKE			Hazard ID:	NH02
	Risk Statement	There is a risk that a significant earthquake event in the urban area could result in multiple fires, loss of critical infrastructure, major structural collapse, multiple losses of life, entrapments, significant environmental impact, impact to transport routes, business disruptions, significant community impact, large scale evacuation and displacement of people and loss and displacement of companion animals.						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People							X
	Social					X		
	Evacuation					X		
	Property							X
	Community Services							X
	Animal					X		
	Environmental							X
	Financial							X
	Resources							X
	Operational Mgt							X
	Overall Rating							X
	LIKELIHOOD			Insignificant	Minor	Moderate	Major	Catastrophic
		Almost Certain		High	High	Extreme	Extreme	Extreme
		Likely		Moderate	High	High	Extreme	Extreme
Possible		Low	Moderate	High	Extreme	Extreme		
Unlikely		Low	Low	Moderate	High	Extreme		
Rare		Low	Low	Moderate	High	High		
TREAT	Combat Agency/ Controlling Authority		LEOCON/ EOC / EOC					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	Australian Building Codes requirements from Council (nothing specifically for earthquake)					
		Preparation	State Major Structure Collapse Sub Plan; State DISPLAN; Dam Safety Emergency Plans; Agriculture & Animal Services Plan; District and Local Displans; GSAHS Emergency Plans					
		Response	DISPLAN; State Major Structure Collapse Sub Plan; Hazmat; Agr & Animal Services Plan; District and Local Displans; Amplan; GSAHS Emergency Plans; USAR; DVI					
		Recovery	DISPLAN; State Health Plan; State Recovery Plan; State Welfare Plan; Ausvetplan; Agr & Animal Services Plan; District and Local Displans; Coroner; GSAHS Emergency Plans.					
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Catastrophic / Rare			HIGH	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Liaise with Geoscience Aust. for up to date seismic information for the area; seek more information on EMA awareness campaign; seek information on what Agriculture & Animal Services Plan involves						
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010		Assessment Conducted by:		LEMC Working Group.		
	Date Approved by LEMC	14 Sept 2010		Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.		

General Recommendation: Conduct an emergency response exercise/test incorporating all elements of an emergency

IDENTIFY	Hazard Category	Natural	Hazard Name	FIRE – BUSH/GRASS			Hazard ID:	NH03
	Risk Statement	There is a risk that a class 2 or 3 Bush/Grass fire could result in significant property damage, loss of life, loss and damage to critical infrastructure, environmental impact, loss of livestock, contamination of water supply, impact on forest industry, viticulture, horticulture, damage to cultural assets, physiological and psychological trauma of affected community.						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People							X
	Social				X			
	Evacuation				X			
	Property					X		
	Community Services					X		
	Animal					X		
	Environmental				X			
	Financial							X
	Resources					X		
	Operational Mgt					X		
	Overall Rating					X		
	LIKELIHOOD			Insignificant	Minor	Moderate	Major	Catastrophic
			Almost Certain	High	High	Extreme	Extreme	Extreme
			Likely	Moderate	High	High	Extreme	Extreme
Possible			Low	Moderate	High	Extreme	Extreme	
Unlikely			Low	Low	Moderate	High	Extreme	
Rare			Low	Low	Moderate	High	High	
TREAT	Combat Agency/ Controlling Authority		NSWRFS & NSWFB					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	Rural Fires Act 1997; Section 52 Plan of Operations and Bush Fire Risk Mgt Plan; active community awareness; Council LEP; Fire Hazard Reduction Program; Councils DCP requirements					
		Preparation	Rural Fires Act 1997; Section 52 Plan of Operations and Bush Fire Risk Mgt Plan; District & Local Displans; Energy & Utilities Plan; State Recovery Plan; Agri & Animal Services Plan; Bush Fire Prone area mapping; Neighbourhood Safer Places Program; NP&WS Bush Fire Plan; NSW Forest Bush Fire Plan; Sydney Water Catchment Authority Emergency Plan; GSAHS Emergency Plans					
		Response	MOU between NSWRFS & NSWFB; EOC SOPs District & Local Displans; Energy & Utilities Plan; Country Energy Black Start Manual & Emergency Response Crisis Mgt Procedures; State Recovery Plan; Agri & Animal Services Plan; Council Resources (signage & traffic control and road diversions); Amplan; GSAHS Emergency Plans					
		Recovery	District & Local Displans; State Health Plan; State Recovery Plan; Agri & Animal Services Plan; State Recovery Plan; Agri & Animal Services Plan; Coroner; GSAHS Emergency Plans					
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Major / Likely			EXTREME	
	Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Standard Operating Procedures for the EOC to be reviewed; MOU between RFS & SES not yet ratified; Insufficient signage resources by Council; review the effectiveness of current arrangements and support from functional areas such as Utilities, Telecommunications, etc; investigate telecommunications services' emergency arrangements; enquire with RFS what evacuation arrangements are in place and is this identified in the Emergency plan					
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010		Assessment Conducted by:		LEMC Working Group.		
	Date Approved by LEMC	14 Sept 2010		Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.		

IDENTIFY	Hazard Category	Natural	Hazard Name	FLOOD (natural occurrences)			Hazard ID:	NH04
	Risk Statement	There is a risk that a moderate to major flood event could result in road closures, isolation of communities, major infrastructure collapse, property damage, damage to infrastructure, loss of life, displacement of people, loss of livestock, environmental impact and there could also be impact on the ACT (flooding of Lake Burley Griffin).						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People				X			
	Social					X		
	Evacuation				X			
	Property					X		
	Community Services					X		
	Animal					X		
	Environmental			X				
	Financial						X	
	Resources					X		
	Operational Mgt				X			
	Overall Rating					X		
			Insignificant	Minor	Moderate	Major	Catastrophic	
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme	
		Likely	Moderate	High	High	Extreme	Extreme	
Possible		Low	Moderate	High	Extreme	Extreme		
Unlikely		Low	Low	Moderate	High	Extreme		
Rare		Low	Low	Moderate	High	High		
TREAT	Combat Agency/ Controlling Authority		SES					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	Dam Safety Plans for Googong & Captains Flat Dams; QCC Flood plain Risk mgt study and Risk Mgt Plan (draft); Bungendore flood study (currently underway); Council Development Control Plan re Flood zones					
		Preparation	SES Flood plan for Queanbeyan, Dam Safety Plans for Googong & Captains Flat Dams, (<i>Palerang (Braidwood and Bungendore) Flood Plans are under development</i>); District & Local Displans; Energy & Utilities Plan; State Recovery Plan; Agri & Animal Services Plan; Energy & Utilities Plan; Country Energy Black Start Manual & Emergency Response Crisis Mgt Procedures; GSAHS Emergency Plans					
		Response	District & Local Displans; Dam Safety Plans for Googong & Captains Flat Dams; Energy & Utilities Plan; Country Energy Black Start Manual & Emergency Response Crisis Mgt Procedures; State Recovery Plan; Agri & Animal Services Plan; Council Resources (signage & traffic control and road diversions) Cross border arrangements with SES ACT; Amplan; GSAHS Emergency Plans					
		Recovery	District & Local Displans; Dam Safety Plans for Googong & Captains Flat Dams; State Health Plan; State Recovery Plan; State Welfare Plan; Agri & Animal Services Plan; GSAHS Emergency Plans					
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Major / Likely			EXTREME	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Follow up on flood studies for the Palerang District; formalise identification of potential evacuation centres; review flood plans; review flood rescue resources and arrangements						
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010	Assessment Conducted by:		LEMC Working Group.			
	Date Approved by LEMC	14 Sept 2010	Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.			

IDENTIFY	Hazard Category	Natural	Hazard Name	SEVERE STORM EVENT			Hazard ID:	NH05
	Risk Statement	There is a risk that a Severe Storm could result in road closures, disruption to power, utilities, key infrastructure, major infrastructure collapse, railway and road, moderate to major damage to property, multiple personal injuries, isolation of vulnerable communities, impact on environment and livestock.						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
		People			X			
		Social			X			
		Evacuation	X					
		Property						X
		Community Services				X		
		Animal			X			
		Environmental		X				
		Financial				X		
		Resources				X		
		Operational Mgt			X			
		Overall Rating				X		
			Insignificant	Minor	Moderate	Major	Catastrophic	
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme	
		Likely	Moderate	High	High	Extreme	Extreme	
Possible		Low	Moderate	High	Extreme	Extreme		
Unlikely		Low	Low	Moderate	High	Extreme		
Rare		Low	Low	Moderate	High	High		
TREAT	Combat Agency/ Controlling Authority		SES					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	SES community education material to be "storm safe"; Annual Storm Safe Week with associated widespread media campaigns; Dam Safety Plans for Googong & Captains Flat Dams; QCC Flood plain Risk mgt study and Risk Mgt Plan (draft); Bungendore flood study (currently underway); Council Development Control Plan re Flood zones					
		Preparation	NSW SES Storm Plan; SES Flood plan for Queanbeyan, Dam Safety Plans for Googong & Captains Flat Dams, <i>Palerang (Braidwood and Bungendore) Flood Plans are under development</i> ; District & Local Displans; Energy & Utilities Plan; State Recovery Plan; Agri & Animal Services Plan; Energy & Utilities Plan; Country Energy Black Start Manual & Emergency Response Crisis Mgt Procedures; GSAHS Emergency Plans					
		Response	District & Local Displans; Dam Safety Plans for Googong & Captains Flat Dams; Energy & Utilities Plan; Country Energy Black Start Manual & Emergency Response Crisis Mgt Procedures; State Recovery Plan; Agri & Animal Services Plan; Council Resources (signage & traffic control and road diversions) Cross border arrangements with SES ACT; Amplan; GSAHS Emergency Plans					
		Recovery	District & Local Displans; Dam Safety Plans for Googong & Captains Flat Dams; State Health Plan; State Recovery Plan; State Welfare Plan; Agri & Animal Services Plan; GSAHS Emergency Plans; Coroner					
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Major / Possible			EXTREME	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Investigate internal agency field communication arrangements in place; Liaise with ACT re awareness of arrangements in place; investigate the availability of emergency generators;						
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010	Assessment Conducted by:		LEMC Working Group.			
	Date Approved by LEMC	14 Sept 2010	Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.			

7.2. Technological Hazards



IDENTIFY	Hazard Category	Technological	Hazard Name	AERONAUTICAL EVENT			Hazard ID:	TH01
	Risk Statement	There is a risk that an Aeronautical event involving a passenger or freight plane could result in multiple losses of life, significant property damage, major infrastructure collapse, environmental impact, hazmat impact, evacuation, establish exclusion zones, possible damage to key infrastructure, property fires, economic impact on the community, viticulture and horticulture.						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People							X
	Social			X				
	Evacuation			X				
	Property					X		
	Community Services					X		
	Animal		X					
	Environmental				X			
	Financial					X		
	Resources					X		
	Operational Mgt					X		
	Overall Rating					X		
	LIKELIHOOD			Insignificant	Minor	Moderate	Major	Catastrophic
		Almost Certain		High	High	Extreme	Extreme	Extreme
		Likely		Moderate	High	High	Extreme	Extreme
		Possible		Low	Moderate	High	Extreme	Extreme
		Unlikely		Low	Low	Moderate	High	Extreme
		Rare		Low	Low	Moderate	High	High
TREAT	Combat Agency/ Controlling Authority		LEOCON/ EOC / EOC					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	CASA Regulations; Civil Aviation Act 1988 and Regulations; Air Transport Safety Bureau (ATSB)					
		Preparation	District & Local Displans; State Aviation Emergency Sub Plan; Representative, Operations Mgr from Canberra Airport now invited to attend LEMC meetings on a regular basis; DISPLAN; CASA regulations; ATSB; GSAHS Emergency Plans					
		Response	DISPLAN; State Major Structure Collapse Sub Plan; District & Local Displans; Hazmat; Agri & Animal Services Plan; State Aviation Emergency Sub Plan; Amplan; GSAHS Emergency Plans, ATSB Aviation Accident Checklist and Civil and Military Aircraft Accident Procedure for Police ESO					
		Recovery	DISPLAN; State Health Plan; State Recovery Plan; State Welfare Plan; District & Local Displans; Ausvetplan; Agri & Animal Services Plan; GSAHS Emergency Plans; Coroner					
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Major / Unlikely			HIGH	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Enquire about requirements of LEMC from CASA or higher authority; seek training in relation to such emergency; enquire with local hospitals as to their capacity/ arrangements to deal with such emergency.						
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010	Assessment Conducted by:		LEMC Working Group.			
	Date Approved by LEMC	14 Sept 2010	Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.			

IDENTIFY	Hazard Category	Technological	Hazard Name	DAM FAILURE (incl flooding)	Hazard ID:	TH02	
	Risk Statement	There is a risk that a failure of Googong or Captains Flat Dam in the Palerang and Queanbeyan LGAs could result in loss of life, property, structural collapse, key infrastructures, and impact on water supply, sewer service, damage to cultural assets, loss of livestock, viticulture, horticulture and environmental damage.					
	Date Confirmed	2 June 2010					
ANALYSE	Elements at Risk:		CONSEQUENCE				
		People					X
		Social					X
		Evacuation					X
		Property					X
		Community Services					X
		Animal					X
		Environmental			X		
		Financial					X
		Resources					X
		Operational Mgt			X		
		Overall Rating					X
			Insignificant	Minor	Moderate	Major	Catastrophic
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme
		Likely	Moderate	High	High	Extreme	Extreme
Possible		Low	Moderate	High	Extreme	Extreme	
Unlikely		Low	Low	Moderate	High	Extreme	
Rare		Low	Low	Moderate	High	High	
TREAT	Combat Agency/ Controlling Authority		SES				
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan; Dam Owners				
	Existing Controls / Mitigation / Treatment Strategies	Prevention	Dam Safety Plans for Googong & Captains Flat Dams; QCC Flood plain Risk mgt study and Risk Mgt Plan (draft); Bungendore flood study (currently underway); Council Development Control Plan re Flood zones; Council inspection and test program; Dam Safety Committee; annual precise survey; monitors; valve exercise; Googong – major improvements being undertaken; evacuation program and exercises				
		Preparation	SES Flood plans for Queanbeyan and Palerang, Dam Safety Plans for Googong & Captains Flat Dams, <i>Palerang (Braidwood and Bungendore) Flood Plans are under development</i> ; District & Local Displans; Energy & Utilities Plan; State Recovery Plan; Agri & Animal Services Plan; Energy & Utilities Plan; Country Energy Black Start Manual & Emergency Response Crisis Mgt Procedures; GSAHS Emergency Plans				
		Response	District & Local Displans; Dam Safety Plans for Googong & Captains Flat Dams; Energy & Utilities Plan; Country Energy Black Start Manual & Emergency Response Crisis Mgt Procedures; State Recovery Plan; Agri & Animal Services Plan; Council Resources (signage & traffic control and road diversions); Cross border arrangements with SES ACT; Amplan; GSAHS Emergency Plans				
		Recovery	District & Local Displans; Dam Safety Plans for Googong & Captains Flat Dams; State Health Plan; State Recovery Plan; State Welfare Plan; Agri & Animal Services Plan; Coroner; GSAHS Emergency Plans				
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Catastrophic / Rare		HIGH	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Seek to improve communication between dam owners and LEMC in regards to response; community education; investigate better warning mechanisms; follow up finalisation of the Palerang (Braidwood and Bungendore) Flood Plans					
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010	Assessment Conducted by:	LEMC Working Group.			
	Date Approved by LEMC	14 Sept 2010	Review Date / Frequency:	Refer to Section 9, of this report for various review dates and frequency.			

IDENTIFY	Hazard Category	Technological	Hazard Name	HAZARDOUS MATERIAL EMERGENCY			Hazard ID:	TH03
	Risk Statement	There is a risk that a Hazardous Material event involving transported material or release of substance from industry, could result in the establishment of exclusion zones, evacuations, potential loss of life, injuries, impact on health, environment, property damage, possible structural collapse.						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People					X		
	Social		X					
	Evacuation			X				
	Property			X				
	Community Services				X			
	Animal		X					
	Environmental						X	
	Financial					X		
	Resources				X			
	Operational Mgt				X			
	Overall Rating				X			
			Insignificant	Minor	Moderate	Major	Catastrophic	
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme	
		Likely	Moderate	High	High	Extreme	Extreme	
Possible		Low	Moderate	High	Extreme	Extreme		
Unlikely		Low	Low	Moderate	High	Extreme		
Rare		Low	Low	Moderate	High	High		
TREAT	Combat Agency/ Controlling Authority		NSWFB					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	All NSWFB officers trained in dealing with Hazardous Materials incidents and Decontamination procedures; Workcover legislation; Dangerous Good (Road & Rail Transport) Act 2008 & Regs 2009; Council Development Control Regulations					
		Preparation	NSWFB SOG's; NSW State Disaster Plan (DISPLAN); HAZMATPLAN 2005 (Sub Plan to the State DISPLAN); All NSWFB appliances can deal with HAZMAT; Enviroplan; District & Local Displans; GSAHS Emergency Plans					
		Response	District & Local Displans; Can call on specialists Hazmat Resources ex Goulburn, Batemans Bay, Shellharbour, etc; State Health Plan; HAZMAT Plan; Enviroplan; Council access to various resources; Amplan; GSAHS Emergency Plans					
		Recovery	District & Local Displans; State Health Plan; State Recovery Plan; MOU with EPA ; EPA clean-up arrangements; GSAHS Emergency Plans; Coroner					
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Moderate / Possible			HIGH	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Refer to General Recommendation to conduct an emergency response exercise/test incorporating all elements of an emergency						
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010	Assessment Conducted by:	LEMC Working Group.				
	Date Approved by LEMC	14 Sept 2010	Review Date / Frequency:	Refer to Section 9, of this report for various review dates and frequency.				

IDENTIFY	Hazard Category	Technological	Hazard Name	INFRASTRUCTURE FAILURE – POWER			Hazard ID:	TH04
	Risk Statement	There is a risk that a significant Infrastructure Failure – Power could result significant disruption to the community, disruption to sewer treatment plant and services, disruption to water supply, impact on vulnerable communities, impact on communications, security, transport, industry and local businesses, public order, impact on environment, essential services, impact on service stations, food supplies and impact on community.						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People			X				
	Social							X
	Evacuation		X					
	Property		X					
	Community Services							X
	Animal		X					
	Environmental				X			
	Financial							X
	Resources					X		
	Operational Mgt				X			
	Overall Rating					X		
			Insignificant	Minor	Moderate	Major	Catastrophic	
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme	
		Likely	Moderate	High	High	Extreme	Extreme	
Possible		Low	Moderate	High	Extreme	Extreme		
Unlikely		Low	Low	Moderate	High	Extreme		
Rare		Low	Low	Moderate	High	High		
TREAT	Combat Agency/ Controlling Authority		LEOCON/ EOC / EOC					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	(the LEMC is not privy at this point in time to any information from Country Energy, Transgrid and ACTEWAGL which manages this infrastructure at various levels); QCC's BCP includes alternate power supply; Palerang can last a couple of days; Palerang Council's BCP					
		Preparation	District & Local Displans; Country Energy Black Start Manual & Emergency Response Crisis Mgt Procedures; GSAHS Emergency Plans					
		Response	District & Local Displans; Country Energy Black Start Manual & Emergency Response Crisis Mgt Procedures; Amplan; GSAHS Emergency Plans					
		Recovery	State Recovery Plan; District & Local Displans; State Welfare Plan; GSAHS Emergency Plans					
	(After consideration of existing mitigation strategies) - Residual Risk Rating		Major / Rare				HIGH	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Enquire with utilities about their emergency arrangements and redundancies in place; (There is currently no alternate power supply for sewer treatment plant at Palerang) – investigate possibility to obtaining funds for the installation of alternate power supply for vulnerable situations and critical infrastructure; LEMC to enquire with Dept of Commerce as to the capability to provide alternate power supply; investigate possibility of mapping the power grid for the area; liaise with Energy authority re their arrangements for Lake George.						
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010		Assessment Conducted by:		LEMC Working Group.		
	Date Approved by LEMC	14 Sept 2010		Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.		

IDENTIFY	Hazard Category	Technological	Hazard Name	INFRASTRUCTURE FAILURE – WATER			Hazard ID:	TH05
	Risk Statement	There is a risk that a significant Infrastructure Failure – Water in the Palarang LGA could result in significant disruption to the community, health issues, disruption to sewer services, disruption to water supply, impact on vulnerable communities, industry and local businesses, public order, impact on environment, essential services, food supplies and impact on community. Queanbeyan would be affected to a lesser degree.						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People				X			
	Social						X	
	Evacuation		X					
	Property		X					
	Community Services						X	
	Animal		X					
	Environmental		X					
	Financial					X		
	Resources		X					
	Operational Mgt				X			
	Overall Rating				X			
			Insignificant	Minor	Moderate	Major	Catastrophic	
	LIKELIHOOD	Almost Certain		High	High	Extreme	Extreme	Extreme
		Likely		Moderate	High	High	Extreme	Extreme
Possible		Low	Moderate	High	Extreme	Extreme		
Unlikely		Low	Low	Moderate	High	Extreme		
Rare		Low	Low	Moderate	High	High		
TREAT	Combat Agency/ Controlling Authority		LEOCON/ EOC / EOC					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	Asset maintenance and monitoring; redundancies; Council's Business Continuity Plans (BCPs)					
		Preparation	District & Local Displans; Councils BCPs; Enviroplan; GSAHS Emergency Plans					
		Response	District & Local Displans; Councils BCPs; Enviroplan; State Health Plan; GSAHS Emergency Plans; Amplan					
		Recovery	District & Local Displans; State Welfare Plan; State Health Plan; GSAHS Emergency Plans					
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Moderate / Unlikely			MODERATE	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)			YES Palarang Council to investigate who holds current list of vulnerable communities that could be made available during an emergency; investigate efficiency of early notification arrangements currently in place.					
REVIEW	Date Assessment Conducted		13 July 2010 & 17 August 2010		Assessment Conducted by:		LEMC Working Group.	
	Date Approved by LEMC		14 Sept 2010		Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.	

IDENTIFY	Hazard Category	Technological	Hazard Name	INFRASTRUCTURE FAILURE – SEWERAGE (incl sewer contamination)			Hazard ID:	TH06
	Risk Statement	There is a risk that a significant Infrastructure Failure –. Sewerage could result in overflow of sewer affecting schools, home businesses, motels, possible health issues, environmental impact, possible contamination of Lake Burley Griffin, impact on vulnerable communities						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People		X					
	Social					X		
	Evacuation		X					
	Property		X					
	Community Services					X		
	Animal		X					
	Environmental					X		
	Financial					X		
	Resources				X			
	Operational Mgt				X			
	Overall Rating				X			
			Insignificant	Minor	Moderate	Major	Catastrophic	
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme	
		Likely	Moderate	High	High	Extreme	Extreme	
Possible		Low	Moderate	High	Extreme	Extreme		
Unlikely		Low	Low	Moderate	High	Extreme		
Rare		Low	Low	Moderate	High	High		
TREAT	Combat Agency/ Controlling Authority		LEOCON/ EOC / EOC					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	Council Asset maintenance and improvements; Councils' Business Continuity Plans (BCPs); telemetry;					
		Preparation	District & Local Displans; Councils BCPs; GSAHS Emergency Plans					
		Response	District & Local Displans; Councils BCPs; Environplan; GSAHS Emergency Plans					
		Recovery	District & Local Displans; State Welfare Plan; State Health Plan; GSAHS Emergency Plans					
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Moderate / Rare			MODERATE	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Seek for Councils to formalise emergency operations procedures for their infrastructure.						
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010	Assessment Conducted by:	LEMC Working Group.				
	Date Approved by LEMC	14 Sept 2010	Review Date / Frequency:	Refer to Section 9, of this report for various review dates and frequency.				

IDENTIFY	Hazard Category	Technological	Hazard Name	INFRASTRUCTURE FAILURE - GAS			Hazard ID:	TH07
	Risk Statement	There is a risk that a significant Infrastructure Failure – Gas could result in business impact, social impact, lack of heating and cooking facilities to residents, businesses, nursing homes etc, and impact on vulnerable communities with potential evacuation of vulnerable communities						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People		X					
	Social					X		
	Evacuation			X				
	Property		X					
	Community Services					X		
	Animal		X					
	Environmental		X					
	Financial					X		
	Resources					X		
	Operational Mgt				X			
	Overall Rating				X			
			Insignificant	Minor	Moderate	Major	Catastrophic	
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme	
		Likely	Moderate	High	High	Extreme	Extreme	
Possible		Low	Moderate	High	Extreme	Extreme		
Unlikely		Low	Low	Moderate	High	Extreme		
Rare		Low	Low	Moderate	High	High		
TREAT	Combat Agency/ Controlling Authority		LEOCON/ EOC / EOC					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	Jemena Asset Maintenance Program; Aust Industry Standards					
		Preparation	District & Local Displans; Unknown, the LEMC is not privy at this point in time to any information from both ACTEW AGL and Jemena; Jemena annual simulation exercise					
		Response	District & Local Displans; Jemena Emergency Mgt Plans; Amplan; State Health Plan					
		Recovery	District & Local Displans; State Health Plan; Jemena Emergency Mgt Plans					
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Moderate/ Unlikely			MODERATE	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Request Jemena to keep LEMC up to date on Bowral incident and outcome of investigation; Jemena to provide a brief on current infrastructure plan/ lay out in the Region						
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010		Assessment Conducted by:		LEMC Working Group.		
	Date Approved by LEMC	14 Sept 2010		Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.		

IDENTIFY	Hazard Category	Technological	Hazard Name	INFRASTRUCTURE FAILURE – Gas Pipeline Rupture			Hazard ID:	TH08
	Risk Statement	There is a risk that a significant Infrastructure Failure –. Pipeline rupture could result in the release of a large amount of gas to atmosphere or gas explosion. The resultant impact may affect the environment in the immediate area and potential extensive injuries/ fatalities. Associated communities including schools, nursing homes, residential and rural properties, businesses, motels may experience gas supply interruption.						
	Date Confirmed	14 September 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People					X		
	Social			X				
	Evacuation				X			
	Property				X			
	Community Services					X		
	Animal			X				
	Environmental			X				
	Financial				X			
	Resources				X			
	Operational Mgt				X			
	Overall Rating					X		
			Insignificant	Minor	Moderate	Major	Catastrophic	
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme	
		Likely	Moderate	High	High	Extreme	Extreme	
Possible		Low	Moderate	High	Extreme	Extreme		
Unlikely		Low	Low	Moderate	High	Extreme		
Rare		Low	Low	Moderate	High	High		
TREAT	Combat Agency/ Controlling Authority		LEOCON/ EOC / EOC					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	Construction and risk prevention in Compliance to AS2885, education programs (gas awareness presentations), land owner liaison, integrity dig-ups, condition Piggig; pipeline patrols (Aerial/Ground), paddock markers, area classification for asset risk.					
		Preparation	District & Local Displans; Natural Gas Pipeline (LIC29 and EGP) and gas distribution networks Emergency Response Management Plan, Simulations, 24/7 response processes.					
		Response	District & Local Displans; LIC29 Emergency Response Management Plan, EGP Emergency Response Action Plan; Amplan					
		Recovery	District & Local Displans; Jemena Disaster Recovery Plan ActewAGL, EGP Emergency Response Action Plan.					
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Major/ Rare			HIGH	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES LEMC to request from Jemena and ACTEW ACL copies of plans and network diagram showing the location of the infrastructure						
REVIEW	Date Assessment Conducted	27/07/2010	Assessment Conducted by:		LEMC Working Group.			
	Date Approved by LEMC	14 Sept 2010	Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.			

IDENTIFY	Hazard Category	Technological	Hazard Name	TRANSPORT EMERGENCY - ROAD		Hazard ID:	TH09
	Risk Statement	There is a risk that a significant transport emergency - road could result in loss of life, significant injuries, property damage, rail and road closure, damage to adjacent road infrastructure (including bridges), exclusion zones, persons trapped, significant impact on community, environmental, disruption to businesses (Bungendore, Queanbeyan, Fyshwick and ACT), impact on HQJOC, psychological trauma of local community, freight and transport disruptions, explosion, river contamination, bushfire, utilities failure.					
	Date Confirmed	2 June 2010					
ANALYSE	Elements at Risk:		CONSEQUENCE				
	People				X		
	Social	X					
	Evacuation	X					
	Property	X					
	Community Services			X			
	Animal	X					
	Environmental		X				
	Financial			X			
	Resources			X			
	Operational Mgt			X			
	Overall Rating			X			
			Insignificant	Minor	Moderate	Major	Catastrophic
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme
		Likely	Moderate	High	High	Extreme	Extreme
Possible		Low	Moderate	High	Extreme	Extreme	
Unlikely		Low	Low	Moderate	High	Extreme	
Rare		Low	Low	Moderate	High	High	
TREAT	Combat Agency/ Controlling Authority		LEOCON/ EOC / EOC				
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan				
	Existing Controls / Mitigation / Treatment Strategies	Prevention	Commonwealth and State Acts and Regulations for road transport and freight; RTA Traffic Regulations (Driver Fatigue); Dangerous Good (Road & Rail Transport) Act 2008 & Regs 2009;				
		Preparation	State DISPLAN; District & Local Displans; HAZMAT Plan; GSAHS Emergency Plans				
		Response	District & Local Displans; HAZMAT Plan; GSAHS Emergency Plans; Amplan				
		Recovery	District & Local Displans; State Health Plan; State Recovery Plan; GSAHS Emergency Plans; Coroner				
	(After consideration of existing mitigation strategies) - Residual Risk Rating		Moderate/ Unlikely			MODERATE	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Seek active RTA representation at LEMC; investigate what current emergency response plans RTA have in place					
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010	Assessment Conducted by:		LEMC Working Group.		
	Date Approved by LEMC	14 Sept 2010	Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.		

IDENTIFY	Hazard Category	Technological	Hazard Name	TRANSPORT EMERGENCY - RAIL			Hazard ID:	TH10
	Risk Statement	There is a risk that a significant transport emergency - rail could result in loss of life, significant injuries, property damage, and road closure, damage to road infrastructure (including bridges), exclusion zones, persons trapped, significant impact on community, and environmental, psychological trauma of local community, freight and transport disruptions.						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People					X		
	Social		X					
	Evacuation		X					
	Property		X					
	Community Services				X			
	Animal		X					
	Environmental			X				
	Financial				X			
	Resources				X			
	Operational Mgt				X			
	Overall Rating				X			
			Insignificant	Minor	Moderate	Major	Catastrophic	
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme	
		Likely	Moderate	High	High	Extreme	Extreme	
		Possible	Low	Moderate	High	Extreme	Extreme	
		Unlikely	Low	Low	Moderate	High	Extreme	
		Rare	Low	Low	Moderate	High	High	
TREAT	Combat Agency/ Controlling Authority		LEOCON/ EOC / EOC					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	(ARTC):Track. Signal and Level Crossing construction and maintenance standards; qualified worker competencies; Drug and Alcohol policy and procedures; Rail Safety Act; electronic track testing and recording; Network Rules and procedures; Medical Standards; Dangerous Goods requirements; ARTC Incident Management Manual Operator Rolling Stock construction and maintenance standards					
		Preparation	District & Local Displans; ARTC Incident Mgt Manual; Rail corporation representative contacted and invited to LEMC meetings; GSAHS Emergency Plans					
		Response	District & Local Displans; State Health; Amplan; GSAHS Emergency Plans; ARTC Incident Management Manual					
		Recovery	State Health; State Recovery; District & Local Displans; GSAHS Emergency Plans; Coroner; ARTC Incident Management Manual					
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Moderate / Unlikely			MODERATE	
	Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Investigate with ARTC how they operate their rail corridors and what emergency management and prevention arrangements they have in place; seek attendance to LEMC meeting from ARTC.					
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010	Assessment Conducted by:		LEMC Working Group.			
	Date Approved by LEMC	14 Sept 2010	Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.			

7.3. Biological Hazards



IDENTIFY	Hazard Category	Biological	Hazard Name	COMMUNICABLE (PANDEMIC) DISEASE - AFFECTING HUMANS			Hazard ID:	BH01
	Risk Statement	There is a risk that a communicable (pandemic) disease affecting humans could result in multiple deaths, exclusion zones, isolation, quarantine, civil/ social unrest and complete shut down of community including emergency services.						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People							X
	Social					X		
	Evacuation		X					
	Property		X					
	Community Services							X
	Animal		X					
	Environmental		X					
	Financial							X
	Resources							X
	Operational Mgt							X
	Overall Rating							X
			Insignificant	Minor	Moderate	Major	Catastrophic	
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme	Extreme
		Likely	Moderate	High	High	Extreme	Extreme	Extreme
Possible		Low	Moderate	High	Extreme	Extreme	Extreme	
Unlikely		Low	Low	Moderate	High	High	Extreme	
Rare		Low	Low	Moderate	High	High	High	
TREAT	Combat Agency/ Controlling Authority		NSW HEALTH					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	Immunisation strategies; early intervention for quarantining; community education; State Pandemic Plan; Federal Govt Awareness Campaigns					
		Preparation	State Health Plan; State Human Influenza Pandemic Sub Plan; State Welfare Plan; Local and District Displans; GSAHS Emergency Plans					
		Response	State Health Plan; State Human Influenza Pandemic Sub Plan; State Welfare Plan; Local and District Displans; GSAHS Emergency Plans					
		Recovery	State Health Plan; State Human Influenza Pandemic Sub Plan; State Welfare Plan; Local and District Displans; GSAHS Emergency Plans; State Recovery Plan; Coroner					
(After consideration of existing mitigation strategies) - Residual Risk Rating		Catastrophic / Possible				EXTREME		
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES Liaise with State Health as to the requirements from LEMC; investigate with local hospitals and GSAHS what arrangements are in place to deal with such emergency; investigate individual agency arrangements if lack of personnel due to emergency; investigate if any ACT/NSW Cross Border Regional Management arrangements exist; conduct desktop exercise for Animal and Human health emergency scenario						
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010		Assessment Conducted by:		LEMC Working Group.		
	Date Approved by LEMC	14 Sept 2010		Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.		

IDENTIFY	Hazard Category	Biological	Hazard Name	COMMUNICABLE DISEASE - AFFECTING ANIMALS			Hazard ID:	BH02
	Risk Statement	There is a risk that a communicable disease affecting animals could result in massive death and destruction of livestock, economic impact, job losses, food production, social impact, environmental impact, companion animals, animal exclusion zones, quarantine zones for people and potential human health risk.						
	Date Confirmed	2 June 2010						
ANALYSE	Elements at Risk:		CONSEQUENCE					
	People				X			
	Social				X			
	Evacuation		X					
	Property			X				
	Community Services		X					
	Animal							X
	Environmental				X			
	Financial							X
	Resources							X
	Operational Mgt							X
	Overall Rating					X		
			Insignificant	Minor	Moderate	Major	Catastrophic	
	LIKELIHOOD	Almost Certain	High	High	Extreme	Extreme	Extreme	
		Likely	Moderate	High	High	Extreme	Extreme	
Possible		Low	Moderate	High	Extreme	Extreme		
Unlikely		Low	Low	Moderate	High	Extreme		
Rare		Low	Low	Moderate	High	High		
TREAT	Combat Agency/ Controlling Authority		NSW I & I					
	Support Agencies/ Functional Areas		All emergency services and agencies undertaking a role within a functional area as detailed in the Local Displan					
	Existing Controls / Mitigation / Treatment Strategies	Prevention	Federal Govt Quarantine regulations, AQIS awareness campaign					
		Preparation	State Agricultural and Animal Services Plan (part of Displan); Ausvetplan; Avian Influenza Preparedness Plan; NSW Animal Health Emergency Sub Plan (part of Displan); Operational Guide for Multi Agency Response to Suspicious Substance Incidents; ACT/NSW Cross Border Regional Management Framework					
		Response	State Agricultural and Animal Services Plan (part of Displan); Ausvetplan; Avian Influenza Preparedness Plan; NSW Animal Health Emergency Sub Plan (part of Displan); Operational Guide for Multi Agency Response to Suspicious Substance Incidents; ACT/NSW Cross Border Regional Management Framework;					
		Recovery	State Health Plan; State Recovery Plan; Ausvetplan; GSAHS Emergency Plans					
	(After consideration of existing mitigation strategies) - Residual Risk Rating			Major / Possible			EXTREME	
Additional Treatment Options required? YES/NO (refer to Treatment Option Selection table)		YES investigate LEMC's role as support for State level Authorities; conduct desktop exercise for Animal and Human health emergency scenario						
REVIEW	Date Assessment Conducted	13 July 2010 & 17 August 2010	Assessment Conducted by:		LEMC Working Group.			
	Date Approved by LEMC	14 Sept 2010	Review Date / Frequency:		Refer to Section 9, of this report for various review dates and frequency.			

7.4. Summary of Assessments

This is the table used to rate the 17 hazards in terms of the likelihood of the hazard occurring and if it did occur, how bad it would be (consequences)

LOW	0	MODERATE	6	HIGH	6	EXTREME	5
RISK MATRIX							
Likelihood	Consequences						
	Insignificant	Minor	Moderate	Major	Catastrophic		
	Almost Certain	High	High	Extreme	Extreme	Extreme	
	Likely	Moderate	High	High	Extreme NH03; NH04	Extreme	
	Possible	Low	Moderate NH01	High TH03	Extreme NH05; BH01	Extreme BH02	
	Unlikely	Low	Low	Moderate TH05; TH07; TH09; TH10	High TH01	Extreme	
	Rare	Low	Low	Moderate TH06	High TH04; TH08	High TH02; NH02	

7.5. Hazard by Risk Rating Priority

This list is a summary of all the 17 hazards that have been assessed in the previous pages in order of highest risk rating (extreme) to lowest (low).

Rating Priority	Hazard Id.	Hazard Name	Reference Page
EXTREME	NH03	Fire – Bush/ Grass	52
EXTREME	NH04	Flood (natural occurrences)	53
EXTREME	NH05	Severe Storm	54
EXTREME	BH01	Communicable Disease – affecting Humans	67
EXTREME	BH02	Communicable Disease – affecting Animals	68
HIGH	TH03	Hazardous Material Emergency	58
HIGH	TH01	Aeronautical Emergency	56
HIGH	TH02	Dam Failure (incl flooding)	57
HIGH	NH02	Earthquake	51
HIGH	TH04	Infrastructure Failure – Power	59
HIGH	TH08	Infrastructure Failure - Gas Pipeline Rupture	63
MODERATE	TH09	Transport Emergency – Road	64
MODERATE	TH10	Transport Emergency – Rail	65
MODERATE	TH05	Infrastructure Failure – Water	60
MODERATE	TH07	Infrastructure Failure – Gas	62
MODERATE	NH01	Snowstorm	50
MODERATE	TH06	Infrastructure Failure – Sewerage (incl contamination)	61

7.6. Hazards by Combat Agency/ Controlling Authority

This is a list of the 17 hazards and the individual agencies responsible for responding to these.

Emergency Operations Controller (LEOCON/ EOC)/ Emergency Operations Centre (EOC)

HAZARD ID	HAZARD	RISK RATING	DATE REFERRED
NH02	Earthquake	High	July 2010
TH01	Aeronautical Emergency	High	July 2010
TH04	Infrastructure Failure – Power	High	July 2010
TH08	Infrastructure Failure - Gas Pipeline Rupture	High	August 2010
TH05	Infrastructure Failure – Water	Moderate	July 2010
TH06	Infrastructure Failure – Sewerage (incl contamination)	Moderate	July 2010
TH07	Infrastructure Failure – Gas	Moderate	July 2010
TH09	Transport Emergency – Road	Moderate	July 2010
TH10	Transport Emergency – Rail	Moderate	July 2010

State Emergency Service (SES)

HAZARD ID	HAZARD	RISK RATING	DATE REFERRED
NH01	Snowstorm	Moderate	July 2010
NH04	Flood (natural occurrences)	Extreme	July 2010
NH05	Severe Storm	Extreme	July 2010
TH02	Dam Failure (incl flooding)	High	July 2010

New South Wales Rural Fire Services (RFS) & NSWFB

HAZARD ID	HAZARD	RISK RATING	DATE REFERRED
NH03	Fire – Bush/ Grass	Extreme	July 2010

New South Wales Fire Brigade (NSWFB) & NSWRFBS

HAZARD ID	HAZARD	RISK RATING	DATE REFERRED
TH03	Hazardous Material Emergency	High	July 2010

New South Wales Health

HAZARD ID	HAZARD	RISK RATING	DATE REFERRED
BH01	Communicable Disease – affecting Humans	Extreme	July 2010

Industry & Investment NSW (formerly DPI)

HAZARD ID	HAZARD	RISK RATING	DATE REFERRED
BH02	Communicable Disease – affecting Animals	Extreme	July 2010

8 Treatment

Treatments are the strategies in place that assist the LEMC and individual agencies to manage a particular emergency. Existing treatment strategies, also referred to as Existing Control/ Mitigation/ Treatment strategies, have been identified and included within the individual hazard risk assessments in Section 7 of this report (refer to page 48).

Residual Risk

The first risk rating (depicted in the assessment matrix) was assessed based on the inherent risk of the hazard. The second rating was the result after considering all existing treatment and mitigation strategies available to the LEMC. This is called the Residual Risk Rating. Due to the unpredictable nature and potential severity of the hazards identified in this study, a level of residual risk remains regardless of the treatments implemented, particularly given that natural hazards that cannot be controlled. Nonetheless additional treatments have been considered for those High and Extreme rated risks.

This being the initial stage of the study, it is believed that future reviews may see an impact on the residual risks, more likely to occur following an actual emergency. Review of the residual risk has been included as part of the Monitoring and Review Process (refer Section 9).

In accordance with the Evaluation Criteria on page 14 of this report, hazards rated as **Extreme** and those rated **High** whose consequence rating ranked Major and Catastrophic, additional treatment options were developed and those meeting the evaluation criteria, were included in the treatment plan developed.

8.1. Additional Treatment Options and Evaluation Criteria

The following criteria have been used to determine the effectiveness of additional treatment options for hazards rated **EXTREME** or those hazards rated **HIGH** whose consequence rating ranked Major and Catastrophic in accordance with the evaluation criteria of unacceptable risks (page 14):

- a) Cost – the cost of implementing the action (correspondence, invite to meeting, etc);
- b) Effectiveness to treat the hazard – how effective will the proposed treatment be in the reduction of the hazard impact;
- c) How quickly the proposed action (as per a above) could be implemented; and
- d) Percentage of the affected community that would benefit from this treatment.

This evaluation criteria was then used to prioritise the suggested treatment options, noting that the lower the score for each of the above criteria, the more effective the treatment option was considered.

The score was placed in four different priority categories as follows:

- 1 to 5 = treatment option is most effective;
- 6 to 10 = treatment option is very effective;
- 11 – 15 = treatment option has some effectiveness;
- 16 – 20 = treatment option is least effective.

Only those treatment options scoring 10 or below would be included in the Treatment Plan.

Any treatment options rated N/A have automatically been included in the Treatment Plan. These recommendations include those identified during the study process and the assessment carried out on the identified Vulnerable Communities.

The following tables show the treatment evaluation and assessment of the Extreme and High hazards.

Treatment Option Selection – Evaluation Criteria

Evaluation Criteria							
		1	2	3	4	5	
a) Cost		less than \$10,000	\$10,000 - \$100,000	\$100,000 - \$500,000	\$500,000 - \$1,000,000	greater than \$1,000,000	
b) Effectiveness (residual)		risk eliminated	significant reduction	moderate reduction	minor reduction	no effect	
c) Timeframe of implementation		within 6mths	within 6mths – 12 mths	within 1 yr – 3yrs	within 3yrs- 5yrs	more than 5yrs	
d) Impact on affected community (positive)		80% - 100%	60% - 79%	40% - 59%	20% - 39%	0% - 19%	
Total Score (add the value of the column of the chosen answer for each category)							
TREATMENT OPTION EFFECTIVENESS (PRIORITY)							
1 - 5	most effective/ highest priority	6 - 10	very effective	11 - 15	some effectiveness	16 - 20	least effective/ lowest priority
The Working Group/ LEMC agreed that a treatment plan will be developed for those treatment options with a with a Risk Rating level equal to or greater than: Note 1: that hazards with a primary Combat Agency identified, or owned by an agency are referred to that Agency for risk treatment and the LEMC will only 1- plan for an emergency arising from that hazard; and or 2- monitor the implementation of risk treatment by that agency.				EXTREME and any HIGH with a Consequence of Major or Catastrophic		Date of endorsement by LEMC Working Group	17 August 2010
AND for those treatment options with a score between: Note 2: that hazards scoring more than 10 points may also be selected for additional treatment options where deemed appropriate.				1 to 10			

Treatment Option Selection

Hazard No	Hazard name	Selected Treatment Option	Criteria Scores				Priority	Authority	Treatment Plan Required? YES / NO	Date Determined
			a	b	c	d				
Natural Hazards										
NH01	Snowstorm	Seek functional area representation from RTA.	1	3	1	3	8	SES	YES	17 Aug 2010
		Ensure Emergency Contact List is regularly updated.	1	3	1	3	8	LEOCON/ EOC	YES	17 Aug 2010
NH02	Earthquake	Liaise with Geoscience Aust. for up to date seismic information for the area.	1	5	3	3	12	LEOCON/ EOC	NO	17 Aug 2010
		Seek more information on EMA awareness campaign.	1	3	3	4	11	LEOCON/ EOC	NO	17 Aug 2010
		Seek information on what Agriculture & Animal Services Plan involves.	1	5	2	4	12	LEOCON/ EOC	NO	17 Aug 2010
NH03	Fire – Bush/ Grass	Standard Operating Procedures for the EOC to be reviewed.	2	2	3	3	10	NSWRFS	YES	17 Aug 2010
		Insufficient signage resources by Council.	2	3	3	3	11	Council	NO	17 Aug 2010
		Review the effectiveness of current arrangements and support from functional areas such as Utilities, Telecommunications, etc.	1	2	2	2	7	LEOCON/ EOC	YES	17 Aug 2010
		EOC to determine what its evacuation arrangements are in the event of a bushfire.	1	2	3	3	9	LEOCON/ EOC & RFS & NSWFB	YES	17 Aug 2010
NH04	Flood – natural occurrences	Follow up on flood studies for the Palerang District.	1	3	3	2	9	SES	YES	17 Aug 2010
		Formalise identification of potential evacuation centres.	1	2	3	3	9	SES	YES	17 Aug 2010
		Review Flood plans.	1	2	3	2	8	SES	YES	17 Aug 2010
		Review flood rescue resources and arrangements.	1	2	1	2	6	SES	YES	17 Aug 2010
NH05	Severe Storm Event	Investigate internal agency field communication arrangements in place.	1	4	3	4	12	SES	YES	17 Aug 2010
		Liaise with ACT re awareness of arrangements in place.					NA	M O U already in place	Complete	17 Aug 2010

Hazard No	Hazard name	Selected Treatment Option	Criteria Scores				Priority	Authority	Treatment Plan Required? YES / NO	Date Determined
			a	b	c	d				
		Investigate the availability of emergency generators.	1	4	2	4	11	SES	YES	17 Aug 2010
Technological Hazards										
TH01	Aeronautical Event	Enquire with DEMO about requirements of LEMC from CASA or higher authority.	1	4	2	4	11	LEOCON/ EOC	YES	17 Aug 2010
		Seek training in relation to such emergency	2	4	3	5	14	LEOCON/ EOC	NO	17 Aug 2010
		Enquire with local hospitals as to their capacity/ arrangements to deal with such emergency.	1	4	2	5	12	LEOCON/ EOC / LEMO	YES	17 Aug 2010
TH02	Dam Failure	Seek to improve communication in regards to response.	1	2	2	4	9	SES	YES	17 Aug 2010
		Community education.	2	3	3	4	12	SES	NO	17 Aug 2010
		Investigate better warning mechanisms.	2	2	3	4	11	SES	YES	17 Aug 2010
		Follow up finalisation of the Palerang (Braidwood and Bungendore) Flood Plans.	1	2	2	3	8	SES	YES	17 Aug 2010
TH03	Hazardous Materials Emergency	Refer to general recommendation for all-hazard exercise to be conducted.					NA	NSWFB	NO	17 Aug 2010
TH04	Infrastructure Failure - Power	Enquire with utilities about their emergency arrangements and redundancies in place.	1	1	1	1	4	LEOCON/ EOC	YES	17 Aug 2010
		(There is currently no alternate power supply for sewer treatment plant at Palerang) – provide alternate power supply.	3	1	3	1	8	LEOCON/ EOC	YES	17 Aug 2010
		LEMC to enquire with Dept of Commerce as to the capability to provide alternate power supply.	1	2	1	3	7	LEOCON/ EOC	YES	17 Aug 2010
		Obtain mapping of the power grid for the area.	1	4	2	4	11	LEOCON/ EOC	NO	17 Aug 2010
TH05	Infrastructure Failure - Water	Investigate efficiency of early notification arrangements currently in place.	1	2	1	1	5	LEOCON/ EOC	YES	17 Aug 2010
TH06	Infrastructure Failure - Sewerage	Seek for Councils to formalise emergency operations procedures for their infrastructure.	2	3	3	1	9	LEOCON/ EOC	YES	14 Sept 2010

Hazard No	Hazard name	Selected Treatment Option	Criteria Scores				Priority	Authority	Treatment Plan Required? YES / NO	Date Determined
			a	b	c	d				
TH07	Infrastructure Failure – Gas	Jemena to keep LEMC up to date on Bowral incident and outcome of investigation	1	5	1	5	12	LEOCON/ EOC	YES	14 Sept 2010
		Jemena to provide a brief on current infrastructure plan/ lay out in the Region.	1	5	1	5	12	LEOCON/ EOC	YES	14 Sept 2010
TH08	Infrastructure Failure – Pipeline rupture	LEMC to request from Jemena and ACTEW ACL copies of plans and network diagram showing the location of the infrastructure.	1	5	1	5	12	LEOCON/ EOC	NO	14 Sept 2010
TH09	Transport Emergency – Road	Seek active RTA representation at LEMC and enquire what current emergency response plans RTA have in place.	1	3	2	3	9	LEOCON/ EOC	YES	14 Sept 2010
TH10	Transport Emergency - Rail	Investigate with ARTC how they operate their rail corridors and what emergency management and prevention arrangements they have in place.	1	3	2	3	9	LEOCON/ EOC	YES	14 Sept 2010
		Seek attendance to LEMC meeting from ARTC.	1	5	1	5	12	LEOCON/ EOC	NO	14 Sept 2010
Biological Hazards										
BH01	Communicable Disease (Pandemic) affecting Humans	Liaise with State Health as to the requirements from LEMC.	1	3	2	4	10	NSW HEALTH	YES	14 Sept 2010
		Investigate with local hospitals and GSAHS what arrangements are in place to deal with such emergency.	1	3	2	4	10	NSW HEALTH	YES	14 Sept 2010
		Investigate individual agency arrangements if lack of personnel due to emergency;	1	3	2	4	10	NSW HEALTH	YES	14 Sept 2010
		Investigate if any ACT/NSW Cross Border Regional Management arrangements exist.	1	4	2	4	11	NSW HEALTH	NO	14 Sept 2010
		Conduct desktop exercise for Animal and Human health emergency scenario.	2	3	3	4	12	LEMC	NO	14 Sept 2010
BH02	Communicable Disease – affecting Animals	Investigate LEMC’s role as support for State level Authorities.	1	3	2	4	10	I&I	YES	14 Sept 2010
		Conduct desktop exercise for Animal and Human health emergency scenario.	2	3	3	4	12	LEMC	NO	14 Sept 2010

General All-Hazards Recommendations

The following are recommendations for actions identified and determined to be applicable to the management of all the 17 hazards included in this study:										
Hazard No	Hazard name	Selected Treatment Option	Criteria Scores				Priority	Authority	Treatment Plan Required? YES / NO	Date Determined
<u>General Recommendations relating to all hazards</u>		Need for upgrade of the Local Emergency Operation Centre to better manage emergency support - investigate funding opportunities to achieve improvements.	2	3	2	2	9	LEOCON/ EOC	YES	14 Sept 2010
		Conduct an emergency response exercise/test incorporating all elements of an emergency.	2	3	3	2	10	LEOCON/ EOC	YES	14 Sept 2010
		Continue to provide community education incorporating all possible hazards (fire, earthquake, floods etc).	2	3	3	2	10	LEOCON/ EOC	YES	14 Sept 2010

Vulnerable Communities - Recommendations

Vulnerable Communities' Recommendations: Scoring for the following recommendation is not applicable (NA) as the Working Group had already agreed to undertake these actions:

Hazard No	Hazard name	Selected Treatment Option	Priority	Principal Combat Agency / Authority	Treatment Plan Required? YES / NO	Date Determined
VC01	Medically Dependent persons living at home	Liaise with NSW HEALTH as to the contact person to notify of an emergency in a particular area for them to make contact with relevant residents.	NA	LEOCON/ EOC/ LEMO	YES	14 Sept 2010
VC02	Nursing Homes	(George Forbes Nursing Home have plans) – Make enquiries to check if all nursing homes have emergency/ evacuation plans in place and confirm current contact details in the LEMC Emergency contact list.	NA	LEMC	YES	14 Sept 2010
VC03	Pre Schools and Child Care Centres	Make enquiries to check that they all have emergency/ evacuation plans in place and confirm current contact details in the LEMC Emergency contact list.	NA	LEMC	YES	14 Sept 2010
VC04	New Housing Developments	Liaise with Queanbeyan City and Palerang Councils and research LGAs for those developments considered vulnerable areas.	NA	LEMC	YES	14 Sept 2010
VC05	Hospitals (Braidwood and Queanbeyan)	Enquire as to what current emergency arrangements they have in place and confirm current contact details to include in LEMC Emergency Contact list.	NA	LEMC	YES	14 Sept 2010
VC06	Primary and Secondary Schools	Make enquiries to check that they all have emergency/ evacuation plans in place and confirm current contact details to include in the LEMC Emergency contact list.	NA	LEMC	YES	14 Sept 2010
VC07	Caravan Parks and Camping Grounds	LEMC to check that they all have evacuation plans in place and confirm the LEMC Emergency contact list is complete and current.	NA	LEMC	YES	14 Sept 2010
VC08	Araluen Seasonal Fruit Pickers	Need to check that they all have evacuation plans in place and confirm current contact details to include in the LEMC Emergency contact list.	NA	LEMC	YES	14 Sept 2010

Treatment options given a priority score of 10 points or below, or where deemed appropriate by the LEMC, have been included in the Treatment Plan that follows.

8.2. Risk Treatment Plan for selected treatment options

As a result of the Selection Option Criteria table in the previous section, the following table is a list of actions to be undertaken for the selected treatment options.

Hzrd Id.	Hazard Name	Risk Rating	Selected Treatment Options	Priority Score	Actions	Agency Responsible (for Action)	Agency Contact	Timeframe/ Milestones	Monitor & Review
Natural Hazards									
NH01	Snowstorm	Moderate	Seek functional area representation from RTA.	8	Write to Regional Manager RTA to seek confirmation from them as to the relevant representatives that should be attending the LEMC mtgs in cooperation with emergency management arrangements	LEMC	LEMO	6 months	Ongoing at LEMC meeting
			Ensure Emergency Contact List is regularly updated.	8	Contact list maintained by LEMO to be circulated for comments to agencies	LEMC	LEMO	Quarterly	Annually or as required through LEMC meetings
NH03	Fire – Bush/ Grass	Extreme	Standard Operating Procedures for the EOC to be reviewed.	10	(SOPs relate to all hazards) formalise work to be done at the EOC – First draft to be prepared	LEMC	LEOCON/ EOC	First draft by November 2010	Annually through LEMC meetings
			Review the effectiveness of current arrangements and support from functional areas such as Utilities, Telecommunications, etc.	7	Correspond with Utilities to find out current arrangements in place, seek copies of relevant plans etc	LEMC	LEMO	6 months	Ongoing at LEMC meetings
			EOC to determine what its evacuation arrangements are in the event of a bushfire.	9	Correspond with the identified evacuation centre managers and DoCS to clarify emergency arrangements	LEMC	LEMO	6 months	Annually through LEMC meetings
NH04	Flood – natural occurrences	Extreme	Follow up on flood studies for the Palerang District.	9	SES to provide a progress report to the LEMC	SES	Deputy Regional Controller	Quarterly	Annually at LEMC meetings
			Formalise identification of potential evacuation centres.	9	See above				

Hazrd Id.	Hazard Name	Risk Rating	Selected Treatment Options	Priority Score	Actions	Agency Responsible (for Action)	Agency Contact	Timeframe/ Milestones	Monitor & Review
			Review Flood plans.	8	SES to provide a progress report to the LEMC	SES	Deputy Regional Controller	Quarterly	Annually at LEMC meetings
			Review flood rescue resources and arrangements.	6	SES to inform the LEMC of flood rescue arrangements	SES	Deputy Regional Controller	Annually	Annually
NH05	Severe Storm Event	Extreme	Investigate internal agency field communication arrangements in place.	12	Discuss with all agencies as to what contingency arrangements are in place if initial communication lines fail and report back to LEMC	LEMC	LEMO	6 months	Annually at LEMC meetings
			Liaise with ACT re awareness of arrangements in place.	NA	Establish that arrangements are in place(MOU already exists)	SES		Complete	
			Investigate the availability of emergency generators.	11	SES to contact Illawarra SES to enquire where they sourced generators in an emergency and report to LEMC LEMC to find out from emergency services and relevant organisations to ensure they can source generators in the event of an emergency and report back to LEMC LEMC to contact Commerce (through DEMO) to find out availability arrangements for generators (and fuel supply) in the event of an emergency	SES LEMC LEMC	Deputy Regional Controller LEOCON/ EOC LEOCON/ EOC	By Nov 2010 LEMC Mtg By Nov 2010 LEMC Mtg 6 months	Nov 2010 Nov 2010 at LEMC meetings

Hzrd Id.	Hazard Name	Risk Rating	Selected Treatment Options	Priority Score	Actions	Agency Responsible (for Action)	Agency Contact	Timeframe/ Milestones	Monitor & Review
TECHNOLOGICAL HAZARDS									
TH01	Aeronautical Event	High	Enquire about the requirements of LEMC from CASA or higher authority in the event of such an emergency.	11	Seek information from DEMO as to possible requirements from higher authorities of the LEMC to assist in such an emergency	LEMC	LEOCON/ EOC	6 months	At LEMC mtgs
			Enquire with local hospitals as to their capacity/ arrangements to deal with such emergency.	12	Discuss with Health representative at an LEMC meeting what procedures are in place	LEMC	LEOCON/ EOC	6 months	At LEMC mtgs
TH02	Dam Failure	High	Seek to improve communication with dam owners and LEMC in regards to response;	9	LEMC to invite dam owners to a future meeting to discuss	SES	Deputy Region Controller	12 months	Every two yrs or as required
			Follow up finalisation of the Palerang (Braidwood and Bungendore) Flood Plans.	8	Refer to above				
TH04	Infrastructure Failure - Power	High	Enquire with utilities about their emergency arrangements and redundancies in place.	4	Refer to above				
			(There is currently no alternate power supply for sewer treatment plant at Palerang) – provide alternate power supply.	8	LEMC to request council to provide information on emergency power supply	LEMC	LEMO	2 yrs	Report annually to LEMC mtgs
			LEMC to enquire with Dept of Commerce as to the capability to provide alternate power supply.	7	Refer to above				
TH05	Infrastructure Failure - Water	Moderate	Investigate efficiency of early notification arrangements currently in place.	5	Water services providers to provide information to the LEMC of the process in place	QCC & PC	Group Mgr – City Infrastructure & Director Works	At next LEMC meeting	Nov 2010
TH06	Infrastructure Failure - Sewerage	Moderate	Seek for Councils to formalise emergency operations procedures for their major infrastructure.	9	Water service providers to provide information to the LEMC of the current procedures in place and progress of formalisation	QCC & PC	Group Mgr – City Infrastructure & Director Works	At next LEMC meeting	Nov 2010

Hzrd Id.	Hazard Name	Risk Rating	Selected Treatment Options	Priority Score	Actions	Agency Responsible (for Action)	Agency Contact	Timeframe/ Milestones	Monitor & Review
TH07	Infrastructure Failure – Gas		Jemena to keep LEMC up to date on Bowral incident and outcome of investigation.	12	LEMC to invite Jemena to the next LEMC mtg in Nov to provide report	LEMC	LEMO	Nov 2010	Nov 2010
			Jemena to provide a brief on current infrastructure plan/ lay out in the Region.	12	Refer to above				
TH09	Transport Emergency – Road	Moderate	Seek active RTA representation at LEMC and enquire what current emergency response plans RTA have in place.	9	RTA be requested to the next LEMC meeting to provide information	LEMC	LEMO	6 months	12 months
TH10	Transport Emergency - Rail	Moderate	Investigate with ARTC how they operate their rail corridors and what emergency management and prevention arrangements they have in place.	9	ARTC be requested to the next LEMC meeting to provide information	LEMC	LEMO	6 months	12 months
BIOLOGICAL HAZARDS									
BH01	Communicable Disease (Pandemic) affecting Humans	Extreme	Liaise with State Health as to the requirements from LEMC.	10	Seek information from DEMO as to NSW Health requirements from LEMC in an emergency	LEMC	LEMO	12 months	12 months
			Investigate with local hospitals and GSAHS what arrangements are in place to deal with such emergency.	10	Request GSAHS to provide information at a future LEMC meeting	LEMC	LEMO	12 months	12 months
			Investigate individual agency arrangements if lack of personnel due to emergency.	10	Enquire through DEMO as to what arrangements are in place at regional level	LEMC	LEMO	12 months	12 months
BH02	Communicable Disease – affecting Animals	Extreme	Investigate LEMC's role as support for State level Authorities.	10	Seek information from DEMO as to I&I requirements from LEMC in an emergency	LEMC	LEMO	12 months	12 months

TREATMENT PLAN FOR GENERAL RECOMMENDATIONS and VULNERABLE COMMUNITIES

This table refers to general recommendations identified during the study process and the assessment carried out on the identified Vulnerable Communities (refer page 46).

General Recommendations - Treatment Plan							
Gen Rec Id.	Treatment Option	Priority Score	Actions	Agency Responsible (for action)	Agency Contact	Timeframe/ Milestones	Monitor & Review
GR01	Need for upgrade of the Local Emergency Operation Centre to better manage emergency support - investigate funding opportunities to achieve improvements.	9	LEMC to continue investigating funding opportunities	LEMC	LEMO	Ongoing	Annual or as required
GR02	Conduct an emergency response exercise/test incorporating all elements of an emergency.	10	Discuss with LEMC agencies and present proposal to DEMO to arrange exercise	LEMC	LEOCON/ EOC	12 months	Annually
GR03	Ensure ongoing monitoring of Treatment Plan and Actions.	NA	Extract Treatment Plan table from this report and include it as a standing item of review at LEMC meetings to monitor progress of actions	LEMC	LEMO	Ongoing	Ongoing
GR04	Continue to provide community education incorporating all potential hazards (fire, earthquake, floods etc).	NA	LEMC to discuss possibility of conducting all-hazard community education	LEMC	LEMO	6 months	12 months

Vulnerable Communities – Treatment Plan							
Id	Element	Treatment Option	Actions	Agency Responsible (for action)	Agency Contact	Timeframe/ Milestones	Monitor/ Review
VC01	Medically Dependent persons living at home	Liaise with NSW HEALTH to identify the contact person to notify of an emergency in a particular area for them to make contact with relevant residents.	Request NSW Health delegate to provide details of contact within Health.	LEMC	LEMO	6 months	6 months
VC02	Nursing Homes	(George Forbes Nursing Home have plans) – Make enquiries to check if all nursing homes have emergency/ evacuation plans in place and confirm current contact details in the LEMC Emergency contact list.	Enquire with DEMO what arrangements are in place to check if nursing homes have emergency arrangements	LEMC	LEMO	12 months	12 months
VC03	Pre Schools and Child Care Centres	Make enquiries to check that they all have emergency/ evacuation plans in place and confirm current contact details in the LEMC Emergency contact list.	Enquire with DEMO what arrangements are in place to check if Pre Schools and Child Care Centres have emergency arrangements	LEMC	LEMO	12 months	12 months
VC04	New Housing Developments	Liaise with Queanbeyan City and Palerang Councils and research LGAs for those developments considered vulnerable areas.	LEMC to request Councils to provide bush fire prone land mapping to NSWRFs to assist future development recommendations as a matter of urgency	LEMC	LEMO and Council reps	Nov 2010	Feb 2011
VC05	Hospitals (Braidwood and Queanbeyan)	Enquire as to what current emergency and evacuation arrangements they have in place and confirm current contact details to include in LEMC Emergency Contact list	Enquire with Health what arrangements are in place to check if hospitals have emergency arrangements	LEMC	LEMO	12 months	12 months
VC06	Primary and Secondary Schools	Make enquiries to check that they all have emergency/ evacuation plans in place and confirm current contact details to include in the LEMC Emergency contact list.	Enquire with Dept of Education what arrangements are in place to check if schools have emergency arrangements	LEMC	LEMO	12 months	12 months
VC07	Caravan Parks and Camping Grounds	LEMC to check that they all have evacuation plans in place and confirm the LEMC Emergency contact list is complete and current.	Enquire with NSWFB if they hold emergency information on these businesses EOC to consider maintaining a list of caravan parks and camping grounds	LEMC	LEMO	12 months	12 months
VC08	Araluen Seasonal Fruit Pickers	Need to check that they all have evacuation plans in place and confirm current contact details to include in the LEMC Emergency contact list.	LEMC to arrange a community education meeting at Araluen and include seasonal fruit pickers in the agenda	LEMC	LEMO	12 months	12 months

9 Monitor and Review

The Emergency Risk Management Project is a continuous process. Monitoring and reviewing are integral parts of the process. Risks and the effectiveness of the treatment strategies need to be monitored to ensure risk levels reflect the positive impact of those strategies.

The Lake George LEMC is committed to monitor and review the Emergency Risk Management Report taking into consideration:

- Changes to context;
- Changes to legislative requirements;
- Changes to stakeholder involvement;
- Changes to hazards, the community and the environment;
- The emergency risk management project; or
- Actual emergencies arising from risks.

It is pertinent to mention that in different sections within this document, such as the risk assessments and the treatment plan there have specified monitoring and review timeframes to be noted by the LEMC and the respective Principal Combat agencies.

The following is an action table for monitoring and reviewing the various elements of the ERM Report:

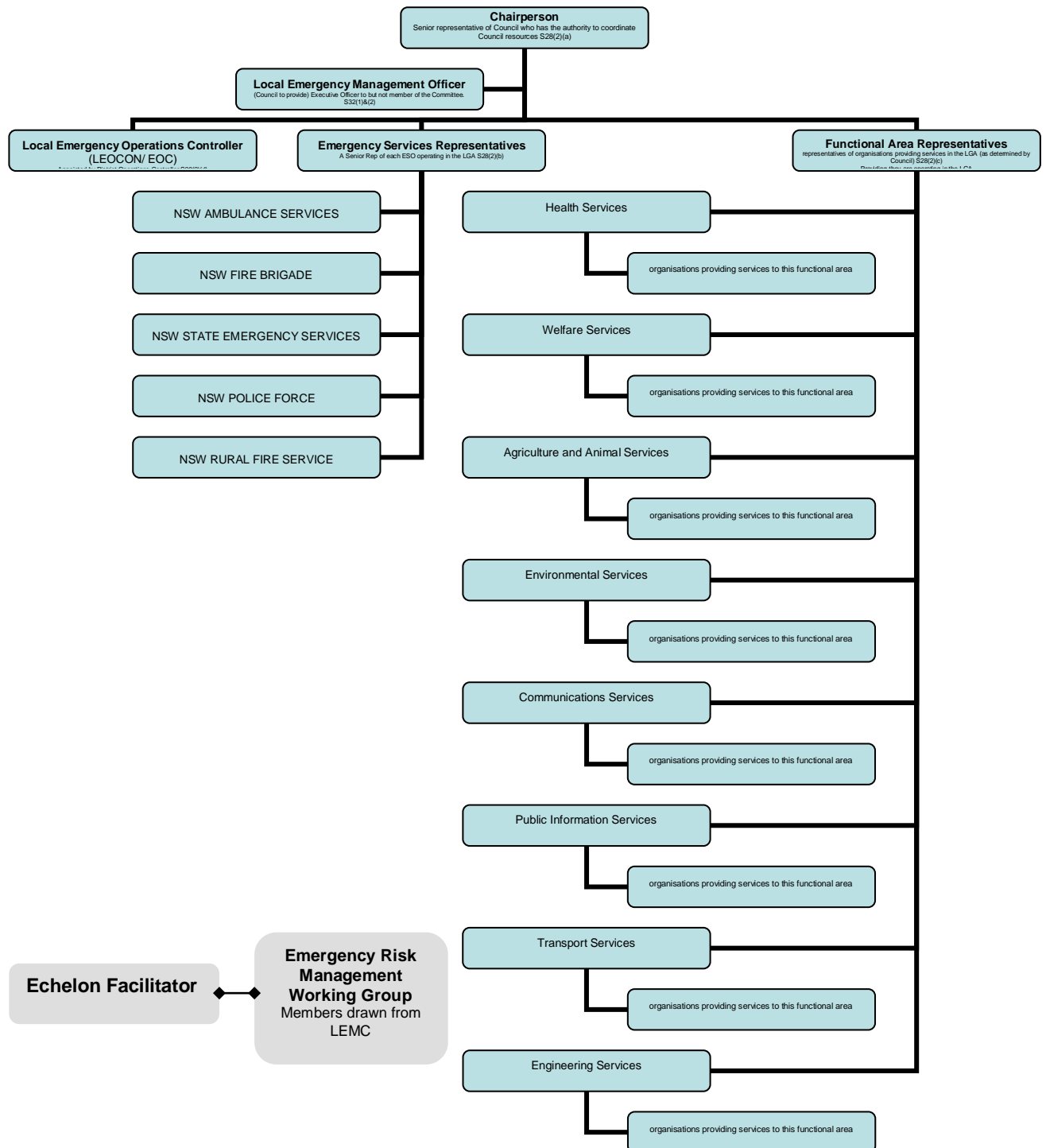
	Activity for Review	Accountability	Timeframe
1	ERM Report: Administrative review.	LEMO & LEOCON/ EOC	Annually.
2	ERM Report: Content review.	LEMC	As required but as a minimum every 5 years.
3	Hazards: assessment, rating etc. (Pg 50 – 68).	Principal Combat Agencies respectively and LEMC in general	As required but as a minimum every 2 years.
4	Treatment Plan (including Treatment Options).	Principal Combat Agencies respectively and LEMC in general	As per review dates for individual items (refer pgs 79-84).
5	ERM Report following an actual emergency.	LEMC	Monitor annually and action as required.
6	Legislative requirements.	Principal Combat Agencies respectively and LEMC in general	Monitor annually and action as required.
7	Community influences.	Principal Combat Agencies respectively and LEMC in general	Monitor annually and action as required.
8	Environment (direction from higher EMCs, studies etc).	LEMC	Monitor annually and action as required.
9	Residual Risk (refer pg 72).	Principal Combat Agencies respectively and LEMC in general	Following an actual emergency.
10	List of hazards excluded from the study – to be reviewed.	LEMC	Annually or when an incident occurs.

10 Appendices

Appendix No.	Title
1	Management Framework
2	Members of the Lake George Local Emergency Management Committee Working Group for the Emergency Risk Management Project
3	Members of the Lake George Local Emergency Management Committee
4	Record of Attendance
5	Consequence Descriptors
6	Likelihood Descriptors
7	Risk Statements
8	Press Release Template
9	Earthquake Zone within Australia
10	Supporting (Emergency Management) Plans
11	Palerang Community Demographics
12	Queanbeyan Community Demographics
13	Definitions
14	Abbreviations

Appendix 1 Management Framework

Local Emergency Management Committee for the Lake George Local Government Area



NOTE: Schedule 2 Section 2(1) & (2) of the State Emergency and Rescue Management Act 1989 (SERM Act) provides for any Member to appoint a Deputy who, in the absence of the Member, has all the functions of the Member.

Appendix 2 Members of the Lake George Emergency Risk Management Working Group

Title	First Name	Position	Agency
Insp	Marnie Nicholson	Duty Officer	NSWP
Sgt	Paul Batista	LEOCON/ EOC /EDO Monaro/ Queanbeyan	Lake George LEMC
Mr	Gordon Cunningham	LEMO	Palerang Council
Supt	Nick Turner	Zone Manager	NSWRFS
Mr	Kevin Anderson	Deputy Region Controller	SES
Insp	Chris Bond	Duty Commander - Monaro	NSWFB
Mr	Doug Sawtell	Station Manager	ASNSW

Other Representatives

Title	First Name	Last Name	Agency
Ms	Lorrae	Stokes	Palerang Council
Mr	Phil	Hansen	Group Mgr – City Infrastructure Queanbeyan City Council
Mrs	Robyn Harvey	Manager	GSAHS

Facilitator

Title	First Name	Last Name	Agency
Ms	Ellie	Diaz	Echelon Australia

Appendix 3 Member Agencies of the Lake George Local Emergency Management Committee

Agency	Agency
Local Emergency Operation Controller (LEOCON/EOC)	District Emergency Management Officer (DEMO)
Local Emergency Management Officer (LEMO)	Palerang Council
Queanbeyan City Council	NSW Industry & Investment (I&I)
State Emergency Service (SES)	NSW National Parks & Wildlife Service
Ambulance Service NSW (ASNSW)	ACT Police
NSW Rural Fire Service (NSWRFS)	ACT Emergency Services
NSW Fire Brigade (NSWFB)	NSW Police Force (NSWPF)
NSW Roads and Traffic Authority (RTA)	Department of Defence
NSW Health	ACT Parks and Conservation
Headquarters Joint Operations Command (HQJOC)	Roads A C T
Salvation Army	ACT Ambulance
St Vincent De Paul	Jemena
Anglicare	Country Energy
Red Cross	Australia Rail Track Corporation (RailCorp)
St John Ambulance	Bulk Water Alliance
NSW TAFE	ABC 666
NSW Maritime	

Appendix 4 Lake George LEMC – ERM Workshop Record of Attendance

Name	Position	Workshop Meeting Dates					
		W1 13-4-10	W2 11-5-10	W3 2-6-10	W4 13-7-10	W5 17-8-10	W6 14-9-10
M Nicholson	Duty Officer	✗	✗	✗	✗	✗	✗
D Gordon	DEMO	NA	✓	NA	✓	NA	NA
P Batista	LEOCON/ EOC	✓	✓	✓	✓	✓	✓
G Cunningham	LEMO	✓	✓	✓	✓	✓	✓
N Turner/ D Willcoxson/ C Quinn	NSWRFS	✓	✗	✗	✗	✓✓	✓✓
K Anderson / K Salton	SES	✓	✓	✓✓	✓	✓	✓
C Bond/ M Beachcroft/ D Ebbels	NSWFB	✗	✓	✓	✓	✓	✗
D Sawtell	ASNSW	✓	✗	✓	✗	✓	✗
L Stokes	Palerang CI	✓	✓	✓	✓	✓	✓
P Hansen	QCC	✗	✗	✗	✓	✓	✓
B Ryan	GSAHS	NA	NA	NA	✓	NA	✓

Also in Attendance:

17 August 2010:

- C Lamb – Jemena
- M Michelmores – Industry & Investment
- P Bristol – Telstra/ TCW
- M Butler – Telstra

14 September 2010:

- Ian Salkeld - Jemena

Appendix 5 Consequence Descriptors

These are the definitions for the consequence ratings on the Risk Matrix table found on page 69 and were used for each assessment of the hazards in Section 7.

	Insignificant	Minor	Moderate	Major	Catastrophic
Area No. 1: PEOPLE – Fatalities / Injuries	No fatalities. No injuries	No fatalities. Small number of injuries.	No fatalities. Medical treatment required	Fatalities / Extensive injuries / Significant number hospitalization	Significant fatalities / large number severe injuries.
Area No. 2: SOCIAL IMPACT - Number of people impacted	Less than 5% of community	5 – 20% of community	20 – 40% of community	40 – 80% of community	80 – 100% of community
Area No. 3 EVACUATION	Small number moved from area – no persons displaced	Some displacement – less than 24 hours	Localised displacement – return within 24 hours	Large number displaced for more than 24 hours	Widespread displacement for extended periods / relocation to areas outside of community
Area No. 4: PROPERTY - Impact / Damage	Small number of residential homes.	Small number of public and private business / industry	Government sector, key business / industry, schools, factories	Hospitals, Nursing Homes, major road / air / rail facilities, emergency service centres	Key Infrastructure / Utilities – Water, electricity, sewerage, gas, communications.
Area No. 5: COMMUNITY SERVICES - Loss / Damage	Other products & services	Pharmaceutical supplies, key retail outlets, key industry	Transportation Services: public & private	Essential Services: Energy, gas, fuel supplies; communication.	Essential Services: Medical / Health and Food / Water
Area No. 6: ANIMALS – Fatalities / Injuries	No fatalities. No relocation	Displacement with short term return – 24 hours to 28 hours	Some injuries with displacement and return - 48 hours to 1 week	Deaths / Significant injuries and humane destruction, return from relocation with 1 week to 1 month return	Significant deaths / large number severe injuries and humane destruction, relocation with no likelihood of return
Area No. 7: ENVIRONMENT – Loss / Damage	No measurable impact	Some impact but no lasting effects	Some impact with no long-term effect or small impact with long-term effect	Some impact with long-term effects.	Significant impact and / or permanent damage
Area No. 8: FINANCIAL IMPACT – Cost / damage	Under \$10,000	\$10,000 to \$100,000.	\$100,000 to \$1 million	\$1 to \$10 million.	\$10 to \$100 million and above.
Area No. 9: RESOURCES - availability	Combat Agency only - coordinated and obtained within the Local area.	Combat Agency only – coordinated and obtained from outside the Local area	Multi-Agency: Coordinated and obtained from within the Local area.	Multi-Agency: Coordinated and obtained from within the District.	Multi-Agency: Coordinated and obtained at National or State level
Area No. 10: OPERATIONAL MANAGEMENT	Management by Combat Agency at Local level.	Management by Combat Agency at District or Region level	Management at Local LEOCON/ EOC level	Management at District DEOCON level	Management at National or State level.

Appendix 6 Likelihood Descriptors

These are the definitions for the consequence ratings on the Risk Matrix table found on page 69 and were used for each assessment of the hazards in Section 7.

Rating	Description
Almost Certain	Expected to occur, many recorded incidents, strong anecdotal evidence, great opportunity, reason, or means to occur; may occur or be exceeded once every 1 to 5 years.
Likely	Will probably occur; consistent record of incidents and good anecdotal evidence; considerable opportunity, reason or means to occur; may occur or be exceeded once every 20 years.
Possible	Might occur; a few recorded incidents in each locality, some anecdotal evidence within the community; some opportunity, reason or means to occur; may occur or be exceeded once every 100 years. Will generally be close to or exceed past records of severity.
Unlikely	Is not expected to occur; isolated recorded incidents in this country, anecdotal evidence in other communities; little opportunity, reason or means to occur; may occur or be exceeded once every 250 years. Will almost always break previous records of severity.
Rare	May only occur in exceptional circumstances, some recorded events on a worldwide basis, may only or be exceeded once every 500 years or more. Can approach the theoretical upper limits of severity.

Appendix 7 Risk Statements

This table is a summary of the risk statements for each of the 17 hazards found in Section 7 of this report for easy reference.

Hazard	Combat Agency or Controlling Authority	Rating	Risk statement
NATURAL			
Snowstorm	SES	Moderate	There is a risk that a severe snowstorm in the corridor of Captains Flat and Bungendore could result in road closures, disruption to power, structural collapse, and impact on utilities, key infrastructure, railway and road, moderate damage to property, injuries through accidents, isolation of vulnerable communities, impact on environment and livestock.
Earthquake	LEOCON/EOC	High	There is a risk that a significant earthquake event in the urban area could result in multiple fires, loss of critical infrastructure, major structural collapse, multiple losses of life, entrapments, significant environmental impact, impact to transport routes, business disruptions, significant community impact, large scale evacuation and displacement of people and loss and displacement of companion animals.
Fire – Bush/ Grass	NSWRFS/N SWFB	Extreme	There is a risk that a class 2 or 3 Bush/Grass fire could result in significant property damage, loss of life, loss and damage to critical infrastructure, environmental impact, loss of livestock, contamination of water supply, impact on forest industry, viticulture, horticulture, damage to cultural assets, physiological and psychological trauma of affected community.
Flood (natural occurrences)	SES	Extreme	There is a risk that a moderate to major flood event could result in road closures, isolation of communities, major infrastructure collapse, property damage, damage to infrastructure, loss of life, displacement of people, loss of livestock, environmental impact and there could also be impact on the ACT (flooding of Lake Burley Griffin).
Severe Storm Event	SES	Extreme	There is a risk that a Severe Storm could result in road closures, disruption to power, utilities, key infrastructure, major infrastructure collapse, railway and road, moderate to major damage to property, multiple personal injuries, isolation of vulnerable communities, impact on environment and livestock.

Hazard	Combat Agency or Controlling Authority	Rating	Risk Statement
TECHNOLOGICAL			
Aeronautical Event	LEOCON/EOC	High	There is a risk that an Aeronautical event involving a passenger or freight plane could result in multiple losses of life, significant property damage, major infrastructure collapse, environmental impact, hazmat impact, evacuation, establish exclusion zones, possible damage to key infrastructure, property fires, economic impact on the community, viticulture and horticulture.

Hazard	Combat Agency or Controlling Authority	Rating	Risk Statement
Dam Failure (including flooding)	SES	High	There is a risk that a failure of Googong or Captains Flat Dam in the Palerang and Queanbeyan LGAs could result in loss of life, property, structural collapse, key infrastructures, and impact on water supply, sewer service, damage to cultural assets, loss of livestock, viticulture, horticulture and environmental damage.
Hazardous Material Emergency	NSWFB	High	There is a risk that a Hazardous Material event involving transported material or release of substance from industry, could result in the establishment of exclusion zones, evacuations, potential loss of life, injuries, impact on health, environment, property damage, possible structural collapse.
Infrastructure Failure – Power	LEOCON/EOC	High	There is a risk that a significant Infrastructure Failure – Power could result significant disruption to the community, disruption to sewer treatment plant and services, disruption to water supply, impact on vulnerable communities, impact on communications, security, transport, industry and local businesses, public order, impact on environment, essential services, impact on service stations, food supplies and impact on community.
Infrastructure Failure – Water	LEOCON/EOC	Moderate	There is a risk that a significant Infrastructure Failure – Water in the Palerang LGA could result in significant disruption to the community, health issues, disruption to sewer services, disruption to water supply, impact on vulnerable communities, industry and local businesses, public order, impact on environment, essential services, food supplies and impact on community. Queanbeyan would be affected to a lesser degree.
Infrastructure Failure – Sewerage (including contamination)	LEOCON/EOC	Moderate	There is a risk that a significant Infrastructure Failure – Sewerage could result in overflow of sewer affecting schools, home businesses, motels, possible health issues, environmental impact, possible contamination of Lake Burley Griffin, impact on vulnerable communities.
Infrastructure Failure – Gas	LEOCON/EOC	Moderate	There is a risk that a significant Infrastructure Failure – Gas could result in business impact, social impact, lack of heating and cooking facilities to residents businesses, nursing homes etc, impact on vulnerable communities.
Infrastructure Failure - Gas Pipeline Rupture	LEOCON/EOC	High	There is a risk that a significant Infrastructure Failure – Pipeline rupture could result in the release of a large amount of gas to atmosphere or gas explosion. The resultant impact may affect the environment in the immediate area and potential extensive injuries/ fatalities. Associated communities including schools, nursing homes, residential and rural properties, businesses, motels may experience gas supply interruption
Transport Emergency – Roads	LEOCON/EOC	Moderate	There is a risk that a significant transport emergency - road could result in loss of life, significant injuries, property damage, rail and road closure, damage to adjacent road infrastructure (including bridges), exclusion zones, persons trapped, significant impact on community, environmental, disruption to businesses (Bungendore, Queanbeyan, Fyshwick and ACT), impact on HQJOC, psychological trauma of local community, freight and transport disruptions, explosion, river contamination, bushfire, utilities failure.
Transport Emergency – Rail	LEOCON/EOC	Moderate	There is a risk that a significant transport emergency - rail could result in loss of life, significant injuries, property damage, road closure, damage to road infrastructure (including bridges), exclusion zones, persons trapped,

Hazard	Combat Agency or Controlling Authority	Rating	Risk Statement
			significant impact on community, and environmental, psychological trauma of local community, freight and transport disruptions.

Hazard	Combat Agency or Controlling Authority	Rating	Risk Statement
BIOLOGICAL			
Communicable Disease – affecting Humans	NSW Health	Extreme	There is a risk that a communicable (pandemic) disease affecting humans could result in multiple deaths, exclusion zones, isolation, quarantine, civil/ social unrest and complete shut down of community including emergency services.
Communicable Disease – affecting Animals	NSW I&I	Extreme	There is a risk that a communicable disease affecting animals could result in massive death and destruction of livestock, economic impact, job losses, food production, social impact, environmental impact, animal exclusion zones, quarantine zones for people and potential human health risk.

Appendix 8 Press Release

Queanbeyan City and Palerang Councils Commit to Emergency Risk Management

Emergency Risk Management aims to reduce the potential effects of emergency events through a comprehensive approach of prevention, preparedness, response and recovery. All Local Government areas are required to use emergency risk management processes in developing and reviewing emergency management arrangements for their communities. This is to be undertaken through the Local Emergency Management Committees.

Queanbeyan City and Palerang Councils have engaged the services of Echelon Australia Pty Ltd to facilitate the development of the Emergency Risk Management Plan in concert with the Local Emergency Management Committee.

Key to the project is community & stakeholder consultation to ensure that planning and management arrangements are well understood by the community and relevant to their needs. Events that cause disruption and damage to communities may occur at any time and without warning. Your Local Emergency Management Committee is working to ensure the community, emergency services personnel, recovery workers and administrators are adequately prepared.

The Lake George Local Emergency Management Committee for your area is engaging key stakeholders to gain their input throughout the process, as well as exhibiting the *Draft Emergency Risk Management Report* for public comment.

Information and access to the document can be obtained by visiting Queanbeyan City and Palerang Councils offices. An electronic version is also available at www.echelonaustralia.com.au/erm/councils.aspx

Comments regarding this report may be provided via [email at: lakegeorgeerm@echelonaustralia.com.au](mailto:lakegeorgeerm@echelonaustralia.com.au) or directly to the Local Emergency Management Officer at P O Box 348 Bungendore NSW 2621. Your input is important and will be considered before the finalisation of the report.

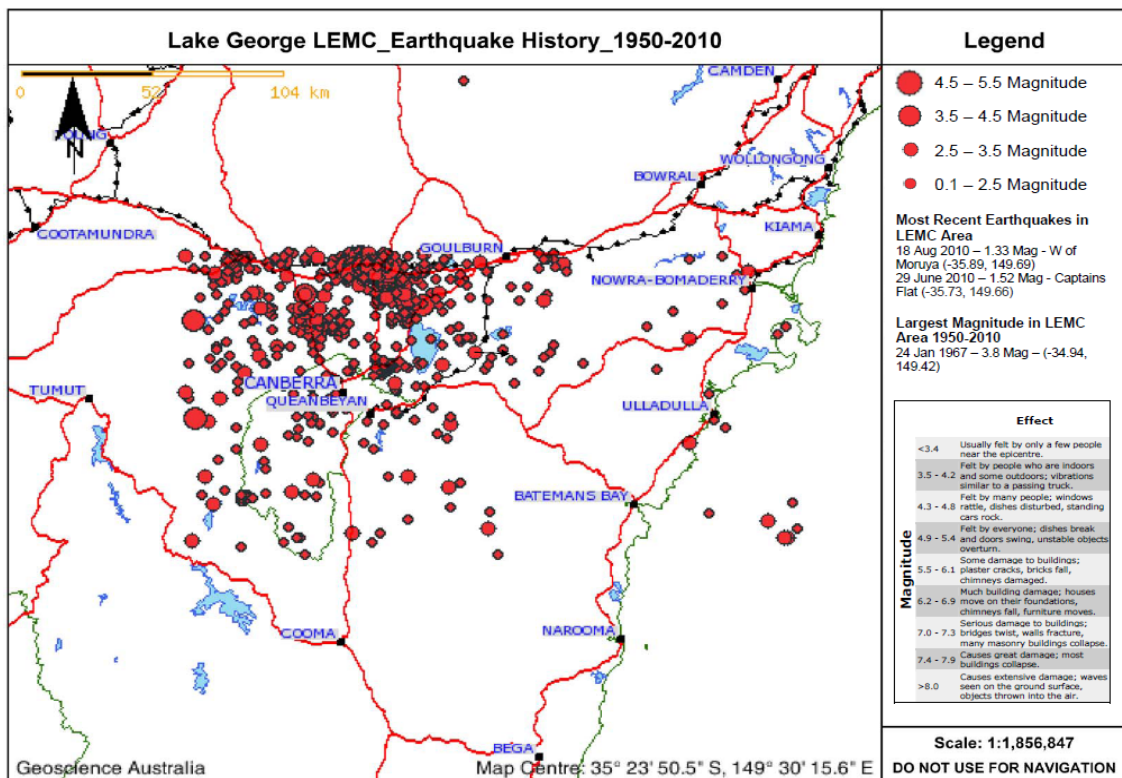
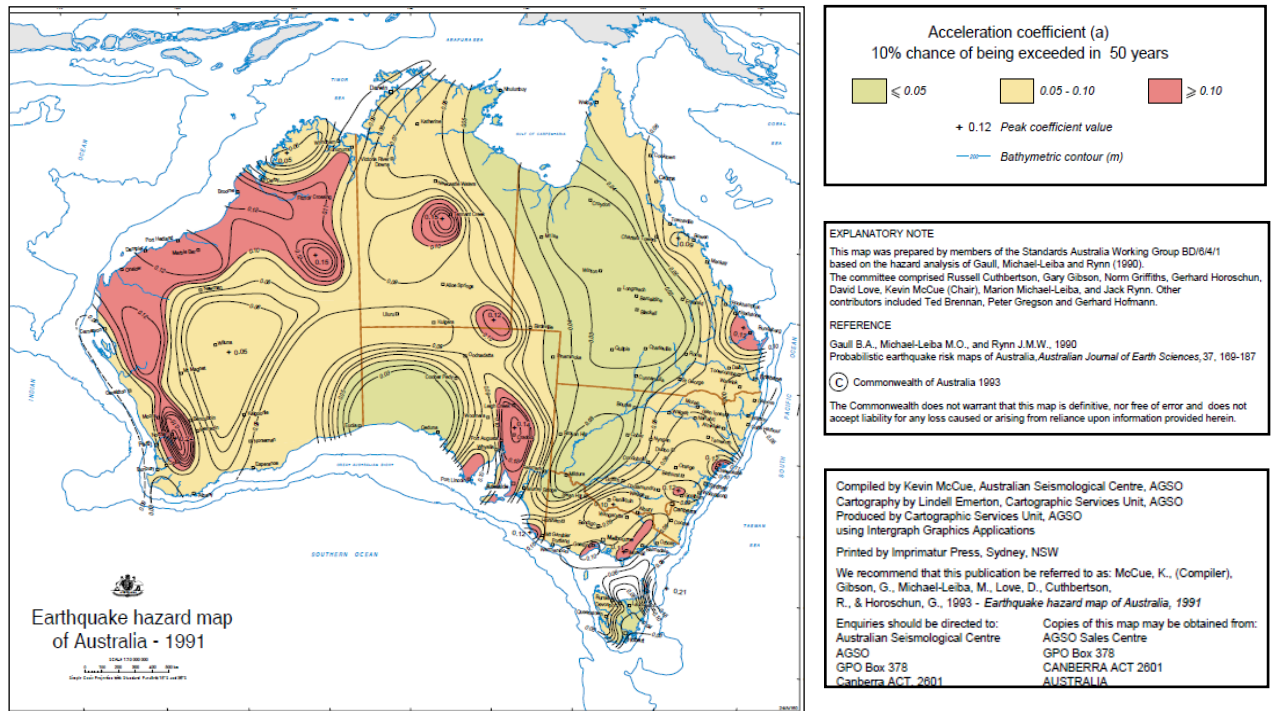
Closing date for submissions/ feedback is Friday 22 October 2010

Authorised by the Lake George Local Emergency Management Committee

[\(Insert Date\)](#)



Appendix 9 Earthquake Zone within Australia



Local History of Earthquakes in the Lake George Emergency Management Area

Source: Geoscience Australia



Appendix 10 Supporting Plans

This is a list of the existing plans available to manage different situations and incidents. These plans have been included as existing treatment strategies used for the 17 hazards identified in this report (refer to Section 7, page 48). A current list of Sub plans and Supporting plans can be found at www.emergency.nsw.gov.au/plans

Sub Plans

Name of Sub Plan	Agency Responsible
NSW State Disaster Plan	SEMC
NSW State Bush Fire Sub Plan	NSWRFS
NSW State Storm Plan	SES
NSW State Flood Plan	SES
NSW State Tsunami Plan	SES
NSW State Major Structure Collapse Sub Plan	SEMC
NSW Food Industry Emergency Sub Plan	SEMC
NSW State Hazmat/CBR Subplan	NSWFB
NSW State Human Influenza Pandemic Sub Plan	NSW Health
NSW Disaster Recovery (Human Services) Plan	DOCS
AMBPLAN	NSW Ambulance Service
NSW Animal Health Emergency Sub Plan	Dept Industry & Investments NSW
NSW State Aviation Emergency Sub Plan	SEMC
Monaro District DISPLAN	DEMC
USAR Sub Plan	NSWFB
NSW Section 52 Plan of Operations	NSWRFS

Supporting Plans

Name of Supporting Plan	Agency Responsible
Agriculture & Animal Services Plan	Dept of Industry and Investment NSW
Environmental Services Plan (ENVIROPLAN)	SEMC
Public Information Services Plan	SEMC
Transport Services Plan	SEMC

Name of Supporting Plan	Agency Responsible
Energy and Utilities Plan (EUS Plan)	SEMC
NSW Healthplan	NSW Health
Gas Supply and Disruption Plan (Sub Plan to Energy & Utilities Functional Area Supporting Plan)	SEMC
Engineering Services Plan	SEMC
Wires Down Sub Plan (Sub Plan to Energy & Utilities Functional Area Supporting Plan)	SEMC
RTA Guidelines for Dangerous Goods Transport	RTA

Regional/ Local Plans

Name of Plan	Agency Responsible
Lake George Area Local DISPLAN	LEMC
Standard Operating Guidelines for NSW Fire Brigade	NSWFB
Standard Operating Guidelines for Emergency Services	NSWFB
Pre-incident Plans	NSWFB
Alarm Response Protocol	NSWFB
Memorandum of Understanding between Emergency Services	Various
Business Continuity Plans for Emergency Services	Various
Site Emergency Plans	Various
Emergency Response Plans for Utility Suppliers	Various
Country Energy Black Start Manual and Emergency Response Crisis Management Procedures	Country Energy

Appendix 11 Palerang Community Demographics

National Regional Profile, 2002 to 2006 - Statistical information on the Palerang Local Government Area sourced from the Australian Bureau of Statistics as released on 28 July 2008.

Population/People						
		2002	2003	2004	2005	2006
POPULATION BY AGE AND SEX - at 30 June						
Males - Total	no.	5 717	5 891	6 065	6 256	6 563
Females - Total	no.	5 575	5 729	5 895	6 073	6 350
Persons - Total	no.	11 292	11 620	11 960	12 329	12 913
INDIGENOUS POPULATION - Census 2006						
Percentage of total population	%	-	-	-	-	0.9
OVERSEAS BORN POPULATION: PERCENTAGE OF TOTAL POPULATION - Census 2006						
Total born overseas	%	-	-	-	-	14.9
SPEAKS A LANGUAGE OTHER THAN ENGLISH AT HOME - Census 2006						
Percentage of total population aged 15 years and over	%	-	-	-	-	4.1
LEVEL OF POST SCHOOL QUALIFICATIONS: PERCENTAGE OF TOTAL POPULATION AGED 15 YEARS AND OVER - Census 2006						
Total with qualifications	%	-	-	-	-	60.9
OCCUPATION OF EMPLOYED PERSONS: PERCENTAGE OF TOTAL EMPLOYED PERSONS - Census 2006						
Managers	%	-	-	-	-	20.0
Professionals	%	-	-	-	-	23.5
Technicians and Trades Workers	%	-	-	-	-	13.6
Community and Personal Service Workers	%	-	-	-	-	7.6
Clerical and Administrative Workers	%	-	-	-	-	15.8
Sales Workers	%	-	-	-	-	6.1
Machinery Operators and Drivers	%	-	-	-	-	5.0
Labourers	%	-	-	-	-	6.9
Inadequately Described/Not Stated	%	-	-	-	-	1.5
HOUSEHOLDS - Census 2006						
Total households	no.	-	-	-	-	4 271
FAMILIES - Census 2006						
Total families	no.	-	-	-	-	3 421
ACCESS TO INTERNET AT HOME: PROPORTION OF OCCUPIED PRIVATE DWELLINGS - Census 2006						
Total internet connections	%	-	-	-	-	73.3
Economy						
		2002	2003	2004	2005	2006
WAGE AND SALARY EARNERS * - year ended 30 June						
Total income	\$m	152.0	164.1	171.5	188.8	-
Average wage and salary income	\$	36 964	38 622	40 547	43 073	-
Average total income	\$	38 631	40 120	42 641	44 681	-
WAGE AND SALARY EARNERS BY SEX - year ended 30 June						
Males - Total	no.	2 028	2 092	2 067	2 129	-
Females - Total	no.	1 903	1 997	1 960	2 094	-
Total wage and salary earners	no.	-	4 252	4 027	4 229	-

PERSONS WITH OWN UNINCORPORATED BUSINESS * - year ended 30 June						
Persons						
Persons with own unincorporated business	no.	761	689	695	-	-
Own unincorporated business income	\$m	21.7	20.3	22.9	-	-
Total income	\$m	25.0	23.1	25.9	-	-
Average own unincorporated business income	\$	28 595	29 456	32 906	-	-
Average total income	\$	32 932	33 543	37 200	-	-
Number of Businesses by Industry - at 30 June						
Agriculture, forestry and fishing	no.	-	432	450	453	459
Mining	no.	-	9	9	6	6
Manufacturing	no.	-	69	72	75	78
Electricity, gas and water supply	no.	-	3	0	0	0
Construction	no.	-	237	255	252	234
Wholesale trade	no.	-	30	33	24	27
Retail trade	no.	-	96	123	126	111
Accommodation, cafes and restaurants	no.	-	36	39	39	48
Transport and storage	no.	-	48	51	51	36
Communication services	no.	-	12	12	15	12
Finance and insurance	no.	-	39	30	24	24
Property and business services	no.	-	228	237	258	279
Education	no.	-	15	9	9	6
Health and community services	no.	-	33	36	42	45
Cultural and recreational services	no.	-	60	51	60	60
Personal and other services	no.	-	18	15	6	6
Total businesses	no.	-	1 365	1 422	1 440	1 431
* These data relate to persons for whom this source of income was their principal source of income for the relevant financial year						
Industry		2002	2003	2004	2005	2006
BUILDING APPROVALS - year ended 30 June						
Private sector houses	no.	158	139	145	128	120
Total dwelling units	no.	160	141	147	133	200
Value of total residential building	\$m	27.8	30.5	30.8	29.0	39.1
Value of total non-residential building	\$m	0.4	1.1	0.3	0.8	4.5
Value of total building	\$m	28.2	31.6	31.2	29.8	43.6
MOTOR VEHICLE CENSUS - REGISTERED MOTOR VEHICLES - at 31 March						
Total registered motor vehicles	no.	7 698	7 918	8 115	8 365	8 537
AGRICULTURAL COMMODITIES * - year ended 30 June						
Total number						
Sheep and lambs	no.	-	-	-	-	210 607
Milk cattle (excluding house cows)	no.	-	-	-	-	17
Meat cattle	no.	-	-	-	-	55 221
Pigs	no.	-	-	-	-	198
* Agricultural commodities data is subject to relative standard error (RSE) - for further information see ABS cat no. 7125.0						

Source: www.abs.gov.au

Appendix 12 Queanbeyan Community Demographics

National Regional Profile, 2002 to 2006 - Statistical information on the Queanbeyan Local Government Area sourced from the Australian Bureau of Statistics as released on 29 April 2010.

Population and People						
		2004	2005	2006	2007	2008
ESTIMATED RESIDENT POPULATION BY AGE AND SEX - at 30 June						
Males - Total	no.	18 360	18 814	19 241	19 663	20 012
Females - Total	no.	18 025	18 456	18 851	19 236	19 591
Persons - Total	no.	36 385	37 270	38 092	38 899	39 603
POPULATION DENSITY (ESTIMATED RESIDENT POPULATION) - at 30 June						
Population density	prsns/km2	-	-	-	-	229.7
ESTIMATED RESIDENT INDIGENOUS POPULATION - at 30 June						
Percentage of total population	%	-	-	2.7	-	-
OVERSEAS BORN POPULATION: PERCENTAGE OF TOTAL POPULATION - Census 2006						
Total born overseas	%	-	-	18.4	-	-
SPEAKS A LANGUAGE OTHER THAN ENGLISH AT HOME - Census 2006						
Percentage of total population	%	-	-	13.5	-	-
LEVEL OF POST SCHOOL QUALIFICATIONS: PERCENTAGE OF TOTAL POPULATION AGED 15 YEARS AND OVER - Census 2006						
Total with qualifications	%	-	-	53.5	-	-
OCCUPATION OF EMPLOYED PERSONS: PERCENTAGE OF TOTAL EMPLOYED PERSONS - Census 2006						
Managers	%	-	-	14.1	-	-
Professionals	%	-	-	18.0	-	-
Technicians and Trades Workers	%	-	-	14.5	-	-
Community and Personal Service Workers	%	-	-	9.1	-	-
Clerical and Administrative Workers	%	-	-	19.8	-	-
Sales Workers	%	-	-	8.2	-	-
Machinery Operators and Drivers	%	-	-	5.6	-	-
Labourers	%	-	-	8.9	-	-
Inadequately Described/Not Stated	%	-	-	1.8	-	-
FAMILIES - Census 2006						
Total families	no.	-	-	9 361	-	-
ACCESS TO INTERNET AT HOME: PROPORTION OF OCCUPIED PRIVATE DWELLINGS - Census 2006						
Total internet connections	%	-	-	65.4	-	-
WAGE AND SALARY EARNERS BY SEX - year ended 30 June						
Males - Total	no.	8 846	9 190	9 480	9 672	-
Females - Total	no.	8 381	8 755	9 071	9 383	-
Persons - Total	no.	17 227	17 945	18 551	19 055	-
WAGE AND SALARY EARNERS BY OCCUPATION - year ended 30 June						
Managers and Administrators	no.	1 127	1 200	1 327	1 274	-
Professionals	no.	2 532	2 696	2 851	3 042	-
Associate Professionals	no.	1 188	1 309	1 399	1 474	-
Tradespersons and Related Workers	no.	1 550	1 636	1 688	1 689	-
Advanced Clerical and Service Workers	no.	424	388	393	399	-
Intermediate Clerical, Sales and Service Workers	no.	3 140	3 274	3 418	3 409	-

Intermediate Production and Transport Workers	no.	957	980	1 009	997	-
Elementary Clerical, Sales and Service Workers	no.	1 630	1 674	1 641	1 622	-
Labourers and Related Workers	no.	1 258	1 278	1 331	1 353	-
Not Stated	no.	3 422	3 509	3 493	3 796	-
Total wage and salary earners	no.	17 228	17 944	18 550	19 055	-
Number of Businesses by Industry - at 30 June						
Agriculture, forestry and fishing	no.	96	96	99	102	-
Mining	no.	3	3	3	3	-
Manufacturing	no.	183	195	213	207	-
Electricity, gas and water supply	no.	0	0	3	3	-
Construction	no.	672	663	663	714	-
Wholesale trade	no.	72	72	60	54	-
Retail trade	no.	234	225	240	267	-
Accommodation, cafes and restaurants	no.	78	75	75	87	-
Transport and storage	no.	183	201	198	195	-
Communication services	no.	33	30	27	30	-
Finance and insurance	no.	90	108	111	129	-
Property and business services	no.	513	513	540	573	-
Education	no.	24	24	18	15	-
Health and community services	no.	72	78	78	90	-
Cultural and recreational services	no.	51	51	51	45	-
Personal and other services	no.	75	78	78	84	-
Total businesses	no.	2 379	2 412	2 457	2 598	-
Industry		2004	2005	2006	2007	2008
BUILDING APPROVALS - year ended 30 June						
Private sector houses	no.	191	144	134	86	71
Total dwelling units	no.	354	433	398	290	176
Value of private sector houses	\$m	40.9	36.1	28.1	21.9	19.3
Value of new residential building	\$m	58.4	83.1	56.2	62.9	33.0
Value of total residential building	\$m	64.7	87.5	61.7	69.1	40.1
Value of total non-residential building	\$m	13.9	9.7	35.9	65.1	9.4
Value of total building	\$m	78.6	97.1	97.6	134.2	49.6
Average value of private sector houses	\$'000	214.6	250.9	210.2	254.1	271.9
MOTOR VEHICLE CENSUS - REGISTERED MOTOR VEHICLES - at 31 March						
Total registered motor vehicles	no.	24 289	25 500	26 326	27 414	29 512
GROSS VALUE OF AGRICULTURAL PRODUCTION * - year ended 30 June						
Gross value of crops	\$m	-	-	0.1	-	-
Gross value of livestock slaughterings	\$m	-	-	0.2	-	-
Gross value of livestock products	\$m	-	-	0.2	-	-
Total gross value of agricultural production	\$m	-	-	0.4	-	-
AGRICULTURAL COMMODITIES * - year ended 30 June						
Total number						
Sheep and lambs	no.	-	-	6 824	-	-
Milk cattle (excluding house cows)	no.	-	-	0	-	-
Meat cattle	no.	-	-	1 138	-	-
Pigs	no.	-	-	0	-	-
* Agricultural commodities and value of production data is subject to relative standard error (RSE) - for further information see ABS cat no. 7125.0						

Source: www.abs.gov.au

Appendix 13 Definitions

NOTE: The definitions used in this plan are sourced from the State Emergency and Rescue Management Act, 1989 (as amended), other New South Wales legislation, and The Macquarie Dictionary (Second Edition, 1991). Where possible, the reference source is identified as part of the definition (e.g. The State Emergency and Rescue Management Act, 1989 (as amended) is identified as SERM Act).

Act

Means the State Emergency and Rescue Management Act, 1989. (As amended / SERM Act).

Agency

Means a government agency or a non-government agency.

Annual Expedience Probability

The chance of an event (typically a flood) of a given or larger size occurring in any one year. Usually expressed as a percentage, e.g. 1 chance in 100 per year or 1% AEP.

Combat Agency

Means the agency identified in the State Disaster Plan as the agency primarily responsible for controlling the response to a particular emergency. (Source: SERM Act).

Disaster

Means an occurrence, whether or not due to natural causes, that causes loss of life, injury, distress or danger to persons, or loss of or damage to property.

DISPLAN

In this plan means the Local Disaster Plan for Lake George Emergency Management Area. The object of DISPLAN is to ensure the co-ordinated preparation for, response to and recovery from emergencies by all agencies having responsibilities and functions in emergencies.

District Emergency Management Committee (DEMC)

Means the Committee, constituted under the State Emergency & Rescue Management Act, which at the District level is responsible for the preparation and maintenance of plans in relation to the prevention of, preparation for, response to and recovery from emergencies in the District, including the District DISPLAN. In the exercise of its functions, this committee is responsible to the State Emergency Management Committee (SEMC).

Emergency

Means an emergency due to an actual or imminent occurrence (such as a fire, flood, storm, earthquake, explosion, accident, epidemic or warlike action) which:

- Endangers, or threatens to endanger, the safety or health of persons or animals in the State; or
- Destroys or damages, or threatens to destroy or damage, any property in the State, being an emergency which requires a significant and co-ordinated response. (Source: SERM Act).

Emergency Risk Management

A systematic process that produces a range of measures that contributes to the well being of communities and the environment.

Emergency Risk Management Working Group

A subcommittee to the relevant emergency management committee established to undertake the emergency risk management process.

Environment

Conditions or influences comprising social, physical and built elements, which surround and interact with the community.

Functional Area

In this plan means a category of services involved in preparations for an emergency, including:

- Agriculture and animal services
- Communication services
- Engineering services
- Environmental services
- Health services
- Transport services
- Utility & Energy Services
- Welfare services
- Media services.

Hazard

A source of potential harm or situation with a potential to cause loss.

Lifeline

A system or network that provides services on which the well-being of the community depends.

Likelihood

A qualitative description of probability and frequency.

Local Government Area

In this plan means a local government area within the meaning of the Local Government Act, 1993 (as amended), or combination of local government areas as referred to in Section 27 of the State Emergency and Rescue Management Act, 1989 (as amended).

Local Emergency Management Committee (LEMC)

In this plan means the Committee, constituted under the SERM Act, which is responsible for the preparation and maintenance of plans in relation to the preparation for, response to and recovery from emergencies in the local government area, for which it is constituted. In the exercise of its functions, this committee is responsible to the relevant District Emergency Management Committee.

Local Emergency Management Officer (LEMO)

In this plan means the person, appointed by Council under the Act to act as Principal Executive Officer to the LEMC and the Local Emergency Operations Controller for emergencies affecting that particular local area.

Local Emergency Operations Controller (LEOCON/ EOC)

Means a Police Officer appointed by the District Emergency Operations Controller as the Local Emergency Operations Controller for the Local Government Area.

Mitigation

Measures taken in advance of a disaster aimed at decreasing or eliminating its impact on society and environment.

Risk Analysis

A systematic use of available information to determine how often specified events may occur and the magnitude of their likely consequences (In emergency risk management the systematic use of available information to study risk).

Risk Treatment Options

Measures that modify the characteristics of hazards, communities or environments.

Appendix 14 Abbreviations

ABRS	Border Rescue Squad
AMSA	Australian Maritime Safety Authority
ARP	Alarm Response Protocol
ASNSW	Ambulance Service of New South Wales
ATSB	Australian Transport and Safety Bureau
CASA	Civil Aviation Safety Authority
DECC	Department of Environment and Climate Change
DEMO	District Emergency Management Officer
DEOCON	District Emergency Operation Controller
DISPLAN	Disaster Plan
DLWC	Department of Land and Water Conservation
DOCS	Department of Community Services
DI&I or NSW I&I	Department of Industry & Investment NSW
IESOPs	Incident Emergency Standard Operating Procedures (Police)
EOC	Emergency Operations Centre
EOCON	Emergency Operations Controller
GSAHS	Greater Southern Area Health Service
HAZMAT	Hazardous Materials
LDCC	Local Disease Control Centre
LEMC	Local Emergency Management Committee
LEMO	Local Emergency Management Officer
LEOCON/ EOC	Local Emergency Operations Controller
LGA	Local Government Area
LHPA	Livestock Health and Pest Authority
MAA	Mutual Aid Agreement
MOU	Memorandum of Understanding
NSWFB	New South Wales Fire Brigade
NSWPF	New South Wales Police Force
NSWRFS	Rural Fire Service
RTA	Road Transport Authority
SEMC	State Emergency Management Committee
SERM ACT	State Emergency & Rescue Management Act, 1989 (as amended)
SES	State Emergency Service
SOGs	Standard Operating Guidelines
USAR	Urban Search and Rescue