



2009

COMMUNITY EMERGENCY RISK MANAGEMENT



Version 1.0.0
City of Cockburn
9 November 2009

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-
- Australian Rail Group (ARG)
 - Australian Red Cross
 - City of Cockburn (COC)
 - Cockburn Sea Search & Rescue
 - Community Development Groups
 - Department for Child Protection (DCP)
 - Department of Environment & Conservation (DEC)
 - Fire and Emergency Services of Western Australia (FESA)
 - Fremantle Hospital
 - Fremantle Port Authority
 - Jandakot Airport Holdings
 - Local Business & Commercial Organisations
 - Major industry groups
 - Neighbourhood Watch
 - Local Government:
 - City of Armadale
 - City of Gosnells
 - City of Melville
 - City of Canning
 - City of Fremantle
 - Town of Kwinana

- Participating Aged Care Centres
- Participating Child Care Centres
- Participating Primary and Senior High Schools
- Participating Religious Organisations
- State Emergency Services (SES)
- St John's Ambulance
- Public Transport Authority
- Western Australia Police (WAPOL)
- WestNet Rail

A special thanks to the City of Cockburn and to the LGIS Risk Management Team who's Emergency Risk Management expertise in developing this plan, was invaluable.

DEFINITIONS

These definitions may vary from those contained in the Australian/New Zealand Risk Management Standard AS/NZS 4360:2004 as they refer specifically to an emergency context.

AS/NZS 4360:2004	The Australian/New Zealand Standard for risk management. This standard forms the basis for emergency risk management process
Built Environment	Elements of physical construction within a community
Communication	The process of conveying information. It requires someone to generate the message and someone to receive it. It is important to all phases of the emergency risk management process
Community	A group with a commonality of association and generally defined by location, shared experience, or function
Community Safety	As used in this document, refers to community safety in the broadest sense and is not confined to crime prevention and law enforcement issues
Consequence	The outcome of an event or situation expressed qualitatively. In the emergency risk management context, consequences are generally described as the effects on persons, society, the environment and the economy
Data	Known facts used for inference or reckoning. Data is acquired by measurement or collection
Emergency	An event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which requires a significant and coordinated response
Emergency Planning	The process that documents how a community or group intends to deal with emergencies. It should be linked to other planning arrangements
Emergency Risk Management	A systematic process that produces a range of measures which contribute to the wellbeing of communities and the environment. The process considers the likely effects of hazardous events and the measures by which they can be minimised
Emergency Risk Management Project Team	The group charged with the responsibility for managing the emergency risk management project
Environment	Conditions or influences comprising social, physical, biological and built elements, which surround or interact with a community
Hazard	A situation or condition with potential for loss or harm to the community or environment
Hazard Management Agency	The organisation responsible for ensuring that all emergency management activities pertaining to the prevention of, preparedness for, response to and recovery from, a specific hazard are undertaken.
Incident	An Emergency, which impacts upon a localised community or geographical area but not requiring the co-ordination and significant multi-agency emergency management activities at a district or state level
Information	Knowledge, characteristics and features derived by analysis of data
Level of Risk	An expression of the severity of a risk derived from consideration of likelihood and consequence
Likelihood	Used as a qualitative description of probability or frequency based on the description of hazards, and the degree of vulnerability of the community and environment
Mitigation	Measures taken in advance of, or after, an emergency aimed at decreasing or eliminating its impact on society and environment
Monitor	To check, supervise, observe critically, or record the progress of an activity, action or system on a regular basis in order to identify change

Preparedness	Measures to ensure that, should an emergency occur, communities, resources and services are capable of coping with the effects
Prevention	Measures to eliminate or reduce incidence or severity of emergencies
Recovery	Measures which support emergency-affected individuals and communities in the reconstruction of the physical infrastructure and restoration of emotional, economic, environmental and physical well being
Response	Measures taken in anticipation of, during and immediately after an emergency to ensure its effects are minimised
Risk	A concept used to describe the likelihood of harmful consequences, arising from the interaction of hazards, community and the environment
Risk Management	The systematic application of management policies, procedures and practices to the task of identifying, analysing, evaluating, treating and monitoring risk.
Risk Analysis	The systematic use of available information to study risk
Risk Avoidance	An informed decision not to become involved in a risk situation
Risk Identification	The process of determining what can happen, why and how
Risk Register	A document usually presented in a tabular form that lists concisely the following information for each risk: the name of hazard, the name of the vulnerable element, the risk statement, and the levels of the likelihood and consequence
Risk Statement	A statement that identifies the relationship between the source (hazard) and element (community and environment) at risk
Treatment Options	Mitigation measures which modify the characteristics of hazards, communities and environments
Vulnerability	The susceptibility and resilience of the community and the environment to hazards.

ABBREVIATIONS

COC	City of Cockburn	LEMC	Local Emergency Management Committee
DCP	Department for Child Protection	LG	Local Government
DEC	Department of Environment and Conservation	LG-BFS	Bush Fire Service
DEMC	District Emergency Management Committee	LG-SES	State Emergency Service
DOC	Department of Commerce	MOU	Memorandum of Understanding
EM	Emergency Management	MRD	Main Road Department
EMWA	Emergency Management WA	NGO	Non Government Organisation
ERM	Emergency Risk Management	OIC	Officer in Charge
FESA	Fire and Emergency Services Authority of WA	SEMC	State Emergency Management Committee
FESA-FRS	Fire and Rescue Service	SOP's	Standing Operating Procedures
HMA	Hazard Management Agency	SWOT	Strengths; Weaknesses; Opportunities; Threats
LEMA	Local Emergency Management Arrangements	WAPOL	Western Australia Police

DISTRIBUTION LIST

The following controlled copies of the City of Cockburn Emergency Management Arrangements have been issued to the Positions / Agencies indicated. These are the ONLY copies of the document which will receive amendments as part of the Document Control System. The Agencies listed are responsible for amending any copies made under internal arrangements. The City of Cockburn web-site contains the latest version containing all current amendments.

Copy Number	Position of Holder	Functional Group	Organisation
1	Mayor	Chairperson COC LEMC	City of Cockburn
2	Chief Executive officer	City of Cockburn	City of Cockburn
3	Ranger & Community Services Manager	Executive Officer COC LEMC	City of Cockburn
4	Coordinator Safety & Security	COC LEMC	City of Cockburn
5	City of Cockburn Library	City of Cockburn	City of Cockburn
6 - 8	Cockburn; Murdoch & Hilton Police Representatives	COC LEMC	WA Police
9 - 10	Perth & Fremantle FESA Representatives	COC LEMC	FESA
11 - 12	WA State Emergency Services – Cockburn & Metropolitan	COC LEMC	City of Cockburn
13	Health Representative	COC LEMC	Dept. of Health
14	Hospital Representative	COC LEMC	Fremantle Hospital
15	Community Development Representative	COC LEMC	Dept. of Community Development
16	Jandakot Airport Representative	COC LEMC	Jandakot Airport Holdings
17	Sea Search & Rescue Representative	COC LEMC	Cockburn Sea Search & Rescue
18 - 22	City of Armadale; Melville and Fremantle; Town of Kwinana and Shire of Serpentine	COC DEMC	Local Government
23	Australian Red Cross Representative	COC LEMC	Australian Red Cross
24	Ambulance Service Representative	COC LEMC	Ambulance Service
25	Fremantle Port Representative	COC DEMC	Fremantle Port Authority
26	Water Corporation	COC SEMC	Water Corporation
27	Environment Representative	COC LEMC	Dept. of Environment
28	Child Protection Representative	COC LEMC	Dept. for Child Protection
29	State Emergency Management Unit		State Emergency Management
30	Telstra		Telstra

1 EXECUTIVE SUMMARY

The Fire and Emergency Services Authority (FESA) created its All West Australians Reducing Emergencies (AWARE) program in 2002, in some part to assist local governments to develop or upgrade community capabilities to prepare for, combat and recover from emergencies. This project would not have occurred but for the impetus and funding that the AWARE program provides.

The AWARE program enables local governments to identify manmade and natural hazards and risks within their communities and develop appropriate treatment options through the emergency risk management process. Only local governments within Western Australia are eligible to apply for funding from the program. Whilst it is acknowledged that The City of Cockburn has existing Local Emergency Management Arrangements in place, the intent of this project was to provide an opportunity to update those arrangements and related documents in keeping with the changing demography in the community.

In 2007 the City of Cockburn made an application to FESA's AWARE program for a grant of \$30,000 to undertake a risk management assessment of its city and surrounding districts. Formal notice of the successful grant application was received in September 2008.

The key study objective was to explore ways in which the incidence and impact of hazards and risks within the City of Cockburn community could be reduced. Following the Australian Standard for Risk Management AS/NZS 4360:2004 a robust risk process was adopted to identify the hazards and risks facing the community, assess the vulnerability of those community elements at risk and provide options, treatments and strategies to mitigate the risks and enhance opportunities for resource sharing between neighbouring councils. Due to the community's growth and evolution, current risks within the community will alter and new risks may be generated, with some risks presenting a sense of uncertainty, the risk management process allows analysis adjustments to be made through constant monitoring and review.

An initial meeting to discuss the project and identify a suitably qualified Risk Management Service Provider was held at The City of Cockburn on 17th July 2009. From those discussions Local Government Insurance Services (LGIS) was selected and formally appointed to undertake the Community Emergency Risk Assessment on behalf of The City of Cockburn and to co-develop the Emergency Risk Management Assessment for the City of Cockburn in accordance with The Emergency Management Act 2005, Australian Standards and FESA guidelines.

In order to ascertain community perceptions, a survey was developed for distribution to residents within the City of Cockburn, refer **Appendix 1** accompanied by an explanatory covering letter, refer **Appendix 2**. On 1st August 2009, 1550 surveys were distributed by mail to randomly selected residents advertising an incentive to complete and return the survey by 18th August 2009. Survey receipt however was slow and therefore close off was extended until 8th September 2009. The survey results are contained within the Community Survey Report 2009, refer **Appendix 3**.

The ratio of surveys to each City of Cockburn suburb was based on the respective population and localized topography. The level of response (171 or 11.0% collectively), was slightly higher than the expected 5-8% response rate, which is a reflection of the level of concern for community welfare and interest in emergency management outcomes within the community. Local Community newspapers and the City of Cockburn's website were utilised to promote the process with residents before the survey was mailed out, whilst the City's monthly resident Soundings newsletter was used to include the survey.

For the City of Cockburn's key stakeholders, community groups, associations, commercial businesses and industry, an initial telephone contact was made to determine participation followed by either a person to person consultation or the provision of completing an on-line interactive survey. In addition to the residential survey mail out a further 114 contacts were achieved with 22 consultative interviews conducted. All survey data was subsequently recorded in a Community Emergency Management System software database (CEMS).

Combining the results from the community survey, interview results with key community stakeholders, LEMC members and localized community knowledge from the City of Cockburn, 119 risks were initially identified. Each risk was then separated into 17 Risk Sources (Community Hazards), assessed against 7 community elements (Economy, Environment, Industry, Infrastructure, People, Property, Social & Cultural) and compiled into a Preliminary Risk Register, refer **Appendix 4**, pending further risk assessment.

On Monday 5th and Tuesday 6th October 2009 a two day Community ERM Workshop was conducted for LEMC Members and Community Members/Residents that had previously registered an expression of interest to attend. Although additional key community members were invited final attendance did not reach the anticipated expectation, regardless valuable information was attained from the attending LEMC / Community Members.

The workshop was divided into 5 key workbook activities; Risk Identification; Risk Impact; Risk Rating; Risk Treatment and Risk Strategy, refer **Appendices 5 – 9** respectively accompanied by historical and factual hazard data. Robust and varied discussion ensued between all participating workshop attendees generating helpful information that was collected, collated and real time recorded into CEMS.

Generic statements were used to simplify the risk rating process which after later consolidation, refer **Appendix 10** and cross referencing with the Preliminary Risk Register formed the basis for the Master Risk Register, refer **Appendix 11**. To ensure the broadest range of LEMC and key stakeholder involvement was achieved a specifically designed ERM workbook was subsequently developed and distributed to 43 recipients for professional and expert assessment, review and feedback, refer **Appendix 12**. However, only two workbooks were returned albeit with limited information.

Nonetheless, from information previously obtained from received community surveys, LEMC member interviews, the LEMC/community workshop, researched historical and factual hazard data, localized community knowledge as provided by the City of Cockburn and its residents and LGIS' Risk Management expertise Risk Treatment Plans and Risk Strategy Plans were developed, refer **Appendices 13 – 14** respectively. These plans now form a critical part of this ERM Project Report 2009 and the future enhancement of the City of Cockburn's Local Arrangements.

Given the combination of the City of Cockburn's topography, developing infrastructure, the growing industrial and commercial centres, residential coastal development and the socio demographic trends the City of Cockburn faces arguably more potential natural disasters than most other metropolitan councils. In addition, there is an increasing incidence of vulnerable populations and social hazards in the community, therefore, the City of Cockburn has responded to the importance in the development of the City of Cockburn's Community Emergency Risk Management Plan and made it a priority activity.

Being modelled against the AS/NZS 4360:2004 and the FESA Community Emergency Risk Management Model, The City of Cockburn's Community Emergency Risk Management Plan, has created a transparent and auditable methodology in the identification, analysis, evaluation, treatment and prioritisation of community based hazards and risks. The City of Cockburn recognises that this process relies on continuous community consultation and is committed to making this plan available to the community.

2 INTRODUCTION

Australia faces a range of natural and manmade hazards, which have the potential to threaten life, cause injury, damage property and the environment. Under the residual powers of the Australian Constitution, the States/Territories Governments are responsible for measures to manage these hazards, whilst the Commonwealth provides assistance and coordinates federal resources, including Defence Force resources, in support of the requesting State / Territory. The Commonwealth also provides the forum where State / Territories can share methodologies and develop principles for the management of hazards.

Each State / Territory has established its particular arrangements to manage emergencies and have enacted Legislation to give effect to these arrangements. In Western Australia, the Emergency Management Act was proclaimed on the 24th of December 2005. Prior to this, a number of "SEMC Policies" were in place under the authority of a Cabinet Minute, which have been incorporated into the new Act and the ongoing Regulations under development.

The City of Cockburn Local Emergency Management Arrangements was prepared under the authority of the Emergency Management Act 2005. The Arrangements were developed by the Executive Officer of the Local Emergency Management Committee (LEMC) and are currently under final review. The document will then be tabled for approval by the Council of the City of Cockburn prior to being submitted for comment and endorsement by the District Emergency Management Committee (DEMC) and further lodgment with the Executive Officer of the State Emergency Management Committee (SEMC).

The aim of the Emergency Management Arrangements is to make provision for:-

- **Prevention of**
- **Preparedness for**
- **Response to**
- **Recovery from**

Any emergency affecting the City of Cockburn Community, be they Resident or Transient.

An **Emergency** is an event, combination of circumstances or the resulting state that requires a significant and coordinated multi agency assisted approach. Events may include floods, bushfires, cyclones, and the consequences of acts of terrorism or the release of hazardous materials. The situations are characterized by the scope of their impact and effects. As larger emergency situations do not occur very often, there can be a lack of coordinated preparedness.

Emergency Management (EM) is the incorporation of a wide range of measures to manage risks that may occur to, or in the community and environment. These risks can cover diverse fields from community development to emergency situation recovery. Management can be implemented through a variety of methods such as legislation, regulation and education. The aim of EM is to strengthen communities by ensuring they are safe, sustainable and resilient against emergency situations. This includes avoiding or minimizing emergencies and recovering from their effects.

Emergency Risk Management (ERM) deals with risks to the community arising from emergency events. It is a systematic method for identifying, analyzing, evaluating and treating emergency risks. This process is based on the Australian New Zealand Standard AS/NZS 4360:2004 and incorporates risk treatments in **Prevention Preparedness Response and Recovery (PPRR)**, as defined below:

Prevention	Regulatory and physical measures to ensure that risks are minimized, emergencies are prevented or their effect mitigated
Preparedness	Emergency management arrangements to ensure that communities are informed and all resources / services can be rapidly mobilized and deployed.
Response	Actions undertaken immediately prior to, during and immediately after an emergency impact to ensure that its effects are minimized.
Recovery	Arrangements to ensure that a community is restored to normal within the shortest period practicable

Benefits of an established ERM plan include:

- Establishment of a decision-making process.
- Focus on reducing and/or managing the risk rather than primarily on response and recovery.
- Engaging a wide range of individuals and communities.
- Promoting partnerships and enhancement of relationships.
- Fostering resource sharing and mutual aid arrangements.
- Providing auditable and credible means of reducing risk.
- Using a language that is common to decision-making in both the public and private sectors.

These arrangements apply to all areas within City of Cockburn boundaries as defined by the Local Government Act

The Act is divided into Ten Parts, which cover:

1. Preliminaries
2. State Arrangements
3. Local Arrangements
4. Hazard Management
5. State of Emergency
6. Emergency powers
7. Compensation & Insurance
8. Offences (under the Act)
9. Employment Protection
10. Miscellaneous (provisions)

It is an Act, which has benefited from the experiences of other States / Territories in Australia. It provides for a clear EM Structure and has assigned specific roles to Departments / Agencies and Authorities, designated as either Hazard Management Agencies (HMA) or Support Agencies, and of course to Local Government.

The **RECOVERY** function has been specifically assigned to Local Government and these arrangements will include a Recovery plan for the City. The most important provision however lies in the requirement to have Emergency Management Arrangements documented, approved, tested and regularly reviewed.

The Act establishes a structure of Emergency Management Committees at three levels:

1. State Level (SEMC)
2. District Level (DEMC)
3. Local Level (LEMC)

These Emergency Management Committees are composed of key stakeholders at each level, who have an emergency management function. The Committees are required to furnish annual reports to SEMC on EM activities, including the number of plans produced and exercises conducted. They must also provide Post Operative Reports on any major emergencies which have occurred.

State Emergency Management Committee (SEMC)

This is the peak body for emergency management policy under the Act. It does not have an “operational role”. It has the following broad functions:

1. Prepare and promulgate Regulations under the Act.
2. Approve State Level Plans (WESTPLANS) prepared by Hazard Management Agencies.
3. Prepare and promulgate EM Policy (SEMC Policies).
4. Approve Plans submitted from District level.

State Emergency Coordination Group (SECG)

The SECG is the operational forum of the SEMC and is chaired by the State Emergency Coordinator, the Commissioner of Police. It is responsible for the Strategic Direction of the State’s EM response and reports to the State Disaster Council should a “state of emergency” be declared.

Subcommittees

The SEMC may establish such subcommittees as it thinks fit to advise the SEMC on any aspect of its functions or to assist with any matters relevant to the performance of its functions. The SEMC has established the following subcommittees:

- Emergency Services Subcommittee (ESS)
- Health Services Subcommittee (HSS)
- Lifelines Services Subcommittee (LSS)
- Public Information Group (PING)
- Recovery Services Subcommittee (RSS)
- State Mitigation Committee (SMC)

District Emergency Management Committee (DEMC)

The State is divided into EM Districts (coincidental with Police Districts and Local Government boundaries). Each District has an EM Committee, which has responsibility to:

1. Provide advice and support to Local Committees
2. Make appropriate EM arrangements for the District.

There are 6 Districts within the Perth Metropolitan Area each with a DEMC. In order to ensure coordination within these Districts, a Metropolitan Committee has also been established.

Local Emergency Management Committee (LEMC)

The LEMC is the focal point for Emergency and Risk Management arrangements in the Community. Committees are based on Local Government Authority (LGA) boundaries and the Act provides for two or more Local Governments to combine for EM purposes. In particular, LEMC have the prime responsibility for the documentation, testing and maintenance of the Community’s EM Arrangements.

Hazard Management Agency (HMA)

The Act provides for the nomination of Departments, Agencies & Authorities to be the Hazard Management Agency (HMA) for particular threats. By definition, a HMA is responsible for ensuring that measures are taken for the PPRR process. HMA’s are selected in light of their particular expertise, resources or legislative responsibility. Each HMA can devolve responsibility for actually carrying out part of the PPRR process to another Authority, provided this is done by mutual agreement and the approval of the SEMC.

The **RECOVERY** function is a partnering responsibility of the Department of Premier & Cabinet and Local Government; however, under the terms of the EM Act and SEMC Policy Statement 2.5, Local Government is identified as the most suited to manage community recovery operations. This is dependent on the level of local hazard impact and the ability at local level to effectively respond to community needs.

WESTPLANS

At the State level, the Emergency Risk Analysis for the State of Western Australia has identified a number of Hazards, which will require Emergency Management. These in turn have been assigned to HMA’s. These Agencies, usually Government Departments, are required to prepare the State Level Plan for the particular hazard. These are known as WESTPLANS (followed by the name of the hazard or function) and they establish the following:

1. The Responsible Agency
2. The Aim, Scope and Objectives of the Plan
3. Activation Arrangements
4. The Roles & Responsibilities of Participating Organisations.
5. The Operational Structure
6. The Interface with Support Plans

Current WESTPLANS are listed below, refer Figure 1.

SEMC Policy Statements

Prior to the promulgation of the Emergency Management Act 2005, the SEMC prepared Policy Statements on various topics for use in WA. These are being progressively reviewed and deleted, amended or incorporated into other Policy Statements. Some remain current and are of particular interest to Local EM Arrangements. Further details on these SEMC Policy Statements and their currency can be found on the main Fire and Emergency Services Authority (FESA) website: <http://www.fesa.wa.gov.au/internet/default.aspx?MenuID=286>

Figure 1 - WESTPLANS and HMA

HAZARD	RESPONSIBLE AGENCY	WESTPLAN LINK
Air transport emergencies	WA Police Service	Aircrash (2005)
Animal and Plant Biosecurity	Department of Agriculture and Food	Animal and Plant Biosecurity (2008)
CBRN	Fire and Emergency Services Authority	RESTRICTED
Collapse	Fire and Emergency Services Authority	Collapse (2008)
Dam break	Water Corporation	Dambreak (2004)
Earthquake	Fire and Emergency Services Authority	Earthquake (2003)

HAZARD	RESPONSIBLE AGENCY	WESTPLAN LINK
Fire (wildfire/bush fire)	Fire and Emergency Services Authority/Dept. of Conservation & Land Management/Local Govt.	Bushfire (2005)
Fire (urban)	Fire and Emergency Services Authority	Urban Fire (2000)
Flood	Fire and Emergency Services Authority	Flood (2004)
Fuel Shortage Emergencies	Department of Commerce	<i>Not available - currently under review</i>
Hazardous Materials Emergencies (including radioactive materials)	Fire and Emergency Services Authority	HAZMAT (2005)
Human epidemic	Department of Health	Human Epidemic (2008)
Land search and rescue	WA Police Service	Land SAR (2007)
Marine oil pollution	Department for Planning and Infrastructure	Marine Oil Pollution Plan (2006)
Marine transport emergencies	Department for Planning and Infrastructure	Marine Transport Emergencies (2007)
Nuclear-powered warships	WA Police	Restricted
Road transport emergencies	WA Police	Road Crash (2008)
Sea search and rescue	WA Police	Marine SAR (2008)
Space re-entry debris	WA Police	Space Debris (2001)
Storm/tempest	Fire and Emergency Services Authority	Storm (2004)
Tropical cyclone	Fire and Emergency Services Authority	Cyclone (2007)
Tsunami	Fire and Emergency Services Authority	Tsunami (1999)
Rail Freight Emergencies	Westnet Rail	Westnet Rail 2008

SUPPORT PLANS

SUPPORT FUNCTION	RESPONSIBLE AGENCY	WESTPLAN LINK
Health support	Department of Health	Westplan Health(2007)
Isolated communities freight subsidy	Fire and Emergency Services Authority	Freight Subsidy Plan (1999)
Public information support	SEMC Public Information Group	Public Information (2008)
Registration and inquiry support	Department for Community Development	Registration and Inquiry (2003)
State Recovery Coordination	Department of the Premier and Cabinet	Recovery (2008)
Telecommunications support	Fire and Emergency Services Authority	Telecommunications (2005)
Welfare support	Department for Child Protection	Welfare 2009

SPECIAL PLANS

SPECIAL FUNCTION	RESPONSIBLE AGENCY	WESTPLAN LINK
Reception of overseas casualties support	Department for Child Protection	Reception 2003

The WA Emergency Management Act 2005 requires all local governments to develop local emergency arrangements for each identified Hazard pertaining to their respective communities.

3 PROJECT PLAN**3.1 PURPOSE**

The project aims to identify emergency risks unique to the City of Cockburn and develop and / or identify treatments to prevent or mitigate these risks.

3.2 OBJECTIVES

- To initiate and maintain communication, consultation and participation throughout the project
- Develop and use the project management plan as a guide to producing the ERM project
- To identify and form an emergency risk management working group
- Identify risks associated with the hazards and elements of the environment affected by the hazards within the City of Cockburn
- To analyze the risks identified and develop a risk register
- To evaluate the risks identified via an evaluation criteria
- To determine and evaluate treatment options for identified risks
- To establish and maintain timeframes to ensure steady project process and eventual completion
- Establish continual performance monitoring and review processes

3.3 SCOPE

The ERM project focuses on elements in the environment that are susceptible to emergency situations; the scope of the project incorporates the whole geographical area of the City of Cockburn, including the following suburbs

• Atwell	• Jandakot
• Aubin Grove	• Leeming
• Banjup	• Munster
• Beeliar	• North Coogee
• Bibra Lake	• North Lake
• Cockburn	• South Lake
• Coogee	• Spearwood
• Coolbellup	• Success
• Hamilton Hill	• Wattleup
• Hammond Park	• Yangebup
• Henderson	

3.4 PROJECT AUTHORITY

The authority for the conduct of the process was given by the City of Cockburn Local Emergency Management Committee and endorsed by The City of Cockburn.

3.5 TIME FRAME

The project commenced in June 2009 and completed on 30 October 2009 in accordance with an agreed project schedule, refer **Appendix 15**.

3.6 FUNDING

The City of Cockburn applied for and received project funding in 2007/2008 via the All West Australians Reducing Emergencies (AWARE) program established by the Commonwealth Government.

The aim of the program was to encourage Western Australian local governments to participate in emergency risk management planning. The program is coordinated and funded by FESA and Emergency Management Australia (EMA) respectively.

The AWARE funding enabled the employment of LGIS Risk Consultants to commence the ERM project and document the process respectively



4 BACKGROUND

Western Australia is subject to a wide variety of hazards that have the potential to cause loss of life and/or damage and destruction. These hazards result from natural, technological and biological events. Effective emergency management arrangements enhance the community's resilience against, and preparedness for, emergencies through strategies that apply prevention/mitigation, preparedness, responses and recovery activities.

Local governments are the closest level of government to their communities and have access to specialised knowledge about environment and demographic features of their communities. Local governments also have specific responsibilities for pursuing emergency risk management as a corporate objective and as part of conducting good business. Local Government Insurance Services (LGIS) is committed to assisting and supporting local government to develop and implement a Community Emergency Risk Management (ERM) Process.

LGIS will produce a range of risk treatment measures that will address the emergencies that are likely to occur and contribute to the wellbeing of communities and the environment. This process is based on stakeholder consultation and participation. The Community ERM process is the first step towards developing effective community emergency management arrangements.

5 COMMUNITY PROFILE

5.1 TOPOGRAPHY

5.1.1 Characteristics

The City of Cockburn is located 22km to the south of Perth and 8km south of Fremantle. It stretches from the coast inland by 14km and has a total area of 14,800ha.

The major transport artery of the City is the Kwinana Freeway running from north to south. Other major regional roads include Stock Road; Rockingham Road; Cockburn Road; North Lake Road and Roe Highway. Stock Road, which runs north - south, is the major route for large haulage trucks travelling from the southern districts through to Fremantle Port.

The south-eastern section of the City is serviced by the Perth - Mandurah passenger rail link that includes a commuter station at Cockburn Central whilst to the west lays a coastal freight line that runs from Fremantle Port - Cockburn South.

The City of Cockburn is dominated by a chain of wetlands running north-south through the centre which contains a diverse mix of land uses, ranging from agricultural uses including the historical use of market gardens, industry, residential and commercial.

The City is growing rapidly. It currently has a population of approximately **84,652**, which is expected to grow to more than 100,000 by the year 2010.

The majority of the City's population live in the older established areas, but residential development is also progressing rapidly in the eastern half of the City and along the coastline.

An estimate of the population in each of the City's twenty one suburbs is given in Table 1 on the next page.

Table 1

Suburb	Estimated Population
Atwell	4,051
Aubin Grove	Under Development
Banjup	1,277
Beeliar	2,532
Bibra Lake	5,635
Cockburn Central	Under Development
Coogee	4,015
Coolbellup	5,872
Hamilton Hill	10,743
Hammond Park	Under Development
Henderson	98

Suburb	Estimated Population
Jandakot	2,437
Leeming	2,501
Munster	3,477
North Coogee	Under Development
North Lake	1,012
South Lake	5,778
Spearwood	9,859
Success	1,324
Wattleup	1,555
Yangebup	6,283

5.1.2 Landforms and Landscapes

The landform of the City of Cockburn ranges from sandy beaches to limestone ridges and relict dunes interspersed by a series of wetlands aligned parallel to the coast. Further inland the landform is gently undulating with low-lying areas dominated by wetland systems. This is summarised in Table 2, which details the topography of the City.

Table 2

Coastal Landscapes	Consists of undulating dunes close to the coast which are generally devoid of tall vegetation except in the residential/industrial areas. Most of the heritage sites within the City occur within the coastal landscape. This landscape offers a number of panoramic views from existing roads.
Interdunal Areas	Consists of residential, commercial, industrial, market gardens and open space areas in areas between dune ridges. The remaining bushland is generally tall open forests of Tuart-Jarraah-Marri. This landscape offers some panoramic views from existing roads.
Wetland Landscapes	Wetland areas including surrounding residential, industrial or parkland areas. The native vegetation generally Flooded Gum Woodlands and other wetland species.
Bushland Plains	Generally rural land use with open paddocks, some residential, special use or public open space areas. Bushland areas include Low Open Forests of <i>Banksia</i> -Sheoak-Pricklybark or Heath.

The landscape character of an area results from a combination of all the physical and biological components of the area. As these components change from one place to another so does the character. Areas with common attributes or character can be classified as a character type.

The City of Cockburn has four distinct visual landscape characteristics which are a combination of the natural landform and the built environment. Character types resulting from human intervention such as residential, industrial and commercial developments often display similar overall character in various locations. The four character types within the City of Cockburn are generally oriented north-south as described in Table 2.

5.1.3 Landforms and Soils

The City of Cockburn has three main landforms, which stretch north to south on the Swan Coastal Plain. Developed from the process of aeolian transport or wind deposition, the oldest landform is the **Bassendean Dunes** which is located to the east of the Beeliar wetland chain. The resulting soils are called Bassendean Sands. These soils are pale grey or faint yellow, and are very infertile, their minerals and nutrients have been largely leached out over time.

Closer to the coast the **Spearwood Dunes**, consist of a core of limestone overlain by yellow sands. The Spearwood sands range from yellow to brown in colour, and may have limestone close to or at the surface. Like the Bassendean sands, the Spearwood sands are also infertile.

The **Quindalup Dunes** are very young soils formed within the last few thousand years and are located close to the coast. Unlike both the Bassendean and Spearwood Dunes which are gradually being worn away, the Quindalup Dunes are in the process of being formed. The soil (sands) of the Quindalup Dunes is composed of quartz grains and shell fragments. They are white in colour, limy and very infertile

5.1.4 Wetlands

The City of Cockburn contains two chains of wetlands, which are included in the Beeliar Regional Park, as well as a number of isolated wetlands in the eastern region of the City. Many of these wetlands are part of local conservation reserves including Bosworth Reserve, Emma Treeby Reserve, Mather Reserve and Denis de Young Reserve.

The wetlands of the Beeliar wetland chain are generally lakes that are inundated throughout the year. The wetlands in the Beeliar Wetland chain are protected under the Environmental Protection (Swan Coastal Plain Lakes) Policy.

In addition to the lakes, much of the original landscape of the eastern region of the City supported wetlands are either being seasonally inundated (sump lands or floodplains, mainly in the south-eastern area of the City) or seasonally waterlogged (damplands or palusplains).

The north-south sequence and isolated wetlands within the City are of great spiritual importance to Aboriginal people. Prior to European settlement the wetlands were sources of abundant food and freshwater and where often used as camping sites by the Nyungar family groups. Post settlement, the ecology of the wetlands was significantly modified for the establishment of market gardens, watering of stock and duck shooting. Today, however, the conservation of the wetlands and surrounding dryland vegetation has enabled their environmental values to be enhanced and maintained.

5.1.5 Bushland

As at January 2000, more than 32% of the area of the City of Cockburn, or 4,730ha, is bushland. This compares favorably with the 2% of bushland remaining in the City of South Perth and the 6% of bushland in the City of Melville.

Past and present land use practices have influenced the amount of clearing with the largest areas of bushland remaining in the eastern and central region of the City of Cockburn. Extensive clearing of bushland has occurred in the low-lying areas surrounding wetlands and in the established suburbs of Hamilton Hill, Spearwood and Coogee.

The southern and eastern periphery of the City, including the suburbs of Henderson, Wattleup, Banjup and Jandakot, contain the largest intact parcels of remnant native vegetation on an area basis.

The bushland varies across the City from coastal heaths, Melaleuca woodlands, and woodlands of Tuart, Jarrah, Marri and Banksia to fringing woodlands of Flooded Gum and Swamp Paperbark and is dependent on changes in the climate, soil properties, topographical features and water availability. The City of Cockburn contains six of the 29 vegetation complexes occurring on the Swan Coastal Plain.

The City of Cockburn contains one population of 23 plants of the rare orchid, *Caladenia huegellii*, and nine species considered to be 'significant flora' by the Department of Environment and Conservation. Significant flora is defined as species at varying risks of extinction, depending on their classification.

The condition of the bushland in the City of Cockburn varies considerably as a result of direct and indirect impacts of past and present land use practices. In general, the vegetation of the larger bushland parcels, such as at Henderson, Jandakot and surrounding Thomson's and Banganup Lakes are in very good condition with an intact vegetation structure, more than 80% native vegetation coverage and limited signs of disturbance. Smaller remnants with greater boundary to area ratios are generally more disturbed.

More than 50% of the bushland within the City is in very good condition, with intact understorey and limited disturbance. A large proportion of the bushland within the City is regionally significant and forms part of the Beeliar, Woodman Point and Jandakot Regional Parks. Other areas are reserved for the purpose of conservation under the City of Cockburn's Town Planning Scheme.

Of the 4,730ha of bushland within the City of Cockburn as at January 2000, 593ha is located within regional parks or is reserved for the purposes of conservation under the City of Cockburn's Town Planning Scheme. Some areas of regionally significant vegetation and local reserves have been identified for future development. A significant proportion of the remnant vegetation in the City of Cockburn is in private ownership and is zoned either 'Urban' or 'Urban Deferred'. This bushland may therefore be cleared for development at some stage in the future.

5.1.6 Streetscapes

Transport corridors throughout the City of Cockburn are a dominant physical presence which contributes significantly to the present character of the City.

A number of the major roads such as the Kwinana Freeway run in a north-south direction, corresponding with the orientation of the undulating landscape of the City.

The roads contained within The City of Cockburn can be classified into a broad hierarchy as follows:



Intersection of Cockburn & Rockingham Roads

Major Roads	These roads carry traffic across the city e.g. Kwinana Freeway, Stock Road, Cockburn Road. These roads carry a high volume of traffic and therefore give an impression to travelers as to the character of Cockburn. The majority of these roads are aligned north-south
Main Roads:	Take traffic to destinations within the City such as Phoenix Road, Spearwood Road, Rockingham Road, North Lake Road, Farrington Road and Armadale Road. Some of these roads have central median which are well vegetated and contribute positively to Cockburn's character
Residential Roads:	(Thoroughfares) These types of road connect residential districts or are the local distributor roads within subdivisions e.g. Osprey Drive, The Grange, Casserly Drive, Parkway Road, Coolbellup Avenue
Residential Roads	(Access Roads) These types of roads connect people to their homes e.g. Porpoise Court, Leonards Way, Ocean Road, Plover Drive

Road corridors often pass through the various landscape characters ranging from rural to industrial to residential/ urban. In some cases the roads within the City are visually discordant due to development and redevelopment of adjacent land.

5.1.7 Coastal

5.1.7.1 Climate

The Cockburn coast area has a Mediterranean climate with hot, dry summers and cool, wet winters. The average annual maximum temperature is 24°C, but this varies between 31°C in February and 18°C in July. The average annual rainfall is 887 mm per year, of which approximately 85 per cent, or 750 mm, falls between May and October. The annual average pan evaporation is 1671 mm. Rainfall exceeds evaporation for four months of the year, between May and August.

5.1.7.2 Landform

The site is dominated by the parallel features of the coastline and a ridgeline, which rises approximately 1.5 kilometres inland from the coast. The Cockburn coastline forms the west boundary of the site.

The undeveloped coastal reserve area consists of an elevated primary dune approximately 5 metres Australian Height Datum (AHD) with a swale and secondary dune in some sections.

The land that extends behind the dunes is relatively flat over much of the Cockburn coast until the ridge (City of Cockburn 2001).

The topography of the land west of Cockburn Road generally ranges between 6-8 metres AHD.

The area around the old South Fremantle landfill site (now in part supporting the Fremantle Holiday Village) rises to an elevation of approximately 20 metres AHD and the land behind the South Fremantle power station is mapped at an elevation of 12 metres AHD (Perth Groundwater Atlas, 2004).

The land rises and falls gently in sections to the east of Cockburn Road to 15-20 metres AHD ultimately forming the Spearwood Ridge, which runs in a north-south direction and peaks at 40-50 metres AHD (Perth Groundwater Atlas, 2004).

The terrain drops steeply to the east of Spearwood Ridge down to the gentler slopes around Manning Lake.

5.1.7.3 Soils and Geology

Mapping by the Geological Survey of Western Australia (1986) indicates that the surface geology for the majority of the site consists of Safety Bay sand, which is described as being white, medium grained, rounded quartz and shell debris, well sorted, of Aeolian origin. This surface geological unit is mapped over the site west of Cockburn Road.

East of Cockburn Road, the surface geology is Tamala limestone overlain by Safety Bay sand. This geological unit is associated with the ridgeline which extends in a north-south orientation parallel with the coast. East of the ridgeline within Manning Park Reserve, a small area is mapped as containing sand derived from Tamala limestone, surrounding sandy silt associated with Manning Lake.

5.1.7.4 Surface Water

The local superficial geology consists of Safety Bay sands and Tamala limestone, each of which has a high hydraulic conductivity. Therefore, surface water flow is not considered to be the significant hydrological process in the Cockburn coast area. The site can be divided into a number of areas that would form catchments under very heavy rainfall, or if the site was more impervious

A main barrier to surface water (and drainage flow) is the railway line, which runs roughly parallel to the coast until it intersects Cockburn Road in the south of the site. It then heads in an easterly direction to form the southern boundary of the Cockburn coast area. The railway line is elevated above the general ground level and forms a barrier to the flow of surface water.

There is also a small line of dunes to the west of the railway line that would limit the flow of surface water to the ocean. Immediately to the west of Cockburn Road lie a series of flat areas. This area includes a number of the current storm water compensating basins.

5.1.7.5 Vegetation

The majority of remnant vegetation within the site is for the most part contained within Manning Park (142 hectares) and the foreshore area which includes Catherine Point Reserve, C. Y. O'Connor Reserve, and 29 hectares of a number of smaller parcels of land generally identified as foreshore reserve or unallocated Crown land. The Manning Park and foreshore area (Point Catherine and C. Y. O'Connor reserves) are both reserved under the MRS as parks and recreation.

Manning Park Reserve

Manning Park Reserve is managed by the City of Cockburn with some assistance from the WAPC and DEC.

The area includes five vegetation communities;

- Melaleuca raphiophylla;
- Eucalyptus gomphocephala (tuart) woodland;
- Eucalyptus decipiens (redheart or mattock);
- Melaleuca huegelii/Melaleuca acerosa shrub lands; and
- Acacia woodlands on taller dunes (City of Cockburn 2001).

5.2 INFRASTRUCTURE

5.2.1 Sewerage System

The site is served by reticulated sewers to all the existing industrial developments, and the Bennett Avenue No.2 sewer pump station, all of which are under the control of the Water Corporation. The pump station requires a minimum buffer of 30 metres from the nearest residential development, and ideally should be surrounded by public open space or similar land use. The Water Corporation has advised that the pump station site will need to be rezoned for public purposes. Several lots have existing private sewer pump stations which would be required to be removed if the lots are subdivided.

5.2.2 Water Supply

Existing water mains traverse the site and provide an adequate supply to the existing industrial developments.

5.2.3 Electricity

The South Fremantle switchyard terminal adjacent to the old power station is a long-term strategic asset for Western Power and the community.

Several main overhead transmission lines (at 330KV and 66KV) traverse the site in an east-west direction to connect to the existing Western Power switchyard.

A number of existing pole top transformers provides 22KV high voltage and low voltage power to the existing industrial developments within the site.



5.2.4 Natural gas

Alinta has existing high pressure gas mains in Cockburn Road, along with medium pressure and standard low pressure gas mains in various other streets within the structure plan area.

5.2.5 Telecommunications

Telstra plans show existing optic fibre cables in Cockburn Road (both sides north of Clontarf Road), Rockingham Road, Rollinson Road and an extension into the South Beach subdivision. These cables need to be protected during redevelopment earthworks, road works and trenching.

The cables provide the infrastructure to supply a broadband service to future residents of Cockburn coast. Standard Telstra cables exist in both verges of the roads servicing the current industrial development and will need to be protected during any redevelopment works.

5.2.6 Local Road Network

As well as the existing road reserves, the City of Cockburn has extensive roads, dual-use paths and car parks at the C. Y. O'Connor Reserve and other parks within the foreshore area that will need to be maintained or improved.

In the close vicinity of the structure plan area, the road network is dominated by north-south routes of Cockburn Road/Hampton Road, Rockingham Road, and the future Cockburn Coast Drive (formerly Rockingham - Fremantle Highway).

There is a limited number of existing east-west routes, with a westerly extension of Spearwood Avenue proposed by the City of Cockburn to improve the east-west connection.

Cockburn Road is a primary distributor, under the care and control of Main Roads Western Australia. It carries regional through-traffic between Rockingham, Kwinana and Fremantle (and beyond) as well as traffic associated with the Cockburn industrial area and the Henderson industrial estate.

Over the past 10 years, traffic volumes along Cockburn Road have reduced as a result of the discontinuity introduced at Russell Road (reinforcing Stock Road as the major north-south route) and the introduction of bus lanes along Hampton Road. The most recent (2003/04) published Annual Average Weekday Traffic (AAWT) flow data for Cockburn Road, south of Rockingham Road, is 17 460 vehicles per day (vpd).

While not designated as a regional road, the section of road between Rockingham Road and Douro Road carries significant traffic volumes. Rockingham Road, a district distributor 'A' road, is a parallel route to Cockburn Road. The most recent published AAWT data for Rockingham Road, east of Cockburn Road is 14,980 vpd.

The **Kwinana Freeway** is a major arterial road in Perth, linking Perth via the City of Cockburn with the southern suburbs and the City of Rockingham, a distance of 46 kilometres. It has a speed limit of 100km/h, except in central Perth and south of Lakes Road.

The Kwinana Freeway is a dual carriageway with five lanes in each direction north of Mill Point Road, and three or four lanes north of Leach Highway. South of that point, it generally has two lanes in each direction, with sufficient lateral clearance under bridges for additional future lanes. The Mandurah railway line runs in the freeway median between the city and the suburb of Mandogalup, where it then deviates to the west towards the city of Rockingham and south to Mandurah.



Kwinana-Freeway

5.2.7 Local Rail Network

Cockburn Central Station is located north of the Beeliar Drive – Kwinana Freeway Interchange.

The station has an island platform connected to the entry building by an elevated walkway over the freeway's northbound carriageway.

The station has been designed to integrate fully with the proposed Cockburn town centre development.

It will become the main public transport focus of the area, with local and regional bus routes stopping between the station and the town centre.



PTA Passenger Train

5.2.8 Local Freight Network

A coastal freight line runs to and from Fremantle Port dissecting The City of Cockburn along its western coastline.

ARG are the major carriers transporting a range of dangerous goods that includes lead etc.

All goods carried are transported in strict compliance with the Australian Dangerous Goods Code: Edition 7 and relevant state legislation including all necessary licences for the transport and transit storage of dangerous goods.

Site specific emergency response and security procedures supported with training for all relevant personnel ensures that all commodities are carried and handled in a safe manner.

5.2.9 Location of Existing Infrastructure

The location of the existing essential infrastructure is shown in Figure 2.

A number of significant services are located within the existing Cockburn Road reserve.

These include:

- The Bennett Avenue sewer pump station pressure main;
- Reticulated sewer mains; • water mains;
- Telstra optic fibre cables and standard Telstra cables in both verges;
- Western Power data pilot cables;
- Oil pipeline;
- Alinta high pressure gas mains
- Drainage pits and drainage pipelines.

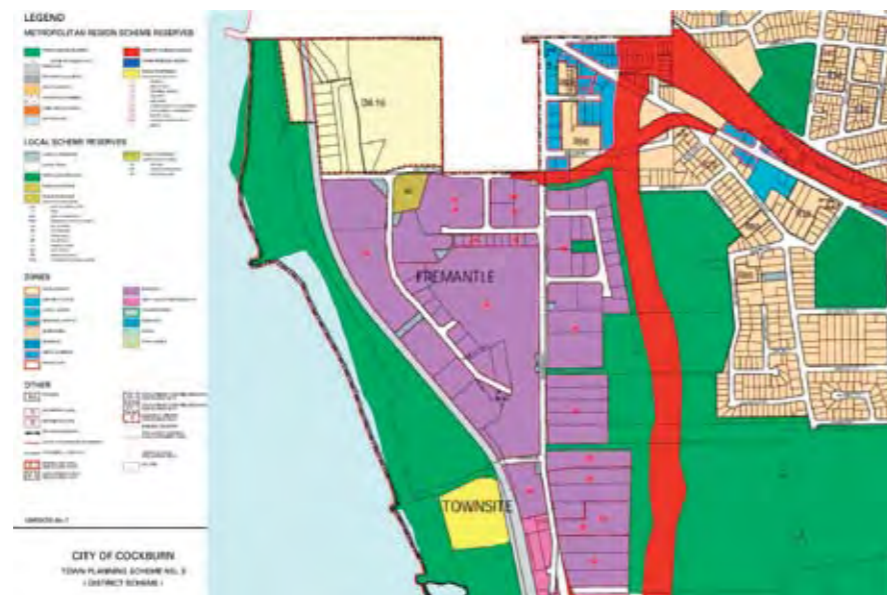


Figure 2

All the existing roads in the current industrial subdivision contain the typical array of services in the verges, suitable for servicing the current developments.

These services include:

- Sewer reticulation;
- Water reticulation;
- Power reticulation;
- Telstra reticulation;
- Gas reticulation; and
- Drainage pipe and pits.

5.3 WALKING AND CYCLING

There are no Perth Bicycle Network (PBN) routes within the structure plan area. Regional pedestrian and cyclist movement is facilitated by a coastal shared-use path connecting Woodman Point to Fremantle. From Fremantle, other regional connections are available to the wider metropolitan area. PBN route SW10 connects to a shared-use path on Rockingham Road and provides access to the east through Beaconsfield, Hamilton Hill, Coolbellup and Bibra Lake. Existing pedestrian and cyclist infrastructure within the structure plan area is limited to an existing shared-use path along the coast, extending south from Fremantle. This path ceases at the northern end of Robb Road and starts again south of Robb Road. A second shared-use path runs parallel to the existing freight railway from the level crossing east of Cockburn Road, connecting to Spearwood Avenue.

At present, there is likely to be limited demand for pedestrian and cyclist infrastructure within the project area. Following redevelopment, it will be important to ensure that pedestrians and cyclists are well catered for, both for local trips and longer regional trips

5.4 PUBLIC TRANSPORT

5.4.1 BUS

Transperth is part of the State Government's Public Transport Authority (PTA), and is the brand name through which the Western Australian Government provides public transport services in the Perth metropolitan region.

This includes Perth's public buses, trains and ferries. The Transperth bus network is run by three bus operators – Swan Transit, Path Transit and Southern Coast Transit. Transperth bus services are split into ten contract areas:

Southern Coast Transit operate buses that serve the following City of Cockburn suburbs: Atwell, Aubin Grove, Beaconsfield, Beeliar, Bibra Lake, Cockburn Central, Coogee, Fremantle, Hamilton Hill, Hammond Park, Munster, Murdoch, North Coogee, North Lake, South Fremantle, South Lake, Spearwood, Success & Yangebup.



Cockburn Central Bus Terminal

5.4.2 RAIL

Suburban trains in Perth are operated by Western Australian Government under the brand-name Transperth. There are five lines radiating from the downtown Perth station. After years of neglect, Perth's railway system was completely rebuilt commencing with the re-opening of the formerly closed Fremantle line in late 1983, then in the early 1990's the entire network was electrified and an entirely new fleet of trains built.

Two totally new lines have been constructed - to Clarkson in the late 1990s and Southwards to Rockingham and Mandurah in 2007. The system is impressively modern and it is possibly one of the most efficient anywhere. Trains are fast, comfortable, safe, and inexpensive to use and run frequently. Services are fully operational with trains to Perth every 5 minutes during peak periods taking as little as 16 minutes to arrive.

To ensure the continued integration of Transperth services, it is required to alter bus service routes and timetables in the City of Cockburn area to feed into the new Mandurah Line. This means people can catch a train after disembarking from their bus without waiting lengthy periods.



Cockburn Central Railway Station

5.5 INDUSTRY

5.5.1 Marine

A number of substantial businesses continue to operate within the area zoned industrial. Several of these have a long association with the area, largely relating to the Robb Jetty abattoir and processing of animal by-products.

More recently, several large-scale operations have been established in the Cockburn coast area following the redevelopment of the Robb Jetty industrial estate as a biotechnology park focusing on food and seafood processing industries.

Today, Fremantle Cold Stores and Alba Edible Oils are the largest industrial businesses operating within the area, with substantial capital invested in the development of these premises over the last few years.

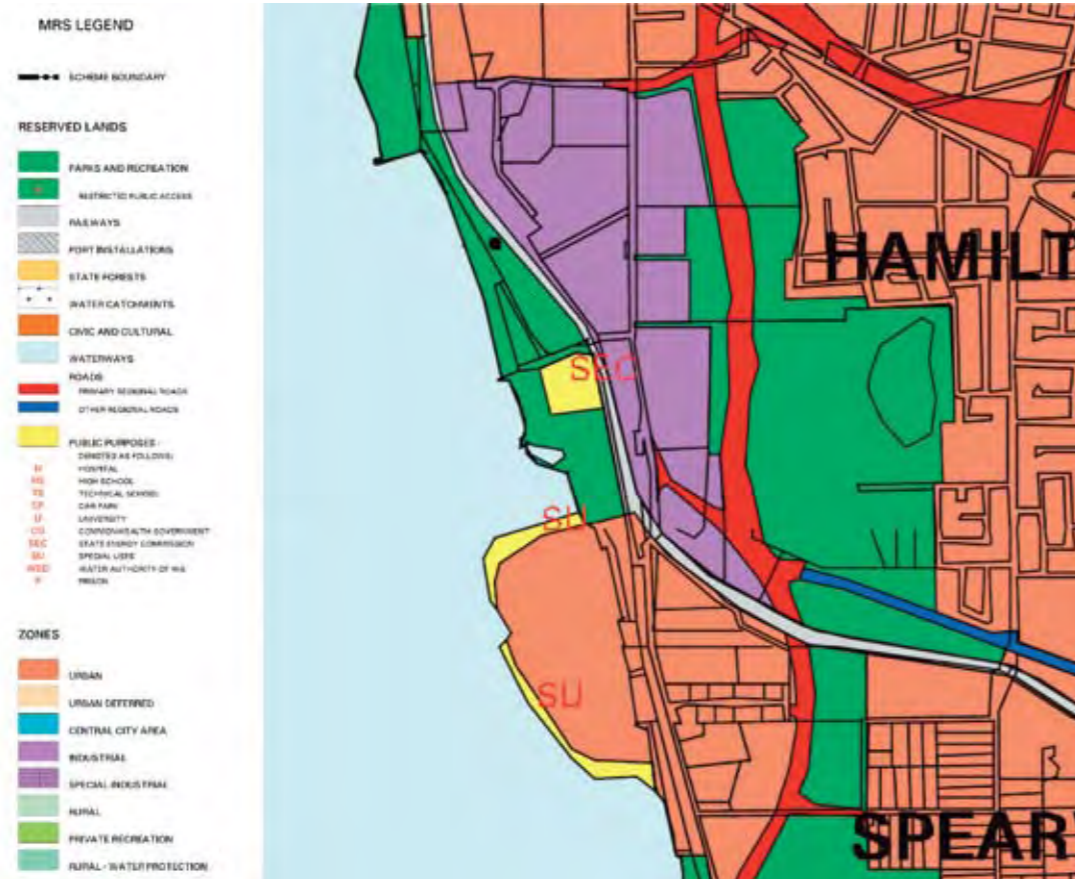
In planning for future land use, it is important to acknowledge the past and current investments that have been made and the existing land use rights of these businesses in accordance with their current approvals, ensuring that these activities can continue until such time as it is feasible for redevelopment.

5.5.2 Service industry

The first stage of subdivision under the Coogee Master Plan, Emplacement Crescent, is characterized by a number of industrial and commercial complexes and buildings with construction commencing in 1999.

Mostly pre-fabricated concrete buildings; the focus of this precinct is one of warehouse-type facilities.

Many of these facilities are not directly related to the marine processing or biotechnology industries, and therefore do not necessitate the separation of land uses attributed to industrial zoning, particularly as these facilities are neither noxious noisy nor intensive.



5.5.3 Commercial

There are a number of commercial businesses located within the project area, such as Phoenix Shopping Centre and Australian Marine Complex. The majority of these businesses are located along the northeastern section of Cockburn Road.

5.5.4 South Fremantle landfill site

Since the closure and capping of the landfill site, much of the area has informally been used as public open space by local residents. The southern portion of the landfill site was transferred into freehold title in the mid-1980s and subsequently developed for affordable accommodation. Known as the Fremantle Chalet Village, it houses approximately 80 residents.

5.5.5 Public purposes

A number of sites for public purposes are located throughout the project area, including drainage reserves and public utility infrastructure. The largest of these are the Western Power switchyard, located adjacent to the South Fremantle power station (4 hectares) and the Water Corporation pump station (1.1 hectares) situated on the corner of Bennett Avenue and Rollinson Road.

5.5.6 Residential

Residential land is confined to the north east of the structure plan area, both north and south of Rockingham Road. To the south of Rockingham Road, residential development largely consists of relatively recent strata developments, while to the north many properties remain single dwellings.

5.6 NEIGHBOURING LOCAL GOVERNMENT AUTHORITIES

The City of Cockburn is bordered by the Cities of Melville; Fremantle; Canning, Armadale, Gosnells and the Town of Kwinana.

5.7 ADMINISTRATION CENTRE & WORKS DEPOT

The City of Cockburn's main Administration Centre is located at the Cnr Rockingham Road and Coleville Crescent Spearwood whilst the works depot is situated in Wellard Road Spearwood.

5.8 MAJOR COMMUNITY & RECREATION CENTRE'S

The City of Cockburn is supported by 18 Community Development Groups; 19 Neighbourhood Watch Groups; 11 Childcare Centres; 6 Aged Care Centre and 14 Community Recreation Centres/Facilities.

5.9 MAJOR COMMERCIAL CENTRE'S

The City of Cockburn has 5 major shopping commercial centres;

1. Cockburn Gateway
2. Hamilton Hill Shopping Centre
3. Phoenix Park Shopping Centre
4. South lakes Shopping Centre
5. The Lakes Shopping Centre



Cockburn Gateway Shopping Centre

5.10 MAJOR COASTAL DEVELOPMENTS

Australand's Port Coogee is a world-class recreational marina and residential estate offering a diverse range of premium coastal living options within the City of Cockburn.

Launched in December 2006, Port Coogee offers a modern and sustainable city-marina lifestyle with spectacular views of the Indian Ocean.

Located just minutes from Fremantle and 18 kilometres south of the Perth CBD, the \$2 billion development is one of Australia's biggest coastal renewal projects covering more than 85 hectares.

Port Coogee provides a variety of attractive housing options from traditional home-sites and luxury apartments to townhouses, waterfront and island lots.

5.11 MAJOR INDUSTRIAL AREAS

The City of Cockburn has 4 major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson.

5.12 MAJOR MARINE AREAS

The City of Cockburn's major marine area is Port Coogee currently under development by Australand.

5.13 MEDICAL SERVICES

The City of Cockburn does not have any major hospital within its boundaries however residents are in close proximity to both Fremantle and Rockingham Public Hospitals and St. John of Gods Hospital in Murdoch.

5.14 AIR SERVICES

Jandakot Airport is situated within The City of Cockburn boundaries however the airport is mainly used for training purposes and the Royal Flying Doctor Service.

5.15 ETHNICITY

City of Cockburn residents are comprised predominantly of Australian born citizens (64%).

5.16 PLACES OF WORSHIP

The City of Cockburn has 21 places of worship ranging from Anglican, Baptist, Baha'i, Catholic, Gospel and Pentecostal.

5.17 EDUCATION

The City of Cockburn has 29 educational facilities (schools/TAFE) situated throughout the 21 suburbs.

5.18 VULNERABLE GROUPS

The City of Cockburn has 24 % (ABS Census 2006) of its population 55 years or older, thus creating significant risks associated with an ageing population. There are 6 Aged Care Facilities located within the City of Cockburn.

These centres have a comprehensive emergency plan established in liaison with representatives from the City of Cockburn, WA Police Service, Fire and Emergency Services and the State Emergency Service.

The plan includes a detailed evacuation strategy and lists of nominated receiving facilities where residents can be temporarily housed for a few days or weeks.

5.19 DEMOGRAPHY

The City of Cockburn is very diverse both in culture and population. The Australian Bureau of Statistics 2006 Census recorded the following City of Cockburn demographics:

PERSONAL CHARACTERISTICS

USUAL PLACE OF RESIDENCE	City of Cockburn	% of total persons in City of Cockburn	Australia	% of total persons in Australia
Total persons (ex. overseas visitors)	74,472	-	19,855,288	-
Males	37,052	49.8%	9,799,252	49.4%
Females	37,420	50.2%	10,056,036	50.6%
Indigenous persons	1,256	1.7%	455,031	2.3%

AGE GROUPS

AGE	City of Cockburn	% of total persons in City of Cockburn	Australia	% of total persons in Australia
0-4 years	5,222	7.0%	1,260,405	6.3%
5-14 years	10,736	14.4%	2,676,807	13.5%
15-24 years	10,430	14.0%	2,704,276	13.6%
25-54 years	33,471	44.9%	8,376,751	42.2%
55-64 years	7,119	9.6%	2,192,675	11.0%
65 years and over	7,493	10.1%	2,644,374	13.3%
Median age of persons	34		37	

CITIZENSHIP/VISITORS

SELECTED CHARACTERISTICS	City of Cockburn	% of total persons in City of Cockburn	Australia	% of total persons in Australia
Australian citizenship	63,325	85.0%	17,095,569	86.1%
Persons born overseas	21,411	28.8%	4,416,037	22.2%
Overseas visitors	515	0.7%	206,358	1.0%

COUNTRY OF BIRTH

REGION	City of Cockburn	% of total persons in City of Cockburn	Australia	% of total persons in Australia
Australia	47,950	64.4%	14,072,944	70.9%
England	5,543	7.4%	856,939	4.3%
Italy	1,679	2.3%	199,121	1.0%
New Zealand	1,483	2.0%	389,463	2.0%
Croatia	1,246	1.7%	50,990	0.3%
Portugal	1,086	1.5%	15,194	0.1%

LANGUAGE SPOKEN AT HOME

REGION	City of Cockburn	% of total persons in City of Cockburn	Australia	% of total persons in Australia
English only spoken at home	58,058	78.0%	15,581,333	78.5%
Italian	2,772	3.7%	316,890	1.6%
Croatian	1,609	2.2%	63,611	0.3%
Portuguese	1,362	1.8%	25,780	0.1%
Mandarin	758	1.0%	220,601	1.1%
Serbian	617	0.8%	52,536	0.3%

RELIGIOUS AFFILIATION

REGION	City of Cockburn	% of total persons in City of Cockburn	Australia	% of total persons in Australia
Catholic	25,204	33.8%	5,126,882	25.8%
No Religion	15,729	21.1%	3,706,557	18.7%
Anglican	12,805	17.2%	3,718,248	18.7%
Uniting Church	2,069	2.8%	1,135,422	5.7%
Presbyterian and Reformed	1,519	2.0%	596,668	3.0%

MARITAL STATUS

MARITAL STATUS (15+yrs)	City of Cockburn	% of persons aged 15+yrs in City of Cockburn	Australia	% of 15+yrs persons in Australia
Married	29,937	51.2%	7,900,684	49.6%
Never married	19,428	33.2%	5,278,600	33.2%
Separated or divorced	6,471	11.1%	1,801,979	11.3%
Widowed	2,677	4.6%	936,813	5.9%

LABOUR FORCE

POPULATION (15+yrs)	City of Cockburn	% of persons in the labour force in City of Cockburn	Australia	% of persons in the labour force in Australia
Total labour force (inc. employed & unemployed persons)	37,852		9,607,987	
Employed full-time	23,295	61.5%	5,827,432	60.7%
Employed part-time	10,684	28.2%	2,685,193	27.9%
Employed away from work	1,527	4.0%	337,991	3.5%
Employed hours not stated	1,097	2.9%	253,567	2.6%
Unemployed	1,249	3.3%	503,804	5.2%
Not in the labour force	17,065		5,271,116	

OCCUPATION

OCCUPATION (aged 15+yrs)	City of Cockburn	% of employed persons aged 15 years and over in City of Cockburn	Australia	% of 15+yrs persons in Australia
Technicians and Trades Workers	7,058	19.3%	1,309,258	14.4%
Clerical and Administrative Workers	5,882	16.1%	1,365,805	15.0%
Professionals	5,406	14.8%	1,806,010	19.8%
Labourers	4,405	12.0%	952,520	10.5%
Sales Workers	3,615	9.9%	896,208	9.8%
Managers	3,588	9.8%	1,202,267	13.2%
Community and Personal Service Workers	3,265	8.9%	801,906	8.8%
Machinery Operators And Drivers	2,820	7.7%	604,616	6.6%

INDUSTRY OF EMPLOYMENT

REGION (aged 15+yrs)	City of Cockburn	% of employed persons aged 15+yrs in City of Cockburn	Australia	% of employed persons 15+yrs in Australia
School Education	1,488	4.1%	414,214	4.5%
Cafes, Restaurants and Takeaway Food Services	1,398	3.8%	328,521	3.6%
Hospitals	1,215	3.3%	303,923	3.3%
Supermarket and Grocery Stores	1,048	2.9%	218,821	2.4%
Road Freight Transport	758	2.1%	162,448	1.8%

INCOME

INCOME (aged 15+yrs)	City of Cockburn	Australia
Median individual income (\$/weekly)	\$501	
Median household income (\$/weekly)	\$1,102	\$1,027
Median family income (\$/weekly)	\$1,272	\$1,171

FAMILY CHARACTERISTICS

FAMILY CHARACTERISTICS	City of Cockburn	% of total families in City of Cockburn	Australia	% of total families in Australia
Total families	20,389	-	5,219,165	-
Couple families with children	9,907	48.6%	2,362,582	45.3%
Couple families without children	6,886	33.8%	1,943,643	37.2%
One parent families	3,295	16.2%	823,254	15.8%
Other families	301	1.5%	89,686	1.7%

DWELLING CHARACTERISTICS

PRIVATE DWELLINGS	City of Cockburn	% of total occupied private dwellings in City of Cockburn	Australia	% of total occupied private dwellings in Australia
Total private dwellings (includes unoccupied private dwellings)	29,609		8,426,559	
Occupied private dwellings:	27,571		7,596,183	
Separate house	24,189	87.7%	5,685,387	74.8%
Semi-detached, row or terrace house, townhouse etc	2,088	7.6%	702,550	9.2%
Flat, unit or apartment	988	3.6%	1,076,315	14.2%
Other dwellings	303	1.1%	127,337	1.7%
Not stated	3	0.0%	4,594	0.1%

OCCUPIED PRIVATE DWELLINGS	City of Cockburn	Australia
Median rent (\$/weekly)	\$180	\$190
Median housing loan repayment (\$/monthly)	\$1,300	\$1,300
Average household size	2.7	2.6
Average number of persons per bedroom	1.0	1.1

TENURE TYPE - OCCUPIED PRIVATE DWELLINGS	City of Cockburn	% of total occupied private dwellings in City of Cockburn	Australia	% of total occupied private dwellings in Australia
Fully owned	7,714	28.0%	2,478,264	32.6%
Being purchased (includes being purchased under rent/buy scheme)	11,999	43.5%	2,448,205	32.2%
Rented (includes rent-free)	5,880	21.3%	2,063,947	27.2%
Other tenure type	158	0.6%	65,715	0.9%
Not stated	1,820	6.6%	540,050	7.1%

HOUSEHOLD COMPOSITION

OCCUPIED PRIVATE DWELLINGS	City of Cockburn	% of total occupied private dwellings in City of Cockburn	Australia	% of total occupied private dwellings in Australia
Family household	20,037	72.7%	5,122,760	67.4%
Lone person household	5,465	19.8%	1,740,481	22.9%
Group household	761	2.8%	280,856	3.7%

5.20 HERITAGE AND SOCIAL VALUES

Local government authorities are expected to compile and maintain a list of heritage sites, as a requirement of the *Heritage of Western Australia Act 1990*. Most local government authorities also maintain a schedule of Places of Heritage Value, which comprises places and areas that are considered to have value to the local community such as historic buildings, wetlands and natural features.

5.20.1 Aboriginal Heritage

Prior to European settlement, the Nyungar people, including the Midgegoorong and Whadjug family groups, were the principal inhabitants of the Swan Coastal Plain. They did not have fixed places of habitation, but moved according to a set pattern within a designated tract or territory.

The Beelihar wetlands chain, continuing to the north and south of Cockburn, was an important resource around which these groups gathered to make use of the wide variety of abundant food, including fish, water birds, turtles, marsupials, vegetable foods and fresh water. In addition, paper bark and riparian vegetation were utilised for tools and materials.

The Swan River Aborigines, the original inhabitants of the Cockburn District, generally made their campsites on the eastern Cockburn wetland chain, most of them being located on the fringes of North and Bibra Lake. The register of Aboriginal Sites administered by the Aboriginal Affairs Department indicates a number of significant sites in the City of Cockburn predominantly located on the Bassendean Dune formations.

5.20.2 Municipal Heritage

The Woodman Point area is recognised as the first point of European settlement in the City of Cockburn. This settlement, named the township of Clarence, failed after two years and today there is no indication that it ever existed. Soon after the surrounding land within Cockburn comprised of large pastoral leases which were subdivided about 50 years post-settlement.

From 1876 to 1882 the land surrounding Lake Coogee was settled mainly by retired prison guards and retired officers from the British Army who arrived on the convict ships.

Following 1870 land regulation was amended to encourage small farms rather than large pastoral leases. However, during this time most of Spearwood, Munster and Henderson land remained under pastoral leases with the only inhabitants being newly released Aboriginal prisoners from Rottnest and ticket-of-leave convicts employed to tend stock.

During the 1890s settlement around Coogee including Market Garden Swamp No. 2 increased to incorporate various rural activities and market gardening.

Between 1911 and 1929 ethnic settlement of the area commenced. These settlers were the last major group to work the land in the Cockburn area. Since the 1950s urban development of the Cockburn area has prevailed with the municipality changing from a strong rural to urban base.

The City of Cockburn maintains a Heritage Inventory of specific buildings and features worthy of protection.

5.20.3 European Heritage

A search was conducted of the Heritage Council of Western Australia Register of Heritage Places to acknowledge the nature and location of known heritage sites located within the structure plan area. The following places are listed on the permanent and interim Register. Heritage sites on the State Register are protected under the provisions of the *Heritage of Western Australia Act 1990*.

Any proposed demolition; relocation, subdivision, amalgamations, alterations, additions or new development must be in harmony with the places cultural heritage values and be referred to the Heritage Council for approval.

5.20.4 Heritage Sites



*SOUTH BEACH HORSE EXERCISE AREA
Circa 1833*



*ROBB JETTY CHIMNEY
Circa 1919*



*SOUTH FREMANTLE POWER STATION
Circa 1951*



*RANDWICK STABLES
Circa 1923-1924*



NEWMARKET HOTEL
Circa 1912



AZELIA LEY HOMESTEAD
Circa 1866/1982



ROBB JETTY CAMP
Circa 1985

5.21 RECREATIONAL VALUES

The varying landscape of the City of Cockburn encompassing coastal, bushland and wetland environments is used for recreational pursuits ranging from swimming to horse riding.

The City of Cockburn presents a viable ecotourism experience offering a number of activities in a natural environment including horse riding, bike riding, walking, access to native flora and fauna and bird watching. In addition, the City offers visits to pioneer heritage sites, access to recreational park areas, access to biological and ecological research programs, interaction with seals, dolphins and whales, diving experiences and an appreciation of environmental restoration and habitat creation programs. The City of Cockburn has also the potential for other recreational pursuits including canoe or other boating experiences, longer horse rides, spotlight tours of native fauna, interpreted experiences and guided tours.

5.22 ENGINEERING LIFELINES

There are major arterial links to neighbouring cities/towns/shires etc throughout the City of Cockburn. Many of the routes carry essential services such as underground water and communication cables.

Natural gas and electricity is supplied to all residences with provision to the majority of homes

5.23 COMMUNITY LIFELINES

The City of Cockburn maintains strong links in general terms and emergency recovery with community service groups, disability support, health services and government agencies and organisations such as the Australian Red Cross, Salvation Army, Anglicare and the Departments of Community Development and Child Protection.

5.24 MUNICIPAL LIFELINES

The City of Cockburn Community Services provides many services and programs. These include Aged & Disability Services and provide a range of services under the umbrella of Home & Community Care.

The Home & Community Care Program was established in 1985 by the Commonwealth & State Governments through co-operative efforts with Local Government and non-Government organisations.

Primarily the Aged & Disability Services are designed to assist residents to remain live safely in their own homes and to prevent premature admission to nursing homes and long term residential care.

These services are available to

- Frail aged City of Cockburn residents who require support to maintain their independence
- City of Cockburn residents with disabilities
- Carers and families who are caring for a person(s) who is frail and/or has a chronic illness or disability Specific Services include: Aged care, incorporating home care, personal care & respite; food services; home maintenance; community maintenance; Adult Day Activity & Support Service (ADASS); Senior Citizens Centres; Senior Citizens Week and volunteer support

5.25 COMMUNICATION LINKS

Communication links for disseminating information within the City of Cockburn include:

- Commercial Radio Stations
- Community Radio Stations
- Television
- Police Emergency Information Line
- Local Telephone & Information Lines
- Internet
- Print media
- Community Newsletters
- Customer Service Centres
- Manual door knock of each residence
- Public address system mounted on vehicle
- Community organisations / groups
- State Alert

5.26 HISTORY OF EMERGENCIES

The City of Cockburn has a history of naturally occurring emergencies including bushfires and storms. As such there is considerable expertise within the community in combating emergencies of this nature. Less predictable emergencies that have occurred include light plane crashes, road accidents on major highways, rail freight emergencies and outbreaks of infectious disease.

The impact of these emergencies, particularly bushfires, have included loss of life and serious injury, loss of property including homes, disruption to whole communities, devastation of the natural environment and long-term rehabilitation of affected communities.

6 EMERGENCY RISK MANAGEMENT

The ERM Process, employed by the City of Cockburn and extracted from the 'Emergency Risk Management Applications Guide - Manual 5', consists of five phases, refer **Figure 1**:

- Establish the context
- Identify risks
- Analyze risks
- Evaluate risks
- Treat risks

Throughout the process it was vital for members of the project team and stakeholders to communicate and consult with each other, thus allowing an open exchange of information and viewpoints internally and externally of the working group.

This enabled the resulting ERM project to be more applicable and relative to all stakeholders. All information from meetings was disseminated in a simple, clear and unambiguous format ensuring a smooth and unhindered decision making process

The ERM process required constant monitoring and review to ensure that the process remained current and valid. Modifications and changes were implemented throughout the process supporting continuous improvement.

This report documents the City of Cockburn's development of the ERM process following the five phases of the ERM process.

6.1 PHASE 1

6.1.1 Establish the Context

Establishing the context assists to:

- Understand the strategic and community issues that may impact on the ERM process
- Define the basic parameters within which risks can be identified; and
- Define the scope for the ERM plan

The outcomes achieved from establishing the context provide guidelines for developing risk evaluation criteria essential for the supplementary steps. The current ERM project plan focused on the areas within the jurisdiction of the City of Cockburn.

The initial step was to establish a risk management team to act as the project team for the ERM project, reporting back to the COC/LEMC. The project team would identify strategic and community issues that may influence the project assess their implications, map out the ERM process and follow it through. The project team consisted of COC members who deal with the community on a daily basis and LGIS Risk Management professionals. These included:

LGIS Project Leader: Rory Popa-Risk Consultant	COC Project Leader: Shirley Elliott
LGIS Project Member: Greg Cook-Risk Consultant	COC Project Member: Robert Leaver
LGIS Project Member :Moreno Parrella-Risk Consultant	COC Project Member: Peter Weston
LGIS Project Member: Jill Downward-Administration	COC Project Member: Amanda Symons

EMERGENCY RISK MANAGEMENT PROCESS

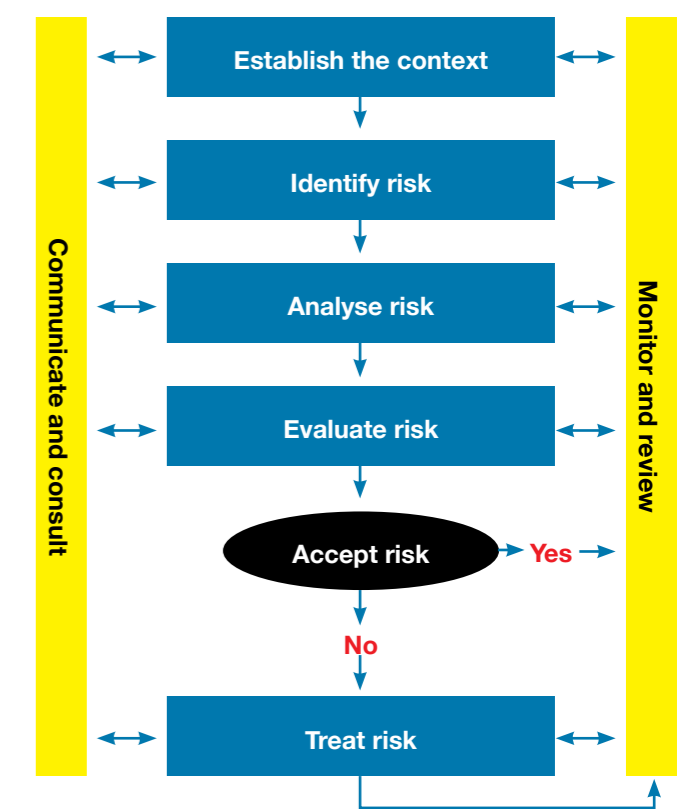


Figure 1

As listed in the 'Emergency Risk Management Applications Guide - Manual 5', one of the initial steps in establishing the context was to identify factors that may impact on ERM; these included political, economic, social and cultural factors, refer **Table 3**:

POLITICAL, ECONOMIC, SOCIAL AND CULTURAL FACTORS	
POLITICAL	<ul style="list-style-type: none"> • Independence of local government elected members • Influence of political factions • State/local government partnerships • Australian government natural disaster mitigation funding
ECONOMIC	<ul style="list-style-type: none"> • Unprecedented tourism growth • Stable local government rates base • Socio-economic composition • Recent loss of business/commercial activity
SOCIAL	<ul style="list-style-type: none"> • High unemployment • Transient population • Demographics
CULTURAL	<ul style="list-style-type: none"> • Ethnic composition • History of settlement • Languages other than English spoken • Strong community support

Table 3

The majority of these factors were established from the statistics provided by the ABS Census 2006.

6.1.2 Legislation

The main political driver behind the COC's ERM implementation was the Emergency Management Act 2005 in which the roles of local governments in EM are outlined and formalized. Local governments are now legally required to prepare local emergency management arrangements within a specified time.

The City of Cockburn completed their Local Emergency Management Arrangements (LEMA) in 2009.

6.1.3 Risk Evaluation Criteria

Risk evaluation criteria assisted the project team to assess the identified risks, ensuring correct prioritization in terms of impact to the 7 community elements (refer Table 4) and their associated risk treatments.

The criteria was based on several considerations including technical, financial/economic, legal, social, humanitarian, environmental and other factors as determined by stakeholders.

In determining the risk criteria, consideration was given to several aspects that were deemed unacceptable to the community. These included loss of life, preventable harm to the community, economic loss, environmental harm, infrastructure damage and loss of heritage.

The work group discussed all of these aspects in detail including information provided by the COC.

The resulting prioritised general risk evaluation criteria, displayed as **Table 4**, focuses on both the individual and community perceptions. Following the completion of this phase, the context was reviewed and confirmed by all committee members to create a list that reflected the City of Cockburn and the working group's interpretation.

The final community elements at risk included: people, infrastructure, transport, economy, environment, property, and social & cultural.

Table 4

	Scope	Risk evaluation criteria	Priority
People	Human life, pets, animals and livestock	The community will not accept avoidable loss of life, plus spread of illnesses, disease, and various levels of injury	1
Infrastructure	Critical services and transport networks	The community will not accept avoidable loss or damage to critical lifeline services such as 1. Communications, power, water and gas utilities 2. Rail, road and sea transport 3. Medical, educational and recreational services	2
Property	All types of physical structures, private, commercial and public buildings, vehicles and personal effects	The community will not accept avoidable damage or loss to buildings, including heritage sites. Property can be classed into 3 x areas: 1. Private – Residences, Sheds & vehicles 2. Commercial – Structures, warehouses, factories, production & service facilities and vehicles 3. Public – Structures, community centres, halls and recreational facilities and vehicles	3
Industry	Provision of goods and services to the community and public/private business	The community will not accept avoidable loss or damage to primary and secondary type industries, which form part of the supply chain to other local businesses and agencies	4
Environment	Flora, Fauna and Eco Systems	The community will not accept avoidable loss or damage to urban or natural environment	5
Economy	Both financial and non-financial losses affecting local/state economy, private and Government enterprises	The community will not accept avoidable loss or damage to the economy's growth and sustainability due to failure of either public or private enterprises	6
Social & Cultural	Social interaction of community groups and members, with acceptance of all cultures. Community based events and activities – sporting clubs, community groups	The community will not accept avoidable loss or disruption to social networking and cultural interaction following an emergency. Measures will be undertaken to ensure a cohesive community lifestyle is re-instated within a reasonable timeframe post emergency	7

6.2 PHASE 2

6.2.1 Identify Risk

From analyzing the above factors, brainstorming on possible hazards, communication and review of community consultation with HMA's/stakeholders and assessing the results of a community survey, 119 risks were initially identified, refer **Appendix 4**.

Each risk was then separated into 17 Risk Sources/Hazards as displayed in Table 5 below.

Table 5

#	Risk Source / Hazard
1	Air Transport Emergency
2	Animal Pest & Plant Disease
3	Bush Fire
4	Chemical/Biological/Radiological/Nuclear
5	Cyclone
6	Earthquake
7	Environmental Disaster
8	Flooding
9	Hazardous Materials / Chemical Spill
10	Human Epidemic
11	Marine Oil Pollution
12	Rail Freight Emergency
13	Road Transport Emergency
14	Severe Storm
15	Terrorism
16	Tsunami
17	Urban Fire

Given the diverse environments and multicultural community within the City of Cockburn, the above hazards were discussed by the project team at length in regards to factors such as:

- Topography
- Demography
- Local economy
- Council services and facilities
- Physical assets, heritage buildings, community and municipal lifelines
- Previous emergencies / events history

Risks are generated by the potential for a source of risk to interact with an element of the community and the environment ('Emergency Risk Management Applications Guide - Manual 5', page 27). Identifying and describing the nature of these risks enables the community to better understand the elements and prepare for ERM.

6.2.2 Risk Descriptions

Each risk was given a description that represented the source of risk and its relevance to the City of Cockburn. Input from stakeholders, HMA's and community residents were then utilised to maximize hazard identification.

From the accumulated information and reference to scientific data, risk descriptions were developed and detailed into a workable structure, refer **Appendix 5**.

6.2.3 Elements at Risk

Seven fundamental areas - Economy, Environment, Industry, Infrastructure, People, Property and Social & Cultural were recognized as key community elements at risk whilst further individual sub-elements were identified as both vulnerable and possible areas of impact in the event the risk occurred, refer Appendix 6.

6.2.4 Risk Statements

Each risk was then given a risk statement that represented the relationship between each **hazard (source of risk)** and each **element at risk** of the community and environment ('Emergency Risk Management Applications Guide - Manual 5').

The risk statements developed by the project team followed the general format displayed below:

There is a risk that an Urban Fire (*source of risk*) will affect the economy (*element at risk*).

The project team developed 139 Risk Statements, refer **Appendix 7**.

6.3 PHASE 3

6.3.1 Analyze Risk

Analyzing the risks involved a broad qualitative analysis that enabled the project team to develop an understanding of the risk, existing risk controls/treatments, determine a likelihood and consequence/s of the risk and establish a risk level for each identified risk.

ERM allows analysis of both the likelihood of the risk occurring and the likelihood of the consequences generated by the risk occurring. An example of this would be storms (source of risk) affecting property (element at risk), by removing roofs, causing internal water damage and loss of possessions (consequences). The likelihood of these consequences occurring every time a storm occurs will vary; therefore this is taken into account in the ERM risk analysis phase.

The project team examined the risks in detail and compared them against specified criteria of the likelihood of the risk occurring, the consequences if the risk occurred and the likelihood of the consequences occurring. Using local community and COC knowledge, plus research from historical and scientific data, the group was able to make informed decisions and establish a level of risk for all identified risks.

The likelihood was rated according to possible frequency ranging from almost certain to rare, as seen in Table 6.

TABLE 6

Rating	Descriptor	Likelihood
1	Rare	May occur only in exceptional circumstances, may occur at least once in 20 years.
2	Unlikely	Is not expected to occur; and/or no recorded incidents or anecdotal evidence; and/or no recent incidents in associated organisations, facilities or communities; and/or little opportunity, reason or means to occur; may occur at least once in 10 years.
3	Possible	Might occur at some time; and/or few, infrequent, random recorded incidents or little anecdotal evidence; and/or very few incidents in associated or comparable organisations, facilities or communities; and/or some opportunity, reason or means to occur; may occur at least once in 5 years.
4	Likely	Will probably occur in most circumstances; and/or regular recorded incidents and strong anecdotal evidence; and/or considerable opportunity, reason or means to occur; may occur at least once per year.
5	Almost Certain	Is expected to occur in most circumstances; and/or high level of recorded incidents; and/or strong anecdotal evidence; and/or a strong likelihood the event will recur; and/or great opportunity, reason, or means to occur; may occur more than once per year.

The project team then brainstormed on the possible consequences that could occur. The draft risk statements were then modified to include the new information from this phase.

The consequences were then rated according to the severity ranging from severe to insignificant, as shown in Table 7.

TABLE 7

Rating	Descriptor	Consequence
1	Insignificant	No injuries or fatalities. No displacement of people or displacement of only a small number of people for short duration. Little or no personal support required (support not monetary or material). Inconsequential or no damage. Little or no disruption to community. No measurable impact on environment. Little or no financial loss
2	Minor	Small number of injuries but no fatalities. First aid treatment required. Some displacement of people (less than 24 hours). Some personal support required. Some damage. Some disruption (less than 24 hours). Small impact on environment with no lasting effects. Some financial loss.
3	Moderate	Medical treatment required but no fatalities. Some hospitalisation. Localised displacement of people who return within 24 hours. Personal support satisfied through local arrangements. Localised damage that is rectified by routine arrangements. Normal community functioning with some inconvenience. Some impact on environment with no long-term effect or small impact on environment with long-term effect. Significant financial loss.
4	Major	Extensive injuries, significant hospitalisation, large number displaced (more than 24 hour's duration). Fatalities. External resources required for personal support. Significant damage that requires external resources. Community only partially functioning, some services unavailable. Some impact on environment with long-term effects. Significant financial loss - some financial assistance required.
5	Severe	Large number of severe injuries. Extended and large numbers requiring hospitalisation. General and widespread displacement for extended duration. Significant fatalities. Extensive personal support. Extensive damage. Community unable to function without significant support. Significant impact on environment and/or permanent damage.

From the analysis of the likelihood and consequence of each identified risks, the level of risk could be determined by utilizing a risk level matrix displayed as Table 8. This is significant as it offers guidance to the future prioritization of treatments of each identified risk.

TABLE 8

LIKELIHOOD	CONSEQUENCES									
	LOW		MINOR		MODERATE		MAJOR		SEVERE	
ALMOST CERTAIN	MEDIUM	5	HIGH	10	EXTREME	15	EXTREME	20	EXTREME	25
LIKELY	LOW	4	MEDIUM	8	HIGH	12	EXTREME	16	EXTREME	20
POSSIBLE	LOW	3	LOW	6	MEDIUM	9	HIGH	12	EXTREME	15
UNLIKELY	LOW	2	LOW	4	MEDIUM	6	MEDIUM	8	HIGH	10
RARE	LOW	1	LOW	2	LOW	3	MEDIUM	4	HIGH	5

After reviewing the factors, the results were incorporated into a Consolidated Risk Register, refer **Appendix 10** and applied to a Master Risk Register containing specific risk statements applicable to the City of Cockburn, their likelihood and consequence ratings, level of risk and risk priority refer **Appendix 11**.

6.4 PHASE 4

6.4.1 Evaluate Risk

The Evaluation phase establishes if a particular risk is either acceptable and adequately controlled/treated or unacceptable requiring further treatment. The process involves reviewing the risk analysis and risk evaluation criteria from Phase 3 - Analyze Risks, and then ranking each risk in order of community element priority.

This process involved four stages of prioritisations:

- Stage One - The focus was directed on the likelihood and level of risk as determined in Phase three. Risks that were rated the same risk level were further evaluated based on the priorities, displayed as Table 4 – Risk Evaluation Criteria.
- Stage Two - The project team further reviewed the ratings by ranking the risks within each risk level on the basis of the likelihood of the consequences of that risk occurring. This is in line with the process recommended in page 18 of the 'Emergency Risk Management Applications Guide - Manual 5'.
- Stage Three - The project team reviewed the Consolidated Risk Register and rated all 139 risks within each risk category utilising the Risk Identification Matrix, displayed as Table 8.
- Stage Four - The project team cross referenced and applied the consolidated risk ratings to the Master Risk Register, prioritised each risk in order of community element priority and classified each into Extreme, High, Medium and Low categories, refer Priority Risk Register - **Appendix 16**.

Risk evaluation criteria assisted the project team in making judgments about identified risks by helping prioritise the risks and the associated treatments. The criteria was based on several considerations including Economy, Environment, Industry, Infrastructure, People, Property, Social & Cultural and other factors as determined by stakeholders.

In determining the risk criteria, consideration was given to several aspects that were deemed unacceptable to the community. These included loss of life, preventable harm to the community, economic loss, environmental harm, infrastructure damage and loss of heritage.

6.5 PHASE 5

6.5.1 Treat Risk

This phase of the project proved to be the most challenging as it involved obtaining significant amounts of information from a wide cross-section of stakeholders. For each risk the responsible Hazard Management Agency (HMA), Support Agencies (SA) and City of Cockburn responsibilities had to be identified.

The HMA's, SA's and other stakeholders were invited via email, which outlined the working group's requirements to participate in the process required to complete the risk treatment phase.

To facilitate completion HMA's, SA's and other stakeholders were provided a specifically designed ERM Workbook for completion in regards to the identification of existing risk controls and treatments and Preparedness, Prevention, Response and Recovery Strategies, refer **Appendix 12**.

The project team agreed to use the Preparedness, Prevention, Response and Recovery approach to developing Risk Strategies where the effectiveness of existing local arrangements could be considered whilst focusing on prevention / mitigation and preparedness.

The workbook requested a descriptive response of their organisations PPRR approaches to specific identified risks. The controls and treatments were required to be recorded as either existing and currently in place or suggested for future implementation.

6.5.2 Risk Treatment Options

A Risk Treatment template was devised to capture relevant information for all the identified risks. The project team identified the HMA's and SA's for each risk and through the experience and knowledge of the project team members, review of scientific data and existing Westplans risk controls and recommended treatments were identified.

In order to attain a more robust evaluation process, the project team held several internal meetings with City of Cockburn staff to enable more in-depth explanations and understanding of the ERM project and ERM process. The meetings enabled the promotion of the ERM project and increased the knowledge and awareness of EM within the City.

This process resulted in the development of more detailed descriptions on the existing and suggested City of Cockburn Risk Treatment Plans, refer **Appendix 13**.

6.5.3 Risk Strategy

A Risk Strategy template was devised to capture relevant information for all the PPRR Strategies. The project team identified the HMA's and SA's for each risk strategy and through the experience and knowledge of the project team members, review of current legislation and existing Westplans risk strategies were identified, refer **Appendix 14**.

The identified risk strategies will be further considered upon completion of the Review of the City's Emergency Management Arrangements.

7 COMMUNICATION AND CONSULTATION

For the City of Cockburn's key stakeholders, community groups, associations, commercial businesses and industry, an initial telephone contact was made to determine participation followed by either a person to person consultation or the provision of completing an on-line interactive survey. In addition to the 1550 residential surveys mailed out a further 114 contacts were achieved with 22 consultative interviews conducted.

The Community Risk Survey was divided into three parts.

PART ONE of the community survey determined that there was a high level of perceived awareness and preparation to community emergencies in the event one occurred and that the community placed a high level of importance on the provision of emergency management information.

The main survey responders were:

- * **Female**
- * **Aged 46 years and over and**
- * **English spoken**

PART TWO of the community survey determined that there was a high level of consistency regarding perception of risk likelihood and community impact from emergency events. Survey respondents identified the following events as the most likely hazards to occur.

- * **Bushfire**
- * **Severe Storm**
- * **Hazardous Materials / Chemical Spill**
- * **Marine Oil Pollution**
- * **Air Transport Emergency**

Although survey respondents considered Bushfire to be the most significant emergency event they were not asked to qualify their selections, consequently historical occurrences of bush fires and the high percentage of bush land areas within the City of Cockburn played a dominant part for selection purposes.

PART THREE of the community survey determined community perception of the importance of certain facilities/assets within the City of Cockburn for priorities of planning and recovery measures during and after an emergency situation. Of these, the highest rated were:

- * **Hospitals / Medical Centres**
- * **Utilities**
- * **Communication Systems**
- * **Residential Buildings**
- * **Fuel Supplies**

SURVEY SUMMARY

Several comments received through the surveys revealed that a number of residents hold the ERM process in high regard, expressing a desire to learn more about the most significant emergencies. Additionally, many respondents were eager to learn about the provision of community emergency information and having a prior knowledge of when an emergency event occurs.

7.1 CONSULTATION MEETINGS WITH IDENTIFIED HMA'S / SUPPORT AGENCIES / LIFELINES

The first discussion took place on the 25th August 2009 at the City of Cockburn's Monthly LEMC Meeting; attendees were given a brief overview of the ERM Project and provided details of their responsibilities to the ERM process including required levels of participation. Follow-up interviews were held with all HMA's and SA's between 24th August and 18th September 2009 where discussion and data gathering was sought in regards to risk identification.

7.2 PROJECT TEAM MEETINGS

The project team met on a weekly basis ranging from one hour to half-day sessions over a period of 6 months.

7.3 LOCAL EMERGENCY MANAGEMENT COMMITTEE (LEMC)

Progress and results of the ERM project team were presented at the 25th August 2009 LEMC meeting; allowing the committee members to monitor, review and offer feedback to the process. A power point presentation was given on the same day to further educate committee members of the ERM process in preparation for submission to council.

7.4 INTERNAL CONSULTATION

Project team members regularly liaised with City of Cockburn staff to obtain critical information and feedback on the ERM project.

Several meetings were held with managers and staff to inform each person of the ERM project to date and the requirement for each to provide detailed information on their specific risk responsibility.

In addition, individual City of Cockburn staff members (not project team members) provided their input on risk priorities and assisted in reviewing the ERM draft documentation.

7.5 COMMUNITY WORKSHOP

A two day community workshop was held at the City of Cockburn's Administration Centre on the 5th – 6th October 2009 from 0830hrs – 1700hrs. All LEMC members and a number of residents and organisations operating within the City of Cockburn were invited to attend; these included:

- Business Associations
- Schools
- Fremantle Hospital
- Cockburn State Emergency Services
- St John Ambulance
- Commercial Associations
- Industry Groups
- Shopping Centres
- Local Councilors

Written invitations were sent out to each of the invited groups/individuals with follow up phone calls for confirmation. The workshop consisted of a 45-minute power point presentation, refreshments were provided to all participants whilst generated data/information was recorded live into a Community Emergency management Systems Database (CEMS).

All attendees were recorded against an Attendance Register, refer **Appendix 17** and required to undertake group activities that involved robust discussion and the completion of 5 risk workbooks refer **Appendices 5 – 9**. Each attendee was later provided copies of the workshop outcomes and a letter thanking them for their attendance and assistance.

8 MONITOR AND REVIEW

Ongoing review is essential to ensure that the management plan remains relevant. Factors that may affect the likelihood and consequences of an outcome may change, as may the factors that affect the suitability or cost of the treatment options. It is therefore necessary to repeat the risk management cycle regularly.

Actual progress against risk treatment plans provide an important performance measure and should be incorporated into the organisation's performance management, measurement and reporting system. Monitoring and review also involves learning lessons from the risk management process, by reviewing events, the treatment plans and their outcomes.

Built within each Risk Treatment Plan is a Monitor and Review Program. This will ensure an ongoing risk review process is maintained and that any community variations impacting on such are recorded.

9 OBSERVATIONS

- 1 Comments received within the survey and community consultation, indicated that a number of respondents do not have adequate knowledge in the area of preparing for an emergency.
- 2 Few Non-English speaking residents responded to the community survey.
- 3 Insufficient prevention measures exist in the City of Cockburn to measure fuel loading of bushland reserves and other Council owned land at risk of bushfire or other emergency event.

10 RECOMMENDATIONS

- 1 Information should be circulated to the community in the form of ongoing education and training. This will enable an enhancement in the level of awareness of ERM in the community and increase community confidence in their safety.
- 2 Implementation of education and awareness procedures to advise residents of preparing for emergencies, what to do in times of emergency, where to seek support during and after events, location of evacuation centres, and various contacts for further information.
- 3 Designated evacuation centres should be identified and maintained on a regular basis to a high level. Evacuation centres must be identified, advertised and made available to accommodate community evacuees to specific capacities.
- 4 A continuous monitoring and reviewing of the processes and priorities, as per AS/NZS 4360:2004, is required to accommodate the changing demographics within the City of Cockburn and to ensure correct processes are adhered to.
- 5 Communication between neighbouring Councils to ratify a MOU, for the purpose of resource sharing to suitably accommodate emergency evacuees from either district. Trigger points should be identified for Evacuation Centre capacities, to discern secondary Evacuation Centres that can be used for surplus evacuees
- 6 A regular publication or update of convenient community locations to access Emergency Management related information or a dedicated website link on Local Government homepages.
- 7 City of Cockburn to implement measuring techniques and resources to carry out Fuel Loading assessments on Bushland Reserves, Parks & Gardens, Verges etc, and use results to carry out controlled burning or other appropriate treatment to reduce fuel loading levels and minimize risk of damage from an emergency event
- 8 Further funding applications should be considered in conjunction with Council's budget.
- 9 A collection of further risk treatments to be developed from the research and conclusions of this report, in order to compile additions to the Emergency Risk Management Plan for the identified High Risks and thus determine appropriate Risk Strategies (PPRR).
- 10 Enhance the awareness of Emergency Risk Management and the Local Emergency Management Arrangements through community education and communication.
- 11 Implementation of a communication strategy that promotes ongoing stakeholder communication and consultation. Reference should be made to the existing Local Emergency Management Arrangements for current resource sharing agreements and responsibilities of support and welfare for the community.
- 12 Implement prevention strategies including fuel loading assessments and controlled burning measures or similar
- 13 Implement continuous monitoring and review of ERM procedures, after developing a risk register using the results of this project in order to determine appropriate treatment options
- 14 Establish future consultation with the public through similar community surveying within a 5 year period.
- 15 Implement independently facilitated ERM Training Workshops for LEMC members, HMA's and SA's.
- 16 Implement independently facilitated Crisis Management Workshops to exercise, test and gauge ERM Plan SWOT capabilities.

11 APPENDICES

Appendix 1	Community Survey
Appendix 2	Community Survey Covering Letter
Appendix 3	Community Survey Report 2009
Appendix 4	Preliminary Risk Register
Appendix 5	Risk Identification Workbook
Appendix 6	Risk Impact Workbook
Appendix 7	Risk Rating Workbook
Appendix 8	Risk Treatment Workbook
Appendix 9	Risk Strategy Workbook
Appendix 10	Consolidated Risk Register
Appendix 11	Master Risk Register
Appendix 12	LEMC ERM Workbook
Appendix 13	Risk Treatment Plans
Appendix 14	Risk Strategy Plans
Appendix 15	Project Schedule
Appendix 16	Priority Risk Register
Appendix 17	Community Workshop Attendance Register

Appendix 1 **Community Survey**

CITY OF COCKBURN Emergency Risk Management Survey

The City of Cockburn is currently updating its Local Emergency Management Arrangements to comply with State Legislative requirements. To ensure the City is well prepared for any emergency that may significantly impact on the Community we are asking for your assistance in helping to identify any potential risks ~ "Emergency or Risk" is an event that could seriously impact / disrupt the normal activities of the community.

The City of Cockburn wishes to thank all Emergency Risk Management Survey participants for their time and efforts in helping to ensure the City is well prepared for any future emergency and or disaster. The City of Cockburn takes great care with practices that affect personal privacy and will not disclose any personal information which is not related to Emergency Risk Management to any third party. The City of Cockburn also requests persons wishing to participate in follow-up Community Forums and Information Sessions to please indicate their willingness to attend by ticking the box below.

Yes, I would like to participate in a follow-up Community Forum/Workshop: (please X)

First Name		Telephone	
------------	--	-----------	--

Age	15 – 25yrs	26 – 35yrs	36 – 45yrs	46 – 60yrs	61+yrs
-----	------------	------------	------------	------------	--------

Gender	Male	Female
--------	------	--------

Is English the preferred language spoken in the home	YES <input type="checkbox"/> (please X)	NO <input type="checkbox"/> (please X)
--	---	--

Please state the preferred language (if other than English) that you would like to receive written Emergency Service communications in:	
---	--

Which residential area do you live? (please circle)	<ul style="list-style-type: none"> • Atwell • Aubin Grove • Banjup • Beeliar • Bibra Lake • Cockburn • Coogee 	<ul style="list-style-type: none"> • Coolbellup • Hamilton Hill • Hammond Park • Henderson • Jandakot • Leeming • Munster 	<ul style="list-style-type: none"> • North Coogee • North Lake • South Lake • Spearwood • Success • Wattleup • Yangebup
--	--	--	--

How long have you been living in The City of Cockburn?	6mths – 1 year	1 – 3 years	3 – 5 years	5 – 10 years	10 years
--	----------------	-------------	-------------	--------------	----------

Ethnicity: To ensure all Cultural and linguistically diverse groups' needs are carefully considered in the Emergency Management planning process please list any specific needs and/ or concerns.
1.
2.
3.

CITY OF COCKBURN Emergency Risk Management Survey

How prepared are you? (please circle)	Low	<scale from 1-5>	High
--	-----	------------------	------

How would you rate your level of preparedness for an emergency or disaster?	1	2	3	4	5
---	---	---	---	---	---

How would you rate your general awareness of Emergency Management and services provided in the City of Cockburn?	1	2	3	4	5
--	---	---	---	---	---

How would you rate your level of Insurance on personal property?	1	2	3	4	5
--	---	---	---	---	---

How would you rate the City of Cockburn's general level of preparedness in the event of an Emergency /disaster?	1	2	3	4	5
---	---	---	---	---	---

If your property was threatened by bushfire would you?	Stay & Defend	Evacuate
--	---------------	----------

In the event of an emergency, what do you consider to be the most effective way for emergency services to communicate information to you and your family? (please circle)	<ul style="list-style-type: none"> • Bulletins / Notice Boards • Flyers • Internet • Home Phone • Home Visit • Local Radio 	<ul style="list-style-type: none"> • Mobile Phone • Newspapers • SMS text msg • Television • Website 	Other (please state below)
--	--	---	----------------------------

Please list (if any) the type of things you feel the City of Cockburn or Emergency Services could or should provide to help assist residents in preparing for a possible future emergency/ disaster	<ul style="list-style-type: none"> • • •
--	---

On a scale of 1 – 5 please circle what importance you place on the following	Low	<scale from 1-5>	High
--	-----	------------------	------

Information on how best to plan/prepare for an emergency/disaster	1	2	3	4	5
---	---	---	---	---	---

Information on how your local government can assist you in the event of a Emergency/ disaster	1	2	3	4	5
---	---	---	---	---	---

Public forums / Community information sessions – opportunity for information provision, Question & Answer time.	1	2	3	4	5
---	---	---	---	---	---

Any additional comments you'd like to make?	
---	--

CITY OF COCKBURN Emergency Risk Management Survey

The following list describes potential disasters that could have a huge impact on our community, please rate those that you feel apply to the City of Cockburn (please X).

What is the Likelihood – Risk of the following Emergency/ Disaster occurring within the City of Cockburn

Low <scale from 1-5> High

How significantly do you think it would Impact on the community?

Low <scale from 1-5> High

Air Transport Emergency	1	2	3	4	5	1	2	3	4	5
Animal & Plant Disease Outbreak	1	2	3	4	5	1	2	3	4	5
Building Collapse	1	2	3	4	5	1	2	3	4	5
Bush Fire	1	2	3	4	5	1	2	3	4	5
Climate Change	1	2	3	4	5	1	2	3	4	5
Cyclone	1	2	3	4	5	1	2	3	4	5
Drought	1	2	3	4	5	1	2	3	4	5
Earthquake	1	2	3	4	5	1	2	3	4	5
Environmental Disaster	1	2	3	4	5	1	2	3	4	5
Flooding	1	2	3	4	5	1	2	3	4	5
Fuel Supply Emergency	1	2	3	4	5	1	2	3	4	5
Hazardous Materials/Chemical Spill	1	2	3	4	5	1	2	3	4	5
Heatwave	1	2	3	4	5	1	2	3	4	5
Human Epidemic	1	2	3	4	5	1	2	3	4	5
Land Search & Rescue	1	2	3	4	5	1	2	3	4	5
Marine Oil Pollution	1	2	3	4	5	1	2	3	4	5
Racial Violence	1	2	3	4	5	1	2	3	4	5
Rail Freight Emergency	1	2	3	4	5	1	2	3	4	5
Recreational Marine Incident	1	2	3	4	5	1	2	3	4	5
Road Transport Emergency	1	2	3	4	5	1	2	3	4	5
Sea Search & Rescue	1	2	3	4	5	1	2	3	4	5
Severe Storm	1	2	3	4	5	1	2	3	4	5
Space Re-Entry Debris	1	2	3	4	5	1	2	3	4	5
Terrorism	1	2	3	4	5	1	2	3	4	5
Tsunami	1	2	3	4	5	1	2	3	4	5
Urban Fire	1	2	3	4	5	1	2	3	4	5
Other (please state)	1	2	3	4	5	1	2	3	4	5

CITY OF COCKBURN Emergency Risk Management Survey

In an emergency many Community Assets may be at risk of loss/ damage. How important do you rate the value of the following assets? (please X)

How much value do you place on the following?

Low <scale from 1-5> High

In the event of loss or damage to this asset what level of impact do you think it would have upon the community?

Low <scale from 1-5> High

Aged & Home Care Services	1	2	3	4	5	1	2	3	4	5
Churches and Places of Worship	1	2	3	4	5	1	2	3	4	5
Communication Systems–Telephone. TV .Post	1	2	3	4	5	1	2	3	4	5
Domestic & Household Pets	1	2	3	4	5	1	2	3	4	5
Environment And Wildlife	1	2	3	4	5	1	2	3	4	5
Fuel Supplies	1	2	3	4	5	1	2	3	4	5
Govt. Agencies i.e. Centre link	1	2	3	4	5	1	2	3	4	5
Hospitals / Medical Centre	1	2	3	4	5	1	2	3	4	5
Livestock / Crops	1	2	3	4	5	1	2	3	4	5
Other Community Asset i.e. Tourist Attraction	1	2	3	4	5	1	2	3	4	5
Public & Recreational Facilities i.e. Ovals etc	1	2	3	4	5	1	2	3	4	5
Residential Buildings	1	2	3	4	5	1	2	3	4	5
Roads / Rail Systems	1	2	3	4	5	1	2	3	4	5
Schools & Childcare Facilities	1	2	3	4	5	1	2	3	4	5
Shire Services i.e. Rubbish Removal	1	2	3	4	5	1	2	3	4	5
Supermarket / Retail Shops	1	2	3	4	5	1	2	3	4	5
Utilities – Gas / Power / Water	1	2	3	4	5	1	2	3	4	5
Other (please state)	1	2	3	4	5	1	2	3	4	5

The City of Cockburn appreciates & thanks you for your time and contribution please ensure your survey is returned by 2009 for your chance to win a \$500.00 Gateways gift voucher.

Thank You

Further information is available on the City of Cockburn website www.cockburn.wa.gov.au

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Appendix 2
Community Survey Covering Letter



XX/07/2009

Dear Sir/Madam,

RE: Community Consultation – Emergency Management

The City of Cockburn is seeking community input on potential risks and hazards that may significantly impact, cause disruption or bring about damage to the district.

WA is a diverse state with a variety of hazards and risks that may differ from one local government area to another.

The Emergency Management Act 2005 requires all local governments to develop local emergency arrangements for each individual area. To assist the City of Cockburn with this process, FESA has provided a grant through AWARE (All West Australians Reducing Emergencies).

To help identify areas of concern – so the City of Cockburn can plan and prepare its responses accordingly – we are inviting you to complete the enclosed survey to gain an all-encompassing insight into all factors that may need to be considered.

Please take the time to contemplate any possible risks existing within the City of Cockburn that may require an emergency management response.

We appreciate your thoughts and look forward to your feedback. Should you have any queries, please call me on 9411 3468.

Yours faithfully

Shirley Elliott
Community Safety Coordinator
City of Cockburn

Appendix 3

Community Survey Report 2009



COMMUNITY SURVEY RESULTS 2009
EMERGENCY RISK MANAGEMENT PROJECT

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ACKNOWLEDGEMENTS

The City of Cockburn wishes to thank all the people and organisations who contributed to the 2009 Community Survey of the City of Cockburn's Community Emergency Risk Management AWARE Project. In particular, the City of Cockburn residents, selected community groups, local businesses and local secondary schools who took part in a community survey and those who participated in face to face interviews.

1 EXECUTIVE SUMMARY

In 2009 the City of Cockburn (CoC) identified a need to update the existing Local Emergency Management Arrangements and related documents. An Emergency Risk Management (ERM) process was adopted to undertake a community focused exploration of risks and vulnerabilities within the City of Cockburn communities, methods of mitigating these risks and opportunities for resource sharing between neighbouring councils.

The project commenced in May 2009 following receipt of a grant of \$30,000 from the Fire and Emergency Services Authority of Western Australia (FESA) through the All West Australians Reducing Emergencies (AWARE) Program.

An Emergency is defined as an event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which requires a significant and coordinated response (Emergency Management Australia, 2005).

In order to ascertain community perceptions, a survey was developed for distribution to residents within the City of Cockburn. On 1st August 2009, 1550 surveys were distributed by mail to randomly selected residents advertising an incentive to complete and return the survey by 18th August 2009. Survey receipt however was slow and continued long after the closing date. To ensure all returned survey information was however noted and recorded the closing date for return was extended to 8th September 2009 and is included in the enclosed survey results.

The ratio of surveys to each City of Cockburn suburb was based on the respective population and localised scenery. The level of response (171 or 11.0% collectively), was slightly higher than the expected 5-8% response rate, which is a reflection of the level of concern for community welfare and interest in emergency management outcomes within the communities.

Local Community newspapers and the City of Cockburn's website were utilised to promote the process with residents before the survey was mailed out whilst the City's monthly resident Soundings newsletter was used to include the survey.

For the City of Cockburn's key stakeholders, community groups, associations, commercial businesses and industry, an initial telephone contact was made to determine participation followed by either a person to person consultation or the provision of completing an on-line interactive survey. In addition to the residential survey mail out a further 114 contacts were achieved with 22 consultative interviews conducted.

All survey data was entered into a localised database that produced detailed excel spreadsheets and the enclosed graphical information.

2 SURVEY SUMMARY

PART ONE of the City of Cockburn survey revealed the City of Cockburn's respondent, residential and demographic albeit proportionate emergency management composition in regards to location, age gender, language and ethnicity.

The survey identified the main survey responders were:

- * **Female**
- * **Aged 46 years and over**
- * **English spoken and a**
- * **Bibra Lake / Coogee resident**

PART TWO of the City of Cockburn survey revealed that most residents consider they have a high level of emergency management awareness and are well prepared for an emergency. However, only 1.76% of survey respondents believe the City of Cockburn is highly prepared.

In the event of property being threatened just fewer than 60% indicated they would evacuate their homes if an emergency occurred whilst local radio scored the highest as the best means for emergency communication.

In terms of being provided information on preparedness most residents indicated they hold this in high regard, expressing a desire to learn more on how to best prepare for an emergency.

Additionally, many respondents were eager to learn more about information on how the City of Cockburn could assist in the event of an emergency occurring.

PART THREE of the City of Cockburn survey determined that there was a high level of consistency regarding perception of significance of risks and vulnerabilities within the communities from emergency events. The City of Cockburn identified the following five events as the highest priorities for emergency management planning:

- * **Bushfire**
- * **Terrorism**
- * **Hazard Materials / Chemical Spill**
- * **Severe Storms**
- * **Human Epidemic**

In the City of Cockburn, respondents considered Bushfire to be the most significant emergency event, because of historical occurrences and the high percentage of surrounding bush land areas.

PART FOUR of the City of Cockburn survey determined community perception on the importance and value of certain facilities/assets within the City of Cockburn and the impact to the City of Cockburn if an emergency occurred and one or more facility/asset was lost or damaged. Of these, the five highest rated were:

- * **Hospitals / Medical Centres**
- * **Utilities**
- * **Communication Systems**
- * **Roads / Rail Systems**
- * **Residential Buildings**

SURVEY RATINGS

To ensure compliance with AS / NZ 4360 Risk Management Standard the likelihood and consequence survey ratings are to be interpreted as follows:

LIKELIHOOD:

SURVEY RATING		AS / NZ 4360 RATING
1	LOW	RARE
2		UNLIKELY
3		POSSIBLE
4		LIKELY
5	HIGH	ALMOST CERTAIN

CONSEQUENCE / LOSS / IMPACT:

SURVEY RATING		AS / NZ 4360 RATING
1	LOW	INSIGNIFICANT
2		MINOR
3		MODERATE
4		MAJOR
5	HIGH	SEVERE

PREPAREDNESS; IMPORTANCE & VALUE LEVELS:

SURVEY RATING		AS / NZ 4360 RATING
1	LOW	LOW
2		MINOR
3		MODERATE
4		MAJOR
5	HIGH	HIGH

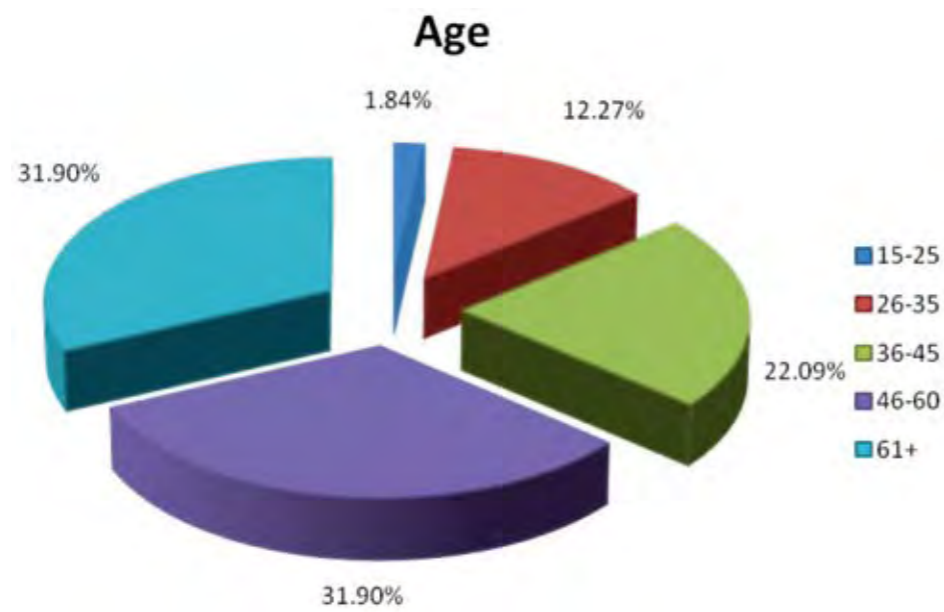
SURVEY CHARTS

A series of statistical charts have been included with in this report for a more detailed analysis of the survey data received.

3 SURVEY RESPONSES

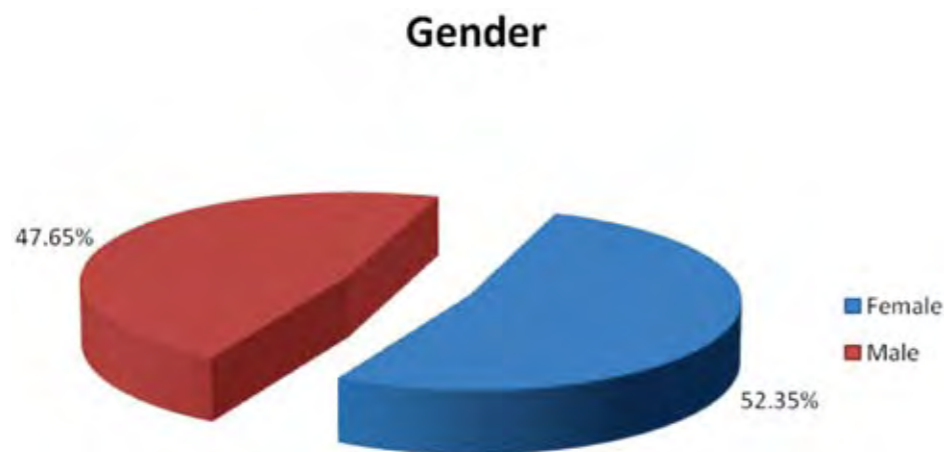
3.1 Age

Survey results revealed a higher proportionate of persons aged 46 years (63.80%) and over completed the surveys.



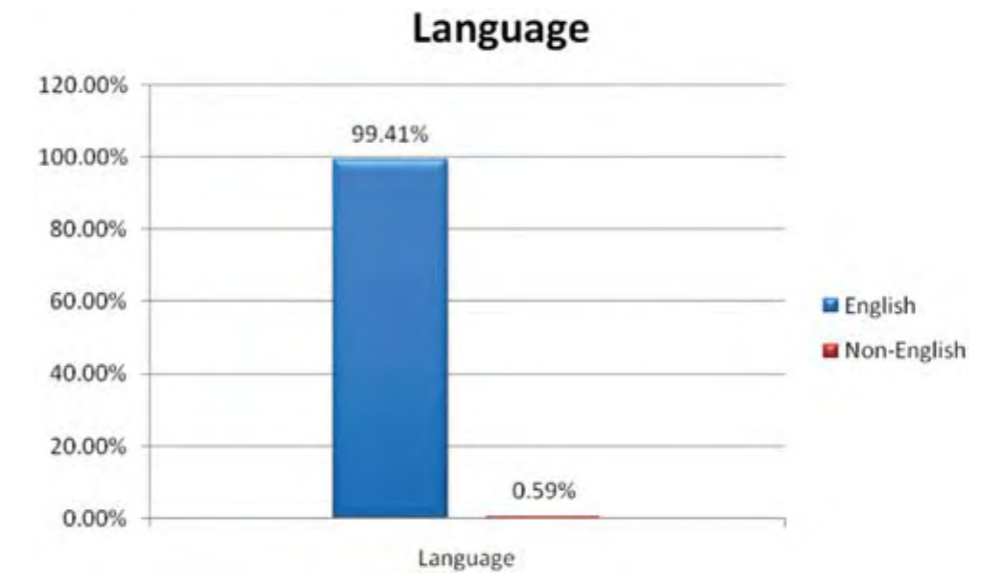
3.2 Gender

Survey results revealed a higher proportionate of females (52.35%) completed the surveys as opposed to males.



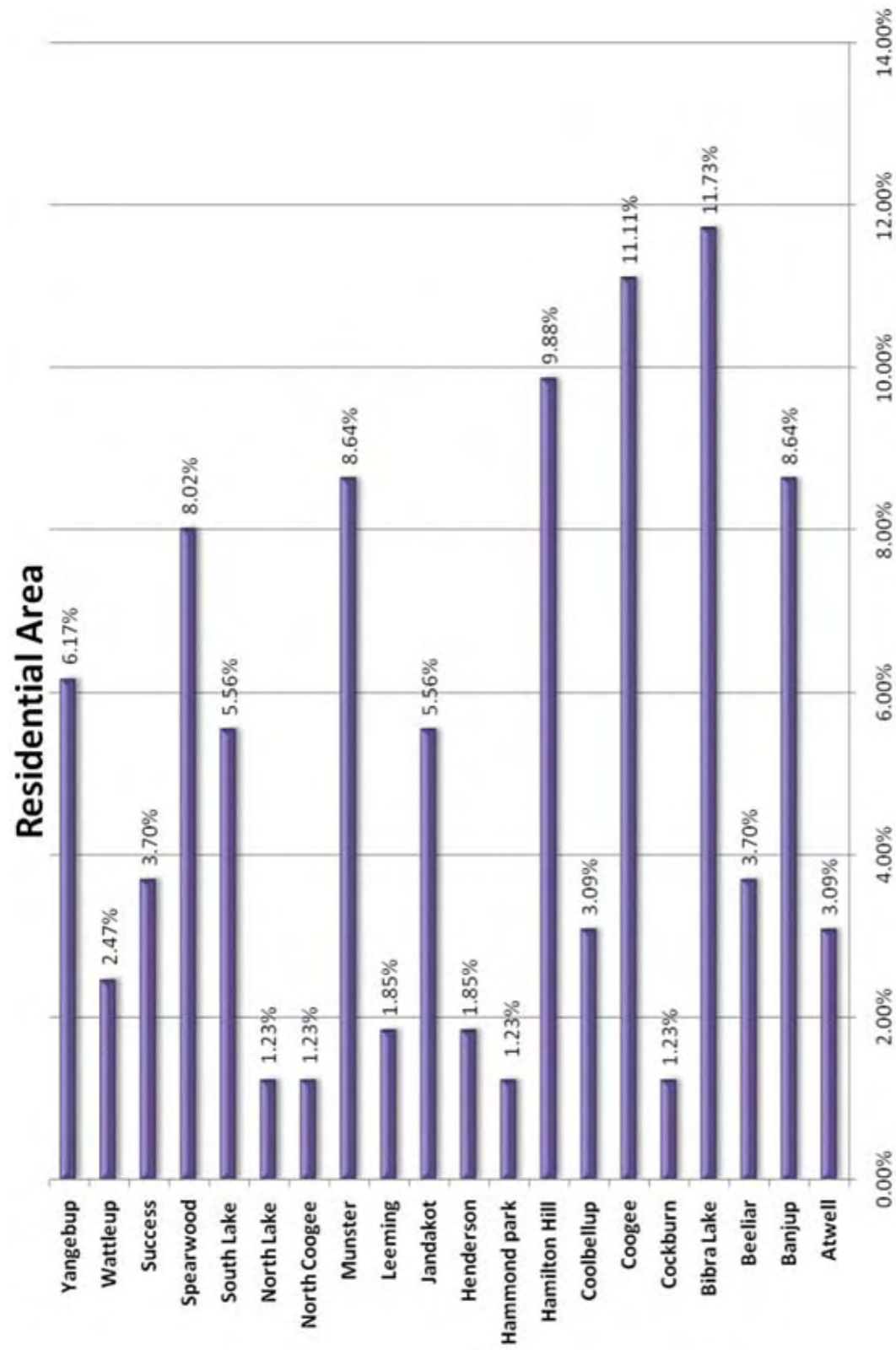
3.3 Language

Survey results revealed English as the dominant language (99.41%) for receipt of written emergency service communications whilst one survey respondent requested they be available in Croatian and Hungarian.



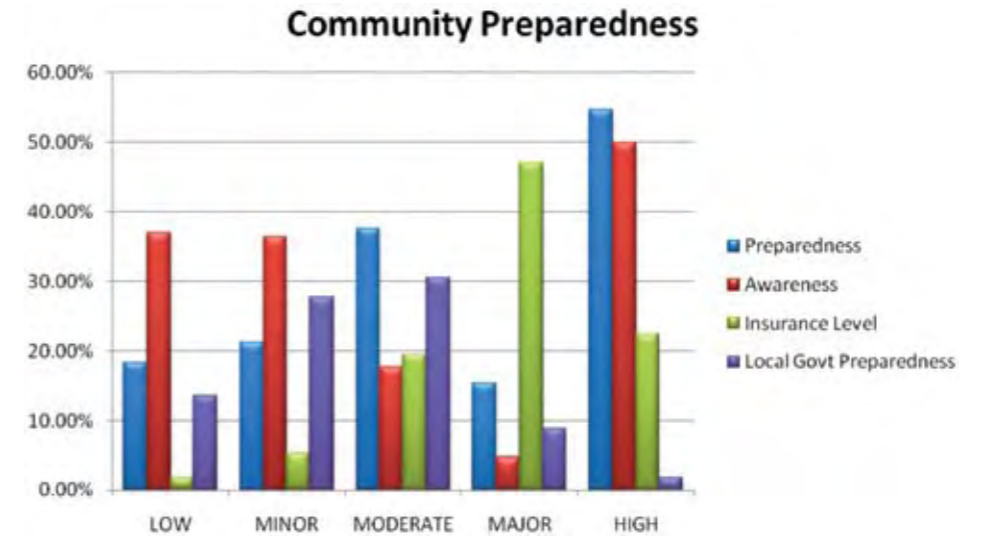
3.4 Area

Survey results revealed Bibra Lake residents (11.73%) as returning the most completed surveys followed by Coogee (11.11%).



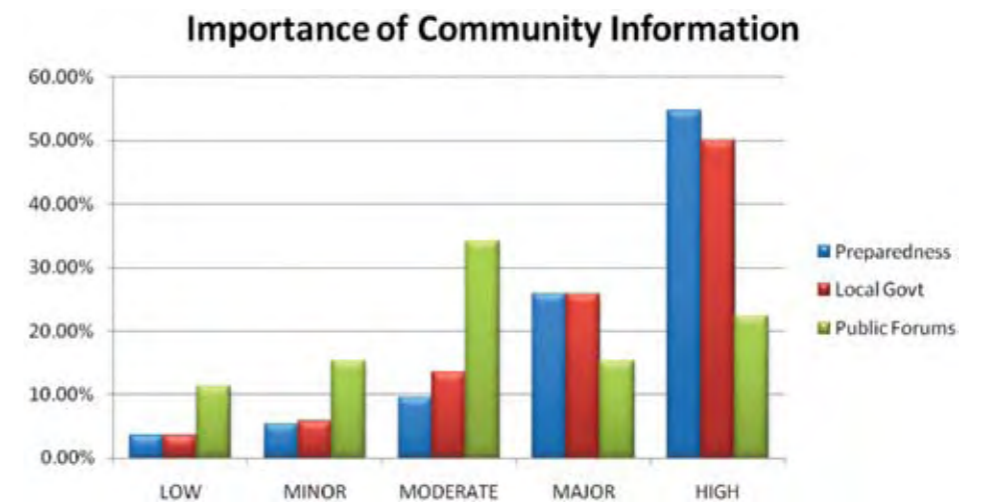
3.5 Preparedness

Survey results revealed the City of Cockburn felt they were well prepared for an emergency (54.71%) with a high level of general awareness (50.00%) whilst most considered Local Government only moderately prepared (30.59%).



3.6 Emergency Information

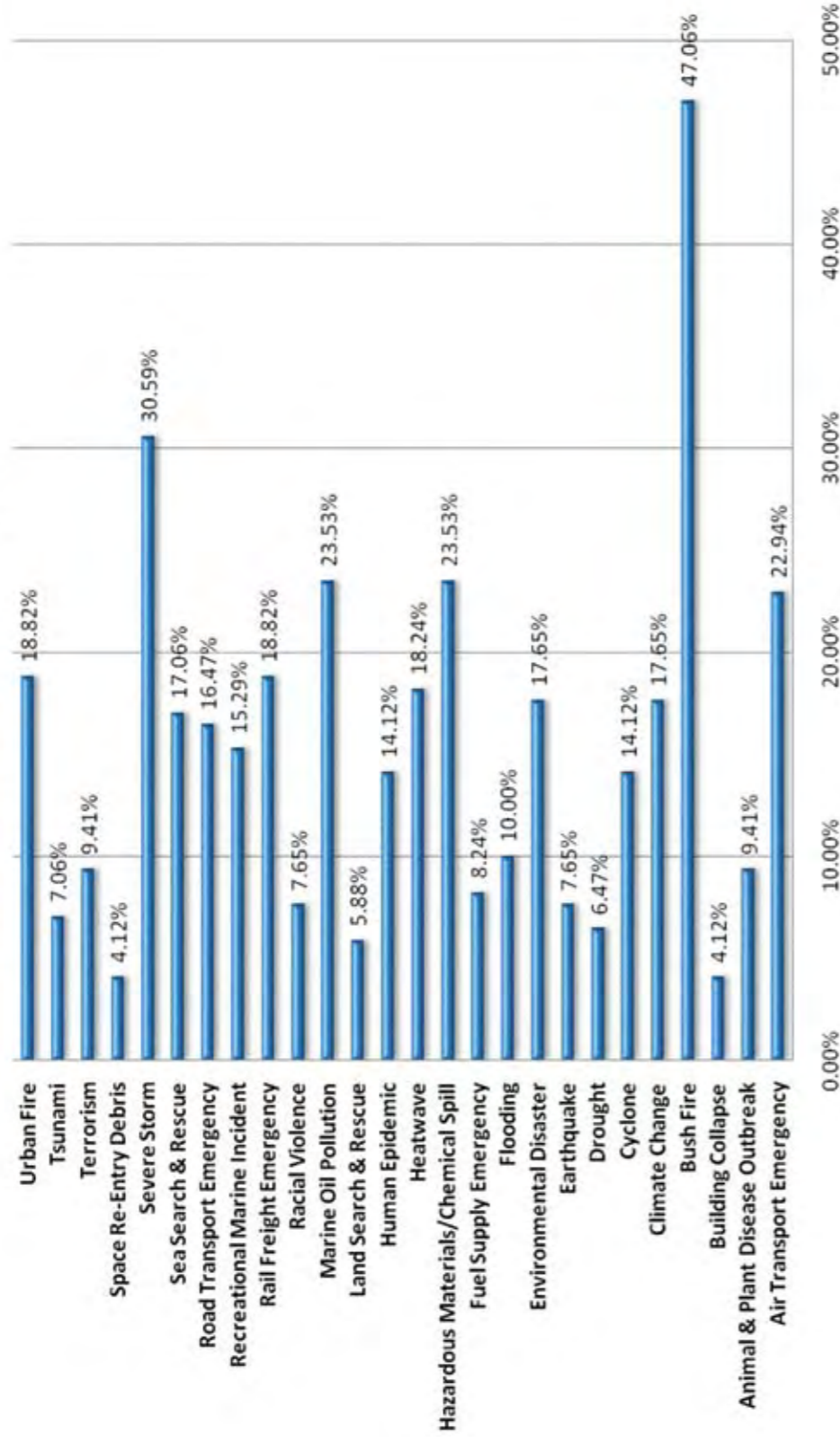
Survey results revealed the City of Cockburn placed a high level of importance on the provision of community emergency management information.



4 COMMUNITY HAZARDS

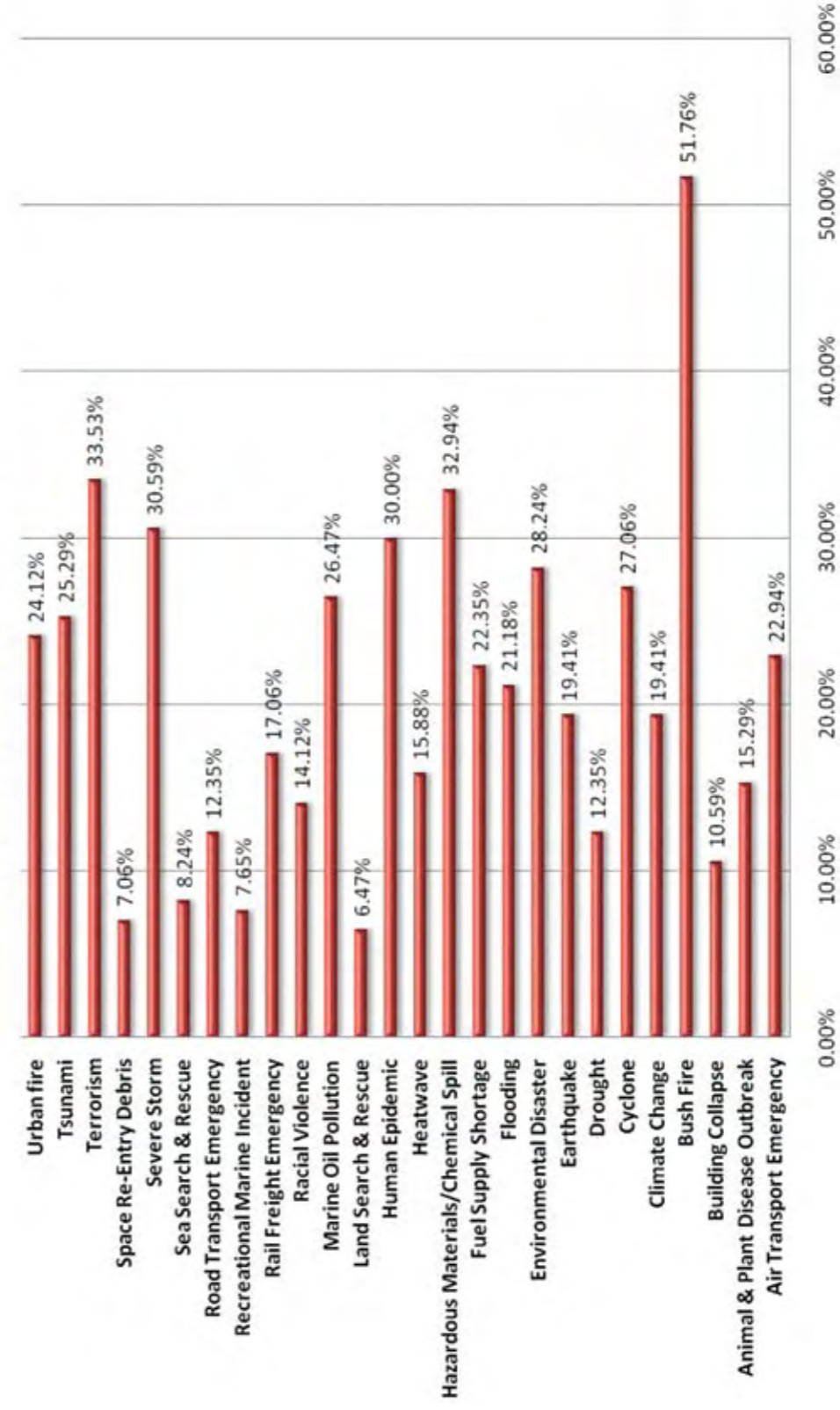
LIKELIHOOD – According to survey respondent results: The community perceives Bush Fire, Severe Storm, Hazardous Materials / Chemical Spill, Marine Oil Pollution and Air Transport Emergency as the five most likely hazards to occur in the City of Cockburn

Community Hazard Likelihood

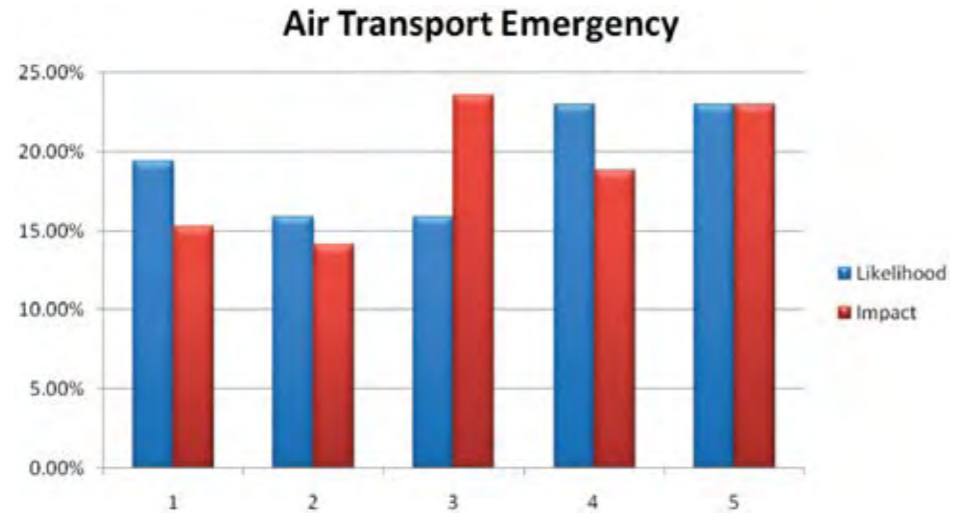


CONSEQUENCE / IMPACT – According to survey respondent results: The community perceives Bush Fire, Terrorism, Hazardous Materials / Chemical Spill, Severe Storm and Human Epidemic as the five most likely hazards to have the greatest impact on the City of Cockburn.

Community Hazard Impact

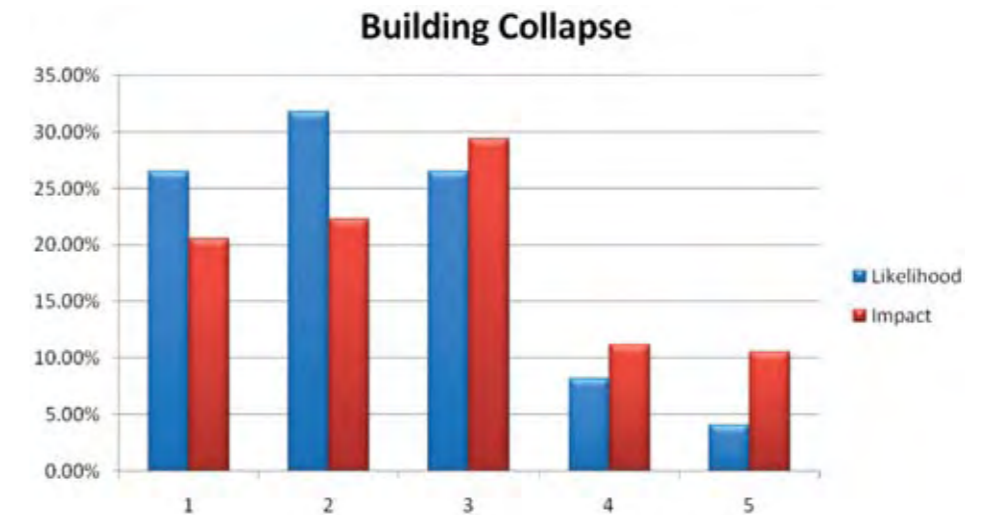


4.1 Air Transport Emergency



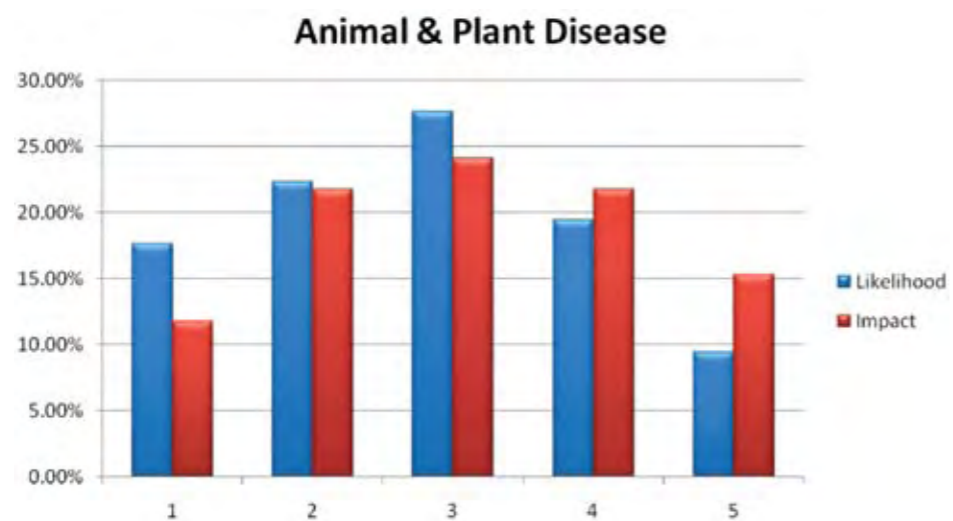
22.94% of surveyed residents thought the likelihood of an Air Transport Emergency was almost certain whilst 23.53% thought the impact to the City of Cockburn if it occurred would be moderate

4.3 Building Collapse



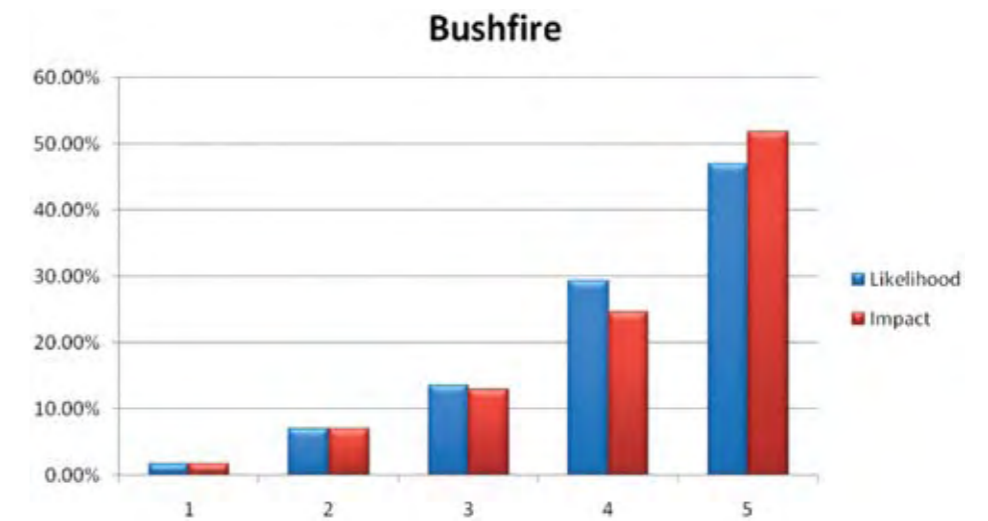
31.76% of surveyed residents thought the likelihood of a Building Collapse was unlikely whilst 29.41% thought the impact to the City of Cockburn if it occurred would be moderate

4.2 Animal & Plant Disease Outbreak



27.65% of surveyed residents thought the likelihood of an Animal & Plant Disease Outbreak was possible whilst 24.12% thought the impact to the City of Cockburn if it occurred would be moderate

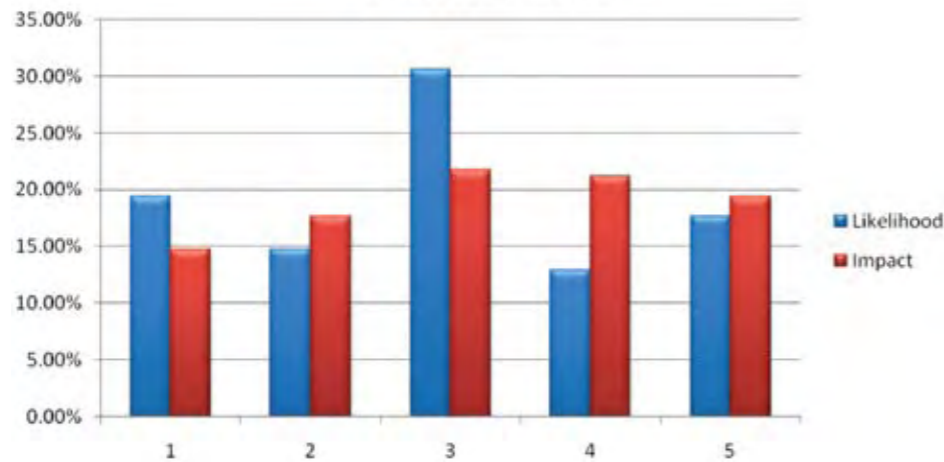
4.4 Bush Fire



47.06% of surveyed residents thought the likelihood of a Bushfire was almost certain whilst 51.76% thought the impact to the City of Cockburn if it occurred would be severe

4.5 Climate Change

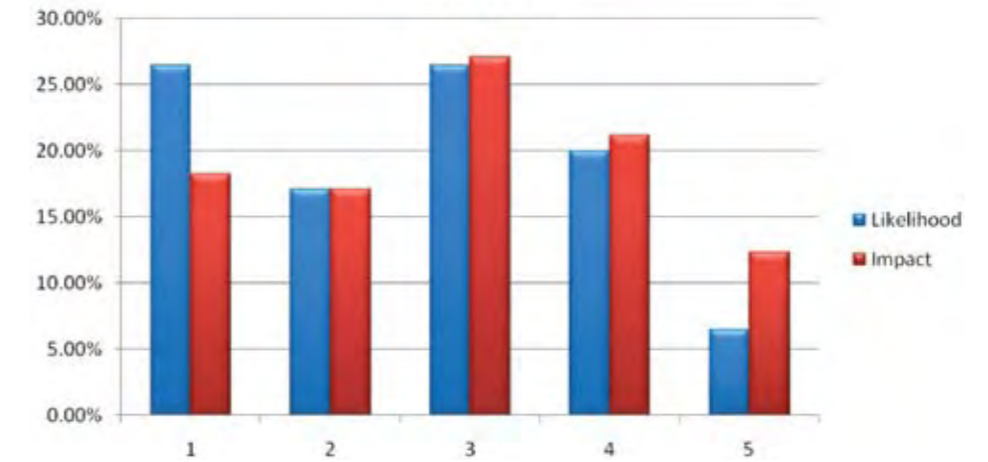
Climate Change



30.59% of surveyed residents thought the likelihood of a Climate Change was possible certain whilst 21.76% thought the impact to the City of Cockburn if it occurred would be moderate

4.7 Drought

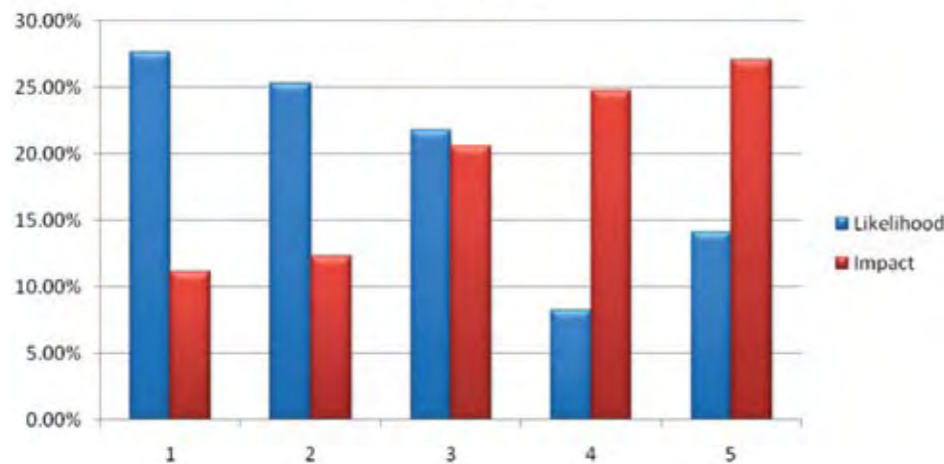
Drought



26.47% of surveyed residents thought the likelihood of a Drought was possible whilst 27.06% thought the impact to the City of Cockburn if it occurred would be moderate

4.6 Cyclone

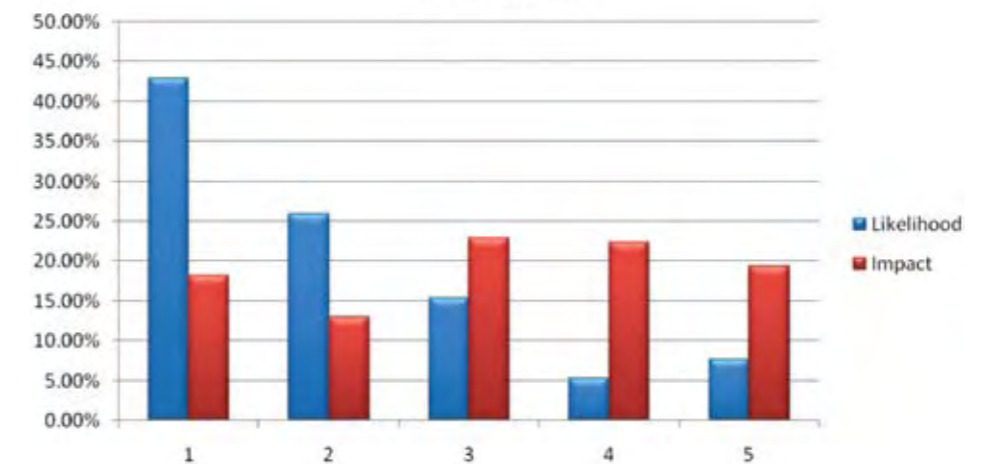
Cyclone



26.75% of surveyed residents thought the likelihood of a Cyclone was rare whilst 27.06% thought the impact to the City of Cockburn if it occurred would be severe

4.8 Earthquake

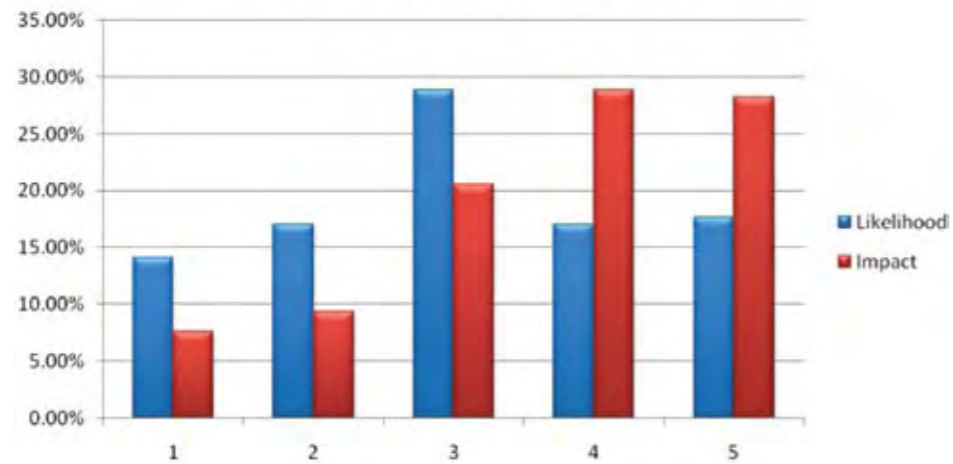
Earthquake



42.94% of surveyed residents thought the likelihood of an Earthquake was rare whilst 22.94% thought the impact to the City of Cockburn if it occurred would be moderate

4.9 Environmental Disaster

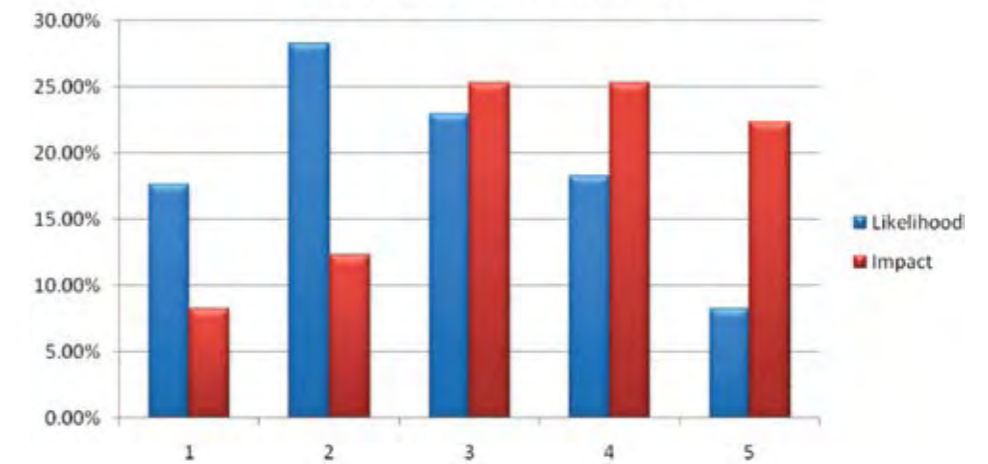
Environmental Disaster



28.82% of surveyed residents thought the likelihood of an Environmental Disaster was possible whilst 28.82% thought the impact to the City of Cockburn if it occurred would be major

4.11 Fuel Supply Shortage

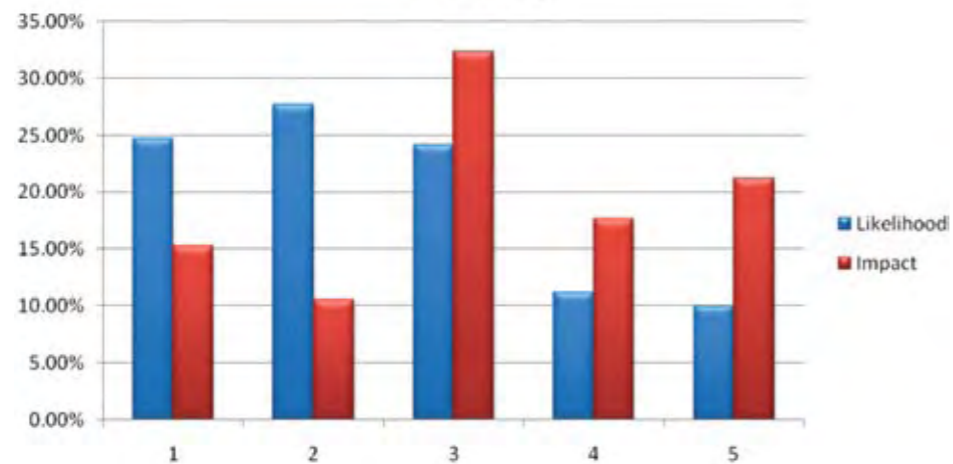
Fuel Supply Emergency



28.24% of surveyed residents thought the likelihood of a Fuel Supply Emergency was unlikely whilst 25.29% thought the impact to the City of Cockburn if it occurred would be major

4.10 Flooding

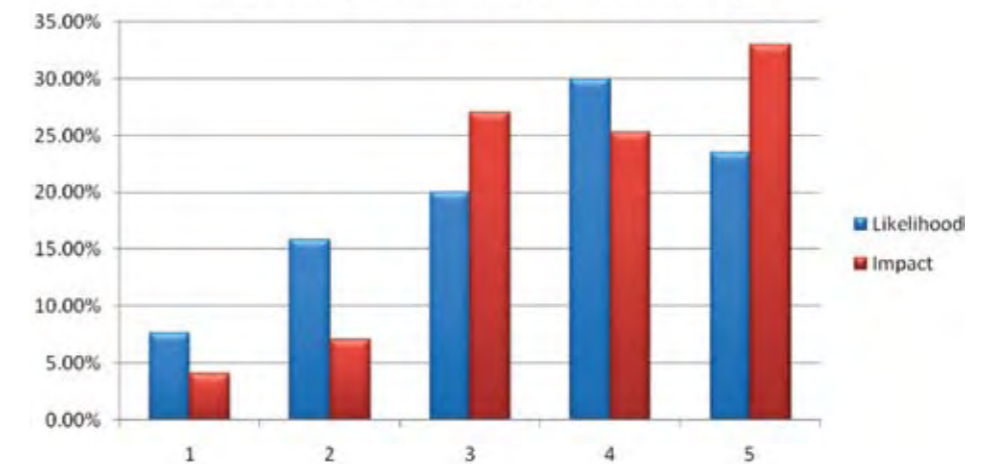
Flooding



27.65% of surveyed residents thought the likelihood of a Flooding was unlikely whilst 32.35% thought the impact to the City of Cockburn if it occurred would be moderate

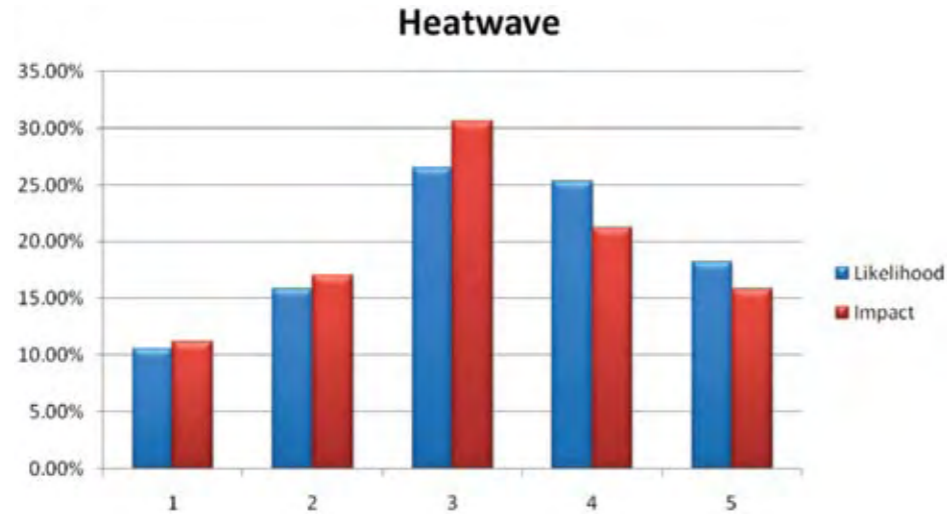
4.12 Hazardous Materials/Chemical Spill

Hazardous Materials/Chemical Spill



30.00% of surveyed residents thought the likelihood of a Hazardous Materials / Chemical Spill was likely whilst 32.94% thought the impact to the City of Cockburn if it occurred would be severe

4.13 Heatwave



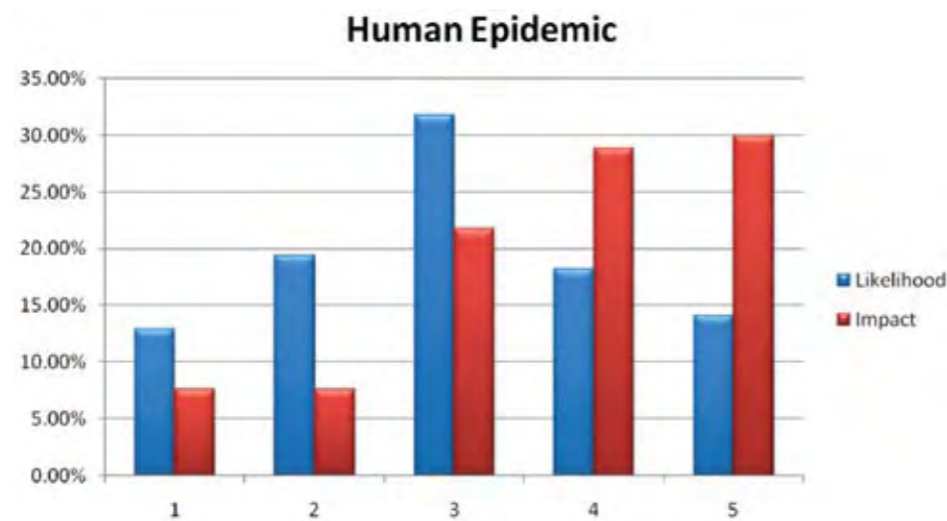
25.29% of surveyed residents thought the likelihood of a Heatwave was likely whilst 30.59% thought the impact to the City of Cockburn if it occurred would be moderate

4.15 Land Search & Rescue



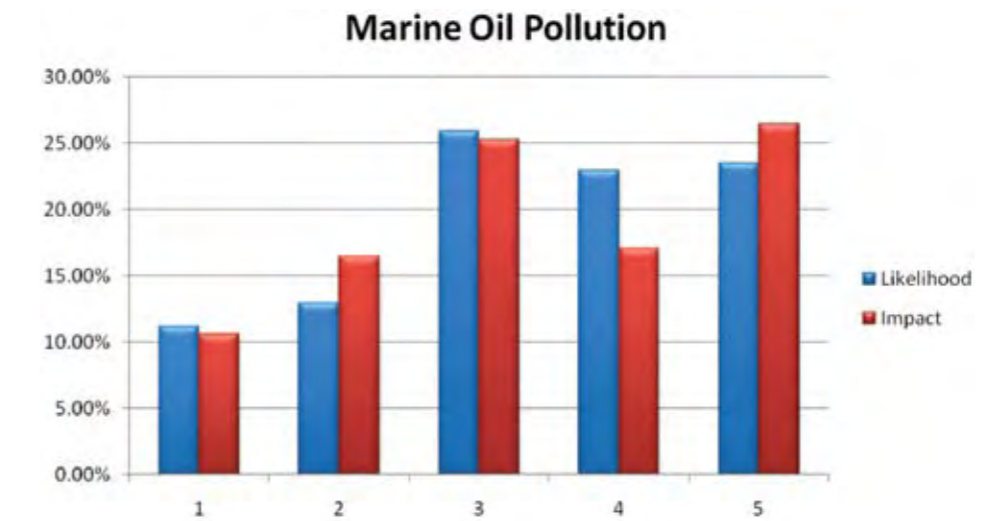
31.18% of surveyed residents thought the likelihood of a Land Search & Rescue was possible whilst 31.76% thought the impact to the City of Cockburn if it occurred would be moderate

4.14 Human Epidemic



31.76% of surveyed residents thought the likelihood of a Human Epidemic was possible whilst 30.00% thought the impact to the City of Cockburn if it occurred would be severe

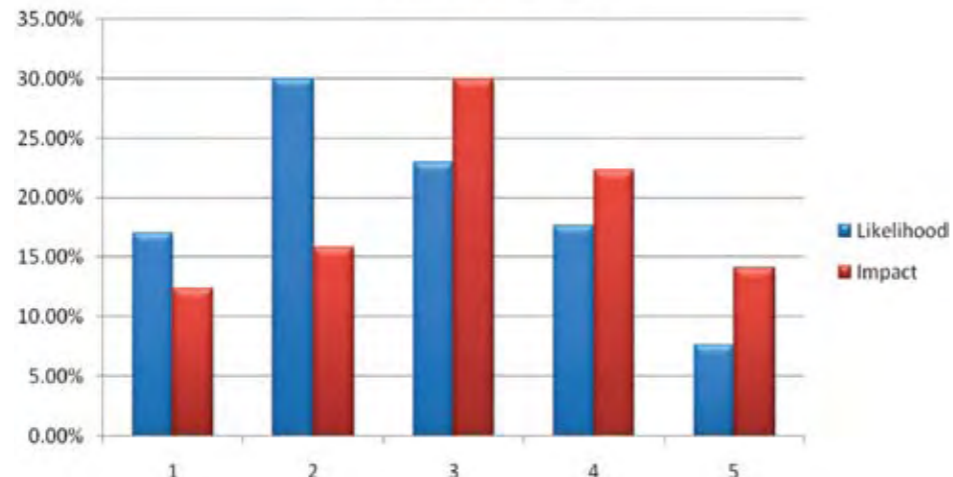
4.16 Marine Oil Pollution



25.88% of surveyed residents thought the likelihood of a Marine Oil Pollution was possible whilst 26.47% thought the impact to the City of Cockburn if it occurred would be severe

4.17 Racial Violence

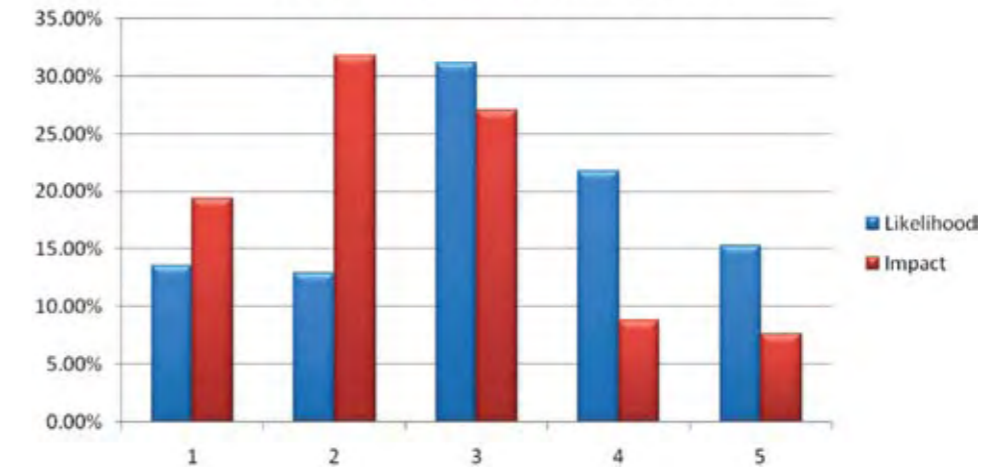
Racial Violence



30.00% of surveyed residents thought the likelihood of Racial Violence was unlikely whilst 30.00% thought the impact to the City of Cockburn if it occurred would be moderate

4.19 Recreational Marine Incident

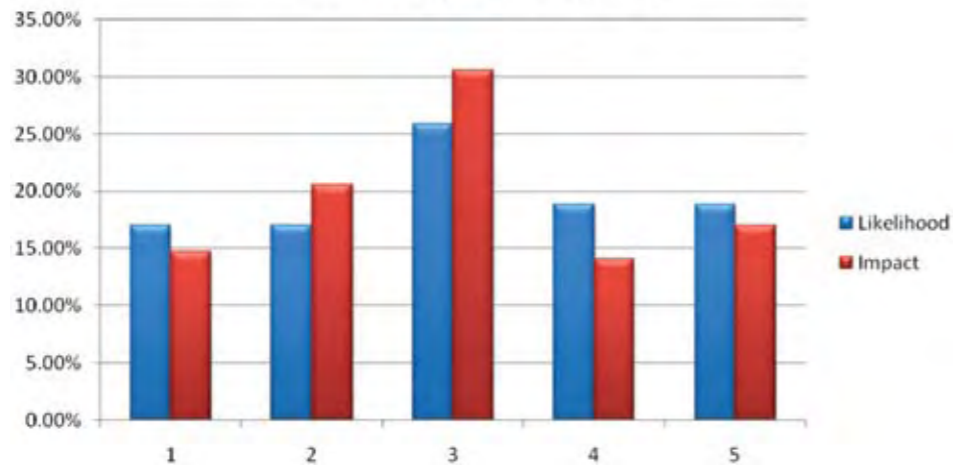
Recreational Marine Incident



31.18% of surveyed residents thought the likelihood of a Recreational Marine Incident was possible whilst 31.76% thought the impact to the City of Cockburn if it occurred would be minor

4.18 Rail Freight Emergency

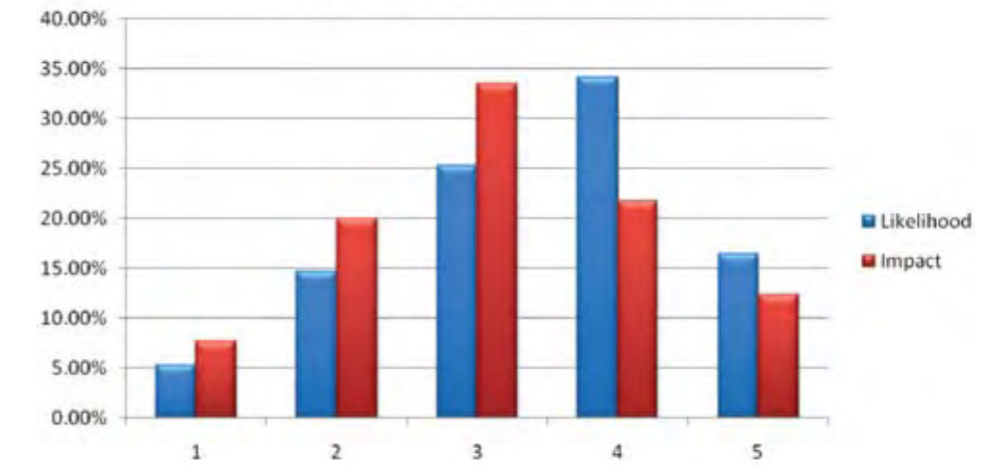
Rail Freight Emergency



25.88% of surveyed residents thought the likelihood of a Rail Freight Emergency was possible whilst 30.59% thought the impact to the City of Cockburn if it occurred would be moderate

4.20 Road Transport Emergency

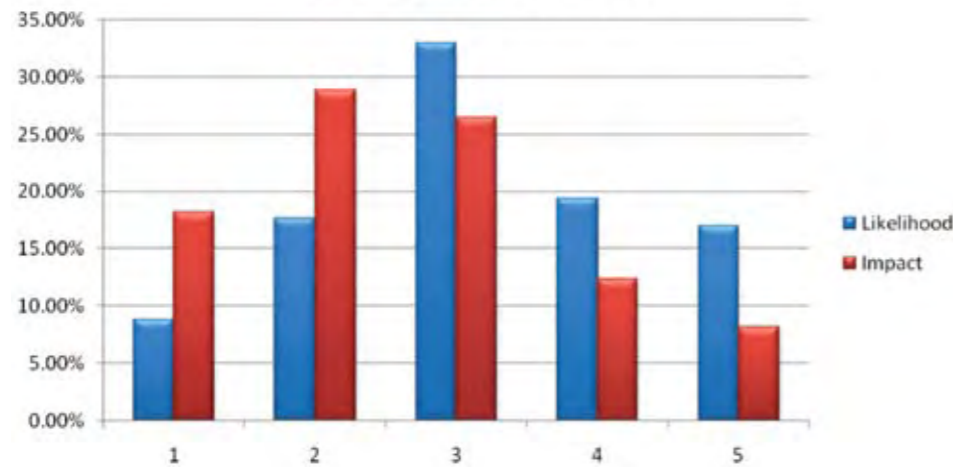
Road Transport Emergency



34.12% of surveyed residents thought the likelihood of a Road Transport Emergency was possible whilst 33.53% thought the impact to the City of Cockburn if it occurred would be moderate

4.21 Sea Search & Rescue

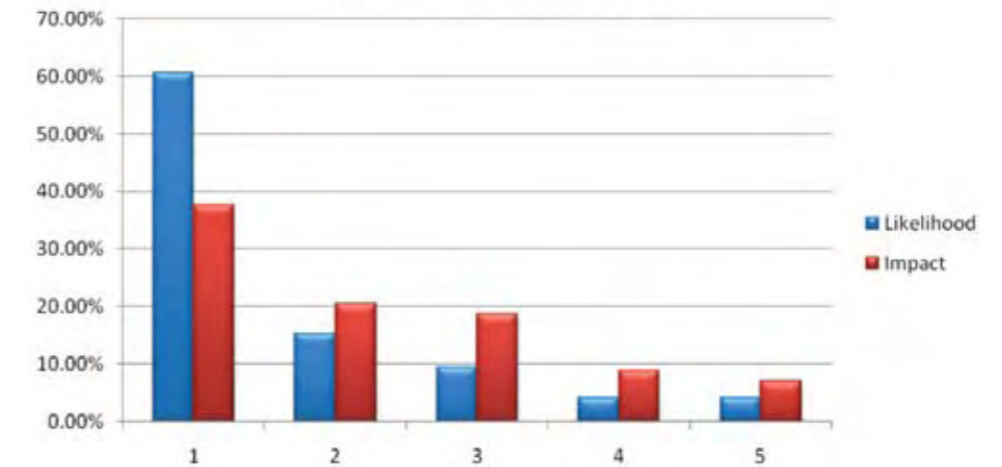
Sea Search & Rescue



32.94% of surveyed residents thought the likelihood of a Sea Search & Rescue was possible whilst 28.82% thought the impact to the City of Cockburn if it occurred would be minor

4.23 Space Re-Entry Debris

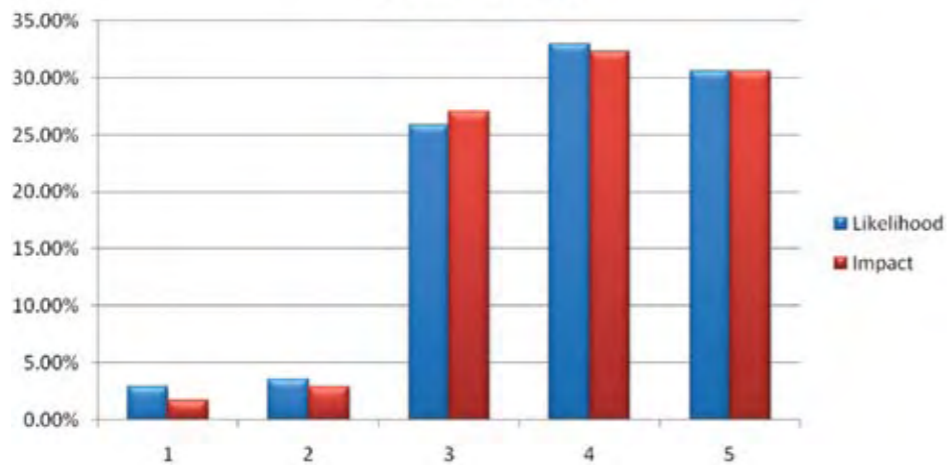
Space Re-Entry Debris



60.59% of surveyed residents thought the likelihood of Space Re-Entry Debris was rare whilst 37.65% thought the impact to the City of Cockburn if it occurred would be insignificant

4.22 Severe Storm

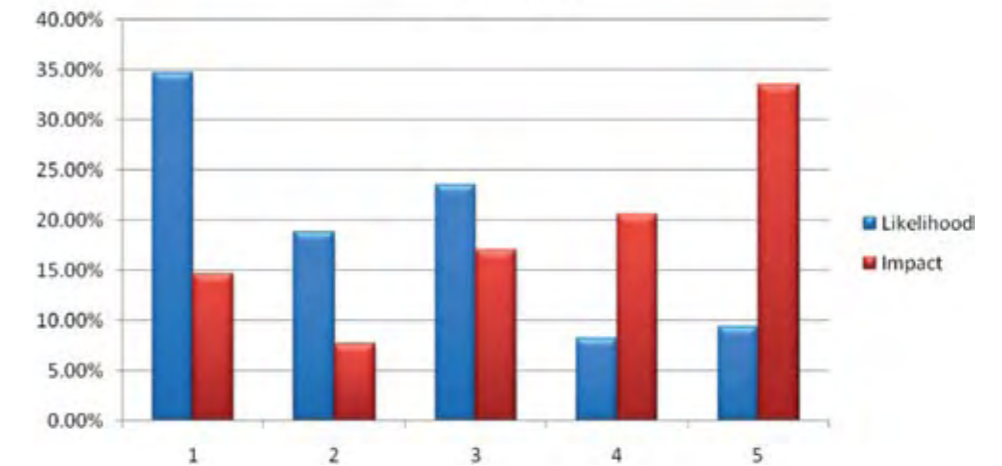
Severe Storm



32.94% of surveyed residents thought the likelihood of a Severe Storm was likely whilst 32.35% thought the impact to the City of Cockburn if it occurred would be major

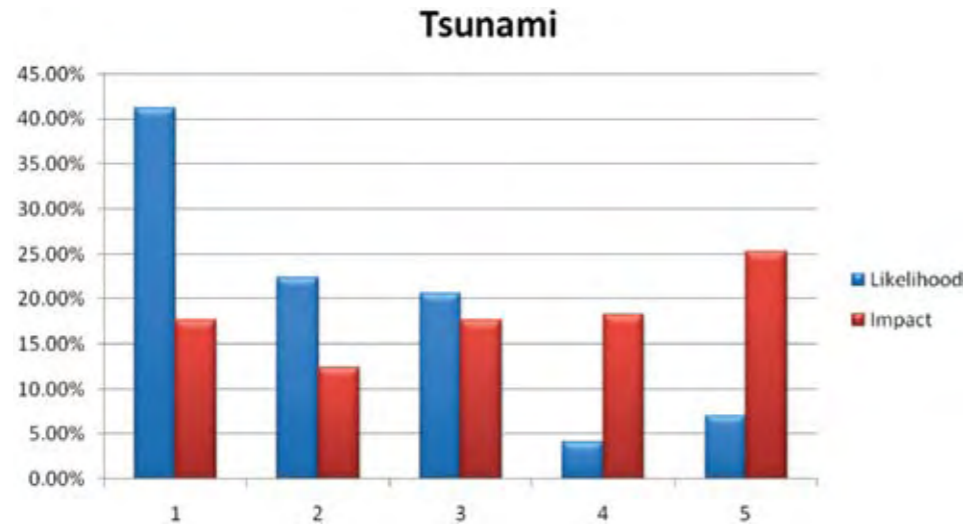
4.24 Terrorism

Terrorism



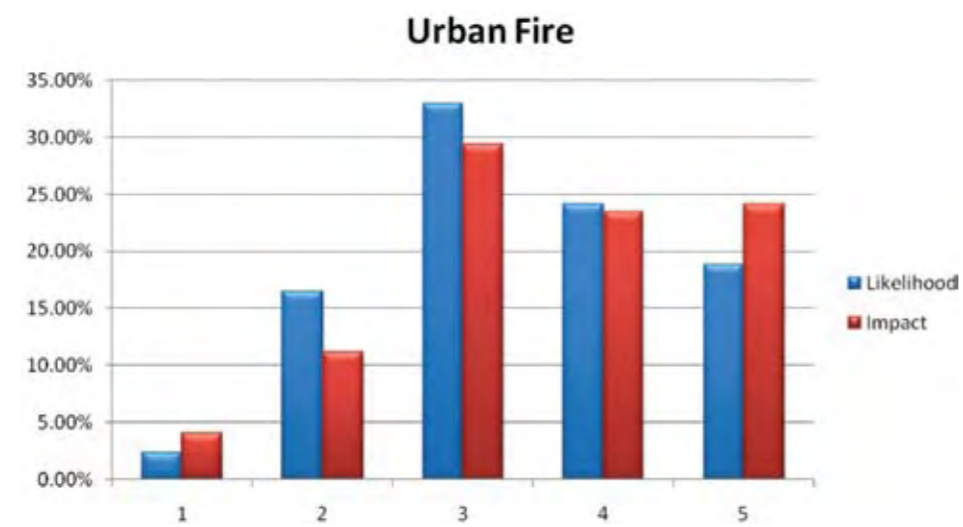
34.71% of surveyed residents thought the likelihood of Terrorism was rare whilst 33.53% thought the impact to the City of Cockburn if it occurred would be severe

4.25 Tsunami



41.18% of surveyed residents thought the likelihood of a Tsunami was rare whilst 25.29% thought the impact to the City of Cockburn if it occurred would be severe

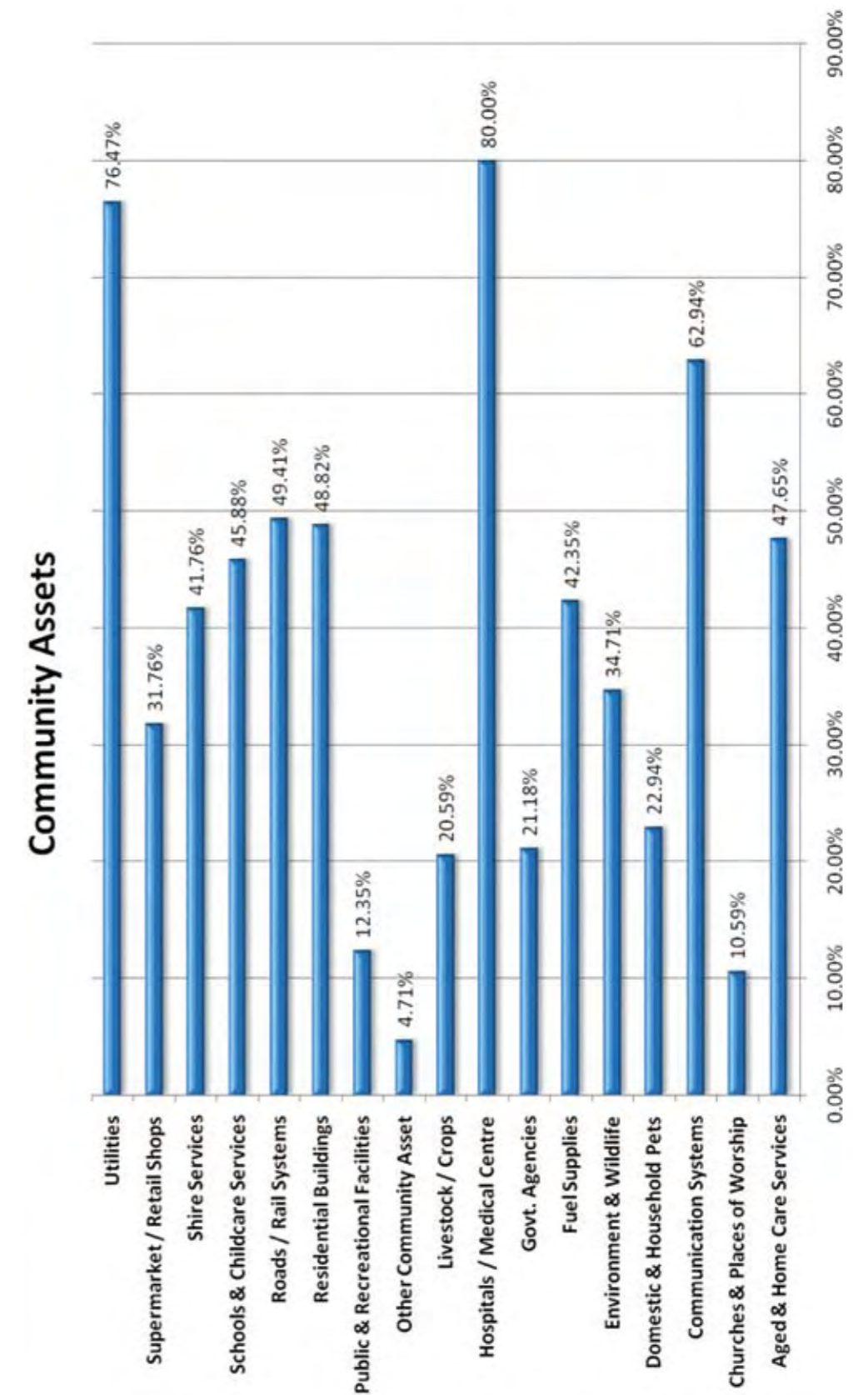
4.26 Urban Fire



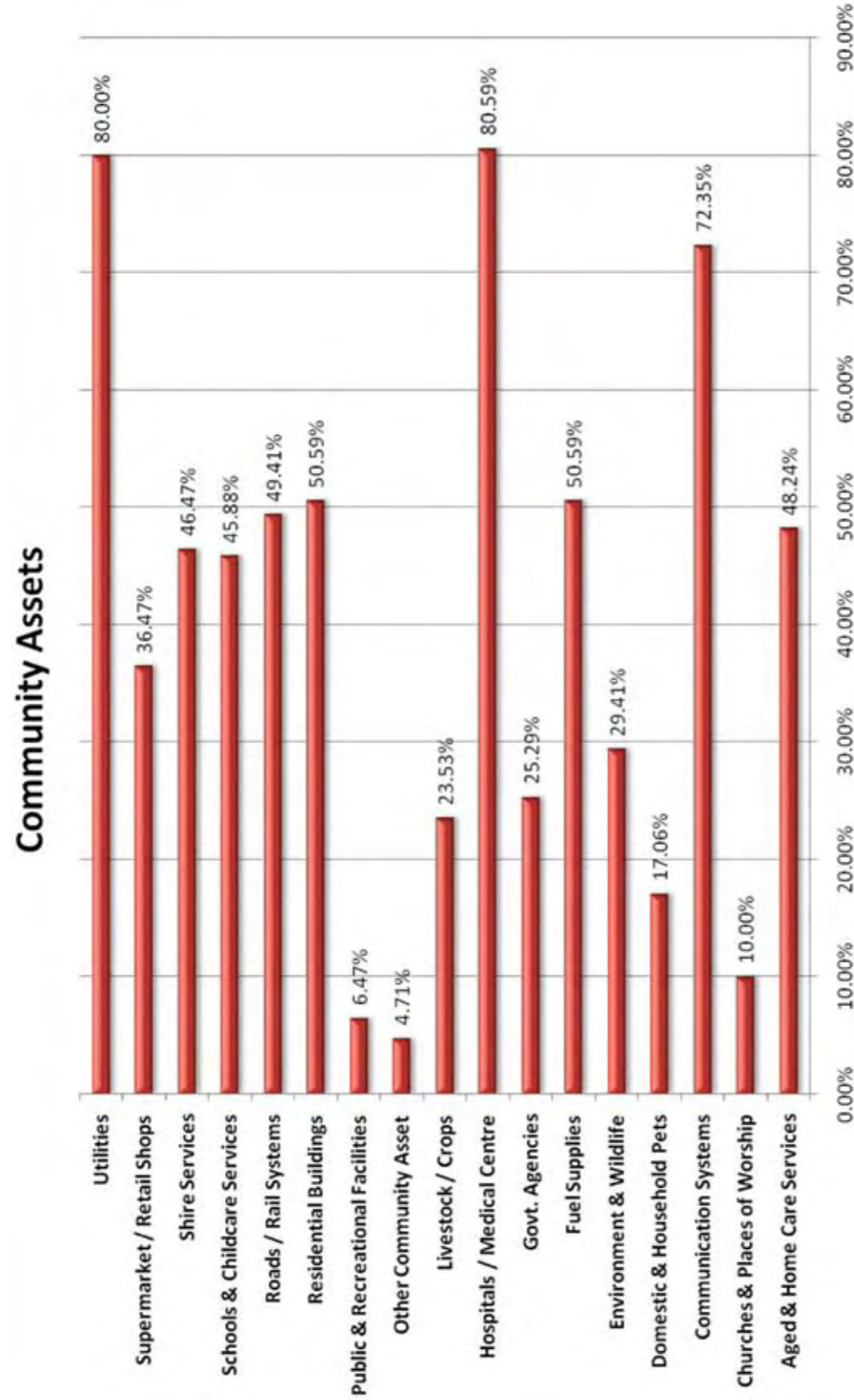
32.94% of surveyed residents thought the likelihood of an Urban Fire was possible whilst 29.41% thought the impact to the City of Cockburn if it occurred would be moderate

5 COMMUNITY ASSETS

VALUE - According to survey respondent results: The community perceives Hospitals / Medical Centre as the most valued City of Cockburn asset followed by Utilities and Communication Systems.

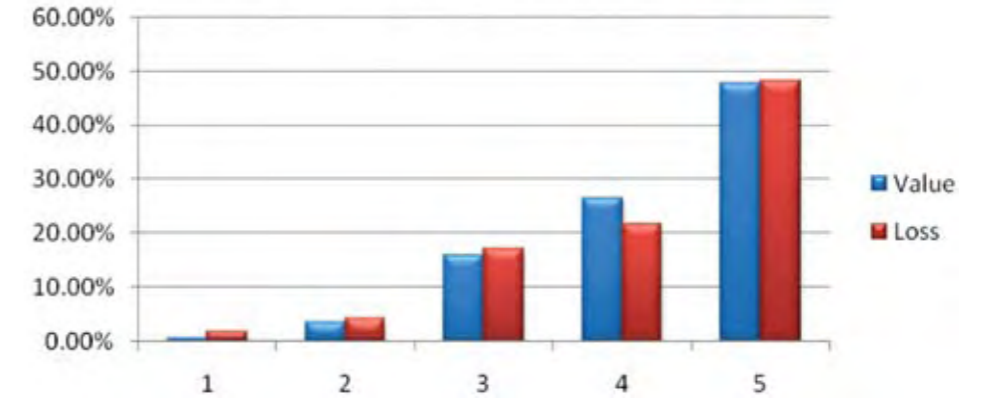


CONSEQUENCE / IMPACT - According to survey respondent results: The community perceives a loss of Hospitals / Medical Centres, Utilities and Communication Systems as having the most impact upon the City of Cockburn.



5.1 Aged & Home Care Services

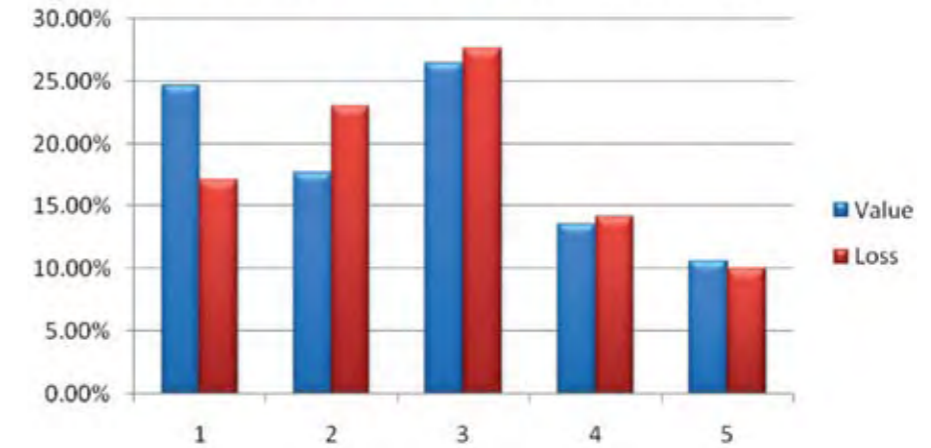
Aged & Home Care Services



47.65% of surveyed residents rate the value of Aged & Home Care Services as high whilst 48.24% thought the loss to the City of Cockburn if it occurred would be severe

5.2 Churches & Places of Worship

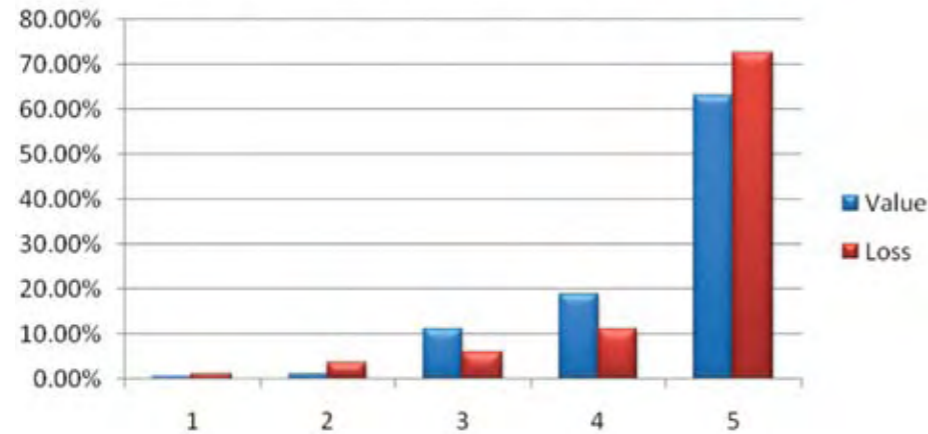
Churches & Places of Worship



26.47% of surveyed residents rate the value of Churches & Places of Worship as moderate whilst 27.65% thought the loss to the City of Cockburn if it occurred would be moderate

5.3 Communication Systems

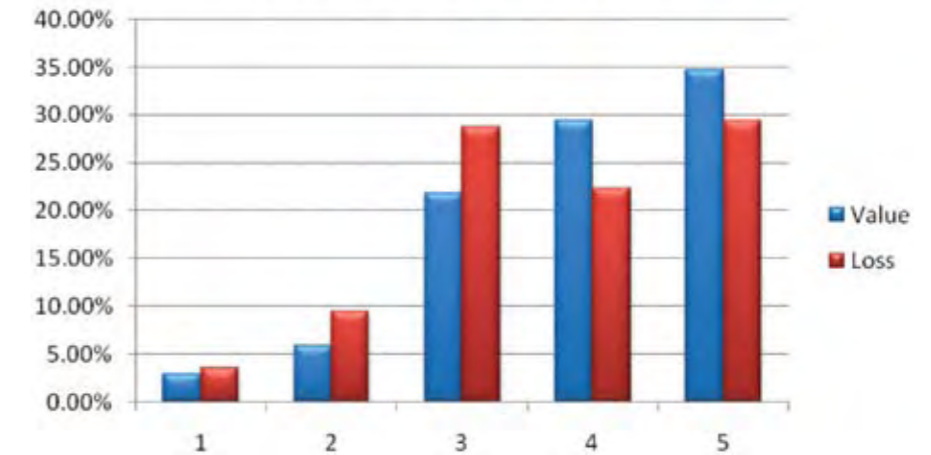
Communication Systems



62.94% of surveyed residents rate the value of Communication Systems as high whilst 72.35% thought the loss to the City of Cockburn if it occurred would be severe

5.5 Environment & Wildlife

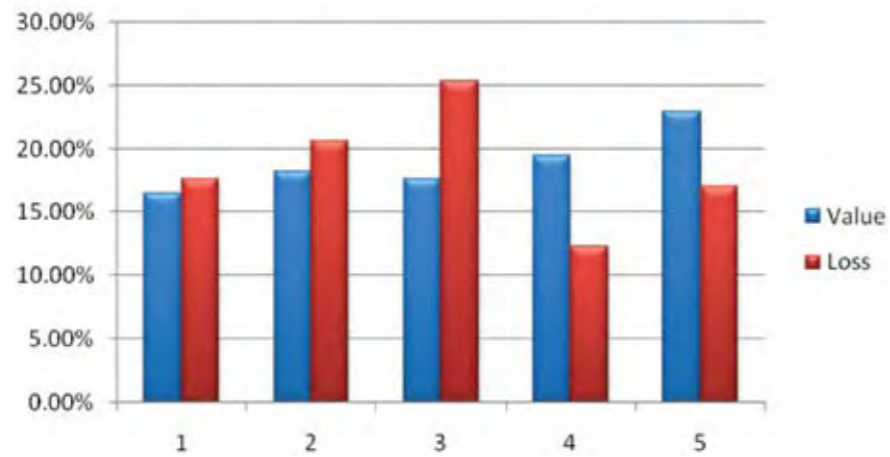
Environment & Wildlife



34.71% of surveyed residents rate the value of Environment & Wildlife as high whilst 29.41% thought the loss to the City of Cockburn if it occurred would be severe

5.4 Domestic & Household Pets

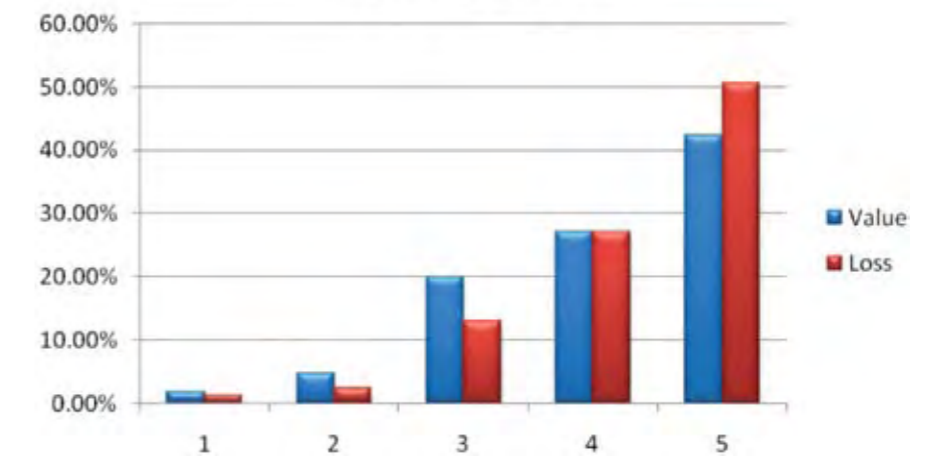
Domestic & Household Pets



22.94% of surveyed residents rate the value of Domestic & Household Pets as high whilst 25.29% thought the loss to the City of Cockburn if it occurred would be moderate

5.6 Fuel Supplies

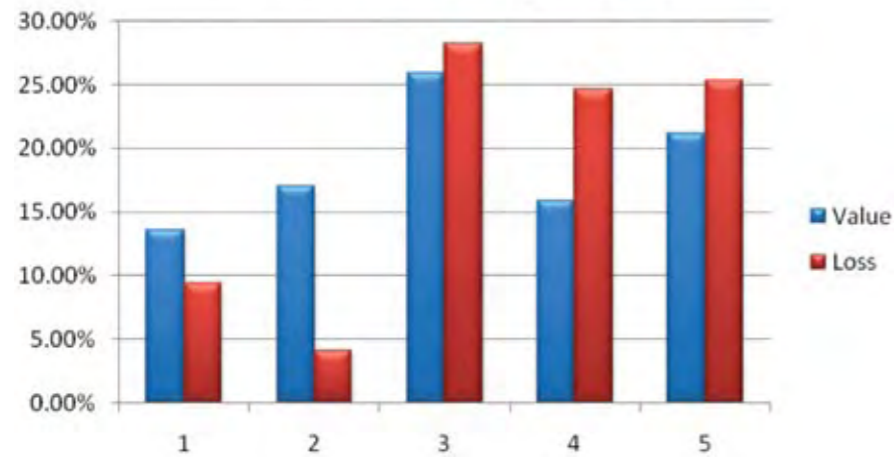
Fuel Supplies



42.35% of surveyed residents rate the value of Fuel Supplies as high whilst 50.59% thought the loss to the City of Cockburn if it occurred would be severe

5.7 Government Agencies

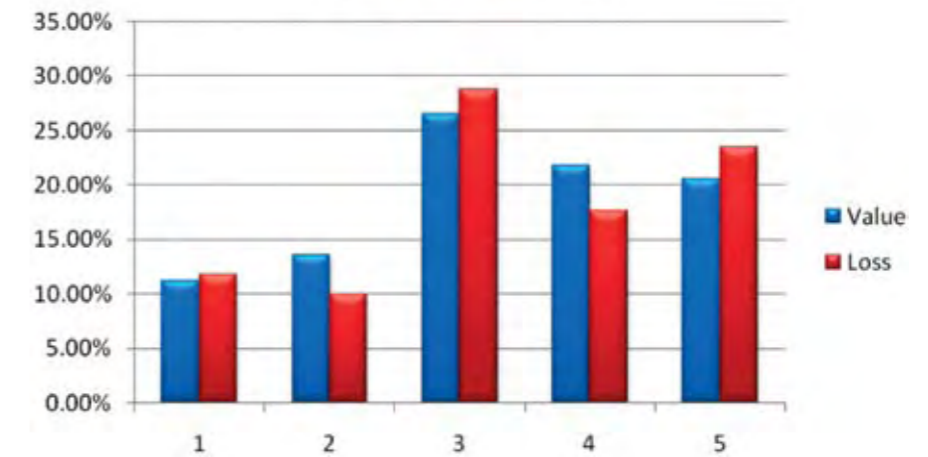
Government Agencies



25.88% of surveyed residents rate the value of Government Agencies as moderate whilst 28.24% thought the loss to the City of Cockburn if it occurred would be moderate

5.9 Livestock / Crops

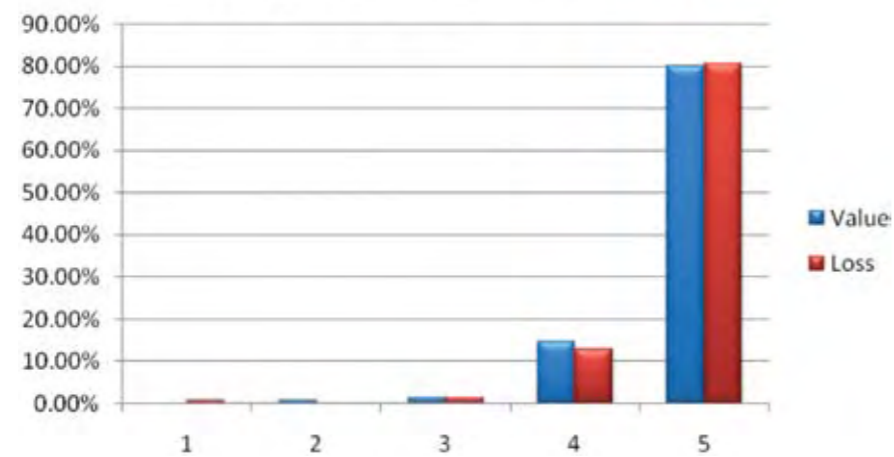
Livestock / Crops



26.47% of surveyed residents rate the value of Livestock / Crops as moderate whilst 28.82% thought the loss to the City of Cockburn if it occurred would be moderate

5.8 Hospitals / Medical Centre

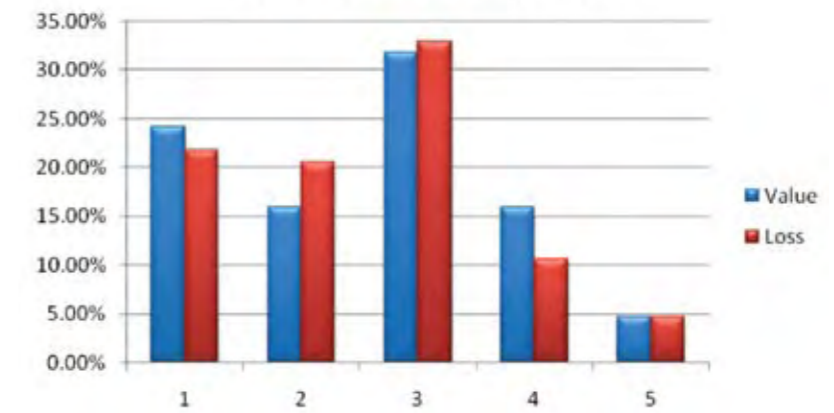
Hospitals / Medical Centre



80.00% of surveyed residents rate the value of Hospitals / Medical Centres as high whilst 80.59% thought the loss to the City of Cockburn if it occurred would be severe

5.10 Other Community Asset

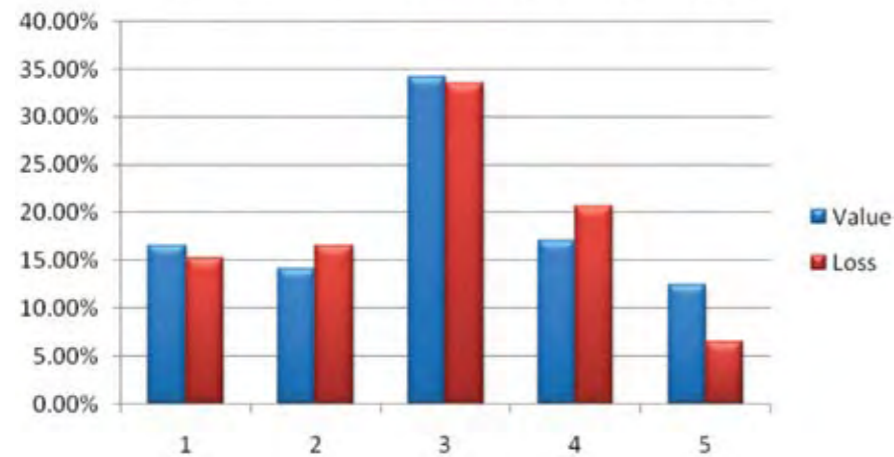
Other Community Asset



31.76% of surveyed residents rate the value of Other Community Asset as moderate whilst 32.94% thought the loss to the City of Cockburn if it occurred would be moderate

5.11 Public & Recreational Facilities

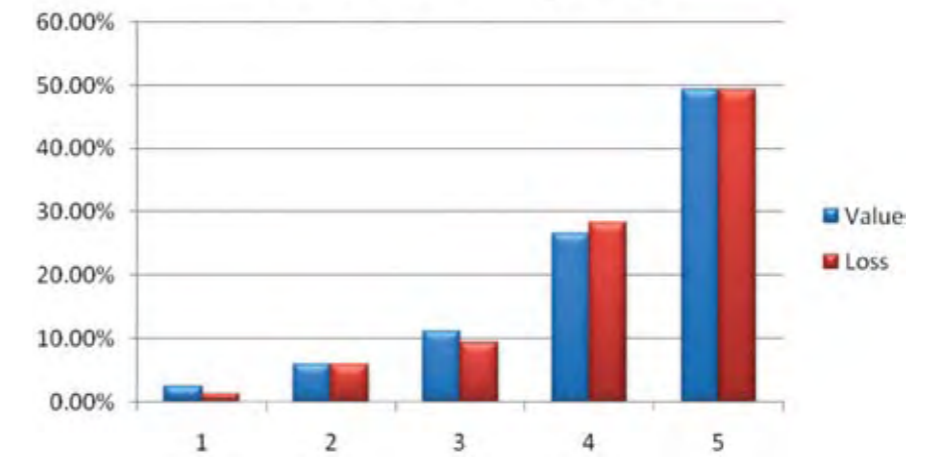
Public & Recreational Facilities



34.12% of surveyed residents rate the value of Public & Recreational Facilities as moderate whilst 33.53% thought the loss to the City of Cockburn if it occurred would be moderate

5.13 Roads / Rail Systems

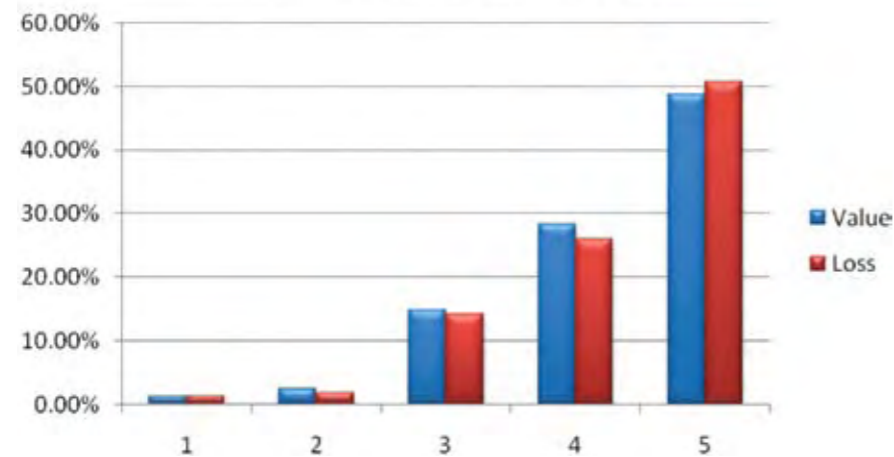
Roads / Rails Systems



49.41% of surveyed residents rate the value of Roads / Rail Systems as high whilst 49.41% thought the loss to the City of Cockburn if it occurred would be severe

5.12 Residential Buildings

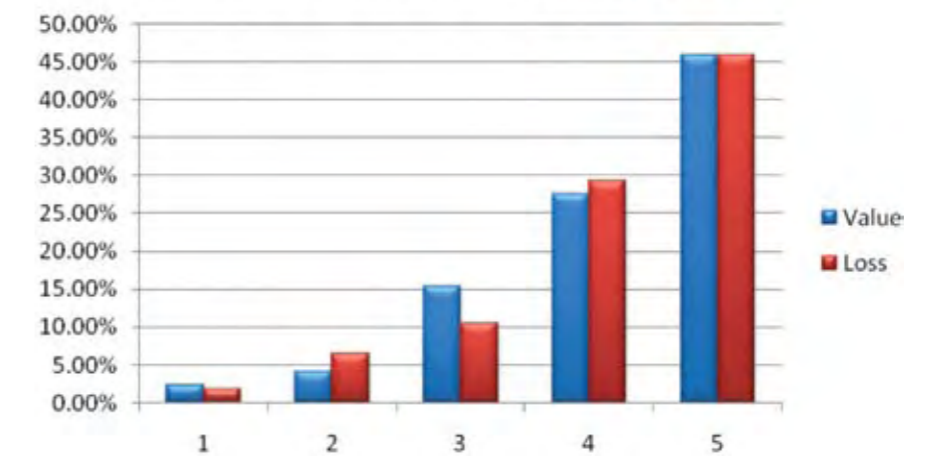
Residential Buildings



48.82% of surveyed residents rate the value of Residential Buildings as high whilst 50.59% thought the loss to the City of Cockburn if it occurred would be severe

5.14 Schools & Childcare Services

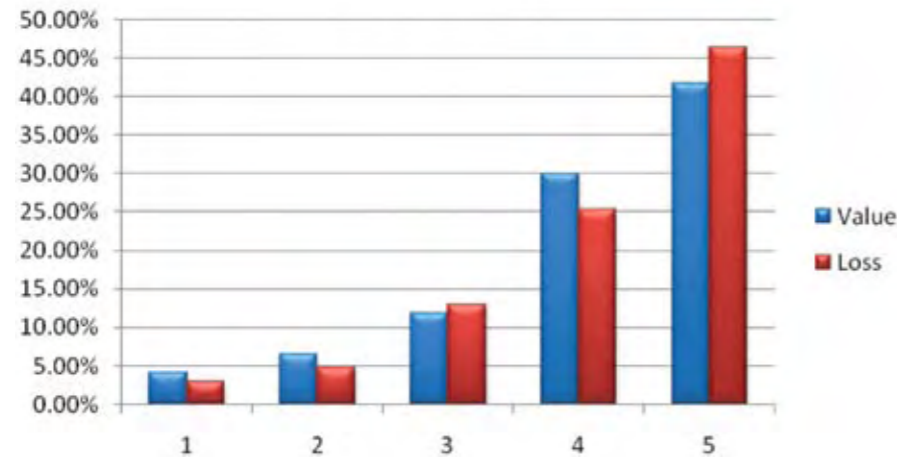
Schools & Childcare Services



45.88% of surveyed residents rate the value of Schools & Childcare Services as high whilst 45.88% thought the loss to the City of Cockburn if it occurred would be severe

5.15 Shire Services

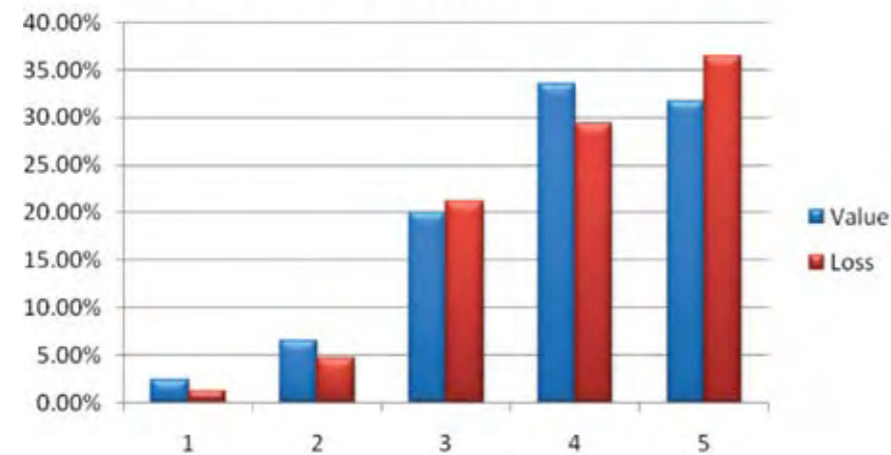
Shire Services



41.76% of surveyed residents rate the value of Shire Services as high whilst 46.47% thought the loss to the City of Cockburn if it occurred would be severe

5.16 Supermarket / Retail Shops

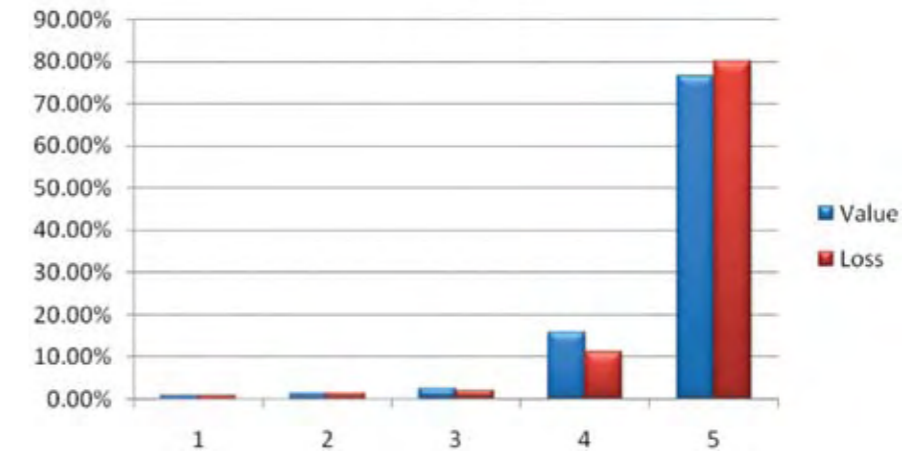
Supermarket / Retail Shops



33.53% of surveyed residents rate the value of Supermarket / Retail Shops as major whilst 36.47% thought the loss to the City of Cockburn if it occurred would be severe

5.17 Utilities

Utilities



76.47% of surveyed residents rate the value of Utilities as high whilst 80.00% thought the loss to the City of Cockburn if it occurred would be severe

6 SURVEY SYNOPSIS

Comments received within the survey indicated that a high number of respondents have both a more than adequate knowledge in the area of preparing for an emergency and a high level of awareness to the emergency management services provided yet believed Local Government had only a moderate rate of preparedness to a community disaster event.

This is indicative of an uninformed community. It is therefore suggested that information be circulated to the City of Cockburn in the form of ongoing education and training. This will enable an enhancement in the level and knowledge base of both awareness and local government preparedness to ERM in the City of Cockburn and increase community confidence in their safety. Of the 171 respondents there was a demonstrated community appetite by at least 35 persons (20%) who indicated their interest to attend a community forum for further ERM involvement.

As expected, Bushfire and Severe Storm rated as the two highest community risks which is indicative of the City of Cockburn's topography and demonstrates the community's concern in this regard. In terms of hazard impact to the City of Cockburn Terrorism was surprisingly rated as the second highest threat after Bushfire.

Hospitals / Medical Centres, Utilities and Communication Systems rated as the three highest community assets for both value and loss to the community. With an aging population this was not surprising particularly as 63.80% of survey responders were 46 years and over. In contrast, 50.59% of respondents indicated that a loss of residential buildings and fuel supplies rated as having the same impact to the City of Cockburn if they were lost. Time frames were not provided in regards to assessing the loss of community assets.

To aid the further development of the City of Cockburn's Local Arrangements all information gathered from this survey will be risk assessed by both the City of Cockburn's Local Emergency Management Committee and key representatives of the City of Cockburn Community at an Emergency Risk Management Workshop.

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Appendix 4
Preliminary Risk Register



CITY OF COCKBURN
EMERGENCY RISK MANAGEMENT
“PRELIMINARY RISK REGISTER”

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
AIR TRANSPORT EMERGENCY					
1	There is a risk that if an aircraft collision/crash occurred in flight from/to Jandakot and/or Perth Domestic/International airports across residential, commercial and/or industrial areas, people , animals and/or pets may be injured, become ill and/or killed from the impact and exposure to toxic fumes, fires and smoke resulting from the falling/flying plane debris.				
2	There is a risk that if an aircraft collision/crashed occurred in a residential, commercial and/or industrial area, fire and/or explosion may occur and cause permanent or significant private, commercial and public property damage. Buildings directly impacted and surrounding buildings may be destroyed/damaged from flying debris and/or the impact of collision				
3-	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, fires and explosions may occur and cause permanent environmental damage. Fire, smoke and debris may have a devastating affect on the natural environment, long term and/or permanent environmental damage may occur particularly in the Jandakot Regional Park. The fire and aircraft fuel/oil could spread to sensitive eco systems, destroying native flora and fauna				
4	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, the economy retail and wholesale businesses may be damaged and/or disrupted. Business owners may be uninsured or under-insured. Businesses may go bankrupt, need to close for an indefinite period of time and therefore may be unable to maintain their current employees and clients. Other businesses relying on the affected businesses may also feel the economic impact.				
5	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, various primary and secondary type industries may be affected. Marine and commercial industries along the Henderson strip and within Cockburn Sound may be impacted.				
6	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, infrastructure damage may happen. Power and water services may be affected, lost or destroyed. Homes and businesses may not be able to function for an extended period. Road and rail transport may be suspended or withdrawn for an extended period. People may not be able to attend to normal everyday duties such as going to work or shopping.				
7	There is a risk that if an aircraft collision/crashed occurred in a residential area, permanent social and cultural damage may occur. Recreation areas may be affected or unavailable. Pilots training out of Jandakot Airport use the surrounding residential air space particularly that over Jandakot, Banjup and Leeming residential suburbs, may be affected. Jandakot is also used by the Flying Doctor Service and commercial airline companies for flights to and from Rottnest Island etc, therefore these services may be affected.				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
ANIMAL & PLANT DISEASE OUTBREAK					
1	There is a risk that if an outbreak of animal and plant disease occurred, people may become infected, ill and/or die. The City of Cockburn has approximately 7493 senior citizens 65+years and approximately 5222 children under the age of 4 years. The City of Cockburn has 9 aged care facilities and 12 childcare centres.				
2	There is a risk that if an outbreak of animal and plant disease occurred, private, commercial and public properties that have been infected by this outbreak will be quarantined and immediate residents, tenants or owners will be displaced.				
3	There is a risk that if an outbreak of animal and plant disease occurred, permanent environmental damage may occur. Manning Park has 142 hectares of remnant vegetation which includes Catherine Point Reserve, C. Y. O'Connor Reserve, and Beeljar, Woodman Point and Jandakot Regional Parks. Widespread Animal Pest & Plant Disease may cause significant environmental damage to the various bush land occupants.				
4	There is a risk that if an outbreak of animal and plant disease occurred, permanent economic damage to local businesses may occur. Local Businesses that work with animals, plants and/or depend upon animal/plant derivatives may have to suspend trading or even close permanently. This could have a devastating effect on the local economy that could see businesses incur financial hardship/loss and/or even enter receivership.				
5	There is a risk that if an outbreak of animal and plant disease occurred, industries that provide animal and plant products and services, such as egg farms, poultry breeding farms, plant nurseries, furniture manufacturers, seafood processing etc may be impacted due to an outbreak and subsequent closure or loss of stock. Retail businesses dependent on these industries will also be affected due to reduction in products and services being received.				
6	There is a risk that if an outbreak of animal and plant disease occurred, infrastructure utilities such as water supplies and drainage systems may be affected due to leaching into the water table of infected animal carcasses and by products of treatment equipment.				
7	There is a risk that if an outbreak of animal and plant disease occurred, social and cultural damage to community recreation activities may occur. Access to recreation areas may be restricted whilst people and animals may be quarantined and removed from their families.				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
BUSH FIRE					
1	There is a risk that if a bushfire occurred, it may cause injury or death to people . People residing in bush land areas such as at Jandakot, Banjup, Wattleup, Hammond Park and Aubin Grove may require assistance, smoking embers, dirt and dust may litter the City of Cockburn causing an onset of respiratory conditions and increased demand on medical services. Medication supplies could run out. Some people may be stranded. Many pets may be homeless or killed.				
2	There is a risk that if a bushfire occurred, it could destroy homes and damage property particularly those who reside in bush land areas such as at Jandakot, Banjup, Wattleup, Hammond Park and Aubin Grove. Demolition of property may be necessary. Shopping centres situated at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill could be threatened whilst businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson could also be affected. Demolition of private, commercial and public properties may be necessary.				
3	There is a risk that if a bushfire occurred, large areas of natural environment may be destroyed. The City of Cockburn has approximately 4,760ha of bush land within the region of which 593ha is located in the Beeljar, Woodman Point and Jandakot Regional Parks. Widespread environmental damage may destroy plants, flora and fauna in the 4,760ha of bush land contained within the City of Cockburn and that contained within the Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beeljar Regional Park. Animals and wildlife may become homeless.				
4	There is a risk that if a bushfire occurred, medium, long term or permanent economic damage may happen to commercial and industrial marine businesses at the commercial shopping centre's located at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill, the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson and Cockburn Cement and Quarry Works.				
5	There is a risk that if a bushfire occurred, it could damage or destroy industry in the area such as The Woodman Point Waste Water Treatment Plant and the Cockburn Cement and Quarry Works. Other industries or businesses relying on the affected primary industries will also be impacted.				
6	There is a risk that if a bushfire occurred, it could damage or destroy overhead power lines and communication infrastructure , causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected. It could impact upon roads and rail transport infrastructure causing fire debris, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses. The Woodman Point Waste Water Treatment Plant could be threatened.				
7	There is a risk that if a bushfire occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
CHEMICAL/BIOLOGICAL/RADIOLOGICAL/NUCLEAR DISASTER					
1	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may affect people in terms of short/long term illnesses, mutating diseases, genetic disorders, psychological/physical injuries and death from widespread fires, explosions, toxic material in both air and water supplies, plus other forms of contamination. Widespread displacement of residents and community members may occur and large numbers of people may need to be quarantined. Risk of illness and death presents itself to the emergency services personnel, both out in the affected areas and within the medical facilities/hospitals. Family pets and animals plus livestock may also become homeless and perish.				
2	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may impact property in terms of community areas being cordoned off, buildings being condemned due to structural and contamination reasons. People being relocated to safer premises may lose all possessions and other personal property items. Widespread damage and destruction of property may occur in the case of chemical and nuclear disasters.				
3	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may impact the environment depending on the extent of the disasters and the climatic conditions. Massive fires and explosions produced by chemical and nuclear disasters can create highly toxic waste, which will affect the air and water quality, with leaching into the water table, natural reserves, destroying and damaging flora and fauna.				
4	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may affect the local and state economy . High financial and non-financial losses will impact the entire economy. Reliance on external agencies to assist in the restructuring of the community will impact the state economy as recovery costs will be high.				
5	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may affect industry in terms of loss/disruption and closure of industries, businesses and commercial areas. Loss of human resources will impact all levels of industry as will damage and destruction of properties.				
6	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may impact infrastructure in terms of contamination of water supplies, drainage and sewage systems. Due to the possible large amount of human casualties there may be a significant breakdown and failure of critical services to the community, such as power, gas, water, road and rail transport.				
7	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may affect the social and or cultural aspects of the community, as there will be a complete breakdown of normal social behavior amongst the community. People will be traumatized due to the large scale of human casualties and associated events, and normal day-to-day living for the majority of the population will be interrupted indefinitely. People will react in diverse ways, which may breed anti-social behavior, looting and violence.				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
CYCLONE					
1	There is a risk that if a cyclone occurred, it may cause injury or death to people . People residing in coastal areas such as at South Beach and Port Coogee, hostels, aged care facilities, schools or retirement villages, may require assistance. Some people may be stranded and displaced. With many pets may be homeless or killed.				
2	There is a risk that if a cyclone occurred, it could cause flooding, destroy homes and damage property particularly those who reside in coastal areas such as at Woodman Point Caravan Park, Coogee Beach Caravan Park, South Beach and Port Coogee. Evacuation of people and pets may be necessary. Property could be damaged and/or destroyed including shopping centres situated at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted				
3	There is a risk that if a cyclone occurred, widespread environmental damage may destroy plants, flora and fauna at Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelair Regional Park. Animals and wildlife may become homeless.				
4	There is a risk that if a cyclone occurred, medium, long term or permanent economic damage may happen to commercial and industrial marine businesses at the commercial shopping centre's located at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill, the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson and Cockburn Cement and Quarry Works.				
5	There is a risk that if a cyclone occurred, industry along the Henderson strip and within Cockburn Sound may be impacted. Some may be damaged and/or destroyed. Industries reliant on natural resources for farming and fishing will also be affected, with death of livestock or loss of fishing stock.				
6	There is a risk that if a cyclone occurred, it could damage or destroy overhead power lines and communication infrastructure , causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected. It could impact upon roads and rail transport infrastructure causing flooding, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses. It could damage or destroy infrastructure at The Woodman Point Waste Water Treatment Plant and the Cockburn Cement and Quarry Works.				
7	There is a risk that if a cyclone occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
EARTHQUAKE					
1	There is a risk that an earthquake may cause injury or death. Approximately 84,652 people reside within the City of Cockburn. People may be seriously injured and killed from collapsing buildings, falls from unlevelled ground and mass stampedes if escaping from inside large and/or multi storing buildings. Deaths and injuries may also occur from traffic accidents, falling power lines and poles, severed gas and fuel lines. Many pets would become homeless or killed.				
2	There is a risk that an earthquake would disrupt and damage and destroy business property throughout the City of Cockburn including shopping centres at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted. An earthquake could damage or destroy property (homes and buildings not built to earthquake standards). Buildings may collapse or be rendered unusable and uninhabitable.				
3	There is a risk that an earthquake would impact upon the environment and the eco flora and fauna systems contained within the Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelihar Regional Park. Widespread damage or destruction may be inflicted on natural reserves and the fauna inhabiting these areas.				
4	There is a risk that an earthquake would severely impact the local economy, whereupon businesses may be damaged and/or destroyed. Commercial centres such as the one located in Cockburn may cease or dramatically reduce service delivery/operations to other businesses and clients. Some businesses will suffer large financial losses and insurance payouts will be relied upon. Some businesses will not recover and close permanently.				
5	There is a risk that an earthquake would impact upon industry in terms of destroying the primary resources required for manufacturing of certain products and goods. Failure of primary industry to provide will have an adverse effect on businesses reliant on these industries				
6	There is a risk that an earthquake would damage, destroy and cause infrastructure disruptions to electrical power, communications, gas, water, sewerage and drainage. Fire, flooding, explosion from severed lines, water storage facilities would result in major disruption to roads, traffic control lights and vulnerable people without household services would be susceptible. Integral main road and rail routes may be affected, preventing the ongoing delivery of other goods and services to the community and neighbouring Councils.				
7	There is a risk that an earthquake would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
ENVIRONMENTAL DISASTER					
1	There is a risk of contaminants and/or pollutants causing injury or death to people from inhalation or skin exposure. The extent is dependent upon the location of the contamination, the climatic conditions and the nature, composition and amount of pollutant exposed to the general community. Many pets may also be affected, either becoming ill or dying.				
2	There is a risk of contaminants and/or pollutants generated by an environmental disaster may cause the isolation of a property if the disaster's source was from here, and/or surrounding properties to limit the spread of contamination. Properties may become unusable or uninhabitable for the future and may be demolished.				
3	There is a risk of contaminants and/or pollutants, including acidic soils, caused by an environmental disaster and its immediate location and climatic conditions may impact the environmental reserves of Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelihar Regional Park that have eco, flora and fauna systems. There is a risk that if negative changes occurred to the natural environment eco flora and fauna may be significantly affected, destroyed or become extinct.				
4	There is a risk of contaminants and/or pollutants caused by an environmental disaster may impact on the economy of the community due to clean up costs, suspension of trade for businesses selling the products that may generate these pollutants. There may be an impact on future land developments as the land may be too contaminated to allow for building etc, therefore CoC growth may be impacted.				
5	There is a risk of contaminants and/or pollutants caused by an environmental disaster may impact on industry responsible for the production of the products, chemicals, fertilizer etc, which produce these pollutants in an uncontrolled environment. Industries may be severely impacted as investigations by 3rd parties may force temporary closures and cease of production.				
6	There is a risk of contaminants and/or pollutants generated by an environmental disaster may cause destruction, disruption to major infrastructure such as water, sewerage, drains and pumps. This would cause an adverse impact on industry particularly at the Waste Water Treatment Plant and underground water table. If the disaster occurs near major road and rail routes, they may be impacted by closure or re-routing of transport vehicles etc.				
7	There is a risk of contaminants and/or pollutants generated by an environmental disaster may impact on social/cultural aspects of the community, as areas affected by the disaster may be quarantined. Residents may be limited to certain public areas and buildings. Residents may be displaced and this may cause tension etc.				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
FLOODING					
1	There is a risk that if a flood occurred, it may cause injury or death to people . People residing in coastal areas such as at South Beach and Port Coogee, hostels, aged care facilities, schools or retirement villages, may require assistance. Some people may be stranded and displaced, with many pets becoming homeless or being killed. Widespread debris, refuse and sewage may litter the City of Cockburn causing an onset of disease and pestilence. The Henderson Rubbish Tip may be washed out and spreads decaying refuse into neighboring residential areas, adding to increased chance of disease spreading and infection.				
2	There is a risk that if a flood occurred, it could cause flooding, destroy homes and damage property particularly those who reside in coastal areas such as at Woodman Point Caravan Park, Coogee Beach Caravan Park, South Beach and Port Coogee. It could disrupt damage and destroy property including shopping centres at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill Evacuation of people and pets may be necessary.				
3	There is a risk that if a flood occurred, widespread environmental damage may destroy plants, flora and fauna at Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beeliar Regional Park. Debris and other pollutants may wash into natural or man made lakes affecting water quality and destroying sensitive eco systems.				
4	There is a risk that if a flood occurred, the local economy will be impacted, with clean up costs, affected businesses being closed, pertinent community services and food supplies may be affected. Land developments and sites inundated with water may require substantial and costly works undertaken to redeem. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted.				
5	There is a risk that if a flood occurred, it could impact upon industry in terms of destroying the primary resources required for manufacturing of certain products and goods. Failure of primary industry to provide will have an adverse effect on businesses reliant on these industries				
6	There is a risk that if a flood occurred, it could damage or destroy overhead power lines and communication infrastructure , causing service and communication interruptions to homes, businesses, industry, roads and rail transport infrastructure. The South Fremantle switchyard terminal may be affected and it could damage or destroy infrastructure at The Woodman Point Waste Water Treatment Plant and the Cockburn Cement and Quarry Works.				
7	There is a risk that if a flood occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
HAZARDOUS MATERIALS/CHEMICAL SPILL					
1	There is a risk that if a chemical/hazardous material spill occurred, illness, injury or death to people residing within the City of Cockburn may happen. The extent is dependent upon the location of the contamination, the climatic conditions and the nature, composition and amount of pollutant exposed to the general community. Many pets may also be affected, either becoming ill or dying.				
2	There is a risk that if a chemical/hazardous material spill occurred, damage to property may occur, particularly in areas where such materials are more readily identifiable, such as at Bibra Lake, Coogee, Spearwood and Henderson industrial areas. Explosions may occur from community compounds mixing with the chemical/material spill, which may damage property.				
3	There is a risk that if a chemical/hazardous material spill occurred, contamination of the environment , underground water table and air may occur. Damage to certain eco systems contained within Manning Park, CY O'Connor Reserve, Woodman Point Regional Park and Beeliar Regional Park could occur from chemical carrying vehicles en route to/from Fremantle Port. If a chemical/hazardous material spill occurred off shore, damage to the coastal environment from Coogee to Henderson may occur destroying coastal and water based eco systems.				
4	There is a risk that if a chemical/hazardous material spill occurred, the local economy may be impacted in terms of clean up costs, certain community and business services being suspended or sealed off if located within the spill area, such as the shopping centres at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill and industrial areas of Bibra Lake, Coogee, Spearwood and Henderson.				
5	There is a risk that if a chemical/hazardous material spill occurred, it could impact upon industry in terms of destroying the primary resources required for manufacturing of certain products and goods. Failure of primary industry to provide will have an adverse effect on businesses reliant on these industries				
6	There is a risk that if a chemical/hazardous material spill occurred, damage, destruction and/or disruption to major infrastructure such as water, sewerage, drains and pumps may happen. Chemicals and hazardous materials are periodically transported via Cockburn, Rockingham and Stock Roads en route to/from Fremantle Port. Roads may be closed for extended periods during the containment and clean-up period.				
7	There is a risk that if a chemical/hazardous material spill occurred, may impact on social/cultural aspects of the community, as areas affected by the disaster may be quarantined. Residents may be limited to certain public areas and buildings. Residents may be displaced and this may cause tension etc.				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
HUMAN EPIDEMIC					
1	There is a risk that if an epidemic occurred, the 84,652 people that reside in the City of Cockburn would be at risk. Most vulnerable may be the aged groups 65+ years old and children aged less than 4 years old. Parts of the population vaccinated may have side effects and become ill or die. Quarantine of infected people will be enforced. Water supplies, drainage systems may become contaminated, therefore increasing the spread of disease. There will also be a loss of domestic livestock and pets due to the lack of proper care as human carers may be unavailable.				
2	There is a risk that if an epidemic occurred, property may be impacted especially if quarantine measures are put in place to curb the spread of disease. Some property may be uninhabitable for an extended period of time.				
3	There is a risk that if an epidemic occurred, there may be an impact to the environment in terms of contamination of water ways, natural and made lakes and land reserves from inappropriate disposal of medical resources used in treatment of the disease. Dying livestock and family pets may impact the environment as carcasses may be incorrectly disposed of. Mass graves for human carcasses may also lead to increase chance of environmental damage				
4	There is a risk that if an epidemic occurred, the local and state economy may be impacted due an increase number of workforce becoming ill/dying or staying at home due to quarantine measures and/or caring for ill family members. Demand will increase for non-financial and financial assistance from local community welfare agencies, state based and federal based agencies, as people are unable to work and lead normal lives.				
5	There is a risk that if an epidemic occurred, industry will be forced to suspend trading or close their doors due to the severe staff shortage that may occur. The snowball effect being that primary based industries would be unable to provide the goods and services to businesses and clients. Primary, secondary and service industries will all be impacted, due to fall in production; therefore severe financial losses will be incurred.				
6	There is a risk that if an epidemic occurred, infrastructure such as road, rail and sea based transport that businesses in the CoC rely upon may be impacted due to the shortage of personnel to operate these services. There may be increases in power outages etc as key staff is unavailable to maintain critical systems. Hospital and medical infrastructures would be under immense strain.				
7	There is a risk that if an epidemic occurred, social and cultural ideals may be affected due to anti social targeting of quarantined groups and/or infected individuals. Hospitals and emergency centres may not be able to cope with the increasing number of cases, and people may become aggressive, abusive and violent if they feel inadequate attention and care is given to them. In general people will be cut off from normal day-to-day social activities.				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
MARINE OIL POLLUTION					
1	There is a risk that if marine oil pollution occurred, it may impact on people , local residents and business staff, as their immediate living and working environment may be affected. Depending on the extent and location of the marine oil pollution some parts of the local community may need to be displaced, some residents may be frail and invalid, which in turn raises further medical issues.				
2	There is a risk that if marine oil pollution occurred, it may impact on property located within close proximity of this oil pollution. Some properties may be damaged by the oil and associated sludge build up, therefore becoming in effect quarantined and unusable in the immediate short term. Financial losses may be incurred due to the loss and damage sustained to property.				
3	There is a risk that if marine oil pollution occurred caused by spillage from passing ships, it may impact on the surrounding ocean environment , such as fish and other sea life. There is a risk that if marine oil pollution occurred caused by spillage it may impact on the environment in terms of local fauna and flora, killing native birds, wildlife, marine life/organisms and contaminating delicate eco systems along the coast line. Cockburn Sound could be threatened.				
4	There is a risk that if marine oil pollution occurred, it may impact on the local economy due to the financial losses suffered by some industries and businesses in close proximity of the oil pollution. Reliance on insurance and other forms of financial reimbursement will impact on the profitability of the economy. Clean up of the oil pollution may incur heavy costs both financial and non-financial for the local economy, with a flow onto the state economy.				
5	There is a risk that if marine oil pollution occurred, it may impact on nearby industrial centres, especially if this occurred along the Coogee/Henderson coastal strip by causing them to suspend certain activities and assist in the clean up. It may affect the local professional fishing industry, due to the possible loss of fish and other ocean life stock. Long term commercial fishing may become unsustainable.				
6	There is a risk that if marine oil pollution occurred, it may impact on infrastructure , especially in terms of shipping and marine vessel movements along and within Cockburn Sound and Henderson strip, to and from Fremantle Port and Garden Island.				
7	There is a risk that if marine oil pollution occurred, it may impact on the social and cultural activities of the community due to the impact it would have on water based sporting events and activities. Certain sporting groups and individuals may be unable to compete and/or engage in their water based sport.				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
RAIL FREIGHT EMERGENCY					
1	There is a risk that if a rail freight emergency occurred, people may be seriously injured and/or killed if it was due to a collision between rail and rail, or rail and road vehicle or derailment. Toxic fumes from chemical and hazardous material spills and/or subsequent fires etc may cause people with respiratory issues or other health conditions to become ill in surrounding areas. Emergency response personnel are also at risk of injury or death in the event of an unforeseen explosion/s whilst attending to the injured, spillages and fires.				
2	There is a risk that if a rail freight emergency occurred, property situated in close proximity to the rail lines could be damaged, particularly the Cockburn Central, South Beach and Coogee business/residential developments and the Bibra Lake industrial area. One major freight line extends through the City Of Cockburn from Fremantle Port-Bunbury-Fremantle Port whilst the southern PTA passenger line extends from Perth-Mandurah-Perth. Cockburn Central is a major sub-railway station and termination point for selected rail schedules carrying thousands of city commuters daily.				
3	There is a risk that if a rail freight emergency occurred and depending on the climatic conditions and location of the emergency, environmental areas may be affected by derailed freight carriages carrying toxic chemicals or materials, plus any other fuel like substances coming from any vehicles involved in the emergency. Fires and explosions from highly flammable and toxic materials could present a high risk to natural reserves, waterways, flora and fauna.				
4	There is a risk that if a rail freight emergency occurred, the local economy could be impacted due to the interruption of certain services located in proximity or within the emergency area. Industry and businesses reliant on the rail freight network may need to source alternate transport to ensure continuity of business and provision of goods and services. This in turn will incur non-budgeted expenses and insurance pay outs may be sourced to cover these costs. Some industries will be covered and others will be financially impacted due to inadequate insurance cover.				
5	There is a risk that if a rail freight emergency occurred, the industries that rely on rail transport of their goods may be affected if the rail emergency takes a number of days to clear, which may then flow into weeks if a major investigation was required. Industries unable to provide primary goods and services to businesses via the rail system may need to source other more expensive methods of transportation. The increased costs would then be passed onto dependant businesses/clients and eventually onto the consumer.				
6	There is a risk that if a rail freight emergency occurred, infrastructure such as arterial roads adjacent to the incident may be closed and major traffic detours will be put into effect over a lengthy period of time. This will impact heavy road vehicles that rely on these roads to transport goods. It will also impact non local traffic that is using the main arterial roads. Also impacted would be other rail network industries that rely on the rail network infrastructure for transportation of goods and services, as the major rail lines may be closed for an indefinite period of time. The rail freight emergency may have also caused damage to the power grid system if derailed carriages collided with power lines/transformers.				
7	There is a risk that if a rail freight emergency occurred, social and cultural aspects of the community may be impacted in terms of road closures, inaccessibility to certain public buildings and open spaces. People may be hindered or prevented from attending and participating in sporting and community events.				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
ROAD TRANSPORT EMERGENCY					
1	There is a risk that if a road transport emergency occurred, people in the accident may be seriously injured or killed. Other road users may be involved, with possible injuries and /or deaths. Toxic fumes from chemical and hazardous material spills and/or subsequent fires etc may cause people with respiratory issues or other health conditions to become ill in surrounding areas. Emergency response personnel are also at risk of injury or death in the event of an unforeseen explosion/s whilst attending to the injured, spillages and fires. Major arterial routes include Stock Road, North Lake Road, Rockingham Road, Cockburn Road, Row Highway and Kwinana Freeway. These routes dissect the City of Cockburn carrying thousands of vehicles daily ranging from city bound passenger cars and buses through to heavy haulage trucks bound to and from Fremantle				
2	There is a risk that if a road transport emergency occurred, property may be damaged or destroyed if the accident occurred in built up residential area.				
3	There is a risk that if a road transport emergency occurred and depending on the climatic conditions and location of the emergency, environmental areas may be affected by road transport vehicles carrying toxic chemicals or materials, plus any other fuel like substances coming from any vehicles involved in the emergency. Fires and explosions from highly flammable and toxic materials could present a high risk to natural reserves, waterways, flora and fauna.				
4	There is a risk that if a road transport emergency occurred, the local economy could be impacted due to the interruption of certain services located in proximity or within the emergency area. Industry and businesses reliant on the road transport network may need to source alternate transport to ensure continuity of business and provision of goods and services. This in turn will incur non-budgeted expenses and insurance pay outs may be sourced to cover these costs. Some industries will be covered and others will be financially impacted due to inadequate insurance cover.				
5	There is a risk that if a road transport emergency occurred, industries such as those located at Cockburn, South Lakes, Hamilton Hill, Spearwood and Success shopping centres, and areas such as Henderson, Coogee, Bibra Lake and Spearwood, that rely on road transport of their goods may be affected if the road emergency takes more than one day to clear, which may then flow into weeks if a major investigation was required. Industries unable to provide primary goods and services to businesses via the road system may need to source other more expensive methods of transportation. The increased costs would then be passed onto dependant businesses/clients and eventually onto the consumer.				
6	There is a risk that if a road transport emergency occurred, infrastructure in the near vicinity may be destroyed, particularly electric power lines, causing major service disruptions to the immediate area. If heavy road transport vehicles were involved in the emergency on the main road networks, such as Thomas Road, Kwinana Freeway, Rockingham Road, and Cockburn Road, this would cause mass disruptions and delays to the other road users				
7	There is a risk that if a road transport emergency occurred, social and cultural aspects of the community may be impacted in terms of road closures, inaccessibility to certain public buildings and open spaces. People may be hindered or prevented from attending and participating in sporting and community events.				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
SEVERE STORM					
1	There is a risk that a severe storm will cause serious injury or death to residents of properties and employees of businesses. Emergency response service personnel are at risk of injury or death when attending to call outs to storm damage and accidents. People may need to be displaced into large community halls etc as a temporary measure. Pets and livestock may be killed and become homeless.				
2	There is a risk that a severe storm will cause substantial property damage requiring external resources to be employed for periods of 12 hours or more. Commercial and industrial property situated along the Coogee/Henderson industrial shipping strip, may be damaged and forced to close. Major disruptions could occur				
3	There is a risk that a severe storm will cause serious damage to the environment and sensitive eco systems along the coast line and further inland in the City of Cockburn, requiring major restitution and 3rd party intervention, affecting City of Cockburn budget and operations				
4	There is a risk that a severe storm will impact on the economy due to huge financial and non-financial losses to various sectors of the economy. Businesses and industries would be affected by loss of sales, revenue and loss of staff due to injury, trauma or death. There would be an increase of insurance claims and subsequent insurance premium increases, which may cause smaller businesses to close their doors as they are unable to afford the increase. Insurance companies would be overwhelmed to process claims as quickly as possible. If this fails to occur, businesses reliant on insurance that do not have a robust business recovery plan may cease trading completely. This will impact on loss of rates and income for the City of Cockburn				
5	There is a risk that a severe storm will cause industry downturn or interruptions that may result in closure of some industry (20%) for periods of 24 hours or more. Primary industries reliant on natural resources may be affected due to the loss of these resources i.e. farming, fishing and horticulture. This in turn impacts on the secondary and service industries that rely on supplies from the primary industries.				
6	There is a risk that if a severe storm occurred, it could damage or destroy overhead power lines and communication infrastructure , causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected whilst a bushfire could impact upon roads and rail transport infrastructure causing fire debris, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses. The Woodman Point Waste Water Treatment Plant could be threatened.				
7	There is a risk that a severe storm will impact on social and cultural aspects of the community, as sporting events and activities will be cancelled due to damage or destruction of parks, reserves and community or private buildings – halls etc. Some people in the community may require counselling if affected by a loss of property, possessions, human life or pets and animals				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
TERRORISM					
1	There is a risk of terrorism occurring upon people , whereupon a large number of people may be killed and/or severely injured. The City of Cockburn has approximately 84,652 people of which 85% are Australian Citizens whilst 28.8% were born overseas. The main aim of a terrorist attack is to target people; therefore depending on the extent of the attack, people will be displaced, lose family members, loved ones and pets, lose property and possessions and lose their livelihood. Emergency response personnel may also be at risk of injury or death as they deal with clean up and rescue works in the immediate and surrounding impact sites				
2	There is a risk of terrorism occurring that may have an impact on property , both commercial and public buildings. Properties adjacent to the main impact area of terrorist activity may be severely damaged and/or destroyed. Some properties will be deemed uninhabitable, irreparable, therefore requiring demolishing.				
3	There is a risk of terrorism occurring that may impact on the environment due to the secondary fires and possible spillage of hazardous materials stemming from the initial terrorist attack.				
4	There is a risk of terrorism occurring that may have an impact on the local and state economy , as certain parts of the economy will cease operations, specifically areas directly affected by the terrorist attack. Welfare agencies, hospitals and medical facilities would be placed under immense pressure. There would be very high financial and non-financial losses in the economy, and some parts of the economy may see a downturn, such as tourism.				
5	There is a risk of terrorism occurring on industry located at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill shopping centres and the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson. The Coogee/Henderson shipping industrial area may be at risk of terrorism, especially as Defense patrol boats and other Australian Govt vessels are maintained and serviced in this area. The impact will be a high level of destruction and crippling affect to businesses and people in these areas				
6	There is a risk of terrorism occurring upon major infrastructure services such as transport networks including major roads, bus, and train services within the City of Cockburn. Power grids, gas supplies and water infrastructure may be targeted by terrorism, which would cause significant strain on the provision of these services to the community and neighboring communities				
7	There is a risk of terrorism occurring that may impact on the social and cultural aspects of the community, whereupon people are traumatized and do not participate in large group events or activities. Some sporting events will be cancelled and/or relocated. Certain people of a diverse cultural background may be targeted by vigilante groups and pressured to leave the community.				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
TSUNAMI					
1	There is a risk that if a tsunami occurred, it may cause injury or death to people . People residing in coastal areas such as at South Beach and Port Coogee, hostels, aged care facilities, schools or retirement villages, may require assistance. Some people may be stranded and displaced, with many pets becoming homeless or being killed. Widespread debris, refuse and sewage may litter the City of Cockburn causing an onset of disease and pestilence. The Henderson Rubbish Tip may be washed out and spreads decaying refuse into neighboring residential areas, adding to increased chance of disease spreading and infection.				
2	There is a risk that if a tsunami occurred, it could cause flooding, destroy homes and damage property particularly those who reside in coastal areas such as at Woodman Point Caravan Park, Coogee Beach Caravan Park, South Beach and Port Coogee. It could disrupt damage and destroy property including shopping centres at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill. Evacuation of people and pets may be necessary.				
3	There is a risk that if a tsunami occurred, widespread environmental damage may destroy plants, flora and fauna at Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelihar Regional Park. Debris and other pollutants may wash into natural or man made lakes affecting water quality and destroying sensitive eco systems.				
4	There is a risk that if a tsunami occurred, the local economy will be impacted, with clean up costs, affected businesses being closed, pertinent community services and food supplies may be affected. Land developments and sites inundated with water may require substantial and costly works undertaken to redeem. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted.				
5	There is a risk that if a tsunami occurred, it could impact upon industry in terms of destroying the primary resources required for manufacturing of certain products and goods. Failure of primary industry to provide will have an adverse effect on businesses reliant on these industries				
6	There is a risk that if a tsunami occurred, it could damage or destroy overhead power lines and communication infrastructure , causing service and communication interruptions to homes, businesses, industry, roads and rail transport infrastructure. The South Fremantle switchyard terminal may be affected and it could damage or destroy infrastructure at The Woodman Point Waste Water Treatment Plant and the Cockburn Cement and Quarry Works.				
7	There is a risk that if a tsunami occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult				

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
URBAN FIRE					
1	There is a risk that if urban fire occurred in high density, high rise residences, or buildings such as day care centres, pre-school, schools, aged care facilities, retirement villages, cinemas and shopping centres, injury or multiple deaths may occur, and many pets may be homeless or killed. Toxic fumes from the fires may cause people with respiratory issues or other health conditions to become ill in surrounding areas Survivors would be displaced and emergency service personnel in attendance may be at risk of injury or death from fighting the fire and entering unsafe properties and buildings.				
2	There is a risk that an urban fire will cause major damage to residential, commercial and/or industrial property , which could leave resident's homeless and businesses /industry unable to operate. Many properties may be affected by the fire and associated explosions if these properties housed volatile hazardous materials. Properties may be severely damaged or destroyed, with some being deemed unsafe and requiring demolishing. Business areas such as Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill and the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson would be vulnerable particularly if those businesses stocked accelerants such as wood, chemicals or fuels.				
3	There is a risk that if an urban fire occurred, it could affect the natural environment . Eco flora and fauna may be significantly affected, destroyed or lost forever. Contaminants and/or pollutants could filter into the atmosphere whilst underlying soils could turn acidic and cause environmental damage to the environmental reserves of Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelihar Regional Park. damage or destroy				
4	There is a risk that if an urban fire occurred there may be an impact on the economy if the fire occurred in commercial and industrial areas of the community. Both financial and non-financial losses may occur from the loss of business, people and property, with some parts of the economy relying on external assistance.				
5	There is a risk that if an urban fire occurred, industry areas such as Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill and the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson many businesses would be vulnerable particularly if those businesses stocked accelerants such as wood, chemicals or fuels.				
6	There is a risk that if an urban fire occurred, it could damage or destroy overhead power lines and communication infrastructure , causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected whilst an urban fire could impact upon roads and rail transport infrastructure causing fire debris, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses.				
7	There is a risk that if an urban fire occurred, it may impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult				

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Appendix 5
Risk Identification Workbook



LOCAL EMERGENCY MANAGEMENT COMMITTEE & CITY OF COCKBURN COMMUNITY

EMERGENCY RISK MANAGEMENT WORKSHOP

“RISK IDENTIFICATION WORKBOOK”

WORK BOOK OVERVIEW

The purpose of this work book is to gather information from workshop participants through activities conducted during the workshop.

When participating in an activity, any notes or comments should be written in the workbook against the relevant item.

On conclusion of the activity, the workbook will be collected and the information will be collated and summarised to ensure the workshop outcomes are met.

The workbook also provides a documented record of the process undertaken which will support any future activities carried out during the emergency risk management project.

Throughout the work book you will find the icons listed below which have the following meaning:

Group activity – All tables as a whole group complete the task and record the outcomes in each workbook.

Table activity – In your tables, complete the task and record the outcomes in each workbook.

Though the activities are mainly table and group focused, please ensure that any notes or comments made individually are documented in your work book. Throughout the work shop, if you have any comments, suggestions or ideas, feel free to make notes on any page in the workbook.

NOTE: Due to the intensity of the workshop program, there may be times when discussion needs to be limited. If you have a question or comment that is not addressed during the workshop, please make note of it in the workbook and individual follow up will occur.

Once the activity is complete, please hand the work books in for collection. The information collated from the work shop will be documented and when the final report has been developed, a copy will be forwarded to each participant for their information.

The City of Cockburn thanks you for assisting with the emergency risk management process and helping to make our community a safer community to live and work in. We look forward to working with you in the future

FACILITATOR: LGIS
LOCATION: City of Cockburn
DATE: 5th / 6th October 2009
TIME: 0830hrs – 1700hrs

ERM PROJECT DEFINITIONS

The following definitions apply throughout the work book for the purposes of the ERM project.

ECONOMY

When referring to consequences, 'economy' is described as the loss of income, labour, public/business confidence, etc.

EMERGENCY

An event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which is beyond the resources of a single organisation or which requires the coordination of a number of significant emergency management activities

NOTE: The terms 'emergency' and 'disaster' are used nationally and internationally to describe events that require special arrangements to manage the situation. 'Emergencies' or 'disasters' are characterized by the need to deal with the hazard and its impact on the community

The term 'emergency' is used on the understanding that it also any meaning of the word 'disaster'

EMERGENCY MANAGEMENT

Emergency Management is a range of measures that manages community and environmental risks. It involves the development and maintenance or arrangements to prevent or mitigate, prepare for, respond to, and recover from emergencies and disasters in both peace and war

EMERGENCY RISK MANAGEMENT

A systematic process that produces a range of measures that, on being implemented, contributes to the safety and wellbeing or communities and the environment

ENVIRONMENT

When referring to consequences, the 'environment' is described as the loss of ecosystems of the natural world, plant and animal, air quality, water quality, soil quality, etc

HAZARD

A situation or condition with potential for loss or harm to the community or the environment

INDUSTRY

When referring to consequences, 'industry' is described as the loss of businesses that supplement the economy through tourism, manufacturing, transportation, shopping centres, etc.

INFRASTRUCTURE

When referring to consequences, 'infrastructure' is described as community lifelines/services and community infrastructure. Lifelines/services include communications, water, gas, power, transportation networks, etc and community infrastructure includes community facilities (recreation grounds, public halls etc), hospitals, schools etc

LIFELINES

Systems or networks that that provide for the circulation of people, goods, services and information upon which health, safety, comfort and economic activity depend

PEOPLE

When referring to consequences, 'people' are described as the loss of health (life, injury, mental and physical health, etc)

PROPERTY

When referring too consequences, 'property' is described as the loss of assets, structures, stock, etc

RISK

A concept used to describe the likelihood of harmful consequences, arising from the interaction of hazards, communities and the environment

SOCIAL & CULTURAL

When referring to consequences, 'social and cultural' is described as the loss of social networks (community and sporting groups, etc), and cultural networks (religious and ethnic, heritage buildings etc

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IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
<p>Source of Risk: AIR TRANSPORT EMERGENCY</p> <p>Description</p> <p>Jandakot Airport is the major General Aviation Airport in Western Australia. Situated in the City of Cockburn it is the busiest airfield and largest aviation training base in Australia. It contains three runways and averaged 390,000pa aircraft movements over the last three years. At a growth rate of 2.5%, the Airport could expect to reach 476,000pa fixed wing movements by the year 2025.</p> <p>Jandakot Airport is situated within a 3 nautical mile radius General Aviation Airport Procedure (GAAP) Control Zone (CTR), with an upper limit of 1,500 ft altitude. The Jandakot CTR is immediately south of the Perth CTR, whose controlled airspace lies above the Jandakot CTR to 60,000ft altitude. There is a large designated flying training area to the south of the Airport which extends from ground level to 6,000ft altitude.</p> <p>Jandakot Airport's GAAP Control Zone is situated predominantly over City of Cockburn residential areas. In the 7 years prior to 2005 there have been 6 aircraft incidents involving the overshoot or undershoot of a runway, 2 aborted takeoffs and 4 aircraft not making the runway to land. The airport provides access for essential service organisations such as the Royal Flying Doctor Service, DEC Forest and Bushfire Patrol and the WA Police Air Support.</p>

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IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: ANIMAL & PLANT DISEASE
<p>Description</p> <p>Australia is under constant threat from the risk of major animal and plant pest and disease outbreaks or incursions. Depending on the type and magnitude of the outbreak, such an event could cause significant damage to property and the environment. An outbreak could result in harm to the health of animals and humans, cause serious financial hardship and social disruption to the community and threaten the viability of the livestock and agricultural industries.</p> <p>Over 60 animal diseases and 70 plant pests are currently recognized as exotic (foreign) to Australia. A number of parasitic weeds are also considered a threat to property and the environment. Many exotic pests and diseases are highly contagious and can spread quickly. Rapid and stringent action is required to contain an outbreak and limit its distribution. It is imperative that any outbreak is identified early and eradicated without delay.</p> <p>The City of Cockburn has approximately 4,760ha of bush land within the region of which 593ha is located in the Beeliar, Woodman Point and Jandakot Regional Parks. Widespread animal and plant disease may destroy plants, flora and fauna in the 4,760ha of bush land contained within the City of Cockburn and that contained within the Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beeliar Regional Park</p>

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IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: BUSH FIRE
<p>Description</p> <p>Bushfires or Wildfires are common throughout Australia. The grassfire is fast moving, passing in 5 to 10 seconds and smoldering for minutes. They have a low to medium intensity and primarily damage crops, livestock and infrastructure such as fences. Bushfires are generally slower moving, but have a higher heat output. This means they pass in 2 to 5 minutes, but they can smolder for days. Fire in the crown of the tree canopy can move rapidly. Bushfires are an intrinsic part of Australia's environment. Natural ecosystems have evolved with fire, and the landscape, along with its biological diversity, has been shaped by both historic and recent fires. Many of Australia's native plants are fire prone and very combustible while numerous species depend on fire to regenerate.</p> <p>Bush Fires occur intermittently on an annual basis within areas of the City of Cockburn. The fire behavior can range from very mild to unpredictable, dependant on fuel loads, and climatic conditions. A special note should be taken of the environmental changes taking place with global warming. Drying ground fuels and warming temperatures. The most severe fires may occur from October through to April. Fires in the City of Cockburn occur mainly during restricted burning times. There may be limited or no notification to the community at the initial stages of a fire, with the duration and impact being unpredictable.</p> <p>Public awareness is provided by the City of Cockburn, DEC and FESA regarding the consequences and reduction methods of Bush Fire throughout the State every year. The City of Cockburn advises community members of prohibited burning times, fire breaks and harvest bans. Hazard reduction work is required to be undertaken between September and October and maintained by property owners from December through to March each year. The Bush Fires Act 1954 legislates the control of fire which ultimately reduces the potential occurrence of Bush Fire.</p>

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IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: CHEMICAL / BIOLOGICAL / RADIOLOGICAL / NUCLEAR
<p>Description</p> <p>The risk from the deliberate use of chemical, biological and radiological (CBR) material needs to be considered within the boundaries of the City of Cockburn but also that that may affect the city from adjoining Local Government Districts. On the 9th May, 2006, the Australian Government announced funding of \$8.4 million over four years to improve Australia's ability to respond to chemical, biological, radiological and nuclear (CBRN) incidents</p> <p>Nuclear powered ships containing nuclear materials periodically sail the Coogee/Henderson coast to visit Fremantle Port/Garden Island Defense Base. The Australian Submarine Corporation (ASC), which is part of the Australian Marine Complex (AMC) in Henderson provides a facility to service Defense force nuclear submarines. The Defense Maritime Services (DMS) also located in the AMC also provides facilities to service Defense force naval ships. If a nuclear incident occurred, it may cause some form of radiation fallout within the immediate area of Henderson and may impact the City of Cockburn.</p>

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IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: CYCLONE
<p>Description</p> <p>A tropical cyclone is a low-pressure system which develops in the tropics and is sufficiently intense to produce sustained gale force winds of at least 63 km/h. If the sustained wind reaches hurricane force of at least 118 km/h the system is defined as a severe tropical cyclone. In other parts of the world they are called hurricanes or typhoons. The most well known features are destructive winds and heavy rainfall that can lead to flooding. Storm surge, or coastal inundation by seawater, is a lesser known phenomenon but can be the most dangerous element of a cyclone.</p> <p>Cyclones may affect the whole of the City of Cockburn on an irregular basis. They occur predominantly in the summer months. Wind damage can occur. Wind gusts can exceed 100kph with varying degrees of damage to coastal property and the environment.</p> <p>The Bureau of Meteorology (BOM) produces daily weather forecasts and predictions for the public. Awareness (mitigation) is also undertaken by FESA via print and electronic media by promoting hazard reduction (reduction of loose items around properties, tree trimming, etc) and through weather warnings. The City of Cockburn undertakes drainage maintenance to reduce the risk of flooding, conducts verge maintenance under power lines to reduce power interference from trees.</p>

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IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: EARTHQUAKE
<p>Description</p> <p>An earthquake is the shaking and vibration at the surface of the earth caused by underground movement along a fault plane or by volcanic activity. The size of earthquakes is commonly measured using the Richter scale which compares the maximum heights of the seismic waves at a distance of 100 kilometres from the point on the earth's surface directly above where the earthquake originated within the earth, the epicentre. The scale divides the size of earthquakes into categories called magnitudes which are an estimate of the energy released by an earthquake. For every unit increase in magnitude on the Richter scale, there is roughly a thirty-fold increase in the energy released by an earthquake</p> <p>Perth is outside of the earthquake zone. No earthquake of magnitude greater than 2 is known to have occurred in the Perth metropolitan region. The closest confirmed seismic activity to Perth has been at Wooroloo, approximately 50 km east of Perth, where several earthquakes of magnitude just over 2 have been recorded. Several earthquakes of magnitude approximately 4 have been recorded close to York, approximately 100 km east of Perth</p> <p>The most significant West Australian earthquake was that which occurred at Meckering in October, 1968 whilst WA's largest earthquake occurred near Meeberrie, approximately 300 km northeast of Geraldton in 1941.</p>

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IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: ENVIRONMENTAL DISASTER
<p>Description</p> <p>An environmental disaster is a disaster that is due to human activity and should not be confused with natural disasters. In this case, the impact of humans' alteration of the ecosystem has led to widespread and/or long-lasting consequences. It can include the deaths of animals (including humans) and plants, or severe disruption of human life, possibly requiring migration.</p> <p>There is a risk of contaminants and/or pollutants, including acidic soils, causing environmental damage to the environmental reserves of Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beeliar Regional Park that have eco, flora and fauna systems.</p>

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IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: FLOODING
Description A simple definition of flooding is water where it is not wanted. Floods can have both positive and negative impacts. They can bring welcome relief for people and ecosystems suffering from prolonged drought, but also are estimated to be the most costly natural disaster in Australia. Every year in Australia, floods cause millions of dollars damage to buildings and critical infrastructure, such as roads and railways as well as to agricultural land and crops. They also disrupt business and can affect the health of communities. The losses due to flooding vary widely from year to year and are dependent on a number of factors such as the severity of a flood and its location. If a flood occurred, it could destroy homes and damage the property particularly those who reside in low lying inland areas and coastal areas due to water entrapment. By its nature, the flood waters are delivered directly to an area by heavy rains or by rivers, streams, creeks or over ground movement of waters to low lying catchments.

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IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: HAZARDOUS MATERIALS / CHEMICAL SPILL
Description At all times of the year there is significant transportation of hazardous materials on major roads, the use and storage of chemicals on hobby farms, the use of hazardous materials in commercial/industrial facilities and the storage of hazardous materials in other areas throughout the City of Cockburn. Due to the volume of hazardous materials travelling through, being used and stored within the City of Cockburn, there is a serious concern of a hazardous material incident occurring. As hazardous materials are used for a variety of purposes within the City of Cockburn, the impact of an incident would have varying consequences on the community and the environment dependent upon the hazardous material type, the size of the incident, the location of the incident, etc. There are no known records of the community being affected by a hazardous materials incident. The Department of Commerce through its Resources Safety Division deals with storage and transport of Hazardous Chemicals. All applications are authorised by the department with any relevant licenses being issued. The City of Cockburn is notified of any application and license or amendment to current licenses to ensure local statutory planning requirements are met. The department regulates specified transport routes for hazardous materials and issues Guidance Notes to ensure correct transport methods are adhered to.

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IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: HUMAN EPIDEMIC
<p>Description</p> <p>The World Health Organisation (WHO) and the Dept of Health (DOH) monitors the ongoing threat of global human influenza pandemics. An influenza pandemic occurs when a new influenza virus subtype to which there is little or no immunity emerges, which is easily spread between humans and is capable of causing severe disease in humans. In the absence of immunity, the new subtype can spread rapidly across the globe, causing worldwide epidemics or pandemics_ with high numbers of cases and deaths</p> <p>Previous influenza pandemics, including three during the 20th century, have caused large-scale illness, death and adverse socio-economic impacts worldwide. The WHO conservatively estimates that 40 million people worldwide died from the "Spanish" flu during 1918-19, and one million people died from the "Hong Kong" flu of 1968-69. The highly pathogenic avian influenza virus known as H1N1 is a public health concern because of its potential to transform into a pandemic strain. As long as the virus continues to circulate in birds and animals, there will be opportunities for this virus to change and adapt to humans. Of course it is now evident that a virus called by many as Swine Flu Pandemic has impacted the world's population causing many deaths to those that were vulnerable. Prevention measures are now in place with the use of an anti viral injection to mitigate against the affects of a possible second wave.</p>

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IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: MARINE OIL POLLUTION
<p>Description</p> <p>Australia's National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances (the National Plan) is a national integrated Government and industry organisational framework enabling effective response to marine pollution incidents. The Australian Maritime Safety Authority (AMSA) manages the National Plan, working with State/Northern Territory (NT) governments and the shipping, oil, exploration and chemical industries, emergency services and fire brigades to maximize Australia's marine pollution response capability</p> <p>Heavy metals derived from industrial pollution have also caused problems in Cockburn Sound in the past. However, a recent survey by the Western Australian Environment Protection Authority (WAEPA) shows that levels of all pollutants discharged into Cockburn Sound have decreased dramatically over the last 10 years as a result of better waste treatment and control. However if marine oil pollution occurred in the City of Cockburn, it may impact on the environment in terms of local fauna and flora, killing native birds and wildlife, contaminating delicate eco systems along the coast line</p>

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IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: RAIL EMERGENCY
<p>Description</p> <p>The Public Transport Authority (PTA) manages on behalf of the State Government an electrified rail network that passes through and adjacent to the City of Cockburn. Daily thousands of commuters travel to various destinations along the rail line, primarily during peak travel times to and from the CBD. Whilst the PTA has well developed response plans to meet the needs of a rail accident on this line, the CoC needs to be aware of the vehicle traffic impact that would occur and its roads if an accident occurred. The possible diversion of all freeway traffic to local streets.</p> <p>ARG is the dominant rail haulage provider in Australia's largest bulk commodity markets. They operate bulk freight rail services in Western Australia for clients in the mining and agricultural sectors. The key ARG rail products are iron ore, alumina, metal concentrates, grain, sugar, fuel, lead, copper, sulphur and dangerous goods.</p> <p>The rail infrastructure network, as provided by WestNet Rail and has 830km of signaled track with the balance of the network under Train Order working. En route to and from Fremantle Port laden ARG freight trains regularly pass through the residential areas of Bibra Lake and South Beach and the industrial areas of Coogee and Henderson.</p>

Identifiers:

The description is a broad statement which includes 'Descriptor of Risk';

- * Intensity (how big, fast, powerful the source of risk may be)
- * Extent (the area that a source of risk may impact);
- * Likelihood of occurrence (frequency of the event, not impact);
- * Timeframe (warning time, duration, time of day/week/year);
- * Manageability (what can be done about it)

Comments:

Consider the 'Description' as currently documented and review to ensure the 'Descriptions of Risk' are accurate and the 'Description' as a whole is relevant to the City of Cockburn.

Make any alterations you see fit and make any notes for consideration in the 'comments' section of this page.

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: ROAD TRANSPORT EMERGENCY
<p>Description</p> <p>Australia relies heavily on its roads to transport both goods and passengers over huge distances. There is increasing use of our highways and roads by large trucks, buses and small passenger vehicles. Trucks carry all manner of goods including hazardous materials and dangerous goods which potentially add another dimension to traffic accidents. Accidents include all combinations of trucks, busses, trains and stationary objects and have the potential to cause death, serious injury, infrastructure and environmental damage. Road transport accidents are a constant risk to all communities.</p> <p>A consideration when assessing the impact of Road Transport emergencies is not that of just injury or death but also that of the effects to the CoC if a major road or the freeway needed to be diverted through the local streets. We only need to look back a few years ago to the grid lock that affected Perth from a burst water main incident near the Narrows Bridge to understand that the mass volume of traffic utilising the major road network could cause an emergency within our community.</p> <p>There are four key road transport routes that increase the risk of a road transport accident in The City of Cockburn, namely:</p> <ul style="list-style-type: none"> * The Kwinana Freeway * Cockburn Road * Stock Road * Rockingham Road

Identifiers:

The description is a broad statement which includes 'Descriptor of Risk';

- * Intensity (how big, fast, powerful the source of risk may be)
- * Extent (the area that a source of risk may impact);
- * Likelihood of occurrence (frequency of the event, not impact);
- * Timeframe (warning time, duration, time of day/week/year);
- * Manageability (what can be done about it)

Comments:

Consider the 'Description' as currently documented and review to ensure the 'Descriptions of Risk' are accurate and the 'Description' as a whole is relevant to the City of Cockburn.

Make any alterations you see fit and make any notes for consideration in the 'comments' section of this page.

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: SEVERE STORM
<p>Description</p> <p>On the Australian continent severe weather can range from isolated thunderstorms to intense low pressure systems affecting thousands of square kilometres. Large scale deep low pressure systems cause widespread flash flooding and gale to storm force winds extending over 400 to 1,000 square kilometers. Synoptic storms are capable of causing the most extensive damage of all severe weather events. The level of damage is generally locally minor and mainly affects vegetation and structures which are vulnerable due to local acceleration of the wind over topography, but can affect large parts of the country.</p> <p>Storms may affect the whole of the City of Cockburn on a yearly basis. They occur throughout the year, though they are generally during the winter months. Wind and hail damage can occur. Wind gusts can exceed 100kph with varying degrees of damage to property and the environment often occurs.</p> <p>The Bureau of Meteorology (BOM) produces daily weather forecasts and predictions for the public. Awareness (mitigation) is also undertaken by FESA via print and electronic media by promoting hazard reduction (reduction of loose items around properties, tree trimming, etc) and through weather warnings. The City of Cockburn undertakes drainage maintenance to reduce the risk of flooding, conducts verge maintenance under power lines to reduce power interference from trees.</p>

Identifiers:

The description is a broad statement which includes 'Descriptor of Risk';

- * Intensity (how big, fast, powerful the source of risk may be)
- * Extent (the area that a source of risk may impact);
- * Likelihood of occurrence (frequency of the event, not impact);
- * Timeframe (warning time, duration, time of day/week/year);
- * Manageability (what can be done about it)

Comments:

Consider the 'Description' as currently documented and review to ensure the 'Descriptions of Risk' are accurate and the 'Description' as a whole is relevant to the City of Cockburn.

Make any alterations you see fit and make any notes for consideration in the 'comments' section of this page.

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: TERRORISM
<p>Description</p> <p>Australia and particularly Western Australia has limited exposure to terrorist activities and thus possesses a moderate threat level. Threat levels are continually monitored and adjusted as determined by Federal and State Government Agencies. One of the difficulties in dealing with a terrorist threat is that actual targets are unknown until the actual event, which may occur in any number of forms and may include targets such as human life, damage and destruction of infrastructure and contamination.</p> <p>There are significant assets within the City of Cockburn, which could be considered "at risk". These would include the Port Coogee coastal development, Jandakot Airport, major road and rail transportation routes i.e. Kwinana Freeway, Rockingham, Cockburn and Stock Roads, Communication and Heritage Sites. There are also a number of key infrastructure utilities such as Western Power, Telecommunications and Radio networks. These assets and others not mentioned in this document may have a local, regional, state and national significance.</p>

Identifiers:

The description is a broad statement which includes 'Descriptor of Risk';

- * Intensity (how big, fast, powerful the source of risk may be)
- * Extent (the area that a source of risk may impact);
- * Likelihood of occurrence (frequency of the event, not impact);
- * Timeframe (warning time, duration, time of day/week/year);
- * Manageability (what can be done about it)

Comments:

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Make any alterations you see fit and make any notes for consideration in the 'comments' section of this page.

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: TSUNAMI
Description A Tsunami is a wave or series of waves, generated in a water body by sudden, large-scale displacement of water. The most well known phenomena generating tsunamis are earthquakes or volcanic eruptions. Tsunamis can produce wavelengths that may exceed 100kms and wave speeds up to 1000km/h. The impact of a Tsunami is partially determined by the tide and surge range typically experienced along a shoreline. Coastal regions that contain a high water level range, sloping sea beds and coastal development are most at risk. The Department for Planning and Infrastructure collects tide data from various locations along the Western Australian coastline, ranging from Wyndham in the north to Esperance in the south. The City of Cockburn has an extensive low lying coastline, some currently under coastal development and is therefore susceptible to Tsunami occurrence. There are currently arrangements to monitor and respond to these events in WA by EM Act Regulation 2006 identify FESA as the HMA and a working partnership with Geoscience Australia and the BOM.

Identifiers:

The description is a broad statement which includes 'Descriptor of Risk';

- * Intensity (how big, fast, powerful the source of risk may be)
- * Extent (the area that a source of risk may impact);
- * Likelihood of occurrence (frequency of the event, not impact);
- * Timeframe (warning time, duration, time of day/week/year);
- * Manageability (what can be done about it)

Comments:

Consider the 'Description' as currently documented and review to ensure the 'Descriptions of Risk' are accurate and the 'Description' as a whole is relevant to the City of Cockburn.

Make any alterations you see fit and make any notes for consideration in the 'comments' section of this page.

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK
Source of Risk: URBAN FIRE
Description Urban Fires occur occasionally within the City of Cockburn with varying degrees of damage incurred. The fires can involve commercial, industrial and residential structures at any time. Structure fires can begin from a source within a structure (e.g. candle or heater in a house, chemical reaction in a shed, etc) or from an external source (e.g. bush fire, paddock fire or spread from another urban fire, etc). They are generally isolated incidents, Urban fires can become very intense fires extremely quickly, dependent on fuel availability, weather conditions, etc. Urban fire can occur at any time of the day or night and may be controlled quickly dependent upon what the fuel source is. The City of Cockburn and FESA promote community awareness (e.g. candle education, installation of smoke alarms, etc) and hazard reduction (e.g. internally: keep heating appliances away from flammable goods; externally: reduce fuel loads around structures) within and around structures. The building Code of Australia, through the City of Cockburn Planning processes, enables the achievement and maintenance of acceptable standards of structural sufficiency, safety (including safety from fire), health and amenity throughout Australia

Identifiers:

The description is a broad statement which includes 'Descriptor of Risk';

- * Intensity (how big, fast, powerful the source of risk may be)
- * Extent (the area that a source of risk may impact);
- * Likelihood of occurrence (frequency of the event, not impact);
- * Timeframe (warning time, duration, time of day/week/year);
- * Manageability (what can be done about it)

Comments:

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Appendix 6
Risk Impact Workbook



LOCAL EMERGENCY MANAGEMENT COMMITTEE & CITY OF COCKBURN COMMUNITY

EMERGENCY RISK MANAGEMENT WORKSHOP

“RISK IMPACT WORKBOOK”

FACILITATOR: LGIS
 LOCATION: City of Cockburn
 DATE: 5th / 6th October 2009
 TIME: 0830hrs – 1700hrs

WORK BOOK OVERVIEW

The purpose of this work book is to gather information from workshop participants through activities conducted during the workshop.

When participating in an activity, any notes or comments should be written in the workbook against the relevant item.

On conclusion of the activity, the workbook will be collected and the information will be collated and summarised to ensure the workshop outcomes are met.

The workbook also provides a documented record of the process undertaken which will support any future activities carried out during the emergency risk management project.

Throughout the work book you will find the icons listed below which have the following meaning:

Group activity – All tables as a whole group complete the task and record the outcomes in each workbook.

Table activity – In your tables, complete the task and record the outcomes in each workbook.

Though the activities are mainly table and group focused, please ensure that any notes or comments made individually are documented in your work book. Throughout the work shop, if you have any comments, suggestions or ideas, feel free to make notes on any page in the workbook.

NOTE: Due to the intensity of the workshop program, there may be times when discussion needs to be limited. If you have a question or comment that is not addressed during the workshop, please make note of it in the workbook and individual follow up will occur.

Once the activity is complete, please hand the work books in for collection. The information collated from the work shop will be documented and when the final report has been developed, a copy will be forwarded to each participant for their information.

The City of Cockburn thanks you for assisting with the emergency risk management process and helping to make our community a safer community to live and work in. We look forward to working with you in the future.

ERM PROJECT DEFINITIONS

The following definitions apply throughout the work book for the purposes of the ERM project.

ECONOMY

When referring to consequences, 'economy' is described as the loss of income, labour, public/business confidence, etc.

EMERGENCY

An event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which is beyond the resources of a single organisation or which requires the coordination of a number of significant emergency management activities

NOTE: The terms 'emergency' and 'disaster' are used nationally and internationally to describe events that require special arrangements to manage the situation. 'Emergencies' or 'disasters' are characterized by the need to deal with the hazard and its impact on the community

The term 'emergency' is used on the understanding that it also any meaning of the word 'disaster'

EMERGENCY MANAGEMENT

Emergency Management is a range of measures that manages community and environmental risks. It involves the development and maintenance or arrangements to prevent or mitigate, prepare for, respond to, and recover from emergencies and disasters in both peace and war

EMERGENCY RISK MANAGEMENT

A systematic process that produces a range of measures that, on being implemented, contributes to the safety and wellbeing or communities and the environment

ENVIRONMENT

When referring to consequences, the 'environment' is described as the loss of ecosystems of the natural world, plant and animal, air quality, water quality, soil quality, etc

HAZARD

A situation or condition with potential for loss or harm to the community or the environment

INDUSTRY

When referring to consequences, 'industry' is described as the loss of businesses that supplement the economy through tourism, manufacturing, transportation, shopping centres, etc.

INFRASTRUCTURE

When referring to consequences, 'infrastructure' is described as community lifelines/services and community infrastructure. Lifelines/services include communications, water, gas, power, transportation networks, etc and community infrastructure includes community facilities (recreation grounds, public halls etc), hospitals, schools etc

LIFELINES

Systems or networks that that provide for the circulation of people, goods, services and information upon which health, safety, comfort and economic activity depend

PEOPLE

When referring to consequences, 'people' are described as the loss of health (life, injury, mental and physical health, etc)

PROPERTY

When referring too consequences, 'property' is described as the loss of assets, structures, stock, etc

RISK

A concept used to describe the likelihood of harmful consequences, arising from the interaction of hazards, communities and the environment

SOCIAL & CULTURAL

When referring to consequences, 'social and cultural' is described as the loss of social networks (community and sporting groups, etc), and cultural networks (religious and ethnic, heritage buildings etc)

Below are the elements considered most at risk within a community

AIR TRANSPORT EMERGENCY						
Consequences						
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Air Transport Emergency was to occur.

Below are the elements considered most at risk within a community

ANIMAL & PLANT DISEASE

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Animal & Plant Disease was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

BUSH FIRE

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Bush Fire was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

CHEMICAL / BIOLOGICAL / RADIOLOGICAL / NUCLEAR

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them.

In the following table please document as many elements within the community that may be affected if a Chemical / Biological / Radiological / Nuclear was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

CYCLONE

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them.

In the following table please document as many elements within the community that may be affected if a Cyclone was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

EARTHQUAKE

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Earthquake was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

ENVIRONMENTAL DISASTER

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Environmental Disaster was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

FLOODING						
Consequences						
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Flooding was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

HAZARDOUS MATERIALS / CHEMICAL SPILL						
Consequences						
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Hazardous Materials / Chemical Spill was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

HUMAN EPIDEMIC

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Human Epidemic was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

MARINE OIL POLLUTION

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Marine Oil Pollution was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

RAIL FREIGHT EMERGENCY

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Rail Freight Emergency was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

ROAD TRANSPORT EMERGENCY

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Road Transport Emergency was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

SEVERE STORM

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Severe Storm was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

TERRORISM

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Terrorism was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

TSUNAMI

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Tsunami was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

Below are the elements considered most at risk within a community

URBAN FIRE

Consequences

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Financial Major loss Moderate loss Minor loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Utilities Power Water Gas Transport Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Injury Permanent Serious Minor Illness	Private Residence Sheds Vehicles Commercial Structures Vehicles Produce Public Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

The 'consequence' considers elements within the community and the vulnerability of those elements if the source of risk was to impact on them. In the following table please document as many elements within the community that may be affected if a Urban Fire was to occur.

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL

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Appendix 7
Risk Rating Workbook



LOCAL EMERGENCY MANAGEMENT COMMITTEE & CITY OF COCKBURN COMMUNITY

EMERGENCY RISK MANAGEMENT WORKSHOP

“RISK RATING WORKBOOK”

FACILITATOR: LGIS
 LOCATION: City of Cockburn
 DATE: 5th / 6th October 2009
 TIME: 0830hrs – 1700hrs

WORK BOOK OVERVIEW

The purpose of this work book is to gather information from workshop participants through activities conducted during the workshop.

When participating in an activity, any notes or comments should be written in the workbook against the relevant item.

On conclusion of the activity, the workbook will be collected and the information will be collated and summarised to ensure the workshop outcomes are met.

The workbook also provides a documented record of the process undertaken which will support any future activities carried out during the emergency risk management project.

Throughout the work book you will find the icons listed below which have the following meaning:

Group activity – All tables as a whole group complete the task and record the outcomes in each workbook.

Table activity – In your tables, complete the task and record the outcomes in each workbook.

documented in your work book. Throughout the work shop, if you have any comments, suggestions or ideas, feel free to make notes on any page in the workbook.

NOTE: Due to the intensity of the workshop program, there may be times when discussion needs to be limited. If you have a question or comment that is not addressed during the workshop, please make note of it in the workbook and individual follow up will occur.

Once the activity is complete, please hand the work books in for collection. The information collated from the work shop will be documented and when the final report has been developed, a copy will be forwarded to each participant for their information.

The City of Cockburn thanks you for assisting with the emergency risk management process and helping to make our community a safer community to live and work in. We look forward to working with you in the future.

ERM PROJECT DEFINITIONS

The following definitions apply throughout the work book for the purposes of the ERM project.

ECONOMY

When referring to Likelihoods, 'economy' is described as the loss of income, labour, public/business confidence, etc.

EMERGENCY

An event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which is beyond the resources of a single organisation or which requires the coordination of a number of significant emergency management activities

NOTE: The terms 'emergency' and 'disaster' are used nationally and internationally to describe events that require special arrangements to manage the situation. 'Emergencies' or 'disasters' are characterized by the need to deal with the hazard and its impact on the community

The term 'emergency' is used on the understanding that it also any meaning of the word 'disaster'

EMERGENCY MANAGEMENT

Emergency Management is a range of measures that manages community and environmental risks. It involves the development and maintenance or arrangements to prevent or mitigate, prepare for, respond to, and recover from emergencies and disasters in both peace and war

EMERGENCY RISK MANAGEMENT

A systematic process that produces a range of measures that, on being implemented, contributes to the safety and wellbeing or communities and the environment

ENVIRONMENT

When referring to Likelihoods, the 'environment' is described as the loss of ecosystems of the natural world, plant and animal, air quality, water quality, soil quality, etc

HAZARD

A situation or condition with potential for loss or harm to the community or the environment

INDUSTRY

When referring to Likelihoods, 'industry' is described as the loss of businesses that supplement the economy through tourism, manufacturing, transportation, shopping centres, etc.

INFRASTRUCTURE

When referring to Likelihoods, 'infrastructure' is described as community lifelines/services and community infrastructure. Lifelines/services include communications, water, gas, power, transportation networks, etc and community infrastructure includes community facilities (recreation grounds, public halls etc), hospitals, schools etc

LIFELINES

Systems or networks that that provide for the circulation of people, goods, services and information upon which health, safety, comfort and economic activity depend

PEOPLE

When referring to Likelihoods, 'people' are described as the loss of health (life, injury, mental and physical health, etc)

PROPERTY

When referring too Likelihoods, 'property' is described as the loss of assets, structures, stock, etc

RISK

A concept used to describe the Consequence of harmful Likelihoods, arising from the interaction of hazards, communities and the environment

SOCIAL & CULTURAL

When referring to Likelihoods, 'social and cultural' is described as the loss of social networks (community and sporting groups, etc), and cultural networks (religious and ethnic, heritage buildings etc

RISK REGISTER AIR TRANSPORT EMERGENCY

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that an Air Transport Emergency will affect human health				
There is a risk that an Air Transport Emergency will cause damage to or destroy property				
There is a risk that an Air Transport Emergency will cause damage to or destroy the environment				
There is a risk that an Air Transport Emergency will affect the economy				
There is a risk that an Air Transport Emergency will cause disruption to industry				
There is a risk that an Air Transport Emergency will cause damage to or destroy infrastructure				
There is a risk that an Air Transport Emergency will impact on the social and or cultural aspects of the community				

RISK REGISTER
ANIMAL & PLANT DISEASE OUTBREAK

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that an Animal + Plant Disease Outbreak will affect human health				
There is a risk that an Animal + Plant Disease Outbreak will cause damage to or destroy property				
There is a risk that an Animal + Plant Disease Outbreak will cause damage to or destroy the environment				
There is a risk that an Animal + Plant Disease Outbreak will affect the economy				
There is a risk that an Animal + Plant Disease Outbreak will cause disruption to industry				
There is a risk that an Animal + Plant Disease Outbreak will cause damage to or destroy infrastructure				
There is a risk that an Animal + Plant Disease Outbreak will impact on the social and or cultural aspects of the community				

RISK REGISTER
BUSH FIRE

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that a Bushfire will affect human health				
There is a risk that a Bushfire will cause damage to or destroy property				
There is a risk that a Bushfire will cause damage to or destroy the environment				
There is a risk that a Bushfire will affect the economy				
There is a risk that a Bushfire will cause disruption to industry				
There is a risk that a Bushfire will cause damage to or destroy infrastructure				
There is a risk that a Bushfire will impact on the social and or cultural aspects of the community				

RISK REGISTER
CHEMICAL / BIOLOGICAL / RADIOLOGICAL / NUCLEAR

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will affect human health				
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will cause damage to or destroy property				
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will cause damage to or destroy the environment				
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will affect the economy				
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will cause disruption to industry				
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will cause damage to or destroy infrastructure				
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will impact on the social and or cultural aspects of the community				

RISK REGISTER
CYCLONE

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that a Cyclone will affect human health				
There is a risk that a Cyclone will cause damage to or destroy property				
There is a risk that a Cyclone will cause damage to or destroy the environment				
There is a risk that a Cyclone will affect the economy				
There is a risk that a Cyclone will cause disruption to industry				
There is a risk that a Cyclone will cause damage to or destroy infrastructure				
There is a risk that a Cyclone will impact on the social and or cultural aspects of the community				

RISK REGISTER
EARTHQUAKE

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that an Earthquake will affect human health				
There is a risk that an Earthquake will cause damage to or destroy property				
There is a risk that an Earthquake will cause damage to or destroy the environment				
There is a risk that an Earthquake will affect the economy				
There is a risk that an Earthquake will cause disruption to industry				
There is a risk that an Earthquake will cause damage to or destroy infrastructure				
There is a risk that an Earthquake will impact on the social and or cultural aspects of the community				

RISK REGISTER
ENVIRONMENTAL DISASTER

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that an Environmental Disaster will affect human health				
There is a risk that an Environmental Disaster will cause damage to or destroy property				
There is a risk that an Environmental Disaster will cause damage to or destroy the environment				
There is a risk that an Environmental Disaster will affect the economy				
There is a risk that an Environmental Disaster will cause disruption to industry				
There is a risk that an Environmental Disaster will cause damage to or destroy infrastructure				
There is a risk that an Environmental Disaster will impact on the social and or cultural aspects of the community				

**RISK REGISTER
FLOODING**

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that a Flood will affect human health				
There is a risk that a Flood will cause damage to or destroy property				
There is a risk that a Flood will cause damage to or destroy the environment				
There is a risk that a Flood will affect the economy				
There is a risk that a Flood will cause disruption to industry				
There is a risk that a Flood will cause damage to or destroy infrastructure				
There is a risk that a Flood will impact on the social and or cultural aspects of the community				

**RISK REGISTER
HAZARDOUS MATERIALS / CHEMICAL SPILL**

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that a Hazardous Materials/Chemical Spill will affect human health				
There is a risk that a Hazardous Materials/Chemical Spill will cause damage to or destroy property				
There is a risk that a Hazardous Materials/Chemical Spill will cause damage to or destroy the environment				
There is a risk that a Hazardous Materials/Chemical Spill will affect the economy				
There is a risk that a Hazardous Materials/Chemical Spill will cause disruption to industry				
There is a risk that a Hazardous Materials/Chemical Spill will cause damage to or destroy infrastructure				
There is a risk that a Hazardous Materials/Chemical Spill will impact on the social and or cultural aspects of the community				

RISK REGISTER
HUMAN EPIDEMIC

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that a Human Epidemic will affect human health				
There is a risk that a Human Epidemic will cause damage to or destroy property				
There is a risk that a Human Epidemic will cause damage to or destroy the environment				
There is a risk that a Human Epidemic will affect the economy				
There is a risk that a Human Epidemic will cause disruption to industry				
There is a risk that a Human Epidemic will cause damage to or destroy infrastructure				
There is a risk that a Human Epidemic will impact on the social and or cultural aspects of the community				

RISK REGISTER
MARINE OIL POLLUTION

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that Marine Oil Pollution will affect human health				
There is a risk that Marine Oil Pollution will cause damage to or destroy property				
There is a risk that Marine Oil Pollution will cause damage to or destroy the environment				
There is a risk that Marine Oil Pollution will affect the economy				
There is a risk that Marine Oil Pollution will cause disruption to industry				
There is a risk that Marine Oil Pollution will cause damage to or destroy infrastructure				
There is a risk that Marine Oil Pollution will impact on the social and or cultural aspects of the community				

RISK REGISTER
RAIL FREIGHT EMERGENCY

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that a Rail Freight Emergency will affect human health				
There is a risk that a Rail Freight Emergency will cause damage to or destroy property				
There is a risk that a Rail Freight Emergency will cause damage to or destroy the environment				
There is a risk that a Rail Freight Emergency will affect the economy				
There is a risk that a Rail Freight Emergency will cause disruption to industry				
There is a risk that a Rail Freight Emergency will cause damage to or destroy infrastructure				
There is a risk that a Rail Freight Emergency will impact on the social and or cultural aspects of the community				

RISK REGISTER
ROAD TRANSPORT EMERGENCY

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that a Road Transport Emergency will affect human health				
There is a risk that a Road Transport Emergency will cause damage to or destroy property				
There is a risk that a Road Transport Emergency will cause damage to or destroy the environment				
There is a risk that a Road Transport Emergency will affect the economy				
There is a risk that a Road Transport Emergency will cause disruption to industry				
There is a risk that a Road Transport Emergency will cause damage to or destroy infrastructure				
There is a risk that a Road Transport Emergency will impact on the social and or cultural aspects of the community				

RISK REGISTER
SEVERE STORM

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that a Severe Storm will affect human health				
There is a risk that a Severe Storm will cause damage to or destroy property				
There is a risk that a Severe Storm will cause damage to or destroy the environment				
There is a risk that a Severe Storm will affect the economy				
There is a risk that a Severe Storm will cause disruption to industry				
There is a risk that a Severe Storm will cause damage to or destroy infrastructure				
There is a risk that a Severe Storm will impact on the social and or cultural aspects of the community				

RISK REGISTER
TERRORISM

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that Terrorism will affect human health				
There is a risk that Terrorism will cause damage to or destroy property				
There is a risk that Terrorism will cause damage to or destroy the environment				
There is a risk that Terrorism will affect the economy				
There is a risk that Terrorism will cause disruption to industry				
There is a risk that Terrorism will cause damage to or destroy infrastructure				
There is a risk that Terrorism will impact on the social and or cultural aspects of the community				

RISK REGISTER
TSUNAMI

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that a Tsunami will affect human health				
There is a risk that a Tsunami will cause damage to or destroy property				
There is a risk that a Tsunami will cause damage to or destroy the environment				
There is a risk that a Tsunami will affect the economy				
There is a risk that a Tsunami will cause disruption to industry				
There is a risk that a Tsunami will cause damage to or destroy infrastructure				
There is a risk that a Tsunami will impact on the social and or cultural aspects of the community				

RISK REGISTER
URBAN FIRE

Risk Statement	Likelihood	Consequence	Risk Level	Action Priority
There is a risk that an Urban Fire will affect human health				
There is a risk that an Urban Fire will cause damage to or destroy property				
There is a risk that an Urban Fire will cause damage to or destroy the environment				
There is a risk that an Urban Fire will affect the economy				
There is a risk that an Urban Fire will cause disruption to industry				
There is a risk that an Urban Fire will cause damage to or destroy infrastructure				
There is a risk that an Urban Fire will impact on the social and or cultural aspects of the community				

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Appendix 8
Risk Treatment Workbook



LOCAL EMERGENCY MANAGEMENT COMMITTEE & CITY OF COCKBURN COMMUNITY

EMERGENCY RISK MANAGEMENT WORKSHOP

“RISK TREATMENT WORKBOOK”

FACILITATOR: LGIS
 LOCATION: City of Cockburn
 DATE: 5th / 6th October 2009
 TIME: 0830hrs – 1700hrs

WORK BOOK OVERVIEW

The purpose of this work book is to gather information from workshop participants through activities conducted during the workshop.

When participating in an activity, any notes or comments should be written in the workbook against the relevant item.

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Throughout the work book you will find the icons listed below which have the following meaning:

Group activity – All tables as a whole group complete the task and record the outcomes in each workbook.

Table activity – In your tables, complete the task and record the outcomes in each workbook.

documented in your work book. Throughout the work shop, if you have any comments, suggestions or ideas, feel free to make notes on any page in the workbook.

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EMERGENCY

An event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which is beyond the resources of a single organisation or which requires the coordination of a number of significant emergency management activities

NOTE: The terms 'emergency' and 'disaster' are used nationally and internationally to describe events that require special arrangements to manage the situation. 'Emergencies' or 'disasters' are characterized by the need to deal with the hazard and its impact on the community

The term 'emergency' is used on the understanding that it also any meaning of the word 'disaster'

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EMERGENCY RISK MANAGEMENT

A systematic process that produces a range of measures that, on being implemented, contributes to the safety and wellbeing or communities and the environment

ENVIRONMENT

When referring to Likelihoods, the 'environment' is described as the loss of ecosystems of the natural world, plant and animal, air quality, water quality, soil quality, etc

HAZARD

A situation or condition with potential for loss or harm to the community or the environment

INDUSTRY

When referring to Likelihoods, 'industry' is described as the loss of businesses that supplement the economy through tourism, manufacturing, transportation, shopping centres, etc.

INFRASTRUCTURE

When referring to Likelihoods, 'infrastructure' is described as community lifelines/services and community infrastructure. Lifelines/services include communications, water, gas, power, transportation networks, etc and community infrastructure includes community facilities (recreation grounds, public halls etc), hospitals, schools etc

LIFELINES

Systems or networks that that provide for the circulation of people, goods, services and information upon which health, safety, comfort and economic activity depend

PEOPLE

When referring to Likelihoods, 'people' are described as the loss of health (life, injury, mental and physical health, etc)

PROPERTY

When referring too Likelihoods, 'property' is described as the loss of assets, structures, stock, etc

RISK

A concept used to describe the Consequence of harmful Likelihoods, arising from the interaction of hazards, communities and the environment

SOCIAL & CULTURAL

When referring to Likelihoods, 'social and cultural' is described as the loss of social networks (community and sporting groups, etc), and cultural networks (religious and ethnic, heritage buildings etc

RISK TREATMENTS AIR TRANSPORT EMERGENCY

Please record proposed new treatments in RED.....

Risk Statement	Treatments
There is a risk that an Air Transport Emergency will affect human health	
There is a risk that an Air Transport Emergency will cause damage to or destroy property	
There is a risk that an Air Transport Emergency will cause damage to or destroy the environment	
There is a risk that an Air Transport Emergency will affect the economy	
There is a risk that an Air Transport Emergency will cause disruption to industry	
There is a risk that an Air Transport Emergency will cause damage to or destroy infrastructure	
There is a risk that an Air Transport Emergency will impact on the social and or cultural aspects of the community	

RISK TREATMENTS

ANIMAL & PLANT DISEASE OUTBREAK

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that an Animal + Plant Disease Outbreak will affect human health	
There is a risk that an Animal + Plant Disease Outbreak will cause damage to or destroy property	
There is a risk that an Animal + Plant Disease Outbreak will cause damage to or destroy the environment	
There is a risk that an Animal + Plant Disease Outbreak will affect the economy	
There is a risk that an Animal + Plant Disease Outbreak will cause disruption to industry	
There is a risk that an Animal + Plant Disease Outbreak will cause damage to or destroy infrastructure	
There is a risk that an Animal + Plant Disease Outbreak will impact on the social and or cultural aspects of the community	

RISK TREATMENTS

BUSH FIRE

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that a Bush Fire will affect human health	
There is a risk that a Bush Fire will cause damage to or destroy property	
There is a risk that a Bush Fire will cause damage to or destroy the environment	
There is a risk that a Bush Fire will affect the economy	
There is a risk that a Bush Fire will cause disruption to industry	
There is a risk that a Bush Fire will cause damage to or destroy infrastructure	
There is a risk that a Bush Fire will impact on the social and or cultural aspects of the community	

RISK TREATMENTS
CHEMICAL / BIOLOGICAL / RADIOLOGICAL / NUCLEAR

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that a Chemical / Biological / Radiological / Nuclear Disaster will affect human health	
There is a risk that a Chemical / Biological / Radiological / Nuclear Disaster will cause damage to or destroy property	
There is a risk that a Chemical / Biological / Radiological / Nuclear Disaster will cause damage to or destroy the environment	
There is a risk that a Chemical / Biological / Radiological / Nuclear Disaster will affect the economy	
There is a risk that a Chemical / Biological / Radiological / Nuclear Disaster will cause disruption to industry	
There is a risk that a Chemical / Biological / Radiological / Nuclear Disaster will cause damage to or destroy infrastructure	
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will impact on the social and or cultural aspects of the community	

RISK TREATMENTS
CYCLONE

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that a Cyclone will affect human health	
There is a risk that a Cyclone will cause damage to or destroy property	
There is a risk that a Cyclone will cause damage to or destroy the environment	
There is a risk that a Cyclone will affect the economy	
There is a risk that a Cyclone will cause disruption to industry	
There is a risk that a Cyclone will cause damage to or destroy infrastructure	
There is a risk that a Cyclone will impact on the social and or cultural aspects of the community	

**RISK TREATMENTS
EARTHQUAKE**

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that an Earthquake will affect human health	
There is a risk that an Earthquake will cause damage to or destroy property	
There is a risk that an Earthquake will cause damage to or destroy the environment	
There is a risk that an Earthquake will affect the economy	
There is a risk that an Earthquake will cause disruption to industry	
There is a risk that an Earthquake will cause damage to or destroy infrastructure	
There is a risk that an Earthquake will impact on the social and or cultural aspects of the community	

**RISK TREATMENTS
ENVIRONMENTAL DISASTER**

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that an Environmental Disaster will affect human health	
There is a risk that an Environmental Disaster will cause damage to or destroy property	
There is a risk that an Environmental Disaster will cause damage to or destroy the environment	
There is a risk that an Environmental Disaster will affect the economy	
There is a risk that an Environmental Disaster will cause disruption to industry	
There is a risk that an Environmental Disaster will cause damage to or destroy infrastructure	
There is a risk that an Environmental Disaster will impact on the social and or cultural aspects of the community	

**RISK TREATMENTS
FLOODING**

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that a Flood will affect human health	
There is a risk that a Flood will cause damage to or destroy property	
There is a risk that a Flood will cause damage to or destroy the environment	
There is a risk that a Flood will affect the economy	
There is a risk that a Flood will cause disruption to industry	
There is a risk that a Flood will cause damage to or destroy infrastructure	
There is a risk that a Flood will impact on the social and or cultural aspects of the community	

**RISK TREATMENTS
HAZARDOUS MATERIALS / CHEMICAL SPILL**

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that a Hazardous Materials/Chemical Spill will affect human health	
There is a risk that a Hazardous Materials/Chemical Spill will cause damage to or destroy property	
There is a risk that a Hazardous Materials/Chemical Spill will cause damage to or destroy the environment	
There is a risk that a Hazardous Materials/Chemical Spill will affect the economy	
There is a risk that a Hazardous Materials/Chemical Spill will cause disruption to industry	
There is a risk that a Hazardous Materials/Chemical Spill will cause damage to or destroy infrastructure	
There is a risk that a Hazardous Materials/Chemical Spill will impact on the social and or cultural aspects of the community	

RISK TREATMENTS
HUMAN EPIDEMIC

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that a Human Epidemic will affect human health	
There is a risk that a Human Epidemic will cause damage to or destroy property	
There is a risk that a Human Epidemic will cause damage to or destroy the environment	
There is a risk that a Human Epidemic will affect the economy	
There is a risk that a Human Epidemic will cause disruption to industry	
There is a risk that a Human Epidemic will cause damage to or destroy infrastructure	
There is a risk that a Human Epidemic will impact on the social and or cultural aspects of the community	

RISK TREATMENTS
MARINE OIL POLLUTION

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that a Human Epidemic will affect human health	
There is a risk that a Human Epidemic will cause damage to or destroy property	
There is a risk that a Human Epidemic will cause damage to or destroy the environment	
There is a risk that a Human Epidemic will affect the economy	
There is a risk that a Human Epidemic will cause disruption to industry	
There is a risk that a Human Epidemic will cause damage to or destroy infrastructure	
There is a risk that a Human Epidemic will impact on the social and or cultural aspects of the community	

RISK TREATMENTS

RAIL FREIGHT EMERGENCY

Please record proposed new treatments in RED.....

Risk Statement	Treatments
There is a risk that a Rail Freight Emergency will affect human health	
There is a risk that a Rail Freight Emergency will cause damage to or destroy property	
There is a risk that a Rail Freight Emergency will cause damage to or destroy the environment	
There is a risk that a Rail Freight Emergency will affect the economy	
There is a risk that a Rail Freight Emergency will cause disruption to industry	
There is a risk that a Rail Freight Emergency will cause damage to or destroy infrastructure	
There is a risk that a Rail Freight Emergency will impact on the social and or cultural aspects of the community	

RISK TREATMENTS

ROAD TRANSPORT EMERGENCY

Please record proposed new treatments in RED.....

Risk Statement	Treatments
There is a risk that a Road Transport Emergency will affect human health	
There is a risk that a Road Transport Emergency will cause damage to or destroy property	
There is a risk that a Road Transport Emergency will cause damage to or destroy the environment	
There is a risk that a Road Transport Emergency will affect the economy	
There is a risk that a Road Transport Emergency will cause disruption to industry	
There is a risk that a Road Transport Emergency will cause damage to or destroy infrastructure	
There is a risk that a Road Transport Emergency will impact on the social and or cultural aspects of the community	

**RISK TREATMENTS
SEVERE STORM**

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that a Severe Storm will affect human health	
There is a risk that a Severe Storm will cause damage to or destroy property	
There is a risk that a Severe Storm will cause damage to or destroy the environment	
There is a risk that a Severe Storm will affect the economy	
There is a risk that a Severe Storm will cause disruption to industry	
There is a risk that a Severe Storm will cause damage to or destroy infrastructure	
There is a risk that a Severe Storm will impact on the social and or cultural aspects of the community	

**RISK TREATMENTS
TERRORISM**

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that Terrorism will affect human health	
There is a risk that Terrorism will cause damage to or destroy property	
There is a risk that Terrorism will cause damage to or destroy the environment	
There is a risk that Terrorism will affect the economy	
There is a risk that Terrorism will cause disruption to industry	
There is a risk that Terrorism will cause damage to or destroy infrastructure	
There is a risk that Terrorism will impact on the social and or cultural aspects of the community	

**RISK TREATMENTS
TSUNAMI**

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that a Tsunami will affect human health	
There is a risk that a Tsunami will cause damage to or destroy property	
There is a risk that a Tsunami will cause damage to or destroy the environment	
There is a risk that a Tsunami will affect the economy	
There is a risk that a Tsunami will cause disruption to industry	
There is a risk that a Tsunami will cause damage to or destroy infrastructure	
There is a risk that a Tsunami will impact on the social and or cultural aspects of the community	

**RISK TREATMENTS
URBAN FIRE**

Please record proposed new treatments in **RED**.....

Risk Statement	Treatments
There is a risk that an Urban Fire will affect human health	
There is a risk that an Urban Fire will cause damage to or destroy property	
There is a risk that an Urban Fire will cause damage to or destroy the environment	
There is a risk that an Urban Fire will affect the economy	
There is a risk that an Urban Fire will cause disruption to industry	
There is a risk that an Urban Fire will cause damage to or destroy infrastructure	
There is a risk that an Urban Fire will impact on the social and or cultural aspects of the community	

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Appendix 9
Risk Strategy Workbook



LOCAL EMERGENCY MANAGEMENT COMMITTEE & CITY OF COCKBURN COMMUNITY

EMERGENCY RISK MANAGEMENT WORKSHOP

“RISK STRATEGY WORKBOOK”

WORK BOOK OVERVIEW

The purpose of this work book is to gather information from workshop participants through activities conducted during the workshop.

When participating in an activity, any notes or comments should be written in the workbook against the relevant item.

On conclusion of the activity, the workbook will be collected and the information will be collated and summarised to ensure the workshop outcomes are met.

The workbook also provides a documented record of the process undertaken which will support any future activities carried out during the emergency risk management project.

Throughout the work book you will find the icons listed below which have the following meaning:

Group activity – All tables as a whole group complete the task and record the outcomes in each workbook.

Table activity – In your tables, complete the task and record the outcomes in each workbook.

documented in your work book. Throughout the work shop, if you have any comments, suggestions or ideas, feel free to make notes on any page in the workbook.

NOTE: Due to the intensity of the workshop program, there may be times when discussion needs to be limited. If you have a question or comment that is not addressed during the workshop, please make note of it in the workbook and individual follow up will occur.

Once the activity is complete, please hand the work books in for collection. The information collated from the work shop will be documented and when the final report has been developed, a copy will be forwarded to each participant for their information.

The City of Cockburn thanks you for assisting with the emergency risk management process and helping to make our community a safer community to live and work in. We look forward to working with you in the future.

FACILITATOR: LGIS
 LOCATION: City of Cockburn
 DATE: 5th / 6th October 2009
 TIME: 0830hrs – 1700hrs

ERM PROJECT DEFINITIONS

The following definitions apply throughout the work book for the purposes of the ERM project.

ECONOMY

When referring to Likelihoods, 'economy' is described as the loss of income, labour, public/business confidence, etc.

EMERGENCY

An event, actual or imminent, which endangers or threatens to endanger life, property or the environment, and which is beyond the resources of a single organisation or which requires the coordination of a number of significant emergency management activities

NOTE: The terms 'emergency' and 'disaster' are used nationally and internationally to describe events that require special arrangements to manage the situation. 'Emergencies' or 'disasters' are characterized by the need to deal with the hazard and its impact on the community

The term 'emergency' is used on the understanding that it also any meaning of the word 'disaster'

EMERGENCY MANAGEMENT

Emergency Management is a range of measures that manages community and environmental risks. It involves the development and maintenance or arrangements to prevent or mitigate, prepare for, respond to, and recover from emergencies and disasters in both peace and war

EMERGENCY RISK MANAGEMENT

A systematic process that produces a range of measures that, on being implemented, contributes to the safety and wellbeing or communities and the environment

ENVIRONMENT

When referring to Likelihoods, the 'environment' is described as the loss of ecosystems of the natural world, plant and animal, air quality, water quality, soil quality, etc

HAZARD

A situation or condition with potential for loss or harm to the community or the environment

INDUSTRY

When referring to Likelihoods, 'industry' is described as the loss of businesses that supplement the economy through tourism, manufacturing, transportation, shopping centres, etc.

INFRASTRUCTURE

When referring to Likelihoods, 'infrastructure' is described as community lifelines/services and community infrastructure. Lifelines/services include communications, water, gas, power, transportation networks, etc and community infrastructure includes community facilities (recreation grounds, public halls etc), hospitals, schools etc

LIFELINES

Systems or networks that that provide for the circulation of people, goods, services and information upon which health, safety, comfort and economic activity depend

PEOPLE

When referring to Likelihoods, 'people' are described as the loss of health (life, injury, mental and physical health, etc)

PROPERTY

When referring too Likelihoods, 'property' is described as the loss of assets, structures, stock, etc

RISK

A concept used to describe the Consequence of harmful Likelihoods, arising from the interaction of hazards, communities and the environment

SOCIAL & CULTURAL

When referring to Likelihoods, 'social and cultural' is described as the loss of social networks (community and sporting groups, etc), and cultural networks (religious and ethnic, heritage buildings etc

RISK STRATEGIES AIR TRANSPORT EMERGENCY

Agency				Agency			
Response				Recovery			
Agency				Agency			
Prevention				Preparedness			

RISK STRATEGIES
ANIMAL & PLANT DISEASE OUTBREAK

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
BUSH FIRE

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
CHEMICAL / BIOLOGICAL / RADIOLOGICAL / NUCLEAR

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
CYCLONE

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
EARTHQUAKE

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
ENVIRONMENTAL DISASTER

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
FLOODING

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
HAZARDOUS MATERIALS / CHEMICAL SPILL

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
HUMAN EPIDEMIC

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
MARINE OIL POLLUTION

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
RAIL FREIGHT EMERGENCY

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
ROAD TRANSPORT EMERGENCY

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
SEVERE STORM

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
TERRORISM

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
TSUNAMI

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES
URBAN FIRE

Prevention	Agency	Response	Agency
Preparedness	Agency	Recovery	Agency

RISK STRATEGIES

Prevention	Agency	Response	Agency	Preparedness	Agency	Recovery	Agency

Appendix 10
Consolidated Risk Register

Consolidated Risk Ratings

Risk Statement	TABLE 1 RISK RATINGS				TABLE 2 RISK RATINGS				CONSOLIDATED RISK RATINGS				RTP
	Likelihood 1	Consequence 1	Risk Level 1	#	Likelihood 2	Consequence 2	Risk Level 2	#	Likelihood	Consequence	Risk Level	#	
	Air Transport Emergency				Animal & Plant Disease								
There is a risk that an Air Transport Emergency will affect human health	3	5	Extreme	15	3	4	High	12	3	5	Extreme	15	15
There is a risk that an Air Transport Emergency will cause damage to or destroy property	3	4	High	12	4	2	Medium	8	4	4	Extreme	16	16
There is a risk that an Air Transport Emergency will cause damage to or destroy the environment	3	3	Medium	9	3	2	Low	6	3	3	Medium	9	9
There is a risk that an Air Transport Emergency will affect the economy	2	2	Low	4	2	1	Low	2	2	2	Low	4	4
There is a risk that an Air Transport Emergency will cause disruption to industry	2	2	Low	4	2	1	Low	2	2	2	Low	4	4
There is a risk that an Air Transport Emergency will cause damage to or destroy infrastructure	3	3	Low	9	2	2	Low	4	3	3	Medium	9	9
There is a risk that an Air Transport Emergency will impact on the social and or cultural aspects of the community	2	3	Low	6	2	1	Low	2	2	3	Medium	6	6
Animal & Plant Disease													
There is a risk that an Animal + Plant Disease Outbreak will affect human health	1	4	Medium	4	1	4	Medium	4	1	4	Medium	4	4
There is a risk that an Animal + Plant Disease Outbreak will cause damage to or destroy property	1	4	Medium	4	1	2	Low	2	1	4	Medium	4	4
There is a risk that an Animal + Plant Disease Outbreak will cause damage to or destroy the environment	3	3	Medium	9	5	5	Extreme	25	5	5	Extreme	25	25
There is a risk that an Animal + Plant Disease Outbreak will affect the economy	4	4	Extreme	16	4	3	High	12	4	4	Extreme	16	16
There is a risk that an Animal + Plant Disease Outbreak will cause disruption to industry	4	4	Extreme	16	3	4	High	12	4	4	Extreme	16	16
There is a risk that an Animal + Plant Disease Outbreak will cause damage to or destroy infrastructure	1	1	Low	1	1	1	Low	1	1	1	Low	1	1
There is a risk that an Animal + Plant Disease Outbreak will impact on the social and or cultural aspects of the community	4	3	High	12	4	3	High	12	4	3	High	12	12

Risk Statement	TABLE 1 RISK RATINGS				TABLE 2 RISK RATINGS				CONSOLIDATED RISK RATINGS				RTP
	Likelihood 1	Consequence 1	Risk Level 1	#	Likelihood 2	Consequence 2	Risk Level 2	#	Likelihood	Consequence	Risk Level	#	
	Bushfire				Chemical/Biological/Radiological/Nuclear Disaster								
There is a risk that a Bush Fire will affect human health	5	5	Extreme	25	5	3	Extreme	15	5	5	Extreme	25	25
There is a risk that a Bush Fire will cause damage to or destroy property	4	5	Extreme	20	5	4	Extreme	20	5	5	Extreme	25	25
There is a risk that a Bush Fire will cause damage to or destroy the environment	5	5	Extreme	25	5	4	Extreme	20	5	5	Extreme	25	25
There is a risk that a Bush Fire will affect the economy	3	2	Low	6	3	2	Low	6	3	2	Low	6	6
There is a risk that a Bush Fire will cause disruption to industry	3	3	Medium	9	2	2	Low	4	3	3	Medium	9	9
There is a risk that a Bush Fire will cause damage to or destroy infrastructure	5	3	Extreme	15	5	2	High	10	5	3	Extreme	15	15
There is a risk that a Bush Fire will impact on the social and or cultural aspects of the community	4	4	Extreme	16	4	3	High	12	4	4	Extreme	16	16
Chemical/Biological/Radiological/Nuclear Disaster													
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will affect human health	1	5	High	5	1	4	Medium	4	1	5	High	5	5
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will cause damage to or destroy property	1	5	High	5	2	2	Low	4	2	5	High	10	10
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will cause damage to or destroy the environment	2	4	Medium	8	2	2	Low	4	2	4	Medium	8	8
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will affect the economy	5	4	Extreme	20	1	2	Low	2	1	4	Medium	4	4
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will cause disruption to industry	5	4	Extreme	20	1	2	Low	2	1	4	Medium	4	4
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will cause damage to or destroy infrastructure	5	3	Extreme	15	1	2	Low	2	1	3	Low	3	3
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will impact on the social and or cultural aspects of the community	5	5	Extreme	25	1	3	Low	3	1	5	High	5	5

Cyclone												
	3	3	3	3	3	9	1	4	4	3	12	
	3	3	3	3	3	9	1	5	5	3	15	
	3	3	3	2	3	6	1	3	3	3	9	
	3	3	3	3	3	9	1	3	3	3	9	
	3	3	2	2	6	6	1	4	4	3	12	
	3	2	2	2	6	6	1	4	4	3	12	
There is a risk that a Cyclone will affect human health	3	3	3	3	9	Medium	1	4	4	3	High	12
There is a risk that a Cyclone will cause damage to or destroy property	3	3	3	3	9	Medium	1	5	5	3	Extreme	15
There is a risk that a Cyclone will cause damage to or destroy the environment	3	3	3	3	9	Medium	1	3	3	3	Medium	9
There is a risk that a Cyclone will affect the economy	3	2	2	3	6	Low	1	3	3	3	Medium	9
There is a risk that a Cyclone will cause disruption to industry	3	3	3	3	9	Medium	1	3	3	3	Medium	9
There is a risk that a Cyclone will cause damage to or destroy infrastructure	3	2	2	2	6	Low	1	4	4	3	High	12
There is a risk that a Cyclone will impact on the social and/or cultural aspects of the community	3	2	2	2	6	Low	1	4	4	3	High	12

Earthquake												
	1	2	2	2	2	2	1	4	4	1	4	
	1	3	3	3	3	3	1	1	1	1	3	
	1	3	3	3	3	3	1	2	2	1	3	
	1	1	1	1	1	1	1	2	2	1	2	
	1	2	2	2	2	2	1	2	2	1	2	
	1	2	2	2	2	2	1	3	3	1	3	
	1	1	1	1	1	1	1	2	2	1	2	
There is a risk that an Earthquake will affect human health	1	2	2	2	2	Low	1	4	4	1	4	4
There is a risk that an Earthquake will cause damage to or destroy property	1	3	3	3	3	Low	1	1	1	1	Low	3
There is a risk that an Earthquake will cause damage to or destroy the environment	1	3	3	3	3	Low	1	2	2	1	Low	3
There is a risk that an Earthquake will affect the economy	1	1	1	1	1	Low	1	2	2	1	Low	2
There is a risk that an Earthquake will cause disruption to industry	1	2	2	2	2	Low	1	2	2	1	Low	2
There is a risk that an Earthquake will cause damage to or destroy infrastructure	1	2	2	2	2	Low	1	3	3	1	Low	3
There is a risk that an Earthquake will impact on the social and/or cultural aspects of the community	1	1	1	1	1	Low	1	2	2	1	Low	2

Risk Statement	TABLE 1 RISK RATINGS				TABLE 2 RISK RATINGS				CONSOLIDATED RISK RATINGS				
	Likelihood 1	Consequence 1	Risk Level 1	#	Likelihood 2	Consequence 2	Risk Level 2	#	Likelihood	Consequence	Risk Level	#	RTP
Environmental Disaster													
There is a risk that an Environmental Disaster will affect human health	4	2	Medium	8	4	3	High	12	4	3	High	12	12
There is a risk that an Environmental Disaster will cause damage to or destroy property	3	2	Low	6	2	2	Low	4	3	2	Low	6	6
There is a risk that an Environmental Disaster will cause damage to or destroy the environment	3	4	High	12	3	5	Extreme	15	3	5	Extreme	15	15
There is a risk that an Environmental Disaster will affect the economy	3	3	Medium	9	3	2	Low	6	3	3	Medium	9	9
There is a risk that an Environmental Disaster will cause disruption to industry	3	4	High	12	3	2	Low	6	3	4	High	12	12
There is a risk that an Environmental Disaster will cause damage to or destroy infrastructure	3	1	Low	3	2	3	Medium	6	3	3	Medium	9	9
There is a risk that an Environmental Disaster will impact on the social and/or cultural aspects of the community	2	1	Low	2	2	3	Medium	6	2	3	Medium	6	6
Flooding													
There is a risk that a Flood will affect human health	2	1	Low	2	3	2	Low	6	3	2	Low	6	6
There is a risk that a Flood will cause damage to or destroy property	3	2	Low	6	3	2	Low	6	3	2	Low	6	6
There is a risk that a Flood will cause damage to or destroy the environment	2	1	Low	2	2	2	Low	4	2	2	Low	4	4
There is a risk that a Flood will affect the economy	2	1	Low	2	2	1	Low	2	2	1	Low	2	2
There is a risk that a Flood will cause disruption to industry	2	2	Low	4	2	1	Low	2	2	2	Low	4	4
There is a risk that a Flood will cause damage to or destroy infrastructure	2	1	Low	2	2	2	Low	4	2	2	Low	4	4
There is a risk that a Flood will impact on the social and/or cultural aspects of the community	2	1	Low	2	2	1	Low	2	2	1	Low	2	2
Hazardous Materials / Chemical Spill													
There is a risk that a Hazardous Materials/Chemical Spill will affect human health	5	3	Extreme	15	3	3	Medium	9	5	3	Extreme	15	15
There is a risk that a Hazardous Materials/Chemical Spill will cause damage to or destroy property	3	2	Low	6	2	2	Low	4	3	2	Low	6	6

	4	3	High	12		3	3	Medium	9	4	3	High	12	12
There is a risk that a Hazardous Materials/Chemical Spill will cause damage to or destroy the environment	4	3	High	12		3	3	Medium	9	4	3	High	12	12
There is a risk that a Hazardous Materials/Chemical Spill will affect the economy	2	1	Low	2		2	2	Low	4	2	2	Low	4	4
There is a risk that a Hazardous Materials/Chemical Spill will cause disruption to industry	3	2	Low	6		2	2	Low	4	3	2	Low	6	6
There is a risk that a Hazardous Materials/Chemical Spill will cause damage to or destroy infrastructure	2	1	Low	2		3	2	Low	6	3	2	Low	6	6
There is a risk that a Hazardous Materials/Chemical Spill will impact on the social and or cultural aspects of the community	2	1	Low	2		2	1	Low	2	2	1	Low	2	2
Human Epidemic														
There is a risk that a Human Epidemic will affect human health	4	4	Extreme	16		3	1	Low	3	4	4	Extreme	16	16
There is a risk that a Human Epidemic will cause damage to or destroy property	1	1	Low	1		2	1	Low	2	2	1	Low	2	2
There is a risk that a Human Epidemic will cause damage to or destroy the environment	2	2	Low	4		2	1	Low	2	2	2	Low	4	4
There is a risk that a Human Epidemic will affect the economy	4	4	Extreme	16		3	3	Medium	9	4	4	Extreme	16	16
There is a risk that a Human Epidemic will cause disruption to industry	4	4	Extreme	16		3	3	Medium	9	4	4	Extreme	16	16
There is a risk that a Human Epidemic will cause damage to or destroy infrastructure	2	2	Low	4		2	1	Low	2	2	2	Low	4	4
There is a risk that a Human Epidemic will impact on the social and or cultural aspects of the community	4	3	Medium	12		3	4	High	12	4	4	Extreme	16	16

Risk Statement	TABLE 1 RISK RATINGS				TABLE 2 RISK RATINGS				CONSOLIDATED RISK RATINGS				RTP	
	Likelihood 1	Consequence 1	Risk Level 1	#	Likelihood 2	Consequence 2	Risk Level 2	#	Likelihood	Consequence	Risk Level	#		
Marine Oil Pollution														
There is a risk that Marine Oil Pollution will affect human health	4	1	Low	4	2	3	Medium	6	4	3	High	12	12	12
There is a risk that Marine Oil Pollution will cause damage to or destroy property	2	2	Low	4	2	2	Low	4	2	2	Low	4	4	4
There is a risk that Marine Oil Pollution will cause damage to or destroy the environment	5	5	Extreme	25	3	4	High	12	5	5	Extreme	25	25	25
There is a risk that Marine Oil Pollution will affect the economy	4	3	High	12	2	2	Low	4	4	3	High	12	12	12
There is a risk that Marine Oil Pollution will cause disruption to industry	2	2	Low	4	2	2	Low	4	2	2	Low	4	4	4
There is a risk that Marine Oil Pollution will cause damage to or destroy infrastructure	1	1	Low	1	2	2	Low	4	2	2	Low	4	4	4
There is a risk that Marine Oil Pollution will impact on the social and or cultural aspects of the community	3	3	Medium	9	2	2	Low	4	3	3	Medium	9	9	9
Rail Freight Emergency														
There is a risk that a Rail Freight Emergency will affect human health	2	4	Medium	8	2	3	Medium	6	2	4	Medium	8	8	8
There is a risk that a Rail Freight Emergency will cause damage to or destroy property	4	4	Extreme	16	2	2	Low	4	4	4	Extreme	16	16	16
There is a risk that a Rail Freight Emergency will cause damage to or destroy the environment	2	5	High	10	2	2	Low	4	2	5	High	10	10	10
There is a risk that a Rail Freight Emergency will affect the economy	2	2	Low	4	3	2	Low	6	3	2	Low	6	6	6
There is a risk that a Rail Freight Emergency will cause disruption to industry	2	2	Low	4	3	2	Low	6	3	2	Low	6	6	6
There is a risk that a Rail Freight Emergency will cause damage to or destroy infrastructure	2	3	Medium	6	3	2	Low	6	3	3	Medium	9	9	9
There is a risk that a Rail Freight Emergency will impact on the social and or cultural aspects of the community	2	1	Low	2	2	1	Low	2	2	1	Low	2	2	2

Road Transport Emergency											
	5	5	5	4	4	5	20	5	5	25	25
	Extreme	Low	Medium	Low	Medium	Low	Medium	Low	Medium	High	Extreme
There is a risk that a Road Transport Emergency will affect human health	5	5	5	4	4	5	Extreme	20	5	5	25
There is a risk that a Road Transport Emergency will cause damage to or destroy property	3	2	6	3	3	4	High	12	4	3	12
There is a risk that a Road Transport Emergency will cause damage to or destroy the environment	4	2	8	3	3	4	High	12	4	3	12
There is a risk that a Road Transport Emergency will affect the economy	2	2	4	2	2	2	Low	4	2	2	4
There is a risk that a Road Transport Emergency will cause disruption to industry	4	2	8	2	2	4	Low	4	4	2	8
There is a risk that a Road Transport Emergency will cause damage to or destroy infrastructure	4	2	8	3	3	4	Medium	9	4	3	12
There is a risk that a Road Transport Emergency will impact on the social and or cultural aspects of the community	4	1	4	2	1	2	Low	2	4	1	4
Storm											
There is a risk that a Severe Storm will affect human health	4	3	12	2	2	3	Low	6	4	3	12
There is a risk that a Severe Storm will cause damage to or destroy property	4	4	16	2	2	4	Medium	8	4	4	16
There is a risk that a Severe Storm will cause damage to or destroy the environment	4	3	12	2	2	4	Medium	8	4	3	12
There is a risk that a Severe Storm will affect the economy	2	1	2	2	2	3	Low	6	3	2	6
There is a risk that a Severe Storm will cause disruption to industry	2	1	2	2	2	3	Low	6	3	2	6
There is a risk that a Severe Storm will cause damage to or destroy infrastructure	4	4	16	2	2	5	High	10	5	4	20
There is a risk that a Severe Storm will impact on the social and or cultural aspects of the community	2	1	2	3	3	3	Medium	9	3	3	9
Terrorism											
There is a risk that Terrorism will affect human health	1	5	5	5	5	1	High	5	1	5	5
There is a risk that Terrorism will cause damage to or destroy property	1	5	5	5	5	1	High	5	1	5	5
There is a risk that Terrorism will cause damage to or destroy the environment	1	2	2	5	5	1	High	5	1	5	5

Risk Statement	TABLE 1 RISK RATINGS				TABLE 2 RISK RATINGS				CONSOLIDATED RISK RATINGS				
	Likelihood 1	Consequence 1	Risk Level 1	#	Likelihood 2	Consequence 2	Risk Level 2	#	Likelihood	Consequence	Risk Level	#	RTP
There is a risk that Terrorism will affect the economy	1	5	High	5	1	5	High	5	1	5	High	5	5
There is a risk that Terrorism will cause disruption to industry	1	2	High	2	1	5	High	5	1	5	High	5	5
There is a risk that Terrorism will cause damage to or destroy infrastructure	1	4	High	4	1	5	High	5	1	5	High	5	5
There is a risk that Terrorism will impact on the social and or cultural aspects of the community	1	5	High	5	1	5	High	5	1	5	High	5	5
Tsunami													
There is a risk that a Tsunami will affect human health	1	1	Low	1	2	4	Medium	8	2	4	Medium	8	8
There is a risk that a Tsunami will cause damage to or destroy property	1	1	Low	1	2	4	Medium	8	2	4	Medium	8	8
There is a risk that a Tsunami will cause damage to or destroy the environment	1	1	Low	1	2	4	Medium	8	2	4	Medium	8	8
There is a risk that a Tsunami will affect the economy	1	1	Low	1	2	3	Medium	6	2	3	Medium	6	6
There is a risk that a Tsunami will cause disruption to industry	1	1	Low	1	2	4	Medium	8	2	4	Medium	8	8
There is a risk that a Tsunami will cause damage to or destroy infrastructure	1	1	Low	1	2	4	Medium	8	2	4	Medium	8	8
There is a risk that a Tsunami will impact on the social and or cultural aspects of the community	1	1	Low	1	2	3	Medium	6	2	3	Medium	6	6
Urban Fire													
There is a risk that an Urban Fire will affect human health	5	4	Extreme	20	5	4	Extreme	20	5	4	Extreme	20	20
There is a risk that an Urban Fire will cause damage to or destroy property	5	3	High	15	5	4	Extreme	20	5	4	Extreme	20	20
There is a risk that an Urban Fire will cause damage to or destroy the environment	4	2	Medium	8	5	3	High	15	5	3	Extreme	15	15
There is a risk that an Urban Fire will affect the economy	3	3	Medium	9	3	3	Medium	9	3	3	Medium	9	9
There is a risk that an Urban Fire will cause disruption to industry	3	3	Medium	9	3	3	Medium	9	3	3	Medium	9	9
There is a risk that an Urban Fire will cause damage to or destroy infrastructure	2	2	Low	4	4	4	Extreme	16	4	4	Extreme	16	16
There is a risk that an Urban Fire will impact on the social and or cultural aspects of the community	3	2	Low	6	3	3	Medium	9	3	3	Medium	9	9

Extreme

Risk Statement	TABLE 1 RISK RATINGS				TABLE 2 RISK RATINGS				CONSOLIDATED RISK RATINGS				
	Likelihood 1	Consequence 1	Risk Level 1	#	Likelihood 2	Consequence 2	Risk Level 2	#	Likelihood	Consequence	Risk Level	#	RTP
	Air Transport Emergency												
There is a risk that an Air Transport Emergency will affect human health	3	5	Extreme	15	3	4	High	12	3	5	Extreme	15	15
There is a risk that an Air Transport Emergency will cause damage to or destroy property	3	4	High	12	4	2	Medium	8	4	4	Extreme	16	16
	Animal & Plant Disease												
There is a risk that an Animal + Plant Disease Outbreak will cause damage to or destroy the environment	3	3	Medium	9	5	5	Extreme	25	5	5	Extreme	25	25
There is a risk that an Animal + Plant Disease Outbreak will affect the economy	4	4	Extreme	16	4	3	High	12	4	4	Extreme	16	16
There is a risk that an Animal + Plant Disease Outbreak will cause disruption to industry	4	4	Extreme	16	3	4	High	12	4	4	Extreme	16	16
	Bushfire												
There is a risk that a Bush Fire will affect human health	5	5	Extreme	25	5	3	Extreme	15	5	5	Extreme	25	25
There is a risk that a Bush Fire will cause damage to or destroy property	4	5	Extreme	20	5	4	Extreme	20	5	5	Extreme	25	25
There is a risk that a Bush Fire will cause damage to or destroy the environment	5	5	Extreme	25	5	4	Extreme	20	5	5	Extreme	25	25
There is a risk that a Bush Fire will cause damage to or destroy infrastructure	5	3	Extreme	15	5	2	High	10	5	3	Extreme	15	15
There is a risk that a Bush Fire will impact on the social and or cultural aspects of the community	4	4	Extreme	16	4	3	High	12	4	4	Extreme	16	16
	Cyclone												
There is a risk that a Cyclone will cause damage to or destroy property	3	3	Medium	9	1	5	High	5	3	5	Extreme	15	15
	Environmental Disaster												
There is a risk that an Environmental Disaster will cause damage to or destroy the environment	3	4	High	12	3	5	Extreme	15	3	5	Extreme	15	15
	Hazardous Materials / Chemical Spill												
There is a risk that a Hazardous Materials/Chemical Spill will affect human health	5	3	Extreme	15	3	3	Medium	9	5	3	Extreme	15	15

Risk Statement	TABLE 1 RISK RATINGS				TABLE 2 RISK RATINGS				CONSOLIDATED RISK RATINGS				
	Likelihood 1	Consequence 1	Risk Level 1	#	Likelihood 2	Consequence 2	Risk Level 2	#	Likelihood	Consequence	Risk Level	#	RTP
	Human Epidemic												
There is a risk that a Human Epidemic will affect human health	4	4	Extreme	16	3	1	Low	3	4	4	Extreme	16	16
There is a risk that a Human Epidemic will affect the economy	4	4	Extreme	16	3	3	Medium	9	4	4	Extreme	16	16
There is a risk that a Human Epidemic will cause disruption to industry	4	4	Extreme	16	3	3	Medium	9	4	4	Extreme	16	16
There is a risk that a Human Epidemic will impact on the social and or cultural aspects of the community	4	3	Medium	12	3	4	High	12	4	4	Extreme	16	16
	Marine Oil Pollution												
There is a risk that Marine Oil Pollution will cause damage to or destroy the environment	5	5	Extreme	25	3	4	High	12	5	5	Extreme	25	25
	Rail Freight Emergency												
There is a risk that a Rail Freight Emergency will cause damage to or destroy property	4	4	Extreme	16	2	2	Low	4	4	4	Extreme	16	16
	Road Transport Emergency												
There is a risk that a Road Transport Emergency will affect human health	5	5	Extreme	25	5	4	Extreme	20	5	5	Extreme	25	25
	Severe Storm												
There is a risk that a Severe Storm will cause damage to or destroy property	4	4	Extreme	16	4	2	Medium	8	4	4	Extreme	16	16
There is a risk that a Severe Storm will cause damage to or destroy infrastructure	4	4	Extreme	16	5	2	High	10	5	4	Extreme	20	20
	Urban Fire												
There is a risk that an Urban Fire will affect human health	5	4	Extreme	20	5	4	Extreme	20	5	4	Extreme	20	20
There is a risk that an Urban Fire will cause damage to or destroy property	5	3	High	15	5	4	Extreme	20	5	4	Extreme	20	20
There is a risk that an Urban Fire will cause damage to or destroy the environment	4	2	Medium	8	5	3	High	15	5	3	Extreme	15	15
There is a risk that an Urban Fire will cause damage to or destroy infrastructure	2	2	Low	4	4	4	Extreme	16	4	4	Extreme	16	16

High

Risk Statement	TABLE 1 RISK RATINGS			TABLE 2 RISK RATINGS			CONSOLIDATED RISK RATINGS			
	Likelihood 1	Consequence 1	Risk Level 1	Likelihood 2	Consequence 2	Risk Level 2	Likelihood	Consequence	Risk Level	RTP
Animal & Plant Disease										
There is a risk that an Animal + Plant Disease Outbreak will impact on the social and or cultural aspects of the community	4	3	High	4	3	High	4	3	High	12
Chemical/Biological/Radiological/Nuclear Disaster										
There is a risk that a Chemical/ Biological/Radiological/Nuclear Disaster will affect human health	1	5	High	1	4	Medium	1	5	High	5
There is a risk that a Chemical/ Biological/Radiological/Nuclear Disaster will cause damage to or destroy property	1	5	High	2	2	Low	2	5	High	10
There is a risk that a Chemical/ Biological/Radiological/Nuclear Disaster will impact on the social and or cultural aspects of the community	5	5	Extreme	1	3	Low	1	5	High	5
Cyclone										
There is a risk that a Cyclone will affect human health	3	3	Medium	1	4	Medium	3	4	High	12
There is a risk that a Cyclone will cause damage to or destroy infrastructure	3	2	Low	1	4	Medium	3	4	High	12
There is a risk that a Cyclone will impact on the social and or cultural aspects of the community	3	2	Low	1	4	Medium	3	4	High	12
Environmental Disaster										
There is a risk that an Environmental Disaster will affect human health	4	2	Medium	4	3	High	4	3	High	12
There is a risk that an Environmental Disaster will cause disruption to industry	3	4	High	3	2	Low	3	4	High	12
Hazardous Materials / Chemical Spill										
There is a risk that a Hazardous Materials/Chemical Spill will cause damage to or destroy the environment	4	3	High	3	3	Medium	4	3	High	12

Risk Statement	TABLE 1 RISK RATINGS			TABLE 2 RISK RATINGS			CONSOLIDATED RISK RATINGS			
	Likelihood 1	Consequence 1	Risk Level 1	Likelihood 2	Consequence 2	Risk Level 2	Likelihood	Consequence	Risk Level	RTP
Marine Oil Pollution										
There is a risk that Marine Oil Pollution will affect human health	4	1	Low	2	3	Medium	4	3	High	12
There is a risk that Marine Oil Pollution will affect the economy	4	3	High	2	2	Low	4	3	High	12
Rail Freight Emergency										
There is a risk that a Rail Freight Emergency will cause damage to or destroy the environment	2	5	High	2	2	Low	2	5	High	10
Road Transport Emergency										
There is a risk that a Road Transport Emergency will cause damage to or destroy property	3	2	Low	4	3	High	4	3	High	12
There is a risk that a Road Transport Emergency will cause damage to or destroy the environment	4	2	Medium	4	3	High	4	3	High	12
There is a risk that a Road Transport Emergency will cause damage to or destroy infrastructure	4	2	Medium	3	3	Medium	4	3	High	12
Severe Storm										
There is a risk that a Severe Storm will affect human health	4	3	High	3	2	Low	4	3	High	12
There is a risk that a Severe Storm will cause damage to or destroy the environment	4	3	High	4	2	Medium	4	3	High	12
Terrorism										
There is a risk that Terrorism will affect human health	1	5	High	1	5	High	1	5	High	5
There is a risk that Terrorism will cause damage to or destroy property	1	5	High	1	5	High	1	5	High	5
There is a risk that Terrorism will cause damage to or destroy the environment	1	2	High	1	5	High	1	5	High	5
There is a risk that Terrorism will affect the economy	1	5	High	1	5	High	1	5	High	5
There is a risk that Terrorism will cause disruption to industry	1	2	High	1	5	High	1	5	High	5
There is a risk that Terrorism will cause damage to or destroy infrastructure	1	4	High	1	5	High	1	5	High	5
There is a risk that Terrorism will impact on the social and or cultural aspects of the community	1	5	High	1	5	High	1	5	High	5

Medium

Risk Statement	TABLE 1 RISK RATINGS			TABLE 2 RISK RATINGS			CONSOLIDATED RISK RATINGS			RTP
	Likelihood 1	Consequence 1	Risk Level 1	Likelihood 2	Consequence 2	Risk Level 2	Likelihood	Consequence	Risk Level	
	Air Transport Emergency									
There is a risk that an Air Transport Emergency will cause damage to or destroy the environment	3	3	Medium	3	2	Low	3	3	Medium	9
There is a risk that an Air Transport Emergency will cause damage to or destroy infrastructure	3	3	Low	2	2	Low	3	3	Medium	9
There is a risk that an Air Transport Emergency will impact on the social and or cultural aspects of the community	2	3	Low	2	1	Low	2	3	Medium	6
	Animal & Plant Disease									
There is a risk that an Animal + Plant Disease Outbreak will affect human health	1	4	Medium	1	4	Medium	1	4	Medium	4
There is a risk that an Animal + Plant Disease Outbreak will cause damage to or destroy property	1	4	Medium	1	2	Low	1	4	Medium	4
	Bushfire									
There is a risk that a Bush Fire will cause disruption to industry	3	3	Medium	2	2	Low	3	3	Medium	9
	Chemical/Biological/Radiological/Nuclear Disaster									
There is a risk that a Chemical/ Biological/Radiological/Nuclear Disaster will cause damage to or destroy the environment	2	4	Medium	2	2	Low	2	4	Medium	8
There is a risk that a Chemical/ Biological/Radiological/Nuclear Disaster will affect the economy	5	4	Extreme	1	2	Low	1	4	Medium	4
There is a risk that a Chemical/ Biological/Radiological/Nuclear Disaster will cause disruption to industry	5	4	Extreme	1	2	Low	1	4	Medium	4

Risk Statement	TABLE 1 RISK RATINGS			TABLE 2 RISK RATINGS			CONSOLIDATED RISK RATINGS			RTP
	Likelihood 1	Consequence 1	Risk Level 1	Likelihood 2	Consequence 2	Risk Level 2	Likelihood	Consequence	Risk Level	
	Cyclone									
There is a risk that a Cyclone will cause damage to or destroy the environment	3	3	Medium	1	3	Low	3	3	Medium	9
There is a risk that a Cyclone will affect the economy	3	2	Low	1	3	Low	3	3	Medium	9
There is a risk that a Cyclone will cause disruption to industry	3	3	Medium	1	3	Low	3	3	Medium	9
	Earthquake									
There is a risk that an Earthquake will affect human health	1	2	Low	1	4	Medium	1	4	Medium	4
	Environmental Disaster									
There is a risk that an Environmental Disaster will affect the economy	3	3	Medium	3	2	Low	3	3	Medium	9
There is a risk that an Environmental Disaster will cause damage to or destroy infrastructure	3	1	Low	2	3	Medium	3	3	Medium	9
There is a risk that an Environmental Disaster will impact on the social and or cultural aspects of the community	2	1	Low	2	3	Medium	2	3	Medium	6
	Marine Oil Pollution									
There is a risk that Marine Oil Pollution will impact on the social and or cultural aspects of the community	3	3	Medium	2	2	Low	3	3	Medium	9
	Rail Freight Emergency									
There is a risk that a Rail Freight Emergency will affect human health	2	4	Medium	2	3	Medium	2	4	Medium	8
There is a risk that a Rail Freight Emergency will cause damage to or destroy infrastructure	2	3	Medium	3	2	Low	3	3	Medium	9
	Road Transport Emergency									
There is a risk that a Road Transport Emergency will cause disruption to industry	4	2	Medium	2	2	Low	4	2	Medium	8

Severe Storm														
	2	1	Low	2	3	3	3	Medium	9	3	3	Medium	9	9
There is a risk that a Severe Storm will impact on the social and or cultural aspects of the community														
Tsunami														
There is a risk that a Tsunami will affect human health	1	1	Low	1	2	4	4	Medium	8	2	4	Medium	8	8
There is a risk that a Tsunami will cause damage to or destroy property	1	1	Low	1	2	4	4	Medium	8	2	4	Medium	8	8
There is a risk that a Tsunami will cause damage to or destroy the environment	1	1	Low	1	2	4	4	Medium	8	2	4	Medium	8	8
There is a risk that a Tsunami will affect the economy	1	1	Low	1	2	3	3	Medium	6	2	3	Medium	6	6
There is a risk that a Tsunami will cause disruption to industry	1	1	Low	1	2	4	4	Medium	8	2	4	Medium	8	8
There is a risk that a Tsunami will cause damage to or destroy infrastructure	1	1	Low	1	2	4	4	Medium	8	2	4	Medium	8	8
There is a risk that a Tsunami will impact on the social and or cultural aspects of the community	1	1	Low	1	2	3	3	Medium	6	2	3	Medium	6	6
Urban Fire														
There is a risk that an Urban Fire will affect the economy	3	3	Medium	9	3	3	3	Medium	9	3	3	Medium	9	9
There is a risk that an Urban Fire will cause disruption to industry	3	3	Medium	9	3	3	3	Medium	9	3	3	Medium	9	9
There is a risk that an Urban Fire will impact on the social and or cultural aspects of the community	3	2	Low	6	3	3	3	Medium	9	3	3	Medium	9	9

LOW

Risk Statement	TABLE 1 RISK RATINGS				TABLE 2 RISK RATINGS				CONSOLIDATED RISK RATINGS				RTP
	Likelihood 1	Consequence 1	Risk Level 1	#	Likelihood 2	Consequence 2	Risk Level 2	#	Likelihood	Consequence	Risk Level	#	
Air Transport Emergency													
There is a risk that an Air Transport Emergency will affect the economy	2	2	Low	4	2	1	Low	2	2	2	Low	4	4
There is a risk that an Air Transport Emergency will cause disruption to industry	2	2	Low	4	2	1	Low	2	2	2	Low	4	4
Animal & Plant Disease													
There is a risk that an Animal + Plant Disease Outbreak will cause damage to or destroy infrastructure	1	1	Low	1	1	1	Low	1	1	1	Low	1	1
Bushfire													
There is a risk that a Bush Fire will affect the economy	3	2	Low	6	3	2	Low	6	3	2	Low	6	6
Chemical/Biological/Radiological/Nuclear Disaster													
There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster will cause damage to or destroy infrastructure	5	3	Extreme	15	1	2	Low	2	1	3	Low	3	3
Earthquake													
There is a risk that an Earthquake will cause damage to or destroy property	1	3	Low	3	1	1	Low	1	1	3	Low	3	3
There is a risk that an Earthquake will cause damage to or destroy the environment	1	3	Low	3	1	2	Low	2	1	3	Low	3	3
There is a risk that an Earthquake will affect the economy	1	1	Low	1	1	2	Low	2	1	2	Low	2	2
There is a risk that an Earthquake will cause disruption to industry	1	2	Low	2	1	2	Low	2	1	2	Low	2	2
There is a risk that an Earthquake will cause damage to or destroy infrastructure	1	2	Low	2	1	3	Low	3	1	3	Low	3	3
There is a risk that an Earthquake will impact on the social and or cultural aspects of the community	1	1	Low	1	1	2	Low	2	1	2	Low	2	2

Environmental Disaster													
Flooding													
	3	2	Low	6	2	2	Low	4	3	2	Low	6	6
There is a risk that an Environmental Disaster will cause damage to or destroy property	3	2	Low	6	2	2	Low	4	3	2	Low	6	6
Hazardous Materials / Chemical Spill													
There is a risk that a Flood will affect human health	2	1	Low	2	3	2	Low	6	3	2	Low	6	6
There is a risk that a Flood will cause damage to or destroy property	3	2	Low	6	3	2	Low	6	3	2	Low	6	6
There is a risk that a Flood will cause damage to or destroy the environment	2	1	Low	2	2	2	Low	4	2	2	Low	4	4
There is a risk that a Flood will affect the economy	2	1	Low	2	2	1	Low	2	2	1	Low	2	2
There is a risk that a Flood will cause disruption to industry	2	2	Low	4	2	1	Low	2	2	2	Low	4	4
There is a risk that a Flood will cause damage to or destroy infrastructure	2	1	Low	2	2	2	Low	4	2	2	Low	4	4
There is a risk that a Flood will impact on the social and or cultural aspects of the community	2	1	Low	2	2	1	Low	2	2	1	Low	2	2
There is a risk that a Hazardous Materials/Chemical Spill will cause damage to or destroy property	3	2	Low	6	2	2	Low	4	3	2	Low	6	6
There is a risk that a Hazardous Materials/Chemical Spill will affect the economy	2	1	Low	2	2	2	Low	4	2	2	Low	4	4
There is a risk that a Hazardous Materials/Chemical Spill will cause disruption to industry	3	2	Low	6	2	2	Low	4	3	2	Low	6	6
There is a risk that a Hazardous Materials/Chemical Spill will cause damage to or destroy infrastructure	2	1	Low	2	3	2	Low	6	3	2	Low	6	6
There is a risk that a Hazardous Materials/Chemical Spill will impact on the social and or cultural aspects of the community	2	1	Low	2	2	1	Low	2	2	1	Low	2	2

Risk Statement	TABLE 1 RISK RATINGS				TABLE 2 RISK RATINGS				CONSOLIDATED RISK RATINGS				
	Likelihood 1	Consequence 1	Risk Level 1	#	Likelihood 2	Consequence 2	Risk Level 2	#	Likelihood	Consequence	Risk Level	#	RTP
Human Epidemic													
There is a risk that a Human Epidemic will cause damage to or destroy property	1	1	Low	1	2	1	Low	2	2	1	Low	2	2
There is a risk that a Human Epidemic will cause damage to or destroy the environment	2	2	Low	4	2	1	Low	2	2	2	Low	4	4
There is a risk that a Human Epidemic will cause damage to or destroy infrastructure	2	2	Low	4	2	1	Low	2	2	2	Low	4	4
Marine Oil Pollution													
There is a risk that Marine Oil Pollution will cause damage to or destroy property	2	2	Low	4	2	2	Low	4	2	2	Low	4	4
There is a risk that Marine Oil Pollution will cause disruption to industry	2	2	Low	4	2	2	Low	4	2	2	Low	4	4
There is a risk that Marine Oil Pollution will cause damage to or destroy infrastructure	1	1	Low	1	2	2	Low	4	2	2	Low	4	4
Rail Freight Emergency													
There is a risk that a Rail Freight Emergency will affect the economy	2	2	Low	4	3	2	Low	6	3	2	Low	6	6
There is a risk that a Rail Freight Emergency will cause disruption to industry	2	2	Low	4	3	2	Low	6	3	2	Low	6	6
There is a risk that a Rail Freight Emergency will impact on the social and or cultural aspects of the community	2	1	Low	2	2	1	Low	2	2	1	Low	2	2
Road Transport Emergency													
There is a risk that a Road Transport Emergency will affect the economy	2	2	Low	4	2	2	Low	4	2	2	Low	4	4
There is a risk that a Road Transport Emergency will impact on the social and or cultural aspects of the community	4	1	Low	4	2	1	Low	2	4	1	Low	4	4
Severe Storm													
There is a risk that a Severe Storm will affect the economy	2	1	Low	2	3	2	Low	6	3	2	Low	6	6
There is a risk that a Severe Storm will cause disruption to industry	2	1	Low	2	3	2	Low	6	3	2	Low	6	6

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Appendix 11
Master Risk Register

**CITY OF COCKBURN
EMERGENCY RISK MANAGEMENT
“RISK REGISTER”**

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
AIR TRANSPORT EMERGENCY					
1	There is a risk that if an aircraft collision/crash occurred in flight from/to Jandakot and/or Perth Domestic/International airports across residential, commercial and/or industrial areas, people , animals and/or pets may be injured, become ill and/or killed from the impact and exposure to toxic fumes, fires and smoke resulting from the falling/flying plane debris.	3	5	Extreme	1
2	There is a risk that if an aircraft collision/crashed occurred in a residential, commercial and/or industrial area, fire and/or explosion may occur and cause permanent or significant private, commercial and public property damage. Buildings directly impacted and surrounding buildings may be destroyed/damaged from flying debris and/or the impact of collision	4	4	Extreme	3
3-	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, fires and explosions may occur and cause permanent environmental damage. Fire, smoke and debris may have a devastating affect on the natural environment, long term and/or permanent environmental damage may occur particularly in the Jandakot Regional Park. The fire and aircraft fuel/oil could spread to sensitive eco systems, destroying native flora and fauna	3	3	Medium	5
4	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, the economy retail and wholesale businesses may be damaged and/or disrupted. Business owners may be uninsured or under-insured. Businesses may go bankrupt, need to close for an indefinite period of time and therefore may be unable to maintain their current employees and clients. Other businesses relying on the affected businesses may also feel the economic impact.	2	2	Low	6
5	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, various primary and secondary type industries may be affected. Marine and commercial industries along the Henderson strip and within Cockburn Sound may be impacted.	2	2	Low	4
6	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, infrastructure damage may happen. Power and water services may be affected, lost or destroyed. Homes and businesses may not be able to function for an extended period. Road and rail transport may be suspended or withdrawn for an extended period. People may not be able to attend to normal everyday duties such as going to work or shopping.	3	3	Medium	2
7	There is a risk that if an aircraft collision/crashed occurred in a residential area, permanent social and cultural damage may occur. Recreation areas may be affected or unavailable. Pilots training out of Jandakot Airport use the surrounding residential air space particularly that over Jandakot, Banjup and Leeming residential suburbs, may be affected. Jandakot is also used by the Flying Doctor Service and commercial airline companies for flights to and from Rottnest Island etc, therefore these services may be affected.	2	3	Medium	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
ANIMAL & PLANT DISEASE OUTBREAK					
1	There is a risk that if an outbreak of animal and plant disease occurred, people may become infected, ill and/or die. The City of Cockburn has approximately 7493 senior citizens 65+years and approximately 5222 children under the age of 4 years. The City of Cockburn has 9 aged care facilities and 12 childcare centres.	1	4	Medium	1
2	There is a risk that if an outbreak of animal and plant disease occurred, private, commercial and public properties that have been infected by this outbreak will be quarantined and immediate residents, tenants or owners will be displaced.	1	4	Medium	3
3	There is a risk that if an outbreak of animal and plant disease occurred, permanent environmental damage may occur. Manning Park has 142 hectares of remnant vegetation which includes Catherine Point Reserve, C. Y. O'Connor Reserve, and Beeliam, Woodman Point and Jandakot Regional Parks. Widespread Animal Pest & Plant Disease may cause significant environmental damage to the various bush land occupants.	5	5	Extreme	5
4	There is a risk that if an outbreak of animal and plant disease occurred, permanent economic damage to local businesses may occur. Local Businesses that work with animals, plants and/or depend upon animal/plant derivatives may have to suspend trading or even close permanently. This could have a devastating effect on the local economy that could see businesses incur financial hardship/loss and/or even enter receivership.	4	4	Extreme	6
5	There is a risk that if an outbreak of animal and plant disease occurred, industries that provide animal and plant products and services, such as egg farms, poultry breeding farms, plant nurseries, furniture manufacturers, seafood processing etc may be impacted due to an outbreak and subsequent closure or loss of stock. Retail businesses dependent on these industries will also be affected due to reduction in products and services being received.	4	4	Extreme	4
6	There is a risk that if an outbreak of animal and plant disease occurred, infrastructure utilities such as water supplies and drainage systems may be affected due to leaching into the water table of infected animal carcasses and by products of treatment equipment.	1	1	Low	2
7	There is a risk that if an outbreak of animal and plant disease occurred, social and cultural damage to community recreation activities may occur. Access to recreation areas may be restricted whilst people and animals may be quarantined and removed from their families.	4	3	High	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
BUSH FIRE					
1	There is a risk that if a bushfire occurred, it may cause injury or death to people . People residing in bush land areas such as at Jandakot, Banjup, Wattleup, Hammond Park and Aubin Grove may require assistance, smoking embers, dirt and dust may litter the City of Cockburn causing an onset of respiratory conditions and increased demand on medical services. Medication supplies could run out. Some people may be stranded. Many pets may be homeless or killed.	5	5	Extreme	1
2	There is a risk that if a bushfire occurred, it could destroy homes and damage property particularly those who reside in bush land areas such as at Jandakot, Banjup, Wattleup, Hammond Park and Aubin Grove. Demolition of property may be necessary. Shopping centres situated at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill could be threatened whilst businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson could also be affected. Demolition of private, commercial and public properties may be necessary.	5	5	Extreme	3
3	There is a risk that if a bushfire occurred, large areas of natural environment may be destroyed. The City of Cockburn has approximately 4,760ha of bush land within the region of which 593ha is located in the Beeliam, Woodman Point and Jandakot Regional Parks. Widespread environmental damage may destroy plants, flora and fauna in the 4,760ha of bush land contained within the City of Cockburn and that contained within the Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beeliam Regional Park. Animals and wildlife may become homeless.	5	5	Extreme	5
4	There is a risk that if a bushfire occurred, medium, long term or permanent economic damage may happen to commercial and industrial marine businesses at the commercial shopping centre's located at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill, the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson and Cockburn Cement and Quarry Works.	3	2	Low	6
5	There is a risk that if a bushfire occurred, it could damage or destroy industry in the area such as The Woodman Point Waste Water Treatment Plant and the Cockburn Cement and Quarry Works. Other industries or businesses relying on the affected primary industries will also be impacted.	3	3	Medium	4
6	There is a risk that if a bushfire occurred, it could damage or destroy overhead power lines and communication infrastructure , causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected. It could impact upon roads and rail transport infrastructure causing fire debris, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses. The Woodman Point Waste Water Treatment Plant could be threatened.	5	3	Extreme	2
7	There is a risk that if a bushfire occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult	4	4	Extreme	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
CHEMICAL/BIOLOGICAL/RADIOLOGICAL/NUCLEAR DISASTER					
1	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may affect people in terms of short/long term illnesses, mutating diseases, genetic disorders, psychological/physical injuries and death from widespread fires, explosions, toxic material in both air and water supplies, plus other forms of contamination. Widespread displacement of residents and community members may occur and large numbers of people may need to be quarantined. Risk of illness and death presents itself to the emergency services personnel, both out in the affected areas and within the medical facilities/hospitals. Family pets and animals plus livestock may also become homeless and perish.	1	5	High	1
2	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may impact property in terms of community areas being cordoned off, buildings being condemned due to structural and contamination reasons. People being relocated to safer premises may lose all possessions and other personal property items. Widespread damage and destruction of property may occur in the case of chemical and nuclear disasters.	2	5	High	3
3	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may impact the environment depending on the extent of the disasters and the climatic conditions. Massive fires and explosions produced by chemical and nuclear disasters can create highly toxic waste, which will affect the air and water quality, with leaching into the water table, natural reserves, destroying and damaging flora and fauna.	2	4	Medium	5
4	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may affect the local and state economy . High financial and non-financial losses will impact the entire economy. Reliance on external agencies to assist in the restructuring of the community will impact the state economy as recovery costs will be high.	1	4	Medium	6
5	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may affect industry in terms of loss/disruption and closure of industries, businesses and commercial areas. Loss of human resources will impact all levels of industry as will damage and destruction of properties.	1	4	Medium	4
6	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may impact infrastructure in terms of contamination of water supplies, drainage and sewage systems. Due to the possible large amount of human casualties there may be a significant breakdown and failure of critical services to the community, such as power, gas, water, road and rail transport.	1	3	Low	2
7	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may affect the social and or cultural aspects of the community, as there will be a complete breakdown of normal social behavior amongst the community. People will be traumatized due to the large scale of human casualties and associated events, and normal day-to-day living for the majority of the population will be interrupted indefinitely. People will react in diverse ways, which may breed anti-social behavior, looting and violence.	1	5	High	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
CYCLONE					
1	There is a risk that if a cyclone occurred, it may cause injury or death to people . People residing in coastal areas such as at South Beach and Port Coogee, hostels, aged care facilities, schools or retirement villages, may require assistance. Some people may be stranded and displaced. With many pets may be homeless or killed.	3	4	High	1
2	There is a risk that if a cyclone occurred, it could cause flooding, destroy homes and damage property particularly those who reside in coastal areas such as at Woodman Point Caravan Park, Coogee Beach Caravan Park, South Beach and Port Coogee. Evacuation of people and pets may be necessary. Property could be damaged and/or destroyed including shopping centres situated at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted	3	5	Extreme	3
3	There is a risk that if a cyclone occurred, widespread environmental damage may destroy plants, flora and fauna at Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beellar Regional Park. Animals and wildlife may become homeless.	3	3	Medium	5
4	There is a risk that if a cyclone occurred, medium, long term or permanent economic damage may happen to commercial and industrial marine businesses at the commercial shopping centre's located at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill, the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson and Cockburn Cement and Quarry Works.	3	3	Medium	6
5	There is a risk that if a cyclone occurred, industry along the Henderson strip and within Cockburn Sound may be impacted. Some may be damaged and/or destroyed. Industries reliant on natural resources for farming and fishing will also be affected, with death of livestock or loss of fishing stock.	3	3	Medium	4
6	There is a risk that if a cyclone occurred, it could damage or destroy overhead power lines and communication infrastructure , causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected. It could impact upon roads and rail transport infrastructure causing flooding, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses. It could damage or destroy infrastructure at The Woodman Point Waste Water Treatment Plant and the Cockburn Cement and Quarry Works.	3	4	High	2
7	There is a risk that if a cyclone occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult	3	4	High	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
EARTHQUAKE					
1	There is a risk that an earthquake may cause injury or death. Approximately 84,652 people reside within the City of Cockburn. People may be seriously injured and killed from collapsing buildings, falls from unlevelled ground and mass stampedes if escaping from inside large and/or multi storing buildings. Deaths and injuries may also occur from traffic accidents, falling power lines and poles, severed gas and fuel lines. Many pets would become homeless or killed.	1	4	Medium	1
2	There is a risk that an earthquake would disrupt and damage and destroy business property throughout the City of Cockburn including shopping centres at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted. An earthquake could damage or destroy property (homes and buildings not built to earthquake standards). Buildings may collapse or be rendered unsound and uninhabitable.	1	3	Low	3
3	There is a risk that an earthquake would impact upon the environment and the eco flora and fauna systems contained within the Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelihar Regional Park. Widespread damage or destruction may be inflicted on natural reserves and the fauna inhabiting these areas.	1	3	Low	5
4	There is a risk that an earthquake would severely impact the local economy, whereupon businesses may be damaged and/or destroyed. Commercial centres such as the one located in Cockburn may cease or dramatically reduce service delivery/operations to other businesses and clients. Some businesses will suffer large financial losses and insurance payouts will be relied upon. Some businesses will not recover and close permanently.	1	2	Low	6
5	There is a risk that an earthquake would impact upon industry in terms of destroying the primary resources required for manufacturing of certain products and goods. Failure of primary industry to provide will have an adverse effect on businesses reliant on these industries	1	2	Low	4
6	There is a risk that an earthquake would damage, destroy and cause infrastructure disruptions to electrical power, communications, gas, water, sewerage and drainage. Fire, flooding, explosion from severed lines, water storage facilities would result in major disruption to roads, traffic control lights and vulnerable people without household services would be susceptible. Integral main road and rail routes may be affected, preventing the ongoing delivery of other goods and services to the community and neighbouring Councils.	1	3	Low	2
7	There is a risk that an earthquake would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult	1	2	Low	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
ENVIRONMENTAL DISASTER					
1	There is a risk of contaminants and/or pollutants causing injury or death to people from inhalation or skin exposure. The extent is dependent upon the location of the contamination, the climatic conditions and the nature, composition and amount of pollutant exposed to the general community. Many pets may also be affected, either becoming ill or dying.	4	3	High	1
2	There is a risk of contaminants and/or pollutants generated by an environmental disaster may cause the isolation of a property if the disaster's source was from here, and/or surrounding properties to limit the spread of contamination. Properties may become unusable or uninhabitable for the future and may be demolished.	3	2	Low	3
3	There is a risk of contaminants and/or pollutants, including acidic soils, caused by an environmental disaster and its immediate location and climatic conditions may impact the environmental reserves of Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelihar Regional Park that have eco, flora and fauna systems. There is a risk that if negative changes occurred to the natural environment eco flora and fauna may be significantly affected, destroyed or become extinct.	3	5	Extreme	5
4	There is a risk of contaminants and/or pollutants caused by an environmental disaster may impact on the economy of the community due to clean up costs, suspension of trade for businesses selling the products that may generate these pollutants. There may be an impact on future land developments as the land may be too contaminated to allow for building etc, therefore CoC growth may be impacted.	3	3	Medium	6
5	There is a risk of contaminants and/or pollutants caused by an environmental disaster may impact on industry responsible for the production of the products, chemicals, fertilizer etc, which produce these pollutants in an uncontrolled environment. Industries may be severely impacted as investigations by 3rd parties may force temporary closures and cease of production.	3	4	High	4
6	There is a risk of contaminants and/or pollutants generated by an environmental disaster may cause destruction, disruption to major infrastructure such as water, sewerage, drains and pumps. This would cause an adverse impact on industry particularly at the Waste Water Treatment Plant and underground water table. If the disaster occurs near major road and rail routes, they may be impacted by closure or re-routing of transport vehicles etc.	3	3	Medium	2
7	There is a risk of contaminants and/or pollutants generated by an environmental disaster may impact on social/cultural aspects of the community, as areas affected by the disaster may be quarantined. Residents may be limited to certain public areas and buildings. Residents may be displaced and this may cause tension etc.	2	3	Medium	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
FLOODING					
1	There is a risk that if a flood occurred, it may cause injury or death to people . People residing in coastal areas such as at South Beach and Port Coogee, hostels, aged care facilities, schools or retirement villages, may require assistance. Some people may be stranded and displaced, with many pets becoming homeless or being killed. Widespread debris, refuse and sewage may litter the City of Cockburn causing an onset of disease and pestilence. The Henderson Rubbish Tip may be washed out and spreads decaying refuse into neighboring residential areas, adding to increased chance of disease spreading and infection.	3	2	Low	1
2	There is a risk that if a flood occurred, it could cause flooding, destroy homes and damage property particularly those who reside in coastal areas such as at Woodman Point Caravan Park, Coogee Beach Caravan Park, South Beach and Port Coogee. It could disrupt damage and destroy property including shopping centres at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill Evacuation of people and pets may be necessary.	3	2	Low	3
3	There is a risk that if a flood occurred, widespread environmental damage may destroy plants, flora and fauna at Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelair Regional Park. Debris and other pollutants may wash into natural or man made lakes affecting water quality and destroying sensitive eco systems.	2	2	Low	5
4	There is a risk that if a flood occurred, the local economy will be impacted, with clean up costs, affected businesses being closed, pertinent community services and food supplies may be affected. Land developments and sites inundated with water may require substantial and costly works undertaken to redeem. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted.	2	1	Low	6
5	There is a risk that if a flood occurred, it could impact upon industry in terms of destroying the primary resources required for manufacturing of certain products and goods. Failure of primary industry to provide will have an adverse effect on businesses reliant on these industries	2	2	Low	4
6	There is a risk that if a flood occurred, it could damage or destroy overhead power lines and communication infrastructure , causing service and communication interruptions to homes, businesses, industry, roads and rail transport infrastructure. The South Fremantle switchyard terminal may be affected and it could damage or destroy infrastructure at The Woodman Point Waste Water Treatment Plant and the Cockburn Cement and Quarry Works.	2	2	Low	2
7	There is a risk that if a flood occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult	2	1	Low	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
HAZARDOUS MATERIALS/CHEMICAL SPILL					
1	There is a risk that if a chemical/hazardous material spill occurred, illness, injury or death to people residing within the City of Cockburn may happen. The extent is dependent upon the location of the contamination, the climatic conditions and the nature, composition and amount of pollutant exposed to the general community. Many pets may also be affected, either becoming ill or dying.	5	3	Extreme	1
2	There is a risk that if a chemical/hazardous material spill occurred, damage to property may occur, particularly in areas where such materials are more readily identifiable, such as at Bibra Lake, Coogee, Spearwood and Henderson industrial areas. Explosions may occur from community compounds mixing with the chemical/material spill, which may damage property.	3	2	Low	3
3	There is a risk that if a chemical/hazardous material spill occurred, contamination of the environment , underground water table and air may occur. Damage to certain eco systems contained within Manning Park, CY O'Connor Reserve, Woodman Point Regional Park and Beelair Regional Park could occur from chemical carrying vehicles en route to/from Fremantle Port. If a chemical/hazardous material spill occurred off shore, damage to the coastal environment from Coogee to Henderson may occur destroying coastal and water based eco systems.	4	3	High	5
4	There is a risk that if a chemical/hazardous material spill occurred, the local economy may be impacted in terms of clean up costs, certain community and business services being suspended or sealed off if located within the spill area, such as the shopping centres at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill and industrial areas of Bibra Lake, Coogee, Spearwood and Henderson.	2	2	Low	6
5	There is a risk that if a chemical/hazardous material spill occurred, it could impact upon industry in terms of destroying the primary resources required for manufacturing of certain products and goods. Failure of primary industry to provide will have an adverse effect on businesses reliant on these industries	3	2	Low	4
6	There is a risk that if a chemical/hazardous material spill occurred, damage, destruction and/or disruption to major infrastructure such as water, sewerage, drains and pumps may happen. Chemicals and hazardous materials are periodically transported via Cockburn, Rockingham and Stock Roads en route to/from Fremantle Port. Roads may be closed for extended periods during the containment and clean-up period.	3	2	Low	2
7	There is a risk that if a chemical/hazardous material spill occurred, may impact on social/cultural aspects of the community, as areas affected by the disaster may be quarantined. Residents may be limited to certain public areas and buildings. Residents may be displaced and this may cause tension etc.	2	1	Low	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
HUMAN EPIDEMIC					
1	There is a risk that if an epidemic occurred, the 84,652 people that reside in the City of Cockburn would be at risk. Most vulnerable may be the aged groups 65+ years old and children aged less than 4 years old. Parts of the population vaccinated may have side effects and become ill or die. Quarantine of infected people will be enforced. Water supplies, drainage systems may become contaminated, therefore increasing the spread of disease. There will also be a loss of domestic livestock and pets due to the lack of proper care as human carers may be unavailable.	4	4	Extreme	1
2	There is a risk that if an epidemic occurred, property may be impacted especially if quarantine measures are put in place to curb the spread of disease. Some property may be uninhabitable for an extended period of time.	2	1	Low	3
3	There is a risk that if an epidemic occurred, there may be an impact to the environment in terms of contamination of water ways, natural and made lakes and land reserves from inappropriate disposal of medical resources used in treatment of the disease. Dying livestock and family pets may impact the environment as carcasses may be incorrectly disposed of. Mass graves for human carcasses may also lead to increase chance of environmental damage	2	2	Low	5
4	There is a risk that if an epidemic occurred, the local and state economy may be impacted due to an increase number of workforce becoming ill/dying or staying at home due to quarantine measures and/or caring for ill family members. Demand will increase for non-financial and financial assistance from local community welfare agencies, state based and federal based agencies, as people are unable to work and lead normal lives.	4	4	Extreme	6
5	There is a risk that if an epidemic occurred, industry will be forced to suspend trading or close their doors due to the severe staff shortage that may occur. The snowball effect being that primary based industries would be unable to provide the goods and services to businesses and clients. Primary, secondary and service industries will all be impacted, due to fall in production; therefore severe financial losses will be incurred.	4	4	Extreme	4
6	There is a risk that if an epidemic occurred, infrastructure such as road, rail and sea based transport that businesses in the CoC rely upon may be impacted due to the shortage of personnel to operate these services. There may be increases in power outages etc as key staff is unavailable to maintain critical systems. Hospital and medical infrastructures would be under immense strain.	2	2	Low	2
7	There is a risk that if an epidemic occurred, social and cultural ideals may be affected due to anti social targeting of quarantined groups and/or infected individuals. Hospitals and emergency centres may not be able to cope with the increasing number of cases, and people may become aggressive, abusive and violent if they feel inadequate attention and care is given to them. In general people will be cut off from normal day-to-day social activities.	4	4	Extreme	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
MARINE OIL POLLUTION					
1	There is a risk that if marine oil pollution occurred, it may impact on people, local residents and business staff, as their immediate living and working environment may be affected. Depending on the extent and location of the marine oil pollution some parts of the local community may need to be displaced, some residents may be frail and invalid, which in turn raises further medical issues.	4	3	High	1
2	There is a risk that if marine oil pollution occurred, it may impact on property located within close proximity of this oil pollution. Some properties may be damaged by the oil and associated sludge build up, therefore becoming in effect quarantined and unusable in the immediate short term. Financial losses may be incurred due to the loss and damage sustained to property.	2	2	Low	3
3	There is a risk that if marine oil pollution occurred caused by spillage from passing ships, it may impact on the surrounding ocean environment, such as fish and other sea life. There is a risk that if marine oil pollution occurred caused by spillage it may impact on the environment in terms of local fauna and flora, killing native birds, wildlife, marine life/organisms and contaminating delicate eco systems along the coast line. Cockburn Sound could be threatened.	5	5	Extreme	5
4	There is a risk that if marine oil pollution occurred, it may impact on the local economy due to the financial losses suffered by some industries and businesses in close proximity of the oil pollution. Reliance on insurance and other forms of financial reimbursement will impact on the profitability of the economy. Clean up of the oil pollution may incur heavy costs both financial and non-financial for the local economy, with a flow onto the state economy.	4	3	High	6
5	There is a risk that if marine oil pollution occurred, it may impact on nearby industrial centres, especially if this occurred along the Coogee/Henderson coastal strip by causing them to suspend certain activities and assist in the clean up. It may affect the local professional fishing industry, due to the possible loss of fish and other ocean life stock. Long term commercial fishing may become unsustainable.	2	2	Low	4
6	There is a risk that if marine oil pollution occurred, it may impact on infrastructure, especially in terms of shipping and marine vessel movements along and within Cockburn Sound and Henderson strip, to and from Fremantle Port and Garden Island.	2	2	Low	2
7	There is a risk that if marine oil pollution occurred, it may impact on the social and cultural activities of the community due to the impact it would have on water based sporting events and activities. Certain sporting groups and individuals may be unable to compete and/or engage in their water based sport.	3	3	Medium	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
RAIL FREIGHT EMERGENCY					
1	There is a risk that if a rail freight emergency occurred, people may be seriously injured and/or killed if it was due to a collision between rail and road, or rail and road vehicle or derailment. Toxic fumes from chemical and hazardous material spills and/or subsequent fires etc may cause people with respiratory issues or other health conditions to become ill in surrounding areas. Emergency response personnel are also at risk of injury or death in the event of an unforeseen explosion/s whilst attending to the injured, spillages and fires.	2	4	Medium	1
2	There is a risk that if a rail freight emergency occurred, property situated in close proximity to the rail lines could be damaged, particularly the Cockburn Central, South Beach and Coogee business/residential developments and the Bibra Lake industrial area. One major freight line extends through the City Of Cockburn from Fremantle Port-Bunbury-Fremantle Port whilst the southern PTA passenger line extends from Perth-Mandurah-Perth. Cockburn Central is a major sub-railway station and termination point for selected rail schedules carrying thousands of city commuters daily.	4	4	Extreme	3
3	There is a risk that if a rail freight emergency occurred and depending on the climatic conditions and location of the emergency, environmental areas may be affected by derailed freight carriages carrying toxic chemicals or materials, plus any other fuel like substances coming from any vehicles involved in the emergency. Fires and explosions from highly flammable and toxic materials could present a high risk to natural reserves, waterways, flora and fauna.	2	5	High	5
4	There is a risk that if a rail freight emergency occurred, the local economy could be impacted due to the interruption of certain services located in proximity or within the emergency area. Industry and businesses reliant on the rail freight network may need to source alternate transport to ensure continuity of business and provision of goods and services. This in turn will incur non-budgeted expenses and insurance pay outs may be sourced to cover these costs. Some industries will be covered and others will be financially impacted due to inadequate insurance cover.	3	2	Low	6
5	There is a risk that if a rail freight emergency occurred, the industries that rely on rail transport of their goods may be affected if the rail emergency takes a number of days to clear, which may then flow into weeks if a major investigation was required. Industries unable to provide primary goods and services to businesses via the rail system may need to source other more expensive methods of transportation. The increased costs would then be passed onto dependant businesses/clients and eventually onto the consumer.	3	2	Low	4
6	There is a risk that if a rail freight emergency occurred, infrastructure such as arterial roads adjacent to the incident may be closed and major traffic detours will be put into effect over a lengthy period of time. This will impact heavy road vehicles that rely on these roads to transport goods. It will also impact non local traffic that is using the main arterial roads. Also impacted would be other rail network industries that rely on the rail network infrastructure for transportation of goods and services, as the major rail lines may be closed for an indefinite period of time. The rail freight emergency may have also caused damage to the power grid system if derailed carriages collided with power lines/transformers.	3	3	Medium	2
7	There is a risk that if a rail freight emergency occurred, social and cultural aspects of the community may be impacted in terms of road closures, inaccessibility to certain public buildings and open spaces. People may be hindered or prevented from attending and participating in sporting and community events.	2	1	Low	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
ROAD TRANSPORT EMERGENCY					
1	There is a risk that if a road transport emergency occurred, people in the accident may be seriously injured or killed. Other road users may be involved, with possible injuries and /or deaths. Toxic fumes from chemical and hazardous material spills and/or subsequent fires etc may cause people with respiratory issues or other health conditions to become ill in surrounding areas. Emergency response personnel are also at risk of injury or death in the event of an unforeseen explosion/s whilst attending to the injured, spillages and fires. Major arterial routes include Stock Road, North Lake Road, Rockingham Road, Cockburn Road, Row Highway and Kwinana Freeway. These routes dissect the City of Cockburn carrying thousands of vehicles daily ranging from city bound passenger cars and buses through to heavy haulage trucks bound to and from Fremantle	5	5	Extreme	1
2	There is a risk that if a road transport emergency occurred, property may be damaged or destroyed if the accident occurred in built up residential area.	4	3	High	3
3	There is a risk that if a road transport emergency occurred and depending on the climatic conditions and location of the emergency, environmental areas may be affected by road transport vehicles carrying toxic chemicals or materials, plus any other fuel like substances coming from any vehicles involved in the emergency. Fires and explosions from highly flammable and toxic materials could present a high risk to natural reserves, waterways, flora and fauna.	4	3	High	5
4	There is a risk that if a road transport emergency occurred, the local economy could be impacted due to the interruption of certain services located in proximity or within the emergency area. Industry and businesses reliant on the road transport network may need to source alternate transport to ensure continuity of business and provision of goods and services. This in turn will incur non-budgeted expenses and insurance pay outs may be sourced to cover these costs. Some industries will be covered and others will be financially impacted due to inadequate insurance cover.	2	2	Low	6
5	There is a risk that if a road transport emergency occurred, industries such as those located at Cockburn, South Lakes, Hamilton Hill, Spearwood and Success shopping centres, and areas such as Henderson, Coogee, Bibra Lake and Spearwood, that rely on road transport of their goods may be affected if the road emergency takes more than one day to clear, which may then flow into weeks if a major investigation was required. Industries unable to provide primary goods and services to businesses via the road system may need to source other more expensive methods of transportation. The increased costs would then be passed onto dependant businesses/clients and eventually onto the consumer.	4	2	Medium	4
6	There is a risk that if a road transport emergency occurred, infrastructure in the near vicinity may be destroyed, particularly electric power lines, causing major service disruptions to the immediate area. If heavy road transport vehicles were involved in the emergency on the main road networks, such as Thomas Road, Kwinana Freeway, Rockingham Road, and Cockburn Road, this would cause mass disruptions and delays to the other road users	4	3	High	2
7	There is a risk that if a road transport emergency occurred, social and cultural aspects of the community may be impacted in terms of road closures, inaccessibility to certain public buildings and open spaces. People may be hindered or prevented from attending and participating in sporting and community events.	4	1	Low	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
SEVERE STORM					
1	There is a risk that a severe storm will cause serious injury or death to residents of properties and employees of businesses. Emergency response service personnel are at risk of injury or death when attending to call outs to storm damage and accidents. People may need to be displaced into large community halls etc as a temporary measure. Pets and livestock may be killed and become homeless.	4	3	High	1
2	There is a risk that a severe storm will cause substantial property damage requiring external resources to be employed for periods of 12 hours or more. Commercial and industrial property situated along the Coogee/Henderson industrial shipping strip, may be damaged and forced to close. Major disruptions could occur	4	4	Extreme	3
3	There is a risk that a severe storm will cause serious damage to the environment and sensitive eco systems along the coast line and further inland in the City of Cockburn, requiring major restitution and 3rd party intervention, affecting City of Cockburn budget and operations	4	3	High	5
4	There is a risk that a severe storm will impact on the economy due to huge financial and non-financial losses to various sectors of the economy. Businesses and industries would be affected by loss of sales, revenue and loss of staff due to injury, trauma or death. There would be an increase of insurance claims and subsequent insurance premium increases, which may cause smaller businesses to close their doors as they are unable to afford the increase. Insurance companies would be overwhelmed to process claims as quickly as possible. If this fails to occur, businesses reliant on insurance that do not have a robust business recovery plan may cease trading completely. This will impact on loss of rates and income for the City of Cockburn	3	2	Low	6
5	There is a risk that a severe storm will cause industry downturn or interruptions that may result in closure of some industry (20%) for periods of 24 hours or more. Primary industries reliant on natural resources may be affected due to the loss of these resources i.e. farming, fishing and horticulture. This in turn impacts on the secondary and service industries that rely on supplies from the primary industries.	3	2	Low	4
6	There is a risk that if a severe storm occurred, it could damage or destroy overhead power lines and communication infrastructure , causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected whilst a bushfire could impact upon roads and rail transport infrastructure causing fire debris, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses. The Woodman Point Waste Water Treatment Plant could be threatened.	5	4	Extreme	2
7	There is a risk that a severe storm will impact on social and cultural aspects of the community, as sporting events and activities will be cancelled due to damage or destruction of parks, reserves and community or private buildings – halls etc. Some people in the community may require counselling if affected by a loss of property, possessions, human life or pets and animals	3	3	Medium	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
TERRORISM					
1	There is a risk of terrorism occurring upon people , whereupon a large number of people may be killed and/or severely injured. The City of Cockburn has approximately 84,652 people of which 85% are Australian Citizens whilst 28.8% were born overseas. The main aim of a terrorist attack is to target people; therefore depending on the extent of the attack, people will be displaced, lose family members, loved ones and pets, lose property and possessions and lose their livelihood. Emergency response personnel may also be at risk of injury or death as they deal with clean up and rescue works in the immediate and surrounding impact sites	1	5	High	1
2	There is a risk of terrorism occurring that may have an impact on property , both commercial and public buildings. Properties adjacent to the main impact area of terrorist activity may be severely damaged and/or destroyed. Some properties will be deemed uninhabitable, irreparable, therefore requiring demolishing.	1	5	High	3
3	There is a risk of terrorism occurring that may impact on the environment due to the secondary fires and possible spillage of hazardous materials stemming from the initial terrorist attack.	1	5	High	5
4	There is a risk of terrorism occurring that may have an impact on the local and state economy, as certain parts the economy will cease operations, specifically areas directly affected by the terrorist attack. Welfare agencies, hospitals and medical facilities would be placed under immense pressure. There would be very high financial and non- financial losses in the economy, and some parts of the economy may see a downturn, such as tourism.	1	5	High	6
5	There is a risk of terrorism occurring on industry located at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill shopping centres and the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson. The Coogee/Henderson shipping industrial area may be at risk of terrorism, especially as Defense patrol boats and other Australian Govt vessels are maintained and serviced in this area. The impact will be a high level of destruction and crippling affect to businesses and people in these areas	1	5	High	4
6	There is a risk of terrorism occurring upon major infrastructure services such as transport networks including major roads, bus, and train services within the City of Cockburn. Power grids, gas supplies and water infrastructure may be targeted by terrorism, which would cause significant strain on the provision of these services to the community and neighboring communities	1	5	High	2
7	There is a risk of terrorism occurring that may impact on the social and cultural aspects of the community, whereupon people are traumatized and do not participate in large group events or activities. Some sporting events will be cancelled and/or relocated. Certain people of a diverse cultural background may be targeted by vigilante groups and pressured to leave the community.	1	5	High	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
TSUNAMI					
1	There is a risk that if a tsunami occurred, it may cause injury or death to people . People residing in coastal areas such as at South Beach and Port Coogee, hostels, aged care facilities, schools or retirement villages, may require assistance. Some people may be stranded and displaced, with many pets becoming homeless or being killed. Widespread debris, refuse and sewage may litter the City of Cockburn causing an onset of disease and pestilence. The Henderson Rubbish Tip may be washed out and spreads decaying refuse into neighboring residential areas, adding to increased chance of disease spreading and infection.	2	4	Medium	1
2	There is a risk that if a tsunami occurred, it could cause flooding, destroy homes and damage property particularly those who reside in coastal areas such as at Woodman Point Caravan Park, Coogee Beach Caravan Park, South Beach and Port Coogee. It could disrupt damage and destroy property including shopping centres at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill. Evacuation of people and pets may be necessary.	2	4	Medium	3
3	There is a risk that if a tsunami occurred, widespread environmental damage may destroy plants, flora and fauna at Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelihar Regional Park. Debris and other pollutants may wash into natural or man made lakes affecting water quality and destroying sensitive eco systems.	2	4	Medium	5
4	There is a risk that if a tsunami occurred, the local economy will be impacted, with clean up costs, affected businesses being closed, pertinent community services and food supplies may be affected. Land developments and sites inundated with water may require substantial and costly works undertaken to redeem. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted.	2	3	Medium	6
5	There is a risk that if a tsunami occurred, it could impact upon industry in terms of destroying the primary resources required for manufacturing of certain products and goods. Failure of primary industry to provide will have an adverse effect on businesses reliant on these industries	2	4	Medium	4
6	There is a risk that if a tsunami occurred, it could damage or destroy overhead power lines and communication infrastructure , causing service and communication interruptions to homes, businesses, industry, roads and rail transport infrastructure. The South Fremantle switchyard terminal may be affected and it could damage or destroy infrastructure at The Woodman Point Waste Water Treatment Plant and the Cockburn Cement and Quarry Works.	2	4	Medium	2
7	There is a risk that if a tsunami occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult	2	3	Medium	7

Risk #	RISK STATEMENT	Likelihood	Consequence	Level	Priority
URBAN FIRE					
1	There is a risk that if urban fire occurred in high density, high rise residences, or buildings such as day care centres, pre-school, schools, aged care facilities, retirement villages, cinemas and shopping centres, injury or multiple deaths may occur, and many pets may be homeless or killed. Toxic fumes from the fires may cause people with respiratory issues or other health conditions to become ill in surrounding areas. Survivors would be displaced and emergency service personnel in attendance may be at risk of injury or death from fighting the fire and entering unsafe properties and buildings.	5	4	Extreme	1
2	There is a risk that an urban fire will cause major damage to residential, commercial and/or industrial property , which could leave resident's homeless and businesses /industry unable to operate. Many properties may be affected by the fire and associated explosions if these properties housed volatile hazardous materials. Properties may be severely damaged or destroyed, with some being deemed unsafe and requiring demolishing. Business areas such as Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill and the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson would be vulnerable particularly if those businesses stocked accelerants such as wood, chemicals or fuels.	5	4	Extreme	3
3	There is a risk that if an urban fire occurred, it could affect the natural environment . Eco flora and fauna may be significantly affected, destroyed or lost forever. Contaminants and/or pollutants could filter into the atmosphere whilst underlying soils could turn acidic and cause environmental damage to the environmental reserves of Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelihar Regional Park. damage or destroy	5	3	Extreme	5
4	There is a risk that if an urban fire occurred there may be an impact on the economy if the fire occurred in commercial and industrial areas of the community. Both financial and non-financial losses may occur from the loss of business, people and property, with some parts of the economy relying on external assistance.	3	3	Medium	6
5	There is a risk that if an urban fire occurred, industry areas such as Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill and the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson many businesses would be vulnerable particularly if those businesses stocked accelerants such as wood, chemicals or fuels.	3	3	Medium	4
6	There is a risk that if an urban fire occurred, it could damage or destroy overhead power lines and communication infrastructure , causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected whilst an urban fire could impact upon roads and rail transport infrastructure causing fire debris, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses.	4	4	Extreme	2
7	There is a risk that if an urban fire occurred, it may impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult	3	3	Medium	7

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Appendix 12
LEMC ERM Workbook

LOCAL EMERGENCY MANAGEMENT COMMITTEE
“EMERGENCY RISK MANAGEMENT WORKBOOK”

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: AIR TRANSPORT EMERGENCY

Jandakot Airport is the major General Aviation Airport in Western Australia. Situated in the City of Cockburn it is the busiest airfield and largest aviation training base in Australia. It contains three runways and averaged 390,000pa aircraft movements over the last three years. At a growth rate of 2.5%, the Airport could expect to reach 476,000pa fixed wing movements by the year 2025.

Jandakot Airport is situated within a 3 nautical mile radius General Aviation Airport Procedure (GAAP) Control Zone (CTR), with an upper limit of 1,500 ft altitude. The Jandakot CTR is immediately south of the Perth CTR, whose controlled airspace lies above the Jandakot CTR to 60,000ft altitude. There is a large designated flying training area to the south of the Airport which extends from ground level to 6,000ft altitude.

Jandakot Airport's GAAP Control Zone is situated predominantly over City of Cockburn residential areas. In the 7 years prior to 2005 there have been 6 aircraft incidents involving the overshoot or undershoot of a runway, 2 aborted takeoffs and 4 aircraft not making the runway to land. The airport provides access for essential service organisations such as the Royal Flying Doctor Service, DEC Forest and Bushfire Patrol and the WA Police Air Support.

ELEMENTS AT RISK						
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss	Flora & Fauna Flora & Fauna Habitat Pollution Toxic Waste Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Native Animals Residential Areas	Primary Secondary Service Sector: - Aged Care - Education - Health Services - Community Services - Cultural Services Marine Commercial Manufacturing	Communications Power Water Gas Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System Buildings Public Media Council (CoC)	Death Permanent Injury Serious Injury Minor Injury Illness CALD Trained personnel PTSD Medical hazards	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational Nature reserves Rural properties Community Halls	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship Cultural services Community Halls Local Govt Sporting Clubs Cultural Clubs
CONTROLS/TREATMENTS						
PPRR						

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: ANIMAL & PLANT DISEASE

Australia is under constant threat from the risk of major animal and plant pest and disease outbreaks or incursions. Depending on the type and magnitude of the outbreak, such an event could cause significant damage to property and the environment. An outbreak could result in harm to the health of animals and humans, cause serious financial hardship and social disruption to the community and threaten the viability of the livestock and agricultural industries.

Over 60 animal diseases and 70 plant pests are currently recognized as exotic (foreign) to Australia. A number of parasitic weeds are also considered a threat to property and the environment. Many exotic pests and diseases are highly contagious and can spread quickly. Rapid and stringent action is required to contain an outbreak and limit its distribution. It is imperative that any outbreak is identified early and eradicated without delay.

The City of Cockburn has approximately 4,760ha of bush land within the region of which 593ha is located in the Beeliam, Woodman Point and Jandakot Regional Parks. Widespread animal and plant disease may destroy plants, flora and fauna in the 4,760ha of bush land contained within the City of Cockburn and that contained within the Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beeliam Regional Park

ELEMENTS AT RISK

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Reputation	Flora & Fauna Flora & Fauna Habitat Erosion Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Native Animals Climate Change Extinction Disposal Location: - Burnt - Buried	Marine Commercial Turf Farm	Disposal Location: - Burnt - Buried	Death Permanent Injury Serious Injury Minor Injury Illness PTSD	Disposal Location: - Burnt - Buried	Walk/Riding Trails Parks/Reserves PTSD

CONTROLS/TREATMENTS

PPRR

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: BUSHFIRE

Bushfires or Wildfires are common throughout Australia. The grassfire is fast moving, passing in 5 to 10 seconds and smoldering for minutes. They have a low to medium intensity and primarily damage crops, livestock and infrastructure such as fences. Bushfires are generally slower moving, but have a higher heat output. This means they pass in 2 to 5 minutes, but they can smolder for days. Fire in the crown of the tree canopy can move rapidly. Bushfires are an intrinsic part of Australia's environment. Natural ecosystems have evolved with fire, and the landscape, along with its biological diversity, has been shaped by both historic and recent fires. Many of Australia's native plants are fire prone and very combustible while numerous species depend on fire to regenerate.

Bush Fires occur intermittently on an annual basis within areas of the City of Cockburn. The fire behavior can range from very mild to unpredictable, dependant on fuel loads, and climatic conditions. A special note should be taken of the environmental changes taking place with global warming. Drying ground fuels and warming temperatures. The most severe fires may occur from October through to April. Fires in the City of Cockburn occur mainly during restricted burning times. There may be limited or no notification to the community at the initial stages of a fire, with the duration and impact being unpredictable.

Public awareness is provided by the City of Cockburn, DEC and FESA regarding the consequences and reduction methods of Bush Fire throughout the State every year. The City of Cockburn advises community members of prohibited burning times, fire breaks and harvest bans. Hazard reduction work is required to be undertaken between September and October and maintained by property owners from December through to March each year. The Bush Fires Act 1954 legislates the control of fire which ultimately reduces the potential occurrence of Bush Fire.

ELEMENTS AT RISK

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Govt and Private Expenditure Increase Loss of tourism	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Native Animals	Primary Secondary Service Sector Marine Commercial Transport Industry Volunteers Local Govt	Communications Power Water Gas Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System Water treatment Local Govt Infrastructure Emergency Services	Death Permanent Injury Serious Injury Minor Injury Illness Volunteers Family unity Welfare demands Accommodation and Relocation	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational Fencing around properties Public vehicles Private Services	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship Volunteers Volunteers families and employers

CONTROLS/TREATMENTS

PPRR

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: CHEMICAL / BIOLOGICAL / RADIOLOGICAL / NUCLEAR

The risk from the deliberate use of chemical, biological and radiological (CBR) material needs to be considered within the boundaries of the City of Cockburn but also that that may affect the city from adjoining Local Government Districts. On the 9th May, 2006, the Australian Government announced funding of \$8.4 million over four years to improve Australia's ability to respond to chemical, biological, radiological and nuclear (CBRN) incidents

Nuclear powered ships containing nuclear materials periodically sail the Coogee/Henderson coast to visit Fremantle Port/Garden Island Defense Base. The Australian Submarine Corporation (ASC), which is part of the Australian Marine Complex (AMC) in Henderson, provides a facility to service Defense force nuclear submarines. The Defense Maritime Services (DMS) also located in the AMC also provides facilities to service Defense force naval ships. If a nuclear incident occurred, it may cause some form of radiation fallout within the immediate area of Henderson and may impact the City of Cockburn.

ELEMENTS AT RISK						
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Increased Expenditure Reputation Tourism Real Estate	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals Extinction of species Mutation	Primary Secondary Service Sector Marine Commercial Local Govt	Communications Power Water Gas Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System Emergency Services Body disposal Health Services Local Govt	Death Permanent Injury Serious Injury Minor Injury Illness Medical health Genetic disorders Relocation of people Health workers and families Information dispersal - response capability	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational Relocation services	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship Information dispersal Health worker's families
CONTROLS/TREATMENTS						
PPRR						

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: CYCLONE

A tropical cyclone is a low-pressure system which develops in the tropics and is sufficiently intense to produce sustained gale force winds of at least 63 km/h. If the sustained wind reaches hurricane force of at least 118 km/h the system is defined as a severe tropical cyclone. In other parts of the world they are called hurricanes or typhoons. The most well known features are destructive winds and heavy rainfall that can lead to flooding. Storm surge, or coastal inundation by seawater, is a lesser known phenomenon but can be the most dangerous element of a cyclone.

Cyclones may affect the whole of the City of Cockburn on an irregular basis. They occur predominantly in the summer months. Wind damage can occur. Wind gusts can exceed 100kph with varying degrees of damage to coastal property and the environment.

The Bureau of Meteorology (BOM) produces daily weather forecasts and predictions for the public. Awareness (mitigation) is also undertaken by FESA via print and electronic media by promoting hazard reduction (reduction of loose items around properties, tree trimming, etc) and through weather warnings. The City of Cockburn undertakes drainage maintenance to reduce the risk of flooding, conducts verge maintenance under power lines to reduce power interference from trees.

ELEMENTS AT RISK						
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Tourism Reputation	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Contamination Bush Lands Wetlands Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Power Water Gas Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Permanent Injury Serious Injury Minor Injury Illness Temporary accommodation Welfare services Local Govt Volunteers etc Civil disorder	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational Civil disorder Isolation	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship Volunteers and families C.A.L.D Civil Disorder Isolation
CONTROLS/TREATMENTS						
PPRR						

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: **EARTHQUAKE**

An earthquake is the shaking and vibration at the surface of the earth caused by underground movement along a fault plane or by volcanic activity. The size of earthquakes is commonly measured using the Richter scale which compares the maximum heights of the seismic waves at a distance of 100 kilometres from the point on the earth's surface directly above where the earthquake originated within the earth, the epicentre. The scale divides the size of earthquakes into categories called magnitudes which are an estimate of the energy released by an earthquake. For every unit increase in magnitude on the Richter scale, there is roughly a thirty-fold increase in the energy released by an earthquake.

Perth is outside of the earthquake zone. No earthquake of magnitude greater than 2 is known to have occurred in the Perth metropolitan region. The closest confirmed seismic activity to Perth has been at Woorloo, approximately 50 km east of Perth, where several earthquakes of magnitude just over 2 have been recorded. Several earthquakes of magnitude approximately 4 have been recorded close to York, approximately 100 km east of Perth.

The most significant West Australian earthquake was that which occurred at **Meckering** in October, 1968 whilst WA's largest earthquake occurred near **Meeberrie**, approximately 300 km northeast of Geraldton in 1941.

ELEMENTS AT RISK						
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Tourism Reputation	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Native Animals U/G water sources, streams etc	Primary Secondary Service Sector Marine Commercial	Communications Power Water Gas Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Permanent Injury Serious Injury Minor Injury Illness PTSD CALD/Welfare Evacuation Volunteers Civil Disorder	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational Fences Civil Disorder	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship Emotional and psychological Inability to perform daily functions Immediate families of volunteers Civil Disorder
CONTROLS/TREATMENTS						
PPRR						

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: **ENVIRONMENTAL DISASTER**

An environmental disaster is a disaster that is due to human activity and should not be confused with natural disasters. In this case, the impact of humans' alteration of the ecosystem has led to widespread and/or long-lasting consequences. It can include the deaths of animals (including humans) and plants, or severe disruption of human life, possibly requiring migration.

There is a risk of contaminants and/or pollutants, including acidic soils, causing environmental damage to the environmental reserves of Manning Park, C.Y O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelihar Regional Park that have eco, flora and fauna systems.

ELEMENTS AT RISK						
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Reputation Tourism	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial Local Govt	Drainage System Local Govt	Death Permanent Injury Serious Injury Minor Injury Illness Volunteers Health workers SES/Army Relocation Welfare plan Local Govt	Produce Isolation Local Govt	Walk/Riding Trails Parks/Reserves Isolation CALD
CONTROLS/TREATMENTS						
PPRR						

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: FLOODING

A simple definition of flooding is water where it is not wanted. Floods can have both positive and negative impacts. They can bring welcome relief for people and ecosystems suffering from prolonged drought, but also are estimated to be the most costly natural disaster in Australia.

Every year in Australia, floods cause millions of dollars damage to buildings and critical infrastructure, such as roads and railways as well as to agricultural land and crops. They also disrupt business and can affect the health of communities.

The losses due to flooding vary widely from year to year and are dependent on a number of factors such as the severity of a flood and its location. If a flood occurred, it could destroy homes and damage the property particularly those who reside in low lying inland areas and coastal areas due to water entrapment. By its nature, the flood waters are delivered directly to an area by heavy rains or by rivers, streams, creeks or over ground movement of waters to low lying catchments.

ELEMENTS AT RISK

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Reputation Tourism	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Contamination Bush Lands Wetlands Water Table Parks/Reserves Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial Clean up Insurance	Communications Power Water Gas Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System Local Govt	Death Permanent Injury Serious Injury Minor Injury Illness Isolation Disease Clean-up Volunteers Welfare plan(DCP) Local Govt (Resources)	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational Local Govt Fences	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship Isolation C.A.L.D Sporting events D.C.P

CONTROLS/TREATMENTS

PPRR

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: HAZARDOUS MATERIALS / CHEMICAL SPILL

At all times of the year there is significant transportation of hazardous materials on major roads, the use and storage of chemicals on hobby farms, the use of hazardous materials in commercial/industrial facilities and the storage of hazardous materials in other areas throughout the City of Cockburn. Due to the volume of hazardous materials travelling through, being used and stored within the City of Cockburn, there is a serious concern of a hazardous material incident occurring. As hazardous materials are used for a variety of purposes within the City of Cockburn, the impact of an incident would have varying consequences on the community and the environment dependent upon the hazardous material type, the size of the incident, the location of the incident, etc. There are no known records of the community being affected by a hazardous materials incident.

The Department of Commerce through its Resources Safety Division deals with storage and transport of Hazardous Chemicals. All applications are authorised by the department with any relevant licenses being issued. The City of Cockburn is notified of any application and license or amendment to current licenses to ensure local statutory planning requirements are met. The department regulates specified transport routes for hazardous materials and issues Guidance Notes to ensure correct transport methods are adhered to.

ELEMENTS AT RISK

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Reputation	Flora & Fauna Flora & Fauna Habitat Erosion Pollution/Air Quality Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Fire Impacts Waste Dumping Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Power Water Gas Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Permanent Injury Serious Injury Minor Injury Illness Isolation Evacuation of people Health conditions	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational Clean up	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship Sporting events etc Isolation C.A.L.D

CONTROLS/TREATMENTS

PPRR

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: HUMAN EPIDEMIC

The World Health Organisation (WHO) and the Dept of Health (DOH) monitors the ongoing threat of global human influenza pandemics. An influenza pandemic occurs when a new influenza virus subtype to which there is little or no immunity emerges, which is easily spread between humans and is capable of causing severe disease in humans. In the absence of immunity, the new subtype can spread rapidly across the globe, causing worldwide epidemics or pandemics, with high numbers of cases and deaths.

Previous influenza pandemics, including three during the 20th century, have caused large-scale illness, death and adverse socio-economic impacts worldwide. The WHO conservatively estimates that 40 million people worldwide died from the "Spanish" flu during 1918-19, and one million people died from the "Hong Kong" flu of 1968-69. The highly pathogenic avian influenza virus known as H1N1 is a public health concern because of its potential to transform into a pandemic strain. As long as the virus continues to circulate in birds and animals, there will be opportunities for this virus to change and adapt to humans. Of course it is now evident that a virus called by many as Swine Flu Pandemic has impacted the world's population causing many deaths to those that were vulnerable. Prevention measures are now in place with the use of an anti viral injection to mitigate the effects of a possible second wave.

ELEMENTS AT RISK						
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Cessation of business Restricted business trading Business closure Reputation	Corpse disposal Quarantine of eco systems	Primary Secondary Service Sector Marine Commercial Business continuity Disruption	Hospitals Medical facilities Fever clinics Local Govt: - Community services Crematoriums	Death Permanent Injury Serious Injury Minor Injury Illness C.A.L.D Welfare Quarantine H.A.C.C	H.A.C.C Local Govt	Social Networks Dislocation of the community Sporting Burials (religious)
CONTROLS/TREATMENTS						
PPRR						

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: MARINE OIL POLLUTION

Australia's National Plan to Combat Pollution of the Sea by Oil and Other Noxious and Hazardous Substances (the National Plan) is a national integrated Government and industry organisational framework enabling effective response to marine pollution incidents. The Australian Maritime Safety Authority (AMSA) manages the National Plan, working with State/Northern Territory (NT) governments and the shipping, oil, exploration and chemical industries, emergency services and fire brigades to maximize Australia's marine pollution response capability.

Heavy metals derived from industrial pollution have also caused problems in Cockburn Sound in the past. However, a recent survey by the Western Australian Environment Protection Authority (WAEPA) shows that levels of all pollutants discharged into Cockburn Sound have decreased dramatically over the last 10 years as a result of better waste treatment and control. However if marine oil pollution occurred in the City of Cockburn, it may impact on the environment in terms of local fauna and flora, killing native birds and wildlife, contaminating delicate eco systems along the coast line.

ELEMENTS AT RISK						
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Reputation Eco Tourism	Flora & Fauna (Marine) Flora & Fauna Habitat Pollution Toxic Waste Contamination Waste Dumping Marine life and mammals Fish and other marine life Marine habitat	Primary Secondary Service Sector Marine Commercial Tourism Clean up Marine Transport Land transport	Port Authority	Death Permanent Injury Serious Injury Minor Injury Illness Social Disorder	Pleasure boat Ramps and facilities	Parks/Reserves Ocean recreation Pleasure craft, boating etc Water sports and activities Media
CONTROLS/TREATMENTS						
PPRR						

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: RAIL EMERGENCY

The Public Transport Authority (PTA) manages on behalf of the State Government an electrified rail network that passes through and adjacent to the City of Cockburn. Daily thousands of commuters travel to various destinations along the rail line, primarily during peak travel times to and from the CBD. Whilst the PTA has well developed response plans to meet the needs of a rail accident on this line, the CoC needs to be aware of the vehicle traffic impact that would occur and its roads if an accident occurred. The possible diversion of all freeway traffic to local streets.

ARG is the dominant rail haulage provider in Australia's largest bulk commodity markets. They operate bulk freight rail services in Western Australia for clients in the mining and agricultural sectors. The key ARG rail products are iron ore, alumina, metal concentrates, grain, sugar, fuel, lead, copper, sulphur and dangerous goods.

The rail infrastructure network, as provided by WestNet Rail and has 830km of signaled track with the balance of the network under Train Order working. En route to and from Fremantle Port laden ARG freight trains regularly pass through the residential areas of Bibra Lake and South Beach and the industrial areas of Coogee and Henderson.

ELEMENTS AT RISK

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss	Flora & Fauna Flora & Fauna Habitat Pollution Toxic Waste Contamination Bush Lands Wetlands Parks/Reserves Native Animals Ground Water	Primary Secondary Service Sector Commercial Hospital/Medical industry	Communications Power Gas Rail/Road Bridges Drainage System Rail crossings ARG WestNet	Death Permanent Injury Serious Injury Minor Injury Illness P.T.S.D C.A.L.D	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational	Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

CONTROLS/TREATMENTS

PPRR

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: ROAD TRANSPORT EMERGENCY

Australia relies heavily on its roads to transport both goods and passengers over huge distances. There is increasing use of our highways and roads by large trucks, buses and small passenger vehicles. Trucks carry all manner of goods including hazardous materials and dangerous goods which potentially add another dimension to traffic accidents. Accidents include all combinations of trucks, busses, trains and stationary objects and have the potential to cause death, serious injury, infrastructure and environmental damage. Road transport accidents are a constant risk to all communities.

A consideration when assessing the impact of Road Transport emergencies is not that of just injury or death but also that of the effects to the CoC if a major road or the freeway needed to be diverted through the local streets. We only need to look back a few years ago to the grid lock that affected Perth from a burst water main incident near the Narrows Bridge to understand that the mass volume of traffic utilising the major road network could cause an emergency within our community.

There are four key road transport routes that increase the risk of a road transport accident in The City of Cockburn, namely:

- * Kwinana Freeway
- * Cockburn Road
- * Stock Road
- * Rockingham Road
- * Roe Highway

ELEMENTS AT RISK

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss	Flora & Fauna Flora & Fauna Habitat Pollution Toxic Waste Contamination Bush Lands Wetlands Parks/Reserves Fire Impacts Native Animals Ground water	Primary Secondary Service Sector Marine Commercial Hospital/Medical industry	Communications Power Water Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Permanent Injury Serious Injury Minor Injury Illness P.T.S.D C.A.L.D Road Management plan	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational	Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship

CONTROLS/TREATMENTS

PPRR

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: SEVERE STORM

On the Australian continent severe weather can range from isolated thunderstorms to intense low pressure systems affecting thousands of square kilometres. Large scale deep low pressure systems cause widespread flash flooding and gale to storm force winds extending over 400 to 1,000 square kilometers. Synoptic storms are capable of causing the most extensive damage of all severe weather events. The level of damage is generally locally minor and mainly affects vegetation and structures which are vulnerable due to local acceleration of the wind over topography, but can affect large parts of the country.

Storms may affect the whole of the City of Cockburn on a yearly basis. They occur throughout the year, though they are generally during the winter months. Wind and hail damage can occur. Wind gusts can exceed 100kph with varying degrees of damage to property and the environment often occurs.

The Bureau of Meteorology (BOM) produces daily weather forecasts and predictions for the public. Awareness (mitigation) is also undertaken by FESA via print and electronic media by promoting hazard reduction (reduction of loose items around properties, tree trimming, etc) and through weather warnings. The City of Cockburn undertakes drainage maintenance to reduce the risk of flooding, conducts verge maintenance under power lines to reduce power interference from trees

ELEMENTS AT RISK

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Contamination Bush Lands Wetlands Parks/Reserves Fire Impacts Native Animals	Primary Secondary Service Sector Marine Commercial Local Govt Clean up	Communications Power Water Gas Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System Local Govt Facilities	Death Permanent Injury Serious Injury Minor Injury Illness Isolation Relocation C.A.L.D D.C.P - welfare Disease Volunteers	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational Local Govt Buildings	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship Isolation C.A.L.D Volunteers Families Sporting clubs

CONTROLS/TREATMENTS

PPRR

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: TERRORISM

Australia and particularly Western Australia has limited exposure to terrorist activities and thus possesses a moderate threat level. Threat levels are continually monitored and adjusted as determined by Federal and State Government Agencies. One of the difficulties in dealing with a terrorist threat is that actual targets are unknown until the actual event, which may occur in any number of forms and may include targets such as human life, damage and destruction of infrastructure and contamination.

There are significant assets within the City of Cockburn, which could be considered "at risk". These would include the Port Coogee coastal development, Jandakot Airport, major road and rail transportation routes i.e. Kwinana Freeway, Rockingham, Cockburn and Stock Roads, Communication and Heritage Sites. There are also a number of key infrastructure utilities such as Western Power, Telecommunications and Radio networks. These assets and others not mentioned in this document may have a local, regional, state and national significance.

ELEMENTS AT RISK

ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Reputation Tourism		Primary Secondary Service Sector Marine Commercial	Communications Power Water Gas Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Permanent Injury Serious Injury Minor Injury Illness Civil Disorder P.T.S.D	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship Civil Disorder P.T.S.D

CONTROLS/TREATMENTS

PPRR

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: TSUNAMI

Australia and particularly Western Australia has limited exposure to terrorist activities and thus possesses a moderate threat level. Threat levels are continually monitored and adjusted as determined by Federal and State Government Agencies. One of the difficulties in dealing with a terrorist threat is that actual targets are unknown until the actual event, which may occur in any number of forms and may include targets such as human life, damage and destruction of infrastructure and contamination. There are significant assets within the City of Cockburn, which could be considered "at risk". These would include the Port Coogee coastal development, Jandakot Airport, major road and rail transportation routes i.e. Kwinana Freeway, Rockingham, Cockburn and Stock Roads, Communication and Heritage Sites. There are also a number of key infrastructure utilities such as Western Power, Telecommunications and Radio networks. These assets and others not mentioned in this document may have a local, regional, state and national significance.

ELEMENTS AT RISK						
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Tourism	Flora & Fauna Flora & Fauna Habitat Erosion Pollution Toxic Waste Salinity Contamination Bush Lands Wetlands Water Table Parks/Reserves Native Animals	Primary Secondary Service Sector Marine Commercial	Communications Power Water Gas Rail/Road Street Lighting Footpaths Bridges Drainage System Sewerage System	Death Permanent Injury Serious Injury Minor Injury Illness Contagious diseases Media PTSD DCP - welfare plan Isolation	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational	Social Networks Walk/Riding Trails Parks/Reserves Heritage Buildings Places of Worship Media Isolation Sporting events
CONTROLS/TREATMENTS						
PPRR						

IDENTIFICATION AND DESCRIPTION OF SOURCES OF RISK

Source of Risk: URBAN FIRE

Urban Fires occur occasionally within the City of Cockburn with varying degrees of damage incurred. The fires can involve commercial, industrial and residential structures at any time. Structure fires can begin from a source within a structure (e.g. candle or heater in a house, chemical reaction in a shed, etc) or from an external source (e.g. bush fire, paddock fire or spread from another urban fire, etc). They are generally isolated incidents, Urban fires can become very intense fires extremely quickly, dependent on fuel availability, weather conditions, etc. Urban fire can occur at any time of the day or night and may be controlled quickly dependent upon what the fuel source is. The City of Cockburn and FESA promote community awareness (e.g. candle education, installation of smoke alarms, etc) and hazard reduction (e.g. internally: keep heating appliances away from flammable goods; externally: reduce fuel loads around structures) within and around structures. The building Code of Australia, through the City of Cockburn Planning processes, enables the achievement and maintenance of acceptable standards of structural sufficiency, safety (including safety from fire), health and amenity throughout Australia

ELEMENTS AT RISK						
ECONOMY	ENVIRONMENT	INDUSTRY	INFRASTRUCTURE	PEOPLE	PROPERTY	SOCIAL & CULTURAL
Major Financial Loss Moderate Financial Loss Minor Financial Loss Bankruptcy Public: - liability - Insurance	Flora & Fauna Flora & Fauna Habitat Pollution Toxic Waste Contamination Bush Lands Wetlands Parks/Reserves Fire Impacts Native Animals Ground water	Primary Secondary Service Sector Marine Commercial Clean up	Communications Power Gas Rail/Road Street Lighting Footpaths Bridges	Communications Power Gas Rail/Road Street Lighting Footpaths Bridges	Residence Sheds Vehicles Structures Vehicles Produce Structures Recreational	Social Networks Parks/Reserves Heritage Buildings Places of Worship Recreational
CONTROLS/TREATMENTS						
PPRR						

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Appendix 13
Risk Treatment Plans



**CITY OF COCKBURN
EMERGENCY RISK MANAGEMENT
“RISK TREATMENT PLANS”**

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Recommended Treatment Plan 1 – Air Transport Emergency (People)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	1	
Air Transport Emergency	Extreme 15	1	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that if an aircraft flying from/to Jandakot Airport and/or Perth Domestic/International airports across residential, commercial and/or industrial areas/ people, animals and/or pets may be injured, may become ill and/or be killed from the impact and exposure to toxic fumes, fires and smoke resulting from the falling/flying plane debris.					
RISK ANALYSIS:					
At Risk		Source			
<ul style="list-style-type: none"> * Aircraft occupants * General public living/working within impact zones * Animals & pets living within impact zones * Motorists driving through impact zones * Sightseers 		<ul style="list-style-type: none"> * Pilot error/medical condition * Mechanical and/or electrical aircraft failure * Sabotage/vandalism arising from poor airport security * Terrorist attack * Aircraft collisions 			
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
<ul style="list-style-type: none"> * Civil Aviation Safety Authority (CASA) * City of Cockburn (COC) 		<ul style="list-style-type: none"> * WA Police (WAPOL) 	<ul style="list-style-type: none"> * Fire Emergency Services Authority (FESA) * Local Emergency Management Committee (LEMC) * JAH – Jandakot Airport Holdings 		
EXISTING CONTROLS:			AGENCY:		
* Legislation, Regulations and Planning Approval for Airfields			* CASA/COC		
* Pilots are medically assessed, undergo strict training and are proficiency certified/registered			* CASA		
* Aircraft access is protected by controlled right of entry and fencing			* JAH		
* Aircraft flight paths are approved/ Aircraft are monitored when entering designated airspace			* CASA		
* Aircraft are regularly maintained & serviced			* CASA		
* Regular multi-agency exercise are undertaken to test response plans and recovery strategies			* LEMC/COC/WAPOL		
* Integrated communication systems & network			* LEMC/COC/WAPOL		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop specific awareness campaigns for people living/working within impact zones			* COC/FESA		
* Develop specific emergency response strategies resulting from residential aircraft emergencies			* CASA/FESA/WAPOL		
* Enforcement of strict aircraft maintenance and production of completed schedules			* CASA		
* Randomly test pilots for legislative compliance and competency			* CASA		
* Develop specific exposure & resident announcement strategies including response guidelines			* FESA/COC/DOH		
* WestPlan: Air Transport Emergencies			* WAPOL		
IMPLEMENTATION SCHEDULE:		BUDGET CONSIDERATIONS:			
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 2 – Air Transport Emergency (Property)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	2	
Air Transport Emergency	Extreme 16	3	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that if an aircraft collision/crashed occurred in a residential, commercial and/or industrial area, fire and/or explosion may occur and cause permanent or significant private, commercial and public property damage. Buildings directly impacted and surrounding buildings may be destroyed/damaged from flying debris and/or the impact of collision					
RISK ANALYSIS:					
At Risk		Source			
<ul style="list-style-type: none"> * Residential, commercial and/or industrial property * Heritage Buildings and Places of Worship * Recreation, caravan and/or sporting sites/centres * Public Transport buildings i.e. Cockburn Central Railway Stn * Tourist Attractions 		<ul style="list-style-type: none"> * Pilot error/medical condition * Mechanical and/or electrical aircraft failure * Sabotage/vandalism arising from poor airport security * Terrorist attack * Aircraft collisions 			
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
<ul style="list-style-type: none"> * Civil Aviation Safety Authority (CASA) 		<ul style="list-style-type: none"> * WA Police (WAPOL) * City of Cockburn (COC) 	<ul style="list-style-type: none"> * Fire Emergency Services Authority (FESA) * Local Emergency Management Committee (LEMC) * JAH – Jandakot Airport Holdings 		
EXISTING CONTROLS:			AGENCY:		
* Legislation, Regulations and Planning Approval for Airfields			* CASA/COC		
* Pilots are medically assessed, undergo strict training and are proficiency certified/registered			* CASA		
* Aircraft access is protected by controlled right of entry and fencing			* JAH		
* Aircraft flight paths are approved/Aircraft are monitored when entering designated airspace			* CASA		
* Aircraft are regularly maintained & serviced			* CASA		
* Regular multi-agency exercise are undertaken to test response plans and recovery strategies			* LEMC/COC/WAPOL		
* Integrated communication systems & network			* LEMC/COC/WAPOL		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop specific awareness campaigns for people living/working within impact zones			* COC/FESA		
* Develop specific emergency response strategies resulting from property aircraft emergencies			* CASA/FESA/WAPOL		
* Enforcement of strict aircraft maintenance and production of completed schedules			* CASA		
* Randomly test pilots for legislative compliance and competency			* CASA		
* Develop specific exposure & property owner announcement strategies inc. response guidelines			* FESA/COC		
* WestPlan: Air Transport Emergencies			* WAPOL		
IMPLEMENTATION SCHEDULE:		BUDGET CONSIDERATIONS:			
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 3 – Animal Pest & Plant Biosecurity (Environment)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	3	
Animal Pest & Plant Biosecurity	Extreme 25	5	DATE:	12 November 2009	
RISK STATEMENT:					
There is a risk that if an outbreak of animal and plant disease occurred, permanent environmental damage may occur. The City of Cockburn has approximately 4,760ha of bush land within the region of which 593ha is located in the Manning Park, CY O'Connor Reserve and Beelihar, Woodman Point and Jandakot Regional Parks. Widespread Animal Pest & Plant Disease may cause significant environmental damage to the various bush land occupants.					
RISK ANALYSIS:					
At Risk	Source				
* Natural flora and fauna * Native animals, wildlife, birds and horses * Livestock, poultry, horticultural crops * Exotic animals, aquatic plants & fish * Vegetables, ground crops and fruit * Animals & pets	* Vessel ballast and bio-fouling * Natural phenomena: insect pests, fungal disease * Island hoppers: screw worm fly, fruit pests, tropical diseases * Tourism: human, plant and animal diseases * Introduced pasture plants: weed and pests * Cut flower imports: insect pest, diseases * Wood imports - furniture: insect pests * Aquarium trade: pest fish, fish diseases, aquatic weeds * Scientific & germplasm imports * Introduced pasture plants: weed and pests				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* Dept. of Environment & Conservation (DEC) * Dept. of Food and Agriculture (DFA)	* WA Police (WAPOL) * City of Cockburn (COC)	* Fire Emergency Services Authority (FESA) * Aust. Quarantine & Inspection Service (AQIS) * Dept. of Agriculture, Fisheries & Forestry (DAFF)			
EXISTING CONTROLS:			AGENCY:		
* State Quarantine programs (not responsible for National programs)			* DFA/DAFF		
* Pest and Disease surveillance and controls			* DFA/DAFF		
* Livestock identification and branding			* DFA/DAFF		
* Zoning and Movement controls			* DFA/DAFF		
* Diagnostic services			* DFA/DAFF		
* Call centres			* DFA/DAFF		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop specific awareness campaigns for industries working with animals/plants			* DFA/DAFF		
* Develop zoning and movement control scales for specific Biosecurity outbreaks			* DFA/DAFF		
* Randomly audit industry for legislative compliance and Biosecurity control			* DFA/DAFF		
* Develop local government register for at risk farms, businesses etc			* DFA/COC		
* Increase penalties for non-compliance			* DFA/DAFF		
* WestPlan: Animal Pest & Plant Biosecurity			* DFA/DAFF		
IMPLEMENTATION SCHEDULE:		BUDGET CONSIDERATIONS:			
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 4 – Animal Pest & Plant Biosecurity (Economy)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	4	
Animal Pest & Plant Biosecurity	Extreme 16	6	DATE:	12 November 2009	
RISK STATEMENT:					
There is a risk that if an outbreak of animal and plant disease occurred, permanent economic damage to local businesses may occur. Local businesses that work with animals, plants and/or depend upon animal/plant derivatives may have to suspend trading or even close permanently. This could have a devastating effect on the local economy that could see businesses incur financial hardship/loss and/or even enter receivership.					
RISK ANALYSIS:					
At Risk	Source				
* Garden and other nurseries * Poultry Farms * Hobby Farms * Market Gardens * Horticulturalists/Florists * Furniture Manufacturers/Retailers	* Vessel ballast and bio-fouling * Natural phenomena: insect pests, fungal disease * Island hoppers: screw worm fly, fruit pests, tropical diseases * Tourism: human, plant and animal diseases * Introduced pasture plants: weed and pests * Cut flower imports: insect pest, diseases * Wood imports - furniture: insect pests * Aquarium trade: pest fish, fish diseases, aquatic weeds * Scientific & germplasm imports * Introduced pasture plants: weed and pests				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* Dept. of Environment & Conservation (DEC) * Dept. of Food and Agriculture (DFA)	* WA Police (WAPOL) * City of Cockburn (COC)	* Fire Emergency Services Authority (FESA) * Aust. Quarantine & Inspection Service (AQIS) * Dept. of Agriculture, Fisheries & Forestry (DAFF)			
EXISTING CONTROLS:			AGENCY:		
* State Quarantine programs (not responsible for National programs)			* DFA		
* Pest and Disease surveillance and controls			* DFA/DAFF		
* Livestock identification and branding			* DFA/DAFF		
* Zoning and Movement controls			* DFA/DAFF		
* Diagnostic services			* DFA/DAFF		
* Call centres			* DFA/DAFF		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop specific awareness campaigns for industries working with animals/plants			* DFA/DAFF		
* Develop zoning and movement control scales for specific Biosecurity outbreaks			* DFA/DAFF		
* Randomly audit industry for legislative compliance and Biosecurity control			* DFA/DAFF		
* Develop local government register for at risk farms, businesses etc			* COC/DFA		
* Increase penalties for non-compliance			* DFA/DAFF		
* WestPlan: Animal Pest & Plant Biosecurity			* DFA		
IMPLEMENTATION SCHEDULE:		BUDGET CONSIDERATIONS:			
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 5 – Animal Pest & Plant Biosecurity (Industry)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	5	
Animal Pest & Plant Biosecurity	Extreme 16	4	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that if an outbreak of animal and plant disease occurred, industries that provide animal and plant products and services, such as egg farms, poultry breeding farms, plant nurseries, furniture manufacturers, seafood processing etc may be impacted due to an outbreak and subsequent closure or loss of stock. Retail businesses dependent on these industries will also be affected due to reduction in products and services being received.					
RISK ANALYSIS:					
At Risk	Source				
* Garden and other nurseries * Poultry Farms * Hobby Farms * Market Gardens * Horticulturalists/Florists * Furniture Manufacturers/Retailers	* Vessel ballast and bio-fouling * Natural phenomena: insect pests, fungal disease * Island hoppers: screw worm fly, fruit pests, tropical diseases * Tourism: human, plant and animal diseases * Introduced pasture plants: weed and pests * Cut flower imports: insect pest, diseases * Wood imports - furniture: insect pests * Aquarium trade: pest fish, fish diseases, aquatic weeds * Scientific & germplasm imports * Introduced pasture plants: weed and pests				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* Dept. of Environment & Conservation (DEC) * Dept. of Food and Agriculture (DFA)	* WA Police (WAPOL) * City of Cockburn (COC)	* Fire Emergency Services Authority (FESA) * Aust. Quarantine & Inspection Service (AQIS) * Dept. of Agriculture, Fisheries & Forestry (DAFF)			
EXISTING CONTROLS:			AGENCY:		
* State Quarantine programs (not responsible for National programs)			* DFA/DAFF		
* Pest and Disease surveillance and controls			* DFA/DAFF		
* Livestock identification and branding			* DFA/DAFF		
* Zoning and Movement controls			* DFA/DAFF		
* Diagnostic services			* DFA/DAFF		
* Call centres			* DFA/DAFF		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop specific awareness campaigns for industries working with animals/plants			* DFA/DAFF		
* Develop zoning and movement control scales for specific Biosecurity outbreaks			* DFA/DAFF		
* Randomly audit industry for legislative compliance and Biosecurity control			* DFA/DAFF		
* Develop local government register for at risk farms, businesses etc			* DFA/COC		
* Increase penalties for non-compliance			* DFA/DAFF		
* WestPlan: Animal Pest & Plant Biosecurity			* DFA		
IMPLEMENTATION SCHEDULE:		BUDGET CONSIDERATIONS:			
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 6 – Bushfire (People)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	6	
BUSHFIRE	Extreme 25	1	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that if a bushfire occurred, it may cause injury or death to people. People residing in bush land areas such as at Jandakot, Banjup, Wattleup, Hammond Park and Aubin Grove may require assistance. Occurrences of smoking embers, dirt and dust may litter the City of Cockburn causing an onset of respiratory conditions and increased demand on medical services. Medication supplies could run out whilst some people may be stranded. Many pets may become homeless or be killed.					
RISK ANALYSIS:					
At Risk	Source				
* Residents living within close proximity to bush land reserves: • Banjup • Bibra Lake • Coogee • Jandakot • Wattleup * Close neighbours to above mentioned areas * General public within the vicinity of a bushfire * General public within reserves at onset of a bushfire * Motorists from road accidents resulting from smoke or response activity * Sightseers congregating to observe bushfire and response activity * Passers-by	* Build up of fuel loadings in close proximity to residential homes * Failure to heed early warnings or no early warning alarm system in place * Failure to undertake adequate seasonal precautionary measures * Ember, smoke and/or ash attack from nearby bush land * Fire Service personnel and equipment unable to access incident properties * Lack of public information on fires and/or fire exit routes * Lack of road signage and police presence to control traffic at fire initiation * Lack of public information on emergency situations protocol * Lack of public control at fire initiation * Erratic weather and/or fire conditions * Arson				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* Department of Environment and Conservation (DEC) * City of Cockburn (COC)	* WA Police (WAPOL) * Dept. for Child Protection (DCP)	* Fire Emergency Services Authority (FESA) * Local Emergency Management Committee (LEMC)			
EXISTING CONTROLS:			AGENCY:		
* Reserve fuel reduction strategy to reduce hazardous burning			* COC		
* Fuel reduction buffer zones adjacent to residential areas			* COC		
* Strict enforcement of Bush Fires Act and Local Laws pertaining to lighting of fires and fuel reduction			* COC		
* Early FESA and LG Bush Fire Services response			* FESA/COC		
* Fire Fighting personal are well trained & regularly undergo training courses to provide local area response			* FESA/COC		
* Regular multi-agency exercise are undertaken to test response plans and recovery strategies			* LEMC/FESA		
* Integrated communication systems & network			* LEMC/COC/FESA		
* Effective "All Hazards" early warning alarm system			* FESA/WAPOL		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop fire management mapping and implement into EM arrangement			* SLIP/COC		
* Develop fire prevention/suppression strategies			* COC/FESA		
* Develop specific awareness/preparedness campaigns for residential areas adjacent to reserves and bush land			* COC/FESA		
* Investigate Town Planning applications for residential areas adjacent to reserves and bush land			* COC		
* Develop specific reserves Fire Response Strategy (Pre-Plans)			* FESA/COC		
* Develop specific bush land reserves Fire Management Strategy			* COC/DEC		
* Develop Metropolitan fuel loading burn-off program			* FESA/DEC		
* Implementation of Welfare Plan			* DCP/COC		
* WestPlan: Fire (wildfire/bushfire)			* FESA/DEC/WALGA		
IMPLEMENTATION SCHEDULE:		BUDGET CONSIDERATIONS:			
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 7 – Bushfire (Property)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	7	
BUSHFIRE	Extreme 25	3	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that if a bushfire occurred, it could destroy homes and damage property particularly those who reside in bush land areas such as at Jandakot, Banjup, Wattleup, Hammond Park and Aubin Grove. Demolition of property may be necessary. Shopping centres situated at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill could be threatened whilst businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson could also be affected. Supply of products, foods and services may be disrupted. Demolition of private, commercial and public properties may be necessary					
RISK ANALYSIS:					
At Risk	Source				
* Residential, commercial and industrial property situated within close proximity to bush land reserves * Close neighbours to above mentioned areas * Public Structures/Buildings * Recreational Sites * Heritage Buildings * Places of Worshi	* Build up of fuel loadings in close proximity to residential, commercial and industrial property * Failure to undertake adequate seasonal precautionary measures * Ember attack from nearby bush land (e.g. evaporative air conditioners) * Fire Service personnel and equipment unable to access properties * Arson				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* Department of Environment and Conservation (DEC) * City of Cockburn (COC)	* WA Police (WAPOL) * Dept. for Child Protection (DCP)	* Fire Emergency Services Authority (FESA) * Local Emergency Management Committee (LEMC)			
EXISTING CONTROLS:			AGENCY:		
* Reserve fuel reduction strategy to reduce hazardous burning			* COC/FESA		
* Fuel reduction buffer zones adjacent to residential areas			* COC/FESA		
* Strict enforcement of Bush Fires Act and Local Laws pertaining to lighting of fires and fuel reduction			* COC		
* Early FESA and LG Bush Fire Services response			* FESA/COC		
* Fire Fighting personal are well trained and regularly undergo training courses to provide local area response			* FESA/COC		
* Regular multi-agency exercise are undertaken to test response plans and recovery strategies			* LEMC/FESA/COC		
* Integrated communication systems & network			* COC/FESA		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop fire management mapping and implement into EM arrangement			* LEMC/COC		
* Develop fire prevention/suppression strategies			* COC/FESA		
* Develop specific awareness/preparedness campaigns for residential areas adjacent to reserves and bush land			* COC/FESA		
* Develop specific reserves Fire Response Strategy (Pre-Plans)			* FESA		
* Develop specific bush land reserves Fire Management Strategy			* COC/DEC		
* Develop Metropolitan fuel loading burn-off program			* FESA/DEC/WALGA		
* WestPlan: Fire (wildfire/bushfire)			* FESA/DEC/ COC		
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 8 – Bushfire (Environment)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	8	
BUSHFIRE	Extreme 25	5	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that if a bushfire occurred, large areas of bushland may be destroyed. The City of Cockburn has approximately 4,760ha of bush land within the region of which 593ha is located in the Beeliiar, Woodman Point and Jandakot Regional Parks. Widespread environmental damage may also destroy plants, native animals, horticulture and flora and fauna situated in the CY O'Connor Reserve, Manning Park and Woodman Point, Jandakot and Beeliiar Regional Parks. Animals and wildlife may become homeless.					
RISK ANALYSIS:					
At Risk	Source				
* Natural flora and fauna * Native animals, wildlife, birds and horses * Livestock, poultry, horticultural crops * Exotic animals, aquatic plants & fish * Vegetables, ground crops and fruit * Animals & pets	* Build up of fuel loadings in close proximity to residential homes * Failure to heed early warnings or no early warning alarm system in place * Failure to undertake adequate seasonal precautionary measures * Ember attack from nearby bush land (e.g. evaporative air conditioners) * Fire Service personnel and equipment unable to access rear of properties * Arson				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* Department of Environment and Conservation (DEC) * City of Cockburn (COC)	* WA Police (WAPOL) * Dept. for Child Protection (DCP)	* Fire Emergency Services Authority (FESA) * Local Emergency Management Committee (LEMC)			
EXISTING CONTROLS:			AGENCY:		
* Reserve fuel reduction strategy to reduce hazardous burning			* COC/DEC		
* Fuel reduction buffer zones adjacent to residential areas			* COC/DEC		
* Strict enforcement of Bush Fires Act and Local Laws pertaining to lighting of fires and fuel reduction			* COC		
* Early FESA and LG Bush Fire Services response			* FESA		
* Fire Fighting personal are well trained and regularly undergo training courses to provide local area response			* FESA		
* Regular multi-agency exercise are undertaken to test response plans and recovery strategies			* LEMC/FESA		
* Integrated communication systems & network			* LEMC/COC/FESA		
* Effective "All Hazards" early warning alarm system			* FESA		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop fire management mapping and implement into EM arrangement			* LEMC/COC		
* Develop fire prevention/suppression strategies			* COC		
* Develop specific awareness/preparedness campaigns for residential areas adjacent to reserves and bush land			* COC/FESA		
* Investigate Town Planning applications for residential areas adjacent to reserves and bush land			* COC		
* Develop specific reserves Fire Response Strategy (Pre-Plans)			* FESA		
* Develop specific bush land reserves Fire Management Strategy			* COC		
* Develop Metropolitan fuel loading burn-off program			* FESA		
* WestPlan: Fire (wildfire/bushfire)			* FESA/DEC/WALGA		
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 10 – Bushfire (Social & Cultural)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	10	
BUSHFIRE	Extreme 16	7	DATE:	12 November 2009	
RISK STATEMENT:					
There is a risk that if a bushfire occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult.					
RISK ANALYSIS:					
At Risk		Source			
<ul style="list-style-type: none"> * Social Networks * Walk/Riding Trails * Parks/Reserves * Heritage Buildings * Places of worship * Recreational Sites 		<ul style="list-style-type: none"> * Build up of fuel loadings in close proximity to Heritage Buildings/ Places of Worship * Failure to undertake adequate seasonal precautionary measures * Ember attack from nearby bush land (e.g. evaporative air conditioners) * Fire Service personnel and equipment unable to access impact areas * Arson 			
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
<ul style="list-style-type: none"> * Department of Environment and Conservation (DEC) * City of Cockburn (COC) 		<ul style="list-style-type: none"> * WA Police (WAPOL) * Dept. for Child Protection (DCP) 		<ul style="list-style-type: none"> * Fire Emergency Services Authority (FESA) * Local Emergency Management Committee (LEMC) 	
EXISTING CONTROLS:			AGENCY:		
* Reserve fuel reduction strategy to reduce hazardous burning			* COC/DEC		
* Fuel reduction buffer zones adjacent to residential areas			* COC/DEC		
* Strict enforcement of Bush Fires Act and Local Laws pertaining to lighting of fires and fuel reduction			* COC		
* Early FESA & LG Bush Fire Services response			* FESA/SES		
* Fire Fighting personal are well trained and regularly undergo training courses to provide local area response			* FESA/COC		
* Regular multi-agency exercise are undertaken to test response plans and recovery strategies			* LEMC/FESA		
* Integrated communication systems & network			* WAPOL/FESA		
* Effective "All Hazards" early warning alarm system			* FESA/WAPOL		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop fire management mapping and implement into EM arrangement			* LEMC/COC		
* Develop fire prevention/suppression strategies			* COC/FESA		
* Develop specific awareness/preparedness campaigns for residential areas adjacent to reserves and bush land			* COC/FESA		
* Investigate Town Planning applications for residential areas adjacent to reserves and bush land			* COC/DEC		
* Develop specific reserves Fire Response Strategy (Pre-Plans)			* FESA/COC		
* Develop specific bush land reserves Fire Management Strategy			* COC/DEC		
* Develop Metropolitan fuel loading burn-off program			* FESA/DEC		
* WestPlan: Fire (wildfire/bushfire)			* FESA/DEC/WALGA		
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 11 – Cyclone (Property)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	11	
Cyclone	Extreme 15	3	DATE:	12 November 2009	
RISK STATEMENT:					
There is a risk that if a cyclone occurred, it could cause flooding, destroy homes and damage property particularly those located in coastal areas such as at Woodman Point Caravan Park, Coogee Beach Caravan Park, South Beach and Port Coogee. Evacuation of people and pets may be necessary. Property could be damaged and/or destroyed including shopping centres situated at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted.					
RISK ANALYSIS:					
At Risk		Source			
<ul style="list-style-type: none"> * Residential, commercial and industrial property situated within close proximity to coastal areas * Property owners closely situated to above mentioned areas * Public Structures/Buildings * Recreational/Tourist Sites * Heritage Buildings * Places of Worship 		<ul style="list-style-type: none"> * Global Warming * Climate Change * Southern Hemisphere Tropical Zones * Very low atmospheric pressure systems * El Nino/La Nina events * Storm Surge 			
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
<ul style="list-style-type: none"> * State Emergency Service (SES) 		<ul style="list-style-type: none"> * WA Police (WAPOL) * City of Cockburn (COC) 		<ul style="list-style-type: none"> * Fire Emergency Services Authority (FESA) * Local Emergency Management Committee (LEMC) 	
EXISTING CONTROLS:			AGENCY:		
* Public Awareness & Education Campaigns			* FESA/COC		
* Information website			* COC		
* Strict enforcement of Building Code and Authority Standards pertaining to coastal developments			* COC		
* Early FESA Cyclone Services response			* FESA/SES		
* FESA personal are well trained & regularly undergo training courses to provide local area response			* FESA		
* Regular multi-agency exercise are undertaken to test response plans and recovery strategies			* LEMC/FESA		
* Integrated communication systems & network			* LEMC/COC/FESA		
* Effective "All Hazards" early warning alarm system			* FESA		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop cyclone management mapping and implement into EM arrangement			* LEMC/COC		
* Develop cyclone prevention/suppression strategies			* COC		
* Develop specific awareness/preparedness campaigns for coastal areas			* COC/FESA		
* Investigate planning applications for building code compliance in coastal area developments			* COC		
* Develop specific Cyclone Response Strategy (Pre-Plans)			* FESA		
* Develop specific Cyclone Management Strategy			* COC		
* WestPlan: Tropical Cyclone			* FESA		
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 12 – Environmental Disaster (Environment)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	12	
Environmental Disaster	Extreme 15	5	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk of contaminants and/or pollutants, including acidic soils, generated by an environmental disaster, impacting the environmental reserves of Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelir Regional Park that have eco, flora and fauna systems. There is a risk that if negative changes occurred to the natural environment eco flora and fauna may be significantly affected, destroyed or become extinct.					
RISK ANALYSIS:					
At Risk	Source				
* Natural flora and fauna * Native animals, wildlife, birds and horses * Livestock, poultry, horticultural crops * Exotic animals, aquatic plants & fish * Vegetables, ground crops and fruit * Animals & pets * Water table/wetlands/rivers and lakes	* Salinity/Drought/Heatwave/Dieback * Illegal burning/burn-off * Illegal waste dumping * Climate Change * Contamination/Pollution * Natural phenomena: insect pests, fungal/tropical disease * Tourism: human, plant and animal diseases				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* Dept. of Environment (DOE) * Dept. of Food & Agriculture	* WA Police (WAPOL) * City of Cockburn (COC)	* Fire Emergency Services Authority (FESA) * Aust. Quarantine & Inspection Service (AQIS) * Dept. of Agriculture, Fisheries & Forestry (DAFF)			
EXISTING CONTROLS:			AGENCY:		
* Legislation: - Bush Fires Act 1954: Health Act 1911: Environmental Protection Act 1986			* FESA/DEC		
* Prohibited Metropolitan fuel reduction/burn off			* COC		
* Public Awareness Campaigns			* COC		
* Controlled importation of at risk substances/animals/insects etc			* AQIS/ DOE/DOA		
* Desalination/re-vegetation and/or re-forestation programs			* DEC/DOA		
* Controlled monitoring of illegal waste dumping			* COC/ WAPOL		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop specific awareness campaigns for industries working with animals/plants/insects etc			* DEC		
* Develop educational programs for general public/ new migrants/tourists etc			* COC/DEC		
* Develop zoning and movement control zones for specific environmental disease outbreaks			* DEC		
* Randomly audit industry for legislative compliance and environmental control			* DEC		
* Develop local government register for at risk farms, businesses etc			* COC		
* Increase penalties for non-compliance			* DEC		
IMPLEMENTATION SCHEDULE:		BUDGET CONSIDERATIONS:			
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 13 – Hazardous Materials/Chemical Spill (People)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	13	
Hazardous Materials/Chemical Spill	Extreme 15	1	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that if a chemical/hazardous material spill occurred, illness, injury or death to people residing within the City of Cockburn may happen. The extent is dependent upon the location of the contamination, the climatic conditions and the nature, composition and amount of pollutant exposed to the general community. Many pets may also be affected, either becoming ill or dying.					
RISK ANALYSIS:					
At Risk	Source				
* Persons working with hazardous chemicals * General public living/working within impact zones * Animals & pets living within impact zones * Motorists /travelers driving through impact zones * Sightseers/Responders	* Chemically laden vehicles * Chemically laden trains * Industrial accident, sabotage, terrorist attack * Vehicle accidents and/or collisions * Train collision/derailment * During chemical loading/discharge/transfer				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* Dept. of Commerce (DC) * Department of Environment & Conservation (DEC)	* City of Cockburn (COC) * WA Police (WAPOL) * WestNet Rail (WN)	* Fire Emergency Services Authority (FESA) * Dept. for Child Protection (DCP) * Dept. of Health (DOH)			
EXISTING CONTROLS:				AGENCY:	
* Pollution/waste management and land use is monitored and controlled				* DEC	
* Chemically laden vehicles/trains must carry identifiable dangerous goods warnings /descriptions				* DEC/WAPOL	
* Employers must prepare Material Safety Data Sheets for transported dangerous goods				* DEC	
* Hazardous Emergency Advisory Team (HEAT) are on call 24 hours				* DC/DEC/DOH	
* HAZMAT education and awareness programs				* FESA	
* Regular inspections of all licensed premises to store Dangerous Goods				* FESA/DC	
* Licensing of dangerous goods storage, vehicles and drivers				* DC	
* Transport routes are specifically designed				* DEC/WAPOL	
RECOMMENDED TREATMENTS:				AGENCY:	
* Develop dangerous goods management mapping and implement into EM arrangement				* LEMC/COC	
* Develop dangerous goods identification/prevention/clean-up strategies				* COC	
* Develop specific awareness campaigns for dangerous goods storage/transport				* COC/DC	
* Investigate applications for dangerous goods storage/transport				* COC	
* Develop specific dangerous goods Response Strategy (Pre-Plans)				* FESA	
* Develop dangerous goods Management Strategy				* COC	
* Develop inter-agency communications				* FESA/DEC/DC	
* Implementation of Welfare Plan				* DCP	
* WestPlan: HAZMAT				* FESA	
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 14 – Human Epidemic (People)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	14	
Human Epidemic	Extreme 16	1	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that if an epidemic occurred, the 84,652 people that reside in the City of Cockburn would be at risk. Most vulnerable may be the aged groups 65+ years old and children aged less than 4 years old. Parts of the population vaccinated may have side effects and become ill or die. Quarantine of infected people will be enforced. Water supplies, drainage systems may become contaminated, therefore increasing the spread of disease There will also be a loss of domestic livestock and pets due to the lack of proper care as human carers may be unavailable.					
RISK ANALYSIS:					
At Risk	Source				
* People living/ working with or near infected animals/people * People living/working near contaminated water/food * Vulnerable age groups i.e. senior citizens/infant children * People/animals with underlying medical conditions * Non-immunized persons	* Visiting vessels disembarking crew/passengers * Insects/pests/animals/poultry/cattle/horses * Contamination/Pollution * Overseas/Intrastate/interstate visitors * Human infection * Global Pandemic				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* Royal Flying Doctor Service (RFDS) * Dept. of Health (DOH)	* WA Police (WAPOL) * City of Cockburn (COC)	* St John Ambulance (SJA) * Aust. Quarantine & Inspection Service (AQIS)			
EXISTING CONTROLS:				AGENCY:	
* Legislation: -Health Act 1911 & Quarantine Act 1908 (Commonwealth of Authority)				* DOH/AQIS	
* Collaboration with national and international health agencies on disease prevention and control activities, including quarantine procedures				* DOH	
* Health promotion and education programs				* DOH	
* Outbreak management programs, which require the rapid organisation of scientific investigations and application of disease control methods				* DOH	
* Notifiable disease surveillance programs, which alert health authorities to epidemics of preventable and controllable diseases				* DOH	
* Immunisation programs, which prevent vaccine-preventable diseases				* DOH	
* Monitoring programs, including food hygiene and water/sewerage treatment				* DOH	
RECOMMENDED TREATMENTS:				AGENCY:	
* Develop inventory of suitable quarantine centres				* COC	
* Develop stores of cleaning and disinfectant solutions to eliminate infectious agent/s				* COC	
* Develop specific cleaning and disinfectant strategies to distribute and eliminate infectious agent/s				* COC/DOH	
* Develop plans to restrict contamination, isolate infected humans & restrict human activity, social gathering & personal movement				* COC/DOH	
* Develop early warning system to notify community of contaminated food and/or water				* COC	
* Develop communication methods for health service providers, including medical practitioners and pathology laboratories, to report cases of notifiable diseases to DOH without delay if an epidemic is anticipated or suspected				* COC/DOH	
* WestPlan: Human Epidemic				* DOH	
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 15 – Human Epidemic (Economy)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	15	
Human Epidemic	Extreme 16	6	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that if an epidemic occurred, the local and state economies may be impacted due an increase number of the workforce becoming ill/dying or staying at home due to quarantine measures and/or caring for ill family members. Demand will increase for non-financial and financial assistance from local community welfare agencies, state based and federal based agencies, as people are unable to work and lead normal lives.					
RISK ANALYSIS:					
At Risk	Source				
* All businesses that rely on human interaction/presence * Businesses that sell: potable water/ food/ animals/pets * Non-immunized persons	* Visiting vessels disembarking crew/passengers * Insects/pests/animals/poultry/cattle/horses * Contamination/Pollution * Overseas/Intrastate/interstate visitors * Human infection * Global Pandemic				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* Royal Flying Doctor Service (RFDS) * Dept. of Health (DOH)	* WA Police (WAPOL) * City of Cockburn (COC)	* St John Ambulance (SJA) * Aust. Quarantine & Inspection Service (AQIS)			
EXISTING CONTROLS:				AGENCY:	
* Legislation: -Health Act 1911 & Quarantine Act 1908 (Commonwealth of Authority)				* DOH/AQIS	
* Collaboration with national and international health agencies on disease prevention and control activities, including quarantine procedures				* DOH	
* Health promotion and education programs				* DOH	
* Outbreak management programs, which require the rapid organisation of scientific investigations and application of disease control methods				* DOH	
* Notifiable disease surveillance programs, which alert health authorities to epidemics of preventable and controllable diseases				* DOH	
* Immunisation programs, which prevent vaccine-preventable diseases				* DOH	
* Monitoring programs, including food hygiene and water/sewerage treatment				* DOH	
RECOMMENDED TREATMENTS:				AGENCY:	
* Develop inventory of suitable quarantine centres				* COC	
* Develop stores of cleaning and disinfectant solutions to eliminate infectious agent/s				* COC	
* Develop specific cleaning and disinfectant strategies to distribute and eliminate infectious agent/s				* COC/DOH	
* Develop plans to restrict contamination, isolate infected humans & restrict human activity, social gathering & personal movement				* COC/DOH	
* Develop early warning system to notify community of contaminated food and/or water				* COC	
* Develop communication methods for health service providers, including medical practitioners and pathology laboratories, to report cases of notifiable diseases to DOH without delay if an epidemic is anticipated or suspected				* COC/DOH	
* WestPlan: Human Epidemic				* DOH	
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 16 – Human Epidemic (Industry)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	16	
Human Epidemic	Extreme 16	4	DATE:	12 November 2009	
RISK STATEMENT:					
There is a risk that if an epidemic occurred, industries will be forced to suspend trading or close their doors due to the severe staff shortages that may occur. The snowball effect being that primary based industries would be unable to provide the goods and services to businesses and clients. Primary, secondary and service industries will all be impacted, due to fall in production/ therefore severe financial losses will be incurred.					
RISK ANALYSIS:					
At Risk	Source				
* All industrial groups that rely on human interaction/presence * Industry that manufactures: potable water/ food/ animal/pet feed * Businesses that lack Business Continuity Plans * Tourism	* Visiting vessels disembarking crew/passengers * Insects/pests/animals/poultry/cattle/horses * Contamination/Pollution * Overseas/Intrastate/interstate visitors * Human infection * Global Pandemic				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* Royal Flying Doctor Service (RFDS) * Dept. of Health (DOH)	* WA Police (WAPOL) * City of Cockburn (COC)	* St John Ambulance (SJA) * Aust. Quarantine & Inspection Service (AQIS)			
EXISTING CONTROLS:			AGENCY:		
* Legislation: -Health Act 1911 & Quarantine Act 1908 (Commonwealth of Authority)			* DOH/AQIS		
* Collaboration with national and international health agencies on disease prevention and control activities, including quarantine procedures			* DOH		
* Health promotion and education programs			* DOH		
* Outbreak management programs, which require the rapid organisation of scientific investigations and application of disease control methods			* DOH		
* Notifiable disease surveillance programs, which alert health authorities to epidemics of preventable and controllable diseases			* DOH		
* Immunisation programs, which prevent vaccine-preventable diseases			* DOH		
* Monitoring programs, including food hygiene and water/sewerage treatment			* DOH		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop inventory of suitable quarantine centres			* COC		
* Develop stores of cleaning and disinfectant solutions to eliminate infectious agent/s			* COC		
* Develop specific cleaning and disinfectant strategies to distribute and eliminate infectious agent/s			* COC/DOH		
* Develop plans to restrict contamination, isolate infected humans & restrict human activity, social gathering & personal movement			* COC/DOH		
* Develop early warning system to notify community of contaminated food and/or water			* COC		
* Develop communication methods for health service providers, including medical practitioners and pathology laboratories, to report cases of notifiable diseases to DOH without delay if an epidemic is anticipated or suspected			* COC/DOH		
* WestPlan: Human Epidemic			* DOH		
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 17 – Human Epidemic (Social & Cultural)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	17	
Human Epidemic	Extreme 16	7	DATE:	12 November 2009	
RISK STATEMENT:					
There is a risk that if an epidemic occurred, social and cultural ideals may be affected due to anti social targeting of quarantined groups and/or infected individuals. Hospitals and emergency centres may not be able to cope with the increasing number of cases, and people may become aggressive, abusive and violent if they feel inadequate attention and care is given to them. In general people will be cut off from normal day-to-day social activities.					
RISK ANALYSIS:					
At Risk	Source				
* Social Networks * Walk/Riding Trails * Parks/Reserves * Heritage Buildings * Places of worship * Recreational Sites	* Visiting vessels disembarking crew/passengers * Insects/pests/animals/poultry/cattle/horses * Contamination/Pollution * Overseas/Intrastate/interstate visitors * Human infection * Global Pandemic				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* Royal Flying Doctor Service (RFDS) * Dept. of Health (DOH)	* WA Police (WAPOL) * City of Cockburn (COC)	* St John Ambulance (SJA) * Aust. Quarantine & Inspection Service (AQIS)			
EXISTING CONTROLS:			AGENCY:		
* Legislation: -Health Act 1911 & Quarantine Act 1908 (Commonwealth of Authority)			* DOH/AQIS		
* Collaboration with national and international health agencies on disease prevention and control activities, including quarantine procedures			* DOH		
* Health promotion and education programs			* DOH		
* Outbreak management programs, which require the rapid organisation of scientific investigations and application of disease control methods			* DOH		
* Notifiable disease surveillance programs, which alert health authorities to epidemics of preventable and controllable diseases			* DOH		
* Immunisation programs, which prevent vaccine-preventable diseases			* DOH		
* Monitoring programs, including food hygiene and water/sewerage treatment			* DOH		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop inventory of suitable quarantine centres			* COC		
* Develop stores of cleaning and disinfectant solutions to eliminate infectious agent/s			* COC		
* Develop specific cleaning and disinfectant strategies to distribute and eliminate infectious agent/s			* COC/DOH		
* Develop plans to restrict contamination, isolate infected humans & restrict human activity, social gathering & personal movement			* COC/DOH		
* Develop early warning system to notify community of contaminated food and/or water			* COC		
* Develop communication methods for health service providers, including medical practitioners and pathology laboratories, to report cases of notifiable diseases to DOH without delay if an epidemic is anticipated or suspected			* COC/DOH		
* WestPlan: Human Epidemic			* DOH		
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 18 – Marine Oil Pollution (Environment)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	18	
Marine Oil Pollution	Extreme 25	5	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that if marine oil pollution occurred caused by spillage or illegal discharge of bunker oil from passing ships, it may impact on the surrounding ocean environment, such as fish and other sea life. There is a risk that if marine oil pollution occurred caused by spillage it may impact on the environment in terms of local fauna and flora, killing native birds, wildlife, marine life/organisms and contaminating delicate eco systems along the coast line. Cockburn Sound could be threatened.					
RISK ANALYSIS:					
At Risk	Source				
* Marine Life/Organisms * Native birdlife/wildlife * Coastal eco-systems * Coastal Flora & Fauna * Coastal soils	* Illegal dumping from passing/visiting vessels * Industrial accidents * Industrial discharge * Vessel collisions, groundings, during cargo transfer, or bunker (fuel oil) transfer * Tidal drifts				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* City of Cockburn (COC) * State Emergency Services (SES)	* WA Police (WAPOL) * RSPCA	* Fire Emergency Services Authority (FESA) * Dept. of Planning & Infrastructure (DPI) * Dept. of Environment & Conservation			
EXISTING CONTROLS:			AGENCY:		
* Marine Oil Management strategy to reduce marine oil pollution			* COC		
* Strict enforcement of WA Pollution of Waters by Oil and Noxious Substances Act 1987			* DPI		
* Early Oil Pollution Management Services response			* DPI		
* Oil Pollution personal are well trained and regularly undergo training courses to provide local area response			* DPI/ RSPCA		
* Regular multi-agency exercise are undertaken to test response plans and recovery strategies			* LEMC/DPI		
* Integrated communication systems & network			* LEMC/COC/DPI		
* Effective early warning alarm system			* DPI		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop oil pollution management mapping and implement into EM arrangement			* LEMC/COC		
* Develop oil pollution identification/prevention /clean-up strategies			* COC		
* Develop specific awareness campaigns for vessel owners			* COC/FESA		
* Investigate vessel owner license applications for oil pollution management			* COC		
* Develop specific Oil Pollution Response Strategy (Pre-Plans)			* FESA		
* Develop Oil Pollution Management Strategy			* COC		
* WestPlan: Marine Oil Pollution			* DPI		
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 19 – Rail Freight Emergency (Property)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	19	
Rail Freight Emergency	Extreme 16	3	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that if a rail freight emergency occurred, property situated in close proximity to the rail lines could be damaged, particularly the Cockburn Central, South Beach and Coogee business/residential developments and the Bibra Lake industrial area. One major freight line extends through the City Of Cockburn from Fremantle Port–Bunbury–Fremantle Port whilst the southern PTA passenger line extends from Perth–Mandurah–Perth. Cockburn Central is a major sub-railway station and termination point for selected rail schedules carrying thousands of city commuters daily.					
RISK ANALYSIS:					
At Risk	Source				
* Residential, commercial and industrial property situated in close proximity to railway lines * Property owners closely situated to above mentioned areas * Public Structures/Buildings situated adjacent to railway lines	* Perth – Mandurah - Perth Passenger Line (PTA) * Fremantle – Bunbury - Fremantle Freight Line (WestNet/ARG) * Damaged/corroded/faulty rail lines * Damaged/faulty trains/cargo/freight containers * Driver error/medical condition/inexperience/training * Driver/passenger suicide * Sabotage/terrorist attack				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* City of Cockburn (COC) * Perth Transport Authority (PTA)	* WA Police (WAPOL) * WestNet Rail (WN)	* Fire Emergency Services Authority (FESA) * Local Emergency Management Committee (LEMC)			
EXISTING CONTROLS:			AGENCY:		
* Legislation/ - Emergency Management Act 2005/ Rail Safety Act/ Dangerous Goods Safety Act 2004			* WN		
* Local Emergency management Arrangements			* LEMC		
* Rail Track and Structures Code of Practice			* WN		
* Systematic monitoring and maintenance programs for infrastructure systems and equipment			* WN		
* Safe Working Standards and Procedures			* WN		
* Electronic rail temperature monitoring database			* WN		
* Train Path Policy			* WN		
* Experienced Train Controllers perform a comprehensive train movement and control program			* WN		
* Staff training programs			* WN		
* Track Access Permits			* WN		
* All personnel working within specified limits of the track undergo training, demonstrate competency, have appropriate medical assessment and hold a Track Access Permit			* WN		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop directory of level crossings where rail infrastructure is crossed by a public highway			* COC/WN		
* Develop directory of vegetated areas subject to bush fires			* COC/WN		
* Develop directory of low lying areas subject to flooding			* COC/WN		
* Develop directory of areas subject to storms and extreme weather conditions			* COC/WN		
* Develop register of "At Risk" industries			* COC		
* Develop communication plans with other combat agencies			* COC		
* WestPlan: Rail Freight Emergencies/ HAZMAT/ Road Crash/ Health			* FESA/WAPOL/DOH		
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 20 – Road Transport Emergency (People)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	20	
Road Transport Emergency	Extreme 25	1	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that if a major transport accident occurred, people in or near to the accident may be seriously injured or killed. Other road users may be involved, with possible injuries and /or multiple deaths. Toxic fumes from chemical and hazardous material spills and/or subsequent fires etc may cause people with respiratory issues or other health conditions to become ill in surrounding areas. Emergency response personnel are also at risk of injury or death in the event of an unforeseen explosion/s whilst attending to the injured, spillages and fires. Major arterial routes include Stock Road, North Lake Road, Rockingham Road, Cockburn Road, Row Highway and Kwinana Freeway. These routes dissect the City of Cockburn carrying thousands of vehicles daily ranging from city bound passenger cars and buses through to heavy haulage trucks bound to and from Fremantle.					
RISK ANALYSIS:					
At Risk	Source				
* Vehicle occupants * Persons working on public carriageways * Animals & pets living within impact zones * Motorists driving through incident zones * Sightseers/Responders/Passersby/Pedestrians	* Vehicle roadworthiness * Faulty traffic management systems * Inclement weather * Speeding/dangerous driving * Driver fatigue/medical condition/inexperience * Driver alcohol/illegal drugs/medication abuse * Pedestrians/motorists/cyclists				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* City of Cockburn (COC) * Department of Planning & Infrastructure (DPI)	* WA Police (WAPOL) * St. Johns Ambulance (SJA)	* Fire Emergency Services Authority (FESA) * Main Roads Department (MRD)			
EXISTING CONTROLS:			AGENCY:		
* Legislation: - Emergency Management Act 2005/ Road Traffic Act 2006/ Coroners Act 1996/ Main Roads Act 1930/ Dangerous Goods Safety Act 2004/ Electricity Corp. Act 2005/ Environmental protection ACT 1986/ Motor Vehicle Act 1943/ Local Govt. Act 1995/ OSH Act 1984			* WAPOL/MRD/DPI		
* Speed control systems/ i.e. multi-nova speed cameras/ radar, red light cameras etc			* WAPOL		
* Localized speed limits			* WAPOL/DPI		
* Public awareness & education programs campaigns			* WAPOL/DPI		
* WAPOL Probationary periods for drivers/motor cyclists			* WAPOL/DPI		
* Traffic management planning and heavy vehicle operations			* WAPOL/DPI		
* Traffic infringements, penalties & convictions			* WAPOL/DPI		
* Media traffic announcements			* WAPOL/MRD		
RECOMMENDED TREATMENTS:			AGENCY:		
* Increase penalties			* WAPOL/DPI		
* Introduce graduated engine sized vehicles for probationary drivers			* WAPOL/DPI		
* Review suburban speed limits in high density/risk areas			* WAPOL/COC/DPI		
* Develop register of "Accident Hot Spots" and Risk Assess			* WAPOL/DPI/MRD		
* Develop annual WestPlan: Road Crash multi-agency exercise and training			* WAPOL/COC		
* WestPlan: Road Crash			* WAPOL		
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 21 – Severe Storm (Property)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	21	
Severe Storm	Extreme 16	3	DATE: 12 November 2009		
RISK STATEMENT:					
There is a risk that a severe storm will cause substantial property damage requiring external resources to be employed for periods of 12 hours or more. Commercial and industrial property situated along the Coogee/Henderson industrial shipping strip, may be damaged and forced to close.					
RISK ANALYSIS:					
At Risk	Source				
* Residential, commercial and industrial property particularly those situated in close proximity to coastal areas * Property owners closely situated to above mentioned areas * Public Structures/Buildings * Recreational/Tourist Sites * Heritage Buildings * Places of Worship	* Global Warming * Climate Change * Southern Hemisphere Tropical Zones * Very low atmospheric pressure systems * El Nino/La Nina events * Storm Surge				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* State Emergency Service (SES) * Bureau of Meteorology (BOM)	* WA Police (WAPOL) * City of Cockburn (COC)	* Fire Emergency Services Authority (FESA) * Local Emergency Management Committee (LEMC)			
EXISTING CONTROLS:				AGENCY:	
* Public Awareness & Education Campaigns				* FESA/COC	
* Information website				* COC	
* Strict enforcement of Building Code and Authority Standards pertaining to coastal developments				* COC	
* Early FESA storm Services response				* FESA/ES	
* FESA personal are well trained & regularly undergo training courses to provide local area response				* FESA	
* Regular multi-agency exercise are undertaken to test response plans and recovery strategies				* LEMC/FESA	
* Integrated communication systems & network				* LEMC/COC/FESA	
* Effective "All Hazards" early warning alarm system				* FESA	
RECOMMENDED TREATMENTS:				AGENCY:	
* Develop storm management mapping and implement into EM arrangement				* LEMC/COC	
* Develop storm prevention/suppression strategies				* COC	
* Develop specific awareness/preparedness campaigns for coastal areas				* COC/FESA	
* Investigate planning applications for building code compliance in coastal area developments				* COC	
* Develop specific storm Response Strategy (Pre-Plans)				* FESA	
* Develop specific storm Management Strategy				* COC	
* WestPlan: Storm/Tempest				* FESA	
IMPLEMENTATION SCHEDULE:				BUDGET CONSIDERATIONS:	
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 22 – Severe Storm (Infrastructure)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	22	
Severe Storm	Extreme 20	2	DATE:	12 November 2009	
RISK STATEMENT:					
There is a risk that if a severe storm occurred, it could damage or destroy overhead power lines and communication infrastructure, causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected whilst a bushfire could impact upon roads and rail transport infrastructure causing fire debris, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses. The Woodman Point Waste Water Treatment Plant could be threatened.					
RISK ANALYSIS:					
At Risk	Source				
* Power/ Water/ Gas * Road & Rail Transport * Bridges & Footpaths * Communications * Sewerage & Drainage Systems * Street Lighting	* Global Warming * Climate Change * Southern Hemisphere Tropical Zones * Very low atmospheric pressure systems * El Nino/La Nina events * Storm Surge				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* State Emergency Service (SES) * Bureau of Meteorology (BOM)	* WA Police (WAPOL) * City of Cockburn (COC)	* Fire Emergency Services Authority (FESA) * Local Emergency Management Committee (LEMC)			
EXISTING CONTROLS:			AGENCY:		
* Public Awareness & Education Campaigns			* FESA/COC		
* Information website			* COC		
* Strict enforcement of Building Code and Authority Standards pertaining to coastal developments			* COC		
* Early FESA storm Services response			* FESA/ES		
* FESA personnel are well trained & regularly undergo training courses to provide local area response			* FESA		
* Regular multi-agency exercise are undertaken to test response plans and recovery strategies			* LEMC/FESA		
* Integrated communication systems & network			* LEMC/COC/FESA		
* Effective "All Hazards" early warning alarm system			* FESA		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop storm management mapping and implement into EM arrangement			* LEMC/COC		
* Develop storm prevention/suppression strategies			* COC		
* Develop specific awareness/preparedness campaigns for coastal areas			* COC/FESA		
* Investigate planning applications for building code compliance in coastal area developments			* COC		
* Develop specific storm Response Strategy (Pre-Plans)			* FESA		
* Develop specific storm Management Strategy			* COC		
* WestPlan: Storm/Tempest			* FESA		
IMPLEMENTATION SCHEDULE:		BUDGET CONSIDERATIONS:			
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 23 – Urban Fire (People)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	23	
Urban Fire	Extreme 20	1	DATE:	12 November 2009	
RISK STATEMENT:					
There is a risk that if urban fire occurred in high density, high rise residences, or buildings such as day care centres, pre-school, schools, aged care facilities, retirement villages, cinemas and shopping centres, injury or multiple deaths may occur, and many pets may be homeless or killed. Toxic fumes from the fires may cause people with respiratory issues or other health conditions to become ill in surrounding areas. Survivors would be displaced and emergency service personnel in attendance may be at risk of injury or death from fighting the fire and entering unsafe properties and buildings.					
RISK ANALYSIS:					
At Risk	Source				
* Persons/animals living/working in domestic/commercial and/or industrial sites * Persons living/working in close proximity to incident site * General public within the vicinity of an urban fire * Motorists from road accidents resulting from smoke or response activity * Sightseers congregating to observe urban fire and response activity * Passers-by * People/animals with underlying medical conditions * Vulnerable age groups i.e. senior citizens/infant children	* Build up of fuel loadings in close proximity to residential homes * Failure to heed early warnings or no early warning alarm system in place * Failure to undertake adequate seasonal precautionary measures * Ember, smoke and/or ash attack from nearby bush land * Fire Service personnel and equipment unable to access incident properties * Lack of public information on fires and/or fire exit routes * Lack of road signage and police presence to control traffic at fire initiation * Lack of public information on emergency situations protocol * Lack of public control at fire initiation * Erratic weather and/or fire conditions * Human and/or industrial accident * Arson				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* State Emergency Service (SES) * St John Ambulance (SJA)	* WA Police (WAPOL) * City of Cockburn (COC)	* Fire Emergency Services Authority (FESA) * Dept. of Health (DOH) * Depart. Of Child Protection (DCP)			
EXISTING CONTROLS:			AGENCY:		
* Legislation:- Fire Brigade Act 1942/ Local Government Act 1960-1994/ Building Code/ Explosives and Dangerous Goods Act 1961/ Occupational Health and Safety Act 1984			* FESA		
* Community Education & Fire Awareness Campaigns			* FESA		
* Building Code of Australia			* COC		
* Installation of Smoke Alarms/Heat Detectors/Fire Suppression Systems in new properties			* COC		
* FESA maintain a 24/7 Communications Centre for emergency calls			* FESA		
* Emergency Services "000" telephone number is available 24/7			* FESA		
* FESA personnel are highly trained in Fire Fighting Search and Rescue			* FESA		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop fire management mapping and implement into EM arrangement			* LEMC/COC		
* Develop fire prevention/suppression strategies			* COC		
* Identify suitable evacuation centres for fire affected victims			* COC		
* Develop specific awareness/preparedness campaigns for residential/commercial/industrial areas			* COC/FESA		
* Investigate Town Planning applications for residential/commercial/industrial areas			* COC		
* Develop specific reserves Fire Response Strategy (Pre-Plans)			* FESA		
* Develop specific Urban Fire Management Strategy			* COC		
* Develop Metropolitan fuel loading burn-off program			* FESA		
* Implementation of Welfare Plan			* DCP		
* WestPlan: Fire (Urban)			* FESA		
IMPLEMENTATION SCHEDULE:		BUDGET CONSIDERATIONS:			
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 24 – Urban Fire (Property)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	24	
Urban Fire	Extreme 20	3	DATE:	12 November 2009	
RISK STATEMENT:					
There is a risk that an urban fire will cause major damage to residential, commercial and/or industrial property, which could leave resident's homeless and businesses /industry unable to operate. Many properties may be affected by the fire and associated explosions if these properties housed volatile hazardous materials. Properties may be severely damaged or destroyed, with some being deemed unsafe and requiring demolishing. Business areas such as Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill and the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson would be vulnerable particularly if those businesses stocked accelerants such as wood, chemicals or fuels.					
RISK ANALYSIS:					
At Risk	Source				
* Residential, commercial and industrial property	* Build up of fuel loadings in close proximity to residential homes				
* Public Structures/Buildings	* Failure to undertake adequate seasonal precautionary measures				
* Recreational/Tourist Sites	* Ember, smoke and/or ash attack from nearby bush land				
* Heritage Buildings	* Fire Service personnel and equipment unable to access incident areas				
* Places of Worship	* Lack of public information on fires				
	* Lack of road signage and police presence to control traffic at fire initiation				
	* Lack of public information on emergency situations protocol				
	* Lack of public control at fire initiation				
	* Erratic weather and/or fire conditions				
	* Human negligence and/or accident				
	* Arson				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* State Emergency Service (SES)	* WA Police (WAPOL)	* Fire Emergency Services Authority (FESA)			
* St John Ambulance (SJA)	* City of Cockburn (COC)	* Dept. of Health (DOH)			
		* Depart. Of Child Protection (DCP)			
EXISTING CONTROLS:			AGENCY:		
* Legislation:- Fire Brigade Act 1942/ Local Government Act 1960-1994/ Building Code/ Explosives and Dangerous Goods Act 1961/ Occupational Health and Safety Act 1984			* FESA		
* Community Education & Fire Awareness Campaigns			* FESA		
* Building Code of Australia			* COC		
* Installation of Smoke Alarms/Heat Detectors/Fire Suppression Systems in new properties			* COC		
* FESA maintain a 24/7 Communications Centre for emergency calls			* FESA		
* Emergency Services "000" telephone number is available 24/7			* FESA		
* FESA personnel are highly trained in Fire Fighting Search and Rescue			* FESA		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop fire management mapping and implement into EM arrangement			* LEMC/COC		
* Develop fire prevention/suppression strategies			* COC		
* Identify suitable evacuation centres for fire affected victims			* COC		
* Develop specific awareness/preparedness campaigns for residential/commercial/industrial areas			* COC/FESA		
* Investigate Town Planning applications for residential/commercial/industrial areas			* COC		
* Develop specific reserves Fire Response Strategy (Pre-Plans)			* FESA		
* Develop specific Urban Fire Management Strategy			* COC		
* Develop Metropolitan fuel loading burn-off program			* FESA		
* Implementation of Welfare Plan			* DCP		
* WestPlan: Fire (Urban)			* FESA		
IMPLEMENTATION SCHEDULE:			BUDGET CONSIDERATIONS:		
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 25 – Urban Fire (Environment)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	25	
Urban Fire	Extreme 15	5	DATE:	12 November 2009	
RISK STATEMENT:					
There is a risk that if an urban fire occurred, it could affect the natural environment. Eco flora and fauna may be significantly affected, destroyed or lost forever. Contaminants and/or pollutants could filter into the atmosphere whilst underlying soils could turn acidic and cause environmental damage to the environmental reserves of Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beeliar Regional Park.					
RISK ANALYSIS:					
At Risk	Source				
* Natural flora and fauna	* Build up of fuel loadings in close proximity to residential homes				
* Native animals, wildlife, birds and horses	* Failure to undertake adequate seasonal precautionary measures				
* Livestock, poultry, horticultural crops	* Ember, smoke and/or ash attack from nearby bush land				
* Exotic animals, aquatic plants & fish	* Fire Service personnel and equipment unable to access incident areas				
* Vegetables, ground crops and fruit	* Lack of public information on fires				
* Animals & pets	* Lack of road signage and police presence to control traffic at fire initiation				
* Water table/wetlands/rivers and lakes	* Lack of public information on emergency situations protocol				
	* Lack of public control at fire initiation				
	* Erratic weather and/or fire conditions				
	* Human negligence and/or accident				
	* Arson				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* State Emergency Service (SES)	* WA Police (WAPOL)	* Fire Emergency Services Authority (FESA)			
* St John Ambulance (SJA)	* City of Cockburn (COC)	* Dept. of Health (DOH)			
		* Depart. Of Child Protection (DCP)			
EXISTING CONTROLS:				AGENCY:	
* Legislation:- Fire Brigade Act 1942/ Local Government Act 1960-1994/ Building Code/ Explosives and Dangerous Goods Act 1961/ Occupational Health and Safety Act 1984				* FESA	
* Community Education & Fire Awareness Campaigns				* FESA	
* Building Code of Australia				* COC	
* Installation of Smoke Alarms/Heat Detectors/Fire Suppression Systems in new properties				* COC	
* FESA maintain a 24/7 Communications Centre for emergency calls				* FESA	
* Emergency Services "000" telephone number is available 24/7				* FESA	
* FESA personnel are highly trained in Fire Fighting Search and Rescue				* FESA	
RECOMMENDED TREATMENTS:				AGENCY:	
* Develop fire management mapping and implement into EM arrangement				* LEMC/COC	
* Develop fire prevention/suppression strategies				* COC	
* Identify suitable evacuation centres for fire affected victims				* COC	
* Develop specific awareness/preparedness campaigns for residential/commercial/industrial areas				* COC/FESA	
* Investigate Town Planning applications for residential/commercial/industrial areas				* COC	
* Develop specific reserves Fire Response Strategy (Pre-Plans)				* FESA	
* Develop specific Urban Fire Management Strategy				* COC	
* Develop Metropolitan fuel loading burn-off program				* FESA	
* Implementation of Welfare Plan				* DCP	
* WestPlan: Fire (Urban)				* FESA	
IMPLEMENTATION SCHEDULE:				BUDGET CONSIDERATIONS:	
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDATIONS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Recommended Treatment Plan 26 – Urban Fire (Infrastructure)

RISK:	RISK RATING:	RISK PRIORITY:	TREATMENT PLAN No:	26	
Urban Fire	Extreme 16	2	DATE:	12 November 2009	
RISK STATEMENT:					
There is a risk that if an urban fire occurred, it could damage or destroy overhead power lines and communication infrastructure, causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected whilst an urban fire could impact upon roads and rail transport infrastructure causing fire debris, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses.					
RISK ANALYSIS:					
At Risk	Source				
* Power/ Water/ Gas * Road & Rail Transport * Bridges & Footpaths * Communications * Sewerage & Drainage Systems * Street Lighting	* Build up of fuel loadings in close proximity to residential homes * Failure to undertake adequate seasonal precautionary measures * Ember, smoke and/or ash attack from nearby bush land * Fire Service personnel and equipment unable to access incident areas * Lack of public information on fires * Lack of road signage and police presence to control traffic at fire initiation * Lack of public information on emergency situations protocol * Lack of public control at fire initiation * Erratic weather and/or fire conditions * Human negligence and/or accident * Arson				
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* State Emergency Service (SES) * St John Ambulance (SJA)	* WA Police (WAPOL) * City of Cockburn (COC)	* Fire Emergency Services Authority (FESA) * Dept. of Health (DOH) * Depart. Of Child Protection (DCP)			
EXISTING CONTROLS:			AGENCY:		
* Legislation:- Fire Brigade Act 1942/ Local Government Act 1960-1994/ Building Code/ Explosives and Dangerous Goods Act 1961/ Occupational Health and Safety Act 1984			* FESA		
* Community Education & Fire Awareness Campaigns			* FESA		
* Building Code of Australia			* COC		
* Installation of Smoke Alarms/Heat Detectors/Fire Suppression Systems in new properties			* COC		
* FESA maintain a 24/7 Communications Centre for emergency calls			* FESA		
* Emergency Services "000" telephone number is available 24/7			* FESA		
* FESA personnel are highly trained in Fire Fighting Search and Rescue			* FESA		
RECOMMENDED TREATMENTS:			AGENCY:		
* Develop fire management mapping and implement into EM arrangement			* LEMC/COC		
* Develop fire prevention/suppression strategies			* COC		
* Identify suitable evacuation centres for fire affected victims			* COC		
* Develop specific awareness/preparedness campaigns for residential/commercial/industrial areas			* COC/FESA		
* Investigate Town Planning applications for residential/commercial/industrial areas			* COC		
* Develop specific reserves Fire Response Strategy (Pre-Plans)			* FESA		
* Develop specific Urban Fire Management Strategy			* COC		
* Develop Metropolitan fuel loading burn-off program			* FESA		
* Implementation of Welfare Plan			* DCP		
* WestPlan: Fire (Urban)			* FESA		
IMPLEMENTATION SCHEDULE:		BUDGET CONSIDERATIONS:			
MONITOR & REVIEW:					
APPROVAL TO IMPLEMENT RECOMMENDED TREATMENTS:					
ORGANISATION	DATE	SIGNED	ORGANISATION	DATE	SIGNED

Appendix 14
Risk Strategy Plans



**CITY OF COCKBURN
EMERGENCY RISK MANAGEMENT**

“RISK STRATEGY PLANS”

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Recommended Strategy Plan 1 – Air Transport Emergency

RISK:	AIR TRANSPORT EMERGENCY	DATE:	12 November 2009	STRATEGY PLAN No:	1			
Economy	Environment	Industry	Infrastructure	People	X	Property	X	Social
RISK STATEMENT:								
There is a risk that if an aircraft flying from/to Jandakot Airport and/or Perth Domestic/International airports across residential, commercial and/or industrial areas/people, animals and/or pets may be injured, may become ill and/or be killed from the impact and exposure to toxic fumes, fires and smoke resulting from the falling/flying plane debris whilst permanent or significant private, commercial and public property damage may also occur from fires, explosions and flying debris.								
STRATEGY ANALYSIS:								
Vulnerability Data								
The most vulnerable human/animal elements to an air transport emergency are the aircraft occupants, general public living/working within impact zones, animals & pets living within impact zones, motorists driving through impact zones and sightseers. All residential, commercial and/or industrial property, heritage buildings, places of worship, recreation, caravan and/or sporting sites/centres, public transport buildings and tourist attractions within the impact and immediate surrounding zones would be exposed to property damage and/or destruction.								
RESPONSIBLE AGENCIES/INDIVIDUAL/S:								
* Civil Aviation Safety Authority (CASA) * City of Cockburn (COC)		* WA Police (WAPOL)		* City of Cockburn (COC) * Fire & Emergency Services Authority (FESA)				
PREVENTION STRATEGIES:								
* Media Campaigns/Public Awareness				AGENCY:				
* Risk Assessment				* WAPOL/CASA				
PREPAREDNESS STRATEGIES:								
* Business Continuity Management Plan				AGENCY:				
* Partnerships with other Authorities/Agencies				* COC				
* Police Standard Operating Procedures and communications				* WAPOL				
* Simulated crisis exercises with HMA , combat and support agencies				* WAPOL				
* Joint FESA & Police Training programs				* WAPOL				
* Local Emergency Management Arrangements				* FESA/WAPOL				
RESPONSE STRATEGIES:								
* Mobile Police Facility				AGENCY:				
* Emergency Operation Unit				* WAPOL				
* Metropolitan Police 24/7 response				* WAPOL				
* Partnerships & Liaison with other Authorities/Agencies				* WAPOL				
* Police Standard Operating Procedures and communications				* WAPOL				
* Emergency Response Coordination + Public information/media management				* WAPOL				
* Local Emergency Management Arrangements				* WAPOL				
RECOVERY STRATEGIES:								
* Police Coordinator & Coordination SOP's				AGENCY:				
* Evacuation Plan				* WAPOL				
* Local Government Agreement with neighbouring councils				* WAPOL/COC				
* Liaison with other agencies				* COC				
* Recovery Plan				* WAPOL				
* Welfare Plan				* COC/LEMC				
				* COC /LEMC/DCP				

Recommended Strategy Plan 2 – Animal Pest & Plant Biosecurity

RISK:	ANIMAL PEST & PLANT BIOSECURITY	DATE:	12 November 2009	STRATEGY PLAN No:	2				
Economy	X	Environment	X	Industry	X	Infrastructure	People	Property	Social
RISK STATEMENT:									
There is a risk that if an outbreak of animal and plant disease occurred, permanent environmental and economic damage may occur. Manning Park has 142 hectares of remnant vegetation which includes Catherine Point Reserve, C. Y. O'Connor Reserve, and 29 hectares of foreshore reserve. Industries that work with animals and/or plants may have to suspend trading or even close permanently. Animals and employees of these businesses may be quarantined/some employees may lose their jobs.									
STRATEGY ANALYSIS:									
Vulnerability Data									
Garden and other nurseries, poultry farms, hobby farms, market gardens, horticulturalists/florists, furniture manufacturers/retailers that currently exist in the City of Cockburn would be economically affected that could ultimately impact upon the economy and associated industries. Employees of those businesses along with the general public would be affected and debilitated by the infection and thus adding further economic/industrial strain. Depending upon the type of outbreak the differing Cockburn environments may also be irreversibly damaged.									
RESPONSIBLE AGENCIES/INDIVIDUAL/S:									
* City of Cockburn (COC)		* Depart. Of Food and Agriculture (DFA)		* Fire & Emergency Services Authority(FESA) * Dept. of Agriculture, Fisheries & Forestry (DAFF)					
PREVENTION STRATEGIES:									
* Risk Assessment and exercised Local Emergency Management Arrangements				AGENCY:					
* Pest and Disease Quarantine programs, surveillance and controls				* DAFF/COC					
* Livestock identification and branding				* DFADAFF					
* Zoning and Movement controls				* DFA/DAFF					
* Diagnostic services				* DFA/DAFF					
* Public Information/Education + Call centres				* DFA/DAFF					
PREPAREDNESS STRATEGIES:									
* Business Continuity Management Plan				AGENCY:					
* Prepared and Tested Local Emergency Management Arrangements				* COC					
* Emergency Plant/Pest Response Deed and Animal Disease Response Agreement , PLANTPLAN/AUSVETPLAN				* DFA/DAFF/COC					
* WESTPLAN – Animal and Plant Biosecurity				* DFA/DAFF					
* Industry Guard Plans				* DFA/DAFF					
* Corporate Policy/Generic Incident Management Protocols (AIIMS)				* DFA/DAFF					
* Staff training				* DFA/DAFF					
RESPONSE STRATEGIES:									
* Emergency Operations Unit				AGENCY:					
* Partnerships & Liaison with other Authorities/Agencies				* DFA/DAFF					
* DOAF Standard Operating Procedures and communications				* DFA/DAFF					
* Emergency Response Coordination				* DFA/DAFF					
* Activated Local Emergency Management Arrangements				* DFA/DAFF/COC					
RECOVERY STRATEGIES:									
* Agriculture Coordinator & Coordination SOP's				AGENCY:					
* Evacuation & Quarantine Procedures				* DFA/DAFF/ WAPOL					
* Recovery Plan				* COC/LEMC					
* Local Government Agreement with neighbouring councils (MOU)				* COC/WALGA					

Recommended Strategy Plan 3 – Bushfire

RISK:	BUSH FIRE	DATE:	12 November 2009	STRATEGY PLAN No:	3
Economy	Environment X Industry	Infrastructure X	People X Property	X Social	X
RISK STATEMENT:					
There is a risk that if a bushfire occurred, large areas of bush land may be destroyed, the environment damaged, infrastructure reduced, life and property threatened and social activity restricted/withdrawn. The City of Cockburn has approximately 4,760ha of bush land within the region of which 593ha is located in the Beelihar, Woodman Point and Jandakot Regional Parks. Widespread environmental damage may destroy plants, native animals, horticulture and flora and fauna whilst bush land residents could lose their properties, social activity and even life.					
STRATEGY ANALYSIS:					
Vulnerability Data					
Bush Fires regularly occur within the City of Cockburn during the hotter months. They can occur in both the identified Bush Fire District and the Fire Gazette Area. The rural and special rural areas are the most vulnerable. Bush Fires can result in damage and destruction of homes, property, pasture and natural bush land/they can also cause death and injury to people, pets and livestock, disruption of utility services such as electric power, road/rail traffic disruption and accident, and evacuation of fire and smoke threatened homes and areas.					
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* City of Cockburn (COC) * Bureau of Meteorology (BOM) * Department of Environment & Conservation (DEC)		* WA Police (WAPOL) * City of Cockburn (COC)		* Insurance Council of Australia (ICA) * Fire Emergency Services Authority (FESA)	
PREVENTION STRATEGIES:					AGENCY:
* Risk Assessment (Community and HMA)					* COC/FESA/DEC
* Community Education Policy and Strategy					* COC/FESA
* Application & Enforcement of Bush Fires Act & Local Laws					* COC
* Targeted & Reviewed Community Education					* COC/FESA
PREPAREDNESS STRATEGIES:					AGENCY:
* Community Warnings					* COC/FESA/WAPOL
* Home Bush Fire Plans					* FESA
* Bush Fire Management Plan					* COC/FESA
* Identification of Resources					* COC/FESA
* Provision of Additional Resources above an agencies own resources					* COC/FESA
* Training of FESA staff & COC Bushfire/SES Volunteers					* FESA
* Annual Bush Fire Safe Campaigns					* FESA
* Clearing of fuel loads					* COC
* Review and Improve Local Emergency Management Arrangements					* COC
* Review Metropolitan Bush Fire Plan					* FESA
* Review and Improve Bush Fire Training for SES Volunteers					* FESA
* Review and Improve General Rescue Training for SES Volunteers					* FESA
* Insurances					* ICA
RESPONSE STRATEGIES:					AGENCY:
* Local Arrangements Activated					* COC
* Bush Fire Warnings					* COC/FESA/BOM
* Metropolitan Bush Fire Plan					* FESA
* Local Bush Fire Management Plan					* COC/FESA
* Local Bush Fire Brigades/S.E.S Unit SOP's					* FESA
* Post Impact Response (Rescue, Temp Building Repair ETC)					* FESA/WAPOL/DCD/COC
* Evacuation					* FESA/WAPOL
* City of Cockburn after hours procedures/call outs					* COC
* Mobile Command Post					* COC/FESA
* Greater use of Incident Management Groups					* FESA/COC
RECOVERY STRATEGIES:					AGENCY:
* Recovery Plan activated					* COC/FESA
* Ongoing review Local Bushfire Brigade/SES Unit Response Equipment					* COC/FESA

Recommended Strategy Plan 4 – Cyclone

RISK:	CYCLONE	DATE:	12 November 2009	STRATEGY PLAN No:	4
Economy	Environment Industry	Infrastructure	People Property	X Social	
RISK STATEMENT:					
The City of Cockburn could be subjected to severe wind & rain as the result of a cyclone passing down the Cockburn coastline. Cyclones are most prevalent between the months of November and April. Cyclones can cause severe property damage to homes, commercial and industrial businesses, fences, buildings and trees. Cyclone effects can also include fire, loss of electrical power and other services, localized flash flooding and traffic disruption and accidents that could impact upon property.					
STRATEGY ANALYSIS:					
Vulnerability Data					
The City of Cockburn is occupied by 83,000 residences, 11 Childcare Centres/6 Aged Care Centre, 14 Community Recreation Centres/Facilities, 11,000 businesses and a 2 caravan villages that are in the path of coastal weather. Pockets of housing/buildings could be de-roofed or severely damaged. The majority of homes are not built to withstand cyclones consequently a risk exists that significant property damage could occur.					
RESPONSIBLE AGENCIES/INDIVIDUAL/S:					
* City of Cockburn (COC) * Bureau of Meteorology (BOM) * Western Power Corp. (WPC)		* WA Police (WAPOL) * Main Roads Dept. (MRD) * Dept. of Health (DOH)		* Dept. Community Development (DCD) * Fire Emergency Services Authority (FESA) * Insurance Council of Australia (ICA)	
PREVENTION STRATEGIES:					AGENCY:
* Media Campaigns/Public Awareness					* WAPOL/CASA
* Risk Assessment					* WAPOL/COC
PREPAREDNESS STRATEGIES:					AGENCY:
* Risk Assessment					* FESA/COC
* Community Education & Warnings (Blue, Yellow, Red)					* FESA/BOM
* Application & Enforcement of Building codes					* COC
* Underground Power Programme					* COC/WPC
* Pruning Trees under Powerlines/Household Cleanup program					* COC/WPC
* Preparation of Local Emergency Management Arrangements					* COC/LEMC
PREPAREDNESS STRATEGIES:					AGENCY:
* Business Continuity Management Plan					* COC
* Community Warnings					* FESA/BOM
* Local SES Unit Standard Operating Procedure's (SOP's)					* FESA/COC
* Identification of Resources					* FESA/COC
* Provision of Additional Resources above an agencies own resources					* FESA/COC
* Training of both FESA staff & COC-SES Volunteers					* FESA
* Annual Storm safe campaign					* FESA/COC
* Cleaning of Road Drainage systems					* COC/MRD
* Review, exercise & improve Local Emergency Management Arrangements					* COC/LEMC
* Review Local Cyclone Response Plan					* FESA
* Review and Improve Storm Damage Training & Equipment for SES Volunteers					* FESA/COC
* Review and Improve General Rescue Training & Equipment for SES Volunteers					* FESA/COC
* Insurances					* ICA
RESPONSE STRATEGIES:					AGENCY:
* Storm Warnings					* FESA/BOM
* Metropolitan Severe Storm Plan					* FESA
* Local S.E.S Unit SOP's					* FESA/COC
* Mobile Command Post					* FESA
* Post Impact Response (Rescue, Temp Building Repair ETC)					* FESA/WAPOL/DCD/COC
* Evacuation					* FESA/DCD/WAPOL/COC
* City of Cockburn after hours procedures/call outs					* COC
* Local Emergency Management Arrangements in place					* COC/LEMC
* Ongoing review Local SES Unit Response Equipment					* FESA
* Greater use of Incident Management Groups					* FESA/LEMC
RECOVERY STRATEGIES:					AGENCY:
* Liaison with other agencies and community (Media Management)					* FESA
* Operational Debrief					* FESA
* Recovery Plan					* COC/LEMC

Recommended Strategy Plan 5 – Environmental Disaster

RISK:	ENVIRONMENTAL DISASTER	DATE:	12 November 2009	STRATEGY PLAN No:	5
Economy	Environment X Industry	Infrastructure	People	Property	Social
RISK STATEMENT:					
There is a risk of contaminants and/or pollutants, including acidic soils, caused by an environmental disaster, impacting the environmental reserves of Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelir Regional Park that have eco, flora and fauna systems. There is a risk that if negative changes occurred to the natural environment eco flora and fauna may be significantly affected, destroyed or become extinct.					
STRATEGY ANALYSIS:					
Vulnerability Data					
Bush Fires, Cyclones, and Storms occur within the City of Cockburn albeit periodically whilst Marine Oil Pollution Incidents and Chemical/Hazardous Material Spills are rare. However, in the event that any one or more of these events DECs occur environmental damage and/or death to the natural flora and fauna, native animals, wildlife, birds and horses, livestock, poultry, horticultural crops, exotic animals, aquatic plants & fish, vegetables, ground crops and fruit, animals & pets is probable, whilst contamination of the water table/wetlands/rivers and lakes is possible.					
RESPONSIBLE AGENCIES/INDIVIDUALS:					
* Dept. of Environment (DEC) * Depart. Of Environment & Conservation (DEC)		* WA Police (WAPOL) * City of Cockburn (COC)		* Fire Emergency Services Australia (FESA) * Aust. Quarantine & Inspection Service (AQIS) * Dept. of Agriculture, Fisheries & Forestry (DAFF)	
PREVENTION STRATEGIES:				AGENCY:	
* Risk Assessment and exercised Local Emergency Management Arrangements				* DEC/DAFF/COC	
* Pest and Disease Quarantine programs, surveillance and controls				* DEC/DAFF	
* Livestock identification and branding				* DEC/DAFF	
* Zoning and Movement controls				* DEC/DAFF	
* Diagnostic services				* DEC/DAFF	
* Public Information/Education + Call centres				* DEC/DAFF	
PREPAREDNESS STRATEGIES:				AGENCY:	
* Business Continuity Management Plan				* COC	
* Prepared and Tested Local Emergency Management Arrangements				* DEC/DAFF/COC	
* Emergency Plant/Pest Response Deed and Animal Disease Response Agreement , PLANTPLAN/AUSVETPLAN				* DEC/DAFF	
* WESTPLAN – Animal and Plant Biosecurity				* DEC/DAFF	
* Industry Guard Plans				* DEC/DAFF	
* Corporate Policy/Generic Incident Management Protocols (AIIMS)				* DEC/DAFF	
* Staff training				* DEC/DAFF	
RESPONSE STRATEGIES:				AGENCY:	
* Emergency Operations Unit				* DEC/DAFF	
* Partnerships & Liaison with other Authorities/Agencies				* DEC/DAFF	
* DEC/DAFF Standard Operating Procedures and communications				* DEC/DAFF	
* Emergency Response Coordination				* DEC/DAFF	
* Activated Local Emergency Management Arrangements				* DEC/DAFF/COC	
RECOVERY STRATEGIES:				AGENCY:	
* Agriculture Coordinator & Coordination SOP's				* DEC/DAFF	
* Evacuation & Quarantine Procedures				* DEC/DAFF/WAPOL	

Recommended Strategy Plan 6 – Hazardous Materials/Chemical Spill

RISK:	HAZARDOUS MATERIALS/CHEMICAL SPILL	DATE:	12 November 2009	STRATEGY PLAN No:	6
Economy	Environment Industry	Infrastructure	People X Property	Social	
RISK STATEMENT:					
There is a risk that if a chemical/hazardous material spill occurred, illness, injury or death to people residing within the City of Cockburn may happen. The extent is dependent upon the location of the contamination, the climatic conditions and the nature, composition and amount of pollutant exposed to the general community. Many pets may also be affected, either becoming ill or dying.					
STRATEGY ANALYSIS:					
Vulnerability Data					
Wherever hazardous materials are manufactured, processed, stored or transported there is a risk of a hazardous materials emergency. Certain industries and businesses within the City of Cockburn manufacture, process, store and transport hazardous materials. A number of industries within the Henderson Industrial Area have been designated as Major Hazard Facilities (MHF) under the National Standard (NOHSC: 1014) because their operations or storage inventory is such that an emergency release incident may impact outside of their boundary. Hazardous materials are transported by road and rail through the City and are imported/exported by sea via the major jetties. In the event of an uncontrolled release of hazardous material (solid, liquid or gaseous) some or all of the following effects may be experienced/Death, injury or illness (people, pets and livestock), fire and/or explosion, contamination of water supplies, wetlands and waterways, trapped persons requiring rescue, evacuation of homes and areas, road/rail traffic disruption and accidents.					
RESPONSIBLE AGENCIES/INDIVIDUALS:					
* Water Corporation (WC) * Department of Health (DOH)		* City of Cockburn (COC) * Main Roads Dept. (MRD)		* Dept. of Environment & Conservation (DEC) * Fire Emergency Services Authority (FESA)	
PREVENTION STRATEGIES:				AGENCY:	
* Drainage and sewer systems are monitored thus allowing for sectioning and isolation of pollutants				* WC/COC	
* Industrial wastes licensing policies possible polluters, regulation and inspection				* WC/DOH/DEC	
* Inspection of special risk and targeted high risk premises				* DEC/COC	
* Compliance assessment, monitoring, regulation and enforcement				* DEC/DOH	
* Offer toxicological advice and consultation on safe pesticide and chemical use				* DOH/DEC	
* Assist in developing chemical safety standards for environmental chemical usage, human exposure criteria and assess possible public health impact				* DOH/DEC	
PREPAREDNESS STRATEGIES:				AGENCY:	
* Business Continuity Management Plan				* COC	
* Contingency plans exist for system failures and exercised annually with Water Corporation staff rostered to operate 24 hours 7 days a week				* WC/DOH	
* Hazardous Emergency Advisory Team (HEAT) on call 24 hours				* DOH/DEC	
* Remediation chemicals and chemicals are on hand				* WC/DEC	
* Maintain key agency contact lists				* COC/LEMC	
* Maintain contact with associated Hazard Management Agencies				* FESA	
* Pollution Response Unit (PRU) and Crisis Management Plan capabilities				* DEC	
* Increase awareness/familiarity with other key agency contingency plan				* FESA/COC	
* Pollution and emergency response training e.g. WESTPLAN HAZMAT and Chemical Biological & Radiological emergencies (CBR).				* FESA/WAPOL	
* Preparation, exercise and review the Local Emergency Management Arrangements				* COC/LEMC	
RESPONSE STRATEGIES:				AGENCY:	
* Local Emergency Management Arrangements				* COC/FESA	
* Response contingency plans				* WC	
* Deploy response staff, equipment, remediation chemicals and collect samples				* WC	
* Radioactive hazards – provide laboratory analysis, establish and direct measures to mitigate public health impact and recommend control measures				* DOH	
* PRU response dependent on pollutant				* DEC	
* Direct and assist in collection of samples				* DOH	
* HEAT reviews results following monitoring of other agencies				* DOH/DEC	
* Notify, brief and assist with other key agencies. e.g. Support for WESTPLAN HAZMAT & CBR				* WC/DEC/COC	
* Public Health announcements				* DOH	
* Traffic Management Plan				* WAPOL/COC	
RECOVERY STRATEGIES:				AGENCY:	
* Recovery Plan				* COC/WAPOL	
* PRU to provide first response for containment, confinement and cleanup on land				* DEC	
* Oversee assessment and management of contaminated land/and removal, transportation and disposal site of pollutants				* DOH	
* Provide advice and support to recovery committee				* WC/COC	
* Appropriate action – recovery/refurbishment contingency plan				* DOH/DEC/COC	
* Ongoing review of sampling data conducted by other agencies				* DOH	
* Dependent on type of contaminant – establish register of effected individuals				* FESA	
* Increase number of trained individuals for emergency response				* DEC	

Recommended Strategy Plan 7 – Human Epidemic

RISK:	HUMAN EPIDEMIC					DATE:	12 November 2009					STRATEGY PLAN No:	7
Economy	X	Environment		Industry	X	Infrastructure		People	X	Property		Social	X
RISK STATEMENT:													
There is a risk that if an epidemic occurred, the 84,652 people that reside in the City of Cockburn would be at risk, the local and state economies could be impacted due to major numbers in the workforce becoming ill/dying or staying at home due to quarantine measures and/or caring for ill family members, industries would be forced to suspend trading or close their doors due to the severe staff shortage and social and cultural activity would be affected due to social distancing and anti social targeting of quarantined groups and/or infected individuals.													
STRATEGY ANALYSIS:													
Vulnerability Data													
Persons in the age groups 65+ years old and children aged less than 4 years old would be most vulnerable whilst people living/working with or near infected animals/people, living/working near contaminated water/food, living/working with people/animals that possess underlying medical conditions have increased risk to infection, illness and possibly death. All businesses that rely on human interaction/presence, tourism, social networks and industry that manufactures: potable water/food/animal/pet feed would be affected. The local economy and industry would be severely affected whilst visiting of relatives, walk/riding trails, parks/reserves, heritage buildings; places of worship and recreational sites would be restricted.													
RESPONSIBLE AGENCIES/INDIVIDUAL/S:													
* Department of Health (DOH)				* City of Cockburn (COC)				* Dept. of Environment & Conservation (DEC)					
* Department of Child Protection (DCP)				* WA Police (WAPOL)									
PREVENTION STRATEGIES:												AGENCY:	
* Seasonal Risk Assessment												* COC/LEMC	
* Monitoring programs relating to food hygiene, water treatment, sewerage treatment etc.												* DOH/COC	
* Immunization programs												* DOH/COC	
* Vector control programs												* DOH	
* Notifiable disease surveillance programs												* DOH	
* Collaboration with national and international health agencies												* DOH	
* Health promotion and education programs												* DOH/COC	
PREPAREDNESS STRATEGIES:												AGENCY:	
* Business Continuity Management Plan												* COC	
* Prepare, exercise and review Local Emergency Management Arrangements												* COC/LEMC	
* Knowledgebase of locations and availability of medical supplies around Australia												* DOH	
* Health care worker training in emergency management												* DOH	
* Communication - health care workers have access to disease control protocols and expert advice.												* DOH	
* Communication - National and International surveillance												* DOH	
* Establish management plans for potential epidemics/pandemics												* DOH	
* Conduct industry briefings												* DOH	
* Establish medical stockpiles												* DOH	
* Establish medical distribution plans and dispensing plans												* DOH	
* Outbreak management programs												* DOH	
* Develop Business Continuity Plans												* ALL AGENCIES	
* Establish quarantine rooms (fever rooms) as directed by DOH												* DOH/COC	
* Develop communication strategies to inform the local community												* COC	
RESPONSE STRATEGIES:												AGENCY:	
* Activation of the Local Emergency Management Arrangements												* COC/DOH	
* State Human Epidemic Emergency Management Committee meeting												* DOH	
* Establish State and/or local Human Epidemic Control Centres												* DOH	
* Isolate and treat cases												* DOH	
* Conduct tracing, testing and possible quarantining of contacts												* DOH	
* Administer vaccines or other drugs												* DOH	
* Advise on infection control measures												* DOH	
* Media releases to address public concerns, disseminate info on how to reduce risk of infection and what to do if infection is suspected												* DOH	
* Investigate cause of human epidemic												* DOH/COC	
* Oversee/conduct water sampling and maintenance of water quality												* DOH/DEC	
* Food safety monitoring												* DOH	
* Oversee safe disposal of contaminated waste												* DOH	
* Vermin control or insect infestations												* DOH	
* Update/assess information of City's sumps and drains												* COC	
RECOVERY STRATEGIES:												AGENCY:	
* Recovery Plan												* COC/DOH /DCP	
* Enhanced and/or increased public education programs												* DOH/COC	
* Increased surveillance and screening of 'at risk' groups												* DOH	
* Monitoring and eliminating or controlling the source or cause of the infection												* DOH/COC	
* Counseling, screening and following up effected individuals and their contacts												* DOH	
* Public education												* DOH	

Recommended Strategy Plan 8 – Marine Oil Pollution

RISK:	MARINE OIL POLLUTION					DATE:	12 November 2009					STRATEGY PLAN No:	8
Economy		Environment	X	Industry		Infrastructure		People		Property		Social	
RISK STATEMENT:													
There is a risk that if marine oil pollution occurred caused by spillage or illegal discharge of bunker oil from passing ships, it may impact on the surrounding ocean environment, such as fish and other sea life. There is a risk that if marine oil pollution occurred caused by spillage it may impact on the environment in terms of local fauna and flora, killing native birds, wildlife, marine life/organisms and contaminating delicate eco systems along the coast line. Cockburn Sound could be threatened.													
STRATEGY ANALYSIS:													
Vulnerability Data													
Discharge/spillage of oil into the marine environment would greatly impact all forms of ocean life, both above and underwater. Climatic conditions and ocean currents may move oil slicks and associated pollutants closer to the coastal strip and impact on the flora, fauna and soils located in these areas. Irreversible damage may occur to sensitive micro organisms in the ocean waters, subsequently breaking down or diminishing the ocean life food chain, which would have a flow on effect to humans.													
RESPONSIBLE AGENCIES/INDIVIDUAL/S:													
* City of Cockburn (COC)				* WA Police (WAPOL)				* Fire Emergency Services Authority (FESA)					
* RSPCA				* Federal Government (FG)				* Dept. of Environment & Conservation (DEC)					
				* Dept. of Planning & Infrastructure (DPI)									
PREVENTION STRATEGIES:												AGENCY:	
* Risk Assessment												* DPI/LEMC	
* Based on the National Plan for prevention of pollution of waters by oil, and the Federal plan on noxious substances												* DPI	
* Intergovernmental co-operation between Federal and State agencies												* FG	
* WESTPLAN – State level plan for oil pollution and the POWBONS Legislation												* FG	
* Increasing education and awareness in regards to pollution in the environment and 'what to do in the event of incidents'												* DPI/COC	
PREPAREDNESS STRATEGIES:												AGENCY:	
* Business Continuity Management Plan												* COC	
* Training program for operators responding to oil spill												* DPI	
* Equipment located within State												* DPI	
* Up to date contact list.												* DPI/COC	
* Procedures are up to date, active and tested												* DPI/COC	
* Existing animal management plan												* RSPCA/DEC/FESA/COC	
* Review, exercise and improve Local Emergency Management Arrangements												* COC	
RESPONSE STRATEGIES:												AGENCY:	
* Minor spills are the responsibility of the COC with assistance of the DPI on request.												* DPI/COC	
* Existing animal management plan												* COC/RSPCA/FESA	
* Activation Local Emergency Management Arrangements												* COC	
* Media and Community Information Management												* DPI	
RECOVERY STRATEGIES:												AGENCY:	
* Recovery Plan												* COC/LEMC	
* Allocated disposal sites for oily/contaminated waste												* COC	
* Cost recovery procedure												* DPI/COC	
* Media and Community Information Management												* DPI	

Recommended Strategy Plan 9 – Rail Freight Emergency

RISK:	RAIL FREIGHT EMERGENCY				DATE:	12 November 2009			STRATEGY PLAN No:	9
Economy	Environment	Industry	Infrastructure	People	Property	X	Social			
RISK STATEMENT:										
There is a risk that if a rail freight emergency occurred, property situated in close proximity to the rail lines could be damaged, particularly the Cockburn Central, South Beach and Coogee business/residential developments and the Bibra Lake industrial area. One major freight line extends through the City Of Cockburn from Fremantle Port–Bunbury–Fremantle Port whilst the southern PTA passenger line extends from Perth–Mandurah–Perth. Cockburn Central is a major sub-railway station and termination point for selected rail schedules carrying thousands of city commuters daily.										
STRATEGY ANALYSIS:										
Vulnerability Data										
Train accidents rarely occur within the City of Cockburn however with the introduction of the Perth – Mandurah Passenger railway line the risk has increased, exposing residential, commercial and industrial property situated in close proximity to railway lines and all property owners closely situated to public structures/buildings situated adjacent to railway lines. In addition a major freight line runs southwards from Fremantle through Cockburn along the western coastal strip. Consequently, those most at risk are the residential coastal developments of South Coogee and the industrial areas of Coogee and Henderson.										
RESPONSIBLE AGENCIES/INDIVIDUAL/S:										
* City of Cockburn (COC) * Australian Rail Group (ARG)		* WA Police (WAPOL) * WestNet (WN)		* Public Transport Authority (PTA) * Fire & Emergency Services Authority (FESA)						
PREVENTION STRATEGIES:								AGENCY:		
* Risk Assessment								* PTA		
* Media Campaigns/Public Awareness								* WAPOL/WN		
* Police Patrols & Enforcement								* WAPOL		
* Partnerships & Liaison with other Authorities/Agencies								* WAPOL		
* Rail Line Examination & Servicing								* WN/ARG		
* Databases regarding 'Incident Hot Spots'								* WN/WAPOL		
* Legislation								* WAPOL		
* Police Training								* WAPOL		
* Design and fund implementation of rail freight/transport measures								* COC		
PREPAREDNESS STRATEGIES:								AGENCY:		
* Local Emergency Management Arrangements								* COC		
* Business Continuity Management Plan								* COC		
* Metro Region Incident Management Plan (IMP)								* WN/PTA		
* 24 hour Emergency and Line Fault Reporting/Line Operations Centre								* WN		
* Police Training								* WAPOL		
* Partnerships & Liaison with other Authorities/Agencies								* WAPOL/PTA		
* Police Standard Operating Procedure's (SOP's) and communications								* WAPOL		
* Hazmat Identification								* WAPOL		
* Exercise, review and improve Local Emergency Management Arrangements								* COC		
RESPONSE STRATEGIES:								AGENCY:		
* Activation of Local Emergency Management Arrangements								* COC/PTA		
* Emergency response detailed in IMP								* WN		
* Mobile Police Facility								* WAPOL		
* Major Rail Crash Unit								* WAPOL		
* Metropolitan Police 24/7 response								* WAPOL		
* Partnerships & Liaison with other Authorities/Agencies								* WAPOL		
* Police SOP's and communications								* WAPOL		
* Compulsory First Aid Training by all staff								* WAPOL/WN/ARG		
* Media Management, Public Information								* WAPOL/PTA		
RECOVERY STRATEGIES:								AGENCY:		
* Recovery Plan								* COC		
* Police Coordinator & Coordination SOP's								* WAPOL		
* Evacuation Procedures								* WAPOL/FESA		
* Local Government Agreement with neighbouring councils								* COC/WALGA		
* Liaison with other agencies								* WAPOL		
* Police Coordinator & Coordination SOP's								* WAPOL		

Recommended Strategy Plan 10 – Road Transport Emergency

RISK:	ROAD TRANSPORT EMERGENCY				DATE:	12 November 2009			STRATEGY PLAN No:	10
Economy	Environment	Industry	Infrastructure	People	X	Property	Social			
RISK STATEMENT:										
There is a risk that if a major transport accident occurred, people in or near to the accident may be seriously injured or killed. Other road users may be involved, with possible injuries and /or multiple deaths. Toxic fumes from chemical and hazardous material spills and/or subsequent fires etc may cause people with respiratory issues or other health conditions to become ill in surrounding areas. Emergency response personnel are also at risk of injury or death in the event of an unforeseen explosion/s whilst attending to the injured, spillages and fires. Major arterial routes include Stock Road, North Lake Road, Rockingham Road, Cockburn Road, Row Highway and Kwinana Freeway. These routes dissect the City of Cockburn carrying thousands of vehicles daily ranging from city bound passenger cars and buses through to heavy haulage trucks bound to and from Fremantle.										
STRATEGY ANALYSIS:										
Vulnerability Data										
Vehicular accidents occur regularly within the City of Cockburn predominantly during the winter months due to inclement weather. The major arterial routes are the most vulnerable. Accidents can result in death and injury to vehicle occupants, persons working on public carriageways, animals & pets living within impact zones, other motorist's, sightseers, responders, passersby and pedestrians attending, driving and/or walking through incident zones.										
RESPONSIBLE AGENCIES/INDIVIDUAL/S:										
* City of Cockburn (COC)			* WA Police (WAPOL) * Main Roads Dept. (MRD)			* Dept. of Planning & Infrastructure (DPI) * Fire & Emergency Services Authority (FESA)				
PREVENTION STRATEGIES:								AGENCY:		
* Risk Assessment								* COC/LEMC		
* Media Campaigns/Public Awareness								* WAPOL		
* Police Patrols & Enforcement								* WAPOL		
* Partnerships & Liaison with other Authorities/Agencies								* WAPOL		
* Vehicle Examination & Licensing								* DPI/WAPOL		
* Databases regarding 'Hot Spots'								* MRD/WAPOL		
* Legislation								* WAPOL		
* Police Training								* WAPOL		
* Design and fund implementation of traffic measures								* COC		
PREPAREDNESS STRATEGIES:								AGENCY:		
* Business Continuity Management Plan								* COC		
* Metro Region Incident Management Plan (IMP)								* MRD		
* 24 hour Emergency and Traffic Fault Reporting/Traffic Operations Centre								* MRD		
* Police Training								* WAPOL		
* Partnerships & Liaison with other Authorities/Agencies								* WAPOL/MRD		
* Police Standard Operating Procedure's (SOP's) and communications								* WAPOL		
* Hazmat Identification								* WAPOL		
* Exercise, review and improve Local Emergency Management Arrangements								* COC/LEMC		
RESPONSE STRATEGIES:								AGENCY:		
* Emergency response detailed in IMP								* MRD		
* Mobile Police Facility								* WAPOL		
* Major Crash Unit								* WAPOL		
* Metropolitan Police 24/7 response								* WAPOL		
* Partnerships & Liaison with other Authorities/Agencies								* WAPOL		
* Police SOP's and communications								* WAPOL		
* Compulsory First Aid Training by all staff								* WAPOL		
* Local Emergency Management Arrangements in place								* COC		
* Media and Community Information Management								* WAPOL/MRD		
RECOVERY STRATEGIES:								AGENCY:		
* Recovery Plan								* COC		
* Media and Community Information Management								* COC /WAPOL		
* Police Coordinator & Coordination SOP's								* WAPOL		
* Evacuation Procedures								* WAPOL/FESA		
* Local Government Agreement with neighbouring councils								* COC/WALGA		
* Liaison with other agencies								* WAPOL		
* Police Coordinator & Coordination SOP's								* WAPOL		

Recommended Strategy Plan 11 – Severe Storm

RISK:	SEVERE STORM	DATE:	12 November 2009	STRATEGY PLAN No:	11	
Economy	Environment	Industry	Infrastructure X	People	Property X	Social
RISK STATEMENT:						
There is a risk that a severe storm will cause substantial property damage requiring external resources to be employed for periods of 12 hours or more. Commercial and industrial property situated along the Coogee/Henderson industrial shipping strip, may be damaged and forced to close. Major disruptions could occur to critical lifeline services such as water, power, gas supplies and road and rail networks.						
STRATEGY ANALYSIS:						
Vulnerability Data						
Storms occur periodically within the City of Cockburn predominantly during the winter months. The coastal residential, commercial and industrial areas are the most vulnerable however storms can travel inland on occasion. Storms can result in damage and destruction of homes, property, pasture and natural bush land/they can also cause death and injury to people, pets and livestock in extreme cases, disruption of utility services such as electric power, road/rail traffic disruption and accident, and evacuation of fire and flood threatened homes, public buildings, tourist venues and commercial and industrial centres.						
RESPONSIBLE AGENCIES/INDIVIDUAL/S:						
* City of Cockburn (COC) * Bureau of Meteorology (BOM) * Western Power Corp. (WPC)		* WA Police (WAPOL) * City of Cockburn (COC) * Dept. of Health (DOH)		* Dept. Community Development (DCD) * Fire Emergency Services Australia (FESA) * Insurance Council or Australia (ICA)		
PREVENTION STRATEGIES:						
* Risk Assessments				* AGENCY: COC/LEMC		
* Community Education & Warnings				* FESA/BOM		
* Application & Enforcement of Building codes				* COC		
* Underground Power Programme				* COC/WPC		
* Pruning Trees under Powerlines				* COC/WPC		
* Target & Improve Community Education				* FESA		
PREPAREDNESS STRATEGIES:						
* Business Continuity Management Plan				* AGENCY: COC		
* Community Warnings				* FESA/BOM		
* Local SES Unit Standard Operating Procedure's (SOP's)				* FESA		
* Identification of Resources				* FESA		
* Provision of Additional Resources above an agencies own resources				* FESA		
* Training of both FESA staff & FESA-SES Volunteers				* FESA		
* Annual Storm safe campaign				* FESA		
* Cleaning of Road Drainage systems				* COC		
* Review and Improve Local Emergency Management Arrangements				* COC		
* Review Metropolitan Severe Storm Plan				* FESA		
* Review and Improve Storm Damage Training & Equipment for SES Volunteers				* FESA		
* Review and Improve General Rescue Training & Equipment for SES Volunteers				* FESA		
* Insurances				* ICA		
RESPONSE STRATEGIES:						
* Storm Warnings				* AGENCY: FESA/BOM		
* Metropolitan Severe Storm Plan				* FESA		
* Local S.E.S Unit SOP's				* FESA		
* Mobile Command Post				* FESA/WAPOL		
* Post Impact Response (Rescue, Temp Building Repair ETC)				* FESA/WAPOL/DCD		
* Evacuation				* FESA/DCD/WAPOL		
* City of Cockburn after hours procedures/call outs				* COC		
* Local Emergency Management Arrangements in place				* COC/LEMC		
* Ongoing review Local SES Unit Response Equipment				* FESA		
* Greater use of Incident Management Groups				* FESA/COC		
RECOVERY STRATEGIES:						
* Liaison with other agencies				* AGENCY: FESA		
* Contact List				* FESA/SES/DOH/DCD/WAPOL		
* Recovery Plan				* COC/LEMC		

Recommended Strategy Plan 12 – Urban Fire

RISK:	URBAN FIRE	DATE:	12 November 2009	STRATEGY PLAN No:	12	
Economy	Environment X	Industry	Infrastructure X	People X	Property X	Social
RISK STATEMENT:						
There is a risk that an urban fire will cause major damage to residential, commercial and/or industrial property, which could leave residents homeless and businesses /industry unable to operate. Properties may be severely damaged or destroyed, with some being deemed unsafe and requiring demolishing. Human injury or multiple deaths may occur, and many pets may be homeless or killed. Toxic fumes from the fires may cause people with respiratory issues or other health conditions to become ill. Business areas such as Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill and the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson would be vulnerable. Eco flora and fauna may be significantly affected, destroyed or lost forever. Contaminants and/or pollutants could filter into the atmosphere whilst underlying soils could turn acidic and cause environmental damage to the environmental reserves of Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beeliar Regional Park. Urban fire could damage or destroy overhead power lines and communication infrastructure, causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected whilst an urban fire could impact upon roads and rail transport infrastructure causing fire debris, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses.						
STRATEGY ANALYSIS:						
Vulnerability Data						
Urban fires occur periodically within the City of Cockburn predominantly during the hotter months. The residential, commercial and industrial areas are the most vulnerable. Urban fires can result in damage and destruction of homes, property, pasture and natural bush land/they can also cause death and injury to people, pets and livestock, disruption of utility services such as electric power, road/rail traffic disruption and accident, and evacuation of fire and smoke threatened homes, public buildings, tourist venues and commercial and industrial centres.						
RESPONSIBLE AGENCIES/INDIVIDUAL/S:						
* City of Cockburn (COC) * Water Corporation (WC)		* WA Police (WAPOL)		* Fire Emergency Services Authority (FESA) * Insurance Council of Australia (ICA)		
PREVENTION STRATEGIES:						
* Risk Assessment				* AGENCY: COC/LEMC		
* Provide a range of fire prevention services to increase community awareness of hazards and involvement in minimizing their impact				* FESA/WAPOL		
* Enforce fire breaks as per local laws				* COC		
* Enforcement of Building Codes Australia				* COC		
* Building inspections & planning approvals				* FESA		
PREPAREDNESS STRATEGIES:						
* Prepare Local Emergency Management Arrangements				* AGENCY: COC/LEMC		
* To provide and maintain appropriate and adequate infrastructure, equipment, skilled personnel, plans and programs in preparation for fire				* FESA/WAPOL/COC/WC		
* To support the community in its own preparation for fire				* FESA/WAPOL		
* Review and Improve Local Emergency Management Arrangements				* COC		
* Installation and Maintenance of Reticulated Hydrant Network				* WC		
* Business Continuity Management Plan				* COC		
* Insurances				* ICA		
RESPONSE STRATEGIES:						
* To ensure rapid and comprehensive response to fires, to contain and minimize the impact of fires and to perform rescues.				* AGENCY: FESA/WAPOL/LIFELINES		
* To support the community in its own response to fires				* FESA/WAPOL		
* Identify Evacuation Centres in vulnerable areas				* COC		
* Media Management				* FESA		
RECOVERY STRATEGIES:						
* Fire investigation				* AGENCY: FESA/WAPOL		
* Recovery Plan				* COC/LEMC		
* Media and Community Information Management				* FESA/WAPOL		
* Insurances				* ICA		

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Appendix 15
Project Schedule

City of Cockburn (CoC) ERM Project Schedule

ID	Task name	Resources	Start	End	Completed	Duration
1.	Workscope prepared and send to City of Cockburn for approval	LGIS	24 Nov 08	Dec 08	Jan 09	2 weeks
2.	Revise workscope and send to City of Cockburn for approval	LGIS	13 Jan 09	Jan 09	April 09	2 weeks
3.	Workscope agreed by City of Cockburn	City of Cockburn	Jan 09	Jan 09	2 April 09	11 weeks
4.	Workscope amended by City of Cockburn, commence project	City of Cockburn	24 Apr 09	April 09	4 May 09	1 week
5.	Develop Community Survey and send to Project Manager for approval	LGIS	22 Apr 09	April 09	April 09	2 weeks
6.	Community Survey approved by Project Manager	City of Cockburn	April 09	April 09	2 June 09	5 weeks
7.	Community Survey Distribution methods Agreed and Actioned	City of Cockburn	June 09	June 09	26 June 09	2 weeks
8.	Interviews with LEMC/DEMC members as per City of Cockburn list & selected business / community groups (i.e. Coogee Chemicals, Austal Ships, Coogee Beach Holiday Park etc)	LGIS	27 July 09	20 Sept 09	20 Sept 09	8 weeks
9.	Weekly contact / interview updates to City of Cockburn	LGIS	3 Aug 09	20 Sept 09	8 Sept 09	6 weeks
10.	Distribution & receipt of community survey	City of Cockburn	1 Aug 09	18 Aug 09	18 Aug 09	3 weeks
11.	Collection, analysis & formalisation of extracted community survey information	LGIS	18 Aug 09	11 Sept 09	11 Sept 09	3 weeks
12.	Community survey results to City of Cockburn	LGIS	14 Sept 09	14 Sept 09	11 Sept 09	1 day
13.	Publication of survey results	City of Cockburn	20 Sept 09	TBA - COC	TBA - COC	TBA - COC
14.	Workshop with LEMC & selected business / community groups to establish risk ratings etc	LGIS facilitation / CoC hosted	5 Oct 09	6 Oct 09	06 Oct 09	2 days
15.	Preparation of draft ERM Report	LGIS Team	7 Oct 09	30 Oct 09	30 Oct 09	3 weeks
16.	Submit draft ERM Report to CoC	LGIS Team	30 Oct 09	30 Oct 09	30 Oct 09	1 day
17.	Meeting, review of draft report	LGIS Team / CoC	5 Nov 09	5 Nov 09	5 Nov 09	1 day
18.	Final ERM report handover	LGIS Team / CoC	13 Nov 09	13 Nov 09	13 Nov 09	1 day
19.	Final Aware Funding Report	City of Cockburn	16 Nov 09	20 Nov 09	20 Nov 09	5 days

LGIS Team: Rory Popa: Greg Cook: Moreno Parrella: Jill Downward.

Appendix 16

Priority Risk Register

Risk #	RISK SOURCE	RISK STATEMENT	Likelihood	Consequence	Level	Priority
1	AIR TRANSPORT EMERGENCY	There is a risk that if an aircraft collision/crash occurred in flight from/to Jandakot and/or Perth Domestic/International airports across residential, commercial and/or industrial areas, people, animals and/or pets may be injured, become ill and/or killed from the impact and exposure to toxic fumes, fires and smoke resulting from the falling/flying plane debris.	3	5	Extreme	1
2	BUSH FIRE	There is a risk that if a bushfire occurred, it may cause injury or death to people. People residing in bush land areas such as at Jandakot, Banjup, Wattleup, Hammond Park and Aubin Grove may require assistance, smoking embers, dirt and dust may litter the City of Cockburn causing an onset of respiratory conditions and increased demand on medical services. Medication supplies could run out. Some people may be stranded. Many pets may be homeless or killed.	5	5	Extreme	1
3	HAZARDOUS MATERIALS/ CHEMICAL SPILL	There is a risk that if a chemical/hazardous material spill occurred, illness, injury or death to people residing within the City of Cockburn may happen. The extent is dependent upon the location of the contamination, the climatic conditions and the nature, composition and amount of pollutant exposed to the general community. Many pets may also be affected, either becoming ill or dying.	5	3	Extreme	1
4	HUMAN EPIDEMIC	There is a risk that if an epidemic occurred, the 84,652 people that reside in the City of Cockburn would be at risk. Most vulnerable may be the aged groups 65+ years old and children aged less than 4 years old. Parts of the population vaccinated may have side effects and become ill or die. Quarantine of infected people will be enforced. Water supplies, drainage systems may become contaminated, therefore increasing the spread of disease. There will also be a loss of domestic livestock and pets due to the lack of proper care as human carers may be unavailable.	4	4	Extreme	1
5	ROAD TRANSPORT EMERGENCY	There is a risk that if a road transport emergency occurred, people in the accident may be seriously injured or killed. Other road users may be involved, with possible injuries and/or deaths. Toxic fumes from chemical and hazardous material spills and/or subsequent fires etc may cause people with respiratory issues or other health conditions to become ill in surrounding areas. Emergency response personnel are also at risk of injury or death in the event of an unforeseen explosion/s whilst attending to the injured, spillages and fires. Major arterial routes include Stock Road, North Lake Road, Rockingham Road, Cockburn Road, Row Highway and Kwinana Freeway. These routes dissect the City of Cockburn carrying thousands of vehicles daily ranging from city bound passenger cars and buses through to heavy haulage trucks bound to and from Fremantle	5	5	Extreme	1
6	URBAN FIRE	There is a risk that if urban fire occurred in high density, high rise residences, or buildings such as day care centres, pre-school, schools, aged care facilities, retirement villages, cinemas and shopping centres, injury or multiple deaths may occur, and many pets may be homeless or killed. Toxic fumes from the fires may cause people with respiratory issues or other health conditions to become ill in surrounding areas. Survivors would be displaced and emergency service personnel in attendance may be at risk of injury or death from fighting the fire and entering unsafe properties and buildings.	5	4	Extreme	1
7	BUSH FIRE	There is a risk that if a bushfire occurred, it could damage or destroy overhead power lines and communication infrastructure, causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected. It could impact upon roads and rail transport infrastructure causing fire debris, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses. The Woodman Point Waste Water Treatment Plant could be threatened.	5	3	Extreme	2
8	SEVERE STORM	There is a risk that if a severe storm occurred, it could damage or destroy overhead power lines and communication infrastructure, causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected whilst a bushfire could impact upon roads and rail transport infrastructure causing fire debris, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses. The Woodman Point Waste Water Treatment Plant could be threatened.	5	4	Extreme	2

Risk #	RISK SOURCE	RISK STATEMENT	Likelihood	Consequence	Level	Priority
9	URBAN FIRE	There is a risk that if an urban fire occurred, it could damage or destroy overhead power lines and communication infrastructure, causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected whilst an urban fire could impact upon roads and rail transport infrastructure causing fire debris, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses.	4	4	Extreme	2
10	AIR TRANSPORT EMERGENCY	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, fire and/or explosion may occur and cause permanent or significant private, commercial and public property damage. Buildings directly impacted and surrounding buildings may be destroyed/damaged from flying debris and/or the impact of collision	4	4	Extreme	3
11	BUSH FIRE	There is a risk that if a bushfire occurred, it could destroy homes and damage property particularly those who reside in bush land areas such as at Jandakot, Banjup, Wattleup, Hammond Park and Aubin Grove. Demolition of property may be necessary. Shopping centres situated at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill could be threatened whilst businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson could also be affected. Demolition of private, commercial and public properties may be necessary.	5	5	Extreme	3
12	CYCLONE	There is a risk that if a cyclone occurred, it could cause flooding, destroy homes and damage property particularly those who reside in coastal areas such as at Woodman Point Caravan Park, Coogee Beach Caravan Park, South Beach and Port Coogee. Evacuation of people and pets may be necessary. Property could be damaged and/or destroyed including shopping centres situated at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted	3	5	Extreme	3
13	RAIL FREIGHT EMERGENCY	There is a risk that if a rail freight emergency occurred, property situated in close proximity to the rail lines could be damaged, particularly the Cockburn Central, South Beach and Coogee business/residential developments and the Bibra Lake industrial area. One major freight line extends through the City Of Cockburn from Fremantle Port-Bunbury-Fremantle Port whilst the southern PTA passenger line extends from Perth-Mandurah-Perth. Cockburn Central is a major sub-railway station and termination point for selected rail schedules carrying thousands of city commuters daily.	4	4	Extreme	3
14	SEVERE STORM	There is a risk that a severe storm will cause substantial property damage requiring external resources to be employed for periods of 12 hours or more. Commercial and industrial property situated along the Coogee/Henderson industrial shipping strip, may be damaged and forced to close. Major disruptions could occur	4	4	Extreme	3
15	URBAN FIRE	There is a risk that an urban fire will cause major damage to residential, commercial and/or industrial property, which could leave resident's homeless and businesses /industry unable to operate. Many properties may be affected by the fire and associated explosions if these properties housed volatile hazardous materials. Properties may be severely damaged or destroyed, with some being deemed unsafe and requiring demolishing. Business areas such as Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill and the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson would be vulnerable particularly if those businesses stocked accelerants such as wood, chemicals or fuels.	5	4	Extreme	3
16	ANIMAL & PLANT DISEASE OUTBREAK	There is a risk that if an outbreak of animal and plant disease occurred, industries that provide animal and plant products and services, such as egg farms, poultry breeding farms, plant nurseries, furniture manufacturers, seafood processing etc may be impacted due to an outbreak and subsequent closure or loss of stock. Retail businesses dependent on these industries will also be affected due to reduction in products and services being received.	4	4	Extreme	4
17	HUMAN EPIDEMIC	There is a risk that if an epidemic occurred, industry will be forced to suspend trading or close their doors due to the severe staff shortage that may occur. The snowball effect being that primary based industries would be unable to provide the goods and services to businesses and clients. Primary, secondary and service industries will all be impacted, due to fall in production; therefore severe financial losses will be incurred.	4	4	Extreme	4

18	ANIMAL & PLANT DISEASE OUTBREAK	There is a risk that if an outbreak of animal and plant disease occurred, permanent environmental damage may occur. Manning Park has 142 hectares of remnant vegetation which includes Catherine Point Reserve, C. Y. O'Connor Reserve, and Beelair, Woodman Point and Jandakot Regional Parks. Widespread Animal Pest & Plant Disease may cause significant environmental damage to the various bush land occupants.	5	5	Extreme	5
19	BUSH FIRE	There is a risk that if a bushfire occurred, large areas of natural environment may be destroyed. The City of Cockburn has approximately 4,760ha of bush land within the region of which 593ha is located in the Beelair, Woodman Point and Jandakot Regional Parks. Widespread environmental damage may destroy plants, flora and fauna in the 4,760ha of bush land contained within the City of Cockburn and that contained within the Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelair Regional Park. Animals and wildlife may become homeless.	5	5	Extreme	5
20	ENVIRONMENTAL DISASTER	There is a risk of contaminants and/or pollutants, including acidic soils, caused by an environmental disaster and its immediate location and climatic conditions may impact the environmental reserves of Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelair Regional Park that have eco, flora and fauna systems. There is a risk that if negative changes occurred to the natural environment eco flora and fauna may be significantly affected, destroyed or become extinct.	3	5	Extreme	5
21	MARINE OIL POLLUTION	There is a risk that if marine oil pollution occurred caused by spillage from passing ships, it may impact on the surrounding ocean environment, such as fish and other sea life. There is a risk that if marine oil pollution occurred caused by spillage it may impact on the environment in terms of local fauna and flora, killing native birds, wildlife, marine life/organisms and contaminating delicate eco systems along the coast line. Cockburn Sound could be threatened.	5	5	Extreme	5
22	URBAN FIRE	There is a risk that if an urban fire occurred, it could affect the natural environment. Eco flora and fauna may be significantly affected, destroyed or lost forever. Contaminants and/or pollutants could filter into the atmosphere whilst underlying soils could turn acidic and cause environmental damage to the environmental reserves of Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelair Regional Park. damage or destroy	5	3	Extreme	5
23	ANIMAL & PLANT DISEASE OUTBREAK	There is a risk that if an outbreak of animal and plant disease occurred, permanent economic damage to local businesses may occur. Local Businesses that work with animals, plants and/or depend upon animal/plant derivatives may have to suspend trading or even close permanently. This could have a devastating effect on the local economy that could see businesses incur financial hardship/loss and/or even enter receivership.	4	4	Extreme	6
24	HUMAN EPIDEMIC	There is a risk that if an epidemic occurred, the local and state economy may be impacted due an increase number of workforce becoming ill/dying or staying at home due to quarantine measures and/or caring for ill family members. Demand will increase for non-financial and financial assistance from local community welfare agencies, state based and federal based agencies, as people are unable to work and lead normal lives.	4	4	Extreme	6
25	BUSH FIRE	There is a risk that if a bushfire occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult	4	4	Extreme	7
26	HUMAN EPIDEMIC	There is a risk that if an epidemic occurred, social and cultural ideals may be affected due to anti social targeting of quarantined groups and/or infected individuals. Hospitals and emergency centres may not be able to cope with the increasing number of cases, and people may become aggressive, abusive and violent if they feel inadequate attention and care is given to them. In general people will be cut off from normal day-to-day social activities.	4	4	Extreme	7

Risk #	RISK SOURCE	RISK STATEMENT	Likelihood	Consequence	Level	Priority
27	CHEMICAL/ BIOLOGICAL/ RADIOLOGICAL/ NUCLEAR DISASTER	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may affect people in terms of short/ long term illnesses, mutating diseases, genetic disorders, psychological/physical injuries and death from widespread fires, explosions, toxic material in both air and water supplies, plus other forms of contamination. Widespread displacement of residents and community members may occur and large numbers of people may need to be quarantined. Risk of illness and death presents itself to the emergency services personnel, both out in the affected areas and within the medical facilities/hospitals. Family pets and animals plus livestock may also become homeless and perish.	1	5	High	1
28	CYCLONE	There is a risk that if a cyclone occurred, it may cause injury or death to people. People residing in coastal areas such as at South Beach and Port Coogee, hostels, aged care facilities, schools or retirement villages, may require assistance. Some people may be stranded and displaced. With many pets may be homeless or killed.	3	4	High	1
29	ENVIRONMENTAL DISASTER	There is a risk of contaminants and/or pollutants causing injury or death to people from inhalation or skin exposure. The extent is dependent upon the location of the contamination, the climatic conditions and the nature, composition and amount of pollutant exposed to the general community. Many pets may also be affected, either becoming ill or dying.	4	3	High	1
30	MARINE OIL POLLUTION	There is a risk that if marine oil pollution occurred, it may impact on people, local residents and business staff, as their immediate living and working environment may be affected. Depending on the extent and location of the marine oil pollution some parts of the local community may need to be displaced, some residents may be frail and invalid, which in turn raises further medical issues.	4	3	High	1
31	SEVERE STORM	There is a risk that a severe storm will cause serious injury or death to residents of properties and employees of businesses. Emergency response service personnel are at risk of injury or death when attending to call outs to storm damage and accidents. People may need to be displaced into large community halls etc as a temporary measure. Pets and livestock may be killed and become homeless.	4	3	High	1
32	TERRORISM	There is a risk of terrorism occurring upon people, whereupon a large number of people may be killed and/or severely injured. The City of Cockburn has approximately 84,652 people of which 85% are Australian Citizens whilst 28.8% were born overseas. The main aim of a terrorist attack is to target people; therefore depending on the extent of the attack, people will be displaced, lose family members, loved ones and pets, lose property and possessions and lose their livelihood. Emergency response personnel may also be at risk of injury or death as they deal with clean up and rescue works in the immediate and surrounding impact sites	1	5	High	1
33	CYCLONE	There is a risk that if a cyclone occurred, it could damage or destroy overhead power lines and communication infrastructure, causing service and communication interruptions to homes, businesses, industry and traffic management lights. The South Fremantle switchyard terminal may be affected. It could impact upon roads and rail transport infrastructure causing flooding, damage to roads, traffic congestion, accidents and impact on the supply of products and services to residents and businesses. It could damage or destroy infrastructure at The Woodman Point Waste Water Treatment Plant and the Cockburn Cement and Quarry Works.	3	4	High	2
34	ROAD TRANSPORT EMERGENCY	There is a risk that if a road transport emergency occurred, infrastructure in the near vicinity may be destroyed, particularly electric power lines, causing major service disruptions to the immediate area. If heavy road transport vehicles were involved in the emergency on the main road networks, such as Thomas Road, Kwinana Freeway, Rockingham Road, and Cockburn Road, this would cause mass disruptions and delays to the other road users	4	3	High	2
35	TERRORISM	There is a risk of terrorism occurring upon major infrastructure services such as transport networks including major roads, bus, and train services within the City of Cockburn. Power grids, gas supplies and water infrastructure may be targeted by terrorism, which would cause significant strain on the provision of these services to the community and neighboring communities	1	5	High	2

36	CHEMICAL/ BIOLOGICAL/ RADIOLOGICAL/ NUCLEAR DISASTER	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may impact property in terms of community areas being cordoned off, buildings being condemned due to structural and contamination reasons. People being relocated to safer premises may lose all possessions and other personal property items. Widespread damage and destruction of property may occur in the case of chemical and nuclear disasters.	2	5	High	3
37	OAD TRANSPORT EMERGENCY	There is a risk that if a road transport emergency occurred, property may be damaged or destroyed if the accident occurred in built up residential area.	4	3	High	3
38	TERRORISM	There is a risk of terrorism occurring that may have an impact on property, both commercial and public buildings. Properties adjacent to the main impact area of terrorist activity may be severely damaged and/or destroyed. Some properties will be deemed uninhabitable, irreparable, therefore requiring demolishing.	1	5	High	3
39	ENVIRONMENTAL DISASTER	There is a risk of contaminants and/or pollutants caused by an environmental disaster may impact on industry responsible for the production of the products, chemicals, fertilizer etc, which produce these pollutants in an uncontrolled environment. Industries may be severely impacted as investigations by 3rd parties may force temporary closures and cease of production.	3	4	High	4
40	TERRORISM	There is a risk of terrorism occurring on industry located at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill shopping centres and the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson. The Coogee/Henderson shipping industrial area may be at risk of terrorism, especially as Defense patrol boats and other Australian Govt vessels are maintained and serviced in this area. The impact will be a high level of destruction and crippling affect to businesses and people in these areas	1	5	High	4
41	HAZARDOUS MATERIALS/ CHEMICAL SPILL	There is a risk that if a chemical/hazardous material spill occurred, contamination of the environment, underground water table and air may occur. Damage to certain eco systems contained within Manning Park, CY O'Connor Reserve, Woodman Point Regional Park and Beelir Regional Park could occur from chemical carrying vehicles en route to/from Fremantle Port. If a chemical/hazardous material spill occurred off shore, damage to the coastal environment from Coogee to Henderson may occur destroying coastal and water based eco systems.	4	3	High	5
42	RAIL FREIGHT EMERGENCY	There is a risk that if a rail freight emergency occurred and depending on the climatic conditions and location of the emergency, environmental areas may be affected by derailed freight carriages carrying toxic chemicals or materials, plus any other fuel like substances coming from any vehicles involved in the emergency. Fires and explosions from highly flammable and toxic materials could present a high risk to waterways, flora and fauna.	2	5	High	5
43	ROAD TRANSPORT EMERGENCY	There is a risk that if a road transport emergency occurred and depending on the climatic conditions and location of the emergency, environmental areas may be affected by road transport vehicles carrying toxic chemicals or materials, plus any other fuel like substances coming from any vehicles involved in the emergency. Fires and explosions from highly flammable and toxic materials could present a high risk to natural reserves, waterways, flora and fauna.	4	3	High	5
44	SEVERE STORM	There is a risk that a severe storm will cause serious damage to the environment and sensitive eco systems along the coast line and further inland in the City of Cockburn, requiring major restitution and 3rd party intervention, affecting City of Cockburn budget and operations	4	3	High	5
45	TERRORISM	There is a risk of terrorism occurring that may impact on the environment due to the secondary fires and possible spillage of hazardous materials stemming from the initial terrorist attack.	1	5	High	5
46	MARINE OIL POLLUTION	There is a risk that if marine oil pollution occurred, it may impact on the local economy due to the financial losses suffered by some industries and businesses in close proximity of the oil pollution. Reliance on insurance and other forms of financial reimbursement will impact on the profitability of the economy. Clean up of the oil pollution may incur heavy costs both financial and non-financial for the local economy, with a flow onto the state economy.	4	3	High	6

Risk #	RISK SOURCE	RISK STATEMENT	Likelihood	Consequence	Level	Priority
47	TERRORISM	There is a risk of terrorism occurring that may have an impact on the local and state economy, as certain parts of the economy will cease operations, specifically areas directly affected by the terrorist attack. Welfare agencies, hospitals and medical facilities would be placed under immense pressure. There would be very high financial and non- financial losses in the economy, and some parts of the economy may see a downturn, such as tourism.	1	5	High	6
48	ANIMAL & PLANT DISEASE OUTBREAK	There is a risk that if an outbreak of animal and plant disease occurred, social and cultural damage to community recreation activities may occur. Access to recreation areas may be restricted whilst people and animals may be quarantined and removed from their families.	4	3	High	7
49	CHEMICAL/ BIOLOGICAL/ RADIOLOGICAL/ NUCLEAR DISASTER	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may affect the social and or cultural aspects of the community, as there will be a complete breakdown of normal social behavior amongst the community. People will be traumatized due to the large scale of human casualties and associated events, and normal day-to-day living for the majority of the population will be interrupted indefinitely. People will react in diverse ways, which may breed anti-social behavior, looting and violence.	1	5	High	7
50	CYCLONE	There is a risk that if a cyclone occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult	3	4	High	7
51	TERRORISM	There is a risk of terrorism occurring that may impact on the social and cultural aspects of the community, whereupon people are traumatized and do not participate in large group events or activities. Some sporting events will be cancelled and/or relocated. Certain people of a diverse cultural background may be targeted by vigilante groups and pressured to leave the community.	1	5	High	7
52	ANIMAL & PLANT DISEASE OUTBREAK	There is a risk that if an outbreak of animal and plant disease occurred, people may become infected, ill and/or die. The City of Cockburn has approximately 7493 senior citizens 65+ years and approximately 5222 children under the age of 4 years. The City of Cockburn has 9 aged care facilities and 12 childcare centres.	1	4	Medium	1
53	EARTHQUAKE	There is a risk that an earthquake may cause injury or death. Approximately 84,652 people reside within the City of Cockburn. People may be seriously injured and killed from collapsing buildings, falls from unlevelled ground and mass stampedes if escaping from inside large and/or multi storing buildings. Deaths and injuries may also occur from traffic accidents, falling power lines and poles, severed gas and fuel lines. Many pets would become homeless or killed.	1	4	Medium	1
54	RAIL FREIGHT EMERGENCY	There is a risk that if a rail freight emergency occurred, people may be seriously injured and/or killed if it was due to a collision between rail and rail, or rail and road vehicle or derailment. Toxic fumes from chemical and hazardous material spills and/or subsequent fires etc may cause people with respiratory issues or other health conditions to become ill in surrounding areas. Emergency response personnel are also at risk of injury or death in the event of an unforeseen explosion/s whilst attending to the injured, spillages and fires.	2	4	Medium	1
55	TSUNAMI	There is a risk that if a tsunami occurred, it may cause injury or death to people. People residing in coastal areas such as at South Beach and Port Coogee, hostels, aged care facilities, schools or retirement villages, may require assistance. Some people may be stranded and displaced, with many pets becoming homeless or being killed. Widespread debris, refuse and sewage may litter the City of Cockburn causing an onset of disease and pestilence. The Henderson Rubbish Tip may be washed out and spreads decaying refuse into neighboring residential areas, adding to increased chance of disease spreading and infection.	2	4	Medium	1
56	AIR TRANSPORT EMERGENCY	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, infrastructure damage may happen. Power and water services may be affected, lost or destroyed. Homes and businesses may not be able to function for an extended period. Road and rail transport may be suspended or withdrawn for an extended period. People may not be able to attend to normal everyday duties such as going to work or shopping.	3	3	Medium	2

57	ENVIRONMENTAL DISASTER	There is a risk of contaminants and/or pollutants generated by an environmental disaster may cause destruction, disruption to major infrastructure such as water, sewerage, drains and pumps. This would cause an adverse impact on industry particularly at the Waste Water Treatment Plant and underground water table. If the disaster occurs near major road and rail routes, they may be impacted by closure or re-routing of transport vehicles etc.	3	3	Medium	2
58	RAIL FREIGHT EMERGENCY	There is a risk that if a rail freight emergency occurred, infrastructure such as arterial roads adjacent to the incident may be closed and major traffic detours will be put into effect over a lengthy period of time. This will impact heavy road vehicles that rely on these roads to transport goods. It will also impact non local traffic that is using the main arterial roads. Also impacted would be other rail network industries that rely on the rail network infrastructure for transportation of goods and services, as the major rail lines may be closed for an indefinite period of time. The rail freight emergency may have also caused damage to the power grid system if derailed carriages collided with power lines/transformers.	3	3	Medium	2
59	TSUNAMI	There is a risk that if a tsunami occurred, it could damage or destroy overhead power lines and communication infrastructure, causing service and communication interruptions to homes, businesses, industry, roads and rail transport infrastructure. The South Fremantle switchyard terminal may be affected and it could damage or destroy infrastructure at The Woodman Point Waste Water Treatment Plant and the Cockburn Cement and Quarry Works.	2	4	Medium	2
60	ANIMAL & PLANT DISEASE OUTBREAK	There is a risk that if an outbreak of animal and plant disease occurred, private, commercial and public properties that have been infected by this outbreak will be quarantined and immediate residents, tenants or owners will be displaced.	1	4	Medium	3
61	TSUNAMI	There is a risk that if a tsunami occurred, it could cause flooding, destroy homes and damage property particularly those who reside in coastal areas such as at Woodman Point Caravan Park, Coogee Beach Caravan Park, South Beach and Port Coogee. It could disrupt damage and destroy property including shopping centres at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill. Evacuation of people and pets may be necessary.	2	4	Medium	3
62	BUSH FIRE	There is a risk that if a bushfire occurred, it could damage or destroy industry in the area such as The Woodman Point Waste Water Treatment Plant and the Cockburn Cement and Quarry Works. Other industries or businesses relying on the affected primary industries will also be impacted.	3	3	Medium	4
63	CHEMICAL/ BIOLOGICAL/ RADIOLOGICAL/ NUCLEAR DISASTER	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may affect industry in terms of loss/ disruption and closure of industries, businesses and commercial areas. Loss of human resources will impact all levels of industry as will damage and destruction of properties.	1	4	Medium	4
64	CYCLONE	There is a risk that if a cyclone occurred, industry along the Henderson strip and within Cockburn Sound may be impacted. Some may be damaged and/or destroyed. Industries reliant on natural resources for farming and fishing will also be affected, with death of livestock or loss of fishing stock.	3	3	Medium	4
65	ROAD TRANSPORT EMERGENCY	There is a risk that if a road transport emergency occurred, industries such as those located at Cockburn, South Lakes, Hamilton Hill, Spearwood and Success shopping centres, and areas such as Henderson, Coogee, Bibra Lake and Spearwood, that rely on road transport of their goods may be affected if the road emergency takes more than one day to clear, which may then flow into weeks if a major investigation was required. Industries unable to provide primary goods and services to businesses via the road system may need to source other more expensive methods of transportation. The increased costs would then be passed onto dependant businesses/clients and eventually onto the consumer.	4	2	Medium	4
66	TSUNAMI	There is a risk that if a tsunami occurred, it could impact upon industry in terms of destroying the primary resources required for manufacturing of certain products and goods. Failure of primary industry to provide will have an adverse effect on businesses reliant on these industries	2	4	Medium	4

Risk #	RISK SOURCE	RISK STATEMENT	Likelihood	Consequence	Level	Priority
67	URBAN FIRE	There is a risk that if an urban fire occurred, industry areas such as Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill and the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson many businesses would be vulnerable particularly if those businesses stocked accelerants such as wood, chemicals or fuels.	3	3	Medium	4
68	AIR TRANSPORT EMERGENCY	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, fires and explosions may occur and cause permanent environmental damage. Fire, smoke and debris may have a devastating affect on the natural environment, long term and/or permanent environmental damage may occur particularly in the Jandakot Regional Park. The fire and aircraft fuel/oil could spread to sensitive eco systems, destroying native flora and fauna	3	3	Medium	5
69	CHEMICAL/ BIOLOGICAL/ RADIOLOGICAL/ NUCLEAR DISASTER	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may impact the environment depending on the extent of the disasters and the climatic conditions. Massive fires and explosions produced by chemical and nuclear disasters can create highly toxic waste, which will affect the air and water quality, with leaching into the water table, natural reserves, destroying and damaging flora and fauna.	2	4	Medium	5
70	CYCLONE	There is a risk that if a cyclone occurred, widespread environmental damage may destroy plants, flora and fauna at Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelair Regional Park. Animals and wildlife may become homeless.	3	3	Medium	5
71	TSUNAMI	There is a risk that if a tsunami occurred, widespread environmental damage may destroy plants, flora and fauna at Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelair Regional Park. Debris and other pollutants may wash into natural or man made lakes affecting water quality and destroying sensitive eco systems.	2	4	Medium	5
72	CHEMICAL/ BIOLOGICAL/ RADIOLOGICAL/ NUCLEAR DISASTER	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may affect the local and state economy. High financial and non-financial losses will impact the entire economy. Reliance on external agencies to assist in the restructuring of the community will impact the state economy as recovery costs will be high.	1	4	Medium	6
73	CYCLONE	There is a risk that if a cyclone occurred, medium, long term or permanent economic damage may happen to commercial and industrial marine businesses at the commercial shopping centre's located at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill, the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson and Cockburn Cement and Quarry Works.	3	3	Medium	6
74	ENVIRONMENTAL DISASTER	There is a risk of contaminants and/or pollutants caused by an environmental disaster may impact on the economy of the community due to clean up costs, suspension of trade for businesses selling the products that may generate these pollutants. There may be an impact on future land developments as the land may be too contaminated to allow for building etc, therefore CoC growth may be impacted.	3	3	Medium	6
75	TSUNAMI	There is a risk that if a tsunami occurred, the local economy will be impacted, with clean up costs, affected businesses being closed, pertinent community services and food supplies may be affected. Land developments and sites inundated with water may require substantial and costly works undertaken to redeem. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted.	2	3	Medium	6
76	URBAN FIRE	There is a risk that if an urban fire occurred there may be an impact on the economy if the fire occurred in commercial and industrial areas of the community. Both financial and non-financial losses may occur from the loss of business, people and property, with some parts of the economy relying on external assistance.	3	3	Medium	6
77	AIR TRANSPORT EMERGENCY	There is a risk that if an aircraft collision/crashed occurred in a residential area, permanent social and cultural damage may occur. Recreation areas may be affected or unavailable. Pilots training out of Jandakot Airport use the surrounding residential air space particularly that over Jandakot, Banjup and Leeming residential suburbs, may be affected. Jandakot is also used by the Flying Doctor Service and commercial airline companies for flights to and from Rottnest Island etc, therefore these services may be affected.	2	3	Medium	7

78	ENVIRONMENTAL DISASTER	There is a risk of contaminants and/or pollutants generated by an environmental disaster may impact on social/cultural aspects of the community, as areas affected by the disaster may be quarantined. Residents may be limited to certain public areas and buildings. Residents may be displaced and this may cause tension etc.	2	3	Medium	7
79	MARINE OIL POLLUTION	There is a risk that if marine oil pollution occurred, it may impact on the social and cultural activities of the community due to the impact it would have on water based sporting events and activities. Certain sporting groups and individuals may be unable to compete and/or engage in their water based sport.	3	3	Medium	7
80	SEVERE STORM	There is a risk that a severe storm will impact on social and cultural aspects of the community, as sporting events and activities will be cancelled due to damage or destruction of parks, reserves and community or private buildings - halls etc. Some people in the community may require counselling if affected by a loss of property, possessions, human life or pets and animals	3	3	Medium	7
81	TSUNAMI	There is a risk that if a tsunami occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult	2	3	Medium	7
82	URBAN FIRE	There is a risk that if an urban fire occurred, it may impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult	3	3	Medium	7
83	FLOODING	There is a risk that if a flood occurred, it may cause injury or death to people. People residing in coastal areas such as at South Beach and Port Coogee, hostels, aged care facilities, schools or retirement villages, may require assistance. Some people may be stranded and displaced, with many pets becoming homeless or being killed. Widespread debris, refuse and sewage may litter the City of Cockburn causing an onset of disease and pestilence. The Henderson Rubbish Tip may be washed out and spreads decaying refuse into neighboring residential areas, adding to increased chance of disease spreading and infection.	3	2	Low	1
84	ANIMAL & PLANT DISEASE OUTBREAK	There is a risk that if an outbreak of animal and plant disease occurred, infrastructure utilities such as water supplies and drainage systems may be affected due to leaching into the water table of infected animal carcasses and by products of treatment equipment.	1	1	Low	2
85	CHEMICAL/ BIOLOGICAL/ RADIOLOGICAL/ NUCLEAR DISASTER	There is a risk that a Chemical/Biological/Radiological/Nuclear Disaster may impact infrastructure in terms of contamination of water supplies, drainage and sewage systems. Due to the possible large amount of human casualties there may be a significant breakdown and failure of critical services to the community, such as power, gas, water, road and rail transport.	1	3	Low	2
86	EARTHQUAKE	There is a risk that an earthquake would damage, destroy and cause infrastructure disruptions to electrical power, communications, gas, water, sewerage and drainage. Fire, flooding, explosion from severed lines, water storage facilities would result in major disruption to roads, traffic control lights and vulnerable people without household services would be susceptible. Integral main road and rail routes may be affected, preventing the ongoing delivery of other goods and services to the community and neighbouring Councils.	1	3	Low	2
87	FLOODING	There is a risk that if a flood occurred, it could damage or destroy overhead power lines and communication infrastructure, causing service and communication interruptions to homes, businesses, industry, roads and rail transport infrastructure. The South Fremantle switchyard terminal may be affected and it could damage or destroy infrastructure at The Woodman Point Waste Water Treatment Plant and the Cockburn Cement and Quarry Works.	2	2	Low	2
88	HAZARDOUS MATERIALS/ CHEMICAL SPILL	There is a risk that if a chemical/hazardous material spill occurred, damage, destruction and/or disruption to major infrastructure such as water, sewerage, drains and pumps may happen. Chemicals and hazardous materials are periodically transported via Cockburn, Rockingham and Stock Roads en route to/from Fremantle Port. Roads may be closed for extended periods during the containment and clean-up period.	3	2	Low	2

Risk #	RISK SOURCE	RISK STATEMENT	Likelihood	Consequence	Level	Priority
89	HUMAN EPIDEMIC	There is a risk that if an epidemic occurred, infrastructure such as road, rail and sea based transport that businesses in the CoC rely upon may be impacted due to the shortage of personnel to operate these services. There may be increases in power outages etc as key staff is unavailable to maintain critical systems. Hospital and medical infrastructures would be under immense strain.	2	2	Low	2
90	MARINE OIL POLLUTION	There is a risk that if marine oil pollution occurred, it may impact on infrastructure, especially in terms of shipping and marine vessel movements along and within Cockburn Sound and Henderson strip, to and from Fremantle Port and Garden Island.	2	2	Low	2
91	EARTHQUAKE	There is a risk that an earthquake would disrupt and damage and destroy business property throughout the City of Cockburn including shopping centres at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted. An earthquake could damage or destroy property (homes and buildings not built to earthquake standards). Buildings may collapse or be rendered unsound and uninhabitable.	1	3	Low	3
92	ENVIRONMENTAL DISASTER	There is a risk of contaminants and/or pollutants generated by an environmental disaster may cause the isolation of a property if the disaster's source was from here, and/or surrounding properties to limit the spread of contamination. Properties may become unusable or uninhabitable for the future and may be demolished.	3	2	Low	3
93	FLOODING	There is a risk that if a flood occurred, it could cause flooding, destroy homes and damage property particularly those who reside in coastal areas such as at Woodman Point Caravan Park, Coogee Beach Caravan Park, South Beach and Port Coogee. It could disrupt damage and destroy property including shopping centres at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill Evacuation of people and pets may be necessary.	3	2	Low	3
94	HAZARDOUS MATERIALS/ CHEMICAL SPILL	There is a risk that if a chemical/hazardous material spill occurred, damage to property may occur, particularly in areas where such materials are more readily identifiable, such as at Bibra Lake, Coogee, Spearwood and Henderson industrial areas. Explosions may occur from community compounds mixing with the chemical/ material spill, which may damage property.	3	2	Low	3
95	HUMAN EPIDEMIC	There is a risk that if an epidemic occurred, property may be impacted especially if quarantine measures are put in place to curb the spread of disease. Some property may be uninhabitable for an extended period of time.	2	1	Low	3
96	MARINE OIL POLLUTION	There is a risk that if marine oil pollution occurred, it may impact on property located within close proximity of this oil pollution. Some properties may be damaged by the oil and associated sludge build up, therefore becoming in effect quarantined and unusable in the immediate short term. Financial losses may be incurred due to the loss and damage sustained to property.	2	2	Low	3
97	AIR TRANSPORT EMERGENCY	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, various primary and secondary type industries may be affected. Marine and commercial industries along the Henderson strip and within Cockburn Sound may be impacted.	2	2	Low	4
98	EARTHQUAKE	There is a risk that an earthquake would impact upon industry in terms of destroying the primary resources required for manufacturing of certain products and goods. Failure of primary industry to provide will have an adverse effect on businesses reliant on these industries	1	2	Low	4
99	FLOODING	There is a risk that if a flood occurred, it could impact upon industry in terms of destroying the primary resources required for manufacturing of certain products and goods. Failure of primary industry to provide will have an adverse effect on businesses reliant on these industries	2	2	Low	4
100	HAZARDOUS MATERIALS/ CHEMICAL SPILL	There is a risk that if a chemical/hazardous material spill occurred, it could impact upon industry in terms of destroying the primary resources required for manufacturing of certain products and goods. Failure of primary industry to provide will have an adverse effect on businesses reliant on these industries	3	2	Low	4

101	MARINE OIL POLLUTION	There is a risk that if marine oil pollution occurred, it may impact on nearby industrial centres, especially if this occurred along the Coogee/Henderson coastal strip by causing them to suspend certain activities and assist in the clean up. It may affect the local professional fishing industry, due to the possible loss of fish and other ocean life stock. Long term commercial fishing may become unsustainable.	2	2	Low	4
102	RAIL FREIGHT EMERGENCY	There is a risk that if a rail freight emergency occurred, the industries that rely on rail transport of their goods may be affected if the rail emergency takes a number of days to clear, which may then flow into weeks if a major investigation was required. Industries unable to provide primary goods and services to businesses via the rail system may need to source other more expensive methods of transportation. The increased costs would then be passed onto dependant businesses/clients and eventually onto the consumer.	3	2	Low	4
103	SEVERE STORM	There is a risk that a severe storm will cause industry downtime or interruptions that may result in closure of some industry (20%) for periods of 24 hours or more. Primary industries reliant on natural resources may be affected due to the loss of these resources i.e. farming, fishing and horticulture. This in turn impacts on the secondary and service industries that rely on supplies from the primary industries.	3	2	Low	4
104	EARTHQUAKE	There is a risk that an earthquake would impact upon the environment and the eco flora and fauna systems contained within the Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelie Regional Park. Widespread damage or destruction may be inflicted on natural reserves and the fauna inhabiting these areas.	1	3	Low	5
105	FLOODING	There is a risk that if a flood occurred, widespread environmental damage may destroy plants, flora and fauna at Manning Park, CY O'Connor Reserve, Woodman Point Regional Park, Jandakot Regional Park and Beelie Regional Park. Debris and other pollutants may wash into natural or man made lakes affecting water quality and destroying sensitive eco systems.	2	2	Low	5
106	HUMAN EPIDEMIC	There is a risk that if an epidemic occurred, there may be an impact to the environment in terms of contamination of water ways, natural and made lakes and land reserves from inappropriate disposal of medical resources used in treatment of the disease. Dying livestock and family pets may impact the environment as carcasses may be incorrectly disposed of. Mass graves for human carcasses may also lead to increase chance of environmental damage	2	2	Low	5
107	AIR TRANSPORT EMERGENCY	There is a risk that if an aircraft collision/crash occurred in a residential, commercial and/or industrial area, the economy retail and wholesale businesses may be damaged and/or disrupted. Business owners may be uninsured or under-insured. Businesses may go bankrupt, need to close for an indefinite period of time and therefore may be unable to maintain their current employees and clients. Other businesses relying on the affected businesses may also feel the economic impact.	2	2	Low	6
108	BUSH FIRE	There is a risk that if a bushfire occurred, medium, long term or permanent economic damage may happen to commercial and industrial marine businesses at the commercial shopping centre's located at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill, the major industrial areas located at Bibra Lake, Coogee, Spearwood and Henderson and Cockburn Cement and Quarry Works.	3	2	Low	6
109	EARTHQUAKE	There is a risk that an earthquake would severely impact the local economy, whereupon businesses may be damaged and/or destroyed. Commercial centres such as the one located in Cockburn may cease or dramatically reduce service delivery/operations to other businesses and clients. Some businesses will suffer large financial losses and insurance payouts will be relied upon. Some businesses will not recover and close permanently.	1	2	Low	6
110	FLOODING	There is a risk that if a flood occurred, the local economy will be impacted, with clean up costs, affected businesses being closed, pertinent community services and food supplies may be affected. Land developments and sites inundated with water may require substantial and costly works undertaken to redeem. Businesses within the industrial areas of Bibra Lake, Coogee, Spearwood and Henderson may also be affected. Supply of products, foods and services would be disrupted.	2	1	Low	6

Risk #	RISK SOURCE	RISK STATEMENT	Likelihood	Consequence	Level	Priority
111	HAZARDOUS MATERIALS/CHEMICAL SPILL	There is a risk that if a chemical/hazardous material spill occurred, the local economy may be impacted in terms of clean up costs, certain community and business services being suspended or sealed off if located within the spill area, such as the shopping centres at Cockburn Gateway, Phoenix Park, South Lake, the Lakes and Hamilton Hill and industrial areas of Bibra Lake, Coogee, Spearwood and Henderson.	2	2	Low	6
112	RAIL FREIGHT EMERGENCY	There is a risk that if a rail freight emergency occurred, the local economy could be impacted due to the interruption of certain services located in proximity or within the emergency area. Industry and businesses reliant on the rail freight network may need to source alternate transport to ensure continuity of business and provision of goods and services. This in turn will incur non-budgeted expenses and insurance pay outs may be sourced to cover these costs. Some industries will be covered and others will be financially impacted due to inadequate insurance cover.	3	2	Low	6
113	ROAD TRANSPORT EMERGENCY	There is a risk that if a road transport emergency occurred, the local economy could be impacted due to the interruption of certain services located in proximity or within the emergency area. Industry and businesses reliant on the road transport network may need to source alternate transport to ensure continuity of business and provision of goods and services. This in turn will incur non-budgeted expenses and insurance pay outs may be sourced to cover these costs. Some industries will be covered and others will be financially impacted due to inadequate insurance cover.	2	2	Low	6
114	SEVERE STORM	There is a risk that a severe storm will impact on the economy due to huge financial and non-financial losses to various sectors of the economy. Businesses and industries would be affected by loss of sales, revenue and loss of staff due to injury, trauma or death. There would be an increase of insurance claims and subsequent insurance premium increases, which may cause smaller businesses to close their doors as they are unable to afford the increase. Insurance companies would be overwhelmed to process claims as quickly as possible. If this fails to occur, businesses reliant on insurance that do not have a robust business recovery plan may cease trading completely. This will impact on loss of rates and income for the City of Cockburn	3	2	Low	6
115	EARTHQUAKE	There is a risk that an earthquake would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult	1	2	Low	7
116	FLOODING	There is a risk that if a flood occurred, it would impact on the social and cultural aspect of the community, as public buildings may have been destroyed, residents may have lost their homes and possessions, lost their job and loved ones. Residents may become despondent as all hope of rebuilding appears lost and extremely difficult	2	1	Low	7
117	HAZARDOUS MATERIALS/CHEMICAL SPILL	There is a risk that if a chemical/hazardous material spill occurred, may impact on social/cultural aspects of the community, as areas affected by the disaster may be quarantined. Residents may be limited to certain public areas and buildings. Residents may be displaced and this may cause tension etc.	2	1	Low	7
118	RAIL FREIGHT EMERGENCY	There is a risk that if a rail freight emergency occurred, social and cultural aspects of the community may be impacted in terms of road closures, inaccessibility to certain public buildings and open spaces. People may be hindered or prevented from attending and participating in sporting and community events.	2	1	Low	7
119	ROAD TRANSPORT EMERGENCY	There is a risk that if a road transport emergency occurred, social and cultural aspects of the community may be impacted in terms of road closures, inaccessibility to certain public buildings and open spaces. People may be hindered or prevented from attending and participating in sporting and community events.	4	1	Low	7

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Appendix 17
Community Workshop Attendance Register

CITY OF COCKBURN

COMMUNITY WORKSHOP ATTENDANCE REGISTER

5th – 6th October 2009

1	Quinta La Rosa	Emergency Management WA	05/10/09	06/10/09
2	Shirley Elliott	City of Cockburn	05/10/09	06/10/09
3	Robert Leaver	City of Cockburn		06/10/09
4	Amanda Symons	City of Cockburn	05/10/09	06/10/09
5	Peter Weston	City of Cockburn	05/10/09	
6	Logan Howlett	City of Cockburn Mayor – LEMC Chairperson	05/10/09	
7	Mark Pasco	WAPOL – LEMC Member		06/10/09
8	Charmaine Burke	City of Cockburn - Resident	05/10/09	06/10/09
9	Klaus Fahrues	City of Cockburn – Resident		
10	Frank Pitroff	City of Cockburn – Resident	05/10/09	06/10/09
11	Doug Burke	City of Cockburn - Resident		06/10/09
12	Rory Popa	LGIS	05/10/09	06/10/09
13	Greg Cook	LGIS	05/10/09	06/10/09
14	Moreno Parrella	LGIS	05/10/09	06/10/09
15	Jill Downward	LGIS	05/10/09	06/10/09