



# City of Kalgoorlie-Boulder

## Community Emergency Management Risk Assessment Project 2014-15

### Project Report

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## Executive Summary

The City of Kalgoorlie-Boulder was successful in applying for funding under the All West Australians Reducing Emergencies (AWARE) program to undertake an emergency risk management study. Under the provisions of the Emergency Management Act 2005 and State Emergency Management Policy (SEMP) 2.5, Local Governments are required to prepare local emergency management arrangements for their community. In addition SEMP 2.9 outlines the requirement for Local Governments to identify natural and technological (human caused) risks to their community, assess these risks and prepare treatment plans accordingly.

This project has been conducted with due regard to the relevant legislation, policy and is compliant with the ISO 31,000:2009 Risk Management Standard and conducted in conformity with the following National and State Risk Management Guidelines:

- AEMI Handbook 10 National Emergency Risk Assessment Guidelines 2014
- WA Emergency Risk Management Guidelines 2014

WALGA Emergency Management Services was appointed by the City of Kalgoorlie-Boulder as consultant to this project. WALGA Emergency Management Services is a consultancy service approved by the State Emergency Management Committee (SEMC) Secretariat.

This report outlines the process undertaken throughout this project with the specific aim of identifying, analysing and assessing natural and man caused hazards that may impact on the City of Kalgoorlie-Boulder. The culmination of the risk management process is the production of a comprehensive risk register and treatment schedule for on-going management and manipulation by the Shire as an ongoing process for the management and tracking of risk centred activities.

### Recommendation 1:

That the City of Kalgoorlie-Boulder assisted by the members of the LEMC embarks on a quarterly review of the risk register and maintains a monitor and review approach to all hazards identified through this process.

### Recommendation 2:

That the City of Kalgoorlie-Boulder LEMC when conducting emergency management exercises and following real emergency situations re-evaluates the risk register for the hazards exercised or experienced and makes informed adjustments accordingly.

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## Project Context and scope

### External Context

#### Key drivers and trends impacting on the City of Kalgoorlie-Boulder

The following key drivers of population, community and economic development for the 10 years to 2023 have been identified for the City of Kalgoorlie-Boulder:

**Mining Industry** – Kalgoorlie Boulder has significant gold and nickel mining operations that are major employers and business drivers for the City.

**Regional Service Centre** – the City is a major transport hub and service centre for the Goldfields and is strategically located in relation to the north-west mineral belt that extends from Norseman, south of Kalgoorlie to the Pilbara in the North.

**Tourism** – the City is a tourism hub for the Goldfields region providing accommodation, food and transport, as well as buildings of historical significance for around 100,000 tourists annually. The Great Eastern Highway is the main tourist route between Perth and the Eastern States along with the Trans Continental railway running through Kalgoorlie.

#### Relationships with and perceptions and values of external stakeholders

Mining is the City of Kalgoorlie-Boulder’s main industry and the largest employment sector in the Goldfields. Kalgoorlie Consolidated Gold Mines (KCGM), which manages the Super Pit operation for Newmont Australia and Barrick Gold Australia, is a major player in the local mining industry. They are also known for supporting the local community.

Other significant players in the local mining industry include:

- Kalgoorlie Consolidated Goldmines
- Barrick Gold Australia
- Gold Fields Australia
- BHP Billiton—operates a local nickel smelter that is third largest in the world.

#### Social and cultural drivers

- Tourism
- Community safety
- Preservation and regeneration of natural habitats including City managed reserves
- Promote and develop understanding of indigenous heritage and culture.

#### Political and legal drivers

The Emergency Management Act 2005 and State Emergency Management Policy require that the City of Kalgoorlie-Boulder prepares Local Emergency Management Arrangements for their community. Risk management is the basis of sound community centred emergency management arrangements. Additionally the Local Government Act 1995 compels Local Government to provide for the good governance of its community. The Local Government Act Audit Regulations require the CEO to report to the Council Audit Committee on risk management programs which by definition include risks from natural and man-made hazards.

## Internal Context

### Objectives of the CKB regarding emergency risk management

The City of Kalgoorlie-Boulder is committed to identifying natural and technological hazard risks that may impact the community. The Boulder tourist precinct has been severely damaged following an earthquake event resulting in long term disruption business community and placing an added financial burden on the CKB. A number of historical buildings were badly damaged and needed to be demolished as a result and some small businesses have been lost to the area. Storms and associated flooding are other hazards that impact the City on an annual basis.

### Emergency management governance structure

Emergency management within the City of Kalgoorlie-Boulder is the responsibility of the Manager Health and Compliance who reports to the Director Community and Development Services. The Manager Health and Compliance is the nominated Chair of the Local Emergency Management Committee.

### Policies objectives and strategies in place to achieve the organisations goals

City of Kalgoorlie-Boulder Risk Management Framework

### Standards, guidelines and models adopted by the organisation

The City of Kalgoorlie-Boulder has adopted and recognises the ISO 31,000:2009 as the standard for risk management.

## Risk management process context

### Define the goals and objectives of the emergency risk management process

The objectives of the emergency risk management process are as follows:

- Identify sources of risk from natural and technological hazards that may impact on the City of Kalgoorlie-Boulder;
- Analyse each source of risk and the potential impact to the community;
- Assign a risk level to each identified source of risk
- Identify measures that will effectively reduce the impact of sources of risk with a high or greater risk level.

### Define the responsibilities for and within the risk management process

The project manager will be responsible for:

- The day-to-day management of the risk project
- Ensuring that the project is delivered according to the requirements of the AWARE contract
- Ensure that project milestones are adhered to and that project stage reports are submitted.

The Project consultant:

- Prepare all workshop documentation relevant to the project;
- Prepare information and conduct pre-workshop analysis of hazard information;

- Upload risk data into the CERA Tool
- Prepare reports for the LEMC
- Prepare a project report

Local Emergency Management Committee:

- Provide subject matter advice and assistance to the project;
- Attend risk analysis workshops where required
- Provide feedback on documentation produced as a result of the project
- Actively support the risk management process.

### **Define the scope of the risk management process (what's in and what's out)**

This project will identify and analyse risks to the community from natural and technological hazards.

#### **In Scope:**

- All natural hazard risks presenting a real or perceived risk to the community;
- All technological hazard risks presenting a real or perceived risk to the community;
- Those risks described above that are within the capacity of the City of Kalgoorlie Boulder to manage.

#### **Out of Scope:**

- Those risks described above that fall outside of the capacity of the City of Kalgoorlie Boulder to manage.
- The analysis and management of risks identified as being solely within the capacity of private business.
- Aboriginal communities.

### **Define the risk assessment methodologies**

This project will use the criteria for emergency management risk as adopted by the State Emergency Management Committee (SEMC) contained in the National Emergency Risk Assessment Guidelines 2010.

The following tables will be referred to during the risk analysis and assessment process:

- Control ratings;
- Confidence ratings;
- Consequence descriptors;
- Consequence ratings;
- Likelihood ratings;

### **Defining the risk criteria**

Risk criteria are based on the objectives of the City of Kalgoorlie-Boulder and are summarised in the following table against which decisions will be made as to risk treatment priorities.

Priority	Consequence Category	Consequence Criteria
1	People	Any accident or incident that results in <b>loss of life or serious injuries</b> to members of the community is unacceptable
5	Economy	Any accident or incident that results in a decline in <b>economic activity</b> or loss of asset value greater than 4% of gross product produced in the area is unacceptable
3	Environment	Any accident or incident that leads to destruction or significant damage to or degradation of <b>eco systems</b> or leads to the loss of flora or fauna species endangered or of significant value to the region is unacceptable
6	Public Administration	Any accident or incident that renders key elements of <b>public administration</b> severely hampered or unable to deliver essential services to the community is unacceptable
4	Social	Any accident or incident that leads to the diffusion of community activities or a breakdown in the community <b>social</b> structures is unacceptable
2	Infrastructure	Any accident or incident that leads to the destruction or significant damage to critical <b>infrastructure</b> is unacceptable

Figure 1: Agreed consequence criteria

## Hazards in Context

### Bushfire

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of bushfire so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of bushfires requiring a level 3 response which threatens identified sections of the community and built environment.

**Risk Criteria:** People; Economy; Public Administration; Social Setting; Environment

### Earthquake

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of earthquake so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of earthquakes of varying magnitude which threaten identified sections of the community and built environment.

**Risk Criteria:** People; Economy; Public Administration; Social Setting.

### Severe Storm

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of severe storm so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of severe storms of varying magnitude which threaten identified sections of the community and built environment.

**Risk Criteria:** People; Economy; Public Administration; Social Setting.

### **Flood**

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of flood so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of floods of varying magnitude which threaten identified sections of the community and built environment.

**Risk Criteria:** People; Economy; Public Administration; Social Setting; Environment.

### **Transport Incident - Air**

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of air transport incidents so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of air transport generated emergencies which threaten identified sections of the community and built and natural environment.

**Risk Criteria:** People; Economy; Public Administration; Social Setting; Environment.

### **Transport Incident- rail**

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of rail transport incidents so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of rail transport incidents of varying magnitude involving passenger trains and freight trains which threaten identified sections of the community and built and natural environment.

**Risk Criteria:** People; Economy; Public Administration; Social Setting; Environment.

### **Gas supply disruption**

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of a gas supply disruption so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of gas supply disruption of varying magnitude which threaten identified sections of the community.

**Risk Criteria:** People; Economy; Public Administration; Social Setting.

### **Electricity supply disruption**

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of a electricity supply disruption so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of an electricity supply disruption of varying magnitude which threaten identified sections of the community.

**Risk Criteria:** People; Economy; Public Administration; Social Setting.

### **Industrial fire**

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of an industrial fire so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of industrial fire of varying magnitude which threaten identified sections of the community and built environment.

**Risk Criteria:** People; Economy; Public Administration; Social Setting.

### **Hazardous materials incident**

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of a hazardous materials incident so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of hazardous materials incident of varying magnitude which threaten identified sections of the community.

**Risk Criteria:**

People  
Economy  
Public Administration  
Social Setting  
Environment  
Infrastructure

### **Hazardous materials release from transport**

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of a hazardous materials release from transport so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of hazardous materials release from modes of transport including rail and road of varying magnitude which threaten identified sections of the community.

**Risk Criteria:** People; Economy; Public Administration; Social Setting; Environment.

### **Mining accident**

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of a mining accident so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of mining accident of varying magnitude which threaten identified sections of the community.

**Risk Criteria:** People; Economy; Public Administration; Social Setting; Environment.

**Urban fire**

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of urban fire so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of urban fire of varying magnitude which threaten identified sections of the community.

**Risk Criteria:** People; Economy; Public Administration; Social Setting.

**Human epidemic/pandemic**

**Objective:** To conduct an assessment of the risk to the City of Kalgoorlie Boulder community from the hazard of a human epidemic/pandemic so mitigation efforts can be prioritised and scoped.

**Scope:** The risk assessment will consider scenarios of human epidemic/pandemic of varying magnitude which threaten identified sections of the community.

**Risk Criteria:** People; Economy; Public Administration; Social Setting.

**Project Plan**

TASK	OUTCOMES
<p><b>Key Activity 1- Establish context</b></p> <p>(Requires 1 Meeting 2 hours)</p>	<ul style="list-style-type: none"> <li>○ Establish the project management team</li> <li>○ Local Government’s risk management framework</li> <li>○ Risk criteria</li> <li>○ Agreed methodology</li> <li>○ Project Scope</li> <li>○ Establish community values</li> <li>○ Development of the project plan</li> <li>○ Establish the context</li> </ul>
<p><b>Key Activity 2 – Identify the Risks</b></p> <p>(One Meeting of 3 hours duration)</p>	<ul style="list-style-type: none"> <li>○ Identify sources of risk</li> <li>○ Composition of assessment Teams</li> <li>○ Workshop program</li> <li>○ Identify Key Stakeholders</li> <li>○ Selected community representatives</li> </ul>
<p><b>Key Activity 3 – Analyse the sources of</b></p>	<ul style="list-style-type: none"> <li>○ Develop risk descriptors</li> </ul>

<p><b>risk</b></p> <p>(Workshop process involving 2 or 3 workshops of 3 hours duration depending on the number of hazards to be dealt with)</p>	<ul style="list-style-type: none"> <li>○ Develop impact statements</li> <li>○ Assess the level of risk</li> <li>○ Assess confidence levels</li> <li>○ Assess specific community impacts</li> </ul>
<p><b>Key Activity 4 – Risk Evaluation</b></p> <p>(Meeting convened between project consultant and the City’s risk managers)</p> <p>(One meeting of 2 hrs duration.)</p>	<ul style="list-style-type: none"> <li>○ Evaluation of risks for acceptance or further treatment</li> </ul>
<p><b>Key Activity 5 – Reporting</b></p>	<ul style="list-style-type: none"> <li>○ Prepare draft project report</li> <li>○ Circulate draft report for comment</li> <li>○ Adoption of project report by LEMC</li> <li>○ Project acquittal</li> </ul>

## Hazard identification and assessment

### Hazard identification

Hazard identification was a key element of this project and involved a workshop to determine the hazards likely to impact the City of Albany LGA using a spread sheet tool. The Hazard Selector lists hazards by type under the following categories:

- Naturally occurring (Cyclone, flood, storms etc.)
- Transport (Road and rail crash, marine transport emergencies etc.)
- Infrastructure (Electricity supply, Gas supply, structure fires etc.)
- Technical (HAZMAT, Marine oil spills etc.)
- Biological (Pandemic, plant and animal bio hazards)

Following selection of the hazard type, participants were asked to discuss and then record the likely impact the selected hazard type would have on the impact categories:

- People
- Economy
- Environment
- Infrastructure
- Environment
- Social

### Hazard Selector

Following the first workshop, hazards identified for further assessment and analysis were entered into the Hazard Selector tool. Each hazard identified through the hazard identifier

process was allocated a number. Once assigned a numerical identifier, a risk register is created for each hazard.

### **Risk analysis**

Risk analysis is the process by which the level of risk to the community and its characteristics are determined. This project Risk analysis entails identifying how the particular hazard may impact on the area of interest giving due consideration to previous history of events and likely increased activity when climate change factors are taken into account.

### **Hazard information sheets**

For each of the State identified hazards, WALGA has prepared hazard information sheets for specific use in the analysis and assessment of hazards selected for further study at the local level. The hazard sheets have been developed over time in consultation with HMAs and the Local Government sector. The hazard sheets have been designed for inclusion in the final ERAD product with the expectation that they will be updated on an annual basis as new information comes to hand. A hazard information sheet is designed to include local content relating to hazard management. Local governments are encouraged to include local community safety programs and mitigation activities wherever they occur

A hazard information sheet example is attached at [Annex A](#).

### **Risk assessment workshop**

One risk assessment workshop was convened with all member agencies of the LEMC invited to attend ([Refer Annex C](#)). A workshop booklet was prepared containing hazard data for each of the 12 hazards selected for assessment along with the risk assessment criteria for pre-reading and familiarisation by workshop invitees.

### **Risk Register**

Each risk register generated by the Hazard Selector is a complex work sheet containing all the required information relative to the hazard. Currently the hazard is selected via a drop down list and the hazard is given a name along with an identification code e.g. Storm has the code NS (natural hazard- storm).

Risk statements can be entered via drop down guided by the impact category selected. During the 1<sup>st</sup> workshop use of the hazard identifier ensures participants assess the likelihood of the source of risk impacting upon each of the impact categories i.e. people, environment, economy etc. Dependent upon the impact categories identified through the initial process, risk statements can be selected for each category.

The development of risk statements commenced with the WALGA development group preparing lists of all possible risk statements relating to each impact category. During each risk workshop conducted, participants were free to add new risk statements where they felt that the existing statements did not adequately describe the risk. These additional risk statements were then captured and added to the original drop-down list. In the completed

ERAD product, the ability to add or customise risk statements will be included ensuring that which-ever Local Government is using the product, it will always reflect local content.

**Assessment results**

12 hazards were assessed during the workshop with the following results. Only those risks rated as 'Extreme' or 'High' have been listed.

## Earthquake

### Scenario

The City of Kalgoorlie-Boulder has a recent history of major structural damage caused by seismic activity in 2010. The scenario used during this assessment involved a magnitude 6 or greater quake occurring during business hours and causing wide-spread damage to the city's infrastructure and built environment with deaths and serious injury from building collapse.

There is a risk that a major incident will cause multiple deaths in the local community.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Major	Rare	High

There is a risk that a major incident will cause critical injuries with long term or permanent incapacitation

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Major	Rare	High

There is a risk that a major incident will cause cases of mental stress or trauma in the local community

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Major	Rare	High

There is a risk that a major incident will cause the release of pathogens or bacteria likely to present a risk of widespread illness in the community

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Major	Rare	High

There is a risk that a major incident will result in the movement of people away from the area for extended periods due to the destruction of or major damage to homes.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Major	Rare	High

There is a risk that a major incident will result in damage to critical infrastructure requiring diversion of available funds to restoration projects.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Moderate	Likely	High

There is a risk that a major incident will produce non-claimable recovery activity cost causing financial stress for the local government.

### Storm

#### Scenario

The scenario used presented a degenerating tropical cyclone moving inland bringing torrential rain to a wide-spread area in the Goldfields region. The storm brings wide-spread damaging winds and causes severe damage to housing and infrastructure.

There is a risk that a major incident will cause extensive damage to community housing and support infrastructure rendering whole or part of the community uninhabitable for an extended period.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Moderate	Likely	High

## Air Crash

### Scenario

The City of Kalgoorlie-Boulder is a regional centre with a very busy commercial airport catering for the transport of tourist, business and FIFO traffic. The airport is also a designated emergency strip that could cater for larger aircraft unable to land at Perth domestic or international airports. There are many recorded instances of aircraft attempting to land in foggy conditions and having to re-attempt on a number of occasions before being diverted to Perth. This would appear to be a highly likely air crash causal factor when linked to the possibility of pilot error. The scenario used in the analysis discussions involved a crash of a fully loaded commercial passenger plane attempting to land and colliding with a number of homes.

There is a risk that a major incident will cause multiple deaths in the community.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
Moderate	High	Major	Almost Certain	Extreme

There is a risk that a major incident will cause critical injuries with long term or permanent incapacitation.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
Moderate	High	Major	Almost Certain	Extreme

## Electricity Supply Disruption

### Scenario

The scenario discussed during the analysis of a major electricity supply disruption involved a long term outage of electricity supply across the region for a period extending to weeks. The effects on local business, services and the local community were affected to such an extent as to result on business closures and a severe reduction in commercial services to the community.

There is a risk that a major incident will cause cases of mental stress or trauma in the local community.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
Moderate	Medium	Moderate	Likely	High

## Structure Fire

### Scenario

The scenario presented involved a major building fire outbreak within the central business district of Hannan Street where the fire quickly spreads to a number of adjoining buildings. Due to the age, design and close proximity of the buildings to one another serious injuries have occurred before the fire can be brought under control. Following the fire asbestos and other toxic substances have been released into the atmosphere.

There is a risk that a major incident will cause critical injuries with long term or permanent incapacitation.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	Medium	Moderate	Likely	High

There is a risk that a major incident will result in the release of toxic fumes or airborne particles impacting inhabited areas of the community resulting in respiratory distress and other related medical issues.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	Medium	Moderate	Likely	High

There is a risk that a major incident will result in the release of toxic fumes or airborne particles impacting inhabited areas of the community resulting in respiratory distress and other related medical issues.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Moderate	Almost Certain	High

There is a risk that a major incident will cause extensive damage to community housing and support infrastructure rendering whole or part of the community uninhabitable for an extended period.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	Medium	Moderate	Almost Certain	High

There is a risk that a major incident will cause extensive damage to heritage listed buildings or structures of cultural or community significance.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	Medium	Moderate	Likely	High

### Hazardous Materials Emergency (HAZMAT)

#### Scenario

On a daily basis thousands of tonnes of hazardous materials destined for the mining industry are trucked or railed to Kalgoorlie. The scenario discussed during the assessment of this hazard was linked to a rollover incident involving the spillage of highly toxic (unspecified) responders being substances from a mixed load. A toxic plume results in many people including first responders. Following the response effort high concentrations of the spilt material have been detected in the local drainage system much of which is open around the heavy haulage diversion route.

There is a risk that a major incident will cause multiple deaths in the local community.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
Moderate	Medium	Major	Rare	High

There is a risk that a major incident will cause critical injuries with long term or permanent incapacitation.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
Moderate	Medium	Major	Unlikely	High

There is a risk that a major chemical spill will enter the local drainage network resulting in widespread contamination along drainage outflows.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
Moderate	Medium	Major	Rare	High

### Human Epidemic

#### Scenario

An unusually high number of people are presenting themselves at the hospital with flu like symptoms. Further tests and further investigation by the Department of Health have revealed that several people have tested positive to a strain of bird flu. The virus spreads rapidly throughout the community resulting in an unprecedented load on the medical system. Many hundreds of people across the community are affected and quarantined at home, local businesses including the local government are affected with up to 60 percent of the workforce either unwell or attending to sick relatives. Over a number of weeks the death toll in the community as a direct result of the infection is 120 persons.

There is a risk that a major incident will cause multiple deaths in the local community.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Major	Likely	Extreme

There is a risk that a major incident will cause the release of pathogens or bacteria likely to present a risk of widespread illness in the community.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Major	Unlikely	High

There is a risk that a major incident will cause cases of mental stress or trauma in the local community.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Major	likely	Extreme

There is a risk that a major incident will render local business unable to trade for extended periods resulting in business closures.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Major	likely	Extreme

There is a risk that a major incident will lead to the Loss of key local industries resulting in the loss of local jobs.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	Medium	Major	Rare	High

There is a risk that a major incident will compromise the local government's ability to provide essential services to the community.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	Medium	Major	Likely	Extreme

There is a risk that a major incident will render the local government unable to provide basic essential services to the community.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	Medium	Major	Unlikely	High

### Mining Accident

#### Scenario

Heavy rainfall has been experienced across the region for a number of days. A major earthworks collapse in the Super Pit traps several miners resulting in multiple deaths. The miners are all Kalgoorlie residents and the community is in deep shock following the event.

There is a risk that a major incident will cause multiple deaths in the local community.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Major	Likely	Extreme

There is a risk that a major incident will cause critical injuries with long term or permanent incapacitation.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Moderate	Likely	High

There is a risk that a major incident will cause loss of contracts in the private sector leading to economic downturn in the local economy.

Ratings Confidence	Current Mitigation / Control Effectiveness	Consequence Level	Likelihood	Risk Rating
High	High	Moderate	Likely	High

## Risk Evaluation

### Risk evaluation workshop

A workshop was convened at the City of Kalgoorlie-Boulder to progress the evaluation of risks. The evaluation group drawn from local government directors and managers along with input from the DFES District Officers came together to further consider the assessment of each hazard and following some robust and informed discussion changes were made to the consequence level and likelihood of a number of hazards. In some instances the revised consensus reduced the risk level. Changes were mostly confined to the perceived consequence level and likelihood although some risk statements were either removed as duplications or were substituted for a better fit. The changes did not in any way detract from the work done originally by the analysis group but added clarity.

### Risk Evaluation Criteria

During the risk evaluation process, the level of risk is compared with the risk criteria. The NERAG 2014 risk evaluation criteria were used during this process. All risk statements were assessed individually and the risks were either assigned for 'Treatment', 'Further assessment' or 'Monitor and review'. An example of the assessment criteria used is depicted at Annex B.

### Risk prioritisation

Risk prioritisation was assigned based on the local government assessment of the consequence criteria. The consequence criteria used can be viewed at Table 1 page 8.

Although the bushfire risk was assessed as generally low, The Director Community and Development Services identified the need to make further inroads to bushfire safety through the review and mapping of the City's strategic fire breaks particularly in the area of broad Arrow and Ora Banda. It was suggested that DFES may Assist City officers to inspect and report on the suitability of the strategic breaks. A project may be undertaken to map and prepare a layer of all strategic breaks for the City's Geospatial Information System (GIS).

## Project acquittal

The program as far as the contractual components have now been completed as is evidenced by this report. There remains now an expectation that the City of Kalgoorlie-Boulder LEMC will now continue to manage the risk using the ERAD tools and the associated risk register. The ERAD spreadsheet based risk management tool has been supplied to the City of Kalgoorlie-Boulder in electronic format. The following recommendations are made:

### **Recommendation 1:**

That the City of Kalgoorlie-Boulder assisted by the members of the LEMC embarks on a quarterly review of risk management and maintains a monitor and review approach to all hazards identified through this process.

### **Recommendation 2:**

That the City of Kalgoorlie-Boulder when conducting emergency management exercises and following real emergency situations re-evaluates the risk register for the hazards exercised or experienced and makes informed adjustments accordingly.

The following documentation and files have been supplied to the City of Albany as part of the acquittal process:

1. City of Kalgoorlie-Boulder Risk Management Project Report 2014 (pdf and word versions)
2. Emergency Risk Assessment Database tool (Spreadsheet version 2.2a)
3. Hazard information used as part of analysis process (Spreadsheet)
4. NERAG 2014 Risk Assessment Criteria Tables (Included as part of the ERAD spreadsheet)

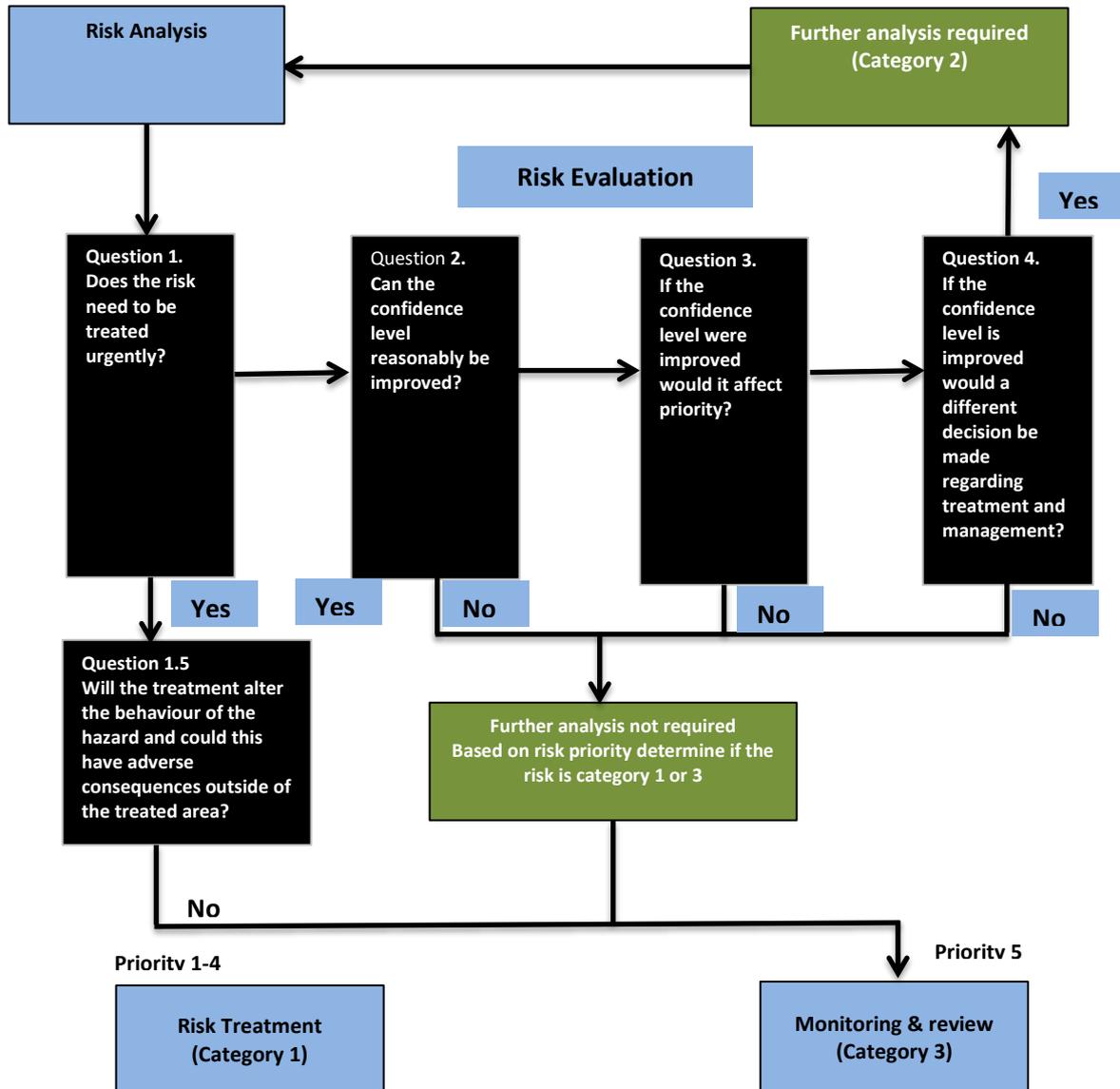
## Annex A: Hazard Information sheet example

<b>Hazard Name</b>	<b>Earthquake</b>			
<b>Last Review Date</b>	<b>1 January 2015</b>		-	
<b>Hazard description:</b>				
<p>Australia is a tectonically stable region and has few earthquakes of any consequence in any given year. The earthquake hazard in a region can be described as the level of ground shaking that has a 10% chance of being exceeded in 50 years. Calculation of the earthquake (the chance of an earthquake occurring in a year); an attenuation model (the degree to which the earthquake ground shaking intensity diminishes over distance from the source); and a site response model (how soils, sediments and weathered rock will affect the ground shaking during an earthquake.) Studies conducted during the natural hazard Risk in Perth (2005) Study identified that the highest risk from earthquakes in the study region was from moment impact levels of 5.0 of distances of less than 30 kilometres. The relative rarity of large earthquakes ensures that earthquakes are not prominent in the public consciousness.</p>				
<b>Loss events data, expert input and/or rationale to support risk ratings</b>				
<p>1968 Meckering quake with minor damage to buildings and road infrastructure recorded in the Perth area.</p> <p>Kalgoorlie-Boulder Earthquake 20/04/2010 magnitude 5 with two people injured cost estimates in excess of \$3M</p>				
<b>Causal factors</b>				
Tectonic plate movement either up down or laterally				
<b>Existing Preparedness and Prevention controls</b>				
<b>Description / Action(s)</b>		<b>Control Owner(s)</b>		
Engineering solutions such as hardening buildings and infrastructure		Building owners, Government infrastructure owners, local government		
Emergency Management Act & Regulations		DFES & SEMC Secretariat		
Westplan Earthquake, Policy and other support plans, business continuity plan		DFES & SEMC Secretariat		

Building Code of Australia and Local planning and building license requirements	Federal Government, Local Government
Social solutions such as community education and awareness	DFES, SEMC Secretariat, Local Government
State level exercises	DFES, Response agencies
Enforcement of legislative requirements, such as building restrictions in areas identified as being at risk from earthquakes	Dept... Planning, Local Government
Ensuring the suitability of service delivery of critical infrastructure and maintenance standards	Main Roads WA, utility providers
Local evacuation centres logged	CPFS, DFES, Local Government
Seismic surveys and mapping	Geoscience Australia
Research and development programs	DFES, Geoscience Australia
Promote the uptake of insurance and adequate maintenance programs	DFES
Provision of support to voluntary emergency organisations	DFES, Local Government
Public buildings identified for use as evacuation centres	Local Government, DCPFS
Business Continuity Plans	Local Government, business community
<b>Existing Response and recovery controls</b>	
<b>Description / Action(s)</b>	<b>Control Owner(s)</b>
Urban Search and Rescue capability (State level response) Local SES teams	DFES
Facility, State and local evacuation plans and return procedures	SEMC, DFES, WA Police
Groups with special needs are identified and listed in the local emergency management arrangements	DCPFS, Local Government
Response agency Standard Operating Procedures. DFES/ Police and other emergency response agencies.	DFES, SES, Police, SJA, Hospitals
Local and main road management	Local Government or contractors, MRWA
Engineering services for assessment of building safety	Local Government contract

Support plans; State Telecommunication Emergency management Support Plan; State Isolated Communities Support Plan; State Health Emergency Management Support Plan; State Welfare Emergency Management Support Plan; State Recovery Coordination Plan; State Public Information Emergency Management Support Plan.	SEMC, HMAs
Local Government local recovery plans	Local Government
Public buildings identified for use as evacuation centres	Local Government, DCPFS
Department for Child Protection & Community Support district & local welfare plans	DCPFS

## Annex B: Risk evaluation criteria



## Annex C: Letter of invitation



AB ECM1977362

13 August 2014

Dear LEMC Member,

**RE: City of Kalgoorlie-Boulder Risk Assessment Workshop**

In compliance with its obligations under *State Emergency Management Policy 2.9 Management of Risk*, the City will be holding a one day risk assessment workshop. It is important for the safety of the community that the City updates its risk register and treatment schedule to ensure that it reflects current hazard information.

The City has contracted WALGA Emergency Management Services to conduct the risk analysis and assessment program. The workshop we will be dealing with the following hazards as identified by the LEMC - Bush fire; Earthquake; Flood; Storm; Air crash; Rail crash; HAZMAT in transport; Urban fire and human epidemic. Other hazard types have been identified and these may be dealt with during smaller targeted workshops.

From the abovementioned hazards it's important that the agencies affected and/or involved, attend the workshop as your agency based knowledge and expertise is critical to the successful outcome of the program and the City would appreciate your attendance or alternately you may consider sending another agency representative with similar knowledge. To ensure you are prepared, supporting documentation will be provided to you prior to the workshop for consideration by your agency. Only one representative from your agency will be required to attend the workshop.

**Venue:** City of Kalgoorlie-Boulder's Administration Building  
577 Hannan Street, Kalgoorlie

**Date:** Wednesday 27 August 2014

**Time:** 9:00am – 4:00pm  
**Morning tea, light lunch and afternoon tea provided.**

To attend, please RSVP by **Monday 25 August 2014** with Cindy on 9021 9672 or email [cindy.holton@ckb.wa.gov.au](mailto:cindy.holton@ckb.wa.gov.au).

If you have any enquiries, please contact Mr Alain Baldomero, Acting Manager Health and Compliance, on 9021 9684 or fax to 9021 6113 or via email to [alain.baldomero@ckb.wa.gov.au](mailto:alain.baldomero@ckb.wa.gov.au).

Yours sincerely



**A BALDOMERO**  
Acting Manager Health & Compliance

