






EMERGENCY RISK MANAGEMENT PROJECT REPORT

AWARE
All West Australians Reducing Emergencies

CITY OF Armadale

CITY OF GOSNELLS

AWARE

(All West Australians Reducing Emergencies)

EMERGENCY RISK MANAGEMENT PROJECT REPORT

~ Cities of Armadale and Gosnells ~

November 2008

Prepared by: Ryan Janes, AWARE Research Officer, City of Armadale

For: The AWARE Project Working Group

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(Picture: Karragullen Fire, 2003)

Report Authorisation

The Emergency Risk Management Project Report has been reviewed and endorsed by the Cities of Armadale and Gosnells Local Emergency Management Committees, and forwarded for consideration by Armadale and Gosnells Councils.

Date of Review and Endorsement:

City of Armadale 29 October 2008

City of Gosnells 19 November 2008

Authorised for release: January 2009

Brian Watkins

AWARE Project Working Group Coordinator.

(Picture: Roleystone Bushfire Brigade in Karragullen, City of Armadale, 2006)

Executive Summary

In 2007 the Cities of Armadale and Gosnells 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 communities, methods of mitigating these risks and opportunities for resource sharing between the Cities.

This project commenced in November 2007 following receipt of a grant of $54,000 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 questionnaire was developed for distribution to residents within the districts. In the latter part of May 2008, 3,000 questionnaires were distributed by mail, to randomly selected residents. The ratio of surveys to each district was based on the respective population between Armadale and Gosnells. The level of response (436 or 14.5% collectively), was slightly higher than the expected 10% 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 newsletters were utilised to promote the process before the survey was mailed out.

Part one of the community survey determined that there was a high level of consistency between the two Cities regarding perception of significance of risks and vulnerabilities within the communities from emergency events. Both districts identified the following events as the highest priorities for emergency management planning:

- **Bushfire**
- **Urban Fire**
- **Road Transport Accidents**
- **Severe Storms**
- **Critical Infrastructure Failure**

In the City of Armadale (CoA), respondents considered Bushfire to be the most significant emergency event, because of historical occurrences and the higher percentage of rural properties. In comparison, the residents of City of Gosnells (CoG) identified Severe Storm as the most significant event.

Part two of the community survey determined community perception of the importance of certain facilities/assets within either local government district for priorities of planning and recovery measures for mitigating risks in an emergency situation. Of these, the highest rated were:

- Medical and Emergency Facilities
- Communication systems
- Utilities (Water, Gas, Electricity, Sewerage etc)
- Residential assets and Drainage.

Part three of the community survey estimated opportunities for resource sharing between the Cities by assessing the number of people who would go to a listed location if the need to evacuate arose from an emergency event. The majority of the survey respondents indicated that they would seek to stay with friends or family in the near vicinity of the respondent's home suburb as their first preference. Failing that, many people would be prepared to go to an evacuation centre for up to a few days.

These results enable the Cities of Armadale and Gosnells to better understand and accommodate the expectations of their respective community, if evacuations become necessary.

Several comments received through the surveys revealed that a number of residents hold this ERM process in high regard, expressing a desire to find out more about the most significant emergencies. Additionally, many respondents were eager to learn more about evacuation centres and the process of evacuation. They would like to know prior to the emergency event occurring, where to go and who to turn to for support, should the need arise.

The recommendations made within this report have been forwarded to the respective Councils for consideration, endorsement and resourcing. They are summarised as follows:

1. Enhance the awareness of emergency management and the Local Emergency Management Arrangements through community education and communication.
2. Develop and implement communication strategies between neighbouring municipalities for resource sharing and developing common trigger points for Response and Recovery stages.
3. Implement prevention strategies including fuel loading assessments and controlled burning measures or similar.
4. 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.
5. Establish future consultation with the public through similar community surveying within a 5 year period.

1 Introduction

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 funds that the AWARE program provided.

The AWARE program enables local governments to identify emergency risks or hazards 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 both the Cities of Armadale and Gosnells already have in place Local Emergency Management Arrangements, the intent of this project was to provide an opportunity to update those arrangements in keeping with the changing demography in their communities.

In February 2007 the two local governments made a joint application to FESA's AWARE program for a grant to undertake a risk management study for both districts. Formal notice of the successful grant application was received on 11 September 2007 by the CoA.

An initial meeting to discuss the project was held at the CoG on 24 September 2007, with representatives from both the CoA and the CoG in attendance.

1.1 Background

The Cities of Armadale and Gosnells are respectively located approximately 29 and 17 kilometres south east of the Perth. There are many similarities in terms of location, topography, community dynamics and population growth between these municipalities.

With a combined population of over 140,000 people and continued growth within the region together with the mix of rural and urban interface it provides a significant opportunity for the development of Emergency Risk Management strategies.

1.1.1 Armadale

The City of Armadale has an approximate area of 500 square kilometres and is bounded by the City of Gosnells and the Shire of Kalamunda in the North, the Shires of York and Beverley and Wandering in the East, the Shire of Serpentine/Jarrahdale in the South and the City of Cockburn in the West (see **Appendix 2** for map).

The City is accessible by road and rail; the major road link with Perth is the Albany Highway, whilst Fremantle, the main port for the State, is accessible by Armadale Road. Other major access lines leading to and from the City include:

- Brookton Highway
- Lake Road
- Nicholson Road
- Ranford Road
- Rowley Road
- South Western Highway
- Tonkin Highway

Passenger and commercial rail lines traverse the City along the SW Rail Reserve and Standard Gauge Railway.

The topography of the district varies from the flat coastal plain in the West to the Darling Range hills area in the East. Certain areas of the coastal plain are only just above sea level, whilst the hills area rises to a height of some 400-500 metres above sea level.

Drainage is affected by the Canning River and to a lesser extent by the Neerigen and Wungong Brooks, with a complex system of small creeks feeding these water ways.

The vegetation of the district varies from pasture land and scrub to the jarrah forests. Approximately 350 square kilometres (or 70%) of the district are water catchment areas. Since areas of the coastal plain are relatively low lying, it is also conducive to swamp type vegetation (i.e., paper bark trees, etc).

The City is located in the temperate zone and enjoys a Mediterranean type climate with a mean annual maximum temperature of 25.2^{o}C and a mean annual minimum temperature of 13.1^{o}C.

The prevailing winds are Westerlies to North Westerlies, which occur during the months of April to September in afternoons. Strong easterlies come off the escarpment and affect the majority of the Armadale suburbs. Easterlies tend to occur mostly overnight and in the mornings during spring/summer. The annual average rainfall for the district is 883 mm.

Principal industrial and commercial activities in the district are brickworks, timber milling, beef cattle raising, orchards, tourism and a host of light industrial pursuits. There are two areas zoned Industrial, one in Kelmscott between Champion Drive and Gillam Drive, and the other south of Armadale between the South Western Highway and the Perth to Bunbury railway line.

Commercial development can be found throughout the district, particularly in central Armadale and along Albany Hwy, Kelmscott.

Electricity is supplied by Western Power 440/240AC three-phase provided through underground and overhead supply.

The majority of urban areas are serviced by Alinta Gas natural gas reticulation and high pressure trunk mains, in particular the Dampier – Bunbury line and the WANG Dongara to Pilbara line.

Scheme water is provided by the Water Corporation to the majority of the urban areas and drawn from the Canning Dam for the majority of suburbs in the hills region. Other water sources include onsite rainwater tanks and groundwater bores.

Most of Armadale, Brookdale, Seville Grove, Kelmscott and Westfield are serviced by deep sewerage, whilst the remainder employ onsite effluent disposal systems.

A major hospital, Armadale Kelmscott Memorial Hospital, which services the South Eastern corridor of Perth, is located at 3056 Albany Highway, Armadale. This hospital provides 210 beds and the following services:

(a) Reception, triage and hospitalisation for casualties as required.
(b) Distribution of resources within the hospital.
(c) Processing of hospitalised casualties for evacuation.

A St John's Ambulance unit is based at Coombe Avenue, Armadale.

The Armadale Police station is located at Prospect Crescent, Armadale.

Volunteer Bush Fire Brigades are located at Bedfordale (corner Albany Highway and Waterwheel Road) and Roleystone (Jarrah Road); with the latter being a dual registered Volunteer Fire & Rescue and Bush Fire Brigade (BFB).

A Career and Volunteer FESA Fire and Rescue Station is located at Green Avenue Armadale, whilst a Volunteer FESA State Emergency Service (SES) Unit is located in Owen Road Kelmscott.

Jandakot and Perth International Airports are located in nearby municipalities to the west and north of the City respectively and both have flight paths, which include approach and departure routes located over the CoA.

1.1.2 Gosnells

The CoG is located predominantly on the Perth Coastal plain with the remainder being located within the Darling Range to the east and bounded by the Cities of Canning to the north, Armadale to the south, Cockburn to the west and the Shire of Kalamunda in the east.

The CoG is accessible by road and rail; the major road link with Perth is the Albany Highway, whilst Fremantle, the main port for the State, is accessible by Ranford Rd/South Street.

The City also lies within the south east corridor of Perth with several main lines of major access (see **Appendix 3** for map). These being:

- Parallel lines:
  - Albany Hwy
  - Tonkin Hwy
  - SW Rail Reserve
- Transverse lines:
  - Roe Hwy
  - Nicholson Rd/William St
  - Warton Rd/Kelvin Rd
  - Standard Gauge Railway

Coastal plain vegetation ranges from flooded gum, swamp paperbark and bulrush in low-lying areas to woodlands or marri, banksia and jarrahs elsewhere. The majority of the coastal plain has been cleared for either agricultural pursuits or residential developments.

The scarp and range vegetation includes jarrah, marri, she-oak and understorey vegetation including native grasstrees.

The CoG experiences temperatures similar to that of the CoA with mean annual maximums of 25.3°C and mean annual minimums of 13.3°C and an annual average rainfall of 839.5mm.

Winds are of particular importance, especially the extremely strong easterlies. These winds come off the escarpment and affect those suburbs north of the Canning River most intensely. Easterlies tend to occur mostly overnight and in the mornings during spring/summer, whilst westerlies generally occur in afternoons.

Industrial development has taken place along William Street, Beckenham, along Albany Hwy, Kenwick and Maddington in the area bounded by Austin Avenue, Bickley Road and Maddington Road.

Two large commercial quarries are located in the escarpment at Orange Grove and Martin. Commercial development can be found throughout the City with major district centres situated in Maddington, Thornlie and Gosnells.

Electricity is supplied by Western Power 440/240AC three phase provided through underground and overhead supply, with an ongoing program in place to progressively replace overhead lines with underground power supply.

Scheme water is supplied by Water Corporation to all areas with the exception of rural areas of Southern River, Martin and Orange Grove. Deep sewerage is available to the majority of the urban suburbs through the Water Corporation. Remaining areas operate with on-site effluent disposal systems, generally septic tanks and leach drain facilities.

The Kwinana to Kewdale white oil pipeline (a 200mm-dia pipeline carrying motor spirit, distillate and kerosene) operated by BP runs through the City, the location of which is mapped and included in the Local Emergency Management Arrangements.

The majority of urban areas are serviced by Alinta Gas natural gas reticulation, with high pressure trunk mains, in particular the Dampier – Bunbury line and the WANG Dongara to Pilbara line running through the district.

The nearest major hospital, Armadale-Kelmscott Memorial Hospital is located at 3056 Albany Highway, Armadale.

A St John's Ambulance unit is located at 138 Wheatley Street, Gosnells.

The Gosnells Police Station is located at 2291 Albany Hwy, Gosnells, and the Canning Vale Police Station is located at 449 Nicholson Rd, Canning Vale.

FESA Fire and Rescue Service of WA (FRS) is located at 1963 Albany Highway, Maddington (nearest intersection: River Avenue). The FRS is responsible for all fires within the gazetted metropolitan fire district; all rescues associated with hazardous material incidents, and provide support for fires outside its district subject to availability.

The Emergency Operations Centre, which is located in Canning Park Avenue, Maddington, accommodates both FESA State Emergency Service (SES) and local Bush Fire Brigade (BFB) headquarters.

Passenger and commercial rail lines traverse the City along the SW Rail Reserve and Standard Gauge Railway.

Jandakot and Perth International Airports are located in adjoining municipalities to the west and north of the City respectively and both have flight paths, which include approach and departure routes located over the CoG.

(Picture: Carson FireKing working for FESA, dropping water on a WA fire, 2007)

2 Project Overview

The primary objective of the project was to identify emergency risks within the Cities of Armadale and Gosnells by undertaking a community focused exploration of risks and vulnerabilities within the communities, methods of reducing the risks and opportunities for resource sharing by the Cities.

2.1 Objectives

The AWARE program aims to enhance Emergency Risk Management (ERM) within Western Australia through local government projects.

The specific objectives of this project include:

- Develop the ERM process in both local governments;
- Identify the greatest risks within the local government boundaries;
- Identify resource sharing opportunities for ERM;
- Initiate planning for the implementation of prevention and mitigation strategies for identified risks;
- Improve ERM awareness within the community; and
- Forward recommendations for the update and improvement of Local Emergency Management Arrangements.

2.2 Funding

Funding of $54,000 (GST inclusive) for this project was received from FESA's AWARE Program in November 2007, as a result of an application dated 27 February 2007 (see **Appendix 4** for Budget table).

2.3 Approach and Methodology

This project was undertaken in accordance with the guidelines provided in the following publications:

- Western Australian Emergency Risk Management Guide
- Standards Australia – Risk Management AS/NZS 4360:2004
- EMA – Emergency Risk Management Applications Guide
- Emergency Management Act 2005 Part 3, Division 2, s.41 – Emergency management arrangements in local government districts

2.4 Project Structure

Authority and support for this project was given by the Cities of Armadale and Gosnells and their respective Local Emergency Management Committees (LEMC) in accordance with sections 41 and 42 of the Emergency Management Act 2005 which read in part;

s.41 Emergency management arrangements in local government district

A local government is to ensure that arrangements ("local emergency management arrangements") for emergency management in the local government's district are prepared.

s.42 A local government is to ensure that its local emergency management arrangements are reviewed in accordance with the procedures established by the State Emergency Management Committee (SEMC).

2.4.1 Emergency Risk Management Project Working Group

During initial discussions it was determined that due to the interaction of two local governments and consequently two Local Emergency Management Committees, the Project Working Group would comprise individuals identified in **Appendix 1**, who would ensure regular reports were made to their respective Local Emergency Management Committees (LEMC), and provide guidance to the Research Officer (RO).

2.4.2 Tasks and Responsibilities

The Project Working Group managed the process and provided ongoing direction to the RO in order to achieve an outcome that was of benefit to the community.

Duties of the RO included:

- Conduct a survey to identify risks and determine the relevant expectations of the community;
- Liaise with stakeholders including both local governments, emergency service agencies, and the community to identify the significant risks and assets within the area;
- Identify existing local government assets that may be utilized to mitigate emergency situations;
- Promote community awareness and ownership of Emergency Management within the local governments; and
- Prepare a final report outlining the ERM process undertaken with detailed findings and recommendations.

3 Methodology

This project focused on Emergency Risk Management in accordance with AS4360:2004 Risk Management, with regard to emergency events specific to the Cities of Armadale and Gosnells and their respective communities. The main elements of the project in sequence were:

- Literature research/review
- Developing a project plan
- Public promotion
- Developing survey instruments
- Conducting the community and assets surveys
- Analysing the survey data
- Preparing and presenting the final report

3.1 Literature Review

This was achieved through direct research with the local governments and other sources to establish the context of the process and the risk analyses to incorporate the concept of loss.

For the purpose of this project, risk likelihood was identified in relation to a range of hazards during the Community Survey. Accordingly, the likelihood of risk has been assigned, based on community perceptions. An appropriate value was then transcribed onto the evolving 'Risk Summaries'. See **Appendix 6**.

3.1.1 Concept of Risk Analysis

In examining the hazard risk borne by communities, Boughton 1996, defines risk as the potential for damage or disruption. There are three basic elements to risk:

- An event that has the power to cause damage or disruption
- An asset that could be damaged or affected by the event
- Protection that will not allow the event to cause damage

3.1.2 Concept of Loss

Distinctive types of loss may occur from an emergency; it is more common to experience a combination of losses with varying degrees of impacts from one particular form of loss. Generally, the method used to estimate the overall cost of a natural disaster is to categorise the losses into tangible and intangible loss (BTE, 2001). For the purpose of this project the approach was to categorise loss into three distinct areas:

1) Direct loss

Direct loss results from the impact of an emergency and is the easiest to classify; they are generally the most visible and represent the largest loss component. Types of direct loss include:

- Damage to property, including buildings, structures, vehicles, contents and gardens
- Damage to infrastructure
- Loss of livestock and standing crops
- Damage to fencing and equipment
- Clean up costs

2) Indirect Loss

Indirect loss occurs as a consequence of the impact of an emergency; they reflect disruption to economic and other activities within the affected region. These include:

- Disruption to transport
- Disruption to the public utility system
- Increased travel and congestion costs
- Cost of the response by emergency services
- Cost borne by volunteer groups

The cost of lost business is often included in the estimated cost of a disaster. The impact of a disaster can be devastating for businesses directly affected by that disaster, and local communities can suffer as a consequence. However, when examining the impact of the disaster from a national perspective, business disruption costs should not be included. They would be included if the event affected the nation's economy through an increase in the level of imports or a decrease in exports (BTE, 2001).

3) Intangible Loss

This category attempts to capture all losses not considered either as a direct or indirect loss. Intangible losses are difficult to estimate as there is no commonly agreed method of evaluation due to a typically non-existent market for such items or services. The largest impact is usually found within the residential sector (see **Appendix 7**).

4 Key Project Elements

4.1 Promotion

Promotion was one of the crucial elements of this project. Given that the community survey was the largest and most important single element, it was always recognised that promoting the survey to the community would be essential in achieving sufficient response. This was achieved through:

- a media release of project commencement and objectives, distributed to local newspapers, See **Appendix 8**.
- presentations to Armadale and Gosnells Local Emergency Management Committees (LEMCs)
- secondary media release at completion of project to deliver project results and recommendations

4.2 Community Survey

As the findings of the survey were to be the basis upon which this report would be structured, it was imperative that the responses received were useful and could be measured. As such, considerable effort was put into the wording of the individual questions.

4.2.1 Strategy

The basic strategy was to survey the communities of both local governments by hard copy questionnaire, whilst promoting the project using community newspapers.

3000 questionnaires in total, with a covering letter of explanation (**Appendix 9**) and a reply paid envelope were distributed by mail to the occupier of a residence, addresses for which were selected at random using the ratepayer database within each local government.

In addition to the hard copy questionnaires, an electronic version of the questionnaire was promoted and displayed on each local government's website; though this method yielded no respondents during the survey period.

4.2.2 Questionnaire

See **Appendix 10** for community survey questionnaire.

It was envisaged that a 10% response rate in returned surveys would be received of the total 3000 questionnaires mailed out to both districts.

To effectively represent the proportionate population distribution between the two local governments, it was determined that 1800 surveys in total would be sent out in Gosnells, and 1200 in Armadale.

Two casuals were contracted to undertake the majority of folding and enveloping, which resulted in the Gosnells surveys being sent out by 15th May 2008 while the Armadale surveys were distributed by 21st May 2008.

By the 16th June 2008, 223 survey questionnaires were received from Gosnells, and 213 from Armadale giving a response rate of 14.5% in total. Individually, Armadale had a response rate of 17.75% while Gosnells achieved 12.4%.

(Picture: Roleystone Bushfire Brigade Training, City of Armadale, 2007)

5 Outcomes/Discussion

The risk of natural disasters forms a backdrop to our everyday lives. Depending on where we live, floods, bushfires, cyclones and earthquakes are possible threats to both property and lives. Over time, communities have developed organised responses to the threats posed by natural disasters. Although preparation and response measures can mitigate their effects, natural disasters continue to occur and cause severe damage (BTE, 2001).

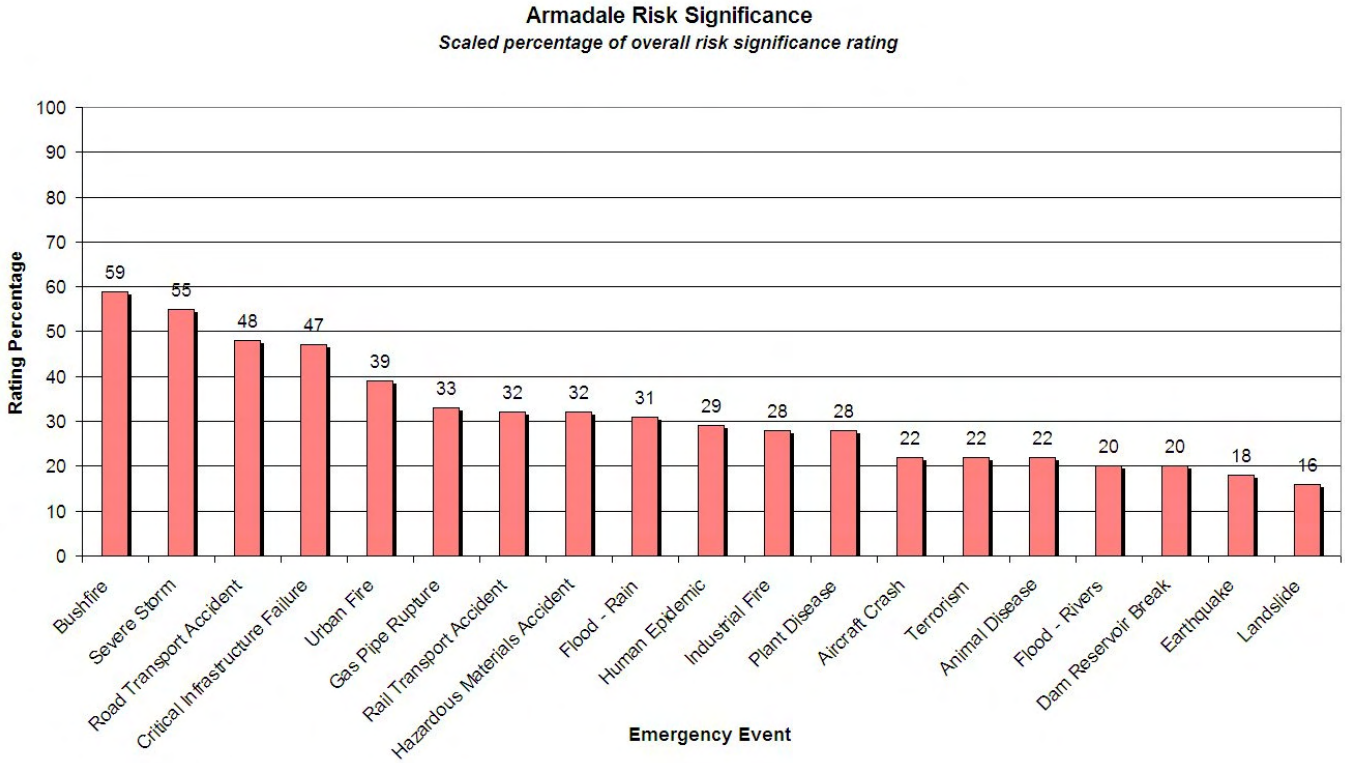
5.1 Emergency Event Risk Rating

5.1.1 City of Armadale

1200 surveys were distributed within Armadale, with 213 responses in total, giving a 17.75% response rate. The surveys were mailed to each suburb based on the population distribution of the City of Armadale. This meant that approximately 2% of the population of each suburb received surveys. To preserve validity a minimum of 10 surveys were sent to any one suburb. See **Appendix 20** for the number of surveys sent to each suburb within the Armadale district.

Overall, the ratings of the event likelihood and consequence (Question 2 of the survey) were fairly consistent across all suburbs, indicating that the perceived five most significant emergency events were (**Figure II**):

Figure II. City of Armadale Risk Significance



1. **Bushfire**
2. **Severe Storm**
3. **Road Transport Accident**
4. **Critical Infrastructure Failure**
5. **Urban Fire**

Each rating value in the above figure represents the overall risk significance scale expressed as a percentage. The overall risk was derived from the product of the average ratings of occurrence likelihood multiplied by the consequence rating as determined by respondents in survey questionnaires. It is this 'risk significance' value that identifies the emergency event as a potential threat to the community according to the public response.

For the purposes of this report, the average ratings from the questionnaires were transcribed into the below risk matrix, to give a qualitative assessment of risk levels. Using the Consequence and Likelihood descriptors from the Emergency Risk Management Applications Guide, (EMA 2004), each emergency event was able to be categorised under the headings of Extreme, High, Moderate and Low; displayed by **Table II.** See **Appendix 9** for EMA risk scale definitions.

Table II. Armadale Risk Level Matrix

Risk Significance Matrix		Consequence Rating					
Likelihood Rating	*Armadale*	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic	Overall Significance
	5 Almost Certain						Extreme
	4 Likely				Bushfire Severe Storm		High Moderate
	3 Possible			Urban Fire Road Transport Accident Critical Infrastructure Failure			Low
	2 Unlikely		Flood Landslide	Aircraft Crash Dam Break Flood (rain) Hazardous Material Industrial Fire Gas Pipe Rupture Plant Disease Animal Disease Terrorism Rail Transport Accident	Human Epidemic		
	1 Rare			Earthquake			

Within the CoA, there was some variation between suburbs in relation to the five most significant events, which appeared to correlate with the geographical area of the suburbs. For example, results from the Hills area of Armadale, which consists of Roleystone, Karragullen, Mt Nasura and Bedfordale, indicated that while the majority of the respondents within these suburbs perceived Bushfire or Severe Storm to be the most significant emergency events, residents of Mt Nasura identified Road Transport Accidents as the most significant.

This may be explained by the close proximity to Albany Hwy, Brookton Hwy and South Western Hwy, along which many heavy vehicles travel hauling goods and chemicals to the mining areas of WA.

Statistics from Main Roads WA show that in the Armadale area there have been 327 crashes involving heavy vehicles since 2003. Of these crashes, 88 have occurred in the south eastern region of the CoA, along Albany Hwy, Brookton Hwy and South Western Hwy. None of these crashes has caused a fatality whilst 11 incidents have required medical attention for victims, and 2 incidents requiring hospitalisation. For a display of these statistics see **Appendix 11**.

For a profile of the average rating of Likelihood, Consequence and Risk Significance for Armadale see **Appendix 13**; Kelmscott **Appendix 14**; Roleystone and Karragullen combined **Appendix 15**.

These charts display the average rating of the occurrence likelihood, consequence, and risk significance of each listed emergency event. Within the suburbs of Armadale and Kelmscott the most significant emergency events are perceived to be Severe Storm, Road Transport Accident, Critical Infrastructure Failure, Bushfire and Rail Transport Accident.

With the exception of Rail Transport Accident, the other events feature in the overall Armadale perception of significant emergencies. If there was to be a Rail Transport Accident in the Armadale district, the suburbs of Armadale and Kelmscott would be primarily affected due to proximity to the railway. In previous rail accidents, the event has affected not only the transport of passengers into and from Perth, but also local traffic on nearby roads.

Roleystone and Karragullen are at the northern-eastern border of the Armadale district and have no commercial or passenger rail lines or railway stations in the vicinity. Therefore the perception of significant events by residents in these areas does not include Rail Transport Accidents. In these areas, Bushfire is considered more significant than Severe Storm, most likely due to the proximity to forested areas and numerous bush reserves.

The suburbs of Armadale and Kelmscott perceive Bushfire to be less significant to their locality than Road Transport Accidents, simply because of the likelihood of an occurrence. A significant Road Transport Accident is considered more likely to occur within either of these suburbs than a Bushfire. In comparison to Roleystone, Armadale and Kelmscott have fewer bushland areas; however the historical occurrence of regular bushfires in the CoA ensures that the threat remains, albeit at varying degrees to each suburb.

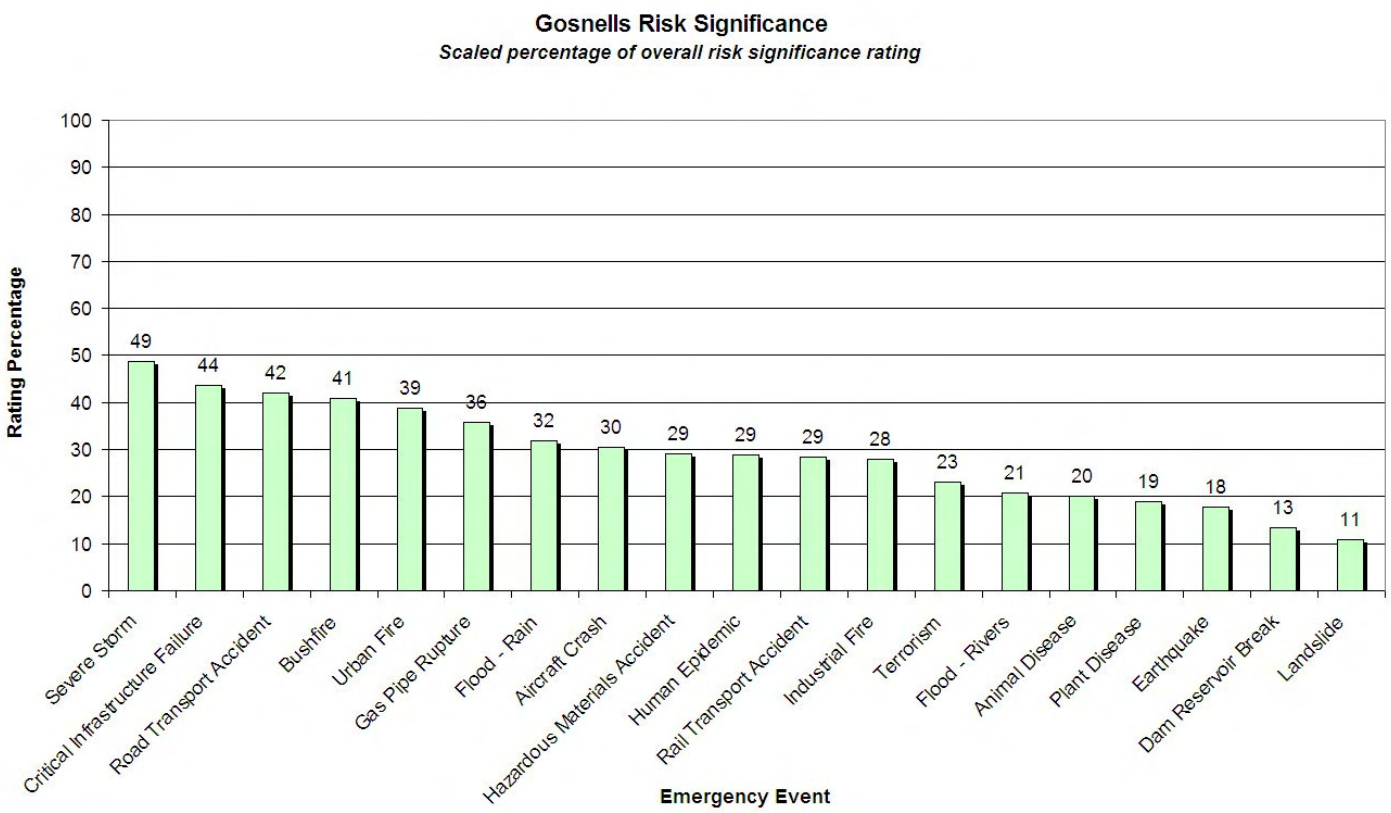
5.1.2 City of Gosnells

A total of 1800 surveys were sent to residents within the CoG, of which, 223 were returned, giving a response rate of 12.4%. **Appendix 21** displays the survey sample numbers of each suburb within the Gosnells district.

The surveys were mailed to each suburb based on the population distribution of the CoG; approximately 2% of the population of each suburb received surveys. To preserve validity a minimum of 10 surveys were sent to any one suburb.

The community survey results indicated that the majority of CoG respondents perceived that the five most significant emergency events were (**Figure III**):

Figure III. City of Gosnells Risk Significance.



1. **Severe Storm**
2. **Critical Infrastructure Failure**
3. **Road Transport Accident**
4. **Bushfire**
5. **Urban Fire**

Each rating value in the above figure represents the overall risk significance scale expressed as a percentage. The overall risk was derived from the product of the average ratings of occurrence likelihood multiplied by the consequence rating as determined by respondents in survey questionnaires.

The average ratings from the community questionnaire were transcribed into the below Risk Matrix framework modified from EMA Manual 5, to determine a qualitative assessment of each event's risk level, as was done for Armadale. As there are eight emergency events that are of the same risk level, the overall risk significance calculation from the above figure was used to extract the five most significant as identified in **Table III**.

Table III. Gosnells Risk Level Matrix

Risk Matrix		Consequence Rating					
Likelihood Rating	*Gosnells*	1 Insignificant	2 Minor	3 Moderate	4 Major	5 Catastrophic	Overall Significance
	5 Almost Certain						Extreme / High / Moderate
	4 Likely						Low
	3 Possible			Severe Storm Urban Fire Critical Infrastructure Failure Bushfire Road Transport Accident Flood (rain) Gas Pipe Rupture			
	2 Unlikely			Flood (rivers) Aircraft Crash Rail Transport Accident Industrial Fire Hazardous Material Terrorism Animal Disease Plant Disease	Human Epidemic		
	1 Rare		Landslide Dam Break	Earthquake			

In comparison to the overall CoG significant emergency events, the results from the Canning Vale respondents indicate that the five most significant events are Road Transport Accidents, Severe Storm, Critical Infrastructure Failure, Aircraft Crash and Urban Fire. However, the suburb of Gosnells perceive the most significant to be the same as the overall Gosnells significant emergencies. This may be due to the difference in geography between Gosnells and Canning Vale; Gosnells is closer in proximity to the Hills region and so is somewhat exposed to areas of bushland and natural emergency events. Whilst Canning Vale is more urban; hence man made emergency events are perceived as being more significant to the locality.

Overall, the perceptions appear to be based on locality and proximity to infrastructure or contributors to an emergency. Within Canning Vale, it is perceived that the most significant event likely to occur is a Road Transport Accident, due to the number of main access roads in the vicinity.

Statistics from Main Roads WA show that there have been 662 crashes involving heavy vehicles in the CoG, 111 of which have occurred along Amherst Rd, Garden St, Nicholson Rd, Ranford Rd and Warton Rd, since 2003. One of these crashes has been fatal, while 9 incidents have required medical attention for the victims, and 7 incidents required hospitalisation.

Aircraft crashes are also perceived as a significant risk, most likely due to the proximity of Jandakot airport and the numerous flight paths overhead.

Similarly, as there are fewer bushland reserves, residents perceive Urban Fire to be more likely to affect them than a Bushfire.

The CoG respondents indicate that the most significant event to affect them is a Severe Storm. As Severe Storms are a relatively regular occurrence (almost annually) to varying degrees of severity within most suburbs of the Perth metropolitan region, it is expected to be of a high priority to the majority of urban residents.

5.2 Assets/Facilities & Evacuation Locations

Question 2 of the community survey asked the respondent to rate each asset/facility in a given list as to the perceived community importance of that asset/facility, and also how long following an emergency event, the respondent would expect the asset/facility to resume normal operations.

Respondents rated each of these using a 1-5 scale, representing low to high for the importance rating, and also the following lengths of time to rate the 'return to normal' expectation: 1 = Hours; 2 = Days; 3 = Weeks; 4 = Months; 5 = Years.

As shown by **Figure IV**, the CoA community considered that in terms of importance Hospitals/Medical Facilities and Utilities are most important, while Religious and Recreational facilities are perceived to be of less importance. **Figure V** displays a similar perception from the CoG respondents.

Figure IV. Armadale Facilities/Assets – Community Importance.

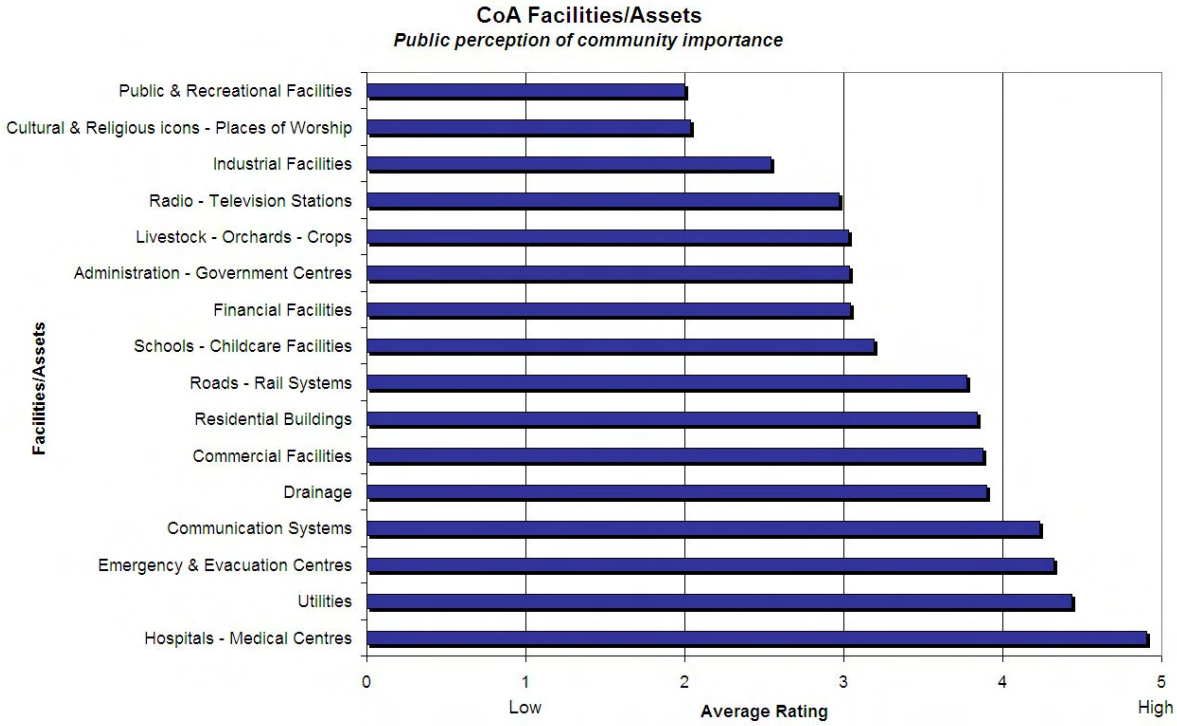
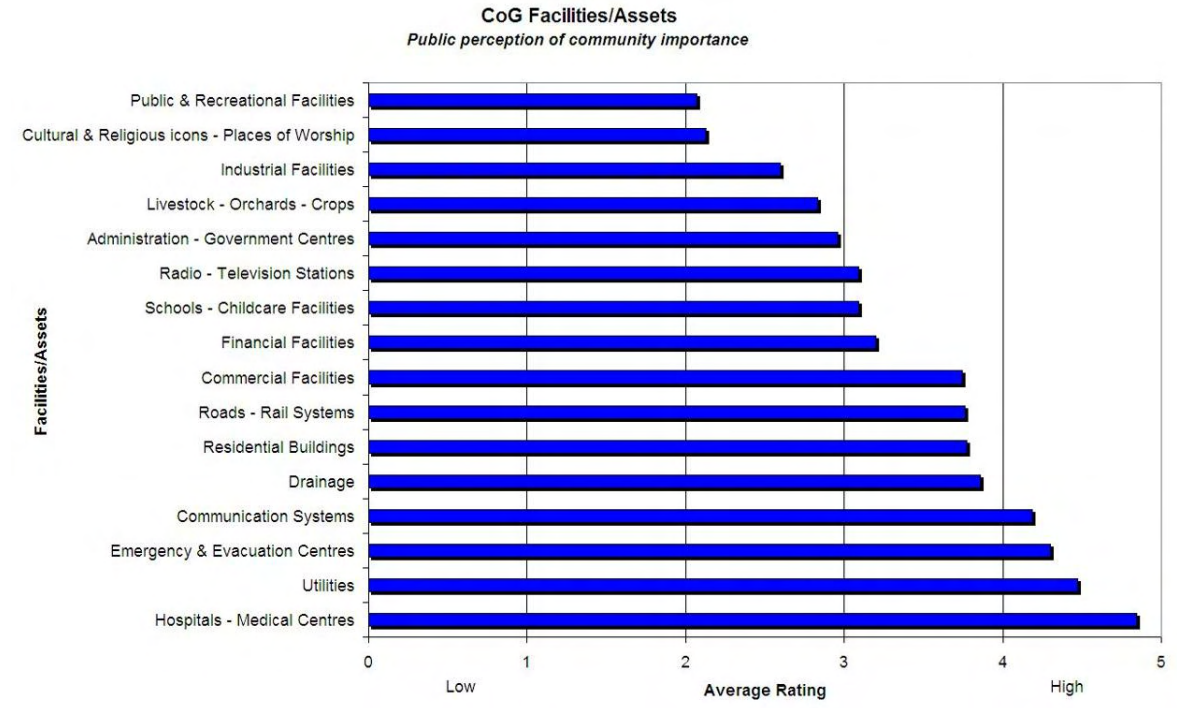


Figure V. Gosnells Facilities/Assets – Community Importance.



Accordingly, both communities expect that the length of time to return these facilities/assets to normal operations is within 24 hours for Medical and Emergency Facilities, and within weeks for Religious and Recreational Facilities. See **Figure VI** and **VII.**

Figure VI. Armadale Facilities/Assets – Expectation to return to normal

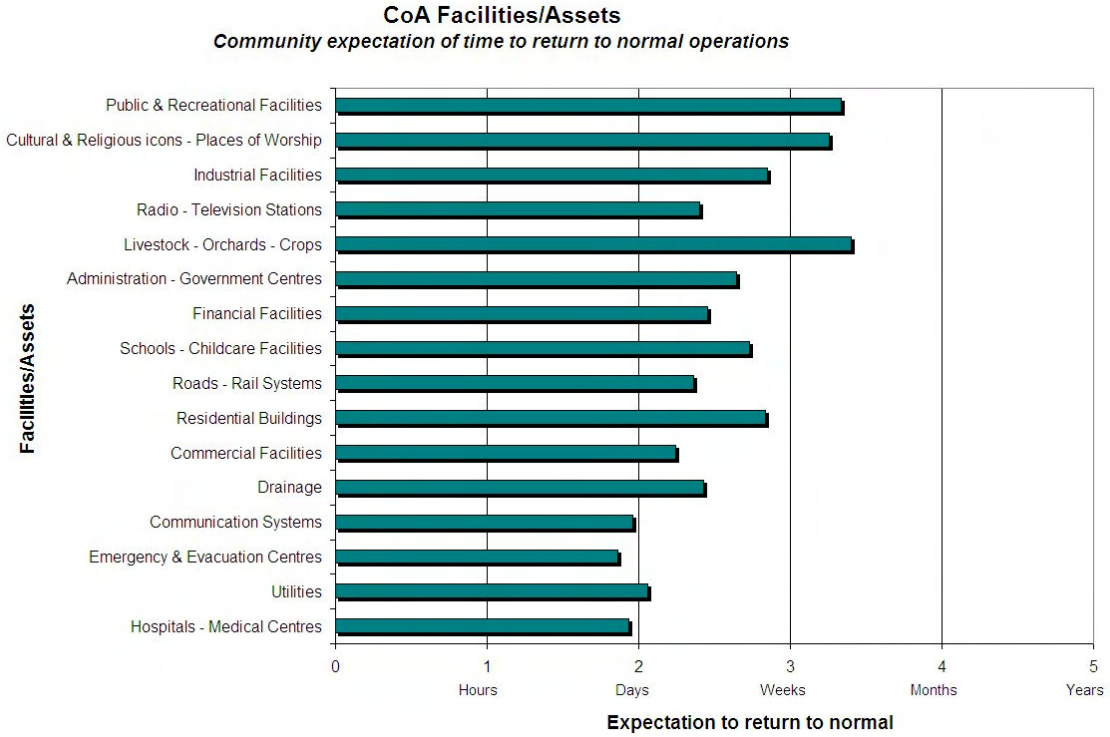
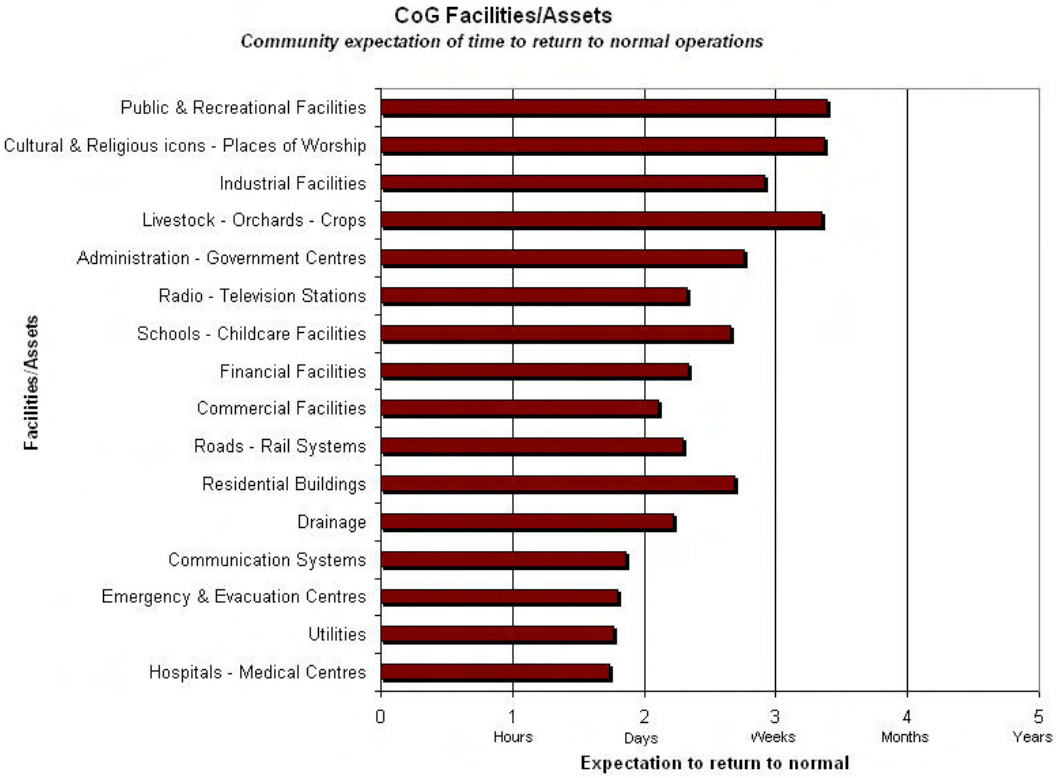


Figure VII. Gosnells Facilities/Assets – Expectation to return to normal



Other items placed at high importance by the CoA and CoG respondents were communication systems, residential buildings and drainage systems. Of particular note is the community expectation that communication systems should be returned to normal within days of an emergency event occurring, whilst expectation for residential buildings and drainage systems extends to weeks. This may be explained by a community perception that access to skilled labour to undertake such repairs would be difficult to obtain following an emergency event and also demonstrates the reliance of the community on modern communication systems.

It is also worth noting that the results indicate that the community considers all facilities/assets would be returned to normal within weeks; none expecting the delays to extend to months or even years. This is perhaps best explained by historical data demonstrating that both Cities have experienced very few, if any catastrophic emergency events which would undoubtedly cause disruption for many months or even years.

Question 3 required the respondent to choose from a given list of locations, the most likely location they would go to if the need to evacuate their homes arose during an emergency event. Part 2 was to choose whether this place was located in the same suburb as the respondent, or within the CoA/CoG, or outside the CoA/CoG. Finally, Part 3 was to choose for how long the respondent would expect to remain at this location. This was rated using the 1-5 Hours – Years scale.

The purpose of this question was to gauge the number of people who would utilise evacuation centres or their own familiar safety locations such as Friend and Family properties. The next step was to determine of these people who would prefer to stay at a location other than the evacuation centres, where would these locations be; i.e. – within the same suburb as the respondent, within the CoA/CoG, or outside the CoA/CoG, and for how long evacuees would be prepared to remain at these locations.

Figures VIII and **IX** display that the majority of the respondents in both the CoA and CoG would go to Family/Friends as a first preference for evacuation. Should this preference not be available, the majority would be prepared to utilise a community evacuation centre.

Several comments were made by respondents during the survey process, that the community required additional information regarding the location of Evacuation Centres and education on the appropriate measures to take in the event of an emergency.

Figure VIII. Armadale Evacuation Locations

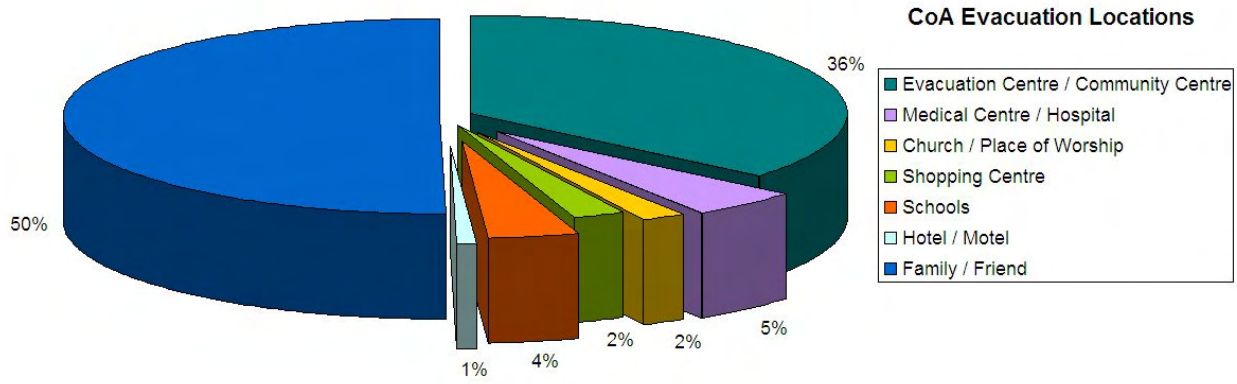
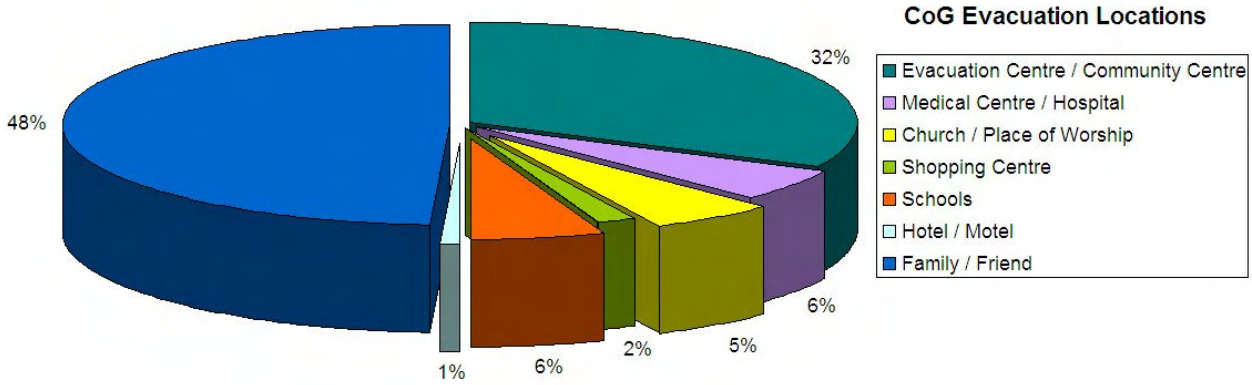


Figure IX. Gosnells Evacuation Locations



Figures X and **XI** show that there is little variation in the preferred location of respondent's evacuation location, with approximately a third of respondents indicating that they would seek refuge within the same suburb, approximately one third staying within the CoA/CoG, and the remainder preferring to evacuate outside the CoA/CoG.

Figure X. CoA Evacuation locations – LG area

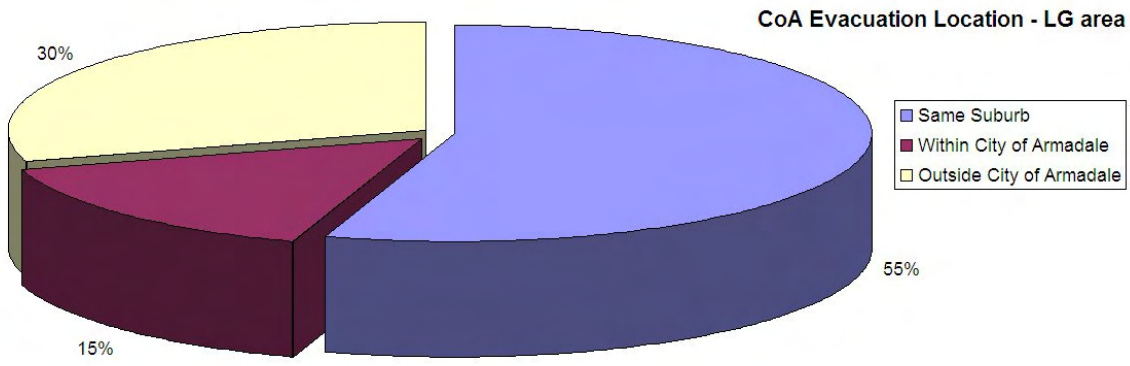


Figure XI. CoG Evacuation locations – LG area.

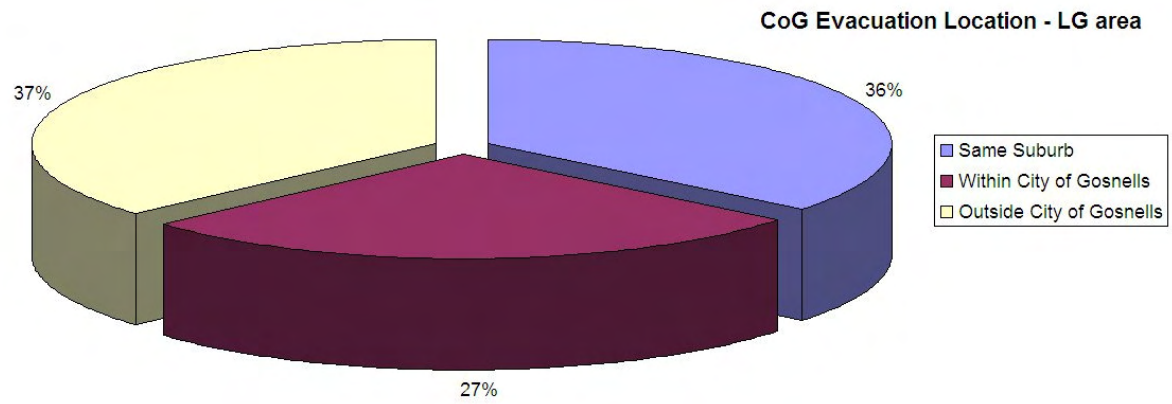


Figure XII and **XIII** show that the majority of surveyed residents in both municipalities are prepared to evacuate their homes to their preferred evacuation location for a period of 'days'. This information will assist the Cities to be better prepared to accommodate these expectations during times of emergency.

Figure XII. CoA Evacuation – length of time expected to be evacuated from homes

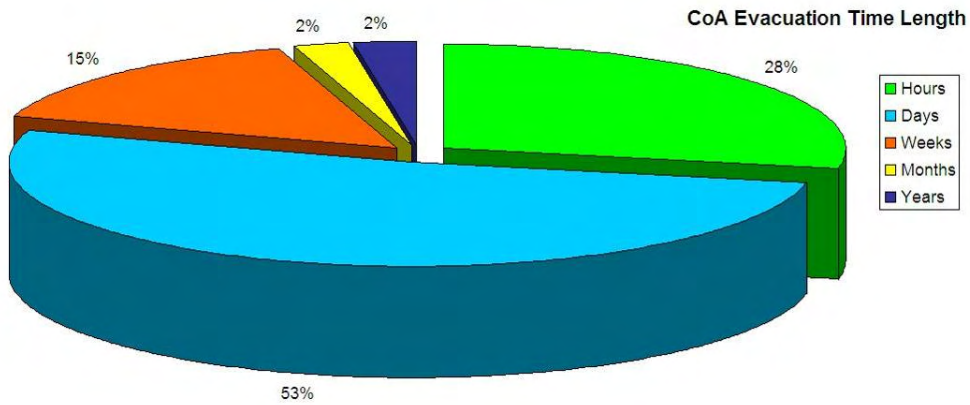
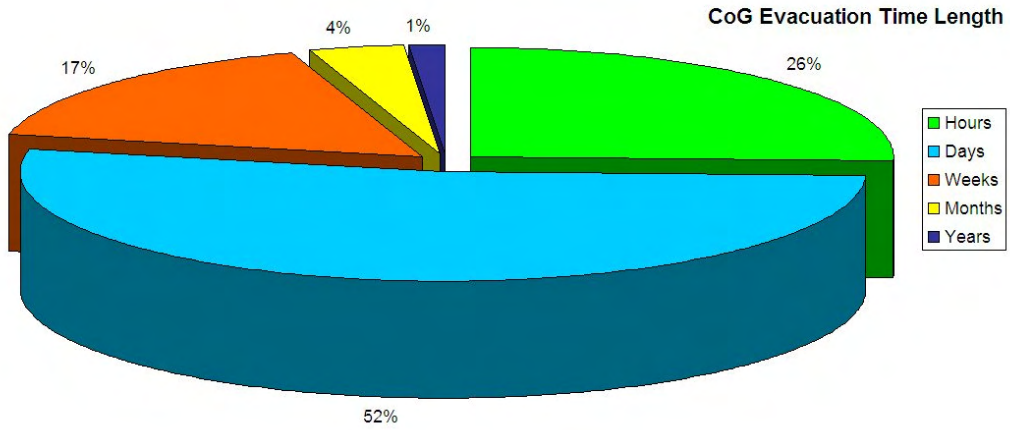


Figure XIII. CoG Evacuation – length of time expected to be evacuated from homes

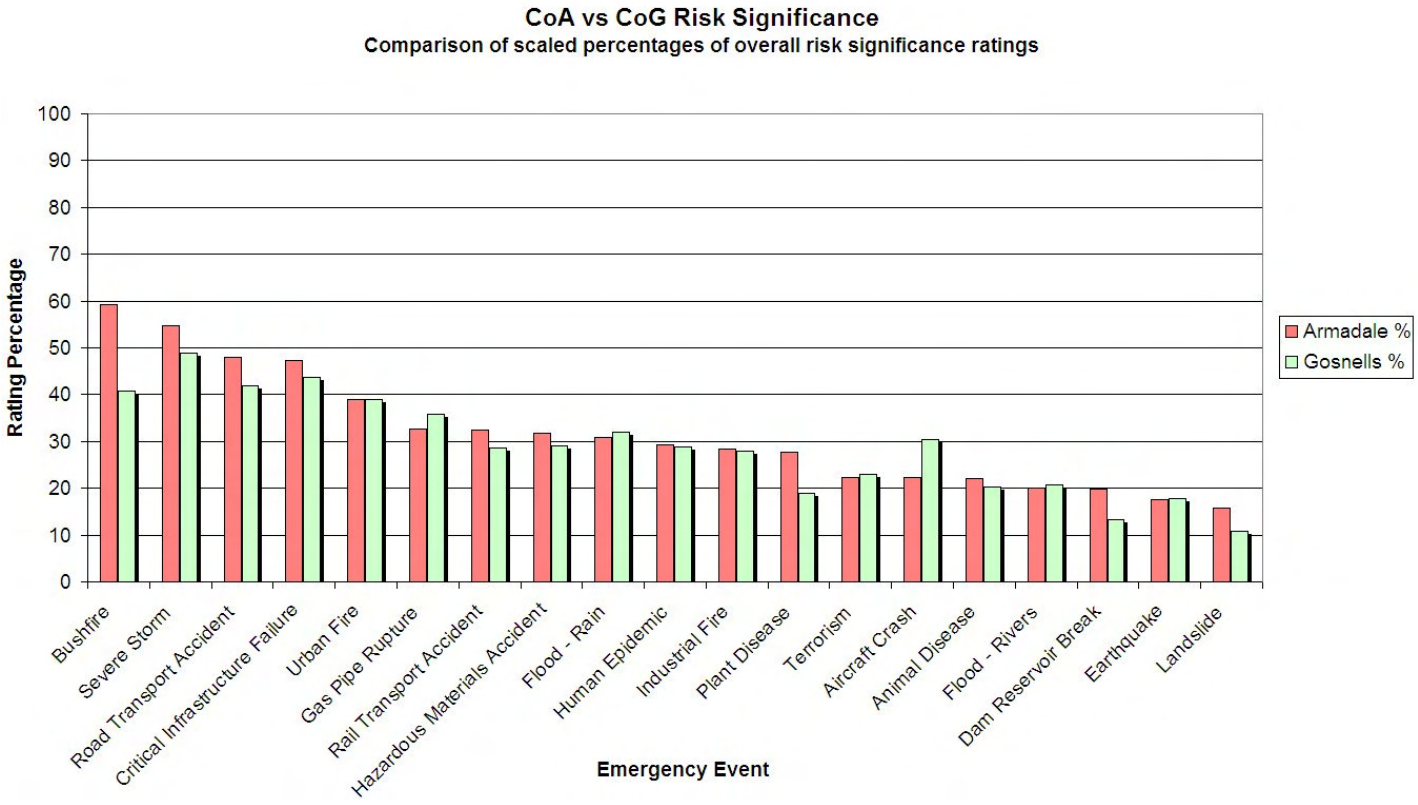


5.3 Armadale/Gosnells Comparison

There are a number of similarities between the two local governments' results, particularly with regard to the top five most significant emergency events. **Figure XIV** shows that there is a correlation between the two sets of data, with some differences in perceived significance in ranking of the emergency events.

These slight differences can be explained by the varying topography between the two local governments and periodical differences such as topical issues and media coverage of events.

Figure XIV. CoA vs CoG overall Risk Significance.



The results show that common perceived threats to the communities of Armadale and Gosnells are Bushfires, Severe Storms, Road Transport Accidents, Critical Infrastructure Failures and Urban Fires. These perceptions appear to be based on locality and proximity to certain infrastructure or contributors to the above emergency events.

Some suburbs within either local government district had slight variations to the most significant emergency events, such as Severe Storm instead of Bushfire. In this region, however, every winter is certain to bring with it at least one storm consisting of hail, high

winds, and heavy rain. This ensures that Severe Storm remains as a significant emergency event.

Similarly, historical occurrence of regular bushfires in both of the municipalities ensures that the threat remains, albeit of varying perceptions to each suburb's residents depending on the proximity to bushland reserves and forested areas.

Armadale SES statistics show that 47.5 hours were spent by volunteers in Bush Fire Support since 2007, while Gosnells SES spent 42 hours assisting other neighbouring units in fire support. That same year the number of hours spent on storm related callouts was 794 for Armadale and 104 hours for Gosnells with an additional 87.54 hours in assisting Armadale units. See **Appendix 19** for full table of hours.

The number of heavy vehicles travelling along major access arteries through each of the municipalities, carrying various merchandise or substances, has the potential to impact greatly on the nearby residents. This suggests that Road Transport Accidents are another perceived significant emergency event to these residents.

The results for both local government districts indicate that the most important assets/facilities are perceived to be Medical/Emergency Facilities, Communication systems, Utilities, and Residential assets including Drainage systems.

It was anticipated that the results would not differ greatly for each local government; that Medical Facilities would be highly valued by the community and accordingly, expected to receive greater efforts in order to protect them from damage or to return the facilities to normal operations as soon as practicable.

If evacuations became necessary, the results indicate that the majority of residents of the two local governments would be more likely to seek refuge with family/friends than to go to a designated evacuation centre as a first preference. However, should that preference not be available, the majority of respondents would utilise evacuation facilities in their local area. The results further indicate that the majority of respondents would be prepared to evacuate for a period of days.

Also of note is that both communities expect that radio and television facilities should resume normal operations within days of an emergency event, the same as for road and rail systems. This indicates that the majority of the community prefer to be updated on current media issues especially in times of crisis. The communities equally value the ability to be mobile, either to receive supplies and support or to leave the area if needed.

The perceptions identified in this study should not suggest that only the perceived most significant emergency events should be included in management plans. On the contrary, major events such as earthquakes, landslides, disease epidemics and dam breaks are events that have some chance of occurring, however each event has a specific State Emergency

Management Plan, as events on this scale require multi-agency responses. At the local level, the overall risk significance defines the priority of emergency planning for events that local agencies can suitably handle.

5.4 Comparison to existing Local Emergency Management Committee (LEMC) Arrangements

Both the CoA and the CoG Local Emergency Management Arrangements feature the top five perceived most significant emergency events with the exception of Critical Infrastructure Failure. Each identified threat involves four distinct considerations of Prevention, Preparedness, Response and Recovery.

Critical Infrastructure Failure is in most cases likely to be attributable to the result of some other event such as a Severe Storm, where damage has been sustained to an extent to cause these failures. The type of equipment or utility station and the damage incurred, determines the action required and which agency should have responsibility to rectify the issues.

For example, where power outages are concerned, Western Power will be alerted to the affected locations and dispatch maintenance crews to begin remedial works. During emergency events, powerlines (including transformers and generators) and substations are most at risk of incurring damage that could lead to power outages.

Lifeline providers are constantly funding upgrades in infrastructure of utilities to improve service to consumers and recovery time from emergency events. Various companies implement management plans specific to an emergency event with risk reduction strategies committed over a period of time. This can include network upgrades of power systems, telecommunications, water and fuel pipes in an effort to minimise damaging effects of an event. For example Western Power is currently undertaking a project to upgrade overhead power supply in Armadale and Gosnells areas to underground supply.

The Cities of Armadale and Gosnells, through the LEMC Arrangements, provide assistance in both Response and Recovery plans to cover all aspects of caring for the community in need during and after any of the perceived most significant emergency events. The recommendations resulting from this project report address issues in these Arrangements that have been identified through the project results, with particular emphasis on Prevention and Preparedness strategies.

6 Recommendations

Recommendations are as follows:

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. It is therefore suggested that information 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.

   Action:
   - 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.

   - Designated evacuation centres should be maintained on a regular basis to a high level. While the majority of the community prefers to seek refuge with family/friends, the second option of evacuation centre must be made available to accommodate community evacuees to a certain capacity.

2. 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. This strategy should stem from the LEMCs as each has various stakeholders that attend the regular meetings.

   Action:
   - Communication between 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.

   - A regular publication or update of convenient community locations to access Emergency Management related information or a dedicated website link on LG homepages.

3. With regard to prevention measures, both local governments should implement processes to measure Fuel Loading of bushland reserves and other council owned land at risk of bushfire or other emergency event, within their local government district.

   Action:
   - Councils 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.

4. It is suggested that the Cities of Armadale and Gosnells in collaboration with their respective Local Emergency Management Committees, continue the work of this risk identification survey into other phases of the ERM process outlined in AS/NZS 4360:2004, such as analysing, evaluating, accepting, and treating risks.

   Action:
   - Further funding applications should be considered in conjunction with Council's budget.

   - A collection of risk statements to be developed from the research and conclusions of this report, in order to compile a risk register of the identified most significant emergency events and determine possible treatment options.

5. Continuous monitoring and reviewing of the processes and priorities, as per AS4360:2004, is required to accommodate the changing demographics within the Cities of Armadale and Gosnells and to ensure correct processes are adhered to.

   Action:
   - A further community survey should be undertaken within a five year period.

(Picture: Bushfire Brigade firefighters, 2007)

7 Appendices

Appendix 1: Acknowledgements and Thanks

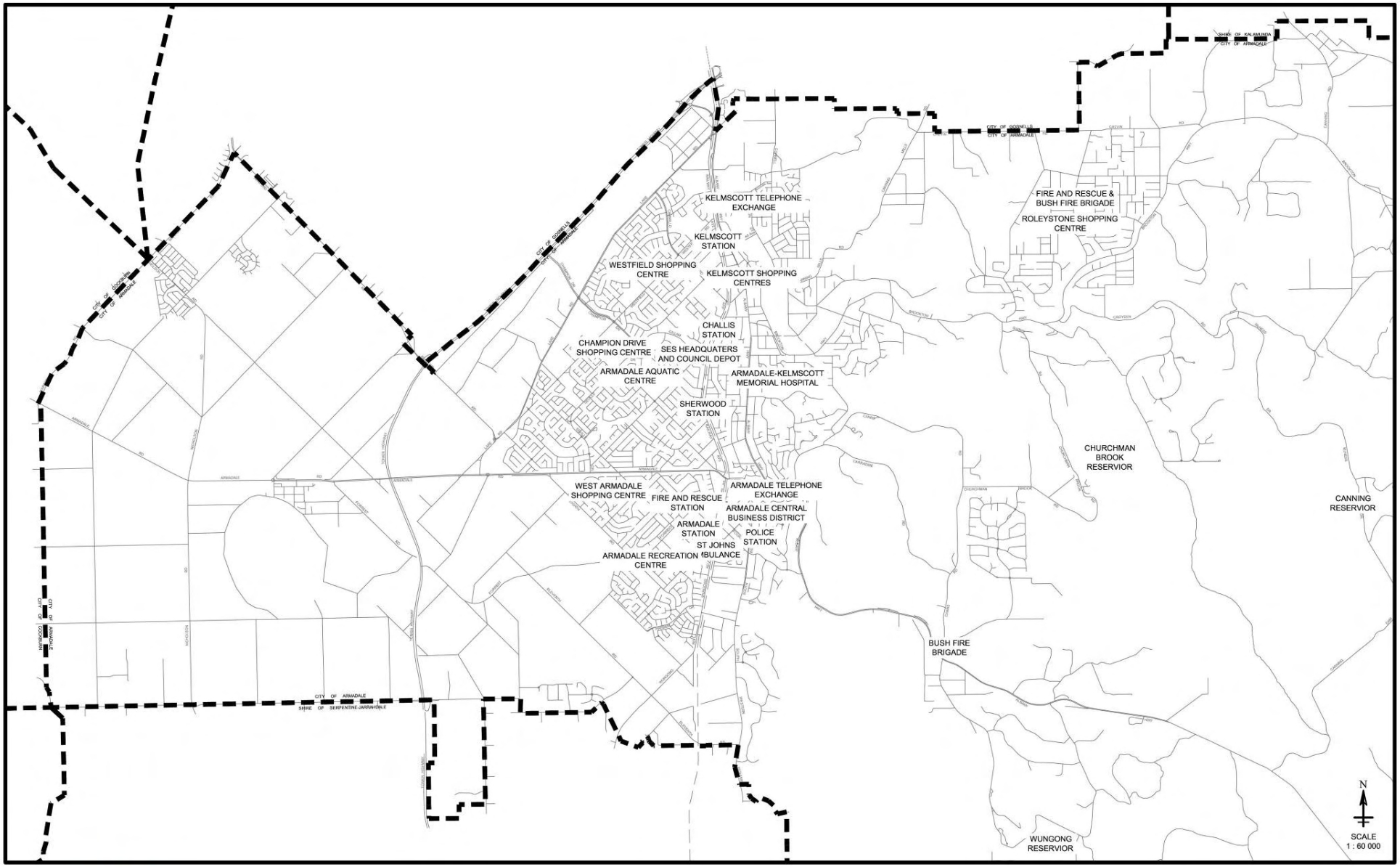
The AWARE Project Working Group would like to express sincere thanks to a number of individuals, groups and agencies that were generous in their assistance to this project. Without their contributions and advice, this project could not have run as smoothly or produced the outcomes that it has.

Thanks and acknowledgements go to the following:

- The members of the AWARE Project Working Group:
  - Mr Trevor Perkins
    Acting CEO – City of Gosnells
  - Mr Grant Bradbrook
    Acting Director Governance – City of Gosnells
  - Mr Brian Watkins (Project Coordinator)
    Manager Ranger & Emergency Services – City of Armadale
  - Mr Rod Wallington
    Risk & Emergency Management Coordinator – City of Gosnells
  - Mr John Edwards
    Special Projects Officer – City of Armadale
  - Mr Ryan Janes
    AWARE Research Officer – City of Armadale
- To the staff at FESA, including Quinta La Rosa, Adriana Felic, Peter Johnstone and Mark Bowen, for providing additional information and expertise.
- To the collective staff at the Cities of Armadale and Gosnells, particularly CoA and CoG PR Departments, CoA Rangers Department (and Bronwyn and Lauren).
- Kendra Swaine at Office of Crime Prevention.
- Sgt. Todd Pender from the Emergency Management Coordination Unit at WA Police.
- Melissa Dorant at Main Roads WA.
- Chauncey Johnson and Mark Lewis at City of Joondalup.
- Steve Gray at Attorney General's Department
- Dianne Cooper at Emergency Management Australia.
- Mark Casotti and Craig Garrett at Shire of Kalamunda.
- Everyone from the communities of Armadale and Gosnells who returned a completed survey.

Images used in this document were provided by Todd Pender (WA Police), Annemieke Vanderheld (CoG), Rod Wallington (CoG), Brian Watkins (CoA) and Nathan Hall (CoA). Front cover design by Jocelyn Harvey (Mediation Communications, Melbourne); document printed at Print Smart Online, Perth.

Appendix 2: Map of Armadale

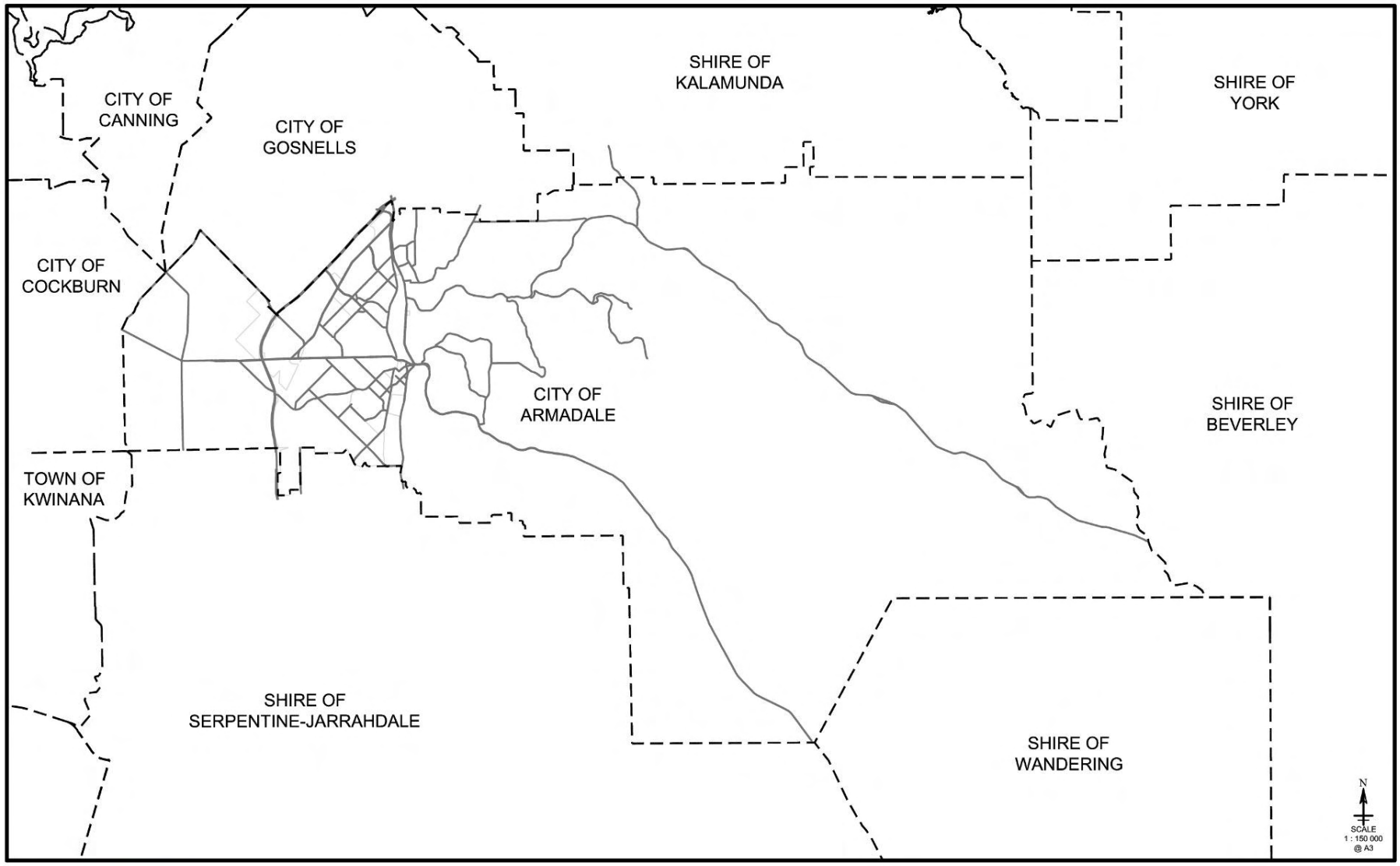


CITY OF Armadale

SEPTEMBER 2007

SPECIAL FACTORS

Appendix 2a. Adjoining Municipalities



CITY OF Armadale

SEPTEMBER 2008

LOCATION PLAN

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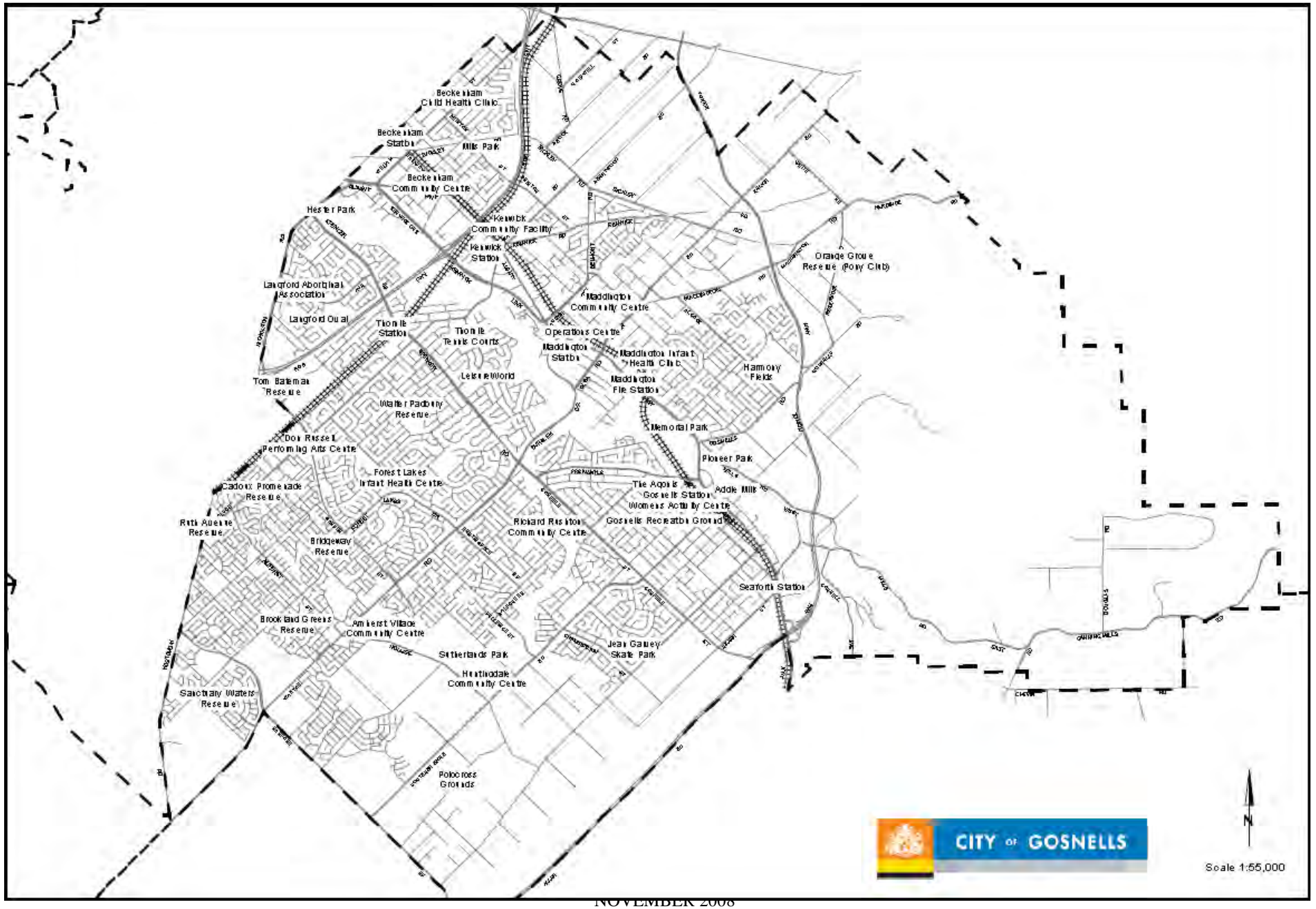
Appendix 3: Map of Gosnells



Appendix 4: Resources Budget Table

Item	Budget Amount	Expenditure Amount
Recruitment costs – advertisement for Project Officer position	$2275	$881
Personnel salary costs	$30,000	$24,480
Salary on-costs	$4500	
Mileage allowances	$4000	
Accommodation & Incidental Costs	$400	-
Telephone	$800	$806
Training	$500	$1014
Contracted Support	$775	$775
Administrative Support	$1400	$1400
Printing Envelopes	$1000	$0
Printing Letterhead	$1200	$731
Supply of paper	$200	$182
Photocopying	$800	$45
Stationary	$300	$444
Final Report Production	$500	$5867
Mail out preliminary surveys	$300	-
Mail out of survey letters	$3800	$3000
Reply paid returns	$1000	-
TOTAL BUDGET	**$54,000**	**$39,625**

Appendix 5: Timeline – Actual Completed Tasks Dates.

AWARE PROJECT TIMETABLE			
MONTH	**TASK**	**ESTIMATED COMPLETION**	**ACTUAL COMPLETION**
(1) April 2008	Orientation	April 2008	14-Apr-08
	Literature Research	April 2008	April 08
	Draft Project Plan	April 2008	15-Apr-08
	Arrange first training forum	April 2008	March 08
	Contact/meet key agencies/persons	April 2008	Ongoing
	Initiate publicity material & marketing strategy	April 2008	15-Apr-08
(2) May 2008	First training in "Introduction to Recovery Management" (subject to avail)	May 2008	12-Mar-08
	Address community groups as required	May 2008	Ongoing
(3) June 2008	Prepare surveys & consultation plan	June 2008	22-Apr-08
	Launch surveys	June 2008	26-May-08
(4) July 2008	Survey period	July 2008	9-13 Jun-08
	Arrange second training course	July 2008	July 08
	Record results	July 2008	20-Jun-08
(5) August 2008	Correlate results	August 2008	9-Jul-08
	Conduct checks as necessary	August 2008	Ongoing
	Analyse results to establish objectives	August 2008	16-Jul-08
	Second training course (subject to avail)	August 2008	18-Jul-08
(6) September 2008	Finalise results	September 2008	18-Jul-08
	Prepare draft final report	September 2008	15-Aug-08
	Present findings to local governments, key agencies & seek endorsement	TBA	29-Oct-08, 19-Nov-08
	Finalise report	September 2008	24-Sep-08
	Prepare media material to publish results	September 2008	September 08
	Publish results	TBA	November 08

Appendix 6. Risk Summaries

Identification and Description of Risk Source			
Source of Risk (Hazard): Bushfire	**Likelihood Rating:** 3.18 (Likely)	**Consequence Rating:** 3.76 (Major)	**Overall Significance Rating:** 14.8 (High)

Description:

Rural fires or bushfires are a feature of Australia's hot dry summers. Fire fighters both professional and volunteer risk their lives each year to control and extinguish them. Australia's most devastating bushfires have happened where they have raged through dense eucalypt forests into the suburban fringes of major cities. They have caused extensive losses of property, the environment animals and sometimes, human life.

The most susceptible areas within Cities of Armadale & Gosnells are in the Hills region where small and large communities live on the fringe of forests which are consequently exposed to loss of property, stock and life.

All fire management operations within the municipal areas are subject to control of the City of Armadale's and the City of Gosnells's Volunteer Bush Fire Brigades, FESA Fire Service and Department of Environment and Conservation (where appropriate).

Separate fire plans are published by each organisation. Liaison through the agencies is by an inter-agency protocol agreement. There is a history of significant wildfires occurring throughout the municipalities.

Consequences			
People	**Infrastructure**	**Environment**	**Financial**
▪ Death ▪ Permanent Injury ▪ Serious Injury ▪ Minor Injury	▪ Communications systems (Radio transmitters, receivers) ▪ Telephone (Telstra cables & equipment) ▪ Power (Western Power substations, transformers etc) ▪ Roads ▪ Rail ▪ Water Pipeline ▪ Gas Pipeline ▪ White Oil Pipeline ▪ Residential and Commercial buildings	▪Flora & Fauna habitat ▪Fire Impact ▪Erosion ▪Air Pollution ▪Toxic Waste	▪ Major loss ▪ Moderate loss ▪ Minor loss

Identification and Description of Risk Source			
Source of Risk (Hazard): Severe Storm	**Likelihood Rating:** 3.66 (Likely)	**Consequence Rating:** 3.57 (major)	**Overall Significance Rating:** 13.7 (High)

Description:

Severe storms are characterised by various combinations of thunder and electrical storms, storm surge, high winds, rain and hail. However, winter storms are far more common and frequently keep volunteer SES units busy with considerable damage to buildings, roads and other infrastructure.

The Cities of Armadale and Gosnells continuously experiences storm conditions during the winter period. The potential loss of human life, livestock and damage to property is a concern to the community. Extensive damage to homes and community infrastructure can occur.

Consequences			
People	**Infrastructure**	**Environment**	**Financial**
▪ Death ▪ Permanent Injury ▪ Serious Injury ▪ Minor Injury	▪ Roads ▪ Stormwater Drainage ▪ Sewerage ▪ Power ▪ Lighting ▪ Communication systems	▪ Erosion ▪ Flora & Fauna habitat ▪ Waste dumping	▪ Major ▪ Moderate ▪ Minor

Identification and Description of Risk Source			
Source of Risk (Hazard): Road Transport Accident	**Likelihood Rating:** 3.23 (Possible)	**Consequence Rating:** 3.39 (Moderate)	**Overall Significance Rating:** 12 (Moderate)

Description:

The Cities of Armadale and Gosnells rely heavily on their roads to transport both goods and passengers over large distances. There is increasing use of our highways and roads by large trucks, buses and small passenger vehicles as urban development expands.

Trucks carry all manner of goods including hazardous materials through the municipalities to mine-site destinations, which potentially add another dimension to traffic accidents.

Accidents include all combinations of trucks, buses, trains and stationary objects and have the potential to cause death or serious injury, infrastructure and environmental damage.

There is a history of road traffic accidents within the Armadale-Gosnells locality, particularly involving major arteries such as Albany Highway, Roe Highway, Tonkin Highway and Brookton Highway.

Consequences			
People	**Infrastructure**	**Environment**	**Financial**
▪ Death ▪ Permanent Injury ▪ Serious Injury ▪ Minor Injury	▪ Telephone (Telstra equipment etc) ▪ Power (Western Power lines, transformers, etc) ▪ Street lighting ▪ Roads ▪ Footpaths ▪ Bridges ▪ Mains Water ▪ Gas Pipeline	▪ Fire impacts ▪ Flora & Fauna ▪ Air pollution ▪ Fuel spills ▪ Hazardous material spills	▪ Moderate ▪ Minor

Identification and Description of Risk Source			
Source of Risk (Hazard): Critical Infrastructure Failure	**Likelihood Rating:** 3.38 (Possible)	**Consequence Rating:** 3.31 (Moderate)	**Overall Significance Rating:** 11.8 (Moderate)

Description:

Critical Infrastructure Failures are in most cases likely to be attributed to be a result of some other event such as a Severe Storm, where damage has been sustained to an extent to cause these failures. Depending on the type of equipment or utility station and the damage incurred, determines the action require and by whom to rectify the issues.

The Cities of Armadale and Gosnells have a history of power failures during stormy winter months. Major disruptions due to large storm damage may take up to 24 hours to reconnect.

In the past year in Armadale alone, the local SES volunteers spent 794 hours just on storm related damage and failures for domestic, commercial and industrial callouts.

Consequences			
People	**Infrastructure**	**Environment**	**Financial**
▪ Death ▪ Permanent Injury ▪ Serious Injury	▪ Power (Western Power equipment) ▪ Communication systems (Telstra equipment, Radio stations) ▪ Lighting ▪ Mains Water ▪ Water Pipeline ▪ Gas Pipeline ▪ Oil Pipeline ▪ Sewerage	▪ Waste dumping	▪ Major loss ▪ Moderate loss ▪ Minor loss

Identification and Description of Risk Source			
Source of Risk (Hazard): Urban Fire	**Likelihood Rating:** 2.77 (Possible)	**Consequence Rating:** 3.26 (Moderate)	**Overall Significance Rating:** 9.74 (Moderate)

Description:

Perhaps the most common cause of urban fire in Australia is that which originates as a bushfire. Every summer, houses and other buildings are destroyed by fire in this way. The most susceptible locations within Armadale and Gosnells are close to bushfire prone areas on the urban-rural interface.

Urban fires originating from houses, industries, electrical malfunctions and other causes are not uncommon, but highly unlikely to cause widespread destruction within a township. Domestic buildings are becoming smaller and closer together as lot sizes are slowly being decreased to accommodate the rising population.
The Cities of Armadale and Gosnells have varying numbers of domestic, commercial and industrial properties that are at risk of fire damage in this respect.

There is a risk of a building fire in the municipalities as such fires have occurred involving domestic, commercial and industrial properties in recent times.

Consequences			
People	**Infrastructure**	**Environment**	**Financial**
▪ Death ▪ Permanent Injury ▪ Serious Injury ▪ Minor Injury	▪ Building damage ▪ Telephone & other Communication systems (Telstra equipment) ▪ Power (Western Power equipment) ▪ Street Lighting ▪ Roads ▪ Gas Pipeline ▪ Oil Pipeline	▪ Flora & Fauna ▪ Air pollution ▪ Toxic waste	▪ Major loss ▪ Moderate loss ▪ Minor loss

Appendix 7. Types of Intangible Loss.

(Source: EMA Disaster Loss Assessment Guidelines, 2002).

Personal	Community
Death and injury due to flood (eg drowning) Deaths and injuries due to use of secondary roads Stress induced ill health and death Suicide Bereavement Loss of memorabilia Loss of gardens Health effects including respiratory illness and leptospirosis Disruption to living, including isolation and evacuation Disruption generated by the rebuilding process Loss of social contact Loss of pets Relationship breakdowns Increased substance abuse Temporary loss of utilities Disruption to education Sense of invasion Forced to continue working Lower income earning capacity Reduced land values Increased dependence Near destitute Feel trapped Worry over future hazard events	Long term depression Loss of community – access to networks, services and assets including recreation areas Damage to cemeteries Increased demand on existing services Diminished community activity as effort goes to individual recovery Negative image of place Damage to cultural and heritage sites Damage to ecological sites – changed habitats and landscape Non-use values of lost heritage and environmental sites and collections Changed water regime Loss of genetic diversity

Appendix 8: Initial Media Release Cities of Armadale & Gosnells.

Media Release

Monday 14 April, 2008

Survey to provide community feedback for emergency plan

Residents will be asked for their views on the threat of emergencies such as fire, floods and storms, as part of a joint City of Armadale and City of Gosnells update of their Local Emergency Risk Management Plans.

The Plans are used to effectively coordinate the actions of Council and other agencies in the event of an emergency, in order to minimise damage, injury and loss of life.

Brief surveys will be soon be sent out to local residents selected on a random basis, according to Brian Watkins, the City's Chief Bushfire Control Officer and manager of Ranger & Emergency Services.

"This important project, which is being conducted by the City of Armadale together with the City of Gosnells, involves substantial community consultation," Mr Watkins said.

"Community members will be asked in the surveys which types of emergencies they see as the greatest risks within our region.
"It will only take about five minutes to complete the surveys and all details from them will remain confidential.
"The information we gain will be summarised in a report and will assist us in the production of the new Local Emergency Risk Management Plan."

The Fire and Emergency Services Authority has provided funds for the surveys and Plan updates under the banner of its AWARE (All West Australians Reducing Emergencies) program.

The survey results will be published in local newspapers and the report will be available for the public's information at City of Armadale and City of Gosnells libraries.

Residents who complete the survey should return it in the enclosed, reply-paid envelope by Monday 9 June 2008.
All returned surveys will be entered into a prize draw for a quality first aid kit and the winners notified by mail.

For further Information about the Local Emergency Risk Management Plan and the survey, contact City of Armadale Project Research Officer Ryan Janes on 9399-0111.
ENDS…

Media Contact:	Catherine Halsall Public Relations Co-ordinator
Phone:	(08) 9399 0634
Mobile:	0407 083 997
Email:	chalsall@armadale.wa.gov.au
Web site:	www.armadale.wa.gov.au

Appendix 9: Covering Letter

Our Ref: ES/EM/1
12 May 2008
The Occupier
<<Postal Address>>

Dear Resident,

You have been selected to express your views on emergency hazards and community emergency management within the City of Armadale/Gosnells, in the form of a survey. This survey is part of an All West Australians Reducing Emergencies Project (AWARE), which is funded by the Fire and Emergency Services Authority of Western Australia (FESA).

This project is a joint effort between the Cities of Armadale and Gosnells in order to assist with the update of Local Emergency Risk Management Plans. These plans are used to effectively coordinate arrangements in the prevention of, preparedness for and recovery from emergencies within the community in order to minimize damage, injury, loss of life and community disruption.

The purpose of this survey is to consult the community for common views on having management plans for significant possible emergencies that may threaten the safety and well being of communities within the Armadale and Gosnells Districts. The survey questions are for information purposes and refer only to potential emergency situations; it is not the intent to cause alarm or feelings of insecurity.

The survey will take approximately 5-10 minutes to complete and all details are kept confidential. At the completion of the project, the survey results will be published in local newspapers for your information, and copies of the report will be available in City of Armadale and City of Gosnells libraries.

If you agree to participate, simply complete the survey and return it in the enclosed reply paid envelope by 9 June 2008. All returned surveys will be entered into a prize draw for a quality first aid kit. Two prizes will be awarded with winners notified by mail.

If you have any queries regarding this survey please do not hesitate to contact the Project Research Officer, Ryan Janes on 9399 0111 at the City of Armadale.

Thank you for taking the time to participate. Your assistance is appreciated and will ensure that the community has a voice in any outcomes that arise from this project.

Good luck in the prize draw!

Yours sincerely,

Ryan Janes
AWARE Research Officer
City of Armadale

Appendix 10: Community Survey

(Gosnells survey identical except for suburb list in question 1)

An Emergency can be defined as;
"Any event that disrupts the normal activities of a community or individual and which may threaten lives, property or the environment."

Please complete the following survey in full:

1. Your Area

   Please select your suburb from the list below:

☐ Armadale	☐ Ashendon	☐ Bedfordale
☐ Brookdale	☐ Champion Lakes	☐ Forrestdale
☐ Harrisdale	☐ Karragullen	☐ Kelmscott
☐ Mt Nasura	☐ Mt Richon	☐ Piara Waters
☐ Roleystone	☐ Seville Grove	☐ Westfield
☐ Wungong		

2. Degree of Risk and Consequence

   This question relates to the risk of certain emergencies occurring within your local area, and the consequence should it happen.

   Risk is rated on a scale of 1-5 with 1 suggesting that the emergency may happen rarely and 5 suggesting that the emergency may occur several times in any one year.

   Consequence is rated on a scale of 1 - 5 with 1 being a consequence which is 'not serious' (eg: affecting few people for not more than a few hours, with no property damage) and 5 being a 'serious' consequence (eg: catastrophic damage to many homes, commercial buildings etc with the possibility of one or more deaths or serious injuries).

   In your opinion, what is the risk (likelihood) of the following emergencies occurring within the City of Armadale?

   Also assess the consequence (impact) on your community by rating the consequence should the listed emergency occur.

   Please rate all listed emergencies within each subgroup by circling the appropriate number.

RISK RANKING

Type of Emergency	Risk					Consequence				
	Low				High	Not Serious				Serious
Earthquake	1	2	3	4	5	1	2	3	4	5
Severe Storm – wind and/or rain damage	1	2	3	4	5	1	2	3	4	5
Flood – rising rivers/streams	1	2	3	4	5	1	2	3	4	5
Flood – severe rain (localised or flash floods)	1	2	3	4	5	1	2	3	4	5
Bushfire	1	2	3	4	5	1	2	3	4	5
Urban Fire – structural/property fire	1	2	3	4	5	1	2	3	4	5
Landslide	1	2	3	4	5	1	2	3	4	5
Aircraft Crash	1	2	3	4	5	1	2	3	4	5
Dam (Reservoir) break	1	2	3	4	5	1	2	3	4	5
Rail Transport Accident	1	2	3	4	5	1	2	3	4	5
Road Transport Accident (eg: Heavy Haulage accident)	1	2	3	4	5	1	2	3	4	5
Industrial Fire – scrap yard or chemical storage fire	1	2	3	4	5	1	2	3	4	5
Hazardous Materials Accident	1	2	3	4	5	1	2	3	4	5
Gas Pipe rupture	1	2	3	4	5	1	2	3	4	5
Critical Infrastructure Failure (eg: power grid failure, power line collapse, Water mains rupture, etc)	1	2	3	4	5	1	2	3	4	5
Terrorism (eg: Bombing or attack, etc)	1	2	3	4	5	1	2	3	4	5
Human Epidemic (eg: SARS, Tuberculosis, Avian Flu, etc)	1	2	3	4	5	1	2	3	4	5
Animal Disease (eg: Mad Cow Disease, Foot and Mouth Disease, etc)	1	2	3	4	5	1	2	3	4	5
Plant Disease or Crop Failure (eg: Apple Scab, Brown Rot)	1	2	3	4	5	1	2	3	4	5

3. Level of Asset/Service Importance

Following a major disaster or emergency event, many community assets/services may experience damage that affects their ability to provide for the community.

In order to better understand what the community sees as the most important facilities and/or services please rank the following in order of importance to you following an emergency event, with 1 being the least important and 5 being the most important.

For each individual facility or service please indicate how soon you would expect the service to return to normal following an emergency?

Please rate each by circling the appropriate number.

Type of Asset	Community Importance Priority Low High					Expectation to return to normal (1=hours; 2=days; 3=weeks; 4=months; 5=years)				
Hospitals, Medical Centres	1	2	3	4	5	1	2	3	4	5
Emergency & Evacuation Centres	1	2	3	4	5	1	2	3	4	5
Utilities (Water, Power, Gas, Sewerage etc)	1	2	3	4	5	1	2	3	4	5
Roads, Rail systems	1	2	3	4	5	1	2	3	4	5
Communication Systems	1	2	3	4	5	1	2	3	4	5
Commercial Facilities (Phone lines and towers, etc)	1	2	3	4	5	1	2	3	4	5
Industrial Facilities	1	2	3	4	5	1	2	3	4	5
Schools, Childcare Facilities	1	2	3	4	5	1	2	3	4	5
Public & Recreational Facilities	1	2	3	4	5	1	2	3	4	5
Financial Facilities (Banks, etc)	1	2	3	4	5	1	2	3	4	5
Residential Buildings	1	2	3	4	5	1	2	3	4	5
Administration, Government Centres	1	2	3	4	5	1	2	3	4	5
Drainage	1	2	3	4	5	1	2	3	4	5
Radio, Television Stations	1	2	3	4	5	1	2	3	4	5
Cultural & Religious icons, Places of Worship	1	2	3	4	5	1	2	3	4	5

4. Emergency Locations

This question relates to community knowledge of where to go in the event of an emergency, should there be a need to evacuate. If an emergency should happen community evacuations are often put in place.

a) In the event of an emergency, where is the first place you would go, if there was a need for you to leave your property for an amount of time? Please tick only ONE of the following.

- ☐ Evacuation Centre/Community Centre
- ☐ Medical Centre/Hospital
- ☐ Church/Place of worship
- ☐ Shopping Centre
- ☐ Schools
- ☐ Hotel/Motel
- ☐ Family/Friend

i) Please specify the location, as identified in a) above, by selecting one of the following.

☐ Same suburb as you ☐ Within City of Armadale ☐ Outside City of Armadale

b) For what approximate length of time would you be prepared to remain at the location you have indicated in 4(a)?

- ☐ Hours
- ☐ Days
- ☐ Weeks
- ☐ Months
- ☐ Years

Thank you for taking the time to complete this survey. Once completed, please return the survey in the enclosed reply paid envelope to:

City of Armadale
Locked Bag 2
ARMADALE WA 6992

Should you require any further information or assistance completing your survey please contact Ryan Janes at City of Armadale 9399 0111 or rjanes@armadale.wa.gov.au

If you wish to be entered into the prize draw for a quality first aid kit please complete your details below.

Name:

_____

Address:

_____

_____

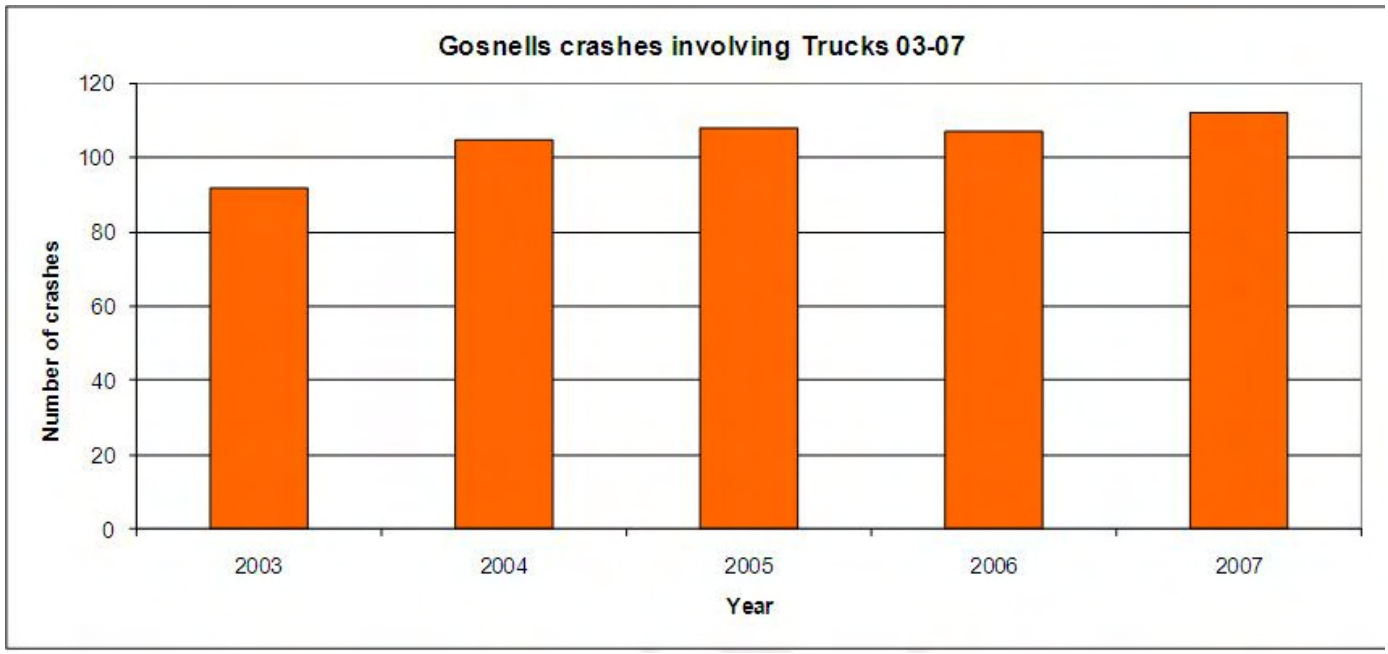
Phone Number:

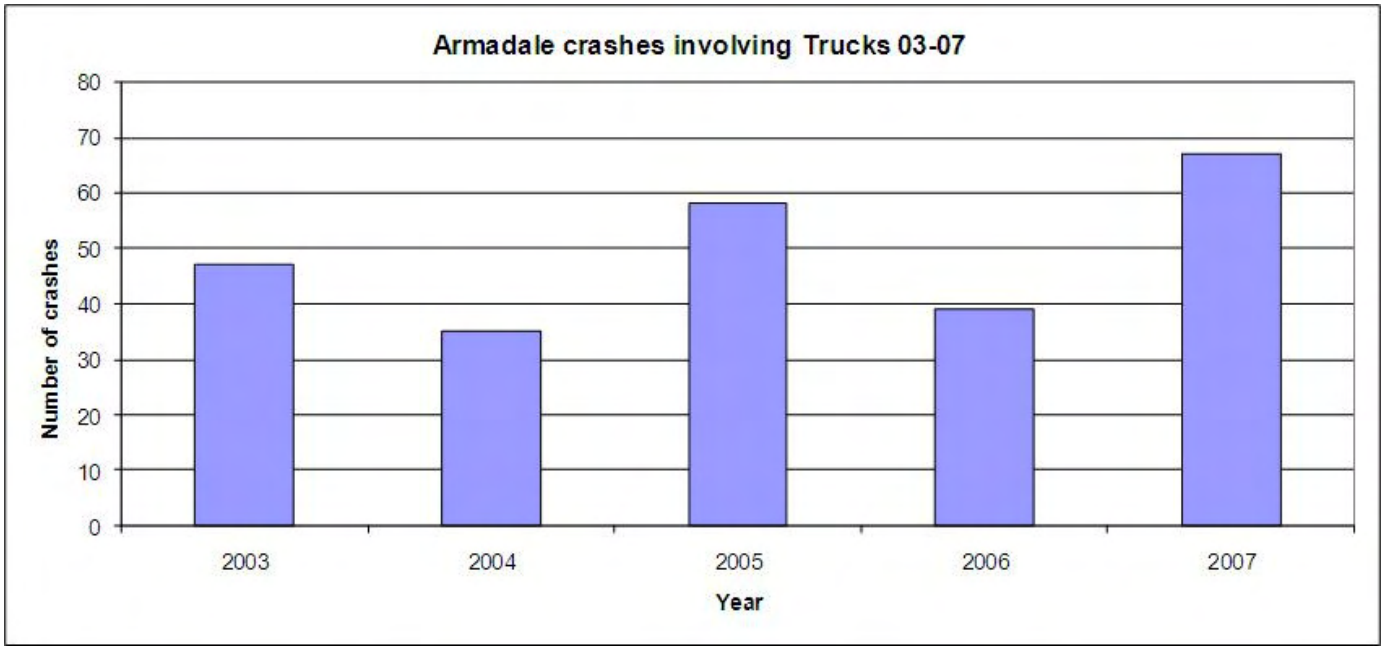
_____

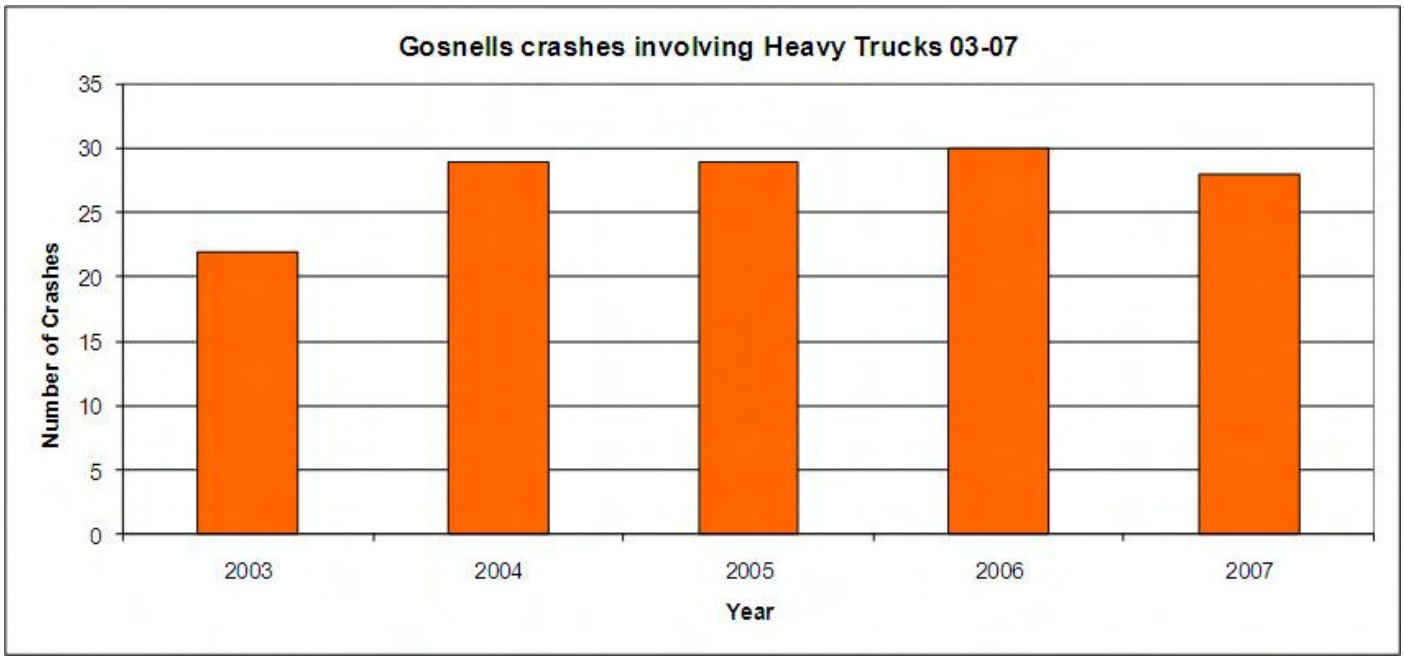
(Winners will be notified by postal mail)

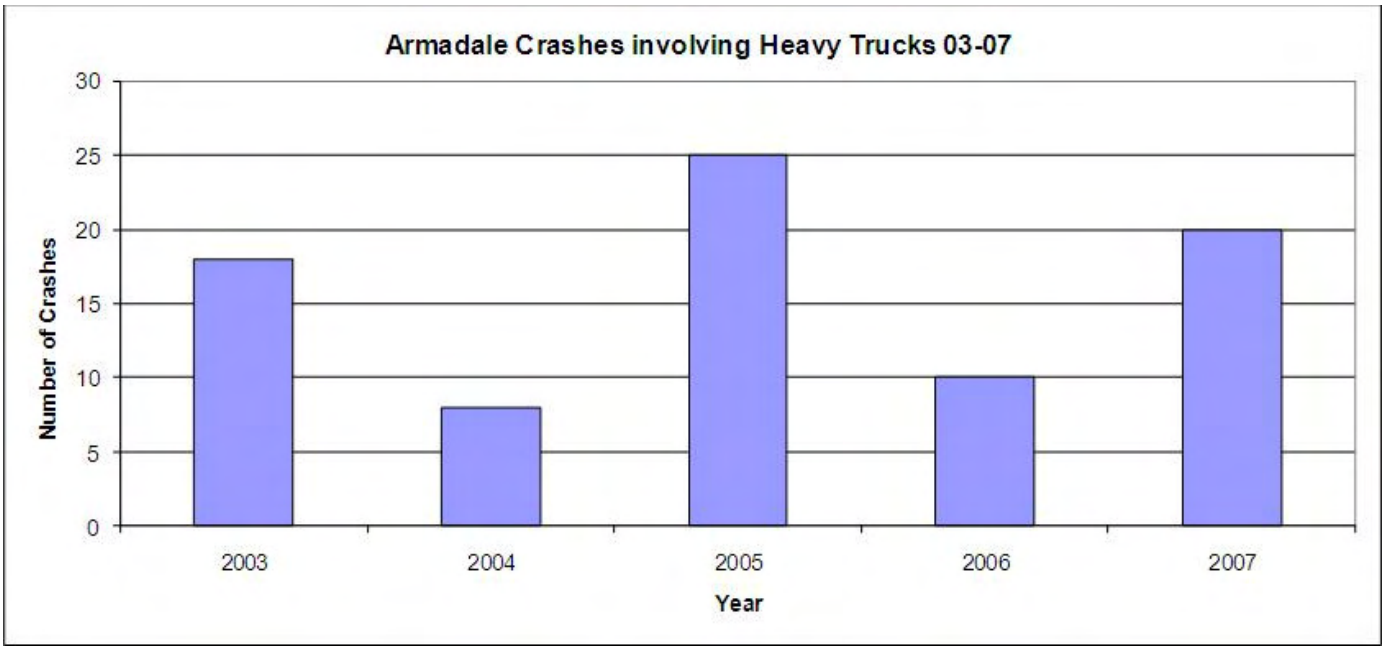
Appendix 11: Crash Statistics

Armadale & Gosnells involving trucks






Gosnells crashes involving Heavy Trucks 03-07
Number of Crashes
35
30
25
20
15
10
5
0
2003
2004
2005
2006
2007
Year


Armadale Crashes involving Heavy Trucks 03-07
Number of Crashes
30
25
20
15
10
5
0
2003
2004
2005
2006
2007
Year

Appendix 12: Emergency Management Australia risk scale definitions.

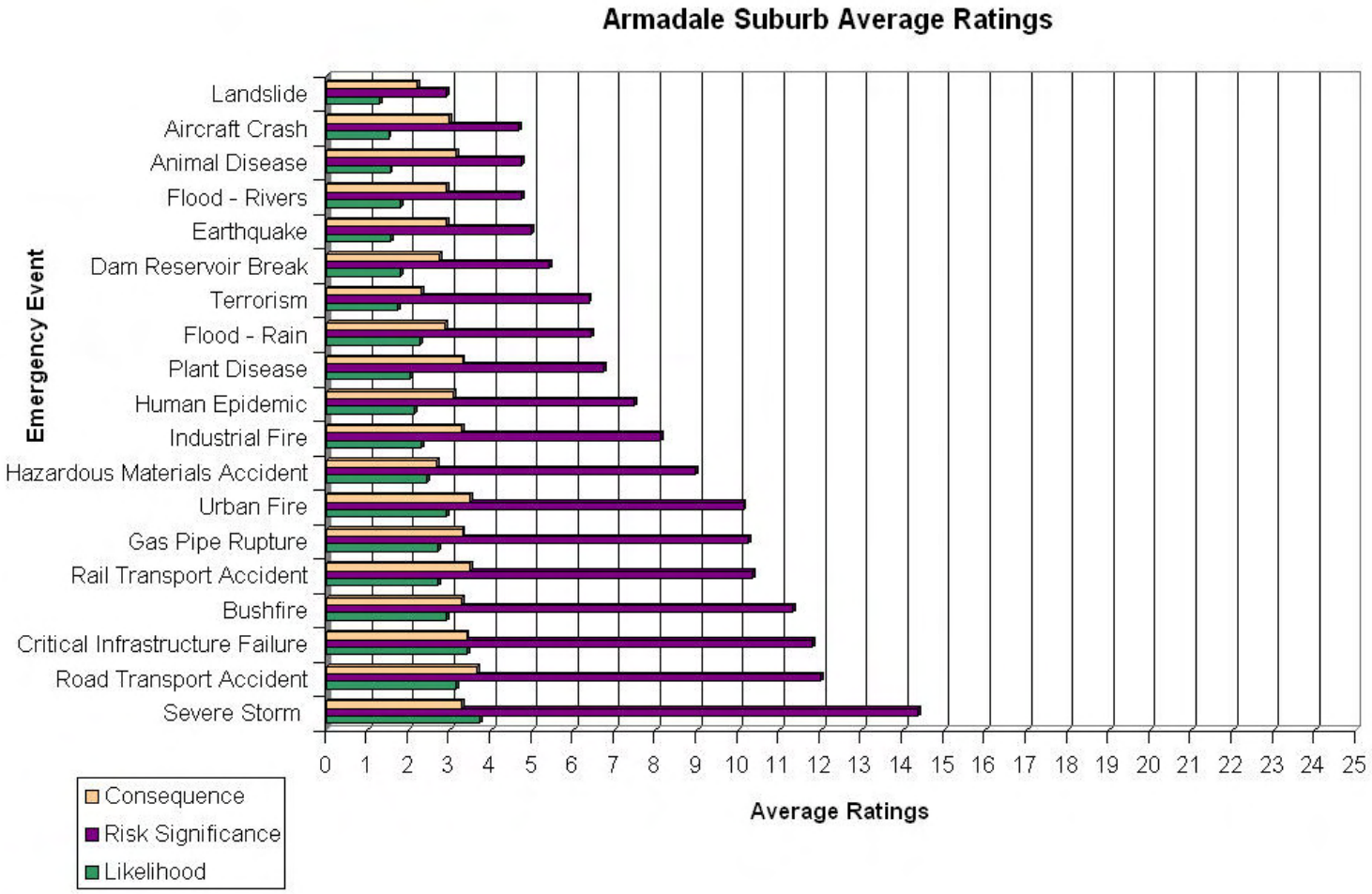
Likelihood Scale

Survey Scale	Descriptor	Description
1	Rare	May occur only in exceptional circumstances; may occur once every 500 or more 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 once every 100 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 once every 20 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 once every five years.
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 once every year or more.

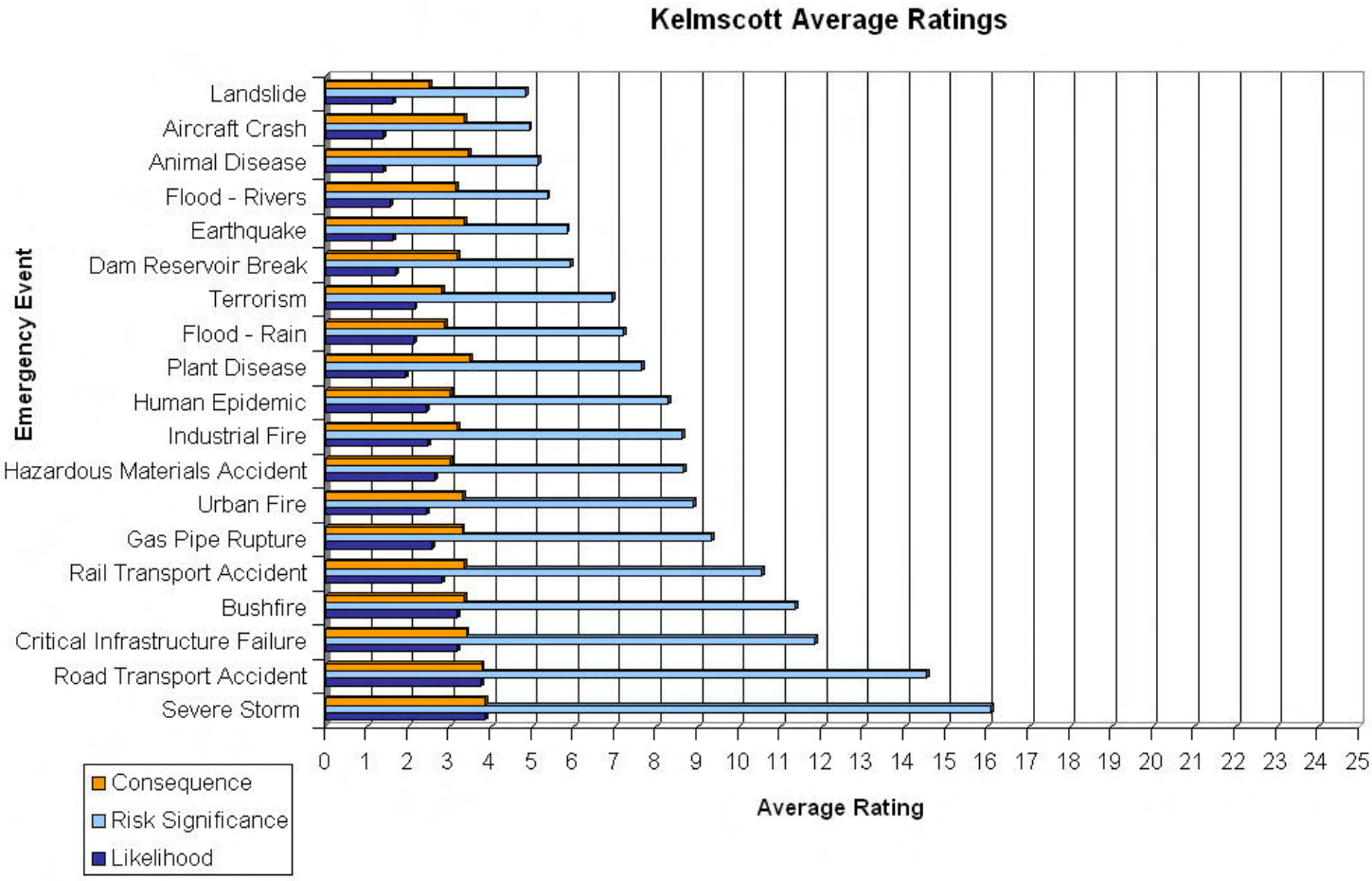
Consequence Scale

Survey Scale	Descriptor	Description
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 require 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	Catastrophic	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.

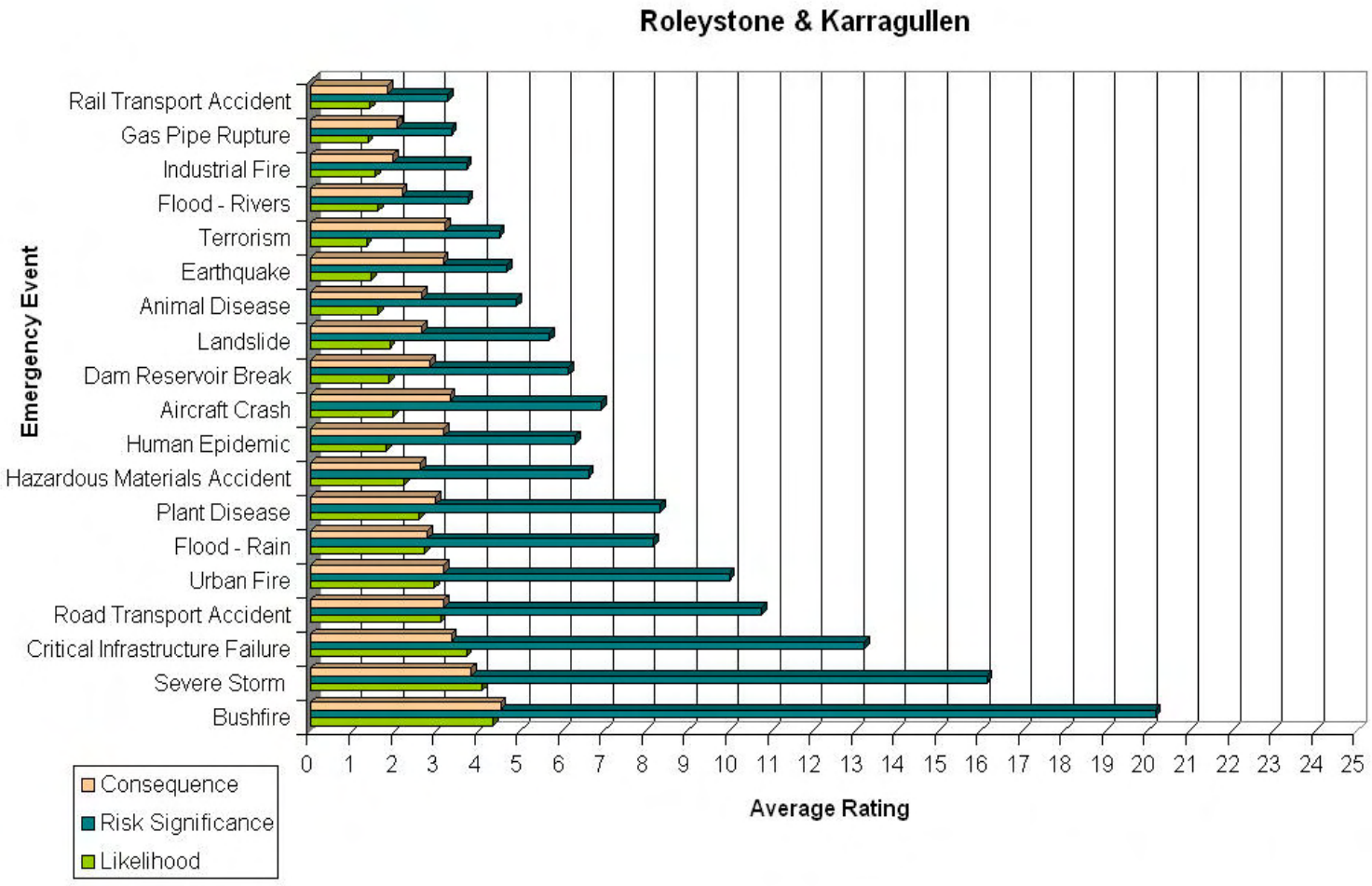
Appendix 13: Armadale Suburb average rating of Occurrence Likelihood, Consequence, & Risk Significance



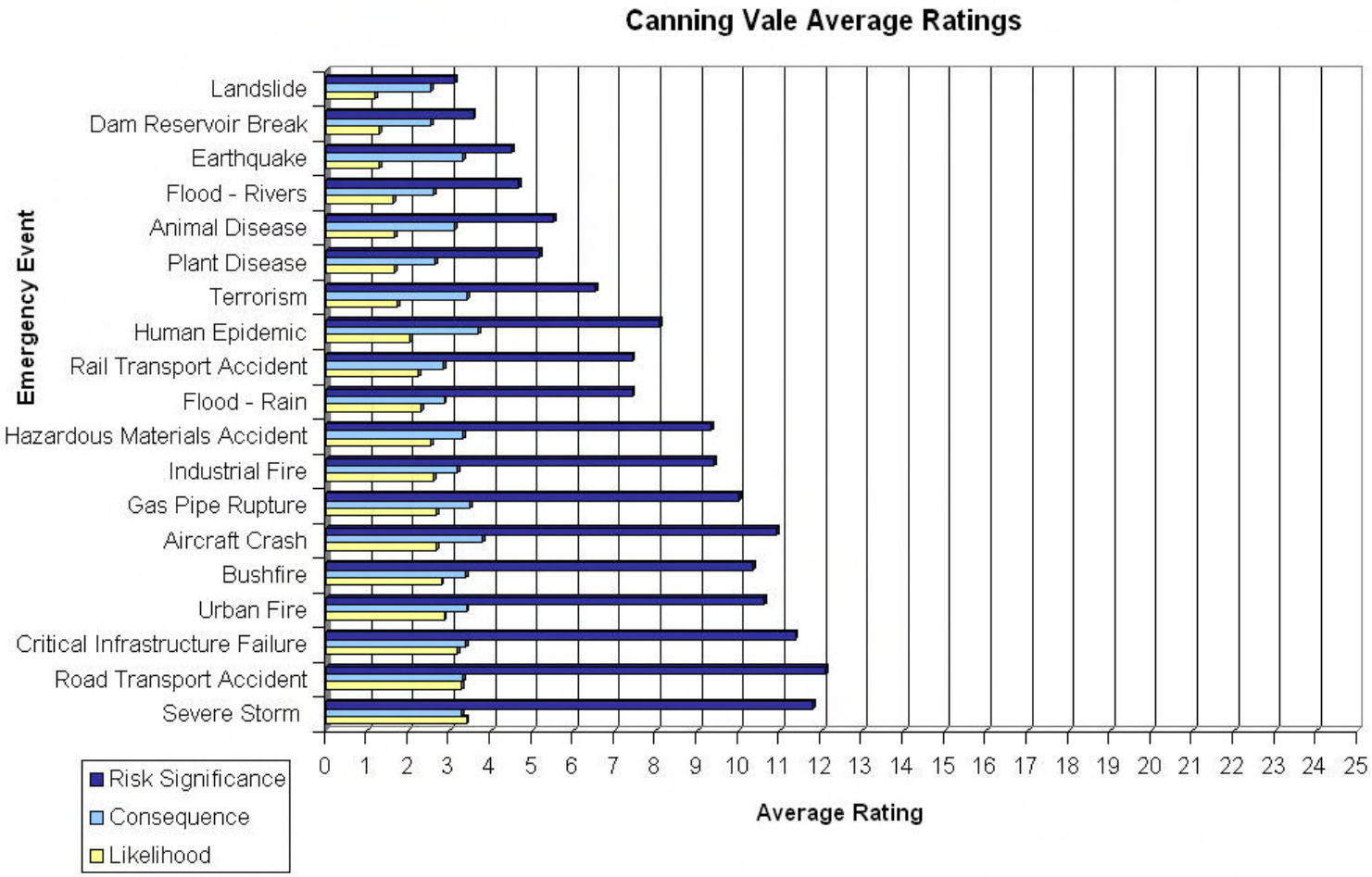
Appendix 14: Kelmscott suburb average rating of Occurrence Likelihood, Consequence & Risk Significance.



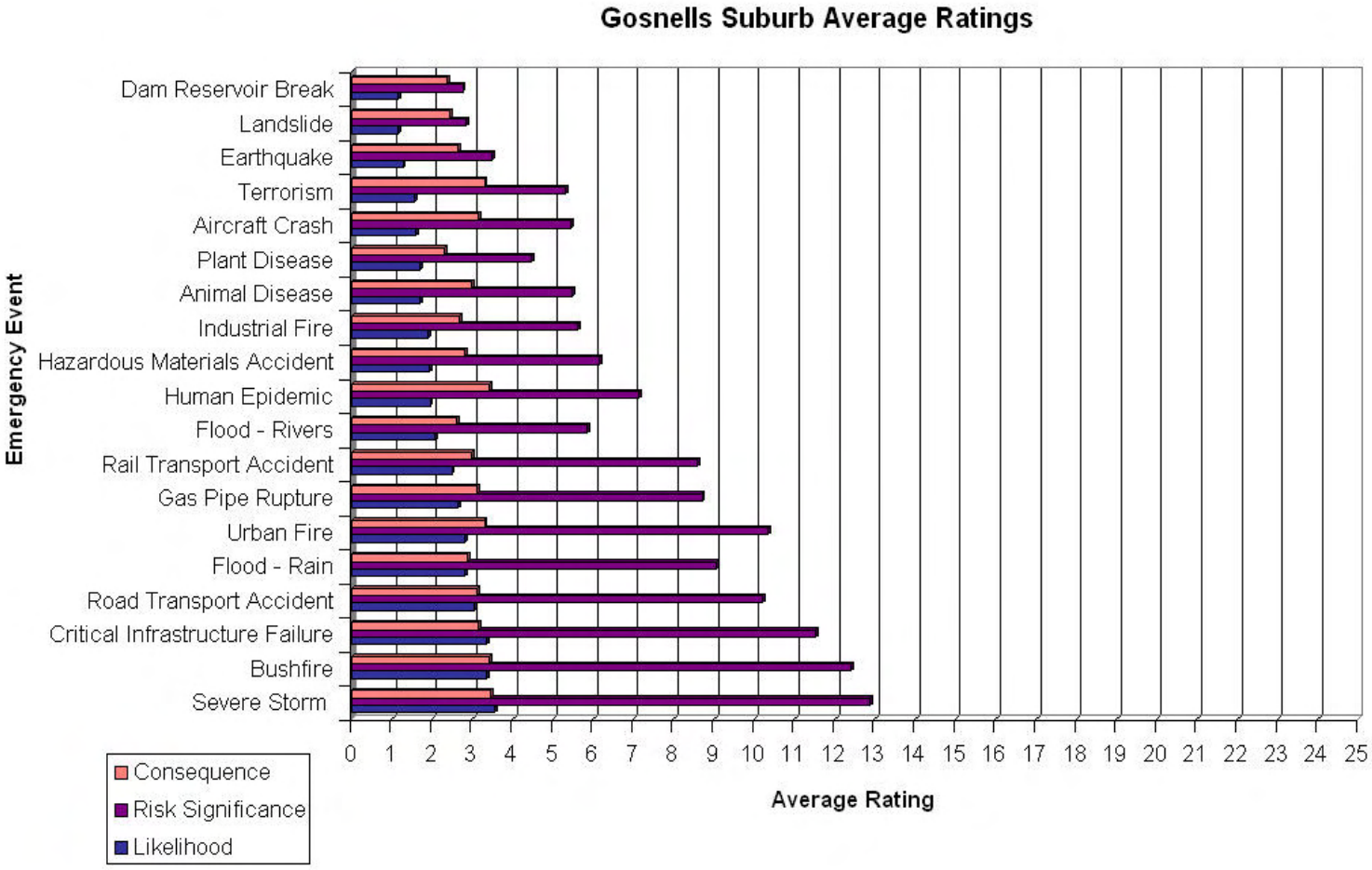
Appendix 15: Roleystone & Karragullen average rating of Occurrence Likelihood, Consequence & Risk Significance.



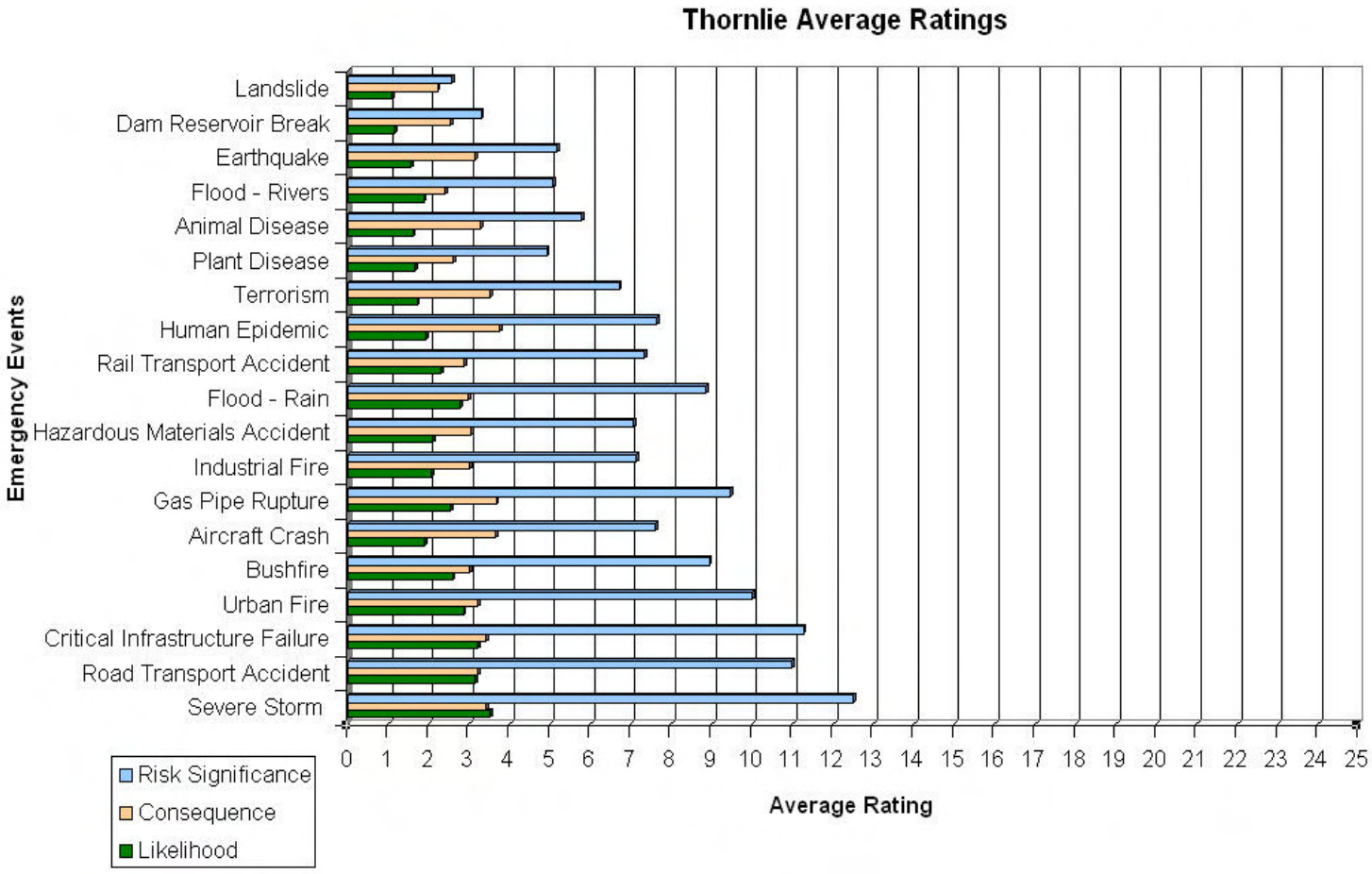
Appendix 16: Canning Vale average rating of Occurrence Likelihood, Consequence & Risk Significance.



Appendix 17: Gosnells Suburb average rating of Occurrence Likelihood, Consequence & Risk Significance.



Appendix 18: Thornlie average ratings of Occurrence Likelihood, Consequence & Risk Significance.



Appendix 19. SES Statistics

Armadale

Year	*Operational Hours (total)*	*Storm (hours spent)*	*Land Search (hours spent)*	*Bush Fire Support (hours)*	*Training (hours)*	*Activations (hours)*	*Premises attended (hours)*
2003-04	764.5	115	568	48.3	4982	35	40
2004-05	1424	839	263	561	5272	34	170
2005-06	963	542	312	0	6706	16	46
2006-07	778	342	420	53.5	6986	25	33
2007-08	871.5	794	68	47.5	7028	38	122

Gosnells

Year	*Call Outs (hours)*	*Training (hours)*	*Emergency Management (hours)*	*Administration/ Maintenance (hours)*	*Community Support (hours)*	*Public Education & Awareness (hours)*	*Monthly Total (total hours)*
2005-06	448.5	4125.5	208	122	0	533	5437
2006-07	266	4678	667	173	117	155	6103.5
2007-08	889	4152	171	275	186	100	5773

Year	*Severe Storm (hours)*	*Bushfire (hours)*
2003/04	8	19
2004/05	472	363
2005/06	0	22
2006/07	30	72
2007/08	234	62

Appendix 20. Armadale population and sample survey numbers

Suburb	City	Actual Population	Survey Population	Percentage Survey	Actual Survey
Armadale	Armadale	12019	12000	288	288
Ashendon	Armadale	-	300	7	10
Bedfordale	Armadale	1830	1800	43	40
Brookdale	Armadale	2656	2600	62	62
Champion Lakes	Armadale	520	500	12	12
Forrestdale	Armadale	1297	1200	29	30
Harrisdale	Armadale	-	750	18	18
Karragullen	Armadale	250	200	5	10
Kelmscott	Armadale	9417	9000	216	214
Mt Nasura	Armadale	3001	3000	72	72
Mt Richon	Armadale	1652	1600	38	38
Piara Waters	Armadale	-	750	18	18
Roleystone	Armadale	5975	5000	120	120
Seville Grove	Armadale	7065	7000	168	168
Cammillo (ex. Westfield)	Armadale	4523	4000	96	90
Wungong	Armadale	334	300	7	10
Total		**50539**	**50000**	**1200**	**1200**

Appendix 21. Gosnells population & survey sample numbers

Suburb	City	Actual Population	Survey Population	Survey Sample No.	Actual Survey No.
Beckenham	Gosnells	5939	5000	95	95
Canning Vale	Gosnells	23289	23000	436	435
Gosnells	Gosnells	17275	16045	304	304
Huntingdale	Gosnells	8117	8000	152	150
Kenwick	Gosnells	5148	5000	95	95
Langford	Gosnells	4845	4000	76	76
Maddington	Gosnells	9136	9000	171	170
Martin	Gosnells	405	405	8	10
Southern River	Gosnells	2957	2900	55	55
Thornlie	Gosnells	22266	21500	407	400
Orange Grove	Gosnells	-	150	3	10
Total		99377	95000	1800	1800

Appendix 22. Project Plan

EMERGENCY RISK MANAGEMENT PROJECT

A JOINT INITIATIVE OF THE CITIES OF ARMADALE AND GOSNELLS

FUNDED BY THE ALL WEST AUSTRALIANS REDUCING EMERGENCIES PROGRAM (AWARE)

1. Introduction

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 funds that AWARE provided.

The program enables local governments to identify emergency risks or hazards within their communities and develop appropriate treatment options through the emergency risk management process. Only local governments within Western Australia were eligible to apply for funding from the AWARE program.

1.1 Background

Located approximately 17 and 28 kilometres south east of the Perth CBD respectively the City of Gosnells and Armadale share many similarities in terms of location, geography, community and population growth. With a combined population of over 140,000 people and continued growth within the region together with the mix of rural and urban interface it provides a significant opportunity for the development of Emergency Risk Management strategies.

In February 2007 the Cities of Armadale and Gosnells made application to FESA's AWARE program for a grant to undertake a risk management study for the City of Armadale and Gosnells. Notice of approval of the grant application was received on 11 September by the City of Armadale in the form of a letter from Karen Roberts, Executive Director Community Development, dated 7 September 2007.

It is acknowledged that both the City of Armadale and the City of Gosnells already have in place Local Emergency Management Arrangements and it is the intention of this project to provide an opportunity to update those arrangements in keeping with the changing demography of our communities.

An initial meeting to discuss the project was held at the City of Gosnells on 24 September 2007, with representatives from both the City of Armadale and the City of Gosnells in attendance.

As a result of this first meting the project committee was formed and it was determined that a Project Officer be appointed early in 2008 to undertake the community consultation process in order to complete the project.

2. Project Overview

2.1 Purpose of the project

The broad purpose of the project is to identify emergency risks within the Cities of Armadale and Gosnells by undertaking a community focused exploration of risks and vulnerabilities within the communities, methods of reducing the risks and opportunities for resource sharing amongst the Cities.

2.2 Objectives

The AWARE program aims to enhance Emergency Risk Management (ERM) within Western Australia through local government and its objectives are:

- Identify and develop current and future ERM leaders in the community.
- Enhance the ERM skills and understanding of local communities.
- Identify opportunities and fund ERM strategies, to improve ERM in the community.
- Increase involvement of emergency management practitioners and local communities in focused ERM programs.
- Increase community awareness of the value of effective ERM
- Improve ERM support systems for local communities.
- Encourage the integration of ERM as part of organizational culture in local government.

Specific objectives of this project include:

- Initiate the ERM process in both local governments
- Identify the greatest risks within the local governments' boundaries
- Arrange training for local government personnel including "Introduction to Recovery Management" and "Introduction to Emergency Management".
- Identify and establish resource sharing opportunities for EM
- Initiate planning for the implantation of prevention and mitigation strategies for identified tasks.
- Knowledge transfer to Local government staff.
- Improve ERM awareness within the community.
- Update and improve Local Emergency Management Arrangements.
-

2.3 Scope

The scope of this project includes all risks to communities within the City of Armadale and City of Gosnells resulting from both natural and man made hazards in accordance with current emergency risk management guidelines and principles.

It is anticipated the project will take approximately 6 - 12 months from commencement to completion.

2.4 Funding

Funding for this project has been received from the Fire and Emergency Services Authority (FESA) All West Australians Reducing Emergencies (AWARE) Program as a result of an application dated 27 February 2007.

The total sum of this funding is $54,000 (GST inclusive) with 50% being paid prior to commencement and the remaining 50% paid upon completion of the project.

Funding shall be managed by Mr Brian Watkins in his role as Manager Ranger and Emergency Services with the City of Armadale and this will include all financial management implications such as invoicing and payroll.

2.5 Resources

Item	**Budget Amount**
Recruitment costs – advertisement for Project Officer position	$2275
Personnel salary costs	$30,000
Salary on-costs	$4500
Mileage allowances	$4000
Accommodation & Incidental Costs	$400
Telephone	$800
Training	$500
Contracted Support	$775
Administrative Support	$1400
Printing Envelopes	$1000
Printing Letterhead	$1200
Supply of paper	$200
Photocopying	$800
Stationary	$300
Final Report Production	$500
Mail out preliminary surveys	$300
Mail out of survey letters	$3800
Reply paid returns	$1000
TOTAL BUDGET	$54,000

3. Approach and Methodology.

3.1 Method

This project will be completed as per guidelines provided in the following publications:

- Western Australian Emergency Risk Management Guide
- Standards Australia – Risk Management AS/NZS 4360:2004
- EMA – Emergency Risk Management Applications Guide.

A project Officer will be appointed to carry out the majority of the administrative tasks associated with this project, with support from the Project Committee and other local government staff as required.

The main elements of the project in sequence will be:

- Orientation of the Research Officer (RO),
- Literature research/review,
- Developing a project plan,
- Convening Project Committee meetings,
- Training,
- Public Promotion,
- Developing survey instruments,
- Conducting the community and assets surveys,
- Analysing the survey data,
- Preparing and presenting the final report.

3.2 Timeline

The following timeline is an estimate of the completion deadlines for main tasks for the project. As this project is expected to run overtime, an extension application will be made by the Project Coordinator for an additional 6 months. The intention is that the project will be completed in two phases, with sufficient time for all tasks to be completed.

Month 1:

- Orientation
- Literature research
- Draft project plan
- Arrange first training forum
- Contact/meet key agencies and contacts
- Initiate publicity material and marketing strategy

Month 2:

- Implement marketing strategy
- Contact relevant community groups
- First training in "introduction to Recovery Management" (subject to FESA availability)
- Address community groups as required.

Month 3:

- Prepare surveys and consultation plan
- Continue to meet with community groups
- Launch surveys

Month 4:

- Survey period
- Arrange second training course
- Continue to liaise with key agencies and community groups
- Introduce assets survey to key agencies
- Record results

Month 5:

- Correlate results
- Conduct checks as necessary
- Analyse results to establish objectives
- Second training course in "Introduction to Emergency Risk Management" (subject to FESA availability)

Month 6:

- Finalise results
- Prepare draft final report
- Present findings to local governments and key agencies and seek endorsement
- Finalise report
- Prepare media material to publish results
- Publish results

4. Project Structure

4.1 Authority

Authority and support for this project is given by the Cities of Armadale and Gosnells and their respective Local Emergency Management Committees in accordance with the Emergency Management Act 2005 and State Emergency Management Committees with final reports to be presented for endorsement upon completion.

4.2 Emergency Risk Management Project Committee

During initial discussions it was determined that due to the interaction of two local governments and consequently two Local Emergency Management Committees, the Project Committee would comprise of the following individuals who would ensure regular reports are made to their respective Local Emergency Management Committees:

Mr Trevor Perkins
Director Governance – City of Gosnells

Mr Brian Watkins
Manager Ranger & Emergency Services – City of Armadale

Mr Rod Wallington
Risk & Emergency Management Coordinator – City of Gosnells

Mr John Edwards
Special Projects Officer - City of Armadale

Mr Ryan Janes
AWARE Research Officer - City of Armadale

4.3 Project Coordinator

Due to limited office space at the City of Gosnells as a result of the redevelopment of the City of Gosnells Civic Centre, Mr Brian Watkins has accepted the role of Project Coordinator to oversee the project officer and relevant financial implications.

It is acknowledged however that the Project Committee will perform the broader role of overseeing management of the project, with significant input and in kind contributions being made by individual members of the committee.

4.4 Tasks and Responsibilities

The Project Committee will help to facilitate the project with a suitably qualified person to be retained on a contractual basis to perform the majority of the tasks.
Duties of this individual will include:

- Engage the community through a survey to identify risks and determine the relevant expectations of the members of the community.
- Assist in the coordination of training of local government personnel in Emergency Risk Management to ensure familiarity with the Emergency Risk Management process.
- Liaise with stakeholders including: both local governments; emergency service agencies; and community groups to identify the significant risks and assets within the area.
- Identify appropriate existing local government assets that may be utilized to mitigate emergency situations.
- Identify and detail opportunities for resource sharing within the cities of Armadale and Gosnells.
- Develop desktop exercise to test prevention and mitigation strategies.
- Promote community awareness and ownership of Emergency Management within the local governments.
- Prepare a final report outlining the Emergency Management process undertaken and detailed findings and recommendations to incorporate results into Local Emergency Arrangements.

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(Picture: Flooding, SES, 2007)