



**COMBINED EMERGENCY MANAGEMENT
ARRANGEMENTS**

FOR

**THE CITY OF PERTH & THE BOTANIC GARDEN &
PARKS AUTHORITY**

PART TWO

EMERGENCY RISK MANAGEMENT (ERM)

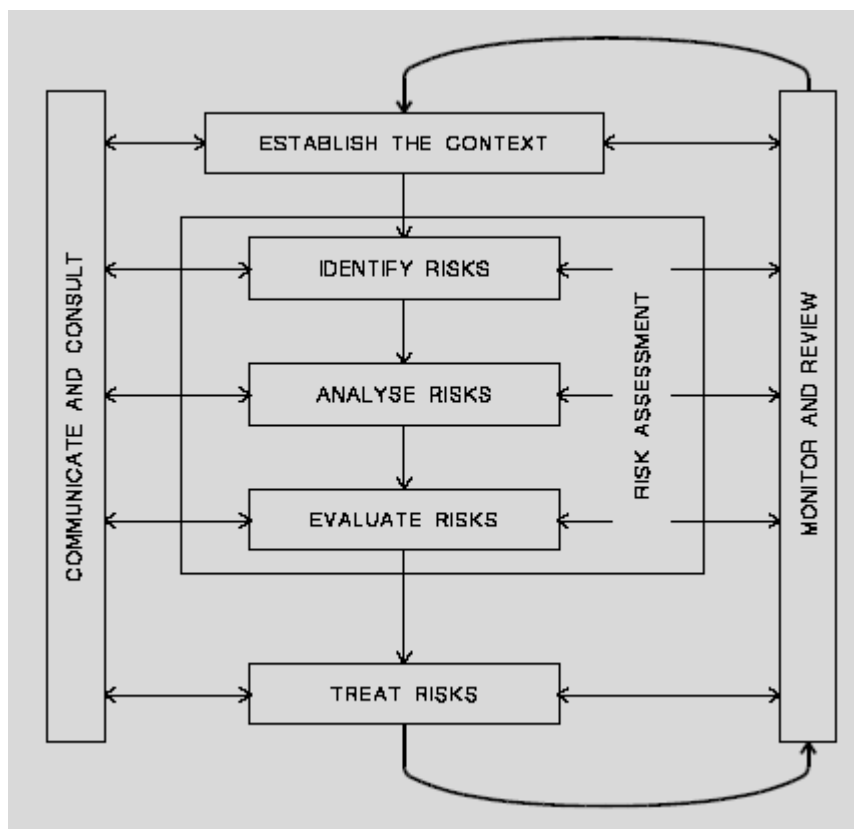
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1. Risk Management

The City of Perth, in conjunction with Edith Cowen University (ECU) and The Industrial Foundation for Accident Prevention (IFAP) has conducted an Emergency Risk Assessment for the City. The Risk Assessment was carried out in accordance with the Standard **AS / NZ 4360 – Risk Management** and the Application Guide (Manual 5) produced by Emergency Management Australia (EMA). The provisions of this Standard are used throughout Australia by emergency and risk management practitioners. In addition, the ERM Guide produced by the Fire and Emergency Services Authority (FESA) was referenced.

A diagram illustrating the process is below:



2. Context of Risk Assessment

The context of the Risk Assessment was described as follows:

Conduct an analysis of Hazards facing the City of Perth community, both residential and transient, which:

- *Would pose a threat to life, property or the environment.*
- *Would require a large scale emergency response*
- *Would require support / action from the COP Local Government Authority*
- *Would require Recovery strategies to be adopted to return the community to normal.*

Within this context, due consideration was made to other “threats” such as criminal activities, house fires, car accidents etc. which are considered part of the day to day response from the emergency services. Whereas these threats may feature high in the eyes of an individual, they fall outside the context of this analysis. The City’s Emergency Management Arrangements are focused on the higher level emergency incidents identified in the Analysis.

2.1. Assessment Area

Whereas these arrangements are documented under the City of Perth Emergency Management provisions, it should be noted that the City of Perth (COP) and the Botanic Gardens & Parks Authority (BGPA) have combined for EM purposes. The LEMC has the abbreviation CoP/KP LEMC.

The ‘City of Perth’ municipality and the ‘Kings Park and Botanic Garden’, collectively, are bordered by the Swan River and the Local Government Authorities (LGAs) of the City of Subiaco, Town of Vincent and Town of Cambridge.

2.1.1. City of Perth

Perth is the Capital City of Western Australia and is the business, transport, cultural and entertainment hub of the metropolitan area. The City experiences an influx in excess of 120,000 workers, visitors and tourists, daily.

The City comprises an area of 8.75 km² with a resident population estimated at 13,439 people. Approximately 9,000 dwellings exist, comprising apartments and other high density construction. Rapid development is in progress and it is estimated that an additional 4,000 apartments will be added by 2010. In the year 2005-06 the population grew by 12.4%, which makes Perth the fastest growing local government area in Australia.

2.1.2. Kings Park & Botanic Gardens

The Botanic Gardens and Parks Authority (BGPA) is responsible to the Western Australian government for Kings Park & Botanic Garden and Bold Park. Kings Park & Botanic Garden is approximately 400 hectares of which about 2/3rd is natural bush land and the rest parkland, botanic gardens, playgrounds, memorials, roads and paths. In addition, the BGPA is responsible for the management of the scarp feature, Mount Eliza and the associated risk potential from landslide or rock fall.

2.2. Considerations

To effectively complete the context of the Risk Assessment, the following considerations were addressed:

1. The impact of a failure of the City’s **Utility Infrastructure**.
2. The Risk posed by **Special Events**.
3. The impact of a major emergency on **Commerce**

2.2.1. Metropolitan Utility Infrastructure

Utilities such as Water Supply, Electricity, Sewage, Communications, Transport (rail, road, river and air) are essential to any modern city. Not only must the Risk Analysis address the loss of these utilities through the effects of natural or man-caused emergencies, but their failure must be considered in themselves, a risk. The experiences of the City of Auckland, New Zealand, which was without power for some five days, is a case study worth noting.

2.2.2. Special Events

The City, either alone or in conjunction with adjacent LGAs, is the approval Authority for all Special Events conducted in the City or its precincts. The approval process in place requires All Event Organisers to:

1. Conduct a Risk Analysis for their Event
 - a. Complete Treatment Strategies to minimize the Risks.
 - b. Pay for all Adopted Treatment Strategies
2. Prepare an Event Emergency Management Plan, and
3. Pay all Council and sundry fees required for the Event.

Despite these measures, Special Events, such as the Australia Day “Skyworks”, the “Red Bull Air Race” and the “RAC Channel Seven Christmas Pageant”, present an emergency management risk. The Event Plans produced by the Organiser’s, must dovetail into the City’s Local Arrangements as part of the “All Hazards” approach.

2.2.3. Commerce

Commerce is the life blood of the City. The impact of any disaster or utility failure could result in millions of dollars in lost productivity and job losses, which would impact not only the Metropolitan Area, but the State and Nation in general. Whereas the primary goal of emergency management is directed towards People, the Recovery will be more prolonged and less successful if the needs of Business & Commerce are not actively considered in the process.

3. Identified Risks

Within the Context described above, 19 Risks were initially identified as follows:

1. Aircraft Accident in a built-up area, river or parkland.
2. Earthquake
3. Electricity Failure for extended periods (2 days or more)
4. Water Supply Failure (2 days or more)
5. Human Epidemic.
6. Major Road Accident (With or without hazardous material complications)
7. Structural Collapse (Older buildings, unexpected)
8. Structural Fire (high-rise buildings, public or private institutions)
9. Terrorist Attack
10. Bushfire
11. Communications Failure (2 days or more)
12. Marine Accident Ferry or Charter.
13. Rail Accident (Including train v train, train v vehicle, train v structure)
14. Severe Weather (Includes Storms, Tornados & Flooding)

- 15. Special Events
- 16. Hazmat Incident
- 17. Landslide (including rock fall)
- 18. Sewage System Failure.
- 19. Flooding

Two Special Events, “Skyworks” and the “Red Bull Air Race”, were identified to be treated individually. The term Infrastructure Failure is used in the context of a major loss of Power, Water, Sewage, Communications or Transport System (Road or Rail), and are treated collectively. The Risk Register is at Annex A.

4. Likelihood v Consequence

The Risk Management Standard applies the balance of Likelihood against Consequence to arrive at the “Level of Risk”. The criteria used for the Likelihood v Consequence descriptors are taken from the Emergency Risk Management Guide produced by FESA. These tables are reproduced below

Likelihood

Descriptor	Description
Almost Certain (A)	Is expected to occur in most circumstances; and/or high level or 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.
Likely (B)	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.
Possible (C)	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 twenty years.
Unlikely (D)	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 one hundred years.
Rare (E)	May occur only in exceptional circumstances; may occur once every five hundred or more years.

Consequence

Descriptor	Description
Insignificant (1)	<ul style="list-style-type: none"> • No injuries or fatalities. Small number or nil people are displaced and only 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.
Minor (2)	<ul style="list-style-type: none"> • 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.
Moderate (3)	<ul style="list-style-type: none"> • Medical treatment required but no fatalities. Some hospitalisation. Localised displacement of people who will return within 24 hours. Personal support satisfied through local arrangements. • Localised damage which is rectified by routine arrangements. Normal community functioning with some inconvenience. • Some impact on the environment with no long-term effect or small impact on environment with long term effect. • Significant financial loss.
Major (4)	<ul style="list-style-type: none"> • Extensive injuries, significant hospitalisation, large number of displaced (more than 24 hours duration). Fatalities. External resources required for personal support. • Significant damage that requires external resources. Community only partially functioning, some services available. • Some impact on environment with long-term effects. • Significant financial loss – some financial assistance required.
Catastrophic (5)	<ul style="list-style-type: none"> • 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 the environment and/or permanent damage.

5. Risk Matrix

Similarly, the Standard rates the level of Risk from “Very High” to “High” to “Moderate” to “Low”. Identified Risks with a rating of “Moderate” or above are addressed in these Emergency Management Arrangements.

Likelihood Label	Consequences Label				
	I	II	III	IV	V
A	Medium	High	High	Very high	Very high
B	Medium	Medium	High	High	Very high
C	Low	Medium	High	High	High
D	Low	Low	Medium	Medium	High
E	Low	Low	Medium	Medium	High

6. Risk Assessment

The Risks assessed as “Moderate” or above have been combined or renamed in line with the terms used in WESTPLANS, for the purpose of continuity. The results of the Risk Assessment after application of the process indicated that:

- No Hazards assessed as **Very High**
- Six Hazards assessed as **High**
- Five Hazards assessed as **Medium**
- Five Hazards assessed as **Low**

7. Annex A – Risk Register

Risk Statement	Likelihood Rating	Consequence Rating	Level of Risk	Action Priority
Air Crash	E	5	HIGH	1
Earthquake	E	5	HIGH	2
Human Pandemic	C	4	HIGH	3
Road Accident	B	3	HIGH	4
Structural Fire	B	3	HIGH	5
Terrorist Act	E	5	HIGH	6
Structural Collapse (includes temporary structures & seating)	C	2	MEDIUM	7
Bushfire	B	2	MEDIUM	8
Rail Accident	D	3	MEDIUM	9
Severe Weather	B	2	MEDIUM	10
Special Events (2)	C	2	MEDIUM	11
Marine Accident	E	2	LOW	12
Infrastructure Failure (Water, Power, Gas Communications, Sewage)	D	2	LOW	13
Hazardous Material Incident	D	2	LOW	14
Landslide (Rock Fall)	D	2	LOW	15
Flooding	E	2	LOW	16

7.1. Air Crash Hazard Treatment Options

RISK AIR CRASH	RISK RATING HIGH	DATE COMPILED:
RISK STATEMENT Air traffic over Perth from domestic, international, local and air show flights presents a HIGH level risk to life, property and infrastructure.		
RISK ANALYSIS 1. Any impact of a light aircraft into a residential or commercial area will cause loss of life in the 1 – 10 range and 1 – 2 buildings damaged / destroyed. 2. A competition air craft crash into the viewing public could cause loss of life in the 10 – 100 range and 1 – 2 buildings damaged / destroyed. 3. The impact of a domestic or international jet crash could cause 100 – 1000 deaths and possible destruction of a high-rise building or domestic dwellings.		
RECOMMENDED TREATMENT OPTIONS 1. Emergency Response Plan for Air Crash in Urban Areas. 2. Combat Agency Response preparedness. 3. Mass casualty capability		
RESPONSIBLE AGENCY 1. WA WA Police Service – WESTPLAN AIR CRASH & Air Crash Response Plan Metropolitan. 2. FESA Response capability Air Crash. 3. Hospital & SJA Mass casualty response plans 4. City of Perth for Air Shows with Event Organisers (Bridging Procedures)		
PRIORITY STATUS 1. Research WA Police Response Plan for Urban Air Crash – WA Police Emergency Unit 2. Review Air Show Event Plan & Integrate with COP Procedures		
IMPLEMENTATION 1. Jan – June 2008 a. Review Air Crash Contingency Plan for Perth & Jandakot b. Review the 2008 Red Bull Air Race Contingency Plan 2. July – Dec 2008 a. Desktop Exercise “Air Crash” b. Revise Arrangements & Contact Details		
BUDGET CONSIDERATIONS 1. Plan Review Costs 2. Desktop Exercise Preparation & Conduct Costs		
MONITOR AND REVIEW Next Local Arrangement Review 2009		
APPROVAL FOR RECOMMENDATION IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.2. Earthquake Hazard Treatment Options

RISK EARTHQUAKE	RISK RATING HIGH	DATE COMPILED:
RISK STATEMENT Perth lies in an earthquake risk zone. Previous experience has caused no loss of life and only minor cosmetic damage to structures. Nevertheless, should an earthquake of similar magnitude to Meckering (6.7 Richter) occur with an epicentre near Perth, the effects could be catastrophic.		
RISK ANALYSIS <ol style="list-style-type: none"> 1. Possible collapse of older buildings or facades. 2. Trapped persons under debris. 3. Loss of infrastructure, short and long term. 4. Tunnel collapse. 5. Bridge collapse 		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Public Education – “What to do during an Earthquake” Earthquake Pamphlet 2. Identification of High Risk Buildings – “Cities Project for Perth” 3. HMA Perth Response Plan Earthquake 4. Urban Search & Rescue (USAR) capability 5. Mass Casualty Response Plans 		
RESPONSIBLE AGENCY <ol style="list-style-type: none"> 1. FESA SES for WESTPLAN EARTHQUAKE. 2. FESA SES and CoP for High Risk Building Assessment. 3. FESA SES and CoP for production / distribution of Public Awareness material. 4. FESA Fire & Rescue for USAR capability 		
PRIORITY STATUS <ol style="list-style-type: none"> 1. Public Education Program – Earthquakes 2. FESA F & R for USAR Plan 		
IMPLEMENTATION <ol style="list-style-type: none"> 1. Public Awareness Program with Rates Notices 1st Q 2008 2. LEMC Briefing on USAR Arrangements 2nd Q 2008 		
BUDGET CONSIDERATIONS <ol style="list-style-type: none"> 1. SES / EMA to fund Public Awareness Material 2. CoP to distribute and advertise through website. 		
MONITOR AND REVIEW <ol style="list-style-type: none"> 1. Review Public Awareness Program in 2010. 		
APPROVAL FOR RECOMMENDATION IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.3. Human Pandemic Hazard Treatment Options

RISK HUMAN PANDEMIC	RISK RATING HIGH	DATE COMPILED:
RISK STATEMENT There is evidence that the human population is becoming increasingly vulnerable to a number of viral infections, transmitted by birds and animals. Spread of contamination throughout the human population is further promoted through global travel and mass commuter transport systems. The SARS outbreak of 2002/03 recorded 10% deaths from the Total Confirmed Cases. Other viruses could be more devastating and will demand extraordinary response measures to contain the disease.		
RISK ANALYSIS The Risk is constantly reviewed by the WHO and The State Health Department and the Alert status will vary from time to time.		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Monitor WHO Alerts 2. WESTPLAN PANDEMIC 3. Health Department Response Plan for Perth 4. City of Perth Local Arrangements under the Health Plan 		
RESPONSIBLE AGENCY The Department of Health is the HMA for this Risk. In conjunction with the World Health Organisation (WHO), the Department monitors global health alerts and activates its graduated response of testing, reporting and quarantine of individuals by Doctors and Medical facilities. The wider and more community disruptive response to a full blown pandemic have been documented, but have not been widely made public. The City of Perth LEMC should be provided with this information should it affect any of the City's facilities.		
PRIORITY STATUS In view of the magnitude of this threat and its proximity to Australia, arrangements down to Local level should be detailed		
IMPLEMENTATION <ol style="list-style-type: none"> 1. Liaise with the Department of Health and obtain the State's response details for inclusion / consideration into the Local EM Arrangements. 2. Re-consider the impact of Pandemic on Welfare Centre Management. 3. Consider the impact of Pandemic on the Perth Traffic flow should the use of Public Transport be denied. <p>These consideration should be scheduled for 1st Q 2008</p>		
BUDGET CONSIDERATIONS Staff / Consultants for Plan review implications.		
MONITOR AND REVIEW Any Special Plans developed against the response to Pandemic should be reviewed annually or on Alert Advice from the Department of Health.		
APPROVAL FOR RECOMMENDATON IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.4. Road Accident Hazard Treatment Options

RISK ROAD ACCIDENT	RISK RATING HIGH	DATE COMPILED:
RISK STATEMENT The balance of Likelihood against Consequence for this Risk is mid-range for both criteria. The assessment of HIGH is therefore valid; however, response to this Risk is almost reduced to a procedure by the WA Police and Emergency Services. Support from the City's EM Structure is not envisaged unless the locality and nature of the Road Accident requires extraordinary traffic control or resource support measures.		
RISK ANALYSIS Acknowledged as a HIGH Risk for some circumstances		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Public Education 2. Road Traffic Code 3. Road Safety Campaigns 4. Main Roads Planning 		
RESPONSIBLE AGENCY <ol style="list-style-type: none"> 1. WA Police and FESA 2. Road Safety Authority 		
PRIORITY STATUS The City has very limited scope to affect this Risk. In consideration of this, the City's priority should be directed towards other more significant Risks.		
IMPLEMENTATION No Treatment Options to be developed by the City.		
BUDGET CONSIDERATIONS Nil		
MONITOR AND REVIEW As requested by WA Police or Road Safety.		
APPROVAL FOR RECOMMENDATION IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.5. Structural Collapse Hazard Treatment Options

RISK STRUCTURAL COLLAPSE	RISK RATING HIGH	DATE COMPILED:
RISK STATEMENT The collapse of a structure, be it an existing building, one under construction, a bridge or tunnel or a construction crane, including temporary structures / grandstands. These are considered under this Risk Treatment.		
RISK ANALYSIS Perth has a number of old Heritage Listed Buildings or Facades. There are also extensive construction projects, both Public and Commercial within the CBD. Whereas OHS Legislation and work practices have improved the safety on construction projects, catastrophic failure could occur.		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Worksafe Inspections. 2. Building Codes. 3. USAR Response Plan and capability. 4. Mass Casualty response capability. 		
RESPONSIBLE AGENCY <ol style="list-style-type: none"> 1. FESA Fire & Rescue is the responsible HMA for Structural Collapse. 2. Department of Planning & Infrastructure is responsible for monitoring workplace safety standards. 3. City of Perth responsible for Building Approvals. 		
PRIORITY STATUS Low. These events are rare but can occur without warning.		
IMPLEMENTATION The city to monitor building construction activity. No Treatment Options to be developed.		
BUDGET CONSIDERATIONS Nil		
MONITOR AND REVIEW Ongoing basis.		
APPROVAL FOR RECOMMENDATON IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.6. Structural Fire Hazard Treatment Options

RISK STRUCTURAL FIRE	RISK RATING HIGH	DATE COMPILED:
RISK STATEMENT This is the most readily identifiable HIGH Risk facing the City.		
RISK ANALYSIS Many buildings, including commercial outlets, do not have modern fire protection systems installed. Furthermore, many buildings are high rise and are beyond the limit of available fire appliances. This coupled with high people density, workers and patrons; makes fire a priority threat for emergency services.		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Mandatory Building Fire Protection Systems. 2. Mandatory Building Evacuation Plans & Exercises. 3. Promotion of Fire Awareness Programs. 4. Fire & Rescue Response capability. 		
RESPONSIBLE AGENCY The HMA for this Risk is the FESA, Fire & Rescue Service. The City has a significant role in the response to such and emergency, through the provision of access control during and after the incident, evacuation plans and security surveillance.		
PRIORITY STATUS <ol style="list-style-type: none"> 1. Attention to this Risk remains a High priority. 		
IMPLEMENTATION Implementation of the recommended Treatment Options is ongoing. The City supports the Fire Services by promoting Fire Awareness Programs.		
BUDGET CONSIDERATIONS Costs associated with any planned promotion.		
MONITOR AND REVIEW Annually, in conjunction with FESA Fire Awareness Programs.		
APPROVAL FOR RECOMMENDATON IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.7. Terrorist Act Hazard Treatment Options

RISK TERRORIST ACT	RISK RATING HIGH	DATE COMPILED:
RISK STATEMENT Perth, as with all other Cities could become the target for a Terrorist Act from internal or external sources.		
RISK ANALYSIS This Risk will increase and decrease in accordance with the prevailing political situation around the world. Perth may be selected as a “soft target” in view of its isolated location from other mainstream cities. Significant International Events should be viewed as potential indicators.		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Promotion of Federal Anti-terrorist Awareness Programs. 2. Surveillance through the City’s CCTV Centre. 3. EM Planning with particular reference on the HMA Response Plans for Structural Collapse & Structural Fire. 		
RESPONSIBLE AGENCY The WA WA Police are the HMA for this Risk. The Response includes close association with Federal WA Police and the Defence Forces.		
PRIORITY STATUS <ol style="list-style-type: none"> 1. This is a High Risk but Low priority for the City’s Treatment Options. 		
IMPLEMENTATION Treatment Options for this Risk are managed by the State and Federal WA Police Services. The City has a support role for Response and a lead role during Recovery.		
BUDGET CONSIDERATIONS Nil		
MONITOR AND REVIEW In accordance with advice from the HMA or Federal WA Police.		
APPROVAL FOR RECOMMENDATON IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.8. Bush Fire Hazard Treatment Options

RISK BUSHFIRE	RISK RATING MEDIUM	DATE COMPILED:
RISK STATEMENT King's Park is a regular seasonal risk for Bushfire.		
RISK ANALYSIS The preserved "natural" bush land in King's Park is the primary source of ignition for bushfire. There are a number of residential, sporting and administration buildings which could be affected by a major fire. Adjacent residential areas and roads can be affected by smoke. The Park Authorities maintain fire breaks and fuel reduction programs.		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Maintain Bushfire Management Programs. Be Bushfire Ready 2. Maintain Park Evacuation Plans. 3. Maintain liaison with FESA Fire Services for Response 4. Monitor Parklands during High threat periods. 		
RESPONSIBLE AGENCY The King's Park & Botanic Garden Authority has responsibility for Bushfires in the Park. FESA Fire Services supports the Authority for all fires.		
PRIORITY STATUS <ol style="list-style-type: none"> 1. Bushfire Management is an ongoing annual program administered by the Park Authority. 		
IMPLEMENTATION Prevention and Mitigation programs conducted annually.		
BUDGET CONSIDERATIONS This is part of the Operating Budget for King's Park.		
MONITOR AND REVIEW Annually.		
APPROVAL FOR RECOMMENDATION IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.9. Marine Accident Hazard Treatment Options

RISK MARINE ACCIDENT	RISK RATING MEDIUM	DATE COMPILED:
RISK STATEMENT A number of commercial Ferries operate from the Barrack Street Jetty, providing point to point transport or entertainment / tourist cruises upstream and downstream. A marine accident could occur.		
RISK ANALYSIS Ferry operators are well regulated by the Department of Planning & Infrastructure and marine safety regulations are enforced. The increased use of the River by recreational boating could lead to a collision with the potential for a vessel fire or a sinking.		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Maintenance of Marine Safety Regulations 2. Training and qualification for all boat skippers. 3. Maintain a marine rescue capability. 		
RESPONSIBLE AGENCY The Department of Planning and Infrastructure is the HMA for this Risk. The WA WA Police Service is the primary Response Agency.		
PRIORITY STATUS Treatment Options for this Risk are ongoing and are tested annually through preparation for major Special Events such as "Skyworks".		
IMPLEMENTATION Ongoing.		
BUDGET CONSIDERATIONS Nil		
MONITOR AND REVIEW Before all Special Events.		
APPROVAL FOR RECOMMENDATON IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.10. Rail Accident Hazard Treatment Options

RISK RAIL ACCIDENT	RISK RATING MEDIUM	DATE COMPILED:
RISK STATEMENT The City is the hub for the Metropolitan Transit Rail Network. A system failure or other trigger could cause a derailment or collision.		
RISK ANALYSIS System failure leading to a rail accident could produce an incident involving fire and or mass casualties above ground or in a tunnel. The Response to such an incident would not only require a complex rescue operation but would also severely disrupt public transport to and from the City.		
RECOMMENDED TREATMENT OPTIONS 1. Maintenance of the Rail System. 2. EM Arrangements for Response to such incidents.		
RESPONSIBLE AGENCY The Public Transport Authority is the HMA for this Risk. FESA Fire Services is the prime Response Agency. The City has a responsibility to support the Response operation by providing resources as required.		
PRIORITY STATUS Treatment Options for this Risk are outside the City's scope.		
IMPLEMENTATION Ongoing.		
BUDGET CONSIDERATIONS Nil		
MONITOR AND REVIEW Response to this Risk should be exercised bi-annually.		
APPROVAL FOR RECOMMENDATON IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.11. Severe Weather Hazard Treatment Options

RISK SEVERE WEATHER	RISK RATING MEDIUM	DATE COMPILED:
RISK STATEMENT Perth experiences a severe weather event on average once a year. The most notable was the 1994 Storm which resulted in over 2,500 residences being damaged and a loss of power for 4-5 days. Storms also cause flash flooding.		
RISK ANALYSIS The risk is primarily to residential properties. However, some modern building may experience water penetration.		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Building roof maintenance. 2. Maintenance and clearing of storm water drains. 3. Public Awareness programs. Storms 4. EM Plans and storm damage capability. 		
RESPONSIBLE AGENCY FESA SES is the HMA for this risk. Well established procedures are in place to Respond to this threat. The City should assist with annual programs conducted by the SES.		
PRIORITY STATUS This should be an annual priority before the Winter onset.		
IMPLEMENTATION Annually by FESA during April / May		
BUDGET CONSIDERATIONS Cost of distribution of Public Awareness pamphlets, produced by the HMA. Cost associated with maintenance of city buildings and drains.		
MONITOR AND REVIEW Annually.		
APPROVAL FOR RECOMMENDATON IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.12. Special Event Skyworks Treatment Options

RISK LOTTO SKYWORKS	RISK RATING MEDIUM	DATE COMPILED:
RISK STATEMENT This annual event attracts 300k – 400k patrons to the city’s foreshore and King’s Park to celebrate Australia Day. Such public concentrations present risks associated with accidents onshore and on the river. Anti-social behaviour also presents the risk of casualties. The fireworks display has the potential for accidental explosion or to cause fires onshore.		
RISK ANALYSIS Experience has shown that all of the above incidents can occur.		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Enforcement of behavioural guidelines for the event. 2. Special EM Plan for the event. 3. Coordination of all Local Authorities and Response Agencies. 		
RESPONSIBLE AGENCY The City is the de facto HMA for this event although the City of South Perth and Town of Victoria Park share event approval. The WA Police provide the event Incident Controller with FESA and St. John Ambulance providing response resources.		
PRIORITY STATUS This is a priority risk event.		
IMPLEMENTATION Review Plan arrangements each year.		
BUDGET CONSIDERATIONS Substantial		
MONITOR AND REVIEW Annually		
APPROVAL FOR RECOMMENDATON IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.13. Special Event “Red Bull Air Race” Treatment Options

RISK RED BULL AIR RACE	RISK RATING MEDIUM	DATE COMPILED:
RISK STATEMENT This air race takes place over Perth Water and uses the foreshore as a landing ground for competition aircraft. International Media interest is strong. The event is witnessed by patrons from vantage points around the foreshore.		
RISK ANALYSIS There is a high level of safety maintained by the event organisers. Nevertheless the risk is present for an aircraft to crash into the river or onshore. The later could result in mass casualties and / or fire to foreshore buildings.		
RECOMMENDED TREATMENT OPTIONS 1. Special Event plan for the Race to be prepared by Red Bull. 2. Special Event Response Plan from WA Police and FESA.		
RESPONSIBLE AGENCY As the primary risk is one of Air Crash, the WA Police are the designated HMA. The City, as with “Skyworks” provides a number of event resources and supports the Response as required.		
PRIORITY STATUS This is a high priority risk.		
IMPLEMENTATION Review Event Plans on an annual basis.		
BUDGET CONSIDERATIONS Substantial for preparation		
MONITOR AND REVIEW Annually.		
APPROVAL FOR RECOMMENDATON IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.14. Hazardous Materials Incident Hazard Treatment Options

RISK HAZMAT INCIDENT	RISK RATING LOW	DATE COMPILED:
RISK STATEMENT Hazardous materials pose a risk to life, property and the environment. Specialist response actions are required and localised or full scale evacuations are the norm.		
RISK ANALYSIS The movement and storage of Hazardous Materials in the City is very low by comparison with the rest of the Metropolitan Area. Nevertheless some risk remains from fuel stations, gas main services and materials used daily such as Chlorine		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Application of the Regulations for the transport and storage of dangerous goods. 2. EM Response Plans 3. Local Evacuation Plans 		
RESPONSIBLE AGENCY FESA Fire & Rescue Services is the HMA for this Risk. The City has an active role to assist with evacuation in the response to this threat.		
PRIORITY STATUS This is a low priority for treatment options as there is no large scale storage or transport of Hazardous Materials within the City. Special arrangements are put in place for events such as fireworks.		
IMPLEMENTATION Maintain evacuation plans.		
BUDGET CONSIDERATIONS Nil		
MONITOR AND REVIEW Exercise a Hazmat Scenario every two years.		
APPROVAL FOR RECOMMENDATON IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.15. Infrastructure Failure Hazard Treatment Options

RISK INFRASTRUCTURE FAILURE	RISK RATING LOW	DATE COMPILED:
RISK STATEMENT The failure of a major utility for an extended period of time could cause moderate impact on the City's ability to conduct business.		
RISK ANALYSIS The loss of power for an extended period has been experienced previously in Perth. Lessons from the 1994 Severe Storm, which caused the blackout, have led to a significant "hardening" of the power network. Furthermore, essential services and many business enterprises have installed alternate power supply. The Service providers (Western Power, Water Corp, Domgas etc.) have contingency plans to maintain services and / or minimise disruption.		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Higher engineering design for utility networks. 2. Maintenance of existing networks. 3. Planned replacement of aging networks 4. Public Awareness for Conservation. 5. Alternative Power Supply Options for key facilities 		
RESPONSIBLE AGENCY Utility Enterprises.		
PRIORITY STATUS Low		
IMPLEMENTATION <ol style="list-style-type: none"> 1. Review City Facilities and assess the need for alternative power contingencies. 2. Promote conservation of Power and Water. 		
BUDGET CONSIDERATIONS Contingent on the need to provide alternative power supply to key buildings.		
MONITOR AND REVIEW Annually		
APPROVAL FOR RECOMMENDATION IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.16. Landslide (Rock Fall) Hazard Treatment Options

RISK LANDSLIDE	RISK RATING LOW	DATE COMPILED:
RISK STATEMENT This Risk is present primarily on Mounts Bay Road. Rock falls from Mt. Elisa poses a threat to vehicle traffic on this road.		
RISK ANALYSIS This Risk has been recognised and treated effectively.		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Make safe the rock face. 2. Install Safety Fencing. 3. Install preventative Safety Mesh. 		
RESPONSIBLE AGENCY FESA would be the Lead Combat Agency for this Risk. Responsibility for Treatment Options lies with the City of Perth and the BGPA.		
PRIORITY STATUS Low		
IMPLEMENTATION Treatment Options have been implemented.		
BUDGET CONSIDERATIONS Fence and Mesh maintenance		
MONITOR AND REVIEW In accordance with maintenance schedule.		
APPROVAL FOR RECOMMENDATION IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

7.17. Riverine Flooding Hazard Treatment Options

RISK RIVERINE FLOOD	RISK RATING LOW	DATE COMPILED:
RISK STATEMENT The latest 1:100 year flood prediction indicates that land near the Causeway would be inundated causing major traffic problems.		
RISK ANALYSIS The predictions do not show any properties at Risk from Flood.		
RECOMMENDED TREATMENT OPTIONS <ol style="list-style-type: none"> 1. Building restrictions on Flood Plains 2. Levee Banks 3. Flood Mitigation Response plans 		
RESPONSIBLE AGENCY FESA SES is the HMA for this Threat. The City has experience of road and lane traffic control during minor floods, but should consider the impact of the 1:100 year predictions.		
PRIORITY STATUS Low		
IMPLEMENTATION In consultation with FESA SES once the Metropolitan Flood Response Plan is finalised.		
BUDGET CONSIDERATIONS Nil		
MONITOR AND REVIEW Once Flood plan is available.		
APPROVAL FOR RECOMMENDATON IMPLEMENTATION		
ORGANISATION	DATE	SIGNED

8. Annex C – City of Perth Demographics

The City of Perth is the capital of Western Australia. The City of Perth is bounded by the Towns of Cambridge and Vincent in the north, the Swan River in the east and south and the City of Subiaco in the west. The City's boundaries are the Mitchell Freeway, Newcastle Street and the Graham Farmer Freeway in the north, the Swan River in the east and south and Winthrop Avenue, Kings Park, Thomas Street and Loftus Street in the west.

The City includes the suburbs of Crawley (part), East Perth (part), Northbridge, Perth (part) and West Perth (part). The City of Perth does not include Kings Park.

The following table provides the demographic details as at 2006, with a comparison to 2001.

Key statistics (summary statistics)	City of Perth						
	2006			2001			Change 2001 to 2006
Enumerated data	number	%	Perth Statistical Division	number	%	Perth Statistical Division	
			%			%	
Enumerated population, including overseas visitors							
Total population (a)	18,428	100.0	100.0	13,364	100.0	100.0	5,064
Males (a)	10,502	57.0	49.1	7,777	58.2	49.0	2,725
Females (a)	7,926	43.0	50.9	5,587	41.8	51.0	2,339
Overseas visitors	2,845	15.4	1.1	2,240	16.8	1.1	605
Enumerated population, excluding overseas visitors							
Total population (b)	15,584	100.0	100.0	11,121	100.0	100.0	4,463
Males (b)	8,949	57.4	49.1	6,563	59.0	49.0	2,386
Females (b)	6,635	42.6	50.9	4,558	41.0	51.0	2,077
Population characteristics							
Indigenous population	224	1.4	1.5	172	1.5	1.5	52
Australian born	5,938	38.1	61.7	4,901	44.1	63.6	1,037
Overseas born	5,813	37.3	31.4	3,955	35.6	31.6	1,858
Australian citizens	8,402	53.9	82.8	6,806	61.2	85.5	1,596
Australian citizens aged 18+	7,949	51.0	62.0	6,385	57.4	63.0	1,564
Institutional population	7,645	49.1	2.8	6,110	54.9	2.5	1,535
Age structure							
Infants 0 to 4 years	296	1.9	6.2	265	2.4	6.4	31
Children 5 to 17 years	718	4.6	18.0	637	5.7	18.9	81
Adults 18 to 64 years	12,817	82.2	63.8	8,839	79.5	63.3	3,978
Mature adults 65 to 84 years	1,563	10.0	10.5	1,198	10.8	9.9	365
Senior citizens 85 years and over	178	1.1	1.5	182	1.6	1.4	-4

Households and dwellings							
Owned	800	11.2	27.2	580	11.3	33.2	220
Purchasing	1,013	14.2	34.6	376	7.3	31.6	637
Renting	2,707	37.8	22.7	2,216	43.1	21.9	491
Households (occupied private dwellings)	6,080	--	--	4,082	--	--	1,998
Persons counted in households	10,768	--	--	7,256	--	--	3,512
Average household size (persons)	1.77	--	--	1.78	--	--	-0.01
Total Dwellings	7,159	100.0					



City of Perth Boundary

9. Annex D – Botanic Gardens & Parks Authority

The 400 hectares of Kings Park is controlled by the Botanic Gardens and Parks Authority (BGPA), responsible through a Board of Management to the Minister for the Environment. Kings Park is open 24 hours a day, 365 days a year. It has over 4 million visitors a year. The Park has a staff of 81 of whom approximately 45 are directly engaged in park management. It has about another 35 students engaged in research. Numerous volunteers assist with a range of functions including guided walks, information to visitors and assistance to staff.

There are two (2) residences within Kings Park and Botanic Garden that are occupied by staff and it has a 24-hour pager number for the four (4) Park Management Officers. These are the first line of response for initiating emergency response within the Authority.

Kings Park contains over 50 memorials including Honour Avenues for the fallen of the two world wars, the State War Memorial and the Vietnam Veterans memorial. The Park also includes the States Botanic Garden, several children's play grounds and nearly 300 hectares of bushland. The latter averages 10 fires each year.

It has large parkland areas and is a favourite place for reunions, family gatherings, weddings and parties. On warm summer nights and weekends the park is always full of people.

Kings Park has one restaurant and three (3) kiosk/cafes. It also contains the Kings Park Tennis Club that holds it's own events, both tennis and evening social.

The water supply for central Perth comes from the reservoirs in Kings Park and Botanic Garden. The house within the reservoir grounds is used by the Water Authority as an in house function centre.

The escarpment above Mounts Bay Rd is managed by the BGPA and is in the process of rehabilitation to reduce the long-term rock fall and general slippage hazard.

Publicly endorsed management plans guide the Kings Park and Botanic Garden activities and it has a wide range of stakeholders including community groups, sponsors and lessees.