



Emergency Management Risk Register



DISCLAIMER

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Introduction

The Emergency Management Act 2005 section 41 requires local governments to ensure that local emergency management arrangements are prepared for their district. The arrangements are to include a description of the emergencies that could potentially impact on local government and the strategies for emergency management. This Emergency Management Risk Register (the Risk Register) has been compiled to meet the City's obligations under the Emergency Management Act 2005.

The Risk Register was compiled in conjunction between the City and the Western Australian Local Government Association. The basis for the Register was two analytical workshops attended by emergency management agency members and City officers identified as having the required knowledge and expertise that would inform the City's emergency management arrangements. The workshops resulted in a draft Risk Register being developed which was then presented to the City's Risk Management Task Force (the Taskforce) for review prior to being submitted to the Local Emergency Management Committee (LEMC) for endorsement.

The Risk Register underwent a period of review by the Taskforce including further input by City officers with expertise in the subject area. This resulted in a Risk Register being produced for presentation to the LEMC.

The Risk Register

Main Risks

The Risk Register includes the risk categories of Bushfire, Severe Storm, Human Epidemic/Pandemic and Chemical Spills. The justification for the inclusion of these areas are as follows:

Bushfire: The City has pockets of natural bushland and regional parks within its boundaries that pose a high risk to people and the urban environment should fires occur.

Severe Storm: Severe storms are localised events, not usually affecting wide areas by comparison with tropical cyclones and floods. The impact of these storms can be devastating and can occur anywhere in Western Australia much more frequently than any other major natural hazard.

Human Epidemic/Pandemic: These types of outbreaks are predicted by the World Health Organisation (WHO) to be on the increase and have the capacity to cripple large cities, including support mechanisms and essential service providers including the City.

Chemical Spill from Road Traffic Accident: Heavy haulage vehicles carrying dangerous goods, including chemicals, continually travel through the City with the potential for an incident to seriously impact on the community.

Objectives

The objectives of the Risk Register are to detail the assessment of the main risk areas and their likely impact on the City including its people, natural areas, buildings and infrastructure. The Register also prioritises the City's emergency management arrangements and includes prevention, preparedness, response and recovery strategies.

Scope

The Risk Register includes strategies that are the responsibility of the City and also other emergency organisations. It includes risks that may impact on factors including people, the environment, the economy, public administration, social setting and infrastructure. Risk assessments also included the identification of communities that may be vulnerable should the risk eventuate. These communities include schools, child care centres, aged care facilities and caravan parks which are detailed on the map as Appendix 1. The City's Management responsibility has also been identified and recorded for each risk.

Risk Assessment

Risk assessments were undertaken using AS/NZS ISO 31000:2009 as a guideline. Risks were assessed against criteria established for the likelihood and consequences, a combination of which established the overall rating for each risk. The overall risk rating informed the priorities and treatment strategies in the Risk Register.

Bushfire Risk

Justification:

The City of Joondalup has pockets of natural bushland vegetation and Regional Parks within its boundaries that pose a high risk to the urban environment should fires occur.

Incident Cause:

Lightening Strike

Arson, Accidental and Unauthorised Burning

Technological failure (pole top fires etc.)

Impacts:

Environmental damage

Local Government infrastructure damage

Essential services and critical infrastructure

People through death or injury, loss of property and short and long term displacement

Local government services

Source of Risk: Bushfire		
Responsibility:	Prevention:	<ul style="list-style-type: none">• DFES as the Hazard Management Agency (HMA)• Agencies with significant bushland• City of Joondalup
	Preparedness:	<ul style="list-style-type: none">• DFES as the HMA• Agencies with significant bushland• City of Joondalup
	Response:	<ul style="list-style-type: none">• DFES as the HMA• Depart of Environment and Conservation• City of Joondalup• WA Police
	Recovery:	<ul style="list-style-type: none">• City of Joondalup assisted by supporting agencies
Potential Consequences:	<ul style="list-style-type: none">• Loss of life and serious injury• Displacement of persons for short or longer periods• Displacement of animals• General community health issues associated with displacement and trauma• Financial impacts on the community including personal hardship• Environmental issues (pollution)• Disruption to essential services	
Controls		
Prevention & Preparedness Strategies:		
DFES responsibilities: <ul style="list-style-type: none">• Maintenance of the Westplan Bushfire, State bushfire policy.• Bushfire prevention and preparedness activities under agreement with Department of Regional Development & Lands for Unmanaged Reserved and Unmanaged Crown Lands.• Public information and education about bushfire safety and prevention (Prepare Act & Survive Program).• Provides public information during bushfires (Prepare, Act or Defend).• Provides an urban response capability through strategically placed urban Fire and Rescue Service stations.• Provides Local Government Volunteer Bushfire Brigades with PPE, training and appliances under the ESL Capital Grants Program.• Total Fire Ban declarations.• Partners with other agencies in the responsible management of bushfire.• Provides for contractual air support.		

Agencies with significant bushland responsibilities:

- Prevention and preparedness activities on its managed land.
- Maintains its land in accordance with statutory requirements.

City of Joondalup responsibilities:

- Participates in a joint LEMC with the City of Wanneroo.
- Maintains Local Emergency Management Arrangements.
- Partners with 7 other Local Governments, City of Wanneroo, City of Swan, City of Stirling, City of Bayswater, Town of Bassendean, Shire of Mundaring and Shire of Kalamunda [North and East Recovery Group] for the provision of mutual aid for recovery during emergencies.
- Contributes to public awareness and education programs.
- Bushfire mitigation and hazard reduction ensuring adequate separation between bush and buildings in high risk areas.
- Issuing and enforcing fire break notices.

Response & Recovery Strategies:

DFES and the City of Joondalup

Westplan Bushfire and State Emergency Management Policy (SEMP) 4.1 describe the response and escalation mechanisms for bushfire incidents. The City of Joondalup is situated within a gazetted Fire District and response to bushfires is by DFES Fire and Rescue Service. Incident Management Team (IMT) is formed to control the combat resources and an Incident Support Group (ISG) is formed for resourcing and support from other agencies and State. Public information is the responsibility of the HMA and DFES have sufficient mechanisms in place to ensure public safety.

The City is required under the Emergency Management Act 2005 to manage recovery of the community and has in place Local Emergency Management Arrangements including a recovery plan. The City also has a partnering agreement with 7 other Local Governments (North and East Recovery Group) to provide support during the recovery process if required. The State provides recovery support through the Recovery Services Sub-committee and the Western Australian Natural Disaster Relief and Recovery Arrangements (WANDRRA) program. The City makes available to the Department of Child Protection the use of City owned buildings for welfare centres.

DEC provides a fire response on land under their control.

Exposure:	Changes to legislation may add legislated responsibility for bushfire mitigation and management for the City of Joondalup.	Control Effectiveness Assessment (EAI)	Adequate	Date of Last Review	February 2013
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City of Joondalup Emergency Management Risk Register

Risk Register Bushfire

Risk Identification				Risk Analysis				Risk Evaluation		
Risk No.	Risk Statement	Source	Impact category	Likelihood	Consequence	Risk level	Confidence level	Control Effectiveness	Risk Acceptance	Management Responsibility
BF1	There is a risk that a bushfire adjacent to urban areas may cause death or serious injury	Bushfire	People/Health	3	3	9	High	Adequate	Monitor	- Rangers, Parking and Community Safety - Operation Services
BF2	There is a risk that a bushfire may cause long term displacements for sections of the community	Bushfire	People/Health	2	3	6	High	Adequate	Monitor	- Rangers, Parking and Community Safety - Operation Services - Community Development & Library Services - Leisure & Cultural Services - Compliance and Regulatory Services
BF3	There is a risk that a bushfire may cause financial loss to sections of the community through loss of or damage to private dwellings and commercial infrastructure	Bushfire	Economy	2	2	4	High	Adequate	Acceptable	No City Responsibility
BF4	There is a risk that a bushfire may increase psychological stress and mental health related issues in sections of the community	Bushfire	People/Health	3	2	6	High	Adequate	Monitor	- Community Development & Library Services
BF5	There is a risk that a bushfire may cause loss of or damage to public infrastructure including City assets	Bushfire	Infrastructure	4	4	16	High	Adequate	Urgent Attention Required	- Operation Services - Asset Management - Rangers, Parking and Community Safety - Infrastructure Management Services - Finance - Leisure & Cultural Services

City of Joondalup Emergency Management Risk Register

Risk Identification				Risk Analysis				Risk Evaluation		
Risk No.	Risk Statement	Source	Impact category	Likelihood	Consequence	Risk level	Confidence level	Control Effectiveness	Risk Acceptance	Management Responsibility
BF6	There is a risk that a bushfire may cause damage to aspects of the natural environment	Bushfire	Environment	5	4	20	High	Adequate	Unacceptable	- Operation Services - Rangers, Parking and Community Safety - Infrastructure Management Services
BF7	There is a risk that bushfire suppression measures may cause damage to aspects of the natural environment	Bushfire	Environment	3	3	9	High	Adequate	Monitor	- Operation Services
BF8	There is a risk that a bushfire may impact on the City's ability to deliver essential services to the community	Bushfire	Public Administration	3	3	9	High	Adequate	Monitor	- Business Continuity Plan
BF9	There is a risk that a bushfire may impact the financial position of the City of Joondalup	Bushfire	Public Administration	2	3	6	High	Adequate	Monitor	- Finance - Business Continuity Plan
BF10	There is a risk that a bushfire may cause damage to areas of cultural significance including historical sites, cultural landmarks and Aboriginal heritage areas	Bushfire	Social/Cultural	3	2	6	High	Adequate	Monitor	- Rangers, Parking and Community Safety

Severe Storm Risk

Incident Cause:

Wind damage
Localised flooding
Storm surge
Landslip
Drainage infrastructure

Impacts:

Flooding
Coastal erosion
Environmental damage
Infrastructure damage
Impacts on people-displacement
Community services interruption

City of Joondalup Emergency Management Risk Register

Source of Risk: Severe Storm		
Responsibility:	Prevention:	<ul style="list-style-type: none">• DFES• City of Joondalup
	Preparedness:	<ul style="list-style-type: none">• DFES as the designated HMA for storm• City of Joondalup for mitigation strategies to City Assets
	Response:	<ul style="list-style-type: none">• SES is the designated Combat Agency for response
	Recovery:	<ul style="list-style-type: none">• City of Joondalup assigned recovery responsibility under the Emergency Management Act 2005
Potential Consequences:	<ul style="list-style-type: none">• Isolated loss of life or serious injury• Short or long term displacement of persons• Disruption to businesses• Economic loss to business through community evacuation or damage to infrastructure including drainage systems and local roads• Medical facilities may be unable to cope• Public health and welfare issues resulting from septic system and waste water overflow• Minor or moderate environmental damage mainly through coastal erosion and run off• Flash flooding of low lying areas of the community• Structural damage to public infrastructure• The amount of green waste and general waste material generated may impact on waste services.	
Controls		
Prevention & Preparedness Strategies:		
DFES/SES responsibilities: <ul style="list-style-type: none">• Preparation and exercising of the WESTPLAN for Storms.• Provides guiding policy for response to severe storm events and support the SES who are the designated Combat Agency.• Provides public education through the distribution of the Storm Safe initiative.• Administers the ESL Capital Grants Program ensuring the provision of essential equipment and vehicles for SES units State wide.		

City of Joondalup Emergency Management Risk Register

City of Joondalup responsibilities:

- Hosts the Wanneroo/Joondalup volunteer SES unit for the combined LG areas of Wanneroo and Joondalup.
- Exercise and review the current emergency management arrangements and support plans annually.
- Hosts the Local Emergency Management Committee in partnership with the City of Wanneroo.
- Engages in a program of works aimed at reducing the impact on the community of storms e.g. tree pruning and drainage maintenance programs along with public education.

Supporting Organisations responsibilities:

- Local police and essential service organisation such as Water Corp, Western Power and Alinta Gas support the work of the LEMC process and have interagency support plans.

Response & Recovery Strategies:

DFES/SES:

Storm response is activated upon early warning being received through weather forecasting systems provided by Bureau of Meteorology (BoM). Generally, DFES call an Operations Area Management Group together in preparation for severe weather events. Where an incident occurs, DFES form Incident Support Groups (ISG) and Incident Management Teams (IMT) at the local level. All response and support agencies are involved at the appropriate level according to SEMP 4.1 and Westplan Storm.

City of Joondalup:

The City of Joondalup is required under the Emergency Management Act 2005 to provide recovery services to the affected community. These services are provided through the Local Recovery Coordinating Committee structure. The Local Recovery Plan assists in directing the recovery effort supported by other agencies.

Support Agencies:

Department of Child Protection assists in the provision of welfare services to the affected community in partnership with the City of Joondalup. The City provides designated City buildings for use as welfare centres during periods of community displacement. The State provides welfare and financial support through the WANDRRA program for declared disaster events and recovery services to assist the Local Government.

Exposure: Disposal of waste material remains a concern particularly where large volumes may be generated through such an event and localised flooding of low level areas including roads and underpasses.

Control Effectiveness Assessment (EAI)

Adequate

Date of Last Review

February 2013

City of Joondalup Emergency Management Risk Register

Risk Register Severe Storm

Risk Identification				Risk Analysis				Risk Evaluation		
Risk No.	Risk Statement	Source	Impact category	Likelihood	Consequence	Risk level	Confidence level	Control Effectiveness	Risk Acceptance	Management Responsibility
SS1	There is a risk that a severe storm may cause death or serious injury to members of the community	Severe Storm	People/Health	3	3	9	High	Adequate	Monitor	- Operation Services - Infrastructure Management Services
SS2	There is a risk that a severe storm may cause either short or long term displacement of people	Severe Storm	People/Health	3	2	6	High	Adequate	Monitor	- Rangers, Parking and Community Safety - Operation Services - Community Development & Library Services - Leisure & Cultural Services - Compliance and Regulatory Services
SS3	There is a risk that a severe storm may cause increased psychological and welfare issues in the community	Severe Storm	People/health	1	2	2	High	Adequate	Acceptable	- Community Development & Library Services
SS4	There is a risk that a severe storm may cause damage to the natural environment	Severe Storm	Environment	4	2	8	High	Adequate	Monitor	- Operation Services - Infrastructure Management Services
SS5	There is a risk that heavy sea swells resulting from a severe storm may cause coastal erosion	Severe Storm	Environment	5	3	15	High	Adequate	Urgent Attention Required	- Operation Services - Infrastructure Management Services

City of Joondalup Emergency Management Risk Register

Risk Identification				Risk Analysis				Risk Evaluation		
Risk No.	Risk Statement	Source	Impact category	Likelihood	Consequence	Risk level	Confidence level	Control Effectiveness	Risk Acceptance	Management Responsibility
SS6	There is a risk that a severe storm may cause structural damage to the built environment	Severe Storm	Infrastructure	4	4	16	High	Adequate	Urgent Attention Required	<ul style="list-style-type: none"> - Operation Services - Infrastructure Management Services - Asset Management
SS7	There is a risk that a severe storm may cause long term disruption of essential lifeline services of power and gas	Severe Storm	Infrastructure	5	3	15	High	Adequate	Urgent Attention Required	No City responsibility
SS8	There is a risk that a severe storm may cause significant disruption to essential Local Government services	Severe Storm	Public Administration	3	4	12	High	Adequate	Urgent Attention Required	<ul style="list-style-type: none"> - Business Continuity Plan

Human Epidemic/Pandemic Risk

Incident Cause:

Spread of a new human to human viral infection

Impacts:

Widespread impact on normal community activities including travel and public gatherings. Added pressure on local public health system. City of Joondalup and other agencies service levels may be impacted.

Source of Risk: Human Epidemic/Pandemic		
Responsibility:	Prevention:	<ul style="list-style-type: none"> Department of Health as the Hazard Management Agency (HMA) - supported by City of Joondalup
	Preparedness:	<ul style="list-style-type: none"> Department of Health
	Response:	<ul style="list-style-type: none"> Department of Health - State Human Epidemic Controller City of Joondalup Department of Agriculture and Food WA St John Ambulance WA Police
	Recovery:	<ul style="list-style-type: none"> City of Joondalup at the local level WA State Government supporting State and local recovery efforts
Potential Consequences:	<ul style="list-style-type: none"> Deaths ranging from isolated cases to mass deaths or serious health issues Overloading of the health system local and State Community evacuation or quarantine School and child care centre closures Shopping centre and areas of mass gathering closed Public transport restricted or closed creating traffic congestion Food shortages Escalation of lawlessness Essential services disruption Reduction of Local Government and State government essential services Reduced volunteer and staff numbers 	

Controls					
Prevention & Preparedness Strategies:					
<p>Department of Health responsibilities:</p> <ul style="list-style-type: none"> • The HMA for human epidemic supported by City of Joondalup. • Currently in place are environmental programs to restrict and limit communicable disease spread. • Immunisation programs for the identified major threat communicable and notifiable diseases. • Vector programs to reduce the spread of diseases, such as culling of host animals. • The notifiable disease surveillance system. • Health Promotion and education activities. • Collaboration with national and international health organisations. • Outbreak management involving rapid organisation of scientific investigation and application of disease control methods. • State Plan preparation, Isolation and Evacuation plans, Western Australian Border and Assistance Agreements. <p>City of Joondalup responsibilities:</p> <ul style="list-style-type: none"> • Facilitate local community health services, clinics and immunisation programs. • Business continuity plan for essential services. • Local Emergency Management Arrangements. 					
Response & Recovery Strategies:					
<p>Department of Health</p> <p>Supported by Local Government, Department of Agriculture & Food WA, WA Police and St John Ambulance. Actions on increased levels of notifiable diseases; 4 levels of response activation in line with Westplans and other legislation; Multi agency activation in line with Westplan Human Epidemic and SEMP 4.1; Activation of support plans, Westplan Health, Westplan Welfare, Westplan Registration & Reunification; and SEMP 4.2 Funding for Emergencies.</p> <p>City of Joondalup</p> <p>Local community recovery through Local Recovery Plan and mechanisms supported by State government agencies. Re-establishment of normal health services, public services and business recovery.</p>					
Exposure:	Environmental health systems overload, inability to manage waste and an ineffective business continuity plan that is not tested regularly.	Control Effectiveness Assessment (EAI)	Adequate	Date of Last Review	February 2013

City of Joondalup Emergency Management Risk Register

Risk Register Human Epidemic/Pandemic

Risk Identification				Risk Analysis				Risk Evaluation		
Risk No.	Risk Statement	Source	Impact category	Likelihood	Consequence	Risk level	Confidence level	Control Effectiveness	Risk Acceptance	Management Responsibility
HE1	There is a risk that a human epidemic/pandemic will cause death or chronic illness in the community	Human Epidemic	People/Health	4	4	16	High	Adequate	Urgent Attention Required	<ul style="list-style-type: none"> - Compliance and Regulatory Services - Community Development Library Services
HE2	There is a risk that a human epidemic/pandemic may affect the social order of the community	Human Epidemic	Social Setting	4	4	16	High	Adequate	Urgent Attention Required	<ul style="list-style-type: none"> - Rangers, parking and Community Safety
HE3	There is a risk that a human epidemic/pandemic may affect the local economy	Human Epidemic	Economy	5	4	20	High	Adequate	Unacceptable	<ul style="list-style-type: none"> - Community Development Library Services - Strategic & Organisational Development
HE4	There is a risk that a human epidemic/pandemic will affect the Local Government's ability to deliver essential services to the community	Human Epidemic	Public Administration	5	4	20	High	Adequate	Unacceptable	<ul style="list-style-type: none"> - Business Continuity Plan

Chemical Spill from Road Traffic Accident

Incident Cause:

Accidents involving bulk chemical transport.

Impacts:

People through death, injury along with health related issues and displacement.

Environmental damage caused by runoff of toxic substances entering waterways.

Infrastructure damage caused by the impact of vehicles.

Exposure of the City of Joondalup in terms of either reputation or liability on City controlled road.

City of Joondalup Emergency Management Risk Register

Source of Risk Chemical Spill from Road Traffic Accident		
Responsibility:	Prevention:	<ul style="list-style-type: none">• DFES is the designated HMA for hazardous materials incidents.• WA Police is the designated HMA for road crash.• Main Roads WA for traffic management planning• Department for Consumer and Employment Protection (DoCEP) for dangerous goods HAZMAT advice.
	Preparedness:	<ul style="list-style-type: none">• All above agencies
	Response:	<ul style="list-style-type: none">• All above agencies
	Recovery:	<ul style="list-style-type: none">• City of Joondalup supported by State and support agencies
Potential Consequences:	<ul style="list-style-type: none">• Death or serious injury.• Short or long term public health issues.• Short or long term displacement of persons.• Risk to the community from ignition of flammable liquids in large quantities.• Disruption to local business.• Environmental damage caused by chemical contamination.• Clean-up effort and costs associated with resurrection of the affected environment.• Seepage of chemicals into sensitive water catchments and ground water sources.• Damage to road infrastructure including drains and bridges.• Long or short term disruption to traffic.	
Controls		
Prevention & Preparedness Strategies:		
WA Police (WAPOL) responsibilities <ul style="list-style-type: none">• In association with Road Safety Council, Department for Planning and Infrastructure, Main Roads Western Australia, City of Joondalup, Royal Automobile Club and community groups are organisations working in partnership to improve road safety.• Annual exercises to test agency response and capability.		

City of Joondalup Emergency Management Risk Register

Response & Recovery Strategies:					
<p>WAPOL</p> <p>Control and coordination of an emergency operation rests with WAPOL. Response activities diminish the effects of the incident by providing assistance to casualties, reducing damage, reducing the chance of secondary crashes, minimising delays to other road users, assisting recovery and gathering initial information for investigators. Actions at State level are controlled by the State Road Crash Operations Manager from the State Road Crash Coordination Centre and provide direction in order to combat a State level road crash emergency.</p> <p>City of Joondalup</p> <p>The City is the designated local recovery agency for the affected community supported by State agencies. The City of Joondalup has Local Emergency Management Arrangements including a Local Recovery Plan.</p>					
Exposure:	Lack of maintenance and management of City controlled roads.	Control Effectiveness Assessment (EAI)	Adequate	Date of Last Review	February 2013

City of Joondalup Emergency Management Risk Register

Risk Register Chemical Spill from Road Traffic Accident

Risk Identification				Risk Analysis				Risk Evaluation		
Risk No.	Risk Statement	Source	Impact category	Likelihood	Consequence	Risk level	Confidence level	Control Effectiveness	Risk Acceptance	Management Responsibility
CS1	There is a risk that a chemical spill may result in the death or serious injury of people	Chemical Spill	People/Health	3	3	9	High	Adequate	Monitor	- Operation Services - Infrastructure Management Services
CS2	There is a risk that a chemical spill may cause short or long term displacement of people in the community	Chemical Spill	People/Health	3	2	6	High	Adequate	Monitor	- Community Development
CS3	There is a risk that a chemical spill from a road transport emergency may endanger public health	Chemical Spill	People/Health	3	5	15	High	Adequate	Urgent Attention Required	- Rangers, Parking & Community Safety
CS4	There is a risk that a chemical spill from a road transport emergency will cause damage to natural elements of the environment	Chemical Spill	Environment	4	4	16	High	Adequate	Urgent Attention Required	- Infrastructure Management Services
CS5	There is a risk that a chemical spill from a road transport emergency will cause damage to road infrastructure	Chemical Spill	Infrastructure	3	2	6	High	Adequate	Monitor	- Operation Services - Infrastructure Management Services

APPENDIX A: Descriptions of Likelihood Table

DESCRIPTOR	Description
Almost Certain (5)	It 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 (4)	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 (3)	Might occur at some time; and/or few, infrequent, random recorded incidents or little anecdotal evidence; and/or very few incident in associated or comparable organisations, facilities or communities; and/or some opportunity, reason or means to occur; may occur once every twenty years.
Unlikely (2)	Is not expected to occur; and/or no recorded incidents or anecdotal evidence; and/or recent incidents in associated organisations, facilities or communities; and/or little opportunity, reason or means to occur; may occur once every hundred years.
Rare (1)	May occur only in exceptional circumstances; may occur once every five hundred years or more.

City of Joondalup Emergency Management Risk Register

APPENDIX B: Descriptions of Consequence Table

Consequence Level	Health	Environment	Economy	Public Administration	Social Setting	Infrastructure
Catastrophic (5)	Widespread multiple loss of life, health system unable to cope, displacement of people beyond ability to cope	Widespread severe impairment or loss of ecosystem functions across species and landscapes, irrecoverable environmental damage	Unrecoverable financial loss > 3% of the government sector's revenues, asset destruction across industry sectors leading to widespread business failures and loss of employment	Governing body unable to manage the event, disordered public administration without effective functioning, public unrest, media coverage beyond region or jurisdiction	Community unable to support itself, widespread loss of objects of cultural significance, impacts beyond social and psychological capacity in all parts of the community	Long term failure of significant infrastructure and service delivery affecting all parts of the community, ongoing external support at large scale required
Major (4)	Multiple loss of life (mortality >1 in 100,000), health system over-stressed, large numbers of people displaced (more than 24 hours)	Severe impairment or loss of ecosystem functions affecting many species or landscapes, progressive environmental damage	Financial loss 1-3% of the government sector's revenues requiring major changes in business strategy to (partly) cover loss, significant disruptions across industry sectors leading to multiple business failures and loss of employment	Governing body absorbed with managing the event, public administration struggles to provide merely critical services, loss of public confidence in governance, media coverage beyond region or jurisdiction	Reduced quality of life within the community, significant loss or damage to objects of cultural significance, impacts beyond emotional and psychological capacity in large parts of the community	Mid to long term failure of significant infrastructure and service delivery affecting large parts of the community, initial external support required
Moderate (3)	Isolated cases of loss of life (mortality > 1 in 1,000,000) health system operating at maximum capacity, isolated cases of displacement of people (less than 24 hours)	Isolated but significant cases of impairment or loss of ecosystem functions, intensive efforts for recovery required	Financial loss 0.3 0- 1% of the government sector's revenues requiring adjustments to business strategy to cover loss. Disruptions to selected industry sectors leading to isolated cases of business failure and multiple loss of employment	Governing body manages the event under emergency regime, public administration functions with some disturbances, isolated expression of public concern, media coverage within the region or jurisdiction	Ongoing reduced services within the community, permanent damage to objects of cultural significance, impacts beyond social and psychological capacity in some parts of the community	Mid-term failure of (significant) infrastructure and service delivery, affecting some parts of the community, widespread inconveniences
Minor (2)	Isolated cases of serious injuries, health system operating within normal parameters	Isolated cases of environmental damage, one off recovery efforts required	Financial loss 0.1 – 0.3% of the government sector's revenues requiring activation of reserves to cover loss, disruptions at business level leading to isolated cases of loss of employment	Governing body manages the event under emergency regime, public administration functions with some disturbances, isolated expression of public concern, media coverage within region or jurisdiction	Isolated and temporary cases of reduced services within community, repairable damage to objects of cultural significance, impacts with emotional and psychological capacity of the community	Isolated cases of short-to mid-term failure of infrastructure and service delivery, localised inconveniences
Insignificant (1)	Near misses or minor injuries, no reliance on health system	Near misses or incidents without environmental damage, no recovery efforts required	Financial loss < 0.1% of the government sector's revenues, to be managed within standard financial provisions, inconsequential disruptions at business level	Governing body manages the event within normal parameters, public administration functions without disturbances, public confidence in governance, no media attention	Inconsequential short term reduction of services, no damages to objects of cultural significance, no adverse emotional and psychological impacts	Inconsequential short term failure of infrastructure and service delivery, no disruption to the public services

APPENDIX C: Qualitative Risk Analysis Matrix – Level of Risk*

Consequence Likelihood		Insignificant	Minor	Moderate	Major	Catastrophic
		1	2	3	4	5
Almost Certain	5	5	10	15	20	25
Likely	4	4	8	12	16	20
Possible	3	3	6	9	12	15
Unlikely	2	2	4	6	8	10
Rare	1	1	2	3	4	5

APPENDIX D: Risk Acceptance Criteria

LEVEL OF RISK	DESCRIPTION	CRITERIA FOR RISK ACCEPTANCE	RESPONSIBILITY
1-4	Acceptable	Risk acceptable with adequate controls, managed by routine procedures and subject to annual monitoring	Operational Manager
5-9	Monitor	Risk acceptable with adequate controls, managed by specific procedures and subject to semi-annual monitoring	Operational Manager
10-16	Urgent Attention Required	Risk acceptable with excellent controls, managed by senior management/executive and subject to monthly monitoring	Director/CEO
17-25	Unacceptable	Risk only acceptable with excellent controls and all treatment plans to be explored and implemented where possible, managed by highest level of authority and subject to continuous monitoring	CEO/Council

APPENDIX E: Existing Controls Rating

LEVEL	DESCRIPTOR	FORESEEABLE	DESCRIPTION
E	Excellent	Doing more than what is reasonable under the circumstances	Controls are fully in place, are being well addressed/complied with, are subject to ongoing maintenance and monitoring and are being continuously reviewed and tested.
A	Adequate	Doing what is reasonable under the circumstances	Controls are in place, are being addressed/complied with and are subject to periodic review and testing.
I	Inadequate	Not doing some or all things reasonable under the circumstances	Controls do not exist, or are not being addressed/complied with, or have not been reviewed or tested for some time.

APPENDIX F: Confidence Levels

Confidence Criteria	Low Confidence	Moderate Confidence	High Confidence
Data/Information	Neither community nor hazard specific, anecdotal only.	Community or hazard specific; validated historically or based on scientific evidence or studies.	Community and hazard specific; validated historically and scientifically. Hazard and process specific.
Team knowledge	Neither hazard nor process (risk assessment) specific.	Hazard or process specific	Hazard and process specific
Agreement	Neither on interpretations nor on ratings	On interpretations or ratings	On interpretations and ratings

The ratings for each of the above confidence criteria will help rate confidence in the overall risk assessment process. The confidence rating will be conducted for each risk recorded in the risk register. The level of confidence in the assessment process will determine whether further analysis is required.

APPENDIX G: Existing Controls

Treatment:

‘An existing process, policy, device, practice or other action that acts to minimise negative risk or enhance positive opportunities.’

The Comprehensive Approach:

This approach to emergency management provides for a comprehensive and systematic way of managing each hazard (source of risk). It separates the managing aspects of each hazard into the elements of:

Prevention	Measures to eliminate or reduce incidence or severity of emergencies.
Preparedness	Measures to ensure that, should an emergency occur, communities, resources and services are capable of coping with the effects.
Response	Measures taken in anticipation of, during and immediately after an emergency to ensure its effects are minimised.
Recovery	Measures which support emergency-affected individuals and communities in the reconstruction of the physical infrastructure and restoration of emotional, economic, environmental and physical wellbeing.

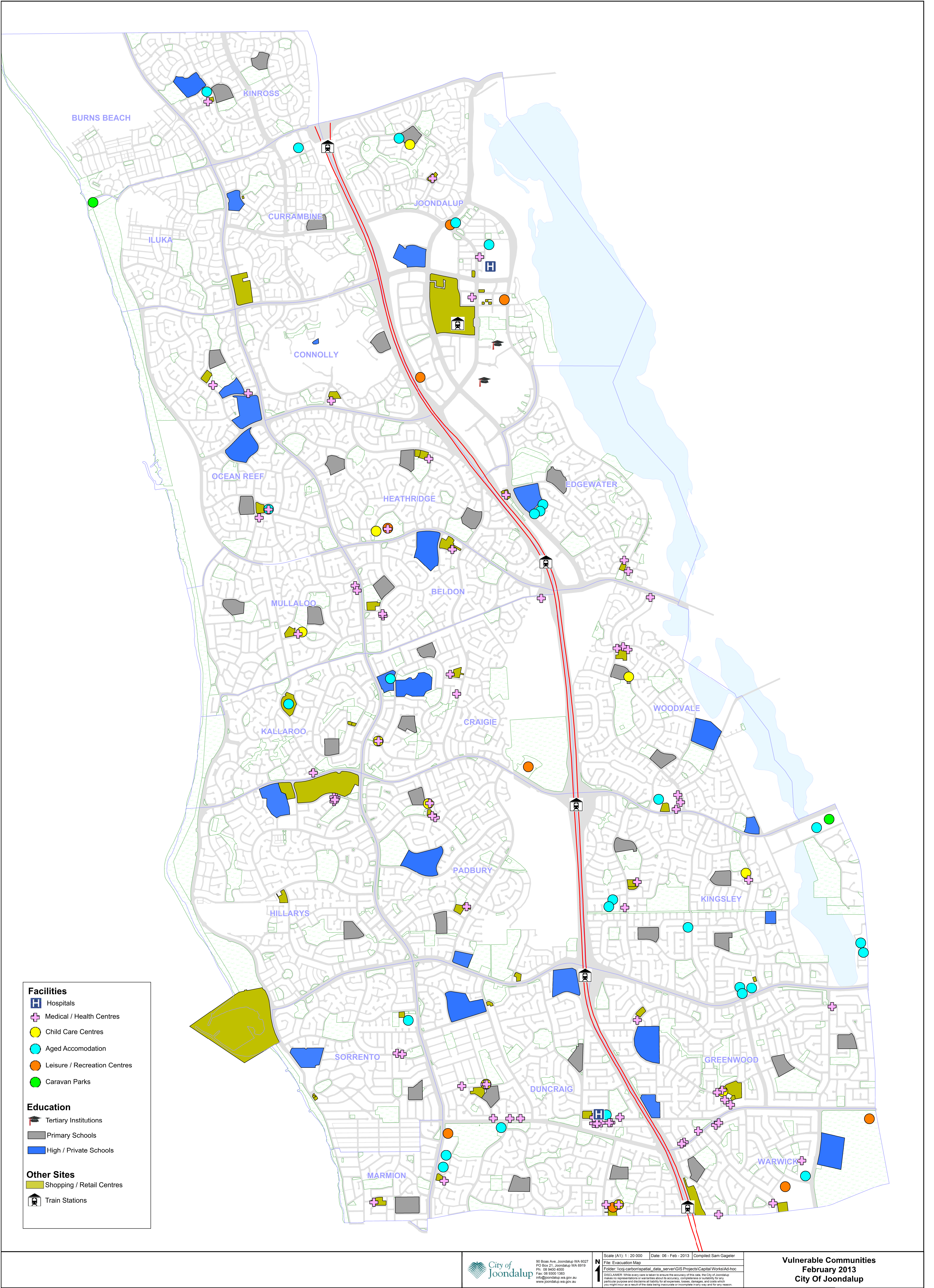
Each element represents a dynamic set of actions following into the next. Together they make up the full scope of a legitimate and valid system of emergency management.

Consider:

- Land use management
- Building use regulations
- Emergency plans
- Training
- Mutual agreements
- Published literature
- Community education and awareness
- Research
- Experiments/prototypes
- Specialist and experts judgements
- Building codes
- legislation
- emergency plan testing
- past records
- practice and relevant experience
- engineering and other models
- warning systems
- public consultation
- economic

APPENDIX H: Community Values

Priority	Scope	Criteria
1	People: Relates to the direct impact of the emergency on the physical health of people/individuals and emergency services. (i.e. health system ability to manage)	Any reasonably preventable accident or incident that causes or is likely to cause death, serious injury or affects the health and wellbeing of people is unacceptable
2	Infrastructure: Relates to the impacts of the emergency on the areas infrastructure/lifelines/utilities and its ability to service the community	Any reasonably preventable accident or incident that results in substantial loss or damage to infrastructure is unacceptable
3	Environment: Relates to the impacts of the emergency and its effects on the ecosystems of the area, including flora and fauna	Any reasonably preventable accident or incident that results in damage to or loss of sensitive ecosystems, flora or fauna is unacceptable
4	Public Administration: Relates to the impact of the emergency on the Local Government and its ability to govern	Any reasonably preventable accident or incident that results in the loss or reduction in the capacity of the City of Joondalup to deliver normal services is unacceptable
5	Economy: Relates to the economic impact of the emergency on the Local Government as reported in the annual operating statement and industry sectors as defined by the ABS	Any reasonably preventable accident or incident that affects the economy of the community is unacceptable
6	Social/cultural: Relates to the impacts of the emergency on society and its social fabric, including its cultural heritage and resilience of the community	Any reasonably preventable accident or incident that results in the disruption of the social and cultural setting of the community is unacceptable



Facilities

H

Hospitals

+

Medical / Health Centres

●

Child Care Centres

●

Aged Accomodation

●

Leisure / Recreation Centres

●

Caravan Parks

Education

■

Tertiary Institutions

■

Primary Schools

■

High / Private Schools

Other Sites

■

Shopping / Retail Centres

■

Train Stations