



BUNBURY EMERGENCY MANAGEMENT ARRANGEMENTS

ANNEX 2

EMERGENCY RISK MANAGEMENT

June, 2014



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AMENDMENTS

AMENDMENT		DETAILS OF AMENDMENT	AMENDED BY INITIALS/DATE
No.	Date		
1			
2	June 2014	Update with newly established Risk Register	CW ESM/EJH

MITIGATION PLANNING EMERGENCY RISK MANAGEMENT (ERM)

INTRODUCTION

The Bunbury LEMC had undertaken a Risk Analysis by conducting a full ERM process in 2004 of the COB area. This included community consultation involving key stakeholders and agencies and relevant areas of the community. The ERM models were based on the S/NZS 4360 – Risk Management Standard. The subsequent outputs of this process resulted in a Risk Management Register, which included the Bunbury Emergency Risk Management Plan that encompassed the implemented risk treatment commitments.

In 2013, through AWARE Grant Finding, the assumptions of risk that populated the Risk Register and informed the Risk Treatment Register, were challenged for currency. The benchmarks for this assessment were the relatively new Risk Management Standard *ISO 31000:2009 Risk Management – Principles and Guidelines*. Along with the implications from the *National Emergency Risk Assessment Guidelines (NERAG) (2010)*. This amended document now includes the outcomes of that study. Interestingly, the previously highest risk (bushfire) was lowered to be the third priority, with severe storm and then flooding being first and second, respectively.

Reference Document – ‘Resilient Bunbury – Emergency Risk Management (ERM) Project August 2013)

The Bunbury ERM Register and Bunbury Emergency Risk Management Plan are integral parts of the BEMA. Until the next study (planned for 2019) is completed, the newly created risk register will determine the relevant priorities for treatment. Only the top 6 risks from the recent work, were used to amend the previous risk register, so where a risk was not elevated to risk 1 to 6, those risks remain in their current place.

RISK EVALUATION CRITERIA

Criterion 1

Any reasonably preventable accident/incident resulting in loss of life is unacceptable.

Criterion 2

Any reasonably preventable accident/incident resulting in serious injury is unacceptable.

Criterion 3

Any reasonable preventable matter that will affect the health and well-being of the community would be considered as unacceptable.

Criterion 4

Any reasonably preventable activity or incident that will have a medium to long term, or permanent effect on the environment is unacceptable.

Criterion 5

Any reasonably preventable activity or accident that will cause closure or seriously disrupt normal business activity is unacceptable

Criterion 6

Any reasonably preventable activity or accident that will cause closure or seriously disrupt community lifelines or services is unacceptable.

Criterion 7

Any reasonably preventable activity or accident that will have long term or permanent effects on the cultural assets and values of the community is unacceptable

RISK PRIORITIES TABLE

1.	FLOOD
2.	SEVERE STORM
3.	BUSHFIRE
4.	DROUGHT
5.	HUMAN PANDEMIC
6.	MAJOR ROAD ACCIDENT – HUMAN TRAUMA
7.	INDUSTRIAL ACCIDENT
8.	DEGRADATION OF PUBLIC SAFETY - CRIME TERRORIST ACTIVITY
9.	MAJOR ROAD /RAIL ACCIDENT – STOPPAGE OF INFRASTRUCTURE
10.	HUMAN EPIDEMIC
11.	MAJOR CHEMICAL CONTAMINATION –SHOPPING CENTRES, POLLUTION CAUSING DEATH AND SICKNESS
12.	MAJOR INDUSTRY CLOSING DOWN
13.	WATER SUPPLY CONTAMINATED
14.	MAJOR EXPLOSION CBD – HIGH POPULATION AREAS
15.	CAUSTIC/ TOXIC SPILL FROM ROAD/RAIL
16.	MARINE OIL SPILL
17.	DEGRADATION OF NATURAL RESOURCES
18.	GROUND WATER CONTAMINATION
19.	MAJOR EMERGENCY - DURATION LONGER THAN 24 HOURS
20.	EXOTIC ANIMAL/PLANT DISEASE
21.	FUEL EXPLOSION – PICTON
22.	BREAKDOWN OF SOCIAL INFRASTRUCTURE
23.	EXTENDED FUEL STOPPAGE
24.	NUCLEAR ACCIDENT FROM VISITING WARSHIPS
25.	AIR POLLUTION
26.	EXOTIC PEST AND WEED INFESTATIONS
27.	TRAIN COLLISION – PASSENGER AND FREIGHT
28.	ENVIRONMENTAL DEGRADATION - DUE TO DEVELOPMENT
29.	STORM SURGE
30.	EARTHQUAKE
31.	TSUNAMI
32.	BREAKDOWN OF COMMUNITY NETWORKS
33.	CLIMATIC CHANGE – SALINITY INCREASE
34.	SUSTAINED POWER OUTAGE
35.	DAM BREAK (SUNNY DAY)
36.	AIRCRAFT CRASH
37.	DRAMATIC INCREASE IN INTEREST RATES
38.	DRAMATIC INCREASE IN FUEL PRICES
	Blue field indicates risk from previous study,, not amended in recent work

The following tables have included the results from **Most Likely** and **Possible** choices along with the groupings as explained above:-

1	Severe Storm	180	<i>Cyclone, Tornado, Severe Storm, Extreme winds,</i>
2	Flood	162	<i>Flood, Tsunami</i>
3	Fire (Bushfire)	125	<i>As is</i>
4	Power Off	20	<i>As is</i>
5	Disease epidemic	19	<i>As is</i>
6	Water Off	7	<i>As is</i>

Table 2 – Results of Survey

Note: For future mitigation consideration - there were concerns raised about utility failure (power, water) for extended lengths of time. Likewise, Human Disease Pandemic has shown to be a concerning potential.

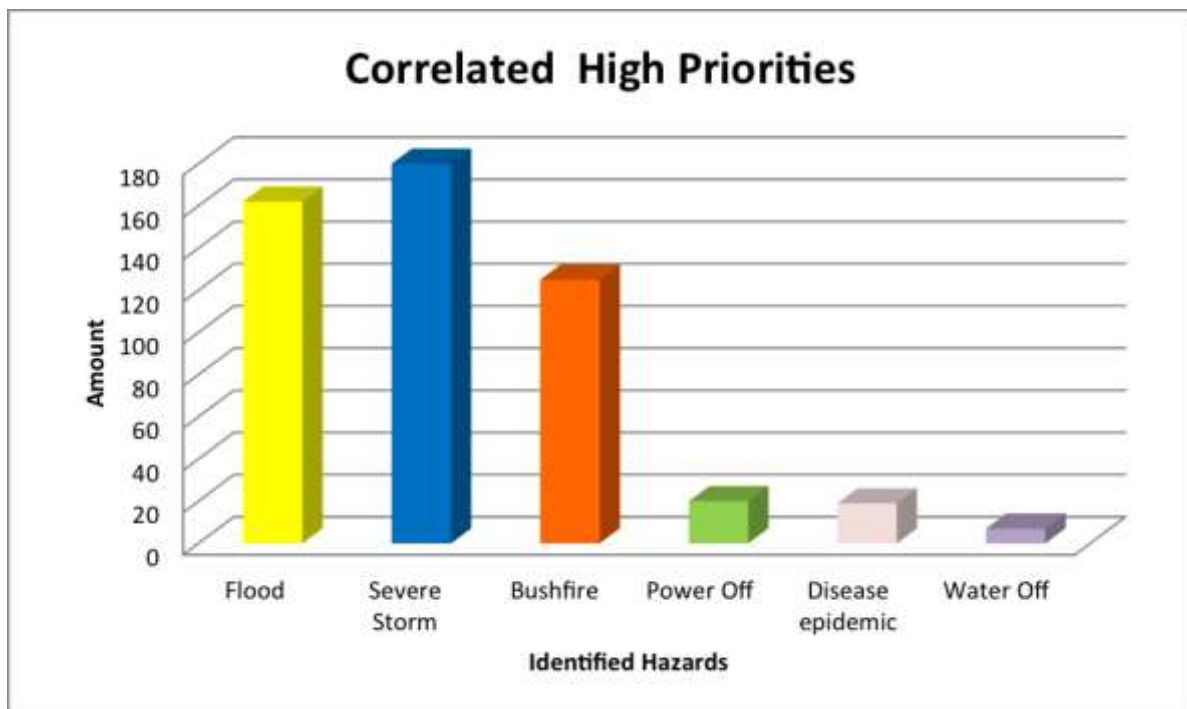


Table 3 – Correlated Results to Priorities

It is worth noting that further data has been gathered since the development of this table and this has been considered to be consistent with the priority findings of Flood, Severe Storm, and Fire as the three highest rated risks.

Twelve Agencies & the City of Bunbury Elected Representatives (Including: Bunbury Port Authority, Dept. of Health, Dept. of Transport, Dept. of Fire & Emergency Services, State Emergency Management Committee Secretariat, SW Area Country Health, CoB Operations, COB Environmental Health, Aqwest, Bunbury Vol. Bush Fire Brigade, Bunbury Vol. Fire & Rescue) were involved in this study.

A total of 45 votes (3 top hazards per agency) were tallied.

Note: Not all 3 hazards were filled in for every survey e.g. Aqwest only suggest 2 – hence the numbers do not equal 51 (17 agency’s) as one would assume.

Agency survey results

Consequence:	1. Insignificant	2. Minor	3. Moderate	4. Major	5. Catastrophic
Likelihood:	1. Almost certain	2. Likely	3. Possible	4. Unlikely	5. Rare

Consequence							Likelihood						
	1	2	3	4	5	Total		1	2	3	4	5	Total
Heat wave					1	1	Heat wave			1			1
Severe drought		1		1		2	Severe drought	1			1		2
Urban sprawl			2			2	Urban sprawl	1	1				2
Economic malaise			1			1	Economic malaise			1			1
Pandemic				1		1	Pandemic			1			1
Flooding		1	1	7	3	12	Flooding		3	9			12
Severe storms		2	6	3	1	12	Severe storms	2	9	1			12
Violence and crime		1				1	Violence and crime	1					1
Fire		1	4	1	1	7	Fire		2	4	1		7
Water supply contamination			1	1		2	Water supply contamination	1		1			2
Water supply failure			1			1	Water supply failure			1			1
Major traffic accidents			1			1	Major traffic accidents		1				1
Extended power outage				2		2	Extended power outage		1		1		2
Total						45	Total						45

Table 4– Tallied Results from Surveys

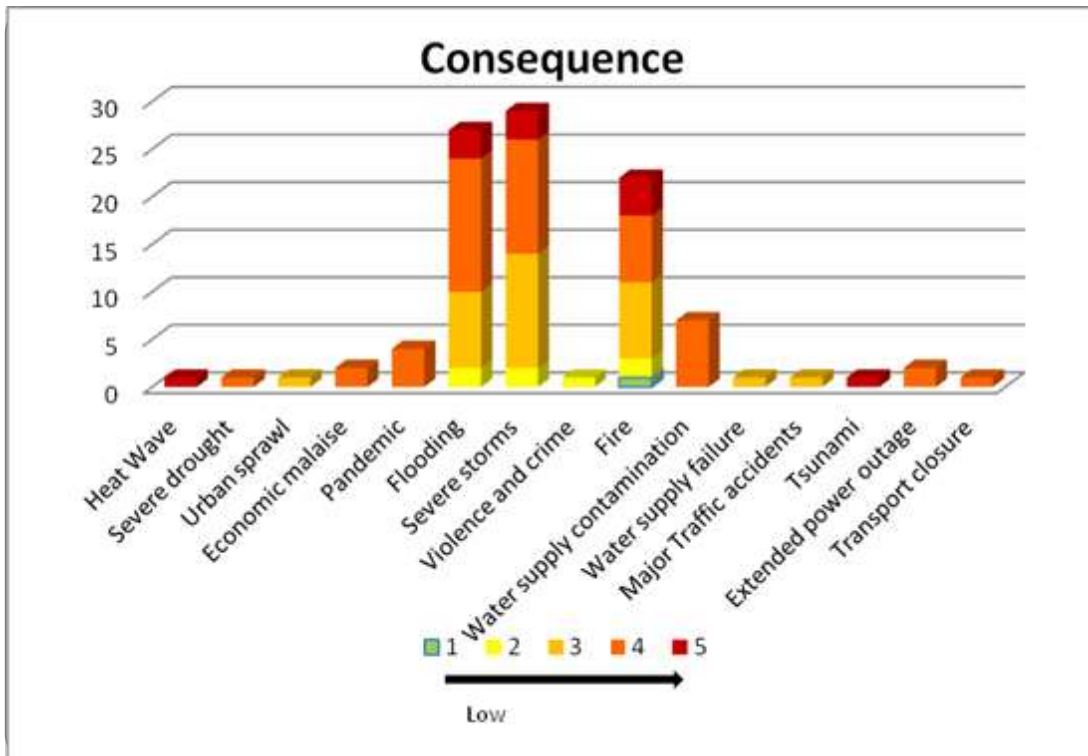


Table 5– Resultant Consequence Ratings

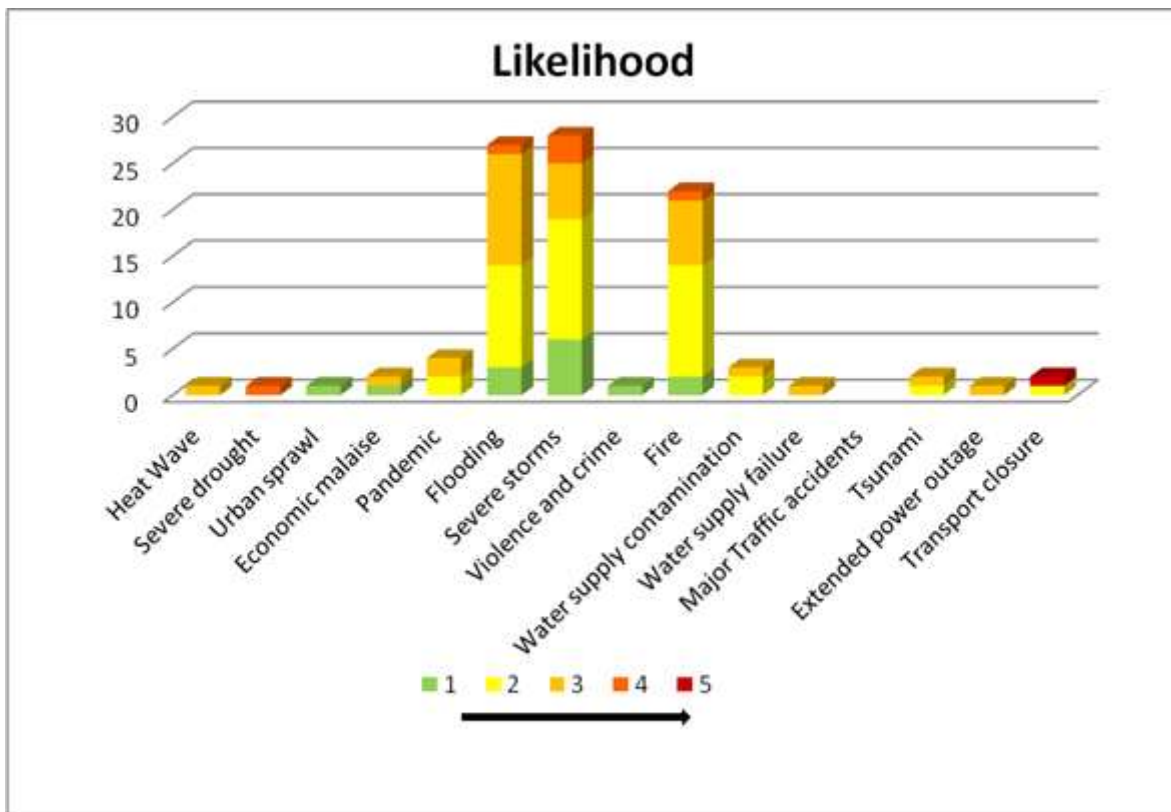


Table 6 – Resultant Likelihood Ratings

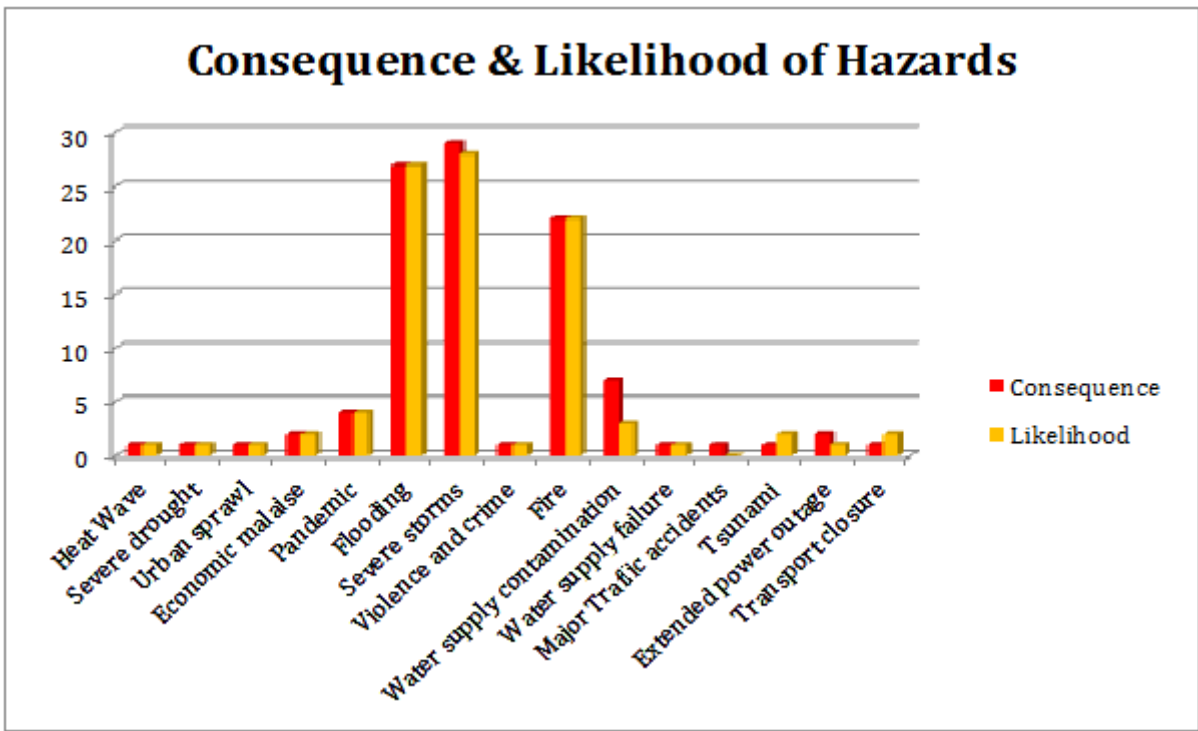


Table 7 – Correlated Results – Consequence v Likelihood

Agency responses provided a more detailed outcome, through a quantified Likelihood and Consequence rating, from the supplied criteria of the Qualitative Risk Assessment (QRA) tables (Appendix 1). Interestingly, the results were consistent with community perceptions of Flood, Severe Storm and Fire being the greatest risks. Due to these risks having Consequence and Likelihood data available, they could be measured against the Risk Matrix (ISO 31000) (Appendix 3) to determine a risk rating. The table overleaf displays where these Risks rated.

IDENTIFIED RISK	Risk Rating												TOTALS			Priority	
	Critical Risk CR			High Risk HR			Moderate Risk MR						CR	HR	MR		
Flooding		CR	CR	CR	HR	HR	HR	HR	HR	HR	HR	MR	MR	CR 3	HR 7	MR 2	1
Severe Storm	CR	CR	HR	HR	HR	HR	HR	HR	HR	HR	HR	MR	MR	CR 2	HR 9	MR 2	2
Fire							CR	HR	HR	HR	HR	HR	MR	CR 1	HR 5	MR 1	3
Drought												HR	MR		HR 1	MR 1	4
Pandemic													HR		HR 1		5



Table 8 – Resultant Risk Ratings

Future Impact potential

The risks identified from study data shall also be compared with the Bunbury Threat Environment Assessment Table (ThrEAT), to examine the individual drivers of these risks. This will give the overview of future (long term) threats. Along with the ThrEAT table for future risks and events, the assessment team will identify and review historical data on events that may indicate trends and past vulnerabilities. Past events could be aligned with the Qualitative Risk Analysis process, so that the values can be added to the Risk Matrix. This could add further value to the overall risk assessment, by visually displaying current risks from an historical and also the future context, specific to the Bunbury community.

ERM Workshop Statements

BUSHFIRE		Low Risk	Mod Risk	High Risk	Critical Risk
1	There is a risk that a bushfire will cause loss of life or serious injury			4	
2	There is a risk that a bushfire will cause substantial property damage to 5 homes or more		1	3	
3	There is a risk that a bushfire will cause possible evacuation at the Bunbury Health campus	1	1	2	
4	There is a risk that a bushfire will cause property damage to infrastructure services for periods greater than 24 hours		2	2	
5	There is a risk that a bushfire will cause property damage to commercial industry leading to closure of business (20%) for periods of 12 hours	1	2	1	
6	There is a risk that a bushfire cause medium term (25 years) or permanent effect on the environmental		3	1	
7	There is a risk that a bushfire will cause permanent property damage to community infrastructure and lifestyles	1	3		
Totals		3	12	13	0
FLOOD		Low Risk	Mod Risk	High Risk	Critical Risk
1	There is a risk that a flood will cause serious injury or death to residents		1	3	
2	There is a risk that a flood will cause substantial property damage to 5 homes or more		1	3	
3	There is a risk that a flood will cause extensive relocation of residents and public from areas at risk for periods 12 hours or greater			4	
4	There is a risk that a flood will cause substantial damage to infrastructure services that may result in shutdown and inconvenience to residents for periods 24 hours or more		1	3	
5	There is a risk that a flood will cause commercial and industrial property damage that may result in closure of business (20%) for periods of 24 hours or more		2	2	
6	There is a risk that a flood will impact East Bunbury causing an evacuation of senior citizen facility.		2	2	
Totals		0	7	17	0

SEVERE STORM		Low Risk	Mod Risk	High Risk	Critical Risk
1	There is a risk that a severe storm will cause serious injury or death to one person or more			4	
2	There is a risk that a severe storm will cause substantial property damage requiring external resources to be employed for periods of 12 hours or more			4	
3	There is a risk that a severe storm will cause closure and seriously disrupt normal business activity for periods of 24 hours or more		2	2	
4	There is a risk that a severe storm will cause commercial and industrial property damage that may result in closure of business (20%) for periods of 24 hours or more			4	
5	There is a risk that a severe storm will cause closure or seriously disrupt community lifelines or services for periods of 12 hours or more		2	2	
Totals		0	4	16	0

Table 9 – Risk Statements

Note: there are different numbers of risks statements per hazard.

Highest Priority High Risk statements

FLOOD (17 High & 7 Moderate risk ratings)

- 1. HR - There is a risk that a flood will cause extensive relocation of residents and public, from areas at risk, for periods 12 hours or greater.
- 2. HR - There is a risk that a flood will cause serious injury or death to residents.
- 2. HR - There is a risk that a flood will cause substantial property damage to 5 homes or more.
- 2. HR - There is a risk that a flood will cause substantial damage to infrastructure services that may result in shutdown and inconvenience to residents for periods 24 hours or more.

SEVERE STORM (16 High and 4 Moderate risk ratings)

- 1. HR - There is a risk that a severe storm will cause serious injury or death, to one person or more.
- 1. HR - There is a risk that a severe storm will cause substantial property damage requiring external resources to be employed for periods of 12 hours or more.
- 1. HR - There is a risk that a severe storm will cause commercial and industrial property damage that may result in closure of business (20%) for periods of 24 hours or more.

BUSHFIRE (13 High, 12 Moderate and 3 Low risk ratings)

- 1. HR - There is a risk that a bushfire will cause loss of life or serious injury.
- 2. There is a risk that a bushfire will cause substantial property damage to 5 homes or more.

Table 10 – Resultant Ratings

FLOOD

1. HR - There is a risk that a flood will cause extensive relocation of residents and public, from areas at risk, for periods 12 hours or greater.
2. HR - There is a risk that a flood will cause serious injury or death to residents.
2. HR - There is a risk that a flood will cause substantial property damage to 5 homes or more.
2. HR - There is a risk that a flood will cause substantial damage to infrastructure services that may result in shutdown and inconvenience to residents for periods 24 hours or more.

Causes and Contributing factors -

- Storm surge/Cyclone,
- Localised inundation – extreme weather event,
- Riverine flooding (Preston River),
- Levy bank failure (Preston River),
- Flood gate failure (aging infrastructure),
- Water or Sewage main burst.
- Tsunami (from North &/ or west)
- Drain capacity overload,
- Dam Failure (private or WaterCorp),
- Flood gate misuse (human error),
- Sea level rise (global warming),

Preparedness & Prevention Controls

- Drainage system maintained and upgraded
- Succession and redundancy plans including alternate pumping plant,
- Building regulations for floor level heights and flood plain planning,
- Levee banks on Preston River,
- Community/public education,
- Flood Gates – maintenance and management,
- River Gauges (Preston River, Five Mile Brook),
- Pump Stations with generators
- Flood Sump/ Basins e.g. Eelup Round-a-bout

Response & Recovery Controls -

- Active SES Unit (52 members) and associated volunteer and career organisations
- Established emergency evacuation centres (TAFE)
- Established evacuation arrangements (generic)
- Established and practiced recovery and response planning
- Early Warning System (BOM)



FLOOD

Treatment strategies

Agencies	Local Government	Community
Reassess and evaluate Preston River levee bank	Reassess and evaluate drainage improvements for flood zone areas	Specific evacuation planning for Senior citizens located in east Bunbury Aged Care facility
Reassess and evaluate flood gate functionality	Reassess and evaluate floor level details and building code requirements	Increase emergency readiness awareness
Development of a specific flood response plan including detailed evacuation plan	Increase emergency readiness awareness in staff and allocate roles	Develop community flood readiness and focus on vulnerable areas specific
Water exit channels and strategies	Develop community flood readiness and focus on specific vulnerable areas	
Flood Modeling, mapping and projection data assist in decision making/ early warning	Encourage business continuity planning to assist in rapid recovery	
Increases SES resources e.g. Flood rescue boat	Identify vulnerable assets and develop relocation plan	
Key stakeholders to identify and develop target list	Identify access routes for safe self-evacuation	

SEVERE STORM

1. HR -There is a risk that a severe storm will cause serious injury or death to one person or more.
1. HR - There is a risk that a severe storm will cause substantial property damage, requiring external resources to be employed, for periods of 12 hours or more.
1. HR - There is a risk that a severe storm will cause commercial and industrial property damage, that may result in closure of business (20%) for periods of 24 hours or more.

Causes and Contributing factors

- Severe weather events,
- Southerly cyclonic/tropical lows activity (climate change effects),
- Abnormal weather conditions forming tornados,
- Loose materials becoming potential missiles in high wind,
- Extended power outage due to damaged overhead lines,
- Transport routes obstructed ,
- Extended service shutdown due to lack of Business Continuity Planning,
- Lack of comprehensive early warning for some localised events,
- Community Compliancy leading to lack of preparedness.

Preparedness & Prevention Controls

- Local laws encouraging residential and industrial clean up,
- Initial community emergency readiness campaigning strategies,
- Encourage property clean-up through hard waste and green waste collection,
- Tree trimming program (including adjacent to power infrastructure, public and private),
- Email early warning to agencies of Severe Weather Warnings,
- Encouraging investment in underground power supply services,
- Upgrade mobile telephone and radio towers.

Response & Recovery Controls

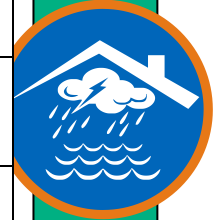
- Established career and volunteer emergency services within Bunbury,
- Established and rehearsed emergency shelter establishment,
- Western Power depot within Bunbury area,
- Established and practiced recovery and response planning,
- Pumping Stations,
- State National Disaster Relief Funding,
- Encourage active Business Continuity Panning,
- Encourage active and aware LEMC and EM networks.



SEVERE STORM

Treatment strategies

Agencies	Local Government	Community
Higher developed and implemented early warning systems	Reassess and evaluate hard waste collection times	Increase emergency readiness awareness
Practiced interagency cooperation and planning exercises	Examine higher wind rated building code requirements	Promote secure your area, green and hard waste removal.
Encouraged Business Continuity Planning for agencies and business	Increase emergency readiness awareness throughout community	Implement annual green waste and property clean up prior to storm season.
Established arrangements with Medical services cooperated response	Encourage green waste and property clean up prior to storm season each year.	Evaluation and acceptance of risk – mitigation and planning at local neighbourhood/family/business level
Develop WANDRA plans and trigger processes	Investigate local law for property clean up prior to storm season e.g. 26 parallel rule	
Obtain radar/ mobile tower for early warning system in the South West	Allocate debris dumping site	
Pre-season advisory/awareness campaigns on risk mitigation activity and options.	Practical recovery and restoration planning and arrangements	
	Support to the U-4-72 resilience development – to reduce reliance of community on emergency services and local government.	



BUSHFIRE

1. HR - There is a risk that a bushfire will cause substantial property damage to 5 homes or more

2. MR - There is a risk that a bushfire will cause loss of life or serious injury

Causes and Contributing factors

- Increasing severe weather events- extreme and catastrophic fire danger days,
- Fuel load build up in adjacent bushland reserves,
- Inflammable materials surrounding private property,
- Lack of comprehensive early warning and advice,
- Lighting storm,
- Arson,
- Increasing rural/urban interface development as a life-style choice.

Preparedness & Prevention Controls

- Local laws and Bush Fires Act property fuel reduction enforcement,
- Annual Fire Readiness campaign community emergency readiness campaign,
- Encourage property clean-up through free green waste pick up's, as a risk reduction Strategy,
- Fire management planning in Bunbury bushland reserves,
- Fuel management and prescribed burning programs,
- Local Volunteers – effectively trained and equipped,
- Access ways in reserves (limestone tracks) as compartmentalisation and management tools.

Response & Recovery Controls

- Established career and volunteer emergency services within Bunbury,
- Emergency evacuation arrangements in place and communicated,
- Established and practiced recovery and response planning,
- Community engagement activities – acceptance of 'a shared responsibility',
- MOU with neighbouring shires,
- Established SEMC, LEMC and SWLGEMA committees,
- Joint agency exercises.



BUSHFIRE

Treatment strategies

Agencies	Local Government	Community
Development of early warning systems	Development and implement Fire Management Plans for all bushland reserves	Greater understanding of fire causes and consequences, during restricted and prohibited times
Practiced interagency cooperation and planning exercises, training and doctrine	Regular annual hazard reduction burning programs within bushland reserves	Increase emergency readiness, awareness and a resultant reduction in reliance on emergency services
Interagency agreements and cooperation for coordinated approach to fuel mitigation	Increase emergency readiness awareness, specially November campaign	Promote secure your area, green and hard waste removal.
Established arrangements with Medical services for rapid response	Encourage green waste and property clean up prior to fire season each year.	Greater understanding of Fire Danger Index warnings
Engagement in Bush Fire Response Planning, with owners of risk, to reduce net bush fire risk. (tenure-blind approach)	Investigate declaration of Bushfire Prone Areas and appropriate special planning and building conditions.	Active engagement in bush fire planning for families and business to include such things as triggers for action.
	Maintain stringent enforcement of Annual Fire Notice provisions, as a minimum standard of fire protection..	Acceptance of ownership of risk, leading to positive action to reduce personal risk.

Risk Treatment Action Plan No 1

RECOMMENDED ACTION PLAN

RISK FLOOD	RISK RATING HIGH	DATE COMPILED: 5 June, 2014
RISK STATEMENT <i>There is a risk that a flood will cause extensive relocation of residents and public from areas of risk for periods 12 hours or greater</i>		
RISK ANALYSIS Vulnerability: <ul style="list-style-type: none"> • Residents living within close proximity to Bunbury flood plain areas • Residents living in the East Bunbury flood plain area • Senior citizens care and residential villages on the flood plain areas • Proprietors and staff from commercial premises within the flood plain areas • Tourists and visitors staying in accommodation within the flood plain areas Source and Elements of risk: <ul style="list-style-type: none"> • Localised rains and storm exceeding normal run off expectations • Storm surge, and/or king tides • Preston River levee bank breach or overrun • Sunny day dam burst Wellington Weir. • Lack of public information regarding evacuation centres and exit routes. • Lack of road signage and police presence in early stages to control traffic. • Lack of public information on emergency evacuation protocol. 		
RECOMMENDATION OF TREATMENT ACTIONS		Responsible Office
1. Development of an “all hazards” early warning system		LEMC- Team Leader – CS & EM
2. Implementation of “all hazards” warning system into the Bunbury community		LEMC- Team Leader – CS & EM, DFES- District Officer - Bunbury DFES- Dist. Officer – Natural Hazards
3. Develop and instigation of complete Evacuation plans that will be incorporated into the Bunbury EM Arrangements		LEMC- Team Leader – CS & EM
4. Specific awareness/preparedness campaigns for residential areas in flood plain		DFES- District Officer - Natural Hazards
5. Ensure production of flood response strategies		DFES- District Officer - Natural Hazards
7. Ensure training calendar is published annually with appropriate training courses offered for SES personal to provide local area response		DFES- District Officer - Natural Hazards
8. Ensure multi-agency co-operation and response by testing bi-annually plans and strategies of agencies by the conducting of exercises		LEMC- Team Leader – CS & EM, DFES- District Officer - Natural Hazards
RESPONSIBLE AGENCY/INDIVIDUAL HMA - DFES OTHERS - City of Bunbury, DCD, LEMC, Department of Water		

PRIORITY STATUS - High priority		
IMPLEMENTATION SCHEDULE All treatment actions completed by – March 2005	Implementation Plan	August 2014
	1 st Report	Dec 2014
	2 nd Report	Feb 2015
Completion		
BUDGET CONSIDERTIONS – Option 1, 2 and 3 are to be financed through AWARE and NDMP grant funding. Options 3,4,5,6, and 7 are to be absorbed in operational budgets.		
MONITOR AND REVIEW LEMC to monitor & review BERMP Plan 3 in November, on an annual basis		
APPROVAL FOR RECOMMENDATION IMPLEMENTATION		
ORGANISATION	DATE	SIGNED
LEMC		
City of Bunbury		
DFES		

EMERGENCY RISK MANAGEMENT PLAN

Risk Treatment Action Plan No 1

RECOMMENDED ACTION PLAN

RISK BUSHFIRE	RISK RATING HIGH	DATE COMPILED: 5 June, 2014
RISK STATEMENT <i>There is a risk that a Bushfire will cause substantial property damage to 5 homes or more</i>		
RISK ANALYSIS Vulnerability: Residents living within close proximity to bushland reserves <ul style="list-style-type: none"> • Bushland residential interface of College Grove, Ocean Close areas, Kinkella Park, Glen Iris and Vittoria Heights, Parkdale (abutting Maidens Reserve), surrounding reserves on coastal strip, • Close neighbours to above mentioned areas (within 2 streets). Source and Elements of risk: <ul style="list-style-type: none"> • Build up of fuel loadings in close proximity to residential homes. • Failure to heed early warnings or • No early warning system in place. • Failure to undertake adequate seasonal precautionary measures. • Ember attack from nearby bushland (e.g. evaporative air conditioners). • Fire Service personnel and equipment unable to access rear of properties 		
RECOMMENDATION OF TREATMENT ACTIONS		Responsible Office
1. Reserve fuel reduction strategy as required (hazard reduction burning)		COB – Team Leader Community Safety & Emergency Management
2. Fuel reduction buffer zones adjacent to residential areas (to create BAL 29)		COB – Team Leader Community Safety & Emergency Management
3. Specific awareness/preparedness campaigns for residential areas adjacent to reserves and bushland		COB – Team Leader Community Safety & Emergency Management DFES - District Officer - Bunbury
4. Investigation of Town Planning requirements for residential areas adjacent to reserves and bushland		COB - Manager Development Services
5. Strict enforcement of Bush Fires Act and Local Laws pertaining to lighting of fires and fuel reduction		COB – Team Leader Community Safety & Emergency Management
6. Development of an “all hazards” early warning system		COB – Team Leader Community Safety & Emergency Management
7. Implementation of “all hazards” warning system into the Bunbury community		LEMC - BEMA, Team Leader Community Safety and Emergency Management DFES – District Officer Bunbury
8. Ensure fire suppression response is in concert with guidelines of Greater Bunbury Area Incident Immobilisation Plan		DFES - District Officer - Bunbury

9. Ensure timely response of within 10 minutes is maintained by career fire services and within 12 minutes for volunteer fire services	DFES- Dist. Manager - Bunbury
10. Development of specific bushland reserves Fire Management Strategy	COB – Team Leader Community Safety & Emergency Management COB- Environmental Planner
11. Development of specific reserves Fire Response Strategy (Pre-Plans)	DFES- District Officer - Bunbury

RESPONSIBLE AGENCY/INDIVIDUAL HMA - DFES OTHERS - COB, AQWEST, Dept of Housing, DFES (crown land), DPaW (vested) private property owners,		
PRIORITY STATUS - High priority		
IMPLEMENTATION SCHEDULE All treatment actions completed by – <i>November 2014</i>	Implementation Plan	June 2014
	1 st Quarterly Report	June 2014
	2 nd Quarterly Report	Sept 2014
	Completion	Dec 2014
BUDGET CONSIDERTIONS – Options 1,2,3,4,5,7, 8, 9, and 10 are to be absorbed in operational budgets. Option 6 and 7 to be financed through AWARE and NDMP grant funding		
MONITOR AND REVIEW LEMC to monitor & review BERMP Plan 1 in November on a annual basis		
APPROVAL FOR RECOMMENDATION IMPLEMENTATION		
ORGANISATION	DATE	SIGNED
LEMC		
City of Bunbury		
DFES		

Risk Treatment Action Plan No 2

RECOMMENDED ACTION PLAN

RISK BUSHFIRE	RISK RATING HIGH	DATE COMPILED: 7/10/04
RISK STATEMENT <i>There is a risk that a Bushfire will cause serious injury or death to community members</i>		
RISK ANALYSIS		
Vulnerability:		
Residents living within close proximity to bushland reserves		
<ul style="list-style-type: none"> • Bushland residential interface of College Grove, Ocean Close areas, Kinkella Park, Glen Iris and Vittoria Heights, Parkdale (abutting Maidens Reserve), surrounding reserves on coastal strip, • Close neighbours to above mentioned areas (within 2 streets). 		
General public in the vicinity of Bushfire		
<ul style="list-style-type: none"> • Public within reserves on outbreak of bushfire. • Motorists, road accident as result of smoke or response activity. • Sightseers congregating to observe Bushfire and response activity. 		
Source and Elements of risk:		
Residents living within close proximity to bushland reserves		
<ul style="list-style-type: none"> • Build up of fuel loadings in close proximity to residential homes. • Failure to heed early warnings or • No early warning system in place. • Failure to undertake adequate seasonal precautionary measures. • Ember attack from nearby bushland. • Smoke and ash from nearby bushland (health reasons). 		
General public in the vicinity of Bushfire		
<ul style="list-style-type: none"> • Lack of public information regarding fires and exit routes. • Lack of road signage and police presence in early stages to control traffic. • Lack of public information on emergency situations protocol. • Lack of control of public by police in initial stages. 		
Fire fighters engaged in response activity		
<ul style="list-style-type: none"> • Erratic weather conditions. • Erratic fire conditions • Lack of resources. 		
RECOMMENDATION OF TREATMENT ACTIONS		Responsible Office
1. Reserve fuel reduction strategy as required (hazard reduction burning)		DFES- District Officer - Bunbury
2. Fuel reduction buffer zones adjacent to residential areas (20metres)		COB – Manager Community Law, Safety & Emergency Management
3. Specific awareness/preparedness campaigns for residential areas adjacent to reserves and bushland		COB – Manager Community Law, Safety & Emergency Management DFES- District Officer - Bunbury
4. Investigation of Town Planning requirements for residential areas adjacent to reserves and bushland		COB- Manager Development Services

5. Strict enforcement of Bush Fires Act and Local Laws pertaining to lighting of fires and fuel reduction	COB – Team Leader Community Safety & Emergency Management	
6. Development of an “all hazards” early warning system	COB – Team Leader Community Safety & Emergency Management	
7. Implementation of “all hazards” warning system into the Bunbury community	COB - Team Leader Community Safety & Emergency Management DFES- Dist. Manager/FRS DFES- District Officer - Natural Hazards	
8. Ensure fire suppression response is in concept with guidelines of Greater Bunbury Area Incident Immobilisation Plan	DFES- District Officer - Bunbury	
9. Ensure timely response of fire fighting forces is within 10 minutes	DFES- District Officer - Bunbury	
10. Development of specific reserves Fire Management Strategy	COB – Team Leader Community Safety & Emergency Management COB – Environmental Planner	
11. Development of specific reserves Fire Response Strategy (Pre-Plans)	DFES- District Officer - Bunbury	
12. Ensure training calendar is published annually with appropriate training courses offered for fire fighter personal to provide local area response	DFES- District Officer - Bunbury	
13. Ensure safe operational protocols and SOP’s are enforced	DFES- District Officer - Bunbury	
14. Ensure multi-agency co-operation and response by testing plans and strategies of agencies by the conducting of exercises	COB - Team Leader Community Safety & Emergency Management DFES- Dist.Manager/BFS	
15. Develop fire management mapping and implement into EM arrangements	COB - Team Leader Community Safety & Emergency Management COB- Manager Engineering Services (GIS Officer)	
RESPONSIBLE AGENCY/INDIVIDUAL HMA - DFES OTHERS - COB, AQWEST, Dept of Housing, DFES (crown land), DPaW (vested) private property owners,		
PRIORITY STATUS - High priority		
IMPLEMENTATION SCHEDULE All treatment actions completed by – <i>End November 2014</i>	Implementation Plan	March 2014
	1 st Quarterly Report	July 2014
	2 nd Quarterly Report	Sept 2014
	Completion	Dec 2014
BUDGET CONSIDERTIONS – Options 1,2,3,4,5,7, 8, 9, 10, 12, 13, and 14 are to be absorbed in operational budgets. Option 6 and 7 to be financed through AWARE and NDMP grant funding		

MONITOR AND REVIEW LEMC to monitor & review BERMP Plan 2 in November on a annual basis		
APPROVAL FOR RECOMMENDATION IMPLEMENTATION		
ORGANISATION	DATE	SIGNED
LEMC		
City of Bunbury		
DFES		

Risk Treatment Action Plan No 4

RECOMMENDED ACTION PLAN

RISK FLOOD	RISK RATING EXTREME	DATE COMPILED: 7/10/04
<p>RISK STATEMENT <i>There is a risk that flood will cause substantial damage to infrastructure services that may result in shutdown for periods of 12 hours, or greater</i></p>		
<p>RISK ANALYSIS Vulnerability: <ul style="list-style-type: none"> • Residents living within close proximity to Bunbury flood plain areas • The whole of or various localities within the Bunbury community • Community members requiring external support (mobility, physically, mentally impaired) • Proprietors and staff from affected commercial premises • Tourists and visitors staying within Bunbury area Source and Elements of risk: <ul style="list-style-type: none"> • Localised rains and storm exceeding normal run off expectations • Storm surge, and/or king tides • Preston River levee bank breach or overrun • Sunny day dam burst Wellington Weir. • Sustained power outage. • Disabled communication systems. • Road rail infrastructure inoperable in affected areas </p>		
RECOMMENDATION OF TREATMENT ACTIONS		Responsible Office
1. Development of an “all hazards” early warning system		COB - Team Leader Community Safety & Emergency Management
2. Implementation of “all hazards” warning system into the Bunbury community		COB - Team Leader Community Safety & Emergency Management DFES- Dist. Manager - Bunbury DFES- District Officer - Natural Hazards
3. Develop and instigation of complete Recovery plans that will be incorporated into the Bunbury EM Arrangements		COB - Team Leader Community Safety & Emergency Management CPFS – Dist.ESO
4. Utility mitigation planning and contingency arrangements in line with PPRR to minimise impact on community		DFES- District Officer - Natural Hazards COB - Team Leader Community Safety & Emergency Management
5. Ensure production of flood response strategies		DFES- District Officer - Natural Hazards
6. Ensure training calendar is published annually with appropriate training courses offered for SES personal to provide local area response		DFES- District Officer - Natural Hazards COB - Team Leader

	Community Safety & Emergency Management
7. Ensure multi-agency co-operation and response by testing bi-annually plans and strategies of agencies by the conducting of exercises	COB - Team Leader Community Safety & Emergency Management DFES- District Officer - Natural Hazards

RESPONSIBLE AGENCY/INDIVIDUAL HMA - DFES OTHERS - COB, LEMC, Life-lines agencies – Western Power, Water Corp, Aqwest, Alinta Gas, DoE, Telstra, & DFES – SES, Dept of Water		
PRIORITY STATUS - High priority		
IMPLEMENTATION SCHEDULE All treatment actions completed by – December 2015	Implementation Plan	September 2014
	1 st Report	Dec 2014
	2 nd Report	Feb 2015
	Completion	Dec 2015
BUDGET CONSIDERTIONS – Option 1, 2, 3 and 4 are to be financed through AWARE and NDMP grant funding. Options 4,5,7 are to be absorbed in operational budgets.		
MONITOR AND REVIEW LEMC to monitor & review BERMP Plan 4 in November on a annual basis		
APPROVAL FOR RECOMMENDATION IMPLEMENTATION		
ORGANISATION	DATE	SIGNED
LEMC		
City of Bunbury		
DFES		
DoCPFS		

Risk Treatment Action Plan No 5

RECOMMENDED ACTION PLAN

RISK TERRORIST ACTIVITY	RISK RATING Moderate	DATE COMPILED: 7 October, 2004
RISK STATEMENT <i>There is a risk that a terrorist activity will cause serious injury or death</i>		
<p>RISK ANALYSIS</p> <p>Vulnerability: Whole of the Bunbury Community including:</p> <ul style="list-style-type: none"> • Religious groups • Political parties • Essential service utilities • Bunbury Port area, shipping • Central Business District <p>Source and Elements of risk:</p> <ul style="list-style-type: none"> • Chemical Biological Radiological- (CBR) hazards contamination • Explosive devices • Hostage situations • Render inactive or contaminate essential services. • Render inactive essential assets. • Deliberate acts of destruction causing loss of life and disruption. 		
RECOMMENDATION OF TREATMENT ACTIONS		Responsible Office
1. Development of an “all hazards” early warning system		COB - Team Leader Community Safety & Emergency Management
2. Implementation of “all hazards” warning system into the Bunbury community		COB - Team Leader Community Safety & Emergency Management DFES- Dist. Manager/FRS DFES- District Officer - Natural Hazards WAPol - LEC
3. Develop and instigation of complete Recovery plans that will be incorporated into the Bunbury EM Arrangements		COB - Team Leader Community Safety & Emergency Management DCPFS – Dist.ESO
4. Develop and instigation of Evacuation plans that will be incorporated into the Bunbury EM Arrangements		COB - Team Leader Community Safety & Emergency Management
5. Community information and awareness campaigns		Fed. Gov’t (NCTC)
6. Contingency planning for response		Fed. Gov’t (NCTC) WAPol- Dist.Supt
7. Maintain effective timely response		Fed. Gov’t (NCTC) WAPol- Dist.Supt
8. Maintain, promote and test multi-agency co-operation and response		COB - Team Leader Community Safety & Emergency Management WAPol- Dist.Supt

RESPONSIBLE AGENCY/INDIVIDUAL HMA – WAPol (Protection life and property) OTHERS - NCTC, LEMC, DFES (combat),		
PRIORITY STATUS - High priority		
IMPLEMENTATION SCHEDULE Treatment actions by NCTC and WAPol in place & ongoing Recovery & evacuation. Plans, early warning system schedule	Implementation Plan	March 2015
	1 st Report	June 2015
	2 nd Report	Sept 2015
	Completion	Dec 2015
BUDGET CONSIDERTIONS – Option 1, 2,3 and 4 are to be financed through AWARE program grant funding Options 4,5,6, and 7 are to be absorbed in operational budgets.		
MONITOR AND REVIEW LEMC to monitor & review BERMP Plan 5 in November on a annual basis		
APPROVAL FOR RECOMMENDATION IMPLEMENTATION		
ORGANISATION	DATE	SIGNED
LEMC		
City of Bunbury		
WAPol		
DCD		

RISK Drought	RISK RATING Moderate	DATE COMPILED: 7 June, 2014
RISK STATEMENT <i>There is a risk that</i>		
RISK ANALYSIS Vulnerability: Source and Elements of risk:		
RECOMMENDATION OF TREATMENT ACTIONS		Responsible Office
1. Development of an “all hazards” early warning system		COB - Team Leader Community Safety & Emergency Management
2. Implementation of “all hazards” warning system into the Bunbury community		COB - Team Leader Community Safety & Emergency Management DFES- Dist. Manager - Bunbury DFES- District Officer - Natural Hazards
3. Develop and instigation of complete Recovery plans that will be incorporated into the Bunbury EM Arrangements		COB - Team Leader Community Safety & Emergency Management CPFS – Dist.ESO
4. Utility mitigation planning and contingency arrangements in line with PPRR to minimise impact on community		DFES- District Officer - Natural Hazards COB - Team Leader Community Safety & Emergency Management
5. Ensure production of flood response strategies		DFES- District Officer - Natural Hazards
6. Ensure training calendar is published annually with appropriate training courses offered for SES personal to provide local area response		DFES- District Officer - Natural Hazards COB - Team Leader Community Safety & Emergency Management
7. Ensure multi-agency co-operation and response by testing bi-annually plans and strategies of agencies by the conducting of exercises		COB - Team Leader Community Safety & Emergency Management DFES- District Officer - Natural Hazards

Additional plans to be developed for Human Epidemic & Serious Road crash being the next two risks