



# **Bouliia Shire Council**

## **Natural Disaster Risk Management Strategy 2021-2022 Version 4**



## BOULIA SHIRE COUNCIL

### Document Register

- Copy No. 1 of 3    Boulia Shire Council  
 Copy No. 2 of 3    District Disaster Management Group  
 Copy No. 3 of 3    Local Disaster Management Group

#### Amendment Register

| Amendment Number | Date | Section Amended | Amended By |
|------------------|------|-----------------|------------|
| 1                |      |                 |            |
| 2                |      |                 |            |
| 3                |      |                 |            |

#### Version Control

| Version | Date       | Date accepted by LDMG  |
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| 3       | 22/11/2018 | Reviewed by LDMG and endorsed by chair. No changes made.   |
| 3       | 22/5/2019  | Reviewed by LDMG and endorsed by chair. No changes made  |
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| 4       | 24/3/2021  | Reviewed by LDMG and endorsed by chair of LDMG. Accepted by resolution of council on 26th March 2021.                  |

#### Review of the Plan

In accordance with Disaster Management Act Queensland 2003 the Local Disaster Management Plan may be reviewed or renewed at any time but must be reviewed for effectiveness **at least annually**.

|                         |           |
|-------------------------|-----------|
| Annual review completed | 24/3/2021 |
|-------------------------|-----------|

### Distribution and availability of plan

|  |  |
|--|--|
|  |  |
| Boulia Shire Council Office:<br>1 Herbert St Boulia Qld 4829 | 07 4746 3188   |
| Boulia Shire Council website:                                | <a href="http://www.boulia.qld.gov.au">www.boulia.qld.gov.au</a> |

## TABLE OF CONTENTS

|   |                                     |
|---|-------------------------------------|
| <b>EXECUTIVE SUMMARY .....</b>  | <b>6</b>                            |
| Background.....   | 6                                   |
| Methodology .....   | 6                                   |
| Key Deliverables .....  | 7                                   |
| Identified key risks include: .....   | 7                                   |
| Key treatment options.....  | 7                                   |
| <b>PUBLIC KNOWLEDGE, AWARENESS AND PREPAREDNESS .....</b>   | <b>7</b>                            |
| <b>PLANNING AND LEGISLATIVE MEASURES.....</b>   | <b>8</b>                            |
| <b>MONITORING AND REVIEW .....</b>  | <b>8</b>                            |
| <b>NATURAL DISASTER RISK MANAGEMENT PROCESS (NDRM).....</b>                                       | <b>8</b>                            |
| Introduction to Natural Disaster Risk Management .....  | 8                                   |
| Background of Natural Disaster Relief Arrangements .....  | 8                                   |
| Advantages of Undertaking the NDRM process .....  | 9                                   |
| Importance of Correct Documentation .....   | 9                                   |
| Process Overview .....  | 10                                  |
| Recommended Mitigation Strategies .....   | 11                                  |
| 1. Boulia Shire Council .....   | 11                                  |
| 2. Boulia Shire Council Local Disaster Management Group.....                                      | 12                                  |
| 3. Individual Agencies .....  | 12                                  |
| 4. Department of Transport and Main Roads.....  | 13                                  |
| 5. Rural Fire Services.....   | 13                                  |
| LOCAL DISASTER RISK MANAGEMENT GROUP CONTACT DETAILS.....   | <b>Error! Bookmark not defined.</b> |
| <b>COMMUNICATION STRATEGIES .....</b>   | <b>15</b>                           |
| Communication with Executive Management .....   | 15                                  |
| Communication with Risk Management Team.....  | 15                                  |
| Communication within the Organisation .....   | 16                                  |
| Communication with External Agencies .....  | 16                                  |
| Communication with the Community .....  | 16                                  |
| <b>PROBLEM DEFINITION AND ESTABLISHMENT OF CONTEXT.....</b>                                       | <b>17</b>                           |
| Problem Definition .....  | 17                                  |
| Clients and Stakeholders .....  | 17                                  |
| Factors that Affect the Risk Management Process.....  | 18                                  |
| <b>RISK MANAGEMENT STRUCTURE.....</b>   | <b>19</b>                           |
| Physical and Time Boundaries .....  | 19                                  |
| Outcomes .....  | 20                                  |
| Extent and Comprehensiveness of the Risk Management Activities.....                               | 20                                  |
| Activities of the Disaster Risk Management Group .....  | 20                                  |
| Other Issues.....   | 20                                  |
| <b>RISK EVALUATION CRITERIA REVIEW FORMAT.....</b>  | <b>21</b>                           |
| <b>IDENTIFICATION AND DESCRIPTION OF HAZARDS.....</b>   | <b>22</b>                           |
| Hazard Name: FLOOD.....   | 22                                  |
| Hazard Name: SEVERE STORMS (INCLUDING DUST STORMS).....   | 24                                  |
| Hazard Name: BUSH FIRES .....   | 25                                  |
| Hazard Name: EARTHQUAKE.....  | 25                                  |
| <b>IDENTIFICATION AND DESCRIPTION OF COMMUNITY AND ENVIRONMENT.....</b>                           | <b>26</b>                           |
| Description of Natural Environment eg. Topography.....  | 28                                  |
| Description of Social Environment eg. Community Safety Service Provision, Economics, Culture..... | 28                                  |

|   |           |
|---|-----------|
| <b>COMMUNITY VULNERABILITY PROFILE .....</b>                    | <b>29</b> |
| Vulnerability of People .....                                   | 29        |
| Affect on People from Specified Impacts .....                   | 29        |
| Vulnerability Versus Hazard .....                               | 30        |
| Vulnerability of Social Structures .....                        | 31        |
| People With Special Needs.....                                  | 31        |
| Vulnerability of Buildings.....                                 | 31        |
| Vulnerability of Lifelines .....                                | 31        |
| How Reliable Are Lifelines .....                                | 31        |
| Restoration Times Following Flooding.....                       | 32        |
| Data Speed For Telephones.....                                  | 32        |
| Vulnerability of Critical Facilities .....                      | 32        |
| Air Strip Capacity For .....                                    | 32        |
| Medial Services.....  | 33        |
| Vulnerability of Local Economic Production and Employment.....  | 34        |
| Vulnerability Other Elements .....                              | 34        |
| <b>PART A – RISK DESCRIPTION .....</b>                          | <b>34</b> |
| RISK MATRIX EVALUATION – LIKELIHOOD.....                        | 34        |
| RISK MATRIX EVALUATION – CONSEQUENCES.....                      | 34        |
| <b>PART B – RISK EVALUATION .....</b>                           | <b>38</b> |
| HAZARD:    FLOODING.....  | 38        |
| HAZARD:    BUSH FIRES .....                                     | 39        |
| HAZARD:    SEVERE STORMS .....                                  | 40        |
| HAZARD:    MAJOR EARTHQUAKE .....                               | 41        |
| <b>IDENTIFICATION AND EVALUATION OF TREATMENT OPTIONS .....</b> | <b>42</b> |
| HAZARD:    FLOODING.....  | 42        |
| HAZARD:    BUSH FIRES .....                                     | 45        |
| HAZARD:    SEVERE STORMS .....                                  | 46        |
| HAZARD:    SEVERE EARTHQUAKE.....                               | 47        |
| <b>APPENDIX ‘A’ - CHECKLIST .....</b>                           | <b>49</b> |

## EXECUTIVE SUMMARY



This report identifies the natural hazards that affect the Boulia Shire.

It identifies the risks associated with each natural hazard and recommends feasible mitigation strategies to minimise the economic and social impact on the Boulia Shire community.

The focus of the recommended mitigation strategies is long-term preparedness and planning to minimise the impact of natural hazards and help prevent loss of life in the community.

The natural hazards that were identified and assessed in this report are:

- Flooding
- Severe Storms
- Bush Fires
- Earthquake

### Background

Natural Disaster Relief and Recovery Arrangements (DRFA) funding guidelines. These guidelines now require Local Governments to provide evidence of mitigation (where mitigation means measures taken in advance of a disaster aimed at decreasing or eliminating its impact on society and the environment). This decision follows a shift in the philosophical ideas on disaster management in Australia. Research has determined that every \$1 spent on mitigation saves approximately \$3 in economic and social recovery costs.

### Methodology

In 2003 a Framework was developed by Boulia Shire and associated groups connected with disaster management.

- QFRS
- QFES
- Qld Police
- QAS

The work which was completed has been built upon over a number of years and is maturing to meet the needs of the community.

Key groups in the current environment are:

- Qld Police
- Qld Health
- SES
- QFES, DDCC, SDCC
- QFRS
- Boulia Shire Council

## **Key Deliverables**

Each natural hazard has been evaluated in respect of the level of likelihood and consequence. Each hazard was also assessed according to the risks to different elements of the community including:

- People
- Buildings
- Environment
- Business
- Lifelines
- Critical Facilities

## **Identified key risks include:**

Boulia Shire has a high level of risk exposure to flood hazards. This is evident from the fact that in the past 10 years, all the claims for QRA assistance have been for works to repair damage caused by flooding.

The principal reason for this is that the Council has to provide many hundreds of kilometres of roads for only a few hundred shire residents. By necessity, many of these roads are built to a low level of flood immunity thus increasing their exposure to flooding hazards.

It is imperative that government assistance to provide improved flood immunity and thereby reduce damage to the Shire's transport infrastructure becomes a priority.

## **Key treatment options**

Risk treatment options were identified risk and evaluated determining what intervention strategies are possible. Risk treatments typically fall into the categories of:

- Public knowledge, awareness and preparedness
- Planning and legislative measures
- Engineering and public works measures

## **Public Knowledge, Awareness and Preparedness**

Public information and awareness campaigns are conducted on an annual basis. The Local Disaster Management Group has recommended that this be continued and expanded to ensure that residents living in specifically hazardous area and tourists etc are aware of the risks and the steps needed to be taken in such an event. Boulia Shire currently are supporting community by the 'Get Ready Campaigns ' which are run each year.

Public participation in the Local Disaster Management group meetings continues to be small.

Preparedness for natural hazards includes all organisations having disaster plans in place to cope with the highest probable maximum event. Recommendations have been put forward to ensure all organisation Disaster Plans are kept current for all expected natural hazards..

## Planning and Legislative Measures

Boulia Shire Council has an ongoing program of engineering studies to analyse and identify specific local solutions to known problems or possible future problems due to natural hazards.

## Monitoring and Review



Continual monitoring will be implemented to ensure that the recommendations of the report are adopted and endorsed. The recommendations and progress treatments will be reviewed annually with a major review by the Local Disaster Management Group.

Boulia Shire has a Local Disaster Management Plan that is comprehensive, reasoned and focused on the major risks facing the Boulia Shire community

## NATURAL DISASTER RISK MANAGEMENT PROCESS (NDRM)

### Introduction to Natural Disaster Risk Management

Over the past twenty years there has been significant philosophical change in disaster management in Australia which has been characterised by a recognition of the value of risk management techniques in disaster risk management leading to the development of strategies to mitigate the effects of natural hazards on communities.

Mitigation is defined as 'measures taken in advance of a disaster aimed at decreasing or eliminating its impact on society and the environment'. Mitigation measures include non-structural strategies such as awareness campaigns, land use, planning instruments and warning systems and/or structural measures such as relocation of dwellings, raising of dwellings and levee construction.

An increasing population and its supporting infrastructure assets increase the vulnerability of communities exposed to various hazards. The implementation of effective mitigation strategies will help decrease this vulnerability.

### Background of Natural Disaster Relief Arrangements

On 22 July 1998 the Commonwealth Minister for Finance and Administration, approved the old NDRA Guidelines which essentially say that a pre-requisite for the provision of NDRA assistance (exception for personal hardship and distress provisions) is:

This has now been replaced by Queensland Reconstruction Authority (QRA)



## **QRA Strategic Plan 2020-24**

QRA's Strategic Plan for 2020-24 includes QRA's vision to make Queensland the most disaster resilient state in Australia.

The plan lists the various strategies to meet QRA's organisational objectives. In particular it details how QRA will continue to recover, reconnect and rebuild communities following natural disasters and work alongside councils as well as state and federal agencies to help Queenslanders be more prepared, responsive and able to recover from disasters.

### **Advantages of Undertaking the NDRM process**

The advantages in undertaking the Disaster Risk Management Process are:-

- To meet the requirements for future access to DRFA funding;
- To improve community resilience to natural disasters;
- A structured process that produces outcomes to help reduce the impact of disasters, suitable for inclusion in all corporate governance plans in Local Government; and
- To discharge Council's duty of care obligation to provide for the well-being and safety of its community.

### **Importance of Correct Documentation**

In undertaking the risk management process it is inevitable that a large amount of data will be collected and documentation developed which will be of significant strategic value to the organisation, therefore it is essential that a strategy is developed to manage this process.

Each stage of disaster risk management process should be documented and it should include assumptions, methods data resources, results, etc.

The reasons for documentation are:-

- To demonstrate that the process has been properly conducted;
- To provide evidence that systematic approach to risk identification and analysis has been followed;
- To provide a record of the risks identified and to develop the organisation's knowledge database;
- To provide the decision makers with a risk management report and risk treatment plan for approval and subsequent implementation;
- To provide an accountability mechanism and tools;
- To facilitate the continued monitoring and review of the process and its outcomes;
- To share and communicate information;
- To provide an audit trail;

- To address the Commonwealth Government's requirement for evidence of mitigation.

In order to satisfy the requirements of evidence of mitigation, a Local Disaster Risk Mitigation Strategy should be developed and submitted to the Queensland Reconstruction Authority, for DRFA purposes.

## Process Overview

There are five main steps in the natural disaster risk management process:-

### **(1) Establish the Context**

Identify strategic and organisation issues that may apply for the disaster risk management process. Develop the project management plan and initial risk evaluation criteria.

### **(2) Identify Risks**

Identify and describe the nature of the hazards, community and environment. Examine the vulnerable elements of the community and environment and identify the risks that the community is facing.

### **(3) Analyse Risks**

Examine the risks for the likelihood and consequences and assign the levels of risk.

### **(4) Evaluate Risks**

Compare the risks with the risk evaluation criteria (adjust where necessary), and rank the risks in order or priority for treatment.

### **(5) Treat Risks**

Select and implement appropriate treatments for dealing with risks.

The natural disaster risk management process is underpinned by a continuous requirement for:

#### **a) Communication and Consultation**

It is necessary to include all stakeholders in the process. If the process is going to be successful it requires commitment from all parties influenced by it.

#### **b) Monitoring and Review**

It is necessary to ensure that the natural disaster risk management process remains valid by conducting regular reviews. It is necessary to monitor the implementation of selected mitigation treatments and to ensure that natural disaster risk management as a cyclic and continuous improvement process is integrated into broader Council planning.

### Recommended Mitigation Strategies

Specific mitigation strategies recommended are set out in the following tables. The treatment options are categorised under the Responsible Agency. Each mitigation strategy is described along with the estimated costs, potential funding source and the timeframe needed to achieve the outcome.

#### 1. Boulia Shire Council

| Endorsed Treatment   | Funded by                     | Funding Source       | Timeframe  |
|--|-------------------------------|----------------------|--|
| Ensure Local Disaster Management Plan is current   | Nil                           | Boulia Shire Council | Annual Update  |
| Conduct a public awareness campaign in conjunction with the QFES as part of their Disaster Management Plan to ensure residents living in flood prone areas are aware of the risks and steps to be taken in a flood event | Within existing budget        | Boulia Shire Council | Annual Event   |
| Conduct a public awareness campaign in conjunction with the QFES as part of their Disaster Management to ensure residents are aware of their responsibility in managing noxious weeds (pests) on their property          | Within existing budget        | Boulia Shire Council | Ongoing  |
| Identify flood risk areas in the town plan and regulate development  | Within existing budget        | Boulia Shire Council | Reviewed after a major flood event   |
| Update and maintain planning maps to display identified flooding risk areas  | Within existing budget        | Boulia Shire Council | Reviewed after a major flood event   |
| Establish and maintain a database containing the GPS coordinates of all property homesteads/rescue sites   | Within existing budget        | Boulia Shire Council | Initial data collected on all properties. Updating will be an Annual Event |
| Encourage annual pre-storm season clean up by picking up rubbish   | Within existing budget        | Boulia Shire Council | Annual Event   |
| Investigate occurrence of derelict buildings in Boulia and Urandangi   | As per asset management plans | Boulia Shire Council | Ongoing  |

| Endorsed Treatment   | Funded by               | Funding Source  | Timeframe   |
|--|-------------------------|---|---|
| Set up a system of permanent watering points (bores) to enable dusty roads to be watered and compacted | Grant funding dependant | Boulia Shire Council and State/Federal Government (via TMR) | Initial bores have been funded future works to be identified.                               |
| Consider the use of technology to monitor channel systems between Boulia/ Winton and Boulia / Mt Isa   | Grant funding dependant | Grant funding with councils shire contribution              | Hamilton, Diamantina, Top Limestone and over 25 locations are now covered within the shire. |

## 2. Boulia Shire Council Local Disaster Management Group

| Endorsed Treatment   | Estimated Cost         | Funding Source       | Timeframe                     |
|--|------------------------|----------------------|-------------------------------|
| Conduct a public awareness campaign to ensure residents are aware of the risks and the steps needed to be take in a severe storm event     | Within existing budget | Boulia Shire Council | Annual Event                  |
| Conduct a public awareness campaign to ensure residents living in fire prone areas are aware of the risks and the steps needed to be taken | Within existing budget | Boulia Shire Council | Annual Event                  |
| Ensure appropriate notices are issued to warn visitors of safe driving practices during drought periods                                    | Within existing budget | Boulia Shire Council | When drought conditions exist |

## 3. Individual Agencies

| Endorsed Treatment   | Estimated Cost             | Funding Source             | Timeframe                  |
|--|----------------------------|----------------------------|----------------------------|
| Identify essential services buildings that are able to withstand severe storms | TBA by individual Agencies | TBA by Individual Agencies | TBA by Individual Agencies |

#### 4. Department of Transport and Main Roads

| Endorsed Treatment   | Estimated Cost | Funding Source                     | Timeframe |
|--|----------------|------------------------------------|-----------|
| Identifying the frequently flooded sections of Boulia – Mt Isa Road and prioritise upgrading these sections to a higher flood immunity | TBA by TMR     | State/Federal Government (via TMR) | 24 months |

#### 5. Rural Fire Services

| Endorsed Treatment  | Estimated Cost         | Funding Source      | Timeframe    |
|---|------------------------|---------------------|--------------|
| Encourage hazard reduction burns around residences in fire prone areas  | Within existing budget | Rural Fire Brigades | Annual Event |
| Each rural property owner to establish and maintain a network of fire breaks in accordance with the requirements of the act | Within existing budget | Property Owners     | Annual Event |

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**LOCAL DISASTER MANAGEMENT GROUP CONTACT DETAILS 2021-2022**

updated March 2021

**CORE GROUP**

| LDMG POSITION        | NAME                | ORGANISATION                   | TITLE           | EMAIL  | PHONE        | Sat Phone         |
|----------------------|---------------------|--------------------------------|-----------------|--|--------------|-------------------|
| CHAIR                | ERIC (RICK) BRITTON | BOULIA SHIRE COUNCIL           | MAYOR           | <a href="mailto:mayor@boulia.qld.gov.au">mayor@boulia.qld.gov.au</a>                     | 0407 122 430 |                   |
| DEP CHAIR            | SAM BEAUCHAMP       | BOULIA SHIRE COUNCIL           | COUNCILLOR      | <a href="mailto:sbeauchamp@boulia.qld.gov.au">sbeauchamp@boulia.qld.gov.au</a>           | 0437 239 259 |                   |
| LDC                  | LYNN MOORE          | BOULIA SHIRE COUNCIL           | CEO             | <a href="mailto:ceo@boulia.qld.gov.au">ceo@boulia.qld.gov.au</a>                         | 0429 463 188 | 0147 148 987      |
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| SES LOCAL CONTROLLER | PETER TONKIES       | SES                            | SNR COORDINATOR | <a href="mailto:p.tonkies@hotmail.com">p.tonkies@hotmail.com</a>                         | 0418 431 449 |                   |

**ADVISORS**

|                       |                |                                 |                         |  |              |                   |
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| SES ( Dep Controller) | GRANT JENSEN   | SES                             | COORDINATOR             | <a href="mailto:workshop@boulia.qld.gov.au">workshop@boulia.qld.gov.au</a>               | 0428 787 108 |                   |
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| QFES                  | BRUCE EVERNDEN | QFES                            | INSPECTOR QFES          | <a href="mailto:bruce.evernden@qfes.qld.gov.au">bruce.evernden@qfes.qld.gov.au</a>       | 0429 369 935 |                   |
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| QRA                   | GAVIN WILLIAMS | QRA representative              | Regional Liasion Office | <a href="mailto:gavin.williams@qra.qld.gov.au">gavin.williams@qra.qld.gov.au</a>         | 0438 389 373 |                   |
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**COVID-19 invitees**

|                       |              |                            |                     |  |              |  |
|-----------------------|--------------|----------------------------|---------------------|--|--------------|--|
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| CENTRAL WEST HEALTH   | JANE HANCOCK | CWH- LONGREACH             | COVID-19 Health     | <a href="mailto:jane.hancock@health.qld.gov.au">jane.hancock@health.qld.gov.au</a>   | 0412 744 357 |  |
| PHC COVID-19 SITE COM | TBA          | NCWHHS                     | CONTACT TEAM LEADER | ??   |              |  |
| COMMUNITY SERVICES    | JAN NORTON   | BOULIA COMMUNITY SERVICES  | MANAGER             | <a href="mailto:bouliaacss@bigpond.com">bouliaacss@bigpond.com</a>                   | 0427 463 101 |  |
| CENTRELINK            | DEL GEORGE   | RAINBOW GATEWAY/CENTRELINK | MANAGER             | <a href="mailto:delgeorge@rainbowgateway.org.au">delgeorge@rainbowgateway.org.au</a> | 4746 3012    |  |

## COMMUNICATION STRATEGIES

### **Communication with Executive Management**

All Councillors are to be provided with 'briefing papers' and an oral report by Chairperson of the Local Disaster management group at a General Council Meeting after the bi-annual meeting of the group. Relevant senior council employees/officers shall receive the same briefing documentation.

Chairperson of the Local Disaster Management Group to provide copies of all external correspondence to Chief Executive Officer for filing and presentation to Council.

Urgent and intermediate (between meetings) briefings/correspondence shall be directed to Chief Executive Officer for organisation/distribution to Chairperson /Councillors. Urgency of distribution/briefing and replying (where required) will be clearly marked and should be considered upon the receipt of all correspondence.

### **Communication with Risk Management Team**

Communication shall be conducted through the Chief Executive Officer from the Consulting Engineer(s), Executive, Council and all other external bodies. Primary sources of communication between Consulting Engineer(s) GBA, shall be facsimile, email and telephone, outside of scheduled meetings.

A copy of all correspondence shall be recorded in the electronic data management system in the Shire office before it is passed on to the Chairperson LDMG (unless the correspondence originated from there) with the CEO having the responsibility to make sure that all communication is acted upon effectively and in a timely manner

Much external information/correspondence will be directed through the CEO and redirected through to the Overseers and Consulting Engineer(s) and LDMG members as required.

At least two communication media will be used in any information transmittal to create redundancy in the communication process to ensure complete and timely delivery of information.

Mail will be used as the backup method of information transmittal and to transmit originals of some documents.

**Communication within the Organisation**

A Status Report bulletin containing overview information of the updated status of the Risk Management Report shall be created by LDMG and presented to Council, Senior Shire workforce members and made available to the community stakeholders/public at timely intervals at least twice yearly.

**Communication with External Agencies**

All external agencies shall be invited to provide comment and suggestions on the study in each community bulletin.

**Communication with the Community**

Public meetings shall be carried out to ensure the updating of as much data across the shire as possible. Local publications, Facebook, emails, flyers and radio will be used where possible to notify shire residents (the public) of upcoming meetings, meeting outcomes and planned strategies works to be implemented/undertaken.



## **PROBLEM DEFINITION AND ESTABLISHMENT OF CONTEXT**

### **Problem Definition**

Boulia is a pastoral town 165m above sea level located 1800km north west of Brisbane and just over 250km east of the Northern Territory/Queensland Border at slightly above the latitude of Rockhampton. The secondary township of Urandangi also exists in the shire, 304km to the northwest of Boulia township.

The bulk of Boulia shire consists of Channel Country, fed by the Georgina, Burke and Hamilton Rivers and their tributaries. There are some rugged rocky hills in the far north of the Shire, and the Toko Range in the southwest, bordering on the Simpson Desert.

Important roads in the Shire run from Boulia southward to Bedourie, north to Mt Isa passing through Dajarra, eastwards towards Winton and the west to Tobermorey and Alice Springs. There is also a road westward from Dajarra to Urandangi and the Northern Territory border, Toolebuc Road to Cannington Mine.

Population of the shire is around 496 permanent residents (Census 2011) with a number (approximately 50 – 100) of migratory workers performing seasonal 'ringing' duties. Of this, approximately 250 reside in Boulia and 20 in Urandangi.

Boulia shire is situated in the 'Arid' zone of the Central West Statistical Division of Queensland and covers an area of around 64000km<sup>2</sup>. Its neighbouring shires are Winton, McKinlay, Diamantina, Mt Isa and Cloncurry and the Northern Territory.

Very high temperatures are experienced in the Summer months and throughout the year. Severe dust storms occur regularly. Average rainfall is 265mm per year, generally between November and March. The summer temperature range is 20-26 °C min. and 38-44 °C max. On average each year, Boulia experiences 43 days when the maximum temperature exceeds 40°C. The winter temperature range is 4-10 °C min. and 18-24 °C max.

Natural disasters in Boulia of concern are flooding, severe storms, bush fires and earthquake.

### **Clients and Stakeholders**

Boulia Shire Council, all residents, business holders, primary/rural producers, landholders and other stakeholders within the shire, government agencies including DNRM and DPI, TMR, EPA, Police, SES, Qld Health, DES, QFES, QAS, Ergon and Telstra.

### **Factors that Affect the Risk Management Process**

Historically, Boulia Shire has come under the influence of major river flooding events, severe storms and bush fires since these events have been recorded. The hazard environment of Boulia Shire is understood and monitored due to its significant history of hazard impacts.

The Disaster Management Act 2003 is an initiative of the Queensland Government that acknowledges the nature of disasters and their potentially significant social, economic and environmental consequences in all areas of the state.

The Disaster Management Act 2003 provides the legislative basis for disaster management arrangements within Queensland including special powers through the declaration of a 'State Disaster'. Under the Disaster Management Act 2003 each local government area is required to:

- Prepare a Local Disaster Management Plan to deal with all counter disaster measures within its area;
- Establish and at all times maintain, within its area, a local emergency service.
- Use for counter disaster purposes its resources, and resources made available to it for those purposes;

Boulia Shire Council has a current Local Disaster Management Plan that outlines:

- Disaster Arrangements;
- Roles and Responsibilities;
- Threat Specific Arrangements;
- Disaster Activation;
- Response and Recovery;

Boulia Shire Council has an established Local Disaster Management Group to advise on and implement the effective coordination of resources necessary to counter the effect of disasters within the Shire of Boulia.

## **RISK MANAGEMENT STRUCTURE**

### **Physical and Time Boundaries**

The disaster risk management process will be applied to consideration and treatment of all credible natural disaster risks in Boulia Shire local government area.

### **Terms of Reference, Goals and Objectives**

The Boulia Shire Natural Disaster Risk Management Plan will identify:

- Administration and Governance
- Risk assessment Profile
- Capacity Building
- Response Strategy
- Recovery Strategy
- Public Health
- Evacuation and Evacuation Centre management
- Impact assessments

Consideration of how reduction in disaster risk can protect the communities against economic failures brought about by disasters will also be a target of this plan. A limited budget is available for conduct of this risk management cycle.

**Outcomes**

Development of a series of treatment options to effectively deal with all unacceptable risks within Boulia Shire.  
Identification of the indicative costs of measures that which may be required .

**Extent and Comprehensiveness of the Risk Management Activities**

All hazards will be identified and updated on an annual basis, but will be restricted by tight budgetary constraints.

**Activities of the Disaster Risk Management Group**

- Review and update management structures and processes;
- Review available information and information sources;
- Identify hazards;
- Identify unacceptable risks and priorities;
- Review treatment options and identify recommended treatments;

**Other Issues**

Establish how uncertainties may be reduced in future cycles.

## RISK EVALUATION CRITERIA REVIEW FORMAT

### Human and Social Factors

- Loss of life/severe injury/disease is unacceptable
- Residents/visitors/workers trapped by flooding and isolated from suitable food and shelter is unacceptable
- Long term psychological impact caused by trauma resulting from flood/fire/severe wind/drought is unacceptable

### Built and Natural Environment

#### Built:

- Substantial damage to buildings or infrastructure is unacceptable

#### Natural:

- Damage to natural environment is expected

### Economic Loss

- Serious prolonged economic loss is unacceptable

### Risk Escalation

- Inability to deal with the risk promptly is unacceptable

### Risk Frequency

- Frequency for all hazards will be addressed

### Legal and Social Justice Implications

- Duty of Care of all Agencies will be addressed on a fair and equitable basis

### Manageability

- Can the Community manage the risk?

**IDENTIFICATION AND DESCRIPTION OF HAZARDS**

**Hazard Name: FLOOD.**

**Hazard Description**

Which Rivers Flood: Georgina R, Burke R, Wills Ck, Hamilton R, and their tributaries

The Georgina River flow south through the Shire past the town of Urandangie and meets the Hamilton River. The Hamilton River flow south through the Shire past the town of Boulia. The Hamilton continues to terminate at the Bilpa Morea Claypan.

Frequency: minor – about every year  
 Moderate – about every 3 years  
 Major – about every 5 years

Flood Heights: A summary of key flood levels for the towns of Boulia and Urandangie.

| Station   | Crossing Height | Minor Flood | Grazing | Moderate Flood | Towns & Houses | Major Flood | Highest (Jan 74) |
|-----------|-----------------|-------------|---------|----------------|----------------|-------------|------------------|
| Urandangi | 0.2             | 1.0         | -       | 5.0            | 7.0            | 7.0         | 7.45             |
| Boulia    | 4.9             | 4.0         | 4.0     | 4.0            | 6.1            | 6.0         | 5.96             |

**Damage Caused:** Flood damage in the Bouliā Shire is principally to road infrastructure. Property damage and stock losses only result from a major flood event approximately every 10 years. The Hamilton and Georgina Rivers are slow flowing and the rate of rise is generally predictable from upstream readings. Stock is generally cleared from the braided channel systems by helicopter as the rivers rise. Damage to property is minimal during a major flood with Bouliā and Urandangie minimally effected.

**Health Risks:** Flooding of the septic / sewerage system causes problems if the water remains high for any period (ie. longer than 24 hours). The time taken for the flood to rise and fall through the top 300 of the flood can be as short as 24 hours and as long as 72 hours. However the major cause of concern during flood events is the loss of road access throughout the Shire, which is a major impediment to evacuation of accident victims and to the repair of essential services such as power, water and telecommunications.

**Studies Undertaken:** None .....

**Size of the Catchment:** The Georgina and Hamilton catchments drain an area of approximately 210,000 Km<sup>2</sup>.

**Population Effected:** Whole of Shire

**Secondary Hazards**

**Roads Cut:** All major roads will be cut for various times (1 week to 6 weeks).

**Health Risks:** Limited or no access to healthcare centre. Vector Carriers, snake bites and spiders.

## IDENTIFICATION AND DESCRIPTION OF HAZARDS

### Hazard Name: SEVERE STORMS (INCLUDING DUST STORMS)

#### Hazard Description

|                     |   |
|---------------------|---|
| eg. Windspeeds      | Wind speed data at the Bouliā post office has been collected for 44 years, and the average annual wind speed is 11.6 Km/hr, but mini tornadoes can have windspeeds up to 200km per hour over a narrow width of 20 – 30m   |
| Frequency of storms | Approximately every 12 months (seasonal)  |
| Damage              | Structural damage to buildings and structures is generally superficial in mild storms with the loss of sheets of roofing iron or wall cladding. Severe storms such as tornadoes will cause structural damage to most buildings. These storms are often accompanied by hail which cause damage to plant and stock, which are otherwise not affected by the wind. |
| Threaten            | Life, from blown debris.<br>Property, from wind and hail.<br>Livestock and environment from wind and hail.  |

#### Secondary Hazards

Dust storms may cause respiratory problems and eye irritations. Also restrict aircraft movement.



## IDENTIFICATION AND DESCRIPTION OF HAZARDS

### Hazard Name: BUSH FIRES

#### Hazard Description

Environmental Conditions: Most dangerous conditions occur in October to December prior to good rainfall. This is the season for electrical storms which can easily start fires. The potential for bushfires to start and their intensity is increased following good seasons (good rainfall) as there is then more dry grass to fuel fires.

Distribution: The large fires can effect any part of the Shire as the grass growth (fuel load) is generally uniformly spread throughout the shire.

Population Threatened: 50 Approximately – living on the affected and surrounding properties, however if the fire occurs adjacent to the town more people may be affected.

Frequency/Area: Small fires occur annually (seasonally) typically 2000 hectares.  
Large fires occur 10 to 15 years – typically 10,000 hectares.

#### Secondary Hazards

Loss of wildlife habitat and tourist amenities.  
Respiratory complications and eye irritations. Snake bites.

### Hazard Name: EARTHQUAKE

#### Hazard Description

Frequency & Intensity: Not significant

There is only a 10% chance that in 50 years, the Acceleration Coefficient will exceed 0.05 (minor).

#### Secondary Hazards

Road Links: Water: Sewerage:

## IDENTIFICATION AND DESCRIPTION OF COMMUNITY AND ENVIRONMENT

### Description of the Community

Major Industries: Beef Production  
Value of Production = \$37.584m Boulia Shire ( 2021)

Minor Industries: Service industries  
Tourism

Employment Opportunities:  
(Regular staff turnover caused by remoteness of area, creates employment opportunities.)  
Unemployment is 7.5%

What population depends of welfare:  
Median monthly household income is \$1553

Average age of community: 34 years  
Children 0-14 = 17%

|   |
|---|
| Adults 25- 64 = 71%<br>Aged >65 = 7%<br>All statistics based on 2016 Census   |
| <b>Description of the Built Environment</b>   |
| <b>i) Buildings</b><br>Types of Homes: Timber with metal roofs.<br><br>Government Buildings: Timber with metal roofs. |

| <b>i) Engineering Lifelines</b> (comment on condition, type, life uses of service)   |  |
|--|--|
| <b>Boulia</b>  | <b>Urandangi</b>   |
| Gas: Nil<br>Electrical: Yes, town generators<br>Telecommunications: Landline, Satellite, mobile<br>Television – Imparja, 7 Central, ABC, SBS<br>Radio - ABC<br>Water Supply: Yes, sub artesian bore<br>Sewerage: CED | Gas: Nil<br>Electrical: Generator 6am - 10pm<br>Telecommunications: Landline, mobile towers June 2021<br><br>Television - Satellite<br>Radio - ABC<br>Water Supply: Sub Artesian bore -Solar pumps<br>Sewerage: septic |

| <b>i) Critical Facilities</b>  |   |
|--|---|
| <b>Boulia</b>  | <b>Urandangi</b>  |
| Fuel Depots: ULP, Diesel, Premium<br>Hospitals: Primary Health Centre<br>Aviation Fuel: Y-24 hr card access ( June 2021)<br>Airport: 1850 x 30 m Sealed runway<br>Rail: N<br>Shops: Various outlets  | Fuel Depots: ULP, Diesel<br>Hospitals: N (Clinic room avail)<br>Aviation Fuel: N<br>Airport: 1000 x 20 m Sealed runway<br>Rail: N<br>Shops: Hotel |
| <b>Description of Natural Environment eg. Topography</b><br>The bulk of Boulia Shire consists of Channel Country, fed by the Georgina, Burke and Hamilton Rivers and their tributaries. There are some rugged rocky hills in the far north of the Shire, and the Toko Range in the southwest, bordering on the Simpson Desert.   |   |
| <b>Description of Social Environment eg. Community Safety Service Provision, Economics, Culture</b><br>The Shire has a total population of 426 spread over an area of 61200 km <sup>2</sup> . There are two towns, Boulia and Urandangi situated on the banks of the Hamilton and Georgina rivers respectively as they flow south through the Shire with populations of 250 and 20 respectively. The economy and culture of the Shire is based squarely on primary / rural production. |   |

## COMMUNITY VULNERABILITY PROFILE

### Vulnerability of People

Flooding poses relatively limited threat to urban and rural areas and people because the development of both areas has historically been based on prudent experience. All people within the Shire are affected by major floods. This effect is mainly on their property and livelihood.

Fire poses a risk even with some stations grading firebreaks for fire management purposes when seasons demand it (ie high fuel for load periods) and as well as to provide emergency exits. The town has similar protection with firebreaks graded on the town common. Risk to people is low but more severe for property and live stock.

All residents are considered vulnerable to serious injury or even loss of life in severe storms. This is because residential dwellings, which are the primary places people take shelter in such events, are not built to withstand the wind forces associated with these storms.

All residents are considered vulnerable to serious injury or even loss of life in an earthquake. This is because residential dwellings, which are the primary places people occupy, are not built to withstand the earthquake forces and could be prone to collapse.

### Affect on People from Specified Impacts

#### Direct Affect of Flooding

We expect that only a few houses in Boulia will be affected by flooding.

#### Indirect Affect of Flooding

All residents are affected by:

- a) Shortage of food items
- b) Inability to travel for business or pleasure

- c) Delay in delivery of materials or supplies for business activities
- d) Shutdown of all tourist related business

All of these impacts affect the entire community to varying degrees.

The impact on Boulia is not so great as most of the workforce is employed directly or indirectly by Council.

The financial impact can be significant in the event of an extended flood as work hours are reduced and contractors are stood down.

#### **Vulnerability Versus Hazard**

As discussed earlier there is little relation between vulnerability and hazard.

### **Vulnerability of Social Structures**

Flooding in the Boulia Shire causes isolation of both towns and most rural properties. In long flood events the period of isolation is extended to weeks and months on some properties and this causes psychological hardship to many individuals and the surrounding social structure is tested. While social cohesion is very difficult to measure, more shire residents live at the same address as 5 years ago (45.1%) compared to the whole state (41%). With this stability come a tighter social structure and more cohesion and support.

### **People With Special Needs**

There is a high proportion of elderly people in both towns but in our experience most of these people retain reasonable health and do not make many demands on the community.

A small percentage of the community have special needs and these include but are not limited to:

- Reliance on breathing equipment (electrically dependant).
- Peritoneal kidney dialysis requirements.
- Limited mobility.
- Very elderly living alone.

### **Vulnerability of Buildings**

Building sites have evolved to be relatively flood free thus almost eliminating their vulnerability to flooding. As older buildings are replaced, the number of buildings affected by flooding will decrease.

All buildings are vulnerable to severe storms and bush fires and earthquakes.

### **Vulnerability of Lifelines**

Council Roads are the most vulnerable lifeline during flooding. This is because of their low cost of construction and corresponding low flood immunity. This results in whole or part of the shire being isolated for some days and even weeks and extensive damage to the infrastructure.

Other lifelines, such as electricity and telecommunications are also vulnerable in flood, fire and severe storms. Earthquakes may effect structures such as sewer and water mains.

### **How Reliable Are Lifelines**

The road network can be cut with no notice due to storms and heavy rainfall events. The road network is also extremely vulnerable to flooding from the Georgina River, Burke River, Wills Creek, Hamilton River. When floods occur the roads can be

cut up to 6 weeks and in extreme years bypass roads have had to be used for periods up to 2 months after the initial flooding.

Normally the entire Shire is not cut off for more than two weeks.

During the peak of floods the only lifeline to both towns is air transport. In the past charter flights have been required to bring in essential food items. The town of Urandangi has been more vulnerable than Boulia in the past twenty years due to recent rainfall patterns.

#### **Restoration Times Following Flooding**

Following flooding many minor creek crossings require repairs and in some cases sections of road need to be re-sheeted to allow access. The roads after heavy rain are not trafficable to trucks for at least two weeks.

Typical restoration times for all types of supplies and fuel would be between two weeks and one month.

#### **Data Speed For Telephones**

Boulia has unlimited access to whatever data speed is required, ADSL, Ethernet etc. Mobile phone coverage is around 20km radius of the town centre. Satellite phones are used on properties.

#### **Vulnerability of Critical Facilities**

Access to critical facilities such as airports, clinics, bulk storage (fuel/food) etc will be denied to parts of the shire during flood events.

Damage to or loss of these facilities will impact on the community's ability to recover from the disaster.

#### **AIR STRIP CAPACITY FOR**

#### **BOULIA**

*Airport codes:* BQL YBOU

*Type:* regional airport

*Scheduled airline service:* yes

*Latitude:* -22.913300 | 22 54.797974 S | S22 54 47

*Longitude:* 139.899994 | 139 53.999634 E | E139 53 59

*Field elevation:* 542 ft/165 m MSL

*Magnetic variation:* 6.4°E



4,180 x 98 ft (1,274 x 30 m) — paved — lighted

**URANDANGI**

*Airport codes:* YUDG

*Type:* local airport(light traffic)

*Scheduled airline service:* no

*Latitude:* -21.590000 | 21 35.400009 S | S21 35 24

*Longitude:* 138.358002 | 138 21.480103 E | E138 21 28

3,280 ft (1,000 m) — other (X)

**Medical Services**

|                            | <b>Bouliia</b>  | <b>Urandangie</b> |
|----------------------------|---|-------------------|
| Hospital bed capacity      | 2   | Nil               |
| Staffed                    | 24 hr nursing   | Nil               |
| Emergency supplies         | 120 people hours  | Nil               |
| Medical procedures         | Acute & Long term nursing<br>Accident & Emergency<br>Pharmacy | Nil               |
| Emergency power generators | Small   | Nil               |
| Special Needs              | 2%  | Nil               |

Access to critical facilities such as airports, primary health centres, bulk storage (fuel/food) etc will be denied to parts of the shire during flood events.

Damage to or loss of these facilities will impact on the community's ability to recover from the disaster.

It is important to assess which critical facility needs to be able to withstand a major natural disaster and prioritise its upgrading or relocation.

**Vulnerability of Local Economic Production and Employment**

The rural economy and hence the employment it creates, relies on rain for its sustainability. It is accepted that in the natural cycle, there also will be floods and droughts.

Vehicle/stock movements are restricted/prevented during flood times.

This prevents stock movements to market and prevents tourist movement – both vital to the Shire.

Travellers may still travel by air provided the weather permits such flights and the airports can be accessed and remain useable.

While flood bound, permanent employees are engaged on maintenance activities/ husbanding of stock threatened by flooding while seasonal workers take a break.

Fires divert resources into fire fighting. Loss of lifelines from severe storms may disrupt the work sufficiently to result in lost work time.

**Vulnerability Other Elements**

None

**PART A – RISK DESCRIPTION**

**RISK MATRIX EVALUATION – LIKELIHOOD**

**RISK MATRIX  
 CONSEQUENCES**

| LIKELIHOOD |                |  |
|------------|----------------|--|
| Level      | Descriptor     | Description  |
| A          | Almost Certain | The event is expected to occur                         |
| B          | Likely         | The event will probably occur                          |
| C          | Possibly       | The event should occur at some time                    |
| U          | Unlikely       | The event could occur at some time                     |
| R          | Rare           | The event may occur only in exceptional circumstances. |

**EVALUATION –**

**CONSEQUENCES**

| Level | Descriptor    | Description   |
|-------|---------------|---|
| 1     | Insignificant | No fatalities; no injuries; low financial loss, little disruption to community; no measurable impact on environment.  |
| 2     | Minor         | Small number of injuries; no fatalities; first aid treatment required; some displacement of people (very short period of time eg. 24 hours); some personal support required; some damage; some disruption (short period of time); small impact on environment with no lasting effects; some financial loss.   |
| 3     | Moderate      | Medical treatment required, no fatalities; some hospitalisation; displacement of people (very short period of time eg. 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 environment with no long term effect or small impact on environment with long term effect; significant financial loss. |
| 4     | Major         | Extensive injuries; fatalities; significant hospitalisation; large number displaced (more than 24 hours duration); external resources required for personal support; significant damage that requires external resources; community only partially functioning; some services unavailable; some impact on environment with long term effects; significant   |

| <b>CONSEQUENCES</b> |                   |   |
|---------------------|-------------------|---|
| <b>Level</b>        | <b>Descriptor</b> | <b>Description</b>  |
|                     |                   | financial loss – some financial assistance required.  |
| 5                   | Catastrophic      | Large numbers of severe injuries; extended and large numbers requiring hospitalisation; general and widespread displacement for extended duration; significant fatalities; extensive personal support; extensive damage; community unable to function without significant support; significant impact on environment and / or permanent damage; huge financial loss – unable to function without significant support. |

| CONSEQUENCES               |                    |            |               |            |                   |
|----------------------------|--------------------|------------|---------------|------------|-------------------|
|                            | 1<br>Insignificant | 2<br>Minor | 3<br>Moderate | 4<br>Major | 5<br>Catastrophic |
| <b>A</b><br>Almost Certain | H                  | H          | E             | E          | E                 |
| <b>B</b><br>Likely         | M                  | H          | H             | E          | E                 |
| <b>C</b><br>Possibly       | L                  | M          | H             | E          | E                 |
| <b>D</b><br>Unlikely       | L                  | L          | M             | H          | E                 |
| <b>E</b><br>Rare           | L                  | L          | M             | H          | H                 |

| RISK  |               |  |
|-------|---------------|--|
| Level | Descriptor    | Description                                  |
| E     | Extreme Risk  | Immediate action required.                   |
| H     | High Risk     | Senior management attention needed.          |
| M     | Moderate Risk | Management responsibility must be specified. |
| L     | Low Risk      | Managed by routine procedures.               |

## PART B – RISK EVALUATION

### HAZARD: FLOODING

| VULNERABLE ELEMENT         | RISK  | LIKELIHOOD RATING | CONSEQUENCE RATING | RISK RATING |
|----------------------------|---|-------------------|--------------------|-------------|
| <b>People</b>              | All people in Boulia Shire will be directly affected by flooding.   | Almost Certain    | Minor              | High        |
| <b>Buildings</b>           | Some buildings will be flooded above floor level.   | Unlikely          | Major              | High        |
| <b>Environment</b>         | Flooding will produce soil degradation, pollution from sewerage ponds flooded and will spread pest plant species. | Almost Certain    | Major              | Extreme     |
| <b>Business</b>            | All businesses in Boulia Shire will be affected by flooding.  | Almost Certain    | Major              | Extreme     |
| <b>Lifelines</b>           | Lifelines will suffer damage.   | Almost Certain    | Catastrophic       | Extreme     |
| <b>Critical Facilities</b> | Critical facilities may operate at reduced capacity.  | Likely            | Minor              | High        |

**HAZARD: BUSH FIRES**

| <b>VULNERABLE ELEMENT</b>  | <b>RISK</b>   | <b>LIKELIHOOD RATING</b> | <b>CONSEQUENCE RATING</b> | <b>RISK RATING</b> |
|----------------------------|---|--------------------------|---------------------------|--------------------|
| <b>People</b>              | People in Boulia Shire will be directly affected by bush fires. | Possible                 | Moderate                  | High               |
| <b>Buildings</b>           | Some buildings will be damaged.                                 | Possible                 | Minor                     | Moderate           |
| <b>Environment</b>         | Bushfires may result in soil degradation.                       | Possible                 | Minor                     | Moderate           |
| <b>Business</b>            | Some businesses in Boulia Shire will be affected.               | Likely                   | Moderate                  | High               |
| <b>Lifelines</b>           | Lifelines may suffer damage.                                    | Possible                 | Moderate                  | High               |
| <b>Critical Facilities</b> | Critical facilities will be affected.                           | Likely                   | Minor                     | High               |

**HAZARD: SEVERE STORMS**

| <b>VULNERABLE ELEMENT</b>  | <b>RISK</b>  | <b>LIKELIHOOD RATING</b> | <b>CONSEQUENCE RATING</b> | <b>RISK RATING</b> |
|----------------------------|--|--------------------------|---------------------------|--------------------|
| <b>People</b>              | People in Bouliā Shire will be directly affected by severe storms. | Likely                   | Minor                     | High               |
| <b>Buildings</b>           | Some buildings will be damaged.                                    | Likely                   | Minor                     | High               |
| <b>Environment</b>         | Flooding from severe storms will produce soil degradation.         | Likely                   | Moderate                  | High               |
| <b>Business</b>            | Businesses in Bouliā Shire will be affected by severe storms.      | Possible                 | Minor                     | Moderate           |
| <b>Lifelines</b>           | Lifelines will suffer damage.                                      | Almost Certain           | Minor                     | High               |
| <b>Critical Facilities</b> | Critical facilities may be damaged.                                | Possible                 | Minor                     | Moderate           |



**HAZARD: MAJOR EARTHQUAKE**

| <b>VULNERABLE ELEMENT</b>  | <b>RISK</b>  | <b>LIKELIHOOD RATING</b> | <b>CONSEQUENCE RATING</b> | <b>RISK RATING</b> |
|----------------------------|--|--------------------------|---------------------------|--------------------|
| <b>People</b>              | Severe Earthquakes will directly affect people in Boulia Shire.              | Rare                     | Major                     | High               |
| <b>Buildings</b>           | Severe Earthquakes may collapse buildings.                                   | Rare                     | Major                     | High               |
| <b>Environment</b>         | No risk  |                          |                           |                    |
| <b>Business</b>            | All business premises in Boulia Shire will be affected by severe earthquake. | Rare                     | Major                     | High               |
| <b>Lifelines</b>           | Some lifelines will suffer damage.   | Rare                     | Major                     | High               |
| <b>Critical Facilities</b> | Critical facilities will be affected.  | Rare                     | Major                     | High               |

## IDENTIFICATION AND EVALUATION OF TREATMENT OPTIONS

### HAZARD: FLOODING

| VULNERABLE ELEMENT   | RISK   | RISK PRIORITY | TREATMENT OPTION  | TREATMENT EVALUATION   |
|----------------------|--|---------------|---|--|
| <p><b>People</b></p> | <p>All people in Bouliā Shire will be directly affected by flooding.</p> | <p>1</p>      | <p>Ensure Local Disaster management Plan is current by re-evaluating risk consequences</p> <p>Conduct a public awareness campaign to ensure residents living in flood prone areas are aware of the risks and the steps needed to be taken in such events</p> <p>Identify flood risk areas in the town plan and regulate development</p> <p>Update and maintain planning maps to display identified flooding risk areas and record on the GIS the homesteads threatened by flooding</p> <p>Establish and maintain a data base containing the GPS coordinates of all property homesteads / rescue sites</p> | <p>A practical and effective measure for risk reduction</p> <p>Annual review of risk communication strategy</p> <p>This measure is essential to identify risk areas and compliments the Council's long term development policies</p> <p>This option is a practical solution to identifying risk areas<br/>                     This would allow GPS equipped rescue aircraft / helicopters to readily locate homesteads isolated by floods</p> |

**HAZARD: FLOODING**

| <b>VULNERABLE ELEMENT</b> | <b>RISK</b>   | <b>RISK PRIORITY</b> | <b>TREATMENT OPTION</b>   | <b>TREATMENT EVALUATION</b>  |
|---------------------------|---|----------------------|---|--|
| <b>Buildings</b>          | Some buildings will be flooded above floor level.   | 5                    | Ensure Local Disaster Management Plan is current by re-evaluating risk consequences   | A practical and effective measure for risk reduction   |
| <b>Environment</b>        | Flooding will produce soil degradation, pollution from sewerage ponds flooded and will spread pest plant species. | 6                    | Ensure Pest Management plan is current<br><br>Continue to review effectiveness of levee around sewage ponds for maintenance issues and useful life.   | A practical and effective measure for risk reduction<br><br>Likely to involve some cost in the future but would reduce the impact on the environment.                |
| <b>Business</b>           | All businesses in Boulia Shire will be affected by flooding.  | 4                    | Encourage appropriate organisations to formulate an economic response plan to natural disasters   | Effective long term strategy   |
| <b>Lifelines</b>          | Lifelines will suffer damage.   | 2                    | Ensure Local Disaster management Plan is current for power, communications, water, wastewater, fuel, food.<br><br>Investigate the Urandangi airport road for inundation<br><br>Investigate appropriate stretch of straight road that can be used for emergency aircraft landing | A practical and effective measure for risk reduction<br><br>This information should be readily available<br>This option would need to be discussed with the relevant |

**HAZARD: FLOODING**

| VULNERABLE ELEMENT                | RISK  | RISK PRIORITY | TREATMENT OPTION  | TREATMENT EVALUATION  |
|-----------------------------------|---|---------------|---|---|
|                                   |   |               | <p>Consider the upgrading of the Mt Isa-Boulia Road as an alternative route when Boulia- Winton Road is impassable</p> <p>Consider identifying the frequently flooded sections of Mt Isa- Boulia Road and prioritise upgrading these sections to a higher flood immunity</p> <p>Conduct an investigation of past DRFA claims to identify the road sections that are most frequently damaged and which result in the highest DRFA claims and obtain a report on the cost to upgrade each section to a higher flood immunity.</p> | <p>government agencies</p> <p>This option will need to be discussed with TMR.</p> <p>This option will need to be discussed with TMR</p> <p>This has the potential to greatly reduce the value of future DRFA claims. The cost of the upgrading works will need to be discussed with Government Agencies for funding assistance.</p> |
| <p><b>Critical Facilities</b></p> | <p>Critical facilities may operate at reduced capacity.</p> | <p>3</p>      | <p>Ensure Local Disaster Management Plan is current by re-evaluating risk consequences</p>  | <p>A practical and effective measure for risk reduction</p>   |

| VULNERABLE ELEMENT         | RISK  | RISK PRIORITY | TREATMENT OPTION  | TREATMENT EVALUATION   |
|----------------------------|---|---------------|---|--|
| <b>People</b>              | People in Boulia Shire will be directly affected by bush fires. | 1             | <p>Ensure Local Disaster Management Plan is current by re-evaluating risk consequences</p> <p>Conduct a public awareness campaign to ensure residents living in fire prone areas are aware of the risks and the steps needed to be taken</p> <p>Encourage Fuel reduction around residences in fire prone areas</p> <p>Each rural property owner to establish and maintain a network of fire breaks in accordance with the requirements of the act</p> | <p>A practical and effective measure for risk reduction</p> <p>Review risk communication strategy.</p> <p>Effective and low cost</p> <p>A practical and effective measure for risk reduction</p> |
| <b>Buildings</b>           | Some buildings will be damaged.                                 | 4             | Refer to treatment options for People   | Refer to evaluations for People  |
| <b>Environment</b>         | Bushfires may result in soil degradation.                       | 6             | Refer to treatment options for People   | Refer to evaluations for People  |
| <b>Business</b>            | Some businesses in Boulia Shire will be affected.               | 5             | Refer to treatment options for People   | Refer to evaluations for People  |
| <b>Lifelines</b>           | Lifelines may suffer damage.                                    | 3             | Refer to treatment options for People   | Refer to evaluations for People  |
| <b>Critical Facilities</b> | Critical facilities will be affected.                           | 2             | Refer to treatment options for People   | Refer to evaluations for People  |

**HAZARD: SEVERE STORMS**

| VULNERABLE ELEMENT | RISK   | RISK PRIORITY | TREATMENT OPTION   | TREATMENT EVALUATION   |
|--------------------|--|---------------|--|--|
| <b>People</b>      | People in Bouliā Shire will be directly affected by severe storms. | 1             | <p>Ensure Local Disaster management Plan is current by re-evaluating risk consequences</p> <p>Conduct a public awareness campaign to ensure residents are aware of the risks and the steps needed to be taken in such events</p> <p>Encourage annual pre-storm season clean up by picking up rubbish placed on footpaths</p> | <p>A practical and effective measure for risk reduction</p> <p>A first step may be to develop an effective risk communication strategy</p> <p>Effective and low cost</p>   |
| <b>Buildings</b>   | Some buildings will be damaged.                                    | 3             | <p>Ensure Local Disaster management Plan is current by re-evaluating risk consequences</p> <p>Identify essential services buildings that are required to withstand severe winds</p> <p>Investigate occurrence of derelict buildings in Bouliā and Urandangi town area</p>  | <p>A practical and effective measure for risk reduction</p> <p>Would enhance the ability of the community to continue delivery of essential functions</p> <p>Would reduce the risk to the community during a severe storm event.</p> |
| <b>Environment</b> | Flooding from severe storms will produce soil degradation.         | 6             | No further action required   |  |
| <b>Business</b>    | Businesses in Bouliā Shire will be affected by                     | 5             | Encourage appropriate organisations to formulate an economic response plan to natural disasters  | Effective long term strategy   |

**HAZARD: SEVERE STORMS**

| VULNERABLE ELEMENT         | RISK                                | RISK PRIORITY | TREATMENT OPTION   | TREATMENT EVALUATION                                 |
|----------------------------|-------------------------------------|---------------|--|--|
|                            | severe storms.                      |               |  |  |
| <b>Lifelines</b>           | Lifelines will suffer damage.       | 4             | Ensure Local Disaster Management Plan is current for power, communications, water, wastewater, fuel, food, transport systems | A practical and effective measure for risk reduction |
| <b>Critical Facilities</b> | Critical facilities may be damaged. | 2             | Ensure Local Disaster Management Plan is current   | A practical and effective measure for risk reduction |

**HAZARD: SEVERE EARTHQUAKE**

| VULNERABLE ELEMENT | RISK   | RISK PRIORITY | TREATMENT OPTION   | TREATMENT EVALUATION   |
|--------------------|--|---------------|--|--|
| <b>People</b>      | People in Bouliia Shire will be directly affected by earthquake loading. | 2             | <p>Ensure Local Disaster Management Plan is current by re-evaluating risk consequences</p> <p>Conduct a public awareness campaign to ensure residents are aware of the risks and the steps needed to be taken in such events regulate development to comply with earthquake loadings.</p> <p>Establish and maintain a data base containing the GPS coordinates of all property homesteads / rescue sites</p> | <p>A practical and effective measure for risk reduction</p> <p>Review effective risk communication strategy. This measure is essential to comply with the law</p> <p>This would allow GPS equipped</p> |

| VULNERABLE ELEMENT         | RISK  | RISK PRIORITY | TREATMENT OPTION  | TREATMENT EVALUATION  |
|----------------------------|---|---------------|---|---|
|                            |   |               |   | rescue aircraft / helicopters to readily locate homesteads  |
| <b>Buildings</b>           | Buildings may collapse under earthquake loading                               | 1             | Ensure Local Disaster Management Plan is current by re-evaluating risk consequences<br>Prioritise the upgrade of essential buildings/critical systems to ensure they are immune to highest know earthquake event. | A practical and effective measure for risk reduction. Likely to involve some cost but would enhance the ability of the community to continue delivery of essential functions. |
| <b>Environment</b>         | Nil   |               | Nil   | Nil   |
| <b>Business</b>            | All business premises in Boulia Shire will be affected by a major earthquake. | 5             | Encourage appropriate organisations to formulate an economic response plan to natural disasters   | Effective long term strategy  |
| <b>Lifelines</b>           | Some lifelines will suffer damage.  | 4             | Ensure Local Disaster Management Plan is current for power, communications, water, wastewater, fuel, food   | A practical and effective measure for risk reduction  |
| <b>Critical Facilities</b> | Critical facilities will be affected.   | 3             | Identify and confirm agreed back up facilities if hospital / health care facility has to operate at reduced capacity<br><br>Prioritise the upgrade of essential buildings/critical                                | This will ensure that people can still access treatment<br><br>Likely to involve some cost but  |



| VULNERABLE ELEMENT | RISK | RISK PRIORITY | TREATMENT OPTION   | TREATMENT EVALUATION   |
|--------------------|------|---------------|--|--|
|                    |      |               | systems to ensure they are immune to highest know earthquake event | would enhance the ability of the community to continue delivery of essential functions |

## APPENDIX 'A' - CHECKLIST

### EACH STAGE OF NATURAL DISASTER RISK MANAGEMENT PROCESS SHOULD BE DOCUMENTED.

The reasons for documentation are:-

- To demonstrate that the process has been properly conducted;
- To provide evidence that systematic approach to risk identification and analysis has been followed;
- To provide a record of the risks identified and to develop the organisation's knowledge database;
- To provide the decision makers with a risk management report and risk treatment plan for approval and subsequent implementation;
- To provide an accountability mechanism and tools;
- To facilitate the continued monitoring and review of the process and its outcomes;
- To share and communicate information;
- To provide an audit trail;
- To address the Commonwealth Government's requirement for evidence of mitigation.

| BOULIA SHIRE COUNCIL - CHECK LIST  | RESPONSIBLE OFFICER | DUE      | COMPLETED – and comments                                |
|--|---------------------|----------|---|
| 1. Ensure Local Disaster Management Plan is current  | CEO                 | Mar 2021 | Completed March 2021                                    |
| 2. Conduct a public awareness campaign in conjunction with the QFES as part of their Disaster Management Plan to | CEO/DWO             | Dec 2020 | Future event to be held Dec 2021 - 'GET Ready Campaign' |

|  |                                  |                           |   |
|--|----------------------------------|---------------------------|---|
| ensure residents living in flood prone areas are aware of the risks and steps to be taken in a flood event   |                                  |                           |   |
| 3. Conduct a public awareness campaign in conjunction with the QFES as part of their Disaster Management to ensure residents are aware of their responsibility in managing noxious weeds (pests) on their property | DWO/RLPO                         | Ongoing                   | Event held in Nov 2020 after spraying of Prickly Acacia   |
| 4. Identify flood risk areas in the town plan and regulate development   | CEO/TOWN PLANNER/ENG             | May 2019                  | Town Planning Scheme adopted in May 2019  |
| 5. Update and maintain planning maps to display identified flooding risk areas   | CEO/TOWN PLANNER/ENG             | Annually                  | Planning maps held and updated.   |
| 6. Establish and maintain a database containing the GPS coordinates of all property homesteads/rescue sites  | RATES                            | Ongoing                   | Data base completed which is reviewed each year.  |
| 7. Investigate the Urandangi airport road for immunity to inundation   | DWO/ENG                          | Jan 2019                  | Regional Airport Plan completed which will identify all issues surrounding each airport. Road to airport sealed 2019. New survey plan completed Jan 2021          |
| 8. Recommend upgrading of Boulia airport for heavy transport aircraft eg Caribou   | DWO/ENG                          | Ongoing                   | Outback Regional road Group (through RAPAD) are now finalising a Regional Airport Plan which will identify all issues surrounding each airport in the RAPAD area. |
| 9. Encourage annual pre-storm season clean up by picking up rubbish  | CSM/TOWN FOREMAN                 | Annually                  | Event to be held Dec 2020 with future Dec 2021 - 'GET Ready Campaign'   |
| 10. Investigate occurrence of derelict buildings in Boulia and Urandangie  | CSM/TOWN FOREMAN                 | Ongoing                   | Asset Management review completed March 2021 to identify those buildings to be demolished. Two buildings demolished in 2020.                                      |
| 11. Set up a system of permanent watering points (bores) to enable dusty roads to be watered and compacted   | DWO/WORKS OVERSEER/ROADS FOREMAN | Ongoing-funding dependant | Bores have been located strategically around the shire with more locations identified.  |
| 12. Identify essential services buildings that are able to withstand severe storms   | DWO                              | Completed                 | Sports Centre, Library, Council office.   |

| <b>LOCAL DISASTER MANAGEMENT GROUP</b>                                    | <b>RESPONSIBLE OFFICER</b> | <b>DUE</b>          | <b>COMPLETED – and comments</b>                          |
|---|----------------------------|---------------------|--|
| 1. Review the Local Disaster Management and Risk Plan annually Pre-season | Chairperson                | Annually/Pre-season | To be reviewed at the post-season meeting in March 2021. |

|   |                        |                     |   |
|---|------------------------|---------------------|---|
| 2. Conduct a public awareness campaign to ensure residents are aware of the risks and the steps needed to be take in a severe storm event     | Chairperson            | Annually/Pre-season | Event to be held Dec 2021 - 'GET Ready Campaign' with follow up information on the council web site.  |
| 3. Conduct a public awareness campaign to ensure residents living in fire prone areas are aware of the risks and the steps needed to be taken | Chairperson/Rural Fire | Annually/Pre-season | Event to be held Dec 2021 - 'GET Ready Campaign' with follow up information on the council web site.  |
| 4. Ensure appropriate notices are issued to warn visitors of safe driving practices during flood and drought periods                          | Chairperson            | Annually/Pre-season | Boulia Shire has developed two brochures for safe driving and also the location of overtaking lanes on the Boulia/ Winton and Boulia/ Mt Isa roads. |

| <b>DEPARTMENT OF TRANSPORT AND MAIN ROADS</b>  | <b>RESPONSIBLE OFFICER</b> | <b>DUE</b>                | <b>COMPLETED – and comments</b>   |
|--|----------------------------|---------------------------|---|
| 1. Consider the identifying the frequently flooded sections of Boulia – Mt Isa Road and prioritise upgrading these sections to a higher flood immunity | ORRTG                      | Ongoing-funding dependant | Prioritisation of roads is completed through the Outback Regional Roads group for which TMR is a major stakeholder. We have extremely good representation on this group by Stuart Bourne , Consultant engineer, George Bourne and Associates, |

| <b>RURAL FIRE SERVICES</b>   | <b>RESPONSIBLE OFFICER</b> | <b>DUE</b> | <b>COMPLETED – and comments</b> |
|--|----------------------------|------------|---------------------------------|
| 1. Encourage hazard reduction burns around residences in fire prone areas  | QFES                       | Pre-season |                                 |
| 2. Each rural property owner to establish and maintain a network of fire breaks in accordance with the requirements of the act | QFES                       | Pre-season |                                 |