TOWNSVILLE
LOCAL DISASTER
MANAGEMENT GROUP

City of Townsville

Local Disaster Management Plan

V16: July 2024

Acknowledgement of Country

Townsville City Council acknowledges the Wulgurukaba of Gurambilbarra and Yunbenun, Bindal, Gugu Badhun and Nywaigi as the Traditional Owners of this land. We pay our respects to their cultures, their ancestors and their Elders, past and present - and all future generations.

Foreword

Community First

The responsibility to keep our city safe lies with all of us. Townsville City Council and the Local Disaster Management Group is committed to playing a key role in achieving community safety for residents and visitors.

As a community, we have experienced Mother Nature's fury over the past few years with Tropical Cyclone Debbie threatening us in 2017, the severe rain depression that sat over Townsville for a week in 2018, 2019's unprecedented Monsoonal Rain Event, , a global pandemic with COVID-19, and more recently Tropical Cyclone Kirrily.

While Townsville is a beautiful place to live, like any region there is a potential risk for emergency events and disasters such as cyclones, bushfires and flooding. Townsville City Council is strongly committed to educating residents about the natural hazards that can occur in North Queensland and making sure that our community is as prepared as it can be.

Through government, private and community partnerships and memberships led by council, the Local Disaster Management Group will continually plan and educate the local community, incorporating the latest experiences and expertise in disaster management to minimise the effects of disasters and build community resilience.

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Cyclones have been a part of life in North Queensland for some time and it can be easy to become complacent, however, an increase in the severity of disasters around the globe, including cyclones, tsunamis, bushfires and flooding, is a constant reminder to us all that we need to remain vigilant and prepared.

Although we as a community may not be able to prevent disasters and serious events from occurring, we can prepare our community and enhance our resilience to the adverse impacts of any threat through effective consultation, education and preparedness.

It is a challenge, and a role. this council and the Local Disaster Management Group are committed to meeting

Cr Andrew Robinson
Chair, Townsville Local Disaster Management Group (LDMG)

Contents

1. Administration & Governance

1.1. Endorsement

This Local Disaster Management Plan was endorsed by the Townsville Local Disaster Management Group on September 3, 2024, and recommended for adoption by Townsville City Council.

Cr Andrew Robinson - Chair, Townsville Local Disaster Management Group

Date: 03/09/2024

In accordance with a resolution on 16 October 2024 this Local Disaster Management Plan was adopted and is endorsed for distribution by Townsville City Council.

Joe McCabe –Chief Executive Officer Townsville City Council

Date: 16/10/2024

1.2. Glossary of Terms

A Disaster Management glossary of terms and acronyms is published as part of the Prevention Preparedness, Response and Recovery Disaster Management Guideline.

A Disaster Management Lexicon is also provided by the Office of the Inspector General Emergency Management (IGEM).

A comprehensive glossary of all acronyms, initialisms and definitions that are not contained in the links above but are used by Townsville City Council in their disaster management arrangements is also available.

1.3. Document Control

1.3.1 Review Requirements

This LDMP and all associated Sub Plans are controlled documents. The controlled copy is held by the LDMG Local Disaster Coordinator (LDC). The LDC may approve inconsequential amendments to the LDMP and Sub Plans. Any changes to the intent of the documents must be endorsed by the LDMG. The LDMP must be adopted by Townsville City Council (TCC). The plans are intended to be 'live' documents. All suggested amendments should be forwarded to:

Local Disaster Coordinator
Townsville City Council
PO Box 1268
Townsville QLD 4810

Email: enquiries@townsville.qld.gov.au

1.3.2 Record of Amendments

Amendment		Plan Updated		
Version No.	**Issue Date**	**Inserted by**	**Action**	**Date**
01 Initial Plan	June 2005	A. Morris	Initial Plan	24 June 2005
02	February 2008	A. Morris	Post-Amalgamation Review	February 2008
03	November 2008	A. Morris	New Guidelines	25 November 2008
04	November 2009	A. Morris	Annual Review	24 November 2009
05	June 2011	A. Morris	Annual Review and New Guidelines	21 June 2011

Amendment		Plan Updated		
Version No.	**Issue Date**	**Inserted by**	**Action**	**Date**
06	October 2012	A. Morris	Annual Review and New Guidelines	25 October 2012
07	June 2013	A. Morris	November 2012 Audit and New Guidelines	19 June 2013
08	October 2014	A. Morris	Annual Review	6 October 2014
09	October 2015	G. Hammond	Annual Review	15 October 2015
10	November 2016	C. Jordan	Annual Review	1 November 2016
11	January 2018	W. Preedy	Annual Review	3 January 2018
12	January 2019	W. Preedy	Annual Review	14 January 2019
13	May 2020	W. Preedy	Annual Review & update re COVID-19	8 May 2020
14	April 2022	W. Preedy	Annual Review	30 June 2022
15	March 2023	W. Preedy	Annual Review	30 June 23
16	July 2024	Z. Dawes	Annual Review Consultation with Deloitte	3 September 2024

1.3.3 Review Requirements

In accordance with s.59 of the Act, TCC must review the effectiveness of this LDMP at least once a year. The LDMP and associated Sub Plans will be reviewed annually as a minimum requirement. The timeline for the annual review will be as follows:

Timeframe	Activity
February - June	TLDMG reviews and amends (as required) the main plan
July	Revised plan submitted to TLDMG for acceptance / amendment
August	Reviewed plan submitted to council for approval
August	Updated plan submitted to the District Disaster Management Group
August	Implementation of the IGEM Prioritisation tool
Remainder of year	Minor amendments only
July – December	Training and exercises

In addition, TCC may review or renew the Plan whenever they consider it appropriate. This will include following:

- an exercise or operational activation of the LDMP that highlights significant deficiencies in arrangements, systems or processes
- changes to the boundaries to which the LDMP is applicable resulting in altered risk levels
- changes to the risk profile of the local government area (LGA) resulting in altered risk levels
- changes within the environment, community population, demographics or hazards resulting in increased risk levels
- changes to available resources or agencies with a role in delivery of disaster management response and recovery which impacts on group capability
- changes to legislation, policy or arrangements
- a request by the District Disaster Coordinator.

This LDMP will be subject to the external annual assessment process developed by the Office of the IGEM in accordance with section 16C(b) of the *Disaster Management Act 2003 (the Act)*.

This LDMP will also be reviewed periodically by council's Internal Audit Department to ensure compliance with relevant State Government legislation.

1.3.4 Consultation

A consultative process is used when developing the LDMP and associated Sub Plans. Prior to adoption, the LDMP is released for consultation with all core members and advisors of the LDMG and the District Disaster Coordinator (DDC). The key stakeholders to be consulted in the development of Sub Plans varies for each plan and is determined by TCC. Updates to plans are based on stakeholder feedback and records are maintained by TCC on the stakeholders that were consulted and those that provided feedback.

1.3.5 Distribution

The level of circulation of the LDMP and all Sub Plans will be determined by the LDMG. As a minimum this will include all core members and advisors of the LDMG and the District Disaster Coordinator (DDC). Other key stakeholders will be determined by TCC.

The Townsville Local Disaster Management Group (TLDMG) ensures compliance to the *Information Privacy Act 2009* by ensuring all personal and private contact details associated with the activation of the LDMP and associated Sub Plans is stored securely and separately to the public documents.

1.3.6 Availability of Plan for Inspection

In accordance with section 60 of the Act, the LDMP is available for inspection, free of charge to the public on the TCC website. The plan is also available at TCC Customer Service Centres and Libraries. Alternatively, hard copies can be obtained from Council's Customer Service Centres for a fee of $15 AUD.

1.4. Authority to Plan

The *Disaster Management Act 2003* (the Act) and the *Disaster Management Regulation 2014* (the Regulation) forms the legislative basis for disaster management within all levels of government and Queensland's Disaster Management Arrangements (QDMA).

The preparation of this LDMP and all associated Sub Plans has been undertaken in accordance with sections 57 and 58 of the Act, to provide for effective disaster management in the TCC area. This LDMP is consistent with Queensland's Disaster Management Standard and PPRR Disaster Management Guideline.

The authorising environment for disaster management documents is detailed in Figure 1 below.

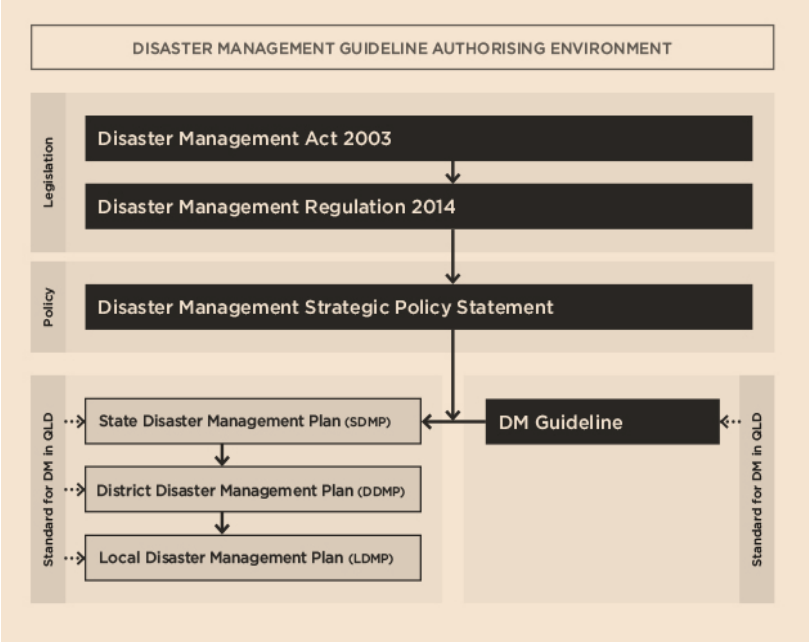

Figure 1: Disaster Management Authorising Environment

1.5. Aim and Objectives

The overall aim of this LDMP is to detail the arrangements that prevent, where possible, or minimise the impact of disasters, on communities of the TCC area. The primary focus is to preserve life and ensure the safety and welfare of our community as well as other people who may work in, or visit, our region. The key objectives are to:

- Provide a framework for the implementation of effective disaster management strategies and arrangements across the four phases of PPRR within the TCC LGA
- Describe the disaster management structure for the LDMG, the member organisations and their role and responsibilities for the coordination of multi-agency responses
- Understand the effects of natural and non-natural hazards that may impact the community, infrastructure, economy and environment of the area
- Plan for those hazards to preserve human life, protect critical infrastructure and property, protect livelihoods and the economy and safeguard the environment
- Provide practical information to build community resilience and better assist the community in preparing for, responding to and recovering from disaster events.

1.6. Structure of the Townsville LDMP

1.6.1 TLDMP

The TLDMP is an overarching document that details the structure, management arrangements and governance provisions which underpin the process of disaster management in the TCC area. It provides an overview of the arrangements in place for dealing with disasters and sets out the role of the TLDMG from the initial notification through the various stages of response and recovery until the disaster event is finalised. The TLDMP is designed to be flexible so it can be adapted to any disaster event, affecting the region to ensure an integrated, coordinated and timely response.

1.6.2 TLDMP Sub Plans

The TLDMP is complemented by a number of Sub Plans which are designed to expand on information contained in the LDMP by providing detailed information for the activation and operation of key functional capabilities. Sub Plans are designed to integrate seamlessly with the TLDMP but can be used on a stand-alone basis as required. The following Sub Plans exist:

Table 1: TLDMP Sub Plans currently in place

Plan Description	Responsibility	Status
Public Information and Warnings Sub Plan	Local Disaster Coordinator and TCC Community Engagement	Reviewed annually
Environmental Health & Disaster Waste Sub Plan	TCC Environmental Health & Regulation TCC Property Services	Reviewed annually
Evacuation Sub Plan	Local Disaster Coordinator	Reviewed annually
Financial Management Sub Plan	Local Disaster Coordinator	Reviewed annually
Logistics Sub Plan	Local Disaster Coordinator	Reviewed annually
Local Recovery and Resilience Sub Plan	Local Recovery and Resilience Group	Reviewed annually
Shelters and Evacuation Centres Sub Plan	Shelters and Evacuations Centres Working Group	Reviewed annually
Tsunami	Tsunami Response Sub Plan	Reviewed annually

1.6.3 Hazard Specific Plans

Hazard specific disaster plans are developed by assigned lead agencies to address particular hazards. Examples of hazard specific plans for the LDMG include:

Table 2: Hazard-specific plan examples

Issue	Response Plan	Responsibility	Reviews
Ross River Dam	Ross River Dam Emergency Action Plan (EAP)	Water (TCC)	Plan reviewed annually
Paluma Dam	Paluma Dam Emergency Action Plan *(Charters Towers Regional Council LGA)*	Water (TCC)	Plan reviewed annually

1.6.4 Community Risk Profiles

Various community organisations, local business groups and others have a responsibility to prepare disaster, emergency and business continuity plans and strategies for particular high-risk localities and demographic groups with the TCC LGA.

A community profile has been developed for different areas of Townsville identifying the demographics, hazards and critical infrastructure specific to each area of the community. This information is provided to assist residents to better prepare for local risks and hazard impacts.

The TLDMG also works with organisations that care for vulnerable sectors of the community and with tourism operators and businesses to ensure that visitors to the region are well informed in the event of a disaster.

1.6.5 Operational Plans

Operational plans are plans developed and utilised during the response and recovery phases. Examples include the Incident Action Plan and event-specific Recovery Plan.

1.6.6 Business Continuity Plans (BCPs)

Each member and advisory agency of the TLDMG is responsible for maintaining an effective BCP. This will ensure they can continue their critical service functions in the event of a disaster to provide coordination and emergency support to the local community.

1.7. Queensland Disaster Management Arrangements (QDMA)

QDMA is based on a tiered system of committees at local government, disaster district, and state government levels and recognises that the Commonwealth Government may be requested to provide support to the State.

Local level capability is recognised as the frontline of disaster management. Local government has primary responsibility for managing events in their LGA. This is achieved through the establishment of the Local Disaster Management Group (LDMG) – refer Section 2.

TCC is ideally suited to manage disaster events at the community level, based on its understanding of local social, environmental and economic issues, and knowledge of the region's infrastructure. During a disaster, local government provides initial support to the affected community until its resources are fully committed. Additional support from the State, and the Commonwealth is then requested if needed.

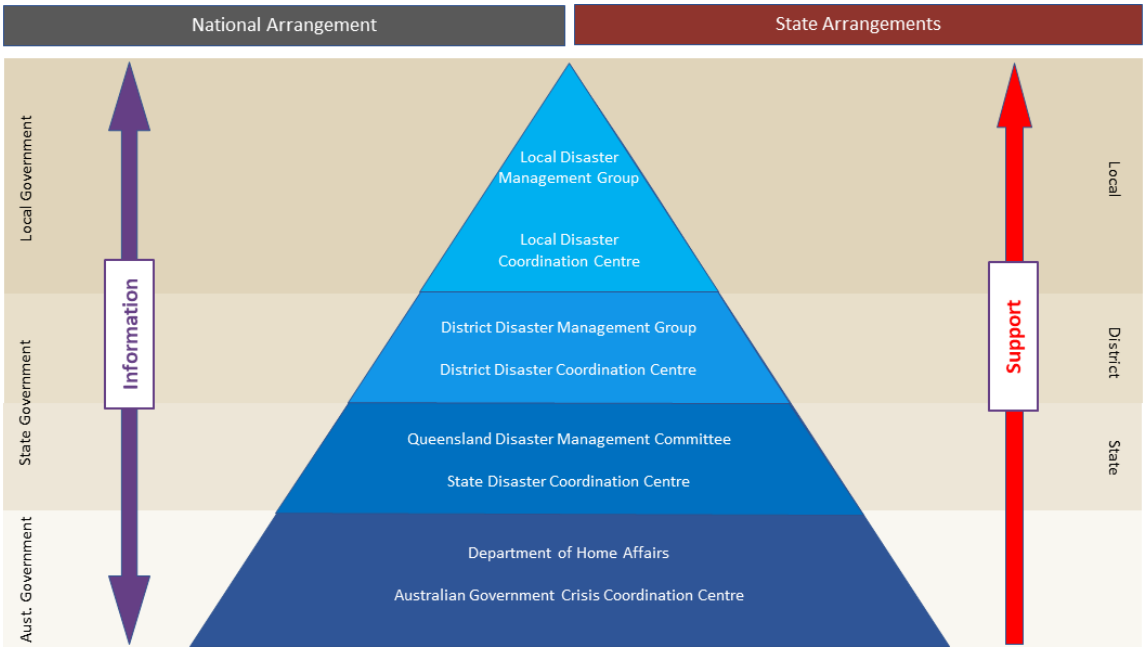

Figure 2: QDMA Triangle

1.8. Disaster Management Priorities

TCC and the TLDMG are committed to ensuring that the city's responsibilities under the *Disaster Management Act 2003* are executed in full by:

- Working within the State *Disaster Management Strategic Policy Statement*, which focuses on a comprehensive, all hazards approach with all levels of government working in partnership to reduce the effects of disasters
- Protecting health, safety and quality of life and economic vitality
- Protecting our natural and built environment
- Recognising and valuing the benefits of partnership and collaboration across all levels of government, community and industry, in all aspects of disaster management
- Respecting the diversity of our communities
- Ensuring accountability and transparency of disaster management
    - Ensuring that development approvals (planning and building) are assessed against the relevant legislation and Planning Scheme for the region in accordance with the *State Planning Policy – Mitigating the Adverse Impacts of Floods, Bushfire & Landslide*.
    -

1.9. Strategic Policy Statement

This plan is consistent with the State Strategic Policy Statement for disaster management which informs the Queensland Government's strategic approach to keeping people safe and making communities more resilient to disaster risks and impacts.

The TLDMG takes a flexible and scalable approach to disaster management which provides for the reduction of risk and the enhancement of community resilience whilst ensuring effective response and recovery capabilities.

1.10. Disaster Management Guiding Principles

In accordance with *section 4A(b) of the Act*, all events, whether natural or caused by human activity, should be managed in accordance with the Strategic Policy Statement, the State Disaster Management Plan (SDMP) and any relevant disaster management guidelines. The Act identifies four key principles which guide disaster management in Queensland:

1.10.1 Comprehensive Approach

The comprehensive approach to disaster management comprises the four PPRR phases. This approach ensures a balance between the reduction of risk and the enhancement of community resilience, while ensuring effective response and recovery capabilities.

The four phases of PPRR are not linear, nor are they independent of the others. They overlap and support each other as shown in Figure 3. For example, recovery activities are likely to begin during the response phase and mitigation strategies may be considered during the recovery phase.

Figure 3: Comprehensive Approach to Disaster Management

1.10.2 All-Hazards Approach

The all-hazards approach assumes that the functions and activities used to manage one event are likely to be applicable to a range of events, whether natural or caused by human activity.

1.10.3 Local Disaster Management Capability

Local level capability is recognised as the frontline for disaster management, primarily due to the benefits of localised knowledge and networks. Refer section 2 for further details.

1.10.4 Support by District and State Groups

The Act establishes a District Disaster Management Group (DDMG) for each of the 22 districts in Queensland, to provide support when required or requested by a LDMG. The TLDMG is located in the Townsville Disaster District. A District Disaster Management Plan is available. Further detail on the role and functions of DDMGs can be found on p.10 of the State Disaster Management Plan

The Queensland Disaster Management Committee (QDMC) supported by the State Disaster Coordination Group (SDCG) can provide additional support and assistance when required or requested by a DDMG. Further detail on the role and functions of the QDMC and SDCG can be found on p.11-13 of the State Disaster Management Plan which provides a framework for response and recovery operations.

1.11 IGEM Emergency Management Assurance Framework

Part 1A of the Act establishes the IGEM and Office of the IGEM. The priority for the Office of the IGEM is to facilitate improvements to Queensland's disaster management arrangements to enable confidence in the system and enhance public safety outcomes. The functions of the Office of the IGEM are detailed in *section 16C of the Act*.
The Emergency Management Assurance Framework (EMAF), developed by the Office of the IGEM, in partnership with disaster management practitioners, provides the foundation for guiding and supporting the continuous improvement of entities' programs across all phases of disaster management.

The EMAF provides the structure and mechanism for reviewing and assessing the effectiveness of disaster management arrangements. The EMAF is comprised of the Principles, the Standard for Disaster Management in Queensland (the Standard) and Assurance Activities.

Disaster Management arrangements for the Townsville local government area are consistent with the 6 Shared Responsibilities and 11 Outcomes of the standard which include:

Table 3: Disaster management shares responsibilities and outcomes

Shared Responsibility	Component
Managing Risk	1. There is a shared understanding of risk for all relevant hazards.
	2. Risk is managed to reduce the impact of disasters on the community.
Planning and Plans	3. There is a shared understanding of how the impact of disasters will be managed and coordinated.
	4. Plans outline and detail how the impact of disasters on the community will be reduced.
Community Engagement	5. Entities proactively and openly engage with communities.
	6. The community makes informed choices about disaster management and acts on them.
Capability Integration	7. Resources are prioritised and shared with those who need them when they need them.
	8. Entities develop integrated capabilities and shared capacity to reduce the impact of disasters on the community.
Operations	9. Operations minimise the negative impacts of an event on the community and provide the support needed for recovery.
Collaboration and Coordination	10. Entities proactively work together in a cooperative environment to achieve better results for the community.
	11. A collaborative culture exists within disaster management.

1.12 Integration with Townsville City Council Corporate and Operational Planning Processes

Strategic linkages to Disaster Management are included in the Townsville City Council Corporate Plan 2021-2026 which council aims to enhance community knowledge of, and access to, council services to improve community wellbeing, resilience, health and safety through the following goals:

Table 4: Townsville City Council goals (Townsville City Council Corporate Plan 2021-2026)

Goal		Description
1.1.1	Transition to real time digital information. - Smart monitoring. - Provision of real time data to support decision making.	• By 2026, operate real time dashboards that provides customers information on the status of the city across a range of performance indicators and values. • By 2026, provision of real time data, fault reporting and status for customers, such as smart meters on all homes. **incl. council's Emergency Management and Disaster Dashboard*
5.2.3	Document knowledge and experience in emergency management to become a specialist tropical climate leader	By 2024, partner in the delivery of skills and simulation training to other local governments and our northern neighbours to increase health, economic and environmental resilience from disaster events.

Council incorporates Disaster Management into its core business functions by:

- Assigning council resources to maintain a capability to coordinate the response and resources for an event or disaster within the Townsville City Council area. (see *Townsville City Council Emergency Response Plan*).
- Actively providing information and warnings about an event or disaster to the public and appropriate emergency services as per legislative responsibility.
- Annually reviewing and exercising disaster management plans.
- Actively providing public education on disaster preparedness.
- Actively mitigating against potential disaster situations to reduce community vulnerability.
- Liaising with Queensland Police Service (QPS) on disaster management planning and training activities.
- Assisting local volunteer groups associated with the TLDMG with training activities.
- Actively providing disaster management training to staff and the TLDMG.
- Actively working with the community towards strengthening community resilience against disasters.
- Assisting State and Federal agencies in the recovery of the community after an event or disaster.

1.13 Disaster Management Activities Calendar

The Disaster Management Activities Calendar below demonstrates the annual process of PPRR activities across the Townsville LGA.

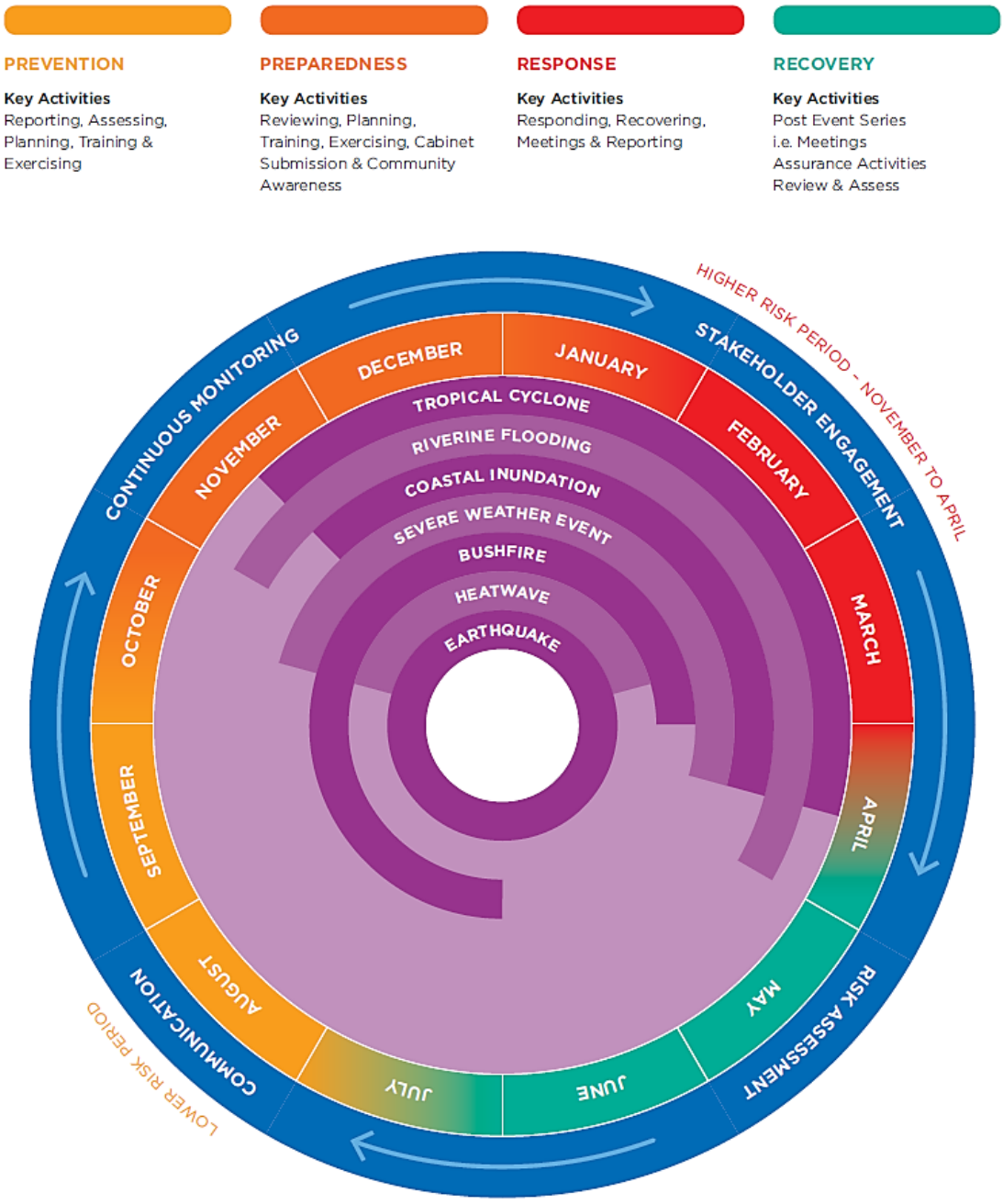

Figure 4: The Disaster Management Activities Calendar

2. Local Disaster Management Group (LDMG)

2.1. Role & Responsibilities of Townsville City Council

The Act details a range of functions and responsibilities for local government to ensure that it meets its statutory obligations. Section 80 of the Act requires local government to undertake the following functions:

a) To ensure it has a disaster response capability
b) To approve its LDMP
c) To ensure information about an event or a disaster in its area is promptly given to the DDC for the district in which its area is situated
d) To perform other functions given to the local government under the Act.

In accordance with section 80 of the Act, a 'disaster response capability' for local government means the ability to provide equipment and a suitable number of persons, using the resources available, to effectively manage or help another entity to manage an emergency situation or a disaster in the local government area. To ensure this can be achieved, all Townsville City Council services have designated responsibilities in disaster management which reflect their legislated and / or technical capability.

In addition to these functions, Section 29 of the Act specifies that local government must establish a LDMG for the local government's area.

2.2. Establishment of TLDMG

TLDMGs are established under section 29 of the Act by local governments to support and coordinate disaster management activities for their respective LGAs. A Terms of Reference is available. The TLDMG responsibilities are outlined in Manual M.1.030

2.3. Functions of the TLDMG

The following functions of the TLDMG are prescribed under Section 30 of the Act:

- To ensure that disaster management and disaster operations in the area are consistent with the State group's strategic policy framework for disaster management for the State
- To develop effective disaster management, and regularly review and assess the disaster management
- To help the local government for its area to prepare a local disaster management plan
- To identify, and provide advice to the relevant district group about, support services required by the local group to facilitate disaster management and disaster operations in the area
- To ensure the community is aware of ways of mitigating the adverse effects of an event, and preparing for, responding to and recovering from a disaster
- To manage disaster operations in the area under policies and procedures decided by the State group
- To provide reports and make recommendations to the relevant district group about matters relating to disaster operations
- To identify, and coordinate the use of, resources that may be used for disaster operations in the area
- To establish and review communications systems in the group, and with the relevant district group and other local groups in the disaster district of the relevant district group, for use when a disaster happens
- To ensure information about a disaster in the area is promptly given to the relevant district group
- To perform other functions given to the group under the Act
- To perform a function incidental to a function mentioned in paragraphs (a) to (k).

For further detail refer to p. 9 of the State Disaster Management Plan.

A TLDMG Standard Operating Procedures (TLDMG SOP) has been developed, which details the processes and procedures required to execute the TLDMG functions.

2.4. Business & Meetings of the TLDMG

In accordance with section 38 of the Act, the LDMG will conduct its business, including meetings as prescribed by the Regulation. Ordinary meetings are scheduled five times per year (February, April, July, October and December) and extraordinary meetings are convened as required.

Advisory members are only required to attend twice a year (July and December) and be present at extraordinary meetings once the LDMG has activated.

There are 15 members nominated as core members of Townsville LDMG. Therefore at least 8 members or their nominated deputies must vote to achieve quorum (50% +1 of membership) for decisions of the LDMG to be valid.

A formal Attendance Record will be kept for each meeting of the TLDMG. Minutes will be recorded and documented for each meeting of the TLDMG.

2.5. Administration of the TLDMG

The LDC of the TLDMG is responsible for the administrative responsibilities of the group. The normal business reporting requirements of the TLDMG are as follows:

- Maintenance of membership (incl. Deputies) and contact lists
- Documentation of meeting minutes and distribution of minutes to TLDMG Members and Advisory members
- Submission of reports and annual TLDMG status reports (including annual planning requirements) as required to the DDMG
- Outcomes and actions for exercises conducted
- Submission of the TLDMG Members and Deputies List to the DDMG twice per year.

2.6. TLDMG Operational Decision-Making Capability

The TLDMG Chair and LDC are authorised to make initial operational response coordination decisions on behalf of the full LDMG to initiate the disaster management arrangements and whilst acting in accordance with LDMG approved plans and procedures. The Chair and LDC have an exclusively operational response coordination function, which will not, at any time, replace the policy decision-making role of the core LDMG members.

2.6.1 LDMG Chairperson

The Chairperson of the LDMG is appointed under s.34 of the Act. The chairperson must be an elected Councillor. The Chairperson has the following functions:

(a) to manage and coordinate the business of the group

(b) to ensure, as far as practicable, that the group performs its functions

(c) to report regularly to the relevant district group, and the police commissioner, about the performance by the local group of its functions.

2.6.2 Local Disaster Coordinator

The Local Disaster Coordinator of the LDMG is appointed under s.35 of the Act. The LDC must be the CEO or an appropriately experienced Officer of the local government. The LDC has the following functions:

(a) to coordinate disaster operations for the local group

(b) to report regularly to the local group about disaster operations

(c) to ensure, as far as practicable, that any strategic decisions of the local group about disaster operations are implemented.

2.7. Core Member & Advisory Roles and Responsibilities of the LDMG

The following table details the membership and responsibilities of the LDMG as appointed in accordance with Sections 33 and 34 of the Act. All members have the necessary expertise or experience to assist the group undertake and meet its legislative requirements. Membership of the group includes any person acting in the capacity of an appointed member using a DM13 form (available on request). All members will nominate one or more deputies in advance to ensure continuity and full agency representation. When membership changes, notice is provided to the DDMG. If membership of the Chair or LDC changes, notice is to be provided to the SDCC.

Membership and contact details for each member is maintained in the restricted LDMG Emergency Contact List in Guardian IMS. Quorum (50% +1 of the core members) equates to 8.

Table 5: TLDMG roles and responsibilities

TLDMG Position	Member	Deputy	Organisation Responsibilities
Core Member - Chairperson	TCC - Councillor	TCC - Councillor (Core Member)	• To manage and coordinate the business of the group • To ensure, as far as practicable, that the group performs its functions • To report regularly to the relevant district group, and the police commissioner, about the performance by the local group of its functions.
Core Member- TCC Councillor & Deputy Chair	TCC - Councillor (Deputy Chair)	TCC - Councillor (Deputy Member)	• Deputise for the Chairperson as required.
Core Member - Local Disaster Coordinator	TCC - Team Manager, Emergency Management	TCC – General Manager, Engineering & Asset, Infrastructure Planning	• Development of the comprehensive Local Disaster Management Planning strategies • Design and maintenance of a public education/awareness program • Design, maintenance and operation of a LDCC, including the training of sufficient personnel to operate the Centre • Coordination of support to response agencies • Reconnaissance and impact assessment

TLDMG Position	Member	Deputy	Organisation Responsibilities
			• Provision of public information prior to, during and following disaster event impacts • Recommendations re. areas to be considered for directed evacuation • Public advice re. evacuation of at-risk areas • Identification, resourcing, staffing and operation of Shelters and Evacuation Centres • Provision of locally based community support services
Core Member – TCC Emergency Response Group	TCC - Director, Infrastructure & Operations (Chair, TCC Emergency Response Group)	TCC - General Manager, Construction, Maintenance & Operations TCC - General Manager, Water TCC – General Manager, Engineering & Asset, Infrastructure Planning TCC – General Manager, Property Fleet & Emergency Management.	• Maintenance of the Local Government function (via council's Emergency Response Plan) • Maintenance of normal Local Government services to the community: • Water, Wastewater and Waste services • Public health • Animal control • Environmental protection • Roads and Drainage • Transport Networks • Maintenance of a disaster response capability • Maintenance of telemetry and warning systems (incl. TARDIS, FEDSS) • Collection and interpretation of information from telemetry systems, conjointly with BOM and AECOM • Provision and maintenance of infrastructure for Local SES Units • Arrangement and preparation of Shelters & Evacuation Centres • Ross River and Paluma Dam Operations

TLDMG Position	Member	Deputy	Organisation Responsibilities
Core Member - Local Recovery Coordinator	TCC - Chief Planning and Development Officer	TCC - Director Community, Environment & Lifestyle	• Coordinate the recovery phase of disasters on behalf of the LDMG.
Core Member – TLDMG Communications	TCC - General Manager, Community Engagement	TCC – Head Communications & Marketing	• Communications advice and support to the LDMG.
Core Member – Department of Housing, Local Government and Public Works	Dept of Housing– Regional Director Northern Region	Dept of Housing – Area Manager, Townsville Housing Service Centre	• Provision of housing advice and support to the LDMG.
Core Member – Health	THHS – Health Service Chief Executive	THHS – EPCM Coordinator THHS – Townsville University Hospital Campus Manager THHS – Chief Operating Officer	• Coordination of medical resources • Public health advice and warnings to participating agencies and the community • Psychological and counselling services for disaster affected persons as per service delivery requirements • Ongoing medical and health services required during the recovery period to preserve the general health of the community
Core Member – QAS	QAS – OIC Townsville	QAS – OIC Kirwan QAS – OIC Northern Beaches QAS – OIC Townsville Support OIC Burdell Station OIC Kirwan Support	• Assessment, treatment and transportation of injured persons • Assistance with evacuation (for medical emergencies) • Provision of advice regarding medical special needs sectors of the community

TLDMG Position	Member	Deputy	Organisation Responsibilities
Core Member – QFD	QFD – Area Commander – Townsville Command	QFD – Community Engagement Manager	• Coordinate emergency supply • Resupply • Impact Assessment (via Survey123 system) • Access to TOM mapping (this will be the State point of truth) • Fire Behaviour Analysts (forward planning Bushfire behaviour) • Urban Search and Rescue (USAR) • Swift water / floodwater rescue • Public education, community messaging, warnings and alerts • Fire and Rescue staffing as part of the staffing of cyclone shelters (part of the shelter management team) • Assistance with conduct of evacuations • HAZMAT / Chemical incident Plume modelling • Provision of Disaster Management training for LDMG members and other identified stakeholders in accordance with the Queensland Disaster Management Training Framework. • Coordinate, support and manage the deployment of SES resources (as required, in consultation with local government, appoint a suitably experienced and/or qualified officer as SES Coordinator to support the coordination of SES operations
Core Member – QPS	QPS – Inspector	QPS – Senior Sergeant	• Preservation of peace and good order • Prevention of crime • Security of any site as a possible crime scene • Investigation of the criminal aspect of any event • Coronial investigation procedures • Traffic control, including assistance with road closures and maintenance of road blocks

TLDMG Position	Member	Deputy	Organisation Responsibilities
			• Crowd management/public safety • Coordination of search and rescue (See State Rescue Policy) • Management of evacuations • Security of evacuated areas • Registration of evacuated persons (activity undertaken by Red Cross, where they have a presence)
Core Member – SES	SES - Local Controller	SES – Deputy Local Controller SES - Representative	• Assisting the community to prepare for, respond to and recover from an event or disaster • Public Education • Rescue of trapped or stranded persons (see State Rescue Policy) • Search operations for missing persons • Emergency repair/protection of damaged/vulnerable buildings • Assistance with debris clearance • First Aid • Traffic Control • Short term welfare support to response agencies • Assistance with impact assessment • Assistance with communications • Assistance with lighting • Flood boat operations • Assistance with evacuations • Assistance with staffing of shelters
Core Member – Power	Ergon – Maintenance Program Manager (Lines)	Ergon – Manager, Engineering Lines	• Primary agency for providing, maintaining and restoring power supplies • Provide advice to the LDMG on power supply issues • Provide safety information to consumers • Liaison between the agency and the LDMG.

TLDMG Position	Member	Deputy	Organisation Responsibilities
Core Members – Shelters & Evacuation Centres	TCC – General Manager, Environmental Health & Regulation (Working Group Chair)	TCC – Team Manager, Environmental Health & Regulation	• Arrangement and preparation of Shelters & Evacuation Centres • Sheltering and Evacuation Centre coordination on behalf of the LDMG.
Core Member – TEL	TEL – Chief Executive Officer	TEL – Director, Tourism & Events	• Liaison between the agency and the LDMG in relation to economic development. • Provide advice to LDMG on "mass gathering" or large-scale events planned for the region • Liaison with accommodation providers on emergency accommodation • Provide Tourists and accommodation providers with advice & warnings on event / disaster • Disseminating information to other Visitor Information Centres in the region
Advisory Member - TCC	TCC – Chief Executive Officer		• Liaison between the agency and the LDMG in relation to TCC functions and services e.g. roads, water, sewerage, etc.
Advisory Member – Environment Health & Disaster Waste Working Group	TCC – General Manager, Property, Fleet & Emergency Management (Working Group - Chair)	Team Member – Environmental Health and Regulation	• Environmental health and disaster waste response and recovery coordination on behalf of LDMG.
Advisory Member – AECOM	AECOM – Associate Director Water Resources		• Liaison between the agency and the LDMG in relation to water resources.
Advisory Member – Air Services Australia	Air Services Australia - Representative		• Liaison between the agency and the LDMG in relation to air services.
Advisory Member - Aurizon	Aurizon - Representative	Aurizon - Representative	• Liaison between the agency and the LDMG in relation to rail freight services.

TLDMG Position	Member	Deputy	Organisation Responsibilities
Advisory Member - ARC	Australian Red Cross - Representative	Australian Red Cross - Representative	• Liaison between the agency and the LDMG in relation to Australian Red Cross support and volunteers.
Advisory Member - AVCG	Australian Volunteer Coast Guard - Representative	Coast Guard - Representative	• Liaison between the agency and the LDMG in relation to coastguard services.
Advisory Member - ADF	Department of Defence – 3rd Brigade - Brigadier	Department of Defence – 3rd Brigade – ADF Liaison Officer	• Advisory on Australian Defence resources • Scenario-planning and intelligence (Crisis Appreciation and Strategic Planning)
Advisory Member RAAF	Department of Defence – RAAF – Wing Commander	Department of Defence – RAAF – Representative	• Liaison between the agency and the LDMG in relation to RAAF services.
Advisory Member - Education	Department of Education (DoE) -Representative	Department of Education (DoE) -Representative	• Liaison between the agency and the LDMG in relation to education and schools.
Advisory Member – Main Roads	Department of Transport and Main Roads (TMR) - Representative	Department of Transport and Main Roads (TMR) - Representative	• Advisory on transportation systems, networks, operations and resources
Advisory Member - MSQ	Department Of Transport & Main Roads - Maritime Safety Queensland (TMR-MSQ) - Representative	Department Of Transport & Main Roads - Maritime Safety Queensland (TMR-MSQ) - Representative	• Liaison between the agency and the LDMG in relation to maritime services.
Advisory Member - DTATSIPCA	Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and the Arts - Representative	Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and the Arts - Representative	• Liaison between the agency and the LDMG.

TLDMG Position	Member	Deputy	Organisation Responsibilities
Advisory Member - DRA	Disaster Relief Australia (DRA) -Representative	Disaster Relief Australia (DRA) -Representative	• Spontaneous volunteer management • Assist with impact assessments • Debris management (home debris cleaning & removal, “muck/gut out” • Expedient home repairs • Downed tree removal
Advisory Member - GIVIT	GIVIT - Representative	GIVIT - Representative	• Liaison between the agency and the LDMG.
Advisory Member – Icon Cancer Care	Icon Cancer Centre - Representative	Icon Cancer Centre - Representative	• Liaison between the agency and the LDMG.
Advisory Member – Magnetic Island DMG	Magnetic Island Disaster Management Group - Chair	Magnetic Island Disaster Management Group - Chair	• Liaison between the Magnetic Island DMG and the LDMG. • Support and assistance to Magnetic Island community.
Advisory Member - NBN	NBN - Representative		• Liaison between the agency and the LDMG in relation to the broadband network.
Advisory Member - NQPHN	Northern Queensland Primary Health Network (NQPHN) - Representative	NQ Primary Health Network (NQ PHN) - Representative	• Liaison between the agency and the LDMG.
Advisory Member - Optus	Optus - Representative	Optus - Representative	• Advice on telecommunication infrastructure and services • Maintenance and restoration of communications supply
Advisory Member – Origin Energy	Origin Energy - Representative	Origin Energy - Representative	• Maintenance of electrical power supply • Advice in relation to electrical power • Restoration of power • Safety advice for the community

TLDMG Position	Member	Deputy	Organisation Responsibilities
Advisory Member – Port of Townsville	Port of Townsville Limited - Representative	Port of Townsville Limited - Representative	• Advisory on Port operations and resources
Advisory Member – QPS	Queensland Police Service – Emergency Management Coordinator (QPS-EMC)		• Support and advice to the LDMG. • Operational support to the LDC.
Advisory Member - QFD	Queensland Fire Department – Rural Fire Service Queensland (QFD-RFSQ) - Representative	Queensland Fire Department – Rural Fire Service (QFD-RFSQ) - Representative	• Liaison between the agency and the LDMG on bushfire prevention, preparedness, response and recovery.
Advisory Member - DDMG	QPS – District Disaster Management Group (QPS-DDMG) - Representative		• Liaison between the DDMG and the LDMG.
Advisory Member – QLD Rail	Queensland Rail (QR) - Representative	Queensland Rail (QR) - Representative	• Advisory on Queensland Railway resources
Advisory Member - QRA	Queensland Reconstruction Authority (QRA) - Representative	Queensland Reconstruction Authority (QRA) - Representative	• Liaison between the agency and the LDMG. • Support and assistance with DRFA funding.
Advisory Member – Riverside Marine	Riverside Marine Townsville (FantaSea) - Representative	Riverside Marine Townsville (FantaSea) - Representative	• Liaison between the agency and the LDMG.
Advisory Member - SeaLink	SeaLink North Queensland - Representative	SeaLink North Queensland - Representative	• Liaison between the agency and the LDMG.

TLDMG Position	Member	Deputy	Organisation Responsibilities
Advisory Member – Services Australia	Services Australia - Representative	Services Australia - Representative	• Liaison between the agency and the LDMG.
Advisory Member – Surf Life Saving QLD	Surf Life Saving Queensland (SLSQ) - Representative	Surf Life Saving Queensland (SLSQ) - Representative	• Act as the primary agency for closing beaches. Provide (out of BAU) access to SLSQ's two twin-engine winch equipped rescue helicopters and sub-services • Provide IRBs for use in flood rescues, assist in relocating of people and emergency services personnel / gear • Act as a surge capacity for QPS, SES or QFD in front-facing operations such as door knocking, and welfare checks in isolated or affected areas
Advisory Member - Telstra	Telstra Country Wide - Representative	Telstra Country Wide - Representative	• Advice on telecommunication infrastructure and services • Maintenance and restoration of communications supply
Advisory Member - TACPG	Townsville Aged Care Partnership Group (TACPG) – Co-Chairpersons	TACPG – Deputy Chairperson	• Liaison between the TACPG and the LDMG.
Advisory Member – Townsville Aviation	Townsville Aviation Pty Ltd - Representative	Townsville Aviation Pty Ltd - Representative	• Advisory on Airport operations and resources
Advisory Member – Chamber of Commerce	Townsville Chamber of Commerce - Representative	Townsville Chamber of Commerce - Representative	• Liaison between the agency and the LDMG.

TLDMG Position	Member	Deputy	Organisation Responsibilities
Advisory Member - TMSG	Townsville Multicultural Support Group (TMSG) - Representative		• Liaison between the agency and the LDMG.
Advisory Member - TPHU	Townsville Public Health Unit (TPHU), - Representative		• Liaison between the agency and the LDMG.
Advisory Member - Translink	Translink - Representative	Translink - Representative	• Liaison between the agency and the LDMG.
Advisory Member - VNQ	Volunteering North Queensland Inc (VNQ) - Representative	Volunteering North Queensland Inc (VNQ) - Representative	• Liaison between the agency and the LDMG.

2.8. Authority of TLDMG Core Members & Advisors

The core members and advisors of the LDMG should have:

- The authority to commit their respective organisation to the TLDMG's decisions
- The ability to effectively navigate their respective organisations to seek approval for the commitment of their organisation resources
- A sound understanding of the QDMA and this LDMP.

Only core member votes count towards quorum – refer section 2.4.

2.9. Structure of the TLDMG

The structure of the Townsville LDMG is depicted below. The Chair of the LDMG may establish additional temporary or permanent subgroups to manage the business of the LDMG.

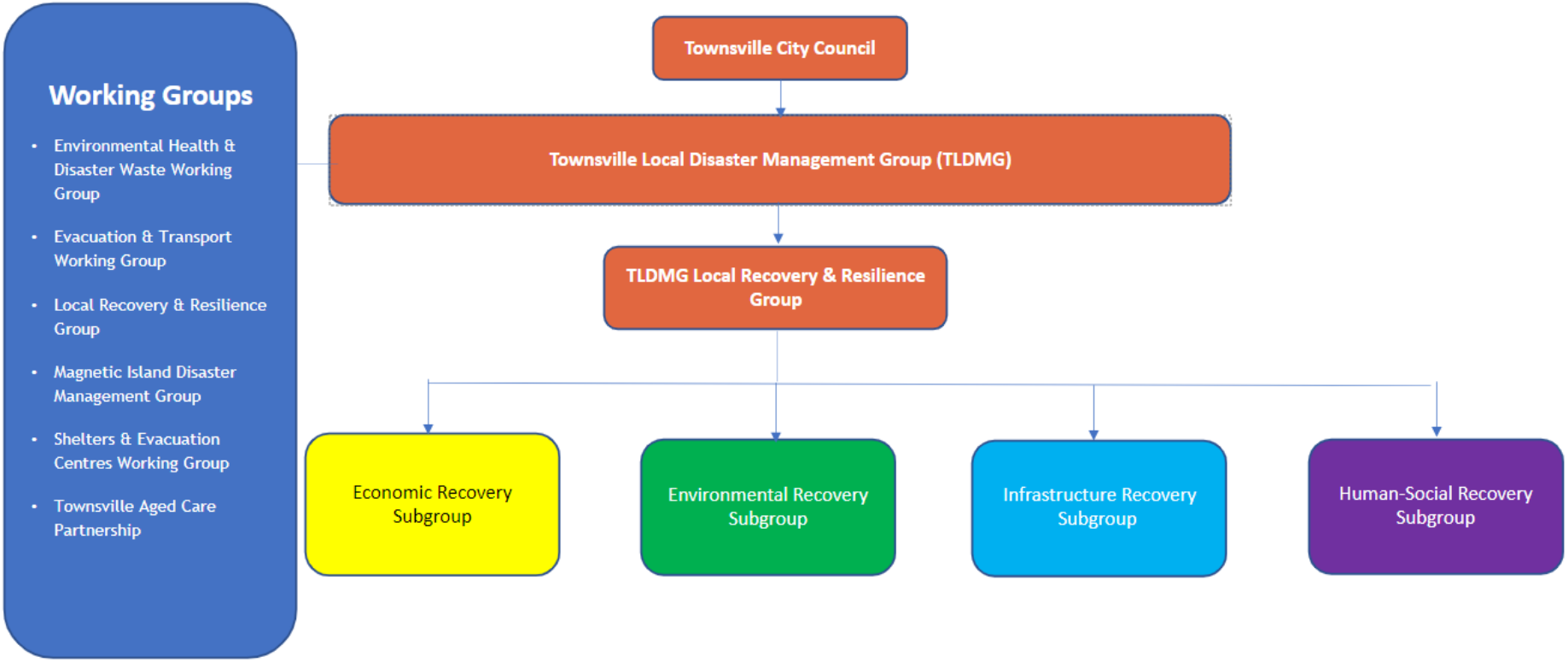

Figure 5: LDMG structure

2.9.1 TLDMG Working Groups

The TLDMG has established six (6) Working Groups for the purpose of assisting in the preparation and implementation of the Local Disaster Management Plan. The function and membership of these groups are set out in the Terms of Reference. These Working Groups include:

- Environmental Health & Disaster Waste Working Group
- Evacuation & Transport Working Group
- Local Recovery & Resilience Group
- Magnetic Island Disaster Management Group
- Shelters & Evacuation Centres Working Group
- Townsville Aged Care Partnership

The Duties of the Working Groups are:

(a) To elect a chairperson, who will be the Group's representative on the TLDMG.

(b) To revise the areas of the TLDMP for which the respective working groups have responsibility.

(c) To provide a forum for discussion and planning relating to their respective functional areas within the *Townsville Local Disaster Management Plan*.

(d) To assist the TLDMG in the preparation of short term, medium term and long term strategies to reduce the risk of disasters and their effect on the community.

(e) To exercise functions on an annual basis

(f) To update plans and procedures on an annual basis

2.9.2 TLDMG Local Recovery and Resilience Group & Subgroups

A single overarching Recovery Group may be formed – refer Terms of Reference Alternatively, the TLDMG Local Recovery & Resilience Group may decide to activate one or more of its Recovery Subgroups as follows:

HUMAN-SOCIAL RECOVERY SUBGROUP

The key function is to address the human-social recovery aspects of a disaster. In Townsville, this is achieved through the Northern Social Services Network. A Terms of Reference is available.

ECONOMIC RECOVERY SUBGROUP

The key function is to address the economic recovery aspects of a disaster. A Terms of Reference is available.

ENVIRONMENTAL RECOVERY SUBGROUP

The key function is to address the environmental recovery aspects of a disaster. A Terms of Reference is available.

INFRASTRUCTURE RECOVERY SUBGROUP

The key function is to address the infrastructure recovery aspects of a disaster. A Terms of Reference is available.

2.9.3 Other Disaster Management Working Groups

TCC actively participates in a number of other disaster management related working groups that do not form part of the LDMG arrangements. These include:

- Joint Council Disaster Management Group
- Townsville District Disaster Health Functional Working Group.

The function and membership of these groups are held separately to this plan.

2.10. Training

The LDC, in consultation with the QPS-EMC, will ensure that all TLDMG Members including Deputies will undertake LDMG Induction as soon as possible.

In an effort to provide an effective training program, the LDMG works closely with QPS to provide a coordinated program of training from the Queensland Disaster Management Training Framework (QDMTF). The QDMTF outlines the core training courses and inductions relevant to the key disaster management stakeholders to support the effective performance of their role.

As the TLDMG strives for continuous improvement, the TLDMG has carried a motion requiring all Core and Deputy Core members of the TLDMG to complete the mandatory and needs based training modules as outlined in the learning pathway for each specific role in the QDMTF. Whilst there is no current legislation governing training for advisory members and members of the subgroups, the expectation is that those members will complete the Queensland Disaster Management Arrangements (QDMA) as a minimum requirement.

The LDC will also liaise with QPS in relation to accessing State/Federal training programs and will arrange for members of the TLDMG and subgroups to be made aware of training courses being offered by the Queensland Government or any other appropriate agency.

The training status of TLDMG Members will be tabled at each meeting. Records of training will be maintained.

In addition, TCC staff including those who support LDCC and Sheltering and Evacuation Operations are offered training from the QDMTF on an annual basis.

The annual training plan is developed by TCC and approved by the LDMG.

2.11. Exercises

Exercises will be used to help review the effectiveness of the TLDMP and Subplans. Exercises can take many forms from simple discussion type exercises to full scale operations.

Exercises are a key component of disaster management strategies:

- to practice coordination and liaison procedures between participating organisations in responding to a disaster event,
- to identify and take steps to address any serious procedural and/or functional weaknesses, and
- to test the effectiveness of all plans and procedures.

2.11.1 Local Disaster Coordination Centre Exercises

Disaster management exercises are held annually as arranged by the LDC (Team Manager, Emergency Management) and conducted to ensure:

- the activation of the LDCC, including staffing requirements, setting up of the facility, emergency power operation, communication links, etc. is tested; and
- to practice the use of the Incident Management System with all Council and other personnel who will work in the LDCC when it is operational.

2.11.2 Full Local Disaster Management Group Exercises

Discussion exercises for the TLDMG, are to be held annually to test the disaster management planning arrangements. Where practical these are to be facilitated by an independent facilitator.

The TLDMG will participate, where possible, in exercises being conducted by other relevant emergency services that may require the involvement of the Local Disaster Management Group.

2.11.3 Operational Plan Exercises

To be conducted prior to the review of the Operational Plans. Designated responsible agencies should prepare and conduct discussion exercises with members of the working groups to assist in the development of the operational planning process.

If through the course of the exercise it is recognised that there is a need for change in key Representatives such as Chairs of Groups, the LDMG will as soon as practicable, inform the District Disaster Coordinator, of the new appointment.

2.11.4 Exercise Schedule

The TLDMP and associated sub plans are to be exercised annually between July and December each year. The LDC will determine the components of the plan and the nature of the exercise to be conducted based on identified weaknesses and a threat analysis from agencies such as the Bureau, with regard to predicted weather over the next 12 months.

2.12. Post Event Processes

Following any exercises or disaster events that affect the region, the TLDMG will ensure debriefing is undertaken and that a post exercise or event report is developed for TCC which clearly articulates any lessons identified for the future.

Table 6: Post event process

Hot debrief	Short debrief (30 minutes maximum) undertaken immediately after operations are complete giving participants the opportunity to share learning points while the experience is still very fresh in their minds. Multiple hot debriefs during protracted operations may be appropriate to identify significant issues and provide prompt solutions for immediate implementation. These debriefs will be instigated and organised by the LDC. Notes from these debriefs will be distributed as soon as practicable.
Post-event (Cold) debrief	To be held within two (2) weeks following an operation, when participants have had an opportunity to take a considered view of the effectiveness of the operation. Minutes from the post-event debrief will be distributed as soon as practicable and tabled at the next meeting of the TLDMG.

Where possible, a person external to the TLDMG will conduct the evaluation of all major events and exercises to ensure the process is conducted in a competent, timely, fair and cost-effective manner. The evaluator will be required to possess relevant experience, as well as a comprehensive understanding of the Queensland Disaster Management Arrangements. An example of this would be an LDC from another LDMG or a QPS EMC, who is not a core member of the TLDMG, fulfilling the role of Exercise Evaluator.

For desktop and small scale exercises the LDC can act as the exercise evaluator and utilise the debrief templates to record feedback and outcomes. For major exercises, consideration is recommended for the utilisation of external evaluators from IGEM, or other combat agencies involved in the exercise.

Recommendations resulting from the reviews will be reported to the TLDMG and forwarded to the DDC for consideration.

A Timeline of Events for TLDMG and LDCC will be prepared by the LDC following the event. This report will be tabled at the next TLDMG and council meetings.

2.13. Continuous Improvement

The LDMG is committed to the practice of continuous improvement which involves disaster management processes and arrangements being regularly reviewed and evaluated to ensure they remain relevant, efficient, effective and flexible.

3. Community Profile

3.1. Community Profile - Townsville

This section provides an understanding of the community profile which is critical for managing disaster risks. Understanding of community profile along with natural hazard risks enhances the development of robust disaster management plans, helping to reduce the impact of disasters on the community.

3.2. Environment

3.2.1 Geography & Topography

Townsville is located approximately halfway between the tip of Cape York and Brisbane. The local government area covers 3,738 sq kilometres (or 0.2% of the total area of Queensland) with the Coral Sea coastline extending approx. 230km from Mt. Spec in the North, along coastal communities to the Bohle River and continuing south through Cleveland and Bowling Green Bay National Park to the Haughton River. The Townsville area is bounded by the Great Dividing Range (Hervey's Range) to the west, the Mount Elliot area to the south, and the Paluma Range to the north.

Townsville is a coastal city bounded by mountain ranges in a dry-tropical environment. The region is characterised by diverse landforms and ecosystems. In the low lying coastal plain, there are a number of rivers, creeks and freshwater wetlands. Hills and mountains rise out of the coastal plain, while the long coastline features beaches, mangrove estuaries, saltpans and coastal swamps.

The urban areas of Townsville have been developed primarily along the coastal fringe on the flood plain areas adjacent to the Ross River and Bohle River. There are several small, elevated sites within the developed area including:

- Castle Hill
- Mount Louisa
- Mount Stuart

The Townsville Local Government Area (LGA) adjoins Hinchinbrook Shire Council to the north, Burdekin Shire Council to the south and Charters Towers Regional Council to the west. The Townsville LGA includes the areas of:

Table 7: Townsville LGA areas

• Acheron Island	• Condon	• Lynam	• Reid River
• Aitkenvale	• Cordelia Rocks	• Majors Creek	• Rollingstone
• Alice River	• Cosgrove	• Mount Elliot	• Roseneath
• Alligator Creek	• Cranbrook	• Mount Louisa	• Ross River
• Annandale	• Crystal Creek	• Mount Low	• Rosslea
• Arcadia	• Cungulla	• Mount St John	• Rowes Bay
• Balgal Beach	• Currajong	• Mount Stuart	• Saunders Beach
• Barringha	• Deeragun	• Mundingburra	• Shaw
• Beach Holm	• Douglas	• Murray	• Shelly Beach

• Belgian Gardens	• Florence Bay	• Mutarnee	• South Townsville
• Black River	• Garbutt	• Mysterton	• Stuart
• Blue Hills	• Granite Vale	• Nelly Bay	• Thuringowa Central
• Bluewater	• Gulliver	• Nome	• Toolakea
• Bluewater Park	• Gumlow	• North Ward	• Toomulla
• Bohle	• Heatley	• Oak Valley	• Toonpan
• Bohle Plains	• Herald Island	• Oonoonba	• Town Common
• Bramble Rocks	• Hermit Park	• Pallarenda	• Townsville City
• Brookhill	• Hervey Range	• Paluma	• Vincent
• Burdell	• Horseshoe Bay	• Picnic Bay	• West End
• Bushland Beach	• Hyde Park	• Pimlico	• West Point
• Calcium	• Idalia	• Pinnacles	• Woodstock
• Cape Cleveland	• Jensen	• Railway Estate	• Wulguru
• Castle Hill	• Julago	• Rangewood	• Yabulu
• Clemant	• Kelso	• Rasmussen	
• Cluden	• Kirwan	• Rattlesnake Island	

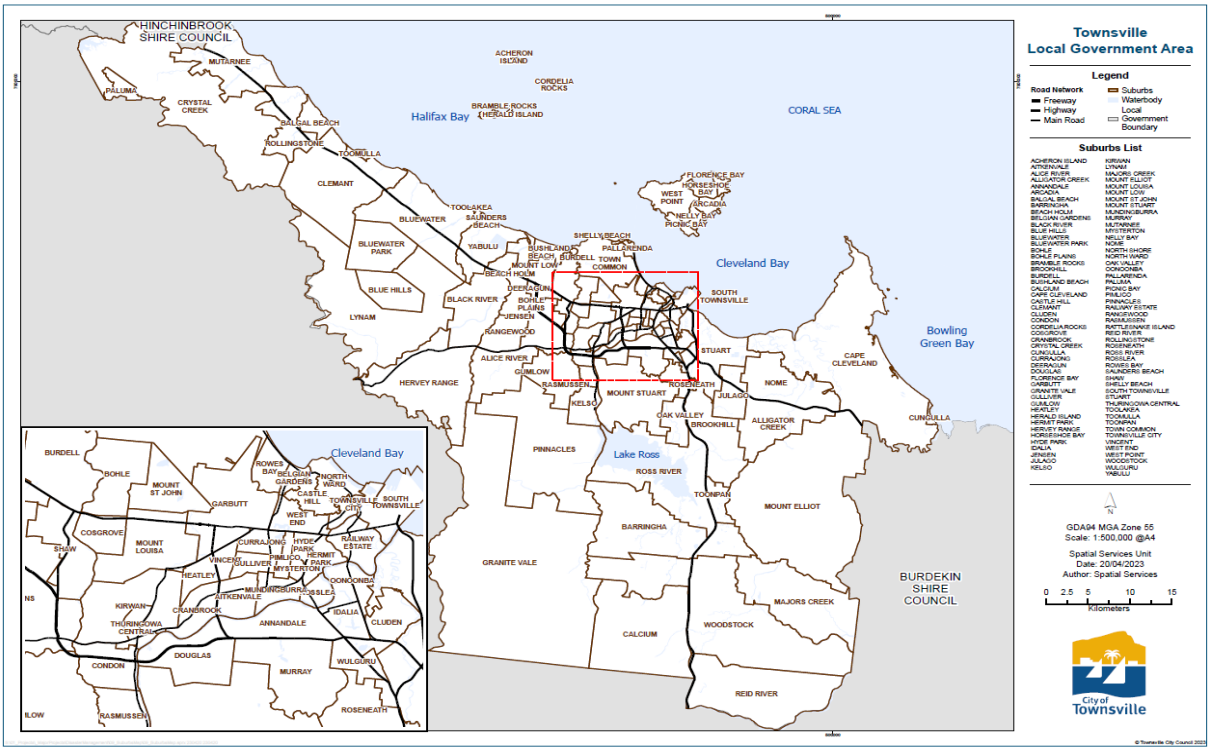

Figure 6: Townsville LGA map Source: Townsville City Council Demographic Profile Townsville Suburbs, August 2020

3.2.2 Climate & Weather

Townsville is situated within the Burdekin Dry Tropics Region, which extends approximately 95,000 square kilometres and includes Charters Towers, Bowen and Ayr.

The weather is predominantly dry through the winter months, the peak tourist season, with an average maximum temperature of 28.1^{O}C. During the Wet Season, between November and April, the temperature can reach 35.0^{O}C, with humid conditions and this is generally the period that cyclones and storms may affect the community.

High intensity tropical storms and cyclones feature in the region's weather pattern. Tropical cyclones, the most infamous being Cyclone Althea in 1971 and Cyclone Yasi in 2011, may produce a complex hazard of heavy rain and floods, destructive winds and storm surges on the coastal fringes. Waterlogging, soil erosion, riverbank and coastal erosion, depositing of sediments on fertile land and large-scale transport of marine sediments are associated problems.

Townsville experiences an average rainfall of 1143mm/year and 91 rain days, with the majority of this rain falling between November and April. *(Source: City Profile - TCC Website)*.

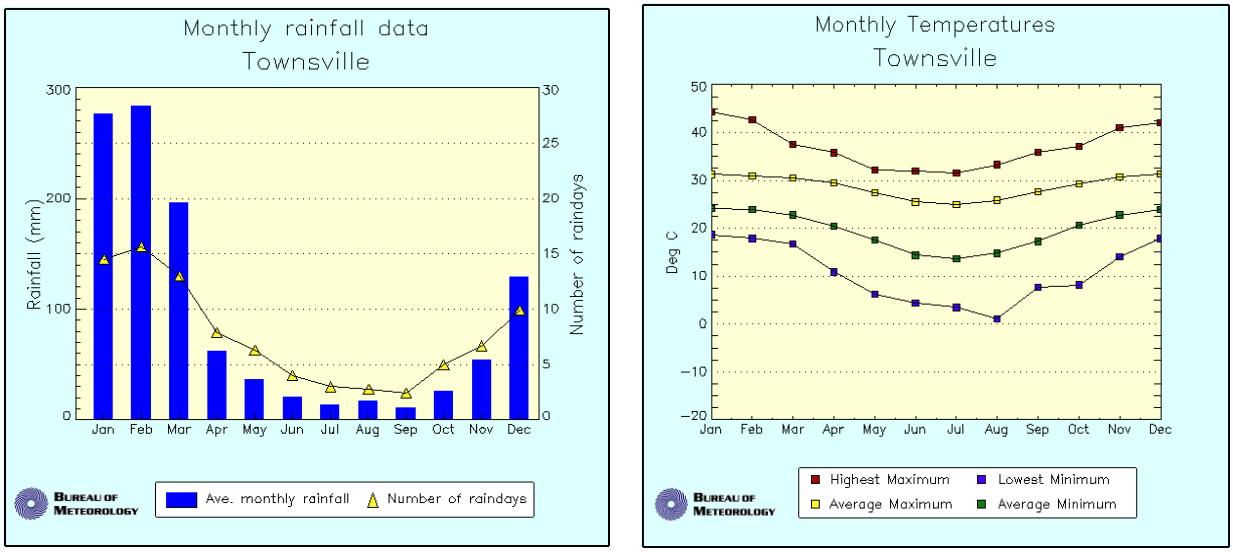

Figure 7: Left: Monthly average annual statistics for rainfall. Right: Maximum and minimum monthly temperatures. (Source: BoM) (Source: BoM)

3.2.3 River Systems

The location of the Great Dividing Range has created many catchment areas which have small well-defined catchments with relatively quick run off times (12 hours or less) for rainfall. The major systems are:

- Alligator Creek — Rural
- Stuart Creek — Industrial

- Ross River
- Ross Creek
- Bohle River

} Urban

- Black River
- Bluewater Creek
- Rollingstone Creek

} Northern beaches / Urban / Semi Rural / Coastal development

The major rivers in the Townsville region are the Ross River, Bohle River and Haughton River. Located on the north-eastern coast of Queensland, these rivers feed into the South Pacific Ocean, creating a freshwater estuary environment. The Ross River runs from Mt. Stuart to Black Weir east of Townsville and is fed by numerous lakes before flowing out to sea. The Bohle River, which is shorter in length than the Ross, runs through the western areas of Townsville and is known for its abundant wildlife; being home to a variety of wetland birds, water dragons and wallabies. Finally, the Haughton River, located south-west of Townsville, is longer than both the Ross and Bohle Rivers, leading from its source at Lake Dalrymple all the way to its mouth at Cape Bowling Green.

With residential development along flood plain areas of the Ross and Bohle Rivers and many communities along the coastline, cyclones and storm tide effects and localised flooding from monsoonal rains are the greatest natural hazard in the area.

3.2.4 Landscape

The Townsville City Council area encompasses a range of landscape types including beaches, sand dunes, river systems, wetlands, heath plains, woodlands, rainforests and ranges. In the low-lying coastal plain, there are a number of rivers, creeks and freshwater wetlands. Hills and mountains rise out of the coastal plain, creating distinctive landmarks such as Castle Hill.

The long coastline features beaches, mangrove estuaries, saltpans, and coastal swamps. These natural habitats support a wide range of flora and fauna including: 53 mammal species; a large number of reptiles and amphibians including land snakes, estuarine crocodiles, and a diverse range of lizard and frog species; and at least 365 bird species. Endangered, vulnerable and rare species are also found, including mahogany gliders, dugong, and cassowaries.

National parks and other reserves include Magnetic Island, Paluma Range, and Bowling Green Bay National Parks, and the Cape Pallarenda and Townsville Town Common Conservation Parks. Our region is partly within and adjoins the Great Barrier Reef World Heritage Area, the Great Barrier Reef Marine Park, and the Queensland State Marine Park.

3.2.5 Geology

The regional geological setting for Townsville is complex; ancient rocks approximately 600 million years old form a basement or foundation, which is clearly concealed by rocks of younger igneous activity – volcanic eruptions and emplacement of molten granite magmas.

In more recent geological times, extensive areas have experienced the effects of erosion, and in some places, have been covered by sediments produced from further erosion. (Source: Trezise and Stephenson (1990).

The simplified surface geological conditions are clearly reflected in the physiography of the landscape and may be summarised as:

- Coastal Plain (Flat coastal lowlands)
- Coastal Ranges – Isolated mountain masses
- Hervey Range Escarpment.

The marine sector (offshore) of the City of Townsville comprises the Continental Shelf (inner and middle; Trezise et al, 1989), a shallow, gently sloping platform (with depth below sea level ranging from 30 to 200m) mantled by both marine and terrestrial sediments a few million years old, upon which the coral reefs of the Great Barrier Reef are built. The complex structural domain that exists today can be inextricably linked to the regional plate tectonics in the development of the Coral Sea Basin (Source: Centre for Earthquake Research in Australia report 'EARTHQUAKE RISK ASSESSMENT FOR THE CITY OF TOWNSVILLE' June 2006)

Soils in the City of Townsville (Mainland Suburbs)

Comprehensive surveys of the soils of the Townsville coastal plain have been documented by Murtha (1975, 1982). The surface geology of a significant portion of the Mainland Suburbs of the City is composed of Quaternary alluvial deposits. Most of the soils are composed of sand and clay. Soil depths are variable with maxima in the range of about 100-150cm. These are overlain by the shallow soils (erosional and depositional products). Urban and rural development is concentrated in these areas.(Source: Centre for Earthquake Research in Australia report 'EARTHQUAKE RISK ASSESSMENT FOR THE CITY OF TOWNSVILLE' June 2006)

3.2.6 Vegetation

The local vegetation reflects the particular climate and weather patterns of the area and contrasts with the wetter north and drier west. Dry tropical and eucalypt dominated savannah vegetation prevails in the lowlands and reaches the coast in places, and deciduous vine thickets occur as a mosaic of isolated patches.

Narrow riverbank communities' thread through the coastal plain and are heavily populated by eucalypts and paperbarks. Rainforests are prevalent in the high rainfall upland areas of Mount Elliot in the south and the Paluma Range in the north. The Paluma Range uplands are incorporated in the Wet Tropics World Heritage Area.

3.3. Human-Social

3.3.1 Population

The 2021 Census determined the resident population of the Townsville City Council LGA was 192,768. The Estimated Resident Population in 2023 is 201,433 with a density of 53.83 people per km^2. The population breakdown for the TCC LGA is as follows:

Table 8: TCC LGA population data

Area	Population
Aitkenvale	4,810
Alligator Creek and District	2,982
Annandale	8,366
Balgal Beach - Rural West	3,869
Belgian Gardens - Rowes Bay	2,616
Black River - Alice River - Hervey Range	5,388
Burdell	7,161
Bohle Plains - Rangewood - Shaw	5,821
Bushland Beach	6,635
Castle Hill - North Ward	6,039
Condon	5,909
Cosgrove - Mount Louisa	9,886
Cranbrook	5,855
Currajong	2,488
Deeragun - Jensen	6,072
Douglas	7,760
Gulliver	2,882
Heatley	3,899
Hermit Park	3,556
Hyde Park - Mysterton	2,176
Idalia - Cluden - Oonoonba	7,039
Julago - Stuart	1,948
Kelso	10,600
Kirwan	20,781
Magnetic Island	2,477
Mount Low - Beach Holm	5,519
Mundingburra	3,587
Murray - Roseneath and District	1,953
Pimlico	2,558
Railway Estate	2,877
Rasmussen	4,658

Area	Population
Rosslea	1,872
Rural South East	929
Shelly Beach - Garbutt and surrounds	3,305
South Townsville	2,427
Thuringowa Central	1,953
Townsville City	2,941
Vincent	2,211
West End	3,886
Woodstock District	641
Wulguru	4,402
Central Business District	2,920

At the 2021 census, 49.9% of the LGA resident population identified as male and 50.1% as female. The median age in the region was 36 years old, compared with 38 years old as the median age for Queensland. Children aged 0-14 years made up 19.2% of the population, people aged 65 years and over made up 14.3% which is considerably lower than the state percentage of 17%. The remaining 66.5% of the population were aged between 15 and 64 years old. The largest represented age group was those between 20 and 24 years old.

3.3.2 Cultural Diversity

The Traditional Owners and original custodians of the lands of the TCC area are the Wulgurukaba of Gurambilbarra and Yunbenun, Bindal, Gugu Badhun and Nywaigi people. At the 2021 Census, 8.4% of the population of the TCC area identified as being of Aboriginal or Torres Strait Islander descent.

At the 2021 Census, 78.7% of people indicated they were born in Australia. The most common other countries of birth were England 2.5%, New Zealand 2.1%, Philippines 1.1%, India 0.9% and South Africa 0.5%.

At the 2021 Census, 83.9% of households spoke only English at home. There were 10.3% of households where a non-English language is used. The top five non-English languages spoken at home for the total population of Townsville LGA were Tagalog (0.5%), Malayalam (0.4%), Italian (0.3%), Mandarin (0.3%) and Filipino (0.3%).

3.3.3 Families, Households & Dwellings

Data obtained from the 2021 Census indicates there are 49,777 families in Townsville. Of these, 39.8% are couple families with no children, 39.7% are couple families with children, 18.7% identified as one parent families and 1.8% as other families.

At the 2021 Census, there were 69,892 occupied private dwellings in the Townsville City Council area. Of these, 81.1% were separate, detached houses, 11% were semi-detached row, terrace or town houses, 7% were flats, units or apartments and 0.7% were other dwellings such as caravans, tents and sheds. There were 10.3% of private dwellings unoccupied. The Townsville City Council area had a lower percentage of home ownership with 24.7% of occupied private dwellings owned outright, compared with 29.1% in Queensland and 31% in Australia. A further 35.7% of Townsville City Council households were purchasing their house with a mortgage. The median monthly mortgage repayment in the region was $1,517, lower than the Queensland median monthly repayment of $1,733.

At the 2021 Census, 36.6% of Townsville City Council area households were renting, with a median weekly rent of $305. This is lower than the $365 weekly median rent for Queensland. The communities that have the highest rental percentages are Townsville City (49.4%), Douglas (48.7%), Central Business District (47.4%) and Castle Hill – North Ward (46.6%).

3.3.4 Socioeconomic Disadvantage

The Australian Bureau of Statistics Socio-Economic Indexes for Areas (SEIFA) 2021 by LGA includes the Index of Relative Socio-economic Disadvantage, (IRSD) which is an index that summarises the relative disadvantage of people and households within an area. The IRSD considers a range of economic and social condition variables to determine an area's relative disadvantage score. Indicators which are considered include the percentage of population who are on low income, unemployed, without internet, have no/low educational attainment, undertake low skilled employment, have health conditions, no personal transport, poor English, or are one parent families. A low score is indicative of a relatively greater general disadvantage in the population when compared with other areas.

In 2021, the Townsville City Council area received a relative disadvantage score of 990. When compared to all of Australia's suburbs and localities, this score placed Townsville Shire in the 59th percentile, meaning that 59% of Australia's communities are more disadvantaged than the Townsville Shire, while 41% are considered to have a lower level of disadvantage than Townsville. The level of disadvantage varies across the city with Bohle Plains – Rangewood – Shaw identified as the least disadvantaged and Vincent identified as one of the most disadvantaged areas.

3.3.5 Access to Motor Vehicles

Within Townsville 5.2% of people do not have access to a motor vehicle which is just lower than the state average of 5.7%. Suburbs with a very high percentage of dwellings without access to motor vehicles are Murray – Roseneath district (18.3%), Pimlico (14.9%) and Magnetic Island (13.3%) Therefore, these areas may need extra assistance in evacuating.

3.3.6 Vulnerable Persons

The Townsville City Council area includes people who may be highly vulnerable to the impacts of disasters. At the 2021 Census, 32.6% of the population identified as experiencing one or more long term health conditions. There was 5.9% of the population needing assistance with core activities with the majority of these in the age group 70 years and over.

There are several aged care facilities and retirement homes located across the region:

- Ozcare Villa Vincent Aged Care Facility, 2 Acacia Street, Mundingburra
- Parklands Residential Aged Care Facility, 138 Thuringowa Drive, Kirwan
- Arcare Aged Care North Shore, 77 Main Street Burdell
- Regis Corinthian Court Retirement Village , 1 Emerald Street, Townsville
- RSL Care Rowes Bay Retirement Home, 9 Havana Street, Rowes Bay
- Bolton Clarke Glendale Retirement Home, 453 Dalrymple Road, Mount Louisa
- St Vincent's Aged Care, Assisted Living Facility, 291 Angus Smith Drive, Douglas
- Masonic Care Queensland, Retirement Home, 1 Emerald Street Townsville
- Carinity Fairfield Grange, Assisted Living Facility, 3 Kokoda Street, Townsville
- The Good Shepherd Home, Retirement Home, 565 University Road, Townsville
- Prescare, Retirement Home, 178 Hugh Street, Currajong
- Ozcare, Homeless Shelter, 10 Blackwood Street, Townsville
- Bolton Clarke Rowes Bay Retirement Home, 50 Cape Pallarenda Road, Rowes Bay
- Brooklea Lifestyle Village Retirement Home, 1 Lindeman Avenue, Cranbrook
- Churches of Christ Townsville, Retirement Home, 260 Fullham Road, Heatley
- Eureka Wulguru, Retirement Home, 195 – 217 Stuart Drive, Townsville
- Cranbrook Suites, Retirement Home 53 – 57 Bergin Road, Townsville
- Carlyle Gardens, Retirement Village, 60 N Beck Drive, Townsville
- Eureka Care Communities Condon, Retirement Home, 871 Riverway Drive, Townsville
- Oak Tree Retirement Villages, Retirement Village 29 Maria Street Rasmussen
- Bluecare Mount Louisa Aged Care Facility, 489 Bayswater Road, Townsville

Aged care facilities in the region are generally well connected and resilient and have robust business continuity plans in place. Further detail on these facilities are held in Guardian IMS.

At the time of the 2021 Census, 900 people in the Townsville LGA were considered homeless.

Within all communities, for any number of reasons, members may be, or become, vulnerable for shorter or longer terms. Such reasons include a reliance on mechanical life support systems (e.g. dialysis, ventilators), a culturally or linguistically diverse background, isolation, little social support or high levels of socio-economic disadvantage, visitors to the region, or chronic or acute health conditions. In 2017-2018 the Australian Bureau of Statistics found just under half of Australians had one or more chronic health conditions and 1 in 5 reported having a mental or behavioural condition (ABS, 2017-2018).

3.3.7 Community Preparedness & Capacity

The population of the Townsville region continues its annual increase with opportunities presented through the northern economic boom. Although people are flocking to North Queensland for the opportunities and staying for the lifestyle, this has created a community where a large percentage of residents are new to the North Queensland environment and weather. Long term and particularly, rural residents with previous experiences of disaster events are generally resilient and to a large extent self-supportive, at least for several days, during and after a natural disaster. Newer and younger residents with no memory or experience of a disaster event, such as Tropical Cyclone Larry, Tropical Cyclone Yasi, the 2019 Rain Event, and more recently Tropical Cyclone Kirrily are likely to be less prepared to cope and more dependent on government services.

As Townsville is the major centre in North Queensland, there is a vast range of State and Federal Department support readily available to the community. There is also an extensive range of non-Government organisations (NGOs), and community groups established within the area. However, the majority of these organisations are experiencing ageing and the dwindling of membership numbers (an Australia wide trend). This pressures the ability and effectiveness of community service groups to respond in emergencies.

Notwithstanding the limitations of a small percentage of the populace, the community is essentially regarded as having the capacity to respond to and recover from most hazard situations. Pragmatic and practical values of living in North Queensland, engenders a significant degree of self-reliance, within the community which brings stability, capability and sustainability.

3.3.8 Emergency Services

There is a solid base of emergency service response capacity spread across the region, as listed below:

Table 9: Emergency services in the Townsville region

Emergency Services	Locations
Queensland Police Service (QPS)	QPS stations are located at Aitkenvale, Deeragun, Hermit Park, Kirwan, Magnetic Island, Rasmussen, Rollingstone, Stuart and Townsville City. Police Beats are located in Ronan Street Vincent, Stuart Street North Ward and Gorden Street Garbutt
Queensland Ambulance Service (QAS)	QAS stations are located at Kirwan, Magnetic Island, Northern Beaches and Townsville
Queensland Fire Department (QFD) – Fire & Rescue	Fire & Rescue stations located at Kirwan, Magnetic Island, Townsville City, Woodlands and Wulguru
Queensland Fire Department – Rural Fire Service QLD	Rural Fire Brigades located at Townsville City, Wulguru, Kirwan, Nome, Black River, Rangewood, Herveys Range, Lime Hills Elliot, Mountview, Majors Creek, Rollingstone, Horseshoe Bay, Paluma, Haughton, Reid River
State Emergency Service	SES units are located at Townsville, Bluewater, Rollingstone, Mt Spec, Paluma and Magnetic Island
Coastguard	Volunteer squadron (Townsville) QF8 Townsville Sir Leslie Thiess Drive Townsville
Surf Life Saving	Clubs are located at The Strand North Ward, Picnic Bay Magnetic Island, Cannan Street Townsville

3.3.9 Medical Facilities

The Townsville Hospital and Health Service is one of the most geographically dispersed catchments, extending west to Richmond and Hughenden, north to Cardwell, south to Home Hill and east to Magnetic and Palm Islands. We support a population of almost 250,000 people. Our health service is also home to Townsville University Hospital, North Queensland's only tertiary hospital, which supports a referral catchment of almost 700,000 people.

Townsville University Hospital is the largest facility within the Townsville Hospital and Health Service (THHS) geographic area. Townsville University Hospital is located in the suburb of Douglas and has Community Health Campuses' in Kirwan, North Ward, Cambridge Street in Vincent and Palmerston Street in Vincent. A health care facility is located on Magnetic Island.

An overview of THHS can be found at: https://www.health.qld.gov.au/services/townsville

Private Hospitals include:

Mater Private Hospital Pimlico

Mater Private Hospital Hyde Park

3.3.10 Primary Health Care

Northern Queensland Primary Health Network (NQPHN) is located at the JCU and is the lead organisation working to improve healthcare in local communities in North Queensland. It is an independent, not-for-profit organisation funded by the Australian Government. The core functions are to

coordinate and integrate local health care services in collaboration with local Hospital and Health Services (HHSs) to improve quality of care, people's experience, and efficient use of resources

commission primary care and mental health services to address population health needs and gaps in service delivery and to improve access and equity

assist with capacity-building and provide practice support to primary care and mental health providers to support quality care delivery.

Medical clinics serviced by GPs, registered nursing and specialist staff are located across the TCC LGA.

There are community pharmacies in most suburbs and shopping centres.

3.3.11 Education

Australian School Directories latest data indicates there are 34 public schools and 22 private or independent schools including 4 boarding schools in the TCC LGA. There are 11 early childhood C & K Kindergarten education and care services and several more childcare centres. There are 2 TAFE campuses located at Pimlico and Bohle. A contact list is maintained as part of the LDMG Emergency Contact List – refer to Guardian IMS.

JCU Townsville campus is located in the Townsville Tropical Intelligence and Health Precinct (TropiQ) in the suburb of Douglas. Set in a 386-hectare natural bush and parkland setting, 13 kilometres (8 miles) from the Townsville CBD, the campus houses around 1,400 students in colleges and halls of residence. Over 13,000 students are part of the JCU Townsville community, including approximately 1,500 international students.

3.3.12 Social Support

The Townsville City Community Directory identifies a variety of government and not-for-profit social support services available in the Townsville City Council area with providers offering various levels and types of services.

3.3.13 Recreation

Multiple community, sporting, cultural and service groups operating across the TCC LGA. The Townsville City Council website identifies Sporting Clubs and Recreation Facilities as well as other recreational events and locations.

The region has a wealth of natural assets and points of interest including:

- Magnetic Island
- The Strand
- Castle Hill
- Paluma National Park
- Rowes Bay
- The Great Barrier Reef
- Riverway
- Beaches, recreational parks and reserves

3.3.14 Annual Community Events

Community events can support preparation and recovery activities. The Townsville region hosts several annual community events that attract large concentrations of people. The city hosts three national sporting franchises, the North Queensland Cowboys National Rugby League (NRL) North Queensland Cowboys National Rugby League Woman (NRLW) , and Townsville Fire - Women's National Basketball League (WNBL). A full list of events can be found at What's on Townsville . Some of these annual events include:

- Australia Day Celebrations – January
- Anzac Day – April
- Townsville Show - July
- NTI Townsville 500 – July
- Magnetic Island Race Week – August – September
- Get Ready Day - November
- Christmas Celebrations / Carols – December
- New Year's Eve Celebrations – December / January

3.4. Economy

Townsville is regarded as the commercial, industrial and administrative hub of North Queensland. The city's strategic location, with rail and road links in the north, south and west, allows the sea port to manage shipments of minerals, livestock, sugar and other cargo. Businesses are also attracted by our plentiful supply of water, power and real estate.

Tourism in Townsville and throughout the Northern Region is viewed often in local economic reports as an important aspect of the regional economy and with the potential to expand. Given the distances to be travelled, the Townsville area and the Northern Region are comparatively successful in attracting tourists.

Townsville is renowned for its easy-going lifestyle, tropical weather and natural surroundings, which range from arid landscapes to rainforests and the Great Barrier Reef. With family-friendly entertainment and vibrant cultural experiences always on offer, the city's population has grown rapidly in recent years as visitors taste the lifestyle and return to live as locals.

An economic profile of the Townsville City Council area can be found here: https://economy.id.com.au/townsville

3.4.1 Workforce

At the 2021 Census, the total labour force participation rate for the Townsville City Council area was 63.6%, with 5.1% unemployed. The most common occupations included Professionals 19.7%, Community and Personal Service Workers 16.1%, Technicians and Trade Workers 14.6%, Clerical and Administrative Workers 12.3% and Managers 10.1%.

At the 2021 Census, the median weekly income for people aged 15 years and over in Townsville was $864, higher than the Queensland weekly median of $787. In the Townsville City Council area, 10.2% of the population earned an income of $2,000 or more per week in 2021. In 2021, the median household income was $1,701. Suburbs with the highest percentage of low household income (less than $800 per week) were Pimlico (36.6%) and Magnetic Island (33.8%).

Of people aged 15 and over in Townsville in 2021, 16% reported having completed Year 12 as their highest level of educational attainment, 20.9% had completed a Certificate III or IV, 8.2% had completed a Diploma or Advanced Diploma, and 18.1% had a bachelor's degree level or above qualification.

3.4.2 Key Industries

Townsville City Council's economic profile identifies that the key employment industries that drive the Townsville economy are Health Care & Social Assistance (18.2%), Public Administration and Safety (14.3%) and Education and Training (10.3%). In combination, these three industries account

Natural Resources

The Townsville Region's main natural resources are its fisheries and extractive materials, which make a substantial contribution to the regional economy. Resources such as good agricultural land, forests and timber and water are less significant, and the region tends to rely on adjacent areas such as the Burdekin, which provides horticultural produce and supplements the regions bulk water supplies. These resources are of economic and social importance in creating jobs and export earnings, as well as in providing recreation opportunities for residents and visitors.

The region is provided with a range of significant quarry materials, which support the regional building industry. An abundance of granite, silica, quartz, gravel, hard rock, clay and limestone exists. The region is also nationally and internationally recognised for the quality of recreational fishing which provides a substantial attraction for tourists. A substantial commercial fishing industry is based in Townsville. Aquaculture and the downstream processing of seafood are seen as having growth potential.

Good quality agricultural land is relatively limited to the alluvial flats associated with rivers and creeks. The unreliable rainfall means that agricultural activities are limited to dry land cane farming and fruit tree cropping. The grazing of beef cattle on the lesser quality lands that predominate the region is the main agricultural pursuit (Queensland Department of Communication and Information, Local Government, Planning and Sport 2000).

Mining and Mineral Processing

Mining industry development has led to the region becoming a major centre for mineral processing. Three large mineral processing plants are located in the Townsville area:

- Townsville Copper Refinery (Glencore)
    - Commissioned in 1959, this refinery which processes copper ore mined in Mount Isa is now Australia's
    - largest copper refinery. Copper produced to 99.995% purity in sheet form is then exported overseas.
- Yabulu Nickel Refinery (currently not operational)
    - The Yabulu nickel refinery, commissioned in 1974, was regarded as one of the largest and most efficient nickel and cobalt refineries in the world. Nickel ore was imported from Indonesia, New Caledonia and the Philippines, and nickel and cobalt products were exported worldwide. This facility ceased operations in 2016; however, some products remain on site
- Zinc Refinery (Sun Metals Corporation (SMC))
    - This zinc smelting and electronic zinc refining plant, commissioned in 1999, produces 170,000 tonnes per annum of high purity zinc metal at full production. It produces sulphuric acid as a byproduct, which is used by the Phosphate Hill fertiliser project near Mount Isa. SMC has completed construction on sulphuric acid storage facility in the Port of Townsville for export. SMC has a purpose-built high capacity hopper to expedite discharge from vessels in the Port of Townsville and invested heavily on road transport to optimise use of the Port Access Road and facilitate rapid transfer of raw materials from the port to the SMC facility.
    - The mining sector supports a range of infrastructure services in the region, including rail infrastructure such as the Townsville-Mount Isa rail link and the Townsville Port, which is a major point of export for Queensland's metallic mineral production (Department of Natural Resources & Mines 2002).

Agriculture

Agricultural production plays an important role in the Northern Region economy.

Commodities for which the Northern Region is a major state producer include capsicums, chillies and peppers (66.5% of Queensland's production), beans (49.4%), sugar cane (36.1%), mangoes (40.9%), tomatoes (67%) and rock melons (39.5%). Pineapples are also produced on large plantations around Rollingstone, and processing potatoes are grown around Majors Creek.

As is the case with the mining sector, the Townsville Port is a major point of export for agriculture. Major agricultural exports passing through the port include bulk sugar, meat and meat products and live cattle.

3.5. Infrastructure & Essential Services

3.5.1 Road

Townsville is in the Northern District of the Department of Transport and Main Roads (DTMR) area of responsibility. The Bruce Highway links Townsville to the southern and northern areas of Queensland, with the western areas being accessible via the Flinders Highway.

The urban road network is well developed and experiences continuous upgrading to meet increases in demand for road-based transport. There are approximately 1791 km of constructed public roads. They range in importance from the multi-lane Bruce Highway (approximately 130 km of Federal roads) to minor tracks (180 km of unsealed roads). There are also 'private' roads within areas such as the National Parks, JCU and Lavarack Barracks.

There are several areas on the highways that are susceptible to flooding during the wet season and may isolate the urban area. Some roads may be blocked by landslide debris, fallen trees (during bushfires or severe winds) and bushfire smoke.

The most vulnerable points tend to be bridges and other choke points such as railway crossings. There are 24 bridges and 161 major culverts on this road network with an additional 116 bridges on the shared pathway network. There are also 61 railway level crossings – some are protected by boom gates; the majority of them have warning lights.

A list of priority roads has been determined by the TLDMG.

3.5.2 Air

Townsville Airport is shared between Department of Defence (DoD) and Townsville Airport Pty Ltd (TAPL). DoD is responsible for the areas used exclusively for Military and TAPL is responsible for the areas used exclusively for Civil Operations. The areas of common use are called 'Joint User Areas.'

The Airport has two (2) sealed runways. The primary Runway is capable of facilitating all Civil and Military aircraft operating in Australia. Use of the Airport is generally shared between regular public transport, general aviation, Military, Domestic and International closed charter services.

Public domestic airlines schedule services for approximately 1.7 million passengers per year. General aviation operate fixed and rotary wing services predominantly throughout northern Queensland, and aero-medical services from Lifeflight, Royal Flying Doctor Service and Queensland Government Air.

DoD units based at Garbutt (RAAF Townsville) include 27 Squadron and the 5th Aviation Regiment (Army Aviation Corps) equipped with Chinook helicopters. These units are supported by a range of administrative, logistic and maintenance elements. The RAAF base is expected to expand further in coming years.

The airfield pavement is largely resilient to most hazards but may be blocked by flood waters (including storm tide) and debris from damaged buildings. Support facilities such as terminals and fuel systems could be damaged by destructive wind, earthquake and inundation hazards. The airfield will probably be closed in the face of a severe tropical cyclone where high winds make flying operations too dangerous.

3.5.3 Rail

There are over 120 km of main-line rail crossing the area. The Region is serviced by two major rail networks, the North Coast line between Brisbane and Cairns, and the Mount Isa line to the west. Both major rail networks have been upgraded to allow heavier and more efficient trains to operate and to reduce travelling times for freight and passenger trains.

There are spur lines to the port facilities and to rail freight depots in Stuart. None of this network is electrified. Pacific National Queensland operates above-rail intermodal and bulk services from its major regional centre at Stuart. Aurizon operates major locomotive and wagon maintenance facilities at Stuart.

Signalling and control equipment relies on electricity and telecommunications and is controlled by Queensland Rail from its building in Flinders Street in the CBD. As with roads, the most vulnerable points are level crossings, bridges, cuttings, embankments and overpasses.

Queensland Rail is responsible for the state's passenger operations, regional track maintenance and support services, and is owned by the Government. Aurizon (a privatised national company) operates the above-rail intermodal, coal and bulk services, and below-rail coal network in North Queensland.

3.5.4 Marine - Port of Townsville

The Port of Townsville (the Port) has eight berths servicing the export needs of North Queensland's minerals, agricultural and pastoral sectors, and facilitates the import of critical supplies such as petroleum products, cement, mining consumables, project cargo, containerised and general cargo. The facilities include rail and road access, deep-water berths to the wharf side, as well as storage and maintenance facilities.

The Port is a strategic location for the Australian Defence Force. Berth 10 accommodates Australia's largest military vessels, HMAS Canberra and HMAS Adelaide. Operating services are available for ADF and other visiting military vessels including refuelling and ship services.

3.5.4.1 FUEL IMPORT HUB

The demand for fuel imports through Townsville is projected to increase due to the commencement of new mining projects in the Northern Australia region, as well as population growth. The Port has bunker fuel pipelines on Berths 9 and 10 to enable Navy vessel refuelling, further increasing the demand for the import of fuel via Berth 1 and an important capability for Defence.

To support the growth of containerised cargo, project cargo and general cargo, the Port has recently completed construction for the upgrade of Berth 4 and a Cargo Handling Facility.

The Port is exposed to high seas and is likely to be closed in the face of an approaching severe cyclone.

3.5.5 Gas

The North Queensland Gas Pipeline (NQGP) is a high-pressure natural gas pipeline transports gas from Moranbah and supplies gas to customers at Yabulu and Stuart in the Townsville region. The pipeline is buried at an average depth of 900mm and constructed from steel with diameters of 300mm and 250mm protected with an anticorrosion coating and cathodic protection system. Pipeline isolation valves are located at Collinsville and Woodstock and pipeline operations are monitored 24/7 by remote control room with local on call support. In case of an emergency QPS and QFD would be the lead agency with assistance from NQGP.

3.5.6 Electricity

There is no base-load power station in the study area. There are two gas turbine power stations located within the study area that provide peak load supplementation. The Mt Stuart Power Station is an Open Cycle Gas Turbine generator with a capacity of 419 MW, and the Townsville Power Station (located at Yabulu) is a Combined Cycle Gas Turbine generator with a capacity of 242 MW. Note that they are both operated by independent generation companies.

There are two large-scale solar farms in the study area. The Ross River Solar Farm, with a capacity of 128 MW, and the Sun Metals Solar Farm, with a capacity of 143 MW. Both of these solar farms are semi-scheduled market generators. They are operated by independent generation companies, and they are connected to the Powerlink transmission network.

There are 275 kV, and 132 kV power transmission lines operated by Powerlink within the Council area. This infrastructure forms part of the State and National grid and is all carried on steel towers, located within cleared and well-maintained easements. The 132 kV network has 4 connection points with the Ergon Energy 66 kV sub transmission network.

Reticulation of electricity is operated by Ergon Energy. There are approximately 2,000 km of high and low voltage power cables and lines within the study area supply reticulation network. This consists of a 66 kV sub transmission network that supplies 23 zone substations, 11 kV distribution network supply approximately 4700 distribution substations, and a low voltage network for customer connections and street lighting. Most of this infrastructure is above ground and carried on timber poles with a combined length of approximately 4000 km. Underground reticulation is confined to the Townsville CBD area and some of the more recent residential subdivisions. Supply to Magnetic Island is from the mainland via twin undersea cables with a combined length of 23.7 km. Ergon operates 23 zone substations within the Townsville area.

High voltage transmission lines are susceptible to failure in dense bushfire smoke which permits the line to arc to the ground through the smoke. Ground-mounted transformers will be vulnerable to inundation hazards.

In the unlikely event that all incoming power transmission supply is lost, Powerlink and Ergon would work hand in hand to restore supply by creating a corridor from the south, either from the coastal 132kV line from Collinsville/Strathmore or via a 275kV line from Nebo/Strathmore, into Townsville. This would then be used to initially supply critical load and allow the gas turbines to start. Even with only one connection point to the 132kV network, the Ergon 66kV ring is capable of supplying emergency load (of approximately 60 - 90 MVA) to the entire city and maintaining proper statutory voltages to the

customers; however, this is dependent on the type and extent of damage sustained to the distribution network. As per Ergon's policy, critical supplies on the distribution 11kV are normally supplied via underground and as such, are only susceptible to flooding.

If power is lost, the knock-on effect on other lifeline infrastructures, especially water supply, sewerage systems and telecommunications, can be great. Gravity fed water supply would continue to operate until power supply (either mains or stand-by generators) to the pumps resumed unless the reservoirs were empty.

The TLDMG, in conjunction with Ergon Energy, has developed a Critical Facility Power Restoration List, for electrical resupply to essential services and businesses within the local government area. This list will be reviewed annually. Due to commercial-in-confidence, this list is stored internally with the LDC.

3.5.7 Wastewater

Sewerage reticulation is confined to the urban areas of Townsville City and the main infrastructure is underground. The majority of the 1285 km of pipeline network uses PVC pipes with AC and vitreous china making up a significant percentage, especially in the older areas. There are six wastewater treatment plants across the study area (Mount St John, Cleveland Bay, Condon, Toomulla, Horseshoe Bay and Picnic Bay). 45 sewerage-monitoring devices will be installed in 2020/21 to assist in providing situational awareness in relation to sewerage overflows.

3.5.8 Water

The urban areas and some non-urban residential areas of the study area are served by 2489 km of reticulated pipeline operated by Townsville City Council. Pipes range in size from 1050 mm trunk mains to 32 mm reticulation conduits. The most common materials used are PVC, asbestos cement (AC) and concrete-lined iron. Water is reticulated by gravity from 130 reservoirs.

The primary water supply is sourced from the Ross River Dam. The Douglas Water Treatment Plant is located in Douglas and provides approximately 85% of the city’s water supply needs. The Northern Beaches communities' water supply is mostly serviced from the Northern Water Treatment Plant situated north of Rollingstone (Kulburn) with water sourced from Crystal Creek and Paluma Dam. Paluma is serviced by a local weir and treatment plant. Cungulla sources water via a pipeline from Guru.

A bulk water supply pipeline exists between the Haughton Channel and the Ross River Dam and is currently being extended to source water directly from the Burdekin River.

Most of the reticulation infrastructure is underground, though some trunk mains, including the supply trunk from Crystal Creek, are above ground in some sections. Supply to Magnetic Island is via undersea trunk mains.

3.5.9 Referable Dams

There are two referable dams in the Townsville City Council area.

Ross Dam is both a flood mitigation dam and the water storage reservoir for Townsville City, owned and operated by Townsville City Council. An Emergency Action Plan has been developed for this dam.

Paluma Dam is an integral part of the Mt Spec water supply system, being the bulk supply for the Northern Water Treatment Plant that services the northern suburbs of Townsville. An Emergency Action Plan has been developed for this dam.

3.5.10 Stormwater

Control of stormwater is essential for providing access for emergency vehicles, residents and businesses, and for controlling damage to property and the environment. Reticulated stormwater systems are in place in the more populated areas of the Townsville City Council area. Stormwater infrastructure in some areas is limited to bridges, culverts, open channels and floodway's. The existing stormwater management systems may not be able to cope with stormwater volumes in extreme weather events.

3.5.11 Waste

Townsville City Council operates a Waste Facility at Stuart which is a landfill and transfer station. It can accept most residential and commercial waste and reusable or recyclable resources. There are four Waste Transfer Stations at located at Hervey Range, Magnetic Island, Toomulla and Bluewater and their capacity to accept waste varies at each Transfer Station.

3.5.12 Data & Communications

Telecommunication infrastructure is reliant on power supply. Telecommunication providers will determine the priority of site restoration in consultation with Ergon and Emergency Services. Our Field Services teams health and safety is our number one priority, and restoration of sites could be delayed until safe access is available.

- Fixed Lines – NBN Co
    - There is a multi-technology mix across the LGA, predominantly Fibre to the Premise and Fibre to the Node in urban areas, which is both underground and aerial (overhead) and involves roadside cabinet assets and exchanges. Castle Hill, Mundingburra, and Aitkenvale are serviced by aerial infrastructure. There are 150 Retail Service Providers selling services to customers over the NBN network.
- Fixed Lines - Private Networks
    - Some Enterprise customers and Government agencies have their own private networks provided by telecommunication companies e.g. Emergency Service agencies and large enterprise customers including Australian Defence Force.

Regardless of technology, any equipment connected to the nbn™ access network will not work during a power outage. While a significant part the nbn™ access network has in-built power back up, power outages may last longer than the battery life. Therefore, nbn's messaging is that communities should be prepared to be without landline phone and internet services for some time. While nbn will deploy generators in the case of an emergency event to power its infrastructure assets in the case of power outages, it is important to remember, unless there is backup power or generators in individual premises to power modems etc, telecommunications will not work.

3.5.12.1 MOBILES SERVICES

It should be noted that mobile phone base stations may be out of service due to high winds that can damage towers; therefore, the use of mobile phones should not be relied upon during emergencies. In the event of loss of mobile sites congestion may be experienced on other mobile sites in an overlapping area.

3.5.12.2 MOBILES SERVICES - TELSTRA

Telstra operates 4G and 5G mobile networks in the Townsville City Council District. As part of Telstra's Disaster Season preparations, Telstra provides Ergon with a list of Telstra's priority sites across Queensland and in most cases when Ergon power is restored to our sites, Telstra's services are also restored. Their sites typically have battery backup or generators, however these are not designed to maintain services for extended power outages. Their key network sites in the Townsville City Council district have permanent generators and fuel reserves onsite.

Telstra's recovery efforts include the deployment of additional field resources and community recovery teams, the use of drones helping to restore vital mobile services in disaster-hit communities quickly and safely, the release of disaster assistance packages for impacted consumers and businesses, the switching of payphones to have free calls and free data on Telstra Air and the deployment of Cell on Wheels (COWs) and Satellite COWs as required.

3.5.12.3 MOBILES SERVICES - OPTUS

Optus mobile services are supported by a team of local technicians. In the event of loss of mains power supply, Optus mobile towers have battery backup services to prevent immediate loss of communications. Optus has backup generators staged locally in the Townsville area and have supporting fuel resupply arrangements in place. Optus has installed auto-start generators at strategic mobile sites that may be difficult to reach in the event of a disaster such as sites on Magnetic Island and Rollingstone.

3.5.12.4 TEMPORARY EQUIPMENT

Telecommunication companies have a backup temporary equipment that can be deployed during events based on priorities (e.g. Telstra's Cell on Wheels (COWs) and Satellite COWs).

3.5.12.5 EMERGENCY CALLS

Calls made to 000 will be carried on any available mobile network. You must be in the coverage area of one of the mobile providers in Australia to make an emergency call.

3.5.13 Broadcast Radio & TV

Repeater stations for radio and TV services for the region are located on Mt Stuart.

3.5.14 Two Way Radio

The Townsville Amateur Radio Club (TARC) provides repeaters, beacons, and technical support for regional hams and is active providing logistic communications support for community organisations in North Queensland.

The club also has an active WICEN contingent and is very active in radio-based technologies

3.5.15 Public Buildings, Spaces & Events

The Townsville region has several major suburban shopping centres and the CBD area that daily attracts large numbers of shoppers. Four cinema complexes, a very active night club and restaurant area within the CBD and The Strand, major sporting venues for national and local sports, The Ville Casino, Entertainment Centre, art galleries, museums, Civic Theatre and Riverway Arts & Entertainment Centre all provide a large range of events for the community. There are also many popular day-use outdoor venues for the community along The Strand, at the beach suburbs and at various parks.

There are a large range of community events held in the Townsville area. These include annual events such as Get Ready Day, NTI Townsville 500 V8 Supercars, Eco Fiesta, North Australian Festival of Arts, Seniors Luncheon, Australian Festival of Chamber Music and monthly and weekly community markets to name a few.

3.5.16 Proposed Future Development

With Townsville's population projected to exceed 300,000 over the next 25 years, the Townsville City Plan sets the vision for how the city should grow to meet the social, environmental and economic challenges of the future. The Townsville City Plan:

- supports the growth of Townsville as a more compact city structured around a network of centres, with more housing choice and affordability
- encourages the revitalisation of the Townsville CBD to create a more vibrant and cosmopolitan community heart
- protects our traditional suburbs by preventing further development of 'six-pack' unit developments in these areas, with higher density development instead targeted in centre locations such as the CBD, Aitkenvale, Thuringowa Central, North Ward, Hyde Park • seeks to control the cost of living for the community by managing future infrastructure needs

protects our natural environment, both in and out of the urban area, ensuring our waterways, wetlands, critical habitat and ecological corridors are retained and enhanced.

4. Disaster Risk Management

4.1. Risk-based Planning

Risk-based planning is a critical element of all phases of disaster management. In Queensland this is achieved through the Queensland Emergency Risk Management Framework (QERMF) risk assessment process.

4.2. Risk Assessment Scope and Method

A QERMF-guided risk assessment was completed in 2024 for Townsville City by Deloitte. Six hazard scenarios were chosen for Townsville in collaboration with QFD which guided the assessment process. The following hazards were considered:

- Scenario 1: Severe tropical cyclone – Category 4 (1% AEP Wind Event, 0.2% AEP flood event in the Ross River, 1% AEP event in other flood areas, 0.1% AEP storm tide, associated landslide).
- Scenario 2: Category 2 Tropical cyclone / tropical low (5% AEP event for wind and flooding, 1% AEP event for storm tide).
- Scenario 3: Severe thunderstorm event (20% AEP flooding event).
- Scenario 4: Heatwave (based on Land Surface Temperature and BoM data)
- Scenario 5: Bushfire (based on statewide bushfire prone area mapping)
- Scenario 6: Earthquake (based on Geoscience Australia modelled event of 6.05 magnitude with associated tsunami).

These six scenarios were considered in detail and the results are provided below.

An additional hazard risk assessment was completed for other hazards, also using the QERMF framework. The following hazards were considered:

- Biosecurity (including exotic animal of plant disease)
- Chemical, Biological and Radiological Attack
- Critical Infrastructure Failure
- Dam Failure
- Drought
- Fire (structural fires causing fatality)
- Hazardous Materials (HazMat) Incident (both transport and facility-based)
- Information Technology Failure (not including cyber-attacks)
- Military Training Incident
- Pandemic / Epidemic
- Terrorist Attack
- Transport Incident (Major Road, Rail, Air and Sea incidents)

These additional hazards were assessed with information from authoritative sources on incident frequency and consequences, building on past risk assessments for both Townsville and the State of Queensland. This assessment provided a higher-level risk rating against hazard, based on assessed likelihood, vulnerability, and consequence for these hazards for the whole of Townsville City, rather than the specific elements within the detailed scenarios provided by QFD.

Full risk assessment details can be found within reports supplied to Townsville LDMG through the QERMF process.

4.3. Risk Assessment Results

Due to the complex nature of the QERMF risk assessment completed for Townsville, the hazards have been divided into scenario-based hazards, and non-scenario-based hazards.

4.3.1 Scenario-Based Hazards

Risks were assessed, and existing mitigation measures were discussed with agencies to understand their effectiveness. Based on these discussions, risks were prioritised for each scenario, in an effort to support the prioritisation of risk-based planning and risk mitigation efforts.

To help in prioritisation, a Tier system was adopted as in Table 10 below. This was done to help simplify and contextualise risk scores and rankings across the assessed scenarios. It is important to note that scenarios are assessed individually; therefore, their priority tiers are relevant to the respective scenario only and should not be compared across different scenarios. Results are in Table 11 below.

Table** 10: **Definitions of risk tiers

Risk priority tiers	Definitions
Tier 1	Highest priority of risk mitigation
Tier 2	Second highest priority of risk mitigation
Tier 3	Third highest priority of risk mitigation
Tier 4	Fourth highest priority of risk mitigation

Table 11: Summary showing priority of risk mitigation across six different scenarios that we assessed in this study. To interpret colours, please refer to Table 10.

Asset category	Risk mitigation priority based on residual risk scores					
	Severe Tropical cyclone	Tropical Cyclone / Tropical Low	Severe thunderstorm	Heatwave	Bushfire	Earthquake and Tsunami
Essential Utilities						
Power Generation						
Power Transmission						
Power Distribution						
Water Storage						
Water Treatment and Reticulation						
Wastewater Treatment and Reticulation						
Telecommunication Towers						
Fibre Optic Network						
Waste Collection						
Waste Landfill						
Human and Social						
Hospitals						
Health Clinics and Pharmacies						
Aged Care						
Roads and Transport						
Airport						
Ports and Marinas						
Arterial Roads						

Asset category	Risk mitigation priority based on residual risk scores					
	Severe Tropical cyclone	Tropical Cyclone / Tropical Low	Severe thunderstorm	Heatwave	Bushfire	Earthquake and Tsunami
Distributor Roads						
Local Roads						
Train Stations and Rail						
Housing and Community Infrastructure						
Evacuation Centres						
Public Cyclone Shelters						
Police Services						
Ambulance Services						
Fire Services						
Disaster Coordination Centre						
Correctional Facilities						
Economy						
Agriculture, Aquaculture and Forestry						
Mining						
Tourism						
Fuel Storage, Processing and Heavy Industry						

4.3.1.1 SCENARIO 1: SEVERE TROPICAL CYCLONE

Scenario 1 was the most extreme hydro-meteorological scenario tested for Townsville. It included a Category 4 Severe tropical cyclone associated with a 1% AEP Wind Event (winds up to 225 km/h), 0.2% AEP flood event in the Ross River, 1% AEP event in other flood areas, 0.1% AEP storm tide, and associated landslide.

Many assets, areas, and systems were found to be exposed and significantly impacted. The most exposed and impacted areas of the Townsville LGA were along riverbanks, particularly around the Ross and Bohle Rivers, as well as the coastline. All areas within Townsville were exposed to high-speed winds.

Within the results telecommunication towers, wastewater treatment plants and reticulation, and power distribution, were the three greatest risks for the Townsville LGA, and it is likely that a Category 4 cyclone would create service outages in most, if not all, of these essential services, as well as consequential effects for other services related to water, communication or electricity outages. A category 4 cyclone would also likely create damage to housing and significant disruption to the Townsville community, via winds, heavy rainfall, landslides and potential storm tides, and debris would close many roads and interrupt other transport.

Certain community groups are more vulnerable to the disruptions from cyclones due to various socio-economic and physical factors. The elderly, for instance, often face mobility challenges and may struggle to evacuate quickly in the event of a cyclone. Similarly, young children and individuals with disabilities are also at higher risk due a potential need for assistance during emergencies. Communities in high-risk areas that are adjacent rivers, lakes or the sea and poor road access are at greater risk, as are homes built before modern National Building Code standards. Given the destructiveness and magnitude of a severe tropical cyclone, it is possible that there may not be sufficient evacuation centres and shelters to provide for the most vulnerable in the community for such an event.

It is likely that Townsville would need assistance from the District and the State for a Category 4 cyclone event.

4.3.1.2 SCENARIO 2: CATEGORY 2 TROPICAL CYCLONE

Scenario 2 was a hydro-meteorological scenario of moderate severity for Townsville. Scenario 2 included a category 2 cyclone with winds up to 126 km/h, with a 5% AEP event for wind and flooding and a 1% AEP event for storm tide.

The most exposed and impacted areas of the Townsville LGA were along riverbanks, particularly around the Ross and Bohle Rivers, as well as the coastline. Additionally, all assets/areas/systems within Townsville for this this Scenario were exposed to high-speed winds up to 126km/h, although not as extreme as those for Scenario 1. Many assets, areas and systems were found to be exposed and substantially impacted. Detailed list of potential exposed assets are provided in the QERMF risk assessment report.

Within the results telecommunication towers, wastewater treatment plants and reticulation, and power distribution, were still the three greatest risks for the Townsville LGA. A Category 2 cyclone, although less destructive than a Category 4 cyclone is still likely to create service outages in most, if not all, of these essential services, as well as consequential effects for other services related to water, communication or electricity outages. A category 2 cyclone is less likely to create damage to housing, however debris could impact houses, and block roads and other transport corridors.

Certain community groups are more vulnerable to the disruptions from cyclones due to various socio-economic and physical factors. The elderly, for instance, often face mobility challenges and may struggle to evacuate quickly in the event of a cyclone. Similarly, young children and individuals with disabilities are also at higher risk due a potential need for assistance during emergencies. Communities in high-risk areas that are adjacent rivers, lakes or the sea and poor road access are at greater risk, as are homes built before modern National Building Code standards. Even with a Category 2 tropical cyclone, pressure may be placed on evacuation centres and shelters to provide for the most vulnerable in the community for such an event.

It is possible that Townsville would need assistance from the District for a Category 2 cyclone event.

4.3.1.3 SCENARIO 3: SEVERE THUNDERSTORM EVENTS

Scenario 3 was a hydrological Scenario of low severity that was tested for the Townsville LGA. This was a severe thunderstorm with a 20% AEP flooding event. The most exposed and impacted areas of the Townsville LGA were along riverbanks, particularly around the Ross and Bohle Rivers.

The results show that local roads as well as wastewater and potable water treatment plant and reticulation are likely to be the three top priorities of risk mitigation for Townsville. In the case of local roads this was because they are highly vulnerable to flooding or landslides and generate consequences when impacted. This is due to how almost all other assets, services and systems rely upon local roads to some extent to carry out their normal functions. Wastewater treatment plants, such as the Condon Wastewater Treatment Plan, can be at risk of inundation and potential contamination of surrounding waterbodies and communities. Drinking water treatment plants can be placed under increased pressure from waterborne debris and storm effluent.

A typical summer storm with minor flooding will test, but unlikely overwhelm, the Townsville LGA and its existing control measures in most cases.

4.3.1.4 SCENARIO 4: HEATWAVE

Heatwaves consist of extreme temperatures that remain for long periods of time. Heatwaves in Queensland typically occur between October and March but are most common in January. Heatwaves are measured in relation to normal seasonal temperatures for the area.

Electricity systems can be strained under excessive heat, leading to blackouts and communication breakdowns. Water supply and sewer systems face increased demand. Emergency services can be overwhelmed by heat-related incidents, straining their capacity to respond effectively. Community infrastructure, such as roads and public buildings, can suffer from heat-induced damage, further complicating the delivery of essential services and exacerbating the overall impact on society.

Heatwaves pose significant dangers to human health. Heat-related illnesses such as heat exhaustion and heat stroke can be damaging or lethal. Vulnerable populations, including the elderly, children, and those with preexisting health conditions, are particularly at risk. Heatwaves are often referred to as the *silent killer*, and are the most dangerous natural hazard in Australia, in terms of loss of life.

A heatwave is unlikely to overwhelm the Townsville LGA and its existing control measures in most cases, however services such as the Townsville University Hospital may be placed under extra stress during a heatwave.

4.3.1.5 SCENARIO 5: BUSHFIRE

Bushfires ignite and spread through both managed and unmanaged vegetation, affecting reserves, national parks, private property, and urban areas. They are most likely to occur in very hot and dry weather and can be triggered by human activity, either accidentally or deliberately, or by natural causes, such as lightning strikes.

Within the Townsville City Region, popular forest habitats such as Castle Hill, Mt Louisa, Mt Stuart, and Magnetic Island are managed by Council, the Department of Defence and the RFS for their fire risk due to the proximity of urban areas frequented by both locals and tourists.

Electricity and communication systems can be disrupted by bushfire. Water supply and sewer systems are at risk of contamination and damage from intense heat and fire debris. Emergency services can be stretched thin, dealing with the immediate threats to life and property. Community infrastructure, including homes, roads, and public buildings, can be destroyed, or rendered unusable, leaving communities struggling to recover and maintain essential services.

Socially, vulnerable groups such as the elderly, disabled, and those with limited mobility face heightened risks due to difficulties in evacuating. Economically, low-income households often lack the resources to prepare for, respond to, and recover from bushfire impacts, such as purchasing fire-resistant materials or securing insurance. Community cohesion plays a crucial role; strong networks can facilitate faster, more effective responses and support, while isolated individuals may struggle to receive timely assistance.

Most bushfires in North Queensland will test, but unlikely overwhelm, the Townsville LGA and its existing control measures in most cases, however severe bushfires may require assistance from the District or State.

4.3.1.6 SCENARIO 6: EARTHQUAKE AND TSUNAMI

Earthquakes are vibrations within the earth caused by rocks breaking under stress, which produces energy in the form of waves that can damage infrastructure and buildings. A Tsunami is a series of ocean waves with extremely long wavelengths and periods, typically caused by significant underwater disturbances such as earthquakes, volcanic eruptions, landslides, or meteorite impacts.

The majority of Townsville City LGA is within zone 29 of the seismic hazard map as part of the Queensland State Earthquake Risk Assessment 2019. This zone is characterised with an annual exceedance probability (AEP) of 0.53% for a 5.45 magnitude earthquake and an AEP of 0.07% for a 6.05 magnitude earthquake. This means that on a given year there is a 0.53% and 0.07% chance of a 5.45 and 6.05 magnitude earthquake, respectively. This equates to a 41% and 6.99% chance of a 5.35 and 6.05 magnitude earthquake respectively to occur within a 100-year period (QFES, 2019).

The consequences vary for essential infrastructure in Townsville. Most notably, the consequences of an earthquake will be the highest for electricity distribution and water storage infrastructure and assets. While the consequences of a magnitude 6.05 earthquake are very low for human health and social assets and systems, the consequences of a tsunami for hospitals and aged care facilities range from high to very high. The consequences of a magnitude 6.05 earthquake are relatively low to transport infrastructure in Townsville. Notably, the consequence of a tsunami ranges from very low to moderate, however it is very high for ports and marinas.

Most earthquakes that could occur in North Queensland will test, but unlikely overwhelm, the Townsville LGA and its existing control measures in most cases. Large earthquake would, however, cause significant damage and require assistance from the District or State.

4.3.2 Non-Scenario-Based Hazards

Error! Reference source not found. below summarises the risk ratings for each hazard assessed within this report. The hazards were assessed in accordance with the QERMF risk scoring methodology as per the following formula:

$$\text{Risk} = \text{Exposure} \times \frac{1}{\text{Hazard}} \times \text{Vulnerability} \times \text{Consequence}$$

A detailed description of the risk assessment is included within the associated reports for the risk assessment project.

*Table 12: **Ranked table of hazards (does not include hazards assessed as part of detailed QERMF scenarios)***

Hazard	Rank	Hazard Score	Vulnerability	Consequence	Risk Rating
Transport Incident	1	1	4	5	20
Structural Fire	2	1	3	4	12
Military Training Incident	3	3	4	5	6.67
Pandemic / Epidemic	4	4	5	5	6.25
Biosecurity (including exotic animal / plant disease)	5	2	3	4	6
Drought	6	2	3	3	4.5
Hazardous Materials Incident	7	2	3	3	4.5
Information Technology Failure (not including cyber security incidents)	8	1	2	2	4
Dam Failure	9	5	4	5	4
Chemical, Biological & Radiological Incidents	10	4	3	5	3.75

Hazard	Rank	Hazard Score	Vulnerability	Consequence	Risk Rating
Terrorist Attack	11	5	3	5	3
Critical Infrastructure Failure	12	3	3	3	3

Transport incidents are a significant risk for Townsville, and the highest of the non-scenario-based hazards, due to the high frequency of transport incidents within Townsville. Townsville houses a significant number of registered vehicles (197,539 at 2021 census), and is a significant transport hub for road freight, rail freight, and seaborne freight, including as the main port for the Northwest minerals' province, and the cane-growing areas surrounding Townsville. Impacts include personal injury and fatality, and disruption to lives, livelihoods, economies, and supply chains.

Structural fires are a significant risk due to the significant human and social consequences, and the high likelihood of structural fire incidents. In general, the Queensland Fire Department has significant capacity to respond to structural fires. If needed the LDMG would support QFD, particularly with messaging for a large event.

Military Training Incidents are a high risk within Townsville, due to the large garrison that resides within Townsville. The impact of multiple fatalities, such as in the Blackhawk tragedy, would have a significant impact on Townsville. The Townsville LDMG would support the ADF in any incident response and recovery that affected the local population.

Pandemics and Epidemics are a high risk for Townsville. Based on data from the Australian Bureau of Statistics, at least 61 people in Townsville died from COVID-19 in 2022. The total number of fatalities due to this pandemic is likely to be much higher, but that cannot be confirmed due to lack of data through Queensland Health. Pandemic has the highest fatality rate of all hazards assessed, both natural and non-natural but the risk is reduced by a low likelihood.

Biosecurity risks are a high risk for Townsville, particularly with the port and airport as potential entry points, and the significant impact that biohazards could have on the Townsville economy and environment. The capability of the existing controls to manage biosecurity reduces this risk.

Drought is a medium risk for Townsville, with impacts on agriculture and drinking water supply. The risk is mostly managed for the urban population but could impact the agricultural sector quite markedly.

Hazardous Materials Incidents are a medium risk for Townsville. These are accidental releases of substances that can cause adverse health effects such as poisoning, allergic reactions or other health problems from exposure. The port and many industrial locations around Townsville create exposure, however the risk of an incident is well controlled by standards and regulation, and facility and transport owner responsibility and procedures.

Information Technology Failures (not including cybersecurity), present a low risk for Townsville, however this risk is growing and would be higher if cybersecurity were included. The LDMG is not usually activated for IT failure events, and most incidents are handled within the asset or service owner without escalation beyond the organization.

Dam failure is a low risk for Townsville. Although Townsville is very vulnerable to a dam failure, particularly Ross Dam, the likelihood of a failure is very rare.

Chemical, biological and radiological (CBR) incidents pose a low risk to Townsville. CBR incidents are distinct from hazardous materials incidents, where hazmat incidents occur generally within workplaces, CBR incidents are usually deliberate, such as the release of Sarin gas into the Tokyo subway system in 1995. It is a low risk to Townsville due to the rarity of the event, even though there is potential for a very high consequence.

Terrorism is a low risk for Townsville. Terrorism is the unlawful use of violence and intimidation, especially against civilians, in the pursuit of political aims. Terrorism seeks to reduce community safety and trust and increase fear and social division. Terrorism is assessed as a low risk to Townsville due to the relative infrequency of terrorist attack, even though there is potential for a very high consequence.

Critical Infrastructure Failure is a low risk for Townsville. Although disruptive when it occurs, it is a relatively rare event, and events are usually handled by the service provider without activation of the Townsville LDMG.

4.4. Residual Risks

The LDMG recognises its treatment options will not always be adequate and residual risk will remain. Residual risks are the risks which remain after the LDMG has applied the risk mitigation strategies within their capacity, but those strategies have not sufficiently reduced or eliminated the risk.

The following is a list of risks identified using the QERMF methodology that are not within the capacity of the LDMG to address and are therefore deemed to be Residual Risks to be escalated to the District Disaster Management Group.

Table 13: Residual risks

Risk	Current Capacity	Residual Risk	Can Council assist?
Evacuation of entire community	Limited capacity exists to evacuate the whole community.	Request to District for assistance	Limited
Multiple houses damaged especially those involving multi-casualty scenarios	There is a risk that emergency services response to any disaster event will be severely compromised as a result of insufficient response capacity.	Request to District for assistance	Limited

Risk	Current Capacity	Residual Risk	Can Council assist?
Significant amounts of asbestos contamination from damaged buildings	The community has limited personnel trained in or equipped for asbestos removal. External expertise will be required.	Request to District for assistance	Limited
Managing multiple Evacuation Centre Facilities	Limited capacity exists to manage and staff multiple evacuation centre facilities concurrently.	Request to District for Assistance	Limited
Various Public Health Risks	The community has a team of EHO's. In a major widespread event, professional EHO support may be required for a range of public health/environmental health issues.	Request to District for assistance	Limited
Significant Terrorist Attack or other Attack on the State	While Queensland Police would escalate through their own channels, the requirement for community support and recovery resources could be large.	Request to District (and likely further to the State) for assistance	Limited

5. Prevention

5.1. Prevention

Prevention includes those measures to eliminate, mitigate or reduce the likelihood of a disaster event occurring, or the severity of an event should it eventuate.

Hazard mitigation is the action taken in advance of a disaster, aimed at eliminating or reducing the impact on communities, the economy, infrastructure and the environment.

The implementation of appropriate and targeted mitigation initiatives can offer more sustainable cost savings to communities and government in the event of a disaster and result in safer, more resilient and sustainable communities.

5.2. Land Use Planning

Land use planning in areas that are exposed to natural hazards can significantly reduce disaster risk, the impact of hazards should they arise and enhance the resilience of existing and future communities. Regulating the use and development of land is a key strategy to avoid risk to life, property and environmental systems and reduce damage and disruption to the community within the Townsville City Council area.

The Townsville City Plan provides a framework under the Sustainable Planning Act 2009 for managing development within the region over the next 25 years. The Planning Scheme uses a series of overlays as a means of influencing development to mitigate or reduce the effects of hazards:

5.3. Building Codes, Regulations & Legislation

The application of building codes and building use regulations aims to ensure that buildings and infrastructure are designed and constructed to standards that reduce the likelihood of damage and injury in an event. Standards and codes should be referred to and enforced particularly for the design and construction of major infrastructure and components of essential services.

5.4. Design Improvements

Design improvements to infrastructure or services can be engineered to provide a greater level of resilience. Design improvements can be applied to new infrastructure or to harden existing infrastructure or when considering betterment works during the reconstruction phase. Ensuring the reliability of critical infrastructure and services supports the communities social and economic wellbeing.

5.5. Hazard Reduction

Each agency of the TLDMG is responsible for implementing appropriate hazard reduction programs for risks under their control. As an example, QFD, Townsville City Council and various landowners undertake an annual hazard reduction program for bushfires. This includes a fire management program of fuel reduction and back-burning, maintenance and development of fire breaks and land management practices. Townsville City Council plays an active role on the Area Fire Management Group (AFMG) which provides strategic fire mitigation programs, operational preparedness and response, risk identification and hazard reduction burning for the TCC LGA. The TLDMG adopts the multi-agency Bushfire Risk Management Plan prepared by QFD in collaboration with the AFMG.

5.6. Climate Change

Townsville-Thuringowa has been identified as one of several high-vulnerability climate change hot spots in Australia. The frequency and severity of hazards including major storm events, droughts, heatwaves, bushfires and flooding across the region are expected to increase as the climate continues to change.

Townsville City Council accepts the latest science on climate change provided by the Intergovernmental Panel on Climate Change and acknowledges that the TCC LGA is vulnerable to the impacts of climate change including higher temperatures, more intense downpours, rising sea levels, warmer and more acidic seas and less frequent but more intense tropical cyclones all of which is likely to adversely affect the Townsville natural and human environment.

Adaptative measures should be considered to manage future climate risks. A Queensland Government Emergency Management Sector Adaptation Plan for Climate Change is available.

5.7. Adapting to Coastal Change in Townsville

Council has developed a Coastal Hazards Adaptation Strategy (CHAS) that addresses sea level rise-driven risks in the coastal zone as a result of coastal erosion and shoreline recession, storm tide inundation and permanent inundation. This work continues to progress to ensure Townsville can adapt to coastal change impacts.

5.8. Disaster Risk Reduction

Further disaster risk reduction efforts and mitigation options are discussed within the report: Multi-hazard Risk Assessment of Townsville Regional Council using Queensland Emergency Risk Management Framework (QERMF).

6. Preparation

6.1. LDMG Preparedness & Capacity Building

LDMG preparedness and capacity relates to having arrangements and plans in place to ensure that, should a disaster occur, all the agencies, resources and services which are needed to cope with the effects can be efficiently mobilised and deployed within the framework of the Queensland Disaster Management Arrangements.

Capacity building occurs across the phases of prevention and preparation and is built through activities that reduce the level of risk or the effects of disaster and result in ongoing improvement of the disaster management arrangements. The implementation and delivery of the Queensland Emergency Risk Management Framework as well as ongoing LDMG meetings, planning, workshops, training and exercises are critical elements in the continuous improvement of disaster management capacity building.

6.2. Community Preparedness & Capacity Building

The TLDMG Community Education and Marketing Strategy lists strategies and annual plans for community awareness activities.

Section 30 of the *Disaster Management Act* requires the LDMG to ensure that the community is aware of ways of mitigating the adverse effects of an event and preparing for, responding to and recovering from a disaster. Effective disaster response and recovery activities begin with preparedness and awareness raising activities that are conducted on an ongoing basis, in advance of any potential disaster to ensure that if an event occurs, communities and their resources and services can cope with its effects.

In recognition of the size and diversity of the TCC region, the LDMG proactively works with community organisations, local business groups and others to prepare disaster, emergency and business continuity plans and strategies for particular high-risk localities and demographic groups within the Townsville City Council LGA.

The LDMG uses the Get Ready Queensland resources to focus on creating resilient communities through education and awareness raising and building capacity. Resilient communities are those that understand the risks they face, how to prepare themselves, their home and their community for the possibility of a disaster event to minimise impacts, can adapt to the circumstances, recover quickly and emerge stronger than their pre-disaster state.

6.2.1 Community Risk Profiles

The LDMG recognises that local knowledge is invaluable to the disaster planning process and that the community plays a key role in contributing to its own safety. The LDMG advocates that everyone can prepare for disasters in ways that can reduce the impact on themselves, their home, family, friends, pets and community. Being prepared in advance can make emergencies less stressful and save precious time.

A community risk profile has been prepared for each community in the Townsville City Council area identifying local demographics, local hazards and risks as well as information on how to prevent, prepare, respond and recover from disasters.

6.2.2 National Strategy for Disaster Resilience

The National Strategy for Disaster Resilience identifies common characteristics of disaster resilient individuals, communities and organisations. These characteristics are functioning well while under stress, successful adaptation, self-reliance and social capacity.

The strategy identifies that community members can work together, using their knowledge and resources to prepare for and deal with disasters. These actions will create self-reliance and build social capacity within the community so that it can function effectively under stress in responding to and recovering from a disaster event.

The key to achieving a resilient community is for government, community and business to share in the responsibility for preparing for, responding to and recovering from a disaster.

6.2.3 Queensland Strategy for Disaster Resilience

Queensland is the most disaster impacted state in Australia. By necessity, Queenslanders are renowned for their resilience and ability to adapt, with a strong community spirit that supports those in need to withstand and recover from disasters.

The preparedness and resilience of individuals and communities is a shared responsibility of all sectors, including all levels of government, business, NGO's and individuals. Disaster resilience is significantly increased by proactive planning and preparation for the protection of life, property and the environment through an awareness of hazards, associated risks and local disaster management arrangements.

The Queensland Strategy for Disaster Resilience is the guiding instrument for realising the vision to make Queensland the most disaster resilient state in Australia and is underpinned by four key objectives:

- Queenslanders understand their disaster risk
- Strengthened disaster risk management
- Queenslanders are invested in disaster risk reduction
- Continuous improvement in disaster preparedness.

6.2.4 Palm Island & Townsville Regional Resilience Strategy

The Palm Island and Townsville Regional Resilience Strategy harnesses local expertise to champion a holistic approach to disaster resilience for the region. This locally led and regionally coordinated strategy outlines the shared vision for resilience for the councils of the region, their resilience challenges, opportunities, exposure, risks, pathways to resilience and implementation. A Local Resilience Action Plan (LRAP) which identifies a range of resilience initiatives is maintained by Townsville City Council in support of this strategy.

6.2.5 Get Ready Queensland Initiative

The LDMG has undertaken a series of community forums, presentations, displays and community awareness days as part of promoting the annual Get Ready Program in the Townsville local government area. These community engagement programs aim to build resilience in preparation for seasonal hazards (e.g. severe storms, bushfires, floods). These programs are aimed at empowering individuals and the community to understand their local risks and take pre-emptive action to prepare themselves, their families, homes and businesses in the event of disaster. The Get Ready Queensland program promotes three steps to Get Ready – understand your risk, prepare your home and pack an emergency kit. Additionally, the Get Ready Queensland team provide funding, resources and support for local government 'Get Ready' initiatives.

6.3. Townsville Emergency Action Guide

The Townsville Emergency Action Guide has been developed to assist residents of the TCC LGA to prepare for, respond to and recover from disasters that affect the local area. The guide is designed to assist residents understand the risk and likelihood of disasters in their communities as well as how to prepare an emergency plan and emergency kit, prepare homes, yards and pets and where to find information during a disaster.

6.4. Emergency Management & Disaster Dashboard

The Townsville Emergency Management & Disaster Dashboard provides a one stop shop site for the community to access BoM weather warnings, up-to-date information on road closures, power outages, evacuation centres, helpful contacts and links to other useful disaster-related information and social media.

6.5. Insurance

There is significant risk to the community in recovering from a disaster due to under-insured and non-insured residential properties and businesses. While this is of concern to the LDMG, it is considered that this is an issue for the insurance industry and the State Government with input from the LDMG through its members.

7. Response

7.1. Initial Response

The majority of emergency incidents will be dealt with by the relevant lead agency using its own frontline response capabilities. An Incident Control Centre (ICC) may be established by the lead agency to focus on the immediate response to reduce the threat of the hazard. It is up to each lead agency to determine the circumstances and triggers which require notification to, and additional support from, the LDMG.

7.2. Activation of LDMG

Timely activation of the LDMG is critical. The LDMG will activate in response to an actual or perceived threat of a disaster event which will likely have significant community consequences and requires a coordinated response and / or recovery effort.

The decision to activate is based upon defined triggers and the perceived level of threat.

The authority to activate the LDMG is at the discretion of the LDMG Chair in consultation with the LDC based on the nature and scale of the event. The LDMG Chair will consult with the full membership where time permits.

The LDC is responsible for managing disaster operations and implementing the strategic direction set by the LDMG.

The authority to activate the TLDMG is initiated by the TLDMG Chairperson. Advice of any activation is to be immediately provided to the District Disaster Coordinator.

7.3. Activation Criteria

The disaster management system at a local level, involving the LDMG, may be activated for any number of reasons. The following decision criteria should be employed (if yes is answered to any of the following the LDMG should be activated):

- Is there a perceived need relative to an impending hazard impact which requires multi-agency coordination?
- Has there been a request from a response lead agency, to provide resource support and coordination in support of operations?
- Has there has been a request / direction from the DDC to activate the LDMG?
- Has there been a sudden impact event which requires involvement of the LDMG in one or more phases of PPRR?
- Has the QDMC recommended that the LDMG / LDCC be activated?

7.4. blishment of Forward Command Post

The establishment of a Forward Command Post (FCP) will be governed by the scale and location of the event. Emergency Services agencies will normally establish a FCP as per their respective operating procedures and if warranted. If this occurs, the LDC may request to provide a Liaison Officer to assist at the FCP for situational awareness.

7.5. Activation of LDMP and Sub Plans

The LDMP will be activated automatically whenever the LDMG activates. The LDC is responsible for activating approved Sub Plans as required by the nature and circumstances of the event.

Upon activation of this plan, the following process will occur:

1. The Local Disaster Coordinator is to advise TLDMG Members, Advisory Members and Working Group Chairs of the activation and instruct them to proceed to the LDCC for a meeting to assess the situation and determine immediate action required.
2. TLDMG Members, Advisory Members and Working Groups to activate their respective organisations' resources as determined at the TLDMG meeting.
3. Lead Agencies and Support Agencies will respond as per their agency plans and as requested by the TLDMG. Evacuation of residents, if required, will be undertaken as per evacuation processes.
4. Acting on advice from the Lead Agency, the Local Disaster Coordinator will coordinate the recall of participating organisations and stand down the TLDMG.

Members of participating organisations will be debriefed by their respective agencies prior to stand down. A debrief involving all Operational Organisations will be conducted by the Chairperson or their delegate as soon as possible after the completion of the operation.

7.6. Notification Process

The LDMG Chair & LDC will maintain situational awareness in relation to events that have the potential to require the activation of the disaster management system.

Whilst the Chair and LDC can activate the LDMG without consulting the members, it is Townsville's process to involve the members, and a motion is put forward to activate and /or change activation status (where time permits). In all instances, the relevant activation level will be communicated to the entire LDMG membership.

The initial LDMG meeting will be scheduled, and further meetings agreed where necessary.

The DDC will be advised verbally and in writing that the LDMG has activated.

This LDMP will be automatically invoked and the LDC will invoke associated Sub Plans as required by the nature and scale of the event.

7.7. Notification Flowchart

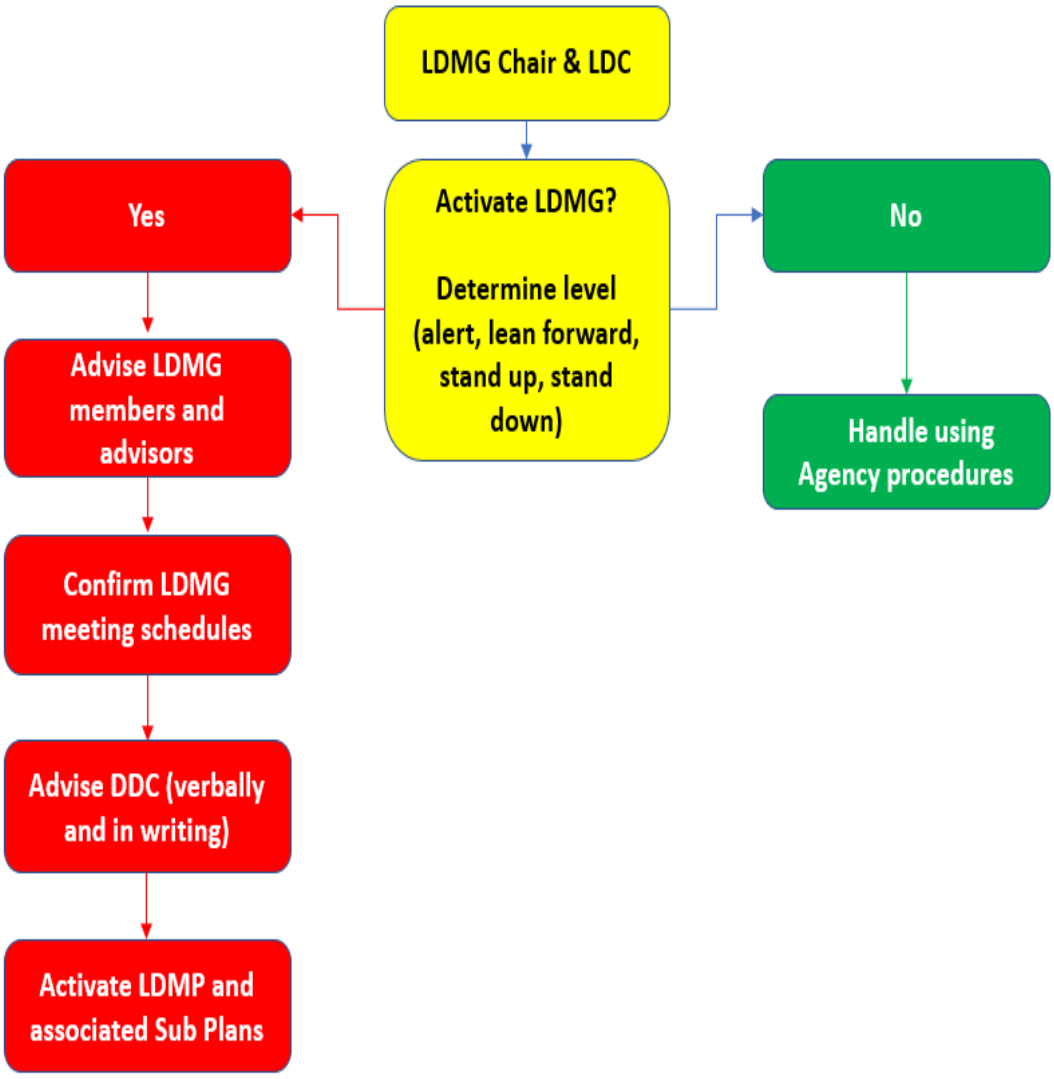

Figure 8: Notification flowchart

7.8. Activation Levels

The LDC is responsible for activating the TLDMG. This would generally occur following consultation with the Chair of the TLDMG and the DDC.

The four (4) levels of activation are:

Table 14: Activation levels

	QDMA Definition	Triggers	Actions	Communications
Alert	☐ A heightened level of vigilance due to the possibility of an event in the area of responsibility. No action is required however the situation should be monitored by someone capable of assessing the potential of the threat.	☐ Awareness of a hazard that has the potential to affect the local government area	☐ Hazard & risks identified ☐ Information sharing with warning agency ☐ LDC contacts LDMG members ☐ Initial advice to all stakeholders	☐ Chair and LDC on mobile remotely
Lean Forward	☐ An operational state prior to 'stand up' characterised by a heightened level of situational awareness of a disaster event (either current or impending) and a state of operational readiness. LDCC on standby; prepared but not activated.	▪ There is a likelihood that threat may affect local government area ▪ Threat is quantified but may not yet be imminent ▪ Need for public awareness ▪ LDMG is now to manage the event	▪ LDC conduct analysis of predictions ▪ Chair and LDC on watching brief ▪ Confirm level & potential of threat ▪ Check all contact details ▪ Commence cost capturing ▪ Conduct meeting with available LDMG ▪ Council staff prepare for operations ▪ Determine trigger point to Stand Up ▪ Prepare LDCC for operations ▪ Establish regular communications with warning agency ▪ First briefing core members of LDMG ▪ LDC advises DDC of Lean Forward & establishes regular contact ▪ Warning orders to response agencies ▪ Public information & warning initiated	▪ Chair, LDC and LDMG members on mobile and monitoring email remotely ▪ Ad-hoc reporting

	QDMA Definition	Triggers	Actions	Communications
Stand Up	☐ The operational state following 'lean forward' whereby resources are mobilised, personnel are activated, and operational activities commenced. LDMG is activated with / without LDCC being activated (depending on needs of the event).	▪ Threat is imminent ▪ Community will be or has been impacted ▪ Need for coordination in LDCC ▪ Requests for support received by LDMG agencies or to the LDCC ▪ The response requires coordination	▪ Meeting of LDMG Core Group ▪ LDCC activated, if required ▪ Rosters for LDCC planned & implemented ▪ Commence operational plans ▪ Local government shifts to disaster operations ▪ LDMG takes full control ▪ SOPs activated ▪ Core group of LDMG located in LDCC ▪ Commence SITREPs to DDMG ▪ Distribute contact details ▪ DDMG advised of potential requests for support	▪ LDCC contact through established land lines and generic email addresses ▪ Chair, LDC and LDMG members present at LDCC, on established land lines and/or mobiles, monitoring emails
Stand Down	☐ Transition from responding to an event back to normal core business and/or recovery operations. There is no longer a requirement to respond to the event and the threat is no longer present.	▪ No requirement for coordinated response ▪ Community has returned to normal function ▪ Recovery taking place	▪ Final checks for outstanding requests ▪ Implement plan to transition to recovery ▪ Debrief of staff in LDCC ▪ Debrief with LDMG members ▪ Consolidate financial records ▪ Hand over to Recovery Coordinator for reporting ▪ Return to local government core business ▪ Final situation report sent to DDMG	▪ LDMG members not involved in recovery operations resume standard business and after hours contact arrangements

7.9. Response Priorities

The response phase involves the taking of appropriate measures to respond to an event, including action taken and measures planned in anticipation of, during, and immediately after an event to ensure that its effects are minimised and that persons affected by the event are given immediate relief and support.

The following priorities apply to any response:

1. Protection of life
2. Protection of critical infrastructure
3. Protection of property, livelihoods and the economy
4. Protection of the environment.

7.10. Response Principles

The LDMG will:

- Activate early to prepare and to plan for the response and coordination of disaster operations
- Work closely with the responsible lead agency and the DDMG to manage and coordinate disaster operations
- Provide warnings, alerts and public information early and consistently to the community or those who need it
- Ensure disaster response and recovery operations are coordinated
- Ensure resources are accessed and used effectively
- Provide support to meet community needs
- Provide situational reporting.

7.11 Responsible Lead Agencies

The LDMG will ensure the responsible lead agency is supported by the disaster management system during their response to an event. The responsible lead agencies for each hazard is available in the State Disaster Management Plan – refer pg. 47-50.

7.12 Disaster Declaration

In accordance with section 64(1) of the Act, the DDC may, with the approval of the Minister, declare a disaster situation for the district, or a part of it if satisfied that a disaster has happened, is happening or is likely to happen, in the disaster district and it is necessary, or reasonably likely to be necessary, for the DDC or a declared disaster officer to exercise declared disaster powers to prevent or minimise any of the following:

- Loss of human life
- Illness or injury to humans
- Property loss or damage
- Damage to the environment

Before declaring a disaster situation, the DDC is to take reasonable steps to consult with each local government in, or partly in, the proposed declared area. As outlined in section 75 to 78 of the Act, the declaration confers extra powers on particular groups to perform actions, give directions and control movements within the declared area.

It is important to note that the declaration of a disaster situation relates to the situational requirement for additional powers and is not linked to the activation of particular disaster management groups under the QDMA or the activation of disaster financial assistance arrangements. All three actions are independent processes and are not interlinked or conditional, although some or all may occur for the same event. The declaration of a disaster situation does not impact the requirements of a local government under the Act to manage disaster operations in their area.

7.13 Local Disaster Coordination Centre

The Townsville LDCC is a purpose-built facility located at **113 - 123 Dalrymple Rd, Garbutt.**

TCC has developed the Local Disaster Coordination Centre Standard Operating Procedures (LDCC SOP), which detail processes for management of the LDCC. This document can be found in Guardian IMS. TCC has also developed an LDCC SOP for use in the event of an emergency or disaster event in a COVID-19 environment.

If the primary LDCC building is unavailable due to damage or access issues, the LDC will liaise with Council's Property Management Team to ascertain the most suitable alternate location for a backup LDCC. Several meeting rooms and Call Centre areas have been identified as being suitable alternate locations.

7.14 Guardian Information Management System

Guardian Information Management System (IMS) is an electronic workflow for managing disaster events. The spatially integrated solution holds plans and preparation documents, creates a chronological record of events and a fully auditable trail of actions, as well as details on the allocation and management of tasks, bulletins, evacuation centres, road closures and reports using official and custom-built templates.

7.15 Situation Reports (SITREPS)

The LDC will ensure operational reporting from TLDMG to DDMG and QDMC commences once the TLDMG is activated. Once the LDCC is activated, all reporting will be as listed in the LDCC SOP and TLDMG Standard Operating Procedures or otherwise advised by the DDMG.

Situation Reports (SITREPS) will need to be prepared on a regular basis. SITREPS will be created and stored within Guardian IMS, so they are accessible to all LDMG agencies.

7.16 Public Information & Warnings

When an event is imminent, it is essential the public are warned of the danger and provided with information about the event and advice on recommended actions. The key objective is to deliver accurate, clear, timely information and advice to the public, so they feel confident, safe and well informed and are aware of any recommended actions. Refer Public Information & Warnings Sub Plan.

7.17 Evacuation

The safety of residents is the primary driver for evacuation. Evacuation carries risks to both those being evacuated and to emergency personnel managing the evacuation. Consideration must be given to the risks associated with the conduct of any evacuation. Under some circumstances, sheltering in place may provide greater levels of safety for the community. For further information refer to the Evacuation Sub Plan.

7.18 Financial Management

Operational expenditure needs to be tracked using work order numbers established specifically for the event. At the conclusion of the disaster event, all expenditure needs to be finalised. Invoices need to be collated; payments made, and Disaster Recovery Funding Arrangements (DRFA) claims need to be completed - refer to Financial Management Sub Plan.

7.19 Damage Assessment

Following the impact of a disaster, measures will need to be implemented to undertake damage assessments to determine the extent of the area affected, damage to homes, infrastructure and essential services and the level of hardship being experienced in the community. QFD have a responsibility for undertaking damage assessment of structures impacted. However, all agencies are able to contribute to damage assessments through operational reporting (i.e. dam owners will report on storage levels, QPS will report on missing people, Queensland Health will report on people requiring hospitalisation / medical treatment and TCC will report on damage to Council owned infrastructure).

For any disaster or emergency event, it is paramount that the TLDMG, council's Emergency Response Group and their subsequent operating bodies understand the extent and nature of physical damage to council infrastructure and private, commercial and industrial buildings.

7.20 Public Health & Disaster Waste

A major disaster event may cause significant disruption to the community, generating significant volumes of waste and resulting in a number of public health impacts. Water supplies, sewage treatment, refuse disposal, and access to safe food may be compromised – refer to Environmental Health and Disaster Waste Sub Plan.

7.21 Logistics

Timely acquisition and deployment of services and supplies is critical to the efficient response to and recovery from a disaster event. When all local resources have been exhausted or are inadequate, requests for assistance outside the TCC LGA shall be directed to the DDC. All external assistance requests shall be coordinated by the LDC on behalf of the LDMG – refer Logistics Sub Plan.

Although Townsville is a large urban environment, a disaster event may create some issues in supplying essential goods to isolated communities, isolated rural properties and stranded persons. The infrastructure, topography and location of population centres are such that it is considered that resupply will not be regularly experienced in the area with disaster events. All issues of resupply will be undertaken in accordance with the Logistics Sub Plan.

The TLDMG will continually assess the current and future tasks for the disaster event with the local available resources. For any gaps in this process (i.e. if the disaster escalates beyond the resources of the TLDMG), a Request for Assistance with details of the tasks will be forwarded to the Townsville District Disaster Management Group - refer Logistics Sub Plan.

7.22 Management of Donations & Volunteers

Donations to the TLDMG from the community for disaster events will be managed in accordance with the Logistics Sub Plan.

Spontaneous and other volunteers will be managed in accordance with the Logistics Sub Plan.

7.23 Stakeholder Agreements

The TLDMG has developed partnership agreements with several organisations within the local government area to assist in preparing for and responding to disaster events. These include:

- AECOM
- Australian Red Cross
- Department of Education
- GIVIT
- Joint Council Disaster Management Group (refer to Section 2.1.5)
- Salvation Army
- St John Ambulance
- Disaster Relief Australia (DRA)
- Townsville Enterprise, Ltd (TEL)
- Townsville Aged Care Partnership Group (TACPG)
- Youth With A Mission (YWAM)
- Various consultancy services for the provision of subject-matter expertise.

The stakeholder agreements may be obtained from the Local Disaster Coordinator, TLDMG.

Section 8: Recovery Strategy

8.1 Definition of Recovery

In accordance with the Queensland Recovery Plan, disaster recovery is defined as the coordinated process of supporting disaster-affected communities' psychosocial (emotional and social), and physical well-being; reconstruction of physical infrastructure; and economic and environmental restoration (including regeneration of the natural environment, associated infrastructure and heritage sites and structures and the management of pollution and contamination).

8.2 Activation of LDMG Recovery & Resilience Group

During the response phase, the LDMG will consider the impact of the disaster. If the event is of sufficient magnitude, the LDMG may decide to activate its Local Recovery & Resilience Group to coordinate recovery operations.

The Local Recovery & Resilience Group is likely to be activated in the following circumstances:

- An event where significant loss or damage is sustained impacting the community, economy, environment and / or the infrastructure of the Townsville local government area.
- An event that creates significant disruption to the communities' connectedness or overwhelms local resources or the capacity of the community to cope or recover independently.
- An event that the LDMG determines has ongoing impacts and requires a coordinated and collaborative multi-agency approach to recovery.
- If requested to activate by the DDMG.

For further information on activation triggers, refer to the Local Recovery & Resilience Sub Plan.

8.3 Recovery Subgroups

Often a disaster will be of such a scale that all functions need to be addressed to effect recovery. To assist with managing capacity and resourcing issues and to reflect other areas of infrastructure that Townsville City Council is responsible for i.e. water, wastewater and waste, the LDMG Local Recovery and Resilience Group will organise itself with four Functional Recovery Subgroups to address the five lines of recovery as follows:

- Human - Social
- Economic
- Infrastructure (incorporating Buildings and Roads & Transport)
- Environment

This structure is depicted below.

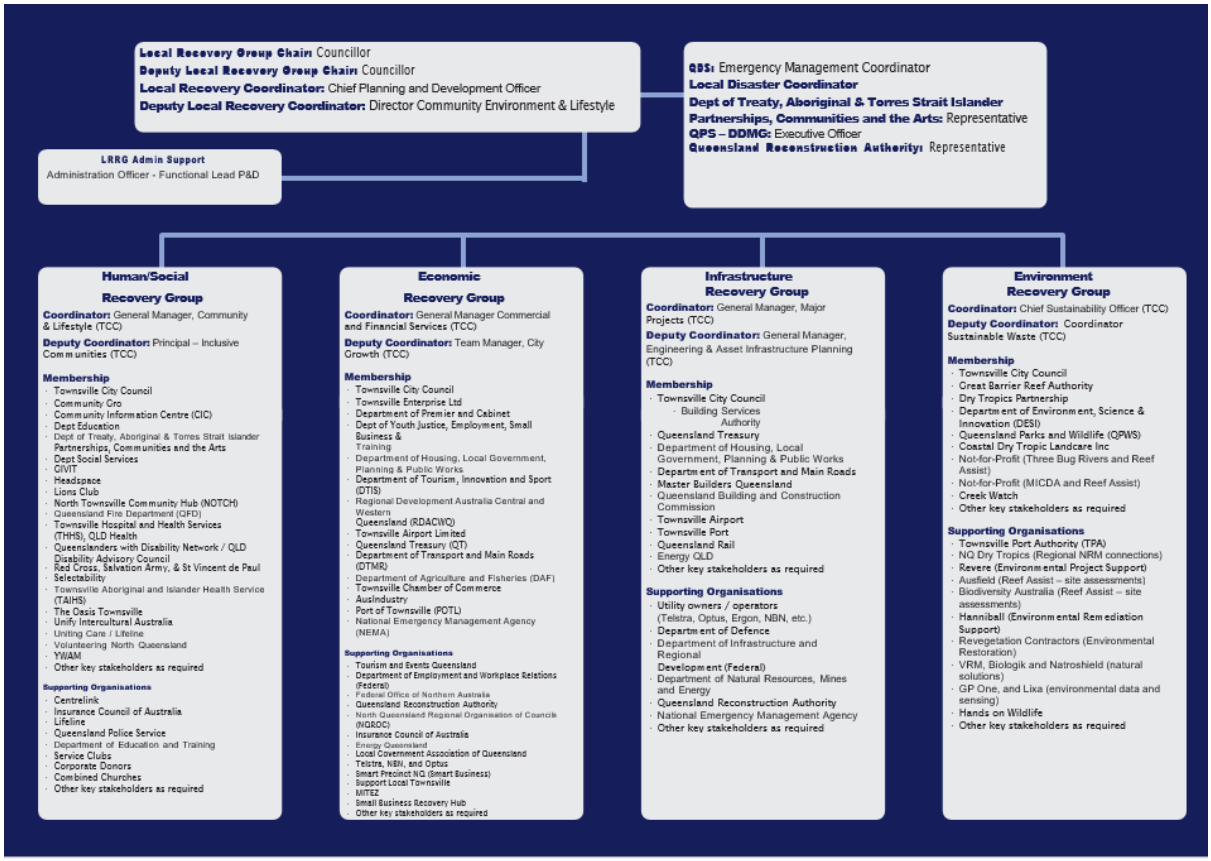

Figure 9: LDMG Recovery Group structure

Which Subgroups are established, will depend upon the scale of the event and the complexity of the recovery effort.

This plan acknowledges that successful community recovery requires attention to all aspects of recovery. As well as recognising these elements, the plan takes a whole-of-community approach and develops strategies, which identify agencies and services in these) elements, thus giving the community a high degree of self-determination.

8.4 Local Recovery & Resilience Sub Plan

The Local Recovery & Resilience Sub Plan applies to emergency/disaster events occurring within the TCC LGA whereby local resources are sufficient to deal with the process of recovery.

In the event that local resources are insufficient or overwhelmed to deal with the recovery process a request may be made to the District Disaster Management Group (via the Townsville LDMG) for additional resources, assistance and/or activation of the District Disaster Community Recovery Plan.

In the event that the *District Disaster Community Recovery Plan* / Committee are activated, the Local Recovery & Resilience Group (LRRG) may be required to assist the District Disaster Community Recovery Committee in undertaking recovery operations as determined by the Chair of the District Disaster Community Recovery Committee.

8.5 Event Specific Recovery Plan

The Queensland Reconstruction Authority have developed a process to develop an event-specific Local Recovery Plan. The methodology, action plan template and the 'plan on a page' Local Recovery Plan template can be found here: https://www.qra.qld.gov.au/our-work/recovery-hub/recovery-templates

The LRC is responsible for working with the LDMG LRRG(where activated) to develop the plan and then for obtaining endorsement for the event-specific recovery plan from the LDMG. If developed, an event-specific Recovery Plan should be adopted by TLDMG. Following adoption, the plan should be uploaded to the Council website and promoted to the local community on a regular basis.

8.6 Recovery Hubs

Recovery Hubs are established to provide a range of services to facilitate recovery including welfare, support, financial and emotional recovery services. Recovery Hubs are typically managed by the Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and the Arts with support from the LDMG where necessary.

Recovery Hubs may be centralised or may need to be mobilised and conducted in a 'Pop Up' fashion to suit the need of local communities and the disaster.

Recovery Hub agencies will vary dependent on the type of event and impacts experienced. Agencies may include but are not limited to:

- Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and the Arts
- Lifeline
- Red Cross
- Insurance Council of Australia
- Local Service providers.

Appendix A: Disaster Response Functions & Associated Lead Agencies

Response Function	Description	Lead Agency
Building and engineering services	To provide for the continuity of service of essential water and sewerage services, building inspections, road, rail, bridge and marine facility damage assessment, maintenance or repair, and demolitions and debris clearing as required.	TCC and DHLGPPW
Donations and Offers of Assistance	To coordinate Offers of Assistance by the public, incl. the delivery and distribution of goods / resources donated by the public that have not been donated directly to community services and clubs.	TLDMG and GIVIT
Electricity infrastructure and supply	To provide advice on power infrastructure / supply and restoration of power supply as per the ***Critical Facility Power Restoration List***.	Ergon Energy (via Energy Queensland)
Emergency medical retrieval	Emergency medical retrieval covers a primary response to an incident in a pre-hospital situation. A primary response may involve road ambulance, aeromedical evacuation, and specialist vehicles. Queensland Health, through a collaborative arrangement between the QAS and Retrieval Services Queensland will coordinate emergency medical retrieval	THHS, Queensland Health
Emergency supply	Emergency Supply is the acquisition and management of emergency supplies and services in support of displaced persons during disaster operations. Emergency supply can include: • Resource support in the establishment of forward command posts. Community recovery centres and/or disease control centres including furniture, equipment and materials • Resource support for community evacuation centres including furniture, bedding materials, health and hygiene products • Bottled and bulk potable water supplies • Temporary structures (i.e. marquee and portable ablution facilities) • Small plant and equipment hire services To support local economies affected by disasters, every effort should be made to exhaust local supplier networks before requesting assistance from outside the impacted area. Where local capacity is exhausted, QFD coordinates the acquisition and management of emergency supplies, through the State Disaster Coordination Centre (SDCC) when activated, or through the SDCC watch desk outside of activation periods. Agencies are to use their own internal acquisition/supply and support resource capability before requesting further support.	QPS

Response Function	Description	Lead Agency
	The acquisition of specialist resources requiring a permit, licence or specific technical knowledge is the responsibility of the respective agency.	
Evacuation management	To provide for the planned relocation of persons from dangerous or potentially dangerous areas to safer areas and eventual return. To safeguard the lives of community members, it may be necessary for evacuation to occur. LDMG's will manage evacuations in their area of responsibility. Queensland uses the Australian Red Cross national database system "Register Find Reunite" which assists in locating individuals and responding to enquiries regarding people who may be in a disaster affected area.	QPS, TLDMG, Australian Red Cross, Evacuation & Transport Working Group
Impact assessment	To assist the TLDMG in planning, formatting, and conducting a complete impact assessment. This assessment gathers information on the magnitude of the event, and the extent of its impact on both the population and the community infrastructure.	QFD, QRA and TCC
Language / Interpreter Support	Provide language and interpreter support during a disaster event and ongoing support in community engagement activities as required.	Townsville Multicultural Support Group
Local Recovery	The provision of immediate and continuing care of disaster affected persons in the local area who may be / have been impacted by an event.	Local Recovery & Resilience Group
Logistics	To develop a process to manage the receipt and delivery of the appropriate supplies, in good condition, in the quantities required, and at the places and times they are needed.	TLDMG
Mass casualty management	A mass casualty event is an incident or event where the location, number. Severity or type of live causalities requires extraordinary resources. Mass casualty management includes: • Treatment of injured • Transport and reception of injured • Provision of health and medical services • Provision of clinical recovery services Queensland health is the responsible agency for the provision of an integrated response to mass casualty management.	THHS
Mass fatality management (incl. Victim identification)	Mass casualty management: In cases of mass fatalities, Queensland health and QPS have joint responsibility for: • Management of deceased, including coordination of transport and victim identification • Notification of, and liaison with, next of kin	THHS and QPS

Response Function	Description	Lead Agency
	• Liaison with and support to the State Coroner	
Public Health, Mental Health and Medical Services	To provide coordination of the hospital and health resources required in responding to healthcare needs following a disaster event.	THHS
Public information and warnings	Providing a "single point of truth" for the management and dissemination of accurate, useful and timely information and warnings to the public during disaster events.	TCC (on behalf of the TLDMG)
Resupply	When communities, properties or individuals are isolated for an extended period from their normal sources of food and basic commodities, support will be provided, dependent upon the respective circumstances. The entity isolated will determine the responsible agency/group. Therefore multiple lead agencies are identified for this function.	QFD, TLDMG, QPS
Reticulated Water Supply and Dam Safety	The Queensland government undertakes a policy and regulatory role in partnership with energy and water supply partners across the state. In Townsville, it is TCC that fulfils this role. Emergency Action Plans have been developed and are updated annually for Ross Dam and Paluma Dam.	TCC
Search and Rescue	Coordinating the use of resources in search and rescue in response to an actual or potential disaster condition.	QPS, QFD, SES
Telecommunications	Locally we have Liaison officers from Telstra, Optus and NBN that are in regular contact with the LDCC and LDMG	NBN, Optus, Telstra
Temporary emergency accommodation	To provide for the management of facilities which provide affected people with basic human needs including accommodation, food and water, and welfare/recovery processes.	Department of Housing and Shelters & Evacuation Centres Working Group
Transport systems	To coordinate the use of transportation resources to support the needs of the TLDMG and other disaster support groups requiring transportation capacity to perform emergency response, recovery and assistance missions.	Evacuation & Transport Working Group, TMR, Aurizon, QR, Port of Townsville, Townsville Airport
Volunteer management	To coordinate community volunteers that seek to assist in times of disaster	Disaster Relief Australia, GIVIT, VNQ

Appendix B: Organisational Functions & Responsibilities

Organisation	Responsibilities

Local Government	▪ Maintenance of the Local Government function (via council's *Emergency Response Plan*)
	▪ Maintenance of normal Local Government services to the community:
	  ▪ Water, Wastewater and Waste services
	  ▪ Public health
	  ▪ Animal control
	  ▪ Environmental protection
	  ▪ Roads and Drainage
	  ▪ Transport Networks
	▪ Maintenance of a disaster response capability
	▪ Maintenance of telemetry and warning systems (incl. TARDIS, FEDSS)
	▪ Collection and interpretation of information from telemetry systems, conjointly with BOM and AECOM
	▪ Provision and maintenance of infrastructure for Local SES Units
	▪ Arrangement and preparation of Shelters & Evacuation Centres
	▪ Ross River and Paluma Dam Operations

TLDMG	▪ Development of the comprehensive Local Disaster Management Planning strategies ▪ Design and maintenance of a public education/awareness program ▪ Design, maintenance and operation of a LDCC, including the training of sufficient personnel to operate the Centre ▪ Coordination of support to response agencies ▪ Reconnaissance and impact assessment ▪ Provision of public information prior to, during and following disaster event impacts ▪ Recommendations re. areas to be considered for directed evacuation ▪ Public advice re. evacuation of at-risk areas ▪ Identification, resourcing, staffing and operation of Shelters and Evacuation Centres ▪ Provision of locally based community support services

Organisation	Responsibilities
Department of Defence	▪ Advisory on Australian Defence resources ▪ Scenario-planning and intelligence (Crisis Appreciation and Strategic Planning)
Department of TMR	▪ Advisory on transportation systems, networks, operations and resources
Disaster Relief Australia	▪ Spontaneous volunteer management ▪ Assist with impact assessments ▪ Debris management (home debris cleaning & removal, "muck/gut out" ▪ Expedient home repairs ▪ Downed tree removal
Ergon (Energy Qld)	▪ Maintenance of electrical power supply ▪ Advice in relation to electrical power ▪ Restoration of power ▪ Safety advice for the community
Port of Townsville	▪ Advisory on Port operations and resources
QAS	▪ Assessment, treatment and transportation of injured persons ▪ Assistance with evacuation (for medical emergencies) ▪ Provision of advice regarding medical special needs sectors of the community
QFD	▪ Coordinate emergency supply ▪ Resupply ▪ Impact Assessment (via Survey123 system) ▪ Access to TOM mapping (this will be the State point of truth) ▪ Fire Behaviour Analysts (forward planning Bushfire behaviour) ▪ Urban Search and Rescue (USAR) ▪ Swift water / floodwater rescue ▪ Public education, community messaging, warnings and alerts ▪ Fire and Rescue staffing as part of the staffing of cyclone shelters (part of the shelter management team) ▪ Assistance with conduct of evacuations ▪ HAZMAT / Chemical incident Plume modelling ▪ Provision of Disaster Management training for LDMG members and other identified stakeholders in accordance with the *Queensland Disaster Management Training Framework*. ▪ Coordinate, support and manage the deployment of SES resources (as required, in consultation with local government, appoint a suitably experienced and/or qualified officer as SES Coordinator to support the coordination of SES operations

Organisation	Responsibilities
QPS	▪ Preservation of peace and good order ▪ Prevention of crime ▪ Security of any site as a possible crime scene ▪ Investigation of the criminal aspect of any event ▪ Coronial investigation procedures ▪ Traffic control, including assistance with road closures and maintenance of road blocks ▪ Crowd management/public safety ▪ Coordination of search and rescue (See State Rescue Policy) ▪ Management of evacuations ▪ Security of evacuated areas ▪ Registration of evacuated persons (activity undertaken by Red Cross, where they have a presence)
Queensland Rail	▪ Advisory on Queensland Railway resources
SES	▪ Assisting the community to prepare for, respond to and recover from an event or disaster ▪ Public Education ▪ Rescue of trapped or stranded persons (see State Rescue Policy) ▪ Search operations for missing persons ▪ Emergency repair/protection of damaged/vulnerable buildings ▪ Assistance with debris clearance ▪ First Aid ▪ Traffic Control ▪ Short term welfare support to response agencies ▪ Assistance with impact assessment ▪ Assistance with communications ▪ Assistance with lighting ▪ Flood boat operations ▪ Assistance with evacuations ▪ Assistance with staffing of shelters

Organisation	Responsibilities
Telecommunications providers	▪ Advice on telecommunication infrastructure and services ▪ Maintenance and restoration of communications supply
Townsville Airport Pty Ltd	▪ Advisory on Airport operations and resources
Townsville Enterprise Limited	▪ Provide advice to LDMG on "mass gathering" or large scale events planned for the region ▪ Liaison with accommodation providers on emergency accommodation ▪ Provide Tourists and accommodation providers with advice & warnings on event / disaster ▪ Disseminating information to other Visitor Information Centres in the region
Townsville Hospital & Health Service	▪ Coordination of medical resources ▪ Public health advice and warnings to participating agencies and the community ▪ Psychological and counselling services for disaster affected persons as per service delivery requirements ▪ Ongoing medical and health services required during the recovery period to preserve the general health of the community


TOWNSVILLE
LOCAL DISASTER
MANAGEMENT GROUP
City of
Townsville