

# Tablelands Regional Council



# Local Disaster Management Sub-Plan

Resilient Communications Sub-Plan

V7 October 2023



## Acknowledgement of Country

**We acknowledge the Native Title parties across the Tablelands Regional Council area and other family groups who are the traditional custodians of this land. We recognise your continuing connection to Country and pay respect to Aboriginal and Torres Strait Islander Elders past, present and emerging including:**

- Bar Barrum of the area around the Walsh River and to the west of the Wild River
- Dulabed and Malanbarra Yidinji of the Gillies Range area
- Girramay of the Kirrama area
- Gugu Badhun of the Wairuna/Lamonds Lagoon area
- Jirrbal of the Koombooloomba, Ravenshoe and Herberton areas
- Mamu of the Millaa Millaa area
- Ngadjon-Jii of the Malanda and Topaz areas
- Tableland Yidinji of the Kairi, Tolga, Tinaroo and Lake Barrine areas
- Warrungu of the Gunnawarra/Goshen area.

# Contents

<b>Section 1: Overview of Plan .....</b>	<b>6</b>
1.1 Context & Assumptions.....	6
1.2 Aim & Objectives of Plan.....	6
1.3 Ownership .....	7
1.4 Support Agencies .....	7
1.5 Links with Other Documents.....	7
<b>Section 2: Activation &amp; Notification Procedures .....</b>	<b>8</b>
2.1 Activation of the Plan.....	8
2.1.1 Tropical Cyclone.....	8
2.1.2 Other Disaster Events .....	8
2.1.3 Communications Failure .....	8
2.2 Notification Process .....	8
2.2 Notification Flowchart.....	8
<b>Section 3: Radio Networks Overview.....</b>	<b>10</b>
3.1 UHF-Radio .....	10
3.2 VHF Radio.....	11
3.3 HF Radio .....	12
3.4 Amateur Radio Operators .....	12
<b>Section 4: Standard Operating Process .....</b>	<b>12</b>
4.1 Business as Usual (BAU) Communications .....	12
4.2 Emergency Communications.....	13
4.3 Initial Public Contact Channel .....	13
4.4 Work Health & Safety.....	14
<b>Section 5: Radio Procedures .....</b>	<b>15</b>
5.1 Radio Signal Propagation .....	15
5.2 Simplex Systems - Line of Sight .....	15
5.3 Duplex Systems – Repeaters .....	16
5.4 Radio Communications Equipment.....	16
5.5 Radio Equipment - Controls .....	17
5.6 Basic Radio Operating Procedures .....	17
5.7 Radio Technique.....	18
5.8 Call Signs.....	19
5.9 Making a Call .....	19
5.10 Answering a call .....	19
5.11 Emergency Calls .....	19
5.12 Radio Logs .....	19
5.13 Sensitive Messages .....	19
5.14 Phonetic Alphabet.....	20
5.15 Numerals .....	21
5.16 Transmitting the Time.....	21
5.17 Pro-words.....	21
<b>Appendix A: Repeater Towers in the TRC .....</b>	<b>23</b>
<b>Appendix B: Radio Network Diagram .....</b>	<b>24</b>
<b>Appendix C: Amateur Radio Operator PPRR Engagement Strategy.....</b>	<b>25</b>
Introduction .....	25



## Resilient Communications Sub Plan

Prevention.....	25
Preparation .....	25
Response.....	25
Recovery .....	26
Further Information .....	26

## Version Control & Record of Amendments

Issue Date	Version	Outline of Revisions	Prepared by	Approved
April 17 2013	V1.0	First version presented to LDMG for approval.	SD	RL
June 7 2013	V1.1	Minor changes to radio network diagram and repeater locations.	SD	SD
December 11 2013	V2	Updated for deamalgamation purposes. V2 presented to LDMG as live operational document from January 1 2014.	SD	RL
December 10 2014	V3	Annual review – minor changes	SD	RL
November 4 2015	V4	Annual review – minor changes	SD	RL
November 16 2016	V4.1	Minor changes - LDMG Chairperson and new DDMG arrangements.	SD	JP
November 10 2017	V4.2	Annual review – updates to public repeaters, TRC network and minor changes throughout	SD	JP
December 18 2018	V4.3	Annual review – minor changes	SD	JP
January 20 2021	V5	Changes to LDMG Chairperson and minor amendments throughout	SD	BW
January 18 2023	V6	Comprehensive rewrite – LDMP modernisation project.	SD	BW
October 18 2023	V7	Annual review – minor changes	SD	BW

## Section 1: Overview of Plan

### 1.1 Context & Assumptions

The Tablelands region is prone to a number of natural disaster events - isolation and flooding during the wet season, bushfires in the dry season and the annual risk of cyclones.

Parts of the region lack the reliable communications infrastructure that others take for granted. Where telephone and mobile networks are available, they have proven to be prone to failure at critical times, creating problems for communities and disaster response agencies alike. A resilient communications capability is critical to the success of disaster response and recovery operations.

Two-way communication is vital not only between the emergency services and other response agencies, but also between response agencies and the wider community. The challenges related to reliable communications in the region are well known. During recent events, extended power outages have resulted in failure of the battery back up at telephone and mobile exchanges, leaving communities with no ability to contact 000 or the Tablelands Local Disaster Coordination Centre (LDCC).

Radio is the most resilient and reliable form of communication available within the region. A number of radio networks have been modelled using radio propagation analysis and ground tested to determine the maximum coverage available as well as the identification of black spots. As a result of this work undertaken, a network diagram has been developed documenting communication pathways from each community into the LDCC.

This system will provide a more resilient method of communication post-disaster should traditional telecommunications networks fail. It will enable people to get help when in need and enhance the communities' chance of survival by improving the ability of emergency services personnel and the Tablelands Local Disaster Management Group (LDMG) to cope better with the demands of extreme events and provide a greater level of assistance to communities.

This Sub Plan is only to be activated when traditional communications systems fail. This may be in response to a disaster event but can also be used outside of disaster events for example in an event which disrupts communication (e.g. 000 failure on Australia Day 2013). Many events will not require the activation of this Sub Plan and will be handled using normal communications methods.

This Sub Plan relies on the concept of a Community Disaster Team Coordinator in each locality having access to appropriate infrastructure to communicate with the LDCC and an initial community contact channel using UHF-CB 10 to promote self-help and resilience. This channel may be monitored by volunteers (subject to resources) who may be able to communicate with other agencies.

Community members are regularly encouraged to have access to radio equipment and to have completed basic training and understand how to use it.

### 1.2 Aim & Objectives of Plan

The aim of this Sub Plan is to detail the procedures for invoking an alternative communication system in the event of failure of the landline and mobile networks. The key objectives are to:

- ensure that there are two-way alternative communications system for region wide communications in the event that traditional communications systems (e.g. landlines, mobiles, email) fails.
- provide a mechanism for situational reporting to and from Community Disaster Teams by the LDCC in the event of failure of traditional communications system.
- increase the likelihood of communities to get help when in need when traditional communication systems have failed.
- ensure there is a formalised activation process that is understood by all parties.

### 1.3 Ownership

This sub-plan is owned by the Local Disaster Coordinator (LDC) on behalf of the Local Disaster Management Group (LDMG). All significant amendments must be approved by the LDMG.

The LDC will ensure the:

- master document is retained with relevant supporting documents
- level of circulation of the sub-plan is determined by the LDMG and details are recorded of copyholders
- sub-plan is updated and reviewed on at least an annual basis, or after activation, whichever is the sooner
- sub-plan is tested and exercised as determined by the LDMG.

### 1.4 Support Agencies

Tablelands Regional Council retains functional responsibility for this Sub Plan on behalf of the LDMG. This sub-plan also directly applies to:

- All member and advisory organisations of the LDMG.
- Department of Environment & Science (QPWS)
- Community Disaster Teams
- Tablelands Radio & Electronics Club (TREC)
- Amateur Radio Operators
- Community members and the general public

### 1.5 Links with Other Documents

This sub-plan is interdependent on, and should be read in conjunction with, the Local Disaster Management Plan (LDMP). It links directly to all other sub-plans including the LDMG Emergency Contact Lists.

This plan also links to:

- [Resilient Communication Pathways Network Diagram v7](#) (18 October 2023)
- Amateur Radio Operator – PPRR Engagement Strategy

## Section 2: Activation & Notification Procedures

### 2.1 Activation of the Plan

This sub-plan will be activated by the LDC and LDMG Chair whenever communications failure has occurred or is likely to occur. The following are considered likely activation triggers:

#### 2.1.1 Tropical Cyclone

The most likely scenario for activation of this Sub Plan would be a wide area impact from a cyclone which renders normal communication systems inoperable. When it is known that a cyclone is approaching, the Sub Plan should be activated prior to the event, so radio testing can be conducted in advance (if time permits). Radio infrastructure (especially antennas) should be stored for the duration of the event, then subsequently re-erected. A radio test should also be conducted once the cyclone has passed, regardless of whether phones are working or not. As per the activation procedures for both the LDCC and Community Disaster Plans, radio tests will be undertaken as per the procedure documented in those plans.

#### 2.1.2 Other Disaster Events

In response to other events such as fires or storms where little or no warning is available, the Sub Plan can be activated by contacting the LDC of the Tablelands LDMG using (either landline, mobile or email) wherever possible. Where no traditional communication exists, all parties are to invoke their part of the network.

#### 2.1.3 Communications Failure

In wide area communications failure (such as the Telstra outage that occurred in January 2013) this Sub Plan could be activated to provide an alternative communication network. If possible, the LDC should be notified by phone (either landline or mobile) and requested to activate the Sub Plan. Where no communication exists (landlines and mobiles) all parties are to invoke their part of the network.

### 2.2 Notification Process

The LDC will notify the Chairperson of the LDMG that the Sub Plan is to be activated. A message will also be sent to all LDMG members where possible.

The LDCC Radio Logger will need to be activated to support the Sub Plan. This person has received training and has an intimate understanding of the arrangements. The LDC will notify the LDCC Radio Logger.

An arrangement exists between TRC and QPWS to staff the base station at Atherton (if required) when this Sub Plan is activated. The base station is staffed during normal business hours (08:00hrs - 17:00hrs). Outside of these hours, a notification procedure will be invoked if required.

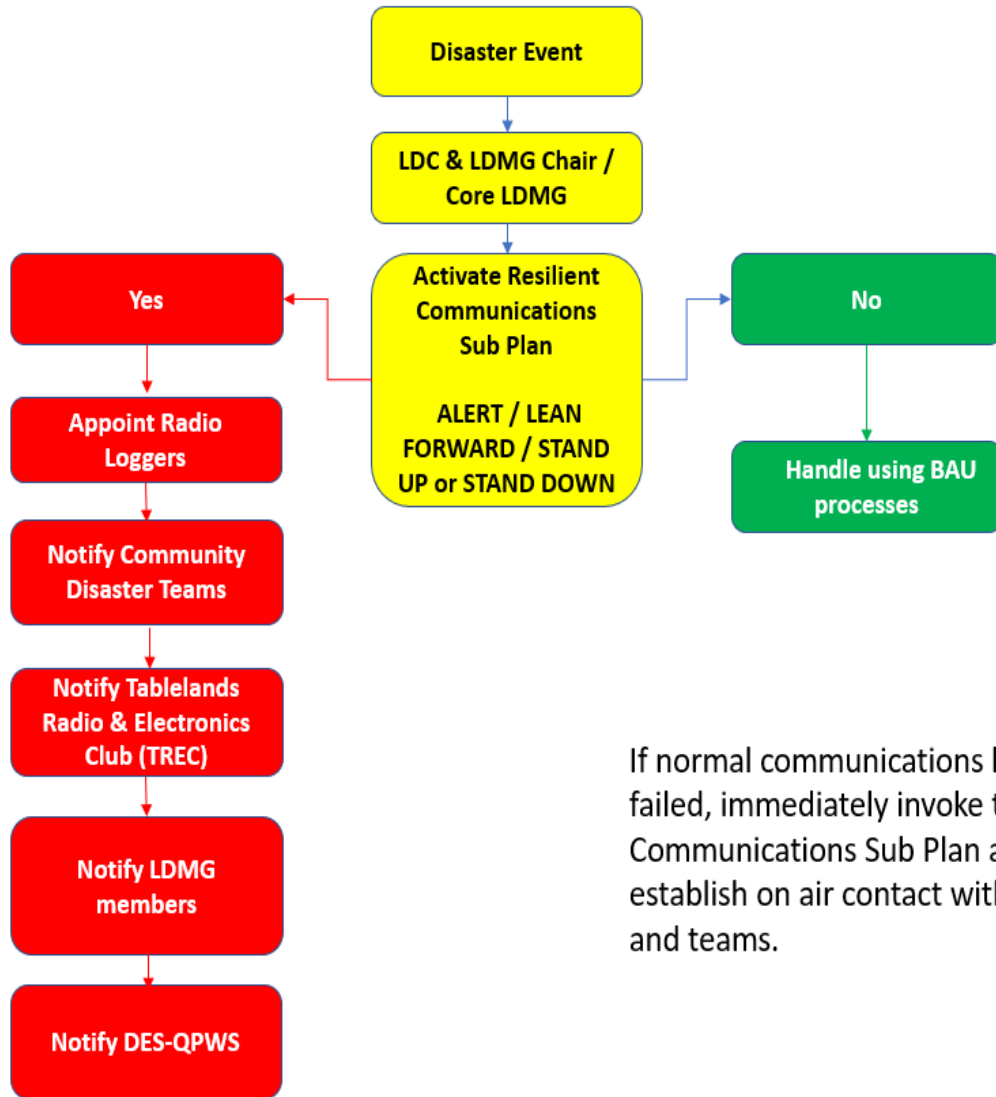
Where communications have failed and no traditional communications exist, agencies involved in the Sub Plan will deploy and try to establish communications.

Community Disaster Teams and Queensland Fire & Emergency Services will be notified as required wherever possible.

### 2.2 Notification Flowchart



### Resilient Communications Sub Plan



If normal communications have already failed, immediately invoke the Resilient Communications Sub Plan and try to establish on air contact with agencies and teams.

## Section 3: Radio Networks Overview

### 3.1 UHF-Radio

Ultra-High Frequency (UHF) radio is line of sight communication over short distances only. It experiences little interference problems although sometimes this occurs in close proximity to digital devices. UHF has very poor transmission capability in forested and mountainous terrain and limited repeater coverage / simplex operation compared to VHF.

#### 3.1.1 UHF-CB Radio

UHF Citizen Band (CB) radio is unlicensed and therefore accessible to the general public. UHF-CB radios are generally inexpensive and widely accessible throughout the community. UHF-CB communications are line-of-sight and limited by range using simplex mode (refer section 5 – Figure 2). The range can be extended by using the repeater network (refer 3.1.2 below).

#### 3.1.2 UHF-CB Repeater Network

There are several UHF CB repeaters throughout the TRC region. Several of these repeaters are owned by TRC and others are privately owned. The public can access the TRC repeaters using their UHF-CB equipment at any time, not just during disasters. To access repeaters, UHF equipment needs to be operated in duplex mode (refer section 5 – Figure 3).

In times of disaster, it may be necessary for TRC to implement a controlled network of communications through the repeaters to effectively manage emergency communications in the region.

##### *TRC owned repeaters*

Repeater Channel	Call Sign	Location	Areas Covered
1	HAL01	Atherton	Atherton Malanda Yungaburra
2	TRC02	Mount Garnet	Mount Garnet
3	MIL03	Millaa Millaa	Millaa Millaa Malanda

##### *Other repeaters*

Repeater Channel	Call Sign	Location	Areas Covered
5	MAR 05	Mareeba	Walkamin (online)
4	DIM 04	Dimbulah	West of Tolga-Mareeba Road (patchy) (unconfirmed)
8	GHS 08	Meadowbank Station	Station and immediate surrounds including Boomerang Stn. Patchy on Kennedy Hwy near Forty Mile Scrub) (unconfirmed)
6	UND 06	Undarra National Park	Immediate Surrounds. Possibly at Boomerang Station (unconfirmed)
8	CAN 08	Bell Peak North	Sth Cairns Sth Tablelands (unconfirmed)

Refer to map of repeater towers at Appendix A.

For further information, visit the Australian Communication & Media Authority (ACMA) website at: <http://www.acma.gov.au/>.

#### 3.1.3 Channel 34 Multi-Agency Radio Network

Channel 34 (UHF) is to be utilised if normal inter-agency communications fail between agency communication centres e.g. between the LDCC and the District Disaster Coordination Centre (DDCC). Channel 34 is not a CB channel. It is a private Police channel that is not accessible by the general public. The repeater is owned by QPS. The following agencies have Channel 34 radios:

- TRC
- MSC
- QPS
- Others TBC

Confidential information regarding this radio system including region wide coverage maps are held by Tablelands Regional Council and QPS. This information is available in the Tablelands LDCC.

A Channel 34 radio is available in the Tablelands LDCC.

## 3.2 VHF Radio

Very High Frequency (VHF) radio is almost line of sight in simplex operations. It has excellent transmission for varying foliage types and forested areas including mountainous terrain. It experiences very little interference but can be affected by computers and technological equipment and provides good repeater coverage across distance. VHF is a licensed frequency.

Several organisations have access to VHF radio systems that may be utilised during times of disaster to manage operations.

### 3.2.1 TRC VHF Radio Network

The primary repeater for the mid-band VHF radio network is located on the Austek owned tower at Longlands Gap. Radio testing in the past by TRC has confirmed coverage from Malanda to Mt Garnet (Gunnawarra Road). There have been some challenges experienced in recent years but a program to reinstate the radio network as a back-up communication system is underway.

The TRC repeater network is not accessible by the general public. TRC will use this network to manage business operations in the event that normal communications have failed. A base set is available in the LDCC and at the Tolga Depot.

Confidential information regarding this radio system including region wide coverage maps are held by TRC. Refer map of repeater towers at Appendix A.

### 3.2.2 DES QPWS VHF Radio Network

The very-high frequency (VHF) repeater network owned by Department of Environment & Science – Queensland Parks & Wildlife Section (DES-QPWS). This system provides excellent coverage of the Tablelands Regional Council area. A base station is available in the LDCC at Atherton and in the QPWS Office in Atherton which can be used as a backup if required. Repeaters for use in the Tablelands Regional Council area are located at:

Channel	Location
453	Mt. Fisher
454	Mt. Wallum
455	Bellenden Ker
459	Alexandra Range
474	Undarra

QFES (Rural Operations) radios have been programmed to transmit and receive on QPWS VHF Repeater Network. Each Rural vehicle has the radio programmed, some have base stations and others handhelds. In addition, many Urban Fire & Rescue Brigades also have access to this repeater network.

Confidential information regarding this radio system including region wide coverage maps are held by Tablelands Regional Council and QPWS. This information is available in the Tablelands LDCC. See map of repeater towers at Appendix A.

### 3.3 HF Radio

High Frequency (HF) radio is utilised in remote areas as it provides coverage over large distances due to transmission characteristics. HF radio suffers from atmospheric conditions and overseas interference, lightning and particularly storm season unserviceability. Skilled operators are required as they need to use correct frequency for time of day etc. HF radio is not useful for communication between field staff working close to each other. HF is a licensed frequency.

Several organisations have access to HF radio systems that may be utilised during times of disaster to manage operations.

#### 3.3.1 TRC HF Radio Network

TRC has recently established a HF radio network. A HF radio base station is available in the LDCC. Additionally, ten HF radio base stations are available and have been pre-programmed ready for deployment to local communities and / or evacuation centre facilities as required. HF radio requires licensed operators. TRC has access to a number of licensed amateur radio operators to support disaster operations as required – refer 3.4 below.

#### 3.3.2 SES HF Radio Network

Mount Garnet SES has access to vehicle mounted and base sets for a HF radio system which can be used to communicate between SES Units and across Queensland where necessary.

### 3.4 Amateur Radio Operators

The Wireless Institute Civil Emergency Network (WICEN) provides a framework for amateur radio operators to support disaster operations. Local amateur radio groups such as the Tablelands Radio & Electronics Club (TREC) can assist with augmenting VHF and HF radio communications during disaster situations by providing trained licensed radio operators and equipment that can be deployed to areas with communication problems or at remote locations. In recent times, TRC has provided free training to community members to increase the number of licensed amateur radio operators available in the local area

The deployment of amateur radio operators is considered the policy of last resort or the last resort option to try and maintain some level of communication in the region. An Amateur Radio Operator Strategy has been developed which considers the role of amateur radio operators at each phase of a disaster (i.e. prevention, preparation, response and recovery – refer Appendix C).

## Section 4: Standard Operating Process

### 4.1 Business as Usual (BAU) Communications

Conventional methods of communication i.e. the systems the public are already familiar with (telephones, mobiles, email, satellite phones, etc.) are the preferred methods of communication and should be utilised wherever possible. However, it is recognised that these systems may be down or temporarily unavailable immediately following a disaster event.

## 4.2 Emergency Communications

When normal communication channels have failed, the Department of Environment & Science (DES-QPWS) VHF Repeater network (including any portable repeaters and / or mobile units) will be utilised along with UHF-CB and HF radio communications where applicable.

Queensland Fire & Emergency Services (QFES) are heavily involved in the alternative emergency communications network which will be used for situation reporting (SITREPS) and requests for assistance (RFA's) to the Tablelands LDCC in the event of failure of standard communications (landline, mobile, email, etc.).

See radio networking diagram at Appendix B and the notification procedures in Section 2.

### 4.2.1 Controlled Network

In order to function effectively during disasters, radio networks need to be operated in a disciplined manner. When the emergency communications radio network is invoked, this will be a controlled network. All communications will be through the base station. Base will give permission to talk through where appropriate and will manage emergency call procedures (see 4.4.5 below). The following are key rules of the controlled network:

- Keep transmissions clear and as short as possible.
- Limit transmissions to operational traffic only.
- Avoid tying up the radio system with personal or administrative matters.
- Test the radio signal only once or when the reception is unclear.
- Speak only as quickly as you can write down a message.

Other stations may be required to assist with relaying messages if the base is unable to make direct contact with a station.

## 4.3 Initial Public Contact Channel

When normal communication channels have failed, members of the community requiring assistance can utilise their local community UHF-CB channels to contact other community members who may be able to provide assistance.

UHF-CB Channel 10 (Simplex) has been designated as the initial contact channel for members of the community and visitors to the region. This is regularly promoted to the community and is supported by signage across the region (refer Figure 1).

UHF-CB 10 has been chosen as a significant proportion of the population have access to UHF-CB radios, it is a simplex channel which eliminates confusion for inexperienced radio operators if repeaters have failed and can be promoted to visitors to the region who may be unfamiliar with local community UHF-CB channels.



Figure 1: UHF-CB 10 Signage

Once initial contact is made, the caller may be required to change channels to the local community UHF-CB Channel or to a repeater channel. (if available). UHF-CB radio is primarily for members of a community to communicate with each other during and after a disaster so that they can assist one another. It should be noted that possession and use of a two-way radio does not guarantee an instant and reliable or an immediate and effective response to an individual's call for help - calling out on a two-way radio does NOT guarantee a response.

Emergency aid may not be available to some people whether or not they have a radio. They may be isolated due to impassable conditions, flooding, down power lines, fire, fallen structures, blocked roads, or there may not be public safety or other resources to assist them. Whilst it cannot be guaranteed, having a two-way radio may enable community members and appropriate officials to communicate with persons affected by disaster.

In some communities, the initial contact channel may be monitored by Community Disaster Teams and some Rural Fire Brigade members (subject to availability and resource commitments). Arrangements will need to be developed at the community level to ensure that urgent requests for assistance are able to be communicated with the LDCC using available UHF-CB, VHF or HF radio networks. Community Disaster Teams need to understand the communications pathways from their communities back to the LDCC (refer Appendix B).

#### 4.4 Work Health & Safety

- Do not use radios around computers or other electronic equipment.
- Do not operate two-way radios or mobile phones at refuelling areas and fuel stations.
- Avoid standing adjacent to HF aerials when transmitting.
- Do not allow the aerial to touch any part of your body while transmitting.

- Do not remove any insulating material from aerials.
- Turn off all radio equipment as per warning signs e.g. blasting area ahead.
- If you have a pacemaker fitted, follow the manufacturer's advice.

## Section 5: Radio Procedures

### 5.1 Radio Signal Propagation

Radio signals may fade or become unreadable due to the effects of the terrain. If you are moving in a vehicle or on foot, the signal may break up. Try several locations (preferably an elevated point) until you receive a clear, unbroken signal. Sources of natural interference which cannot be totally avoided include vegetation, smoke, electrical storms, dust, rainfall, and so on.

### 5.2 Simplex Systems - Line of Sight

Simplex systems do not use a repeater network. This signal is from radio to radio on a single frequency. If all radios are set to transmit and receive on one frequency, they are said to be communicating in SIMPLEX mode and therefore the channel is a simplex channel. This allows all radios to transmit to each other, but not simultaneously.

Simplex channels are utilised when radio users are in close proximity to each other, for instance for communications over short distances between two vehicles or a handheld and a vehicle.

The initial contact strategy for community members to seek/offer assistance on UHF CB Ch10 is an example of simplex channel use (i.e. without using a repeater).

#### SIMPLEX

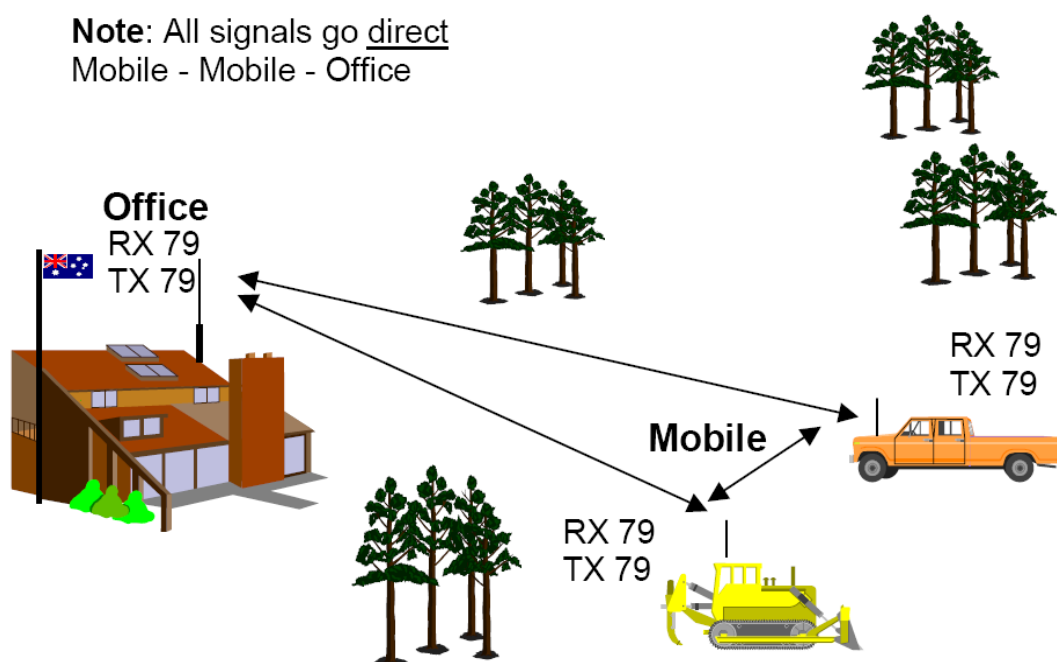


Figure 2: Simplex radio operations

### 5.3 Duplex Systems – Repeaters

Alternatively, channels can be duplex in operation. This means that the channel has two designated frequencies of operation, one can be used to transmit while the other will be used for receiving at the same time. That is, via a repeater. Repeaters only work on a duplex channel.

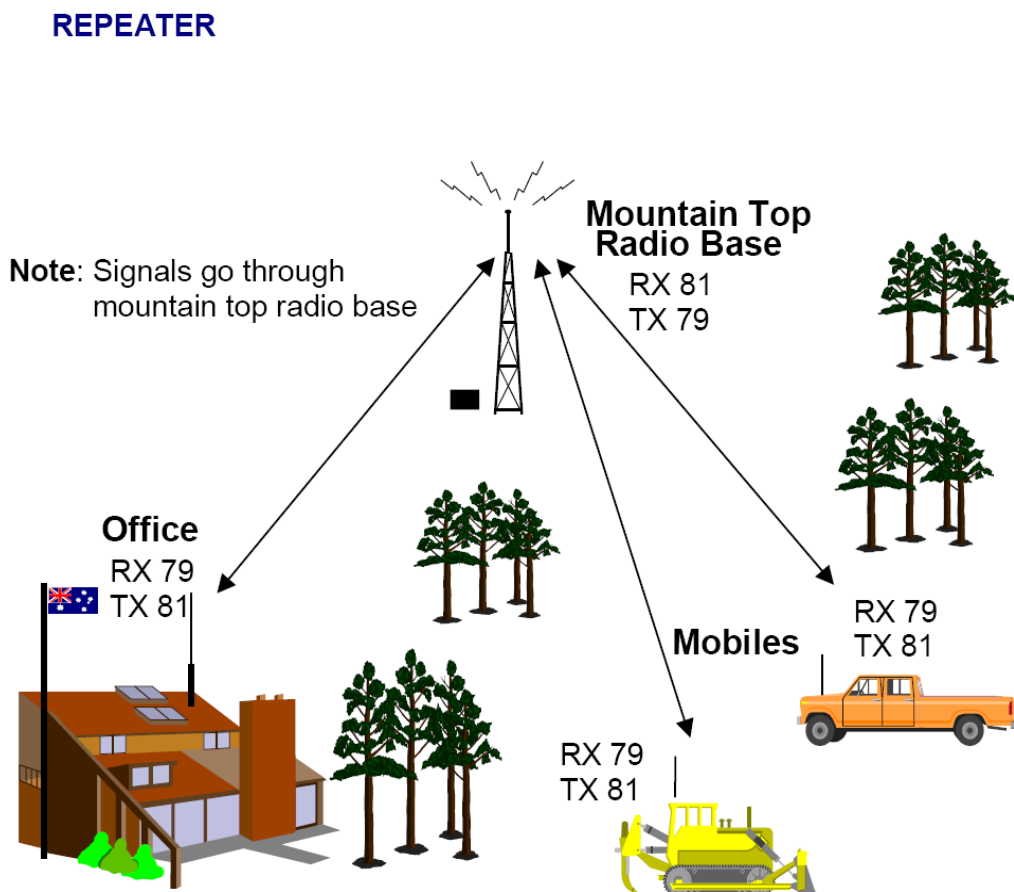


Figure 3: Repeater radio operations

### 5.4 Radio Communications Equipment

Common radio equipment used in the operation of this plan includes:

**Fixed Repeaters:** Fixed repeaters are used to extend the coverage range of radios. A repeater is basically a radio receiver and a radio transmitter connected together. The receiver listens on one frequency and when it hears a signal the transmitter part of the repeater re-transmits the signal on another frequency. These two frequencies make up a duplex channel. Repeaters are usually placed at a high point of a geographic location so that the radio transmission can be repeated as far as physically possible. This can be greater than 80 kilometres depending on topography and location of the site.



*Portable Repeaters:* Portable repeaters can be used to temporarily expand the network by creating a communications link between vehicles/handheld radios through the repeater back to a base station. Alternatively, the mobile repeater can work as a stand-alone unit (operating on a separate frequency) providing the communication link between vehicle and / or handheld radios does not conflict with the standard local network. Depending on topography and location the portable repeater can provide radio coverage over an area within a 50-kilometre radius. A number of different agencies have portable repeaters available to establish ad-hoc networks as required. QPWS have a large number of 4WD Ranger Vehicles all over the region with QPWS radios installed linked into the system which may be useful to augment communications at any spot required (subject to ability to get there).

*Base Sets:* Base radio and aerial are usually located at key HQ facilities. They have a power output of 25 watts. A base set is available in the Local Disaster Coordination Centre.

*Mobile Radios:* A mobile radio is mounted in a vehicle or machinery and has a power output of 25 watts. It is connected to the vehicle’s battery and has an external aerial mounted on the vehicle. It comprises of a control head and microphone/handset and external speaker. The distance over which it can transmit depends on its location in relation to another vehicle, base station or repeater.

*Handheld Radios:* Handheld radios are sometimes referred to as portable radios and have a power output of 5 watts maximum. These radios are totally self-contained with their own aerial and power supply (battery). Optional external speaker/microphones are available, as are durable protective cases.

It is important to regularly test and maintain radio communications equipment to ensure the operational readiness of equipment.

## 5.5 Radio Equipment - Controls

Regardless of type, brand or model, every radio will have at least four basic controls, namely:

- Power switch.
- Volume control.
- Channel selection (frequency).
- Press-to-talk button.

Most radios will have additional function controls. For information on the controls and functions for specific radios used, refer to the relevant radio user guides.

## 5.6 Basic Radio Operating Procedures

When using a radio there is no substitute for common sense. Clear speech assists reception and avoids the need for repetition or correction.

When transmitting, set the volume level to half and hold the microphone to the side of your mouth talking across the face of the microphone. Consider your speech Rhythm, Speed, Volume and Pitch (RSVP). They will assist in achieving successful transmission of messages.

Rhythm	Ordinary conversation has a natural rhythm that needs to be preserved when speaking on radio. Transmit messages in short complete phrases that make sense in a smoothly read text.
Speed	Speak slightly slower than normal conversation, avoid rushing or slurring words. Pause between phrases to give the receiver time to acknowledge the message.

Volume	Speak directly into microphone. Speak slightly louder than normal conversation. Avoid shouting.
Pitch	Use a normal or slightly assertive voice.

It is vital that basic radio operating procedures are observed. This is especially important when communicating on licensed networks as the Radio Communications Act 1992 requires a radio service to be controlled by competent operators. The use of profane language is not permitted on radio networks by law and must not be used.

Radio communications may suffer from interference, which can result in misunderstood messages. Communication is only possible in one direction at a time. Chaos can result if two or more persons use the same frequency to transmit at the same time. Radio is a multi-user communications facility which requires listening before transmitting and consideration of other users.

In emergency or poor operating conditions radio traffic becomes congested and accuracy can suffer.

These procedures should be used in both Simplex “talk around” and Duplex “through repeaters” modes to ensure consistency and the reinforcement of good practice.

## 5.7 Radio Technique

The basic principles of transmitting radio messages are:

- Determine which channel you wish to transmit or receive on.
- Listen before transmitting.
- Think about what you are going to say before transmitting.
- Push to talk (PTT) then a slight pause before speaking. Similarly at the end of the transmission, keep the button down for a slight pause after speaking. This technique will prevent messages being clipped / cut short.
- When transmitting refer to the person you are calling first e.g. TRC Base this is Tinaroo Community Disaster Coordinator (see examples on pg 14 & 15).
- Keep messages short, simple and concise.
- Speak slightly slower and louder than normal, distinctly at a regular, medium pace, and at a slightly assertive pitch.
- Make sure you understand what has been said and be sure to pass on messages clearly and accurately and ensure that the receiver has understood the message you are sending.
- Urgent or priority messages must be transmitted quickly and without song and dance.
- Unusual person or place names may be spelt by using the phonetic alphabet.
- Long messages should be broken into natural sentences.
- If messages are required to be written by the receiving operator, the message should be transmitted at writing speed; and
- Avoid the use of jargon terms.
- Make sure you completely understand the message when you receive it. If you are unsure ask the sender to repeat.
- Offer to relay if you hear two stations having trouble.
- Carry a notebook and keep a radio log.
- Listen before jumping in.

### 5.7.1 Key Tips for Using the Radio

- Do not shout.
- Do not drop your voice at the end of sentences.
- Do not develop personal quirks such as “roger roger”.
- Do not use abbreviations unless you are positive there can be no misunderstanding.

- Do not use nicknames.
- Do not swear.
- Do not waste or hog air time.
- Do not offer unnecessary traffic, particularly during emergencies.
- Do not rush or slur words.
- Do not use terms like “you know” or “er”.

## 5.8 Call Signs

A call sign must be used to initiate radio communications on all networks. All agencies have predefined call signs. For the purposes of this Sub Plan, the LDCC will be known as 'TRC Base'. If the QPWS at Atherton is activated, it will be known as 'QPWS Base'. Community Disaster Teams should use their community name e.g. Malanda Community Disaster Team.

## 5.9 Making a Call

The principles of making a radio call are as follows:

- a. Say whom you wish to speak to.
- b. Say who you are; and ask for acknowledgement; and
- c. Say what you have to say BRIEFLY.

Example:

"TRC Base this is Tinaroo Community Disaster Team are you receiving?"

## 5.10 Answering a call

The principles of answering a call are:

- Reply to the caller with your radio call sign; and
- Respond to any request.

Example:

"Tinaroo Community Disaster Team, this is TRC Base pass your message"

## 5.11 Emergency Calls

Example:

"Emergency call to base. Emergency call to base. This is Tinaroo Community Disaster Team. All Stations stop transmitting"

## 5.12 Radio Logs

Guardian should be utilised for requests for assistance, offers of assistance or enquiries wherever possible. Best practice requires radio logs in emergency operation are maintained. The running log within the Guardian system is also a useful tool for the radio logger. In the event of failure of Guardian, a template log is available as part of the Local Disaster Management Plan which can be utilised.

## 5.13 Sensitive Messages

On occasions emergency situations may find it necessary to transmit sensitive information such as casualty lists and incident details. Where possible, this should not be done over the conventional radio network. It is preferable to use landline telephones, digital mobile phones, satellite phone or personal contact. You should always assume that someone else is listening when you are talking on the radio.

## 5.14 Phonetic Alphabet

The phonetic alphabet is a standard procedure for the transmission of difficult to pronounce words or place names or individual letters (e.g. with map references or registration numbers). The excessive use of the phonetic alphabet wastes time on radio networks. Clarification of words can very often be made using plain English spelling without the need to resort to phonetic spelling.

Letter	Word	Pronunciation
A	Alpha	Al-fa
B	Bravo	Brah-voh
C	Charley	Char-lee OR Shar-lee
D	Delta	Dell-tah
E	Echo	Eck-oh
F	Foxtrot	Foks-trot
G	Golf	Golf
H	Hotel	Hoh-tel
I	India	In-dee-ah
J	Juliet	Jew-lee-ett
K	Kilo	Key-loh
L	Lima	Lee-mah
M	Mike	Mike
N	November	No-vem-ber
O	Oscar	Oss-cah
P	Papa	Pah-pah
Q	Quebec	Key-beck
R	Romeo	Row-me-oh
S	Sierra	See-air-ah
T	Tango	Tang-go
U	Uniform	You-nee-form
V	Victor	Vik-tah
W	Whiskey	Wiss-key
X	X-ray	Ecks-ray
Y	Yankee	Yank-key

Z	Zulu	Zoo-loo
---	------	---------

Table 1: Phonetic alphabet

## 5.15 Numerals

When numbers are transmitted by radio the rules for their pronunciation are to be observed as follows. Numeral spoken as:

0 zero	6 six
1 wun	7 se ven
2 too	8 ate
3 thuhree	9 niner
4 for wer	10 wun zero
5 fi yiv	decimal point-day see mal

Table 2: Numeral pronunciation

## 5.16 Transmitting the Time

Always use the 24-hour clock to transmit times. Time 24hr pronunciation:

TIME	PRONUNCIATION
12.08 am 0008hrs	Zero zero zero ate hours
9.00 am 0900hrs	Zero nine hundred hours
10.30 am 1030hrs	Ten thirty hours
12.16 pm 1216hrs	Twelve sixteen hours
3.45 pm 1545hrs	Fifteen forty-five hours
6.28 pm 1828hrs	Eighteen twenty-ate hours
10.00 pm 2200hrs	Twenty two hundred hours
11.58 pm 2358hrs	Twenty tree fifty-ate hours

Table 3: Transmit time

## 5.17 Pro-words

To keep voice transmission as short and clear as possible, radio operators use procedure words (PRO-WORDS) to take the place of long sentences. An example of common pro-words and their meanings are as follows:

PROWORD	MEANING
Affirmative	Yes or correct
All stations	General call from a base radio to all mobiles and portables on its network
Cancel	Ignore my previous statement
Clear / channel clear reply	My transmission is ended and I do not expect a reply
Confirm	Reinforce a statement

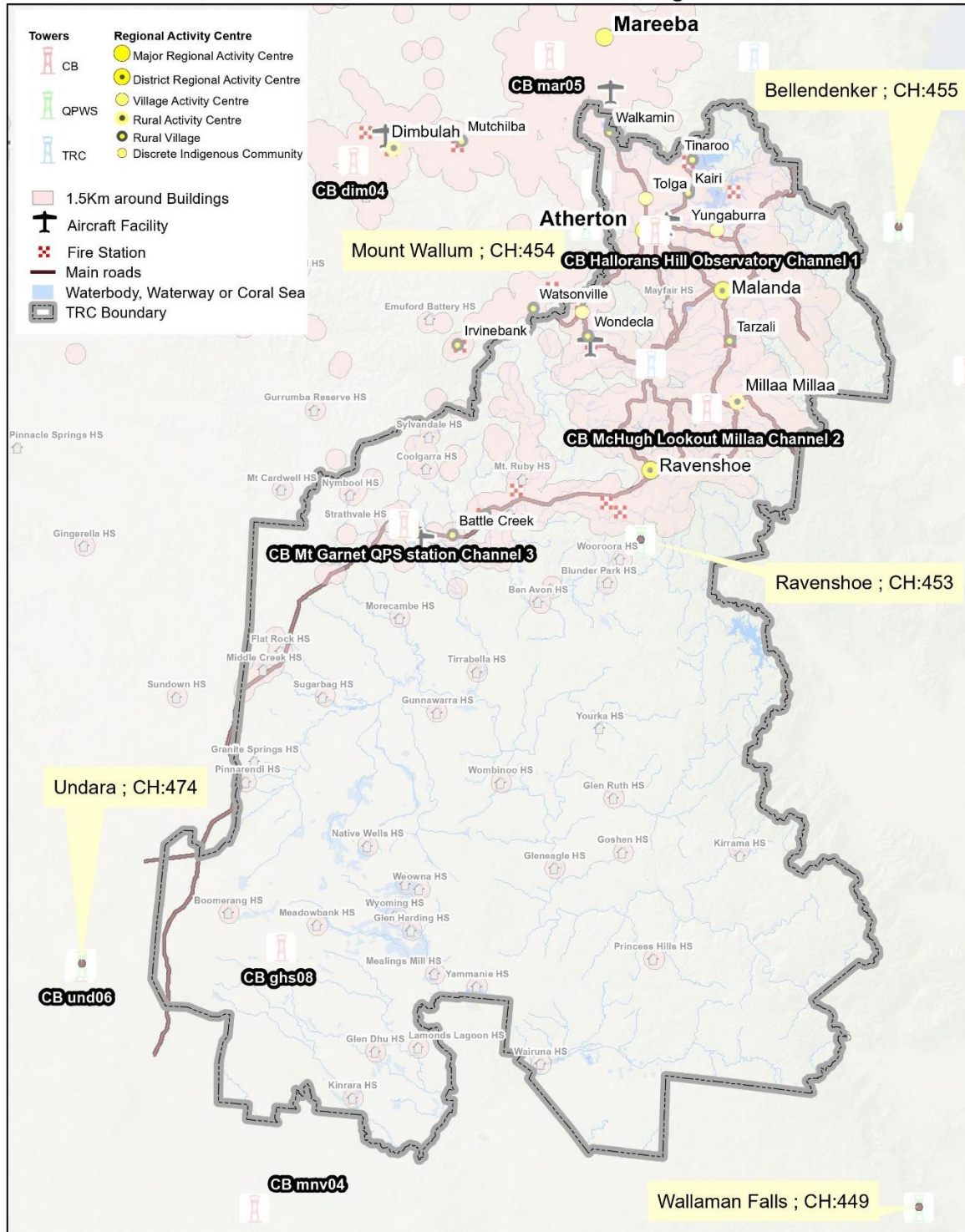
### Resilient Communications Sub Plan

Correction	I have made an error in my last transmission
Disregard	Delete any reference to my last transmission or request
ETA	Estimated time of arrival
ETD	Estimated time of departure
Figures	Used before every group of figures is spoken except before call signs and map reference figures
Fire call	Alert that a message will involve details of a fire
Go ahead (see Send)	Invitation to transmit or relay (I am ready to receive your transmission)
Grid	A grid reference follows
I say again	I am repeating my last transmission
I spell	I shall spell the word phonetically
EMERGENCY CALL	Cease all other transmission, life or property is at risk
Negative	No, or this is incorrect, or permission is not granted
Nothing heard	I have not received a reply or heard from the radio whose call sign I have just used
Over	End of my transmission to you and a response is necessary. Go ahead and transmit
Out	My transmission has ended and I do not expect a reply
Out to you	My transmission to you has ended, but I intend calling another radio
Pan Pan Pan	Possible assistance needed
Radio check	What is my signal strength and readability
Roger	I have received and understood your last transmission
Say again	Please repeat all of your last transmission (or the portion I have indicated)
Send (see Go ahead)	I am ready to receive your transmission
Sitrep	Situation report of the incident
Standby	I must pause and will come back when ready
Wait	I must pause for up to 5 seconds Unless urgent, no other station is to transmit
Wilco	Message received and will be complied with
Word back	A precise definition of the status of the incident

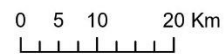
*Table 4: Pro-words*

# Appendix A: Repeater Towers in the TRC

QPWS, CB and TRC Towers in Tablelands Regional Council



©2022 Tablelands Regional Council (TRC). Based on or contains data provided by TRC and the State of Queensland (Department of Environment and Resource Management) 2022. In consideration of these agencies permitting use of this data you acknowledge and agree that these agencies give no warranty in relation to the data (including accuracy, reliability, completeness, currency or suitability) and accept no liability (including without limitation, liability in negligence) for any loss, damage or costs (including consequential damage) relating to any use of the data. Data must not be used for direct marketing or be used in breach of the privacy laws.



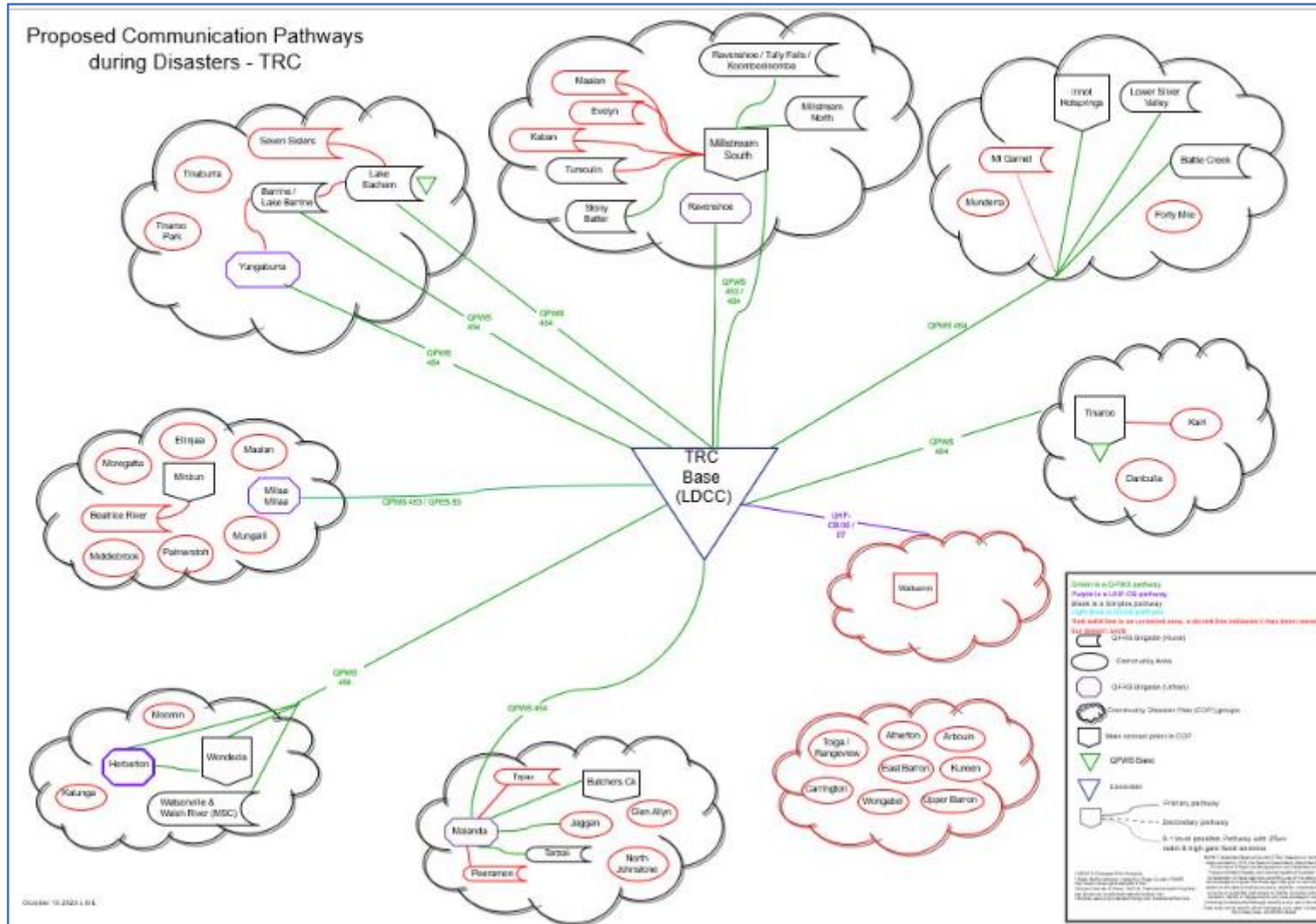
1:750,000

Map Grid of Australia Zone 55 (GDA94)



#2013-303

# Appendix B: Radio Network Diagram





# Appendix C: Amateur Radio Operator PPRR Engagement Strategy

## Introduction

TRC recently funded a number of community members to obtain their Amateur Radio Foundation Licence.

In times of natural disasters, radio amateurs throughout the world provide support communications, and sometimes the only communications immediately after a disaster. When cyclone Tracey hit Darwin in 1974, the only communication out of the area initially was by a radio amateur who hooked his transceiver up to a car battery, and let the world know that Darwin needed help. Also in Australia, emergency communications have been provided after numerous bush fires including Black Friday 1939, and Ash Wednesday 1983, the Newcastle Earthquake in 1989, Floods in Queensland and similar emergencies across Australia (refer <https://www.wia.org.au/discover/introduction/emergency/>).

This strategy has been developed using the prevention, preparation, response and recovery (PPRR) methodology to assist our Amateur Radio Operators understand how they can support the region's disaster management arrangements.

## Prevention

This phase is characterised by activities to prevent or mitigate the impact of disasters. Telecommunications plays a pivotal role in disaster prevention and mitigation and their failure results in preventable loss of life and damage to property. Amateur radio operators possess the potential to serve as an alternative communication channel, should traditional communications such as landlines, mobiles and internet fail.

For an amateur radio operator, the prevention phase of a disaster should be characterised by you establishing a fixed, mobile or portable station that you are able to operate from in the event of a disaster should communications fail. You should also ensure that your licence and call sign is maintained through the ACMA.

## Preparation

The preparation phase is characterised by ongoing activities in which Amateur Radio Operators plan, prepare and train for emergency situations. Planning for failure of communication is essential. Amateur Radio Operators should develop skills to ensure they can get their station back on air if equipment has been damaged as a result of a disaster. The key to providing any effective emergency response is preparedness and it's no use finding that you, or your equipment, are not up to scratch when the time comes. There are some very simple guidelines for ensuring that you, and your equipment, are up to the job. Refer <https://www.wia.org.au/members/emcom/prepareyourself/>

Amateur Radio Operators are encouraged to be part of the Tablelands Radio & Electronics Club (TREC). Experienced TREC members will assist and support newly qualified operators with all aspects of amateur radio operations. TREC also runs training sessions and participates in events such as horse rides and communication nets which enable operators to practice using their skills.

During the preparation phase, TRC organises regular training and exercises. Where these are relevant, TRC will invite Amateur Radio Operators to participate. Examples include Guardian training which is the IT system we use in our Disaster Coordination Centre as well as exercises to test our arrangements. This could be a small scale communication exercise or a full scale Disaster Coordination Centre exercise. We encourage all amateur radio operators to participate in any training or exercises that you are invited to.

## Response

In times of disaster, Amateur Radio can be used for emergency communication when landline phones, mobile phones and other conventional communications fail or are congested. The use of amateur radio in disaster operations is a belt and braces approach. It is our worst-case scenario – our last option, not our first. We work hard to ensure we have some resilience in our communications toolbox and have a range of solutions available to us. When disaster strikes, amateur radio operators should initially be at home ensuring themselves and their families are safe. If your family is going to need you, do not leave.

There is the potential for amateur radio operators to be required to support communications in the Radio Room at the Disaster Coordination Centre, at Evacuation Centres or even passing messages through your own fixed, mobile or portable station. The role of the amateur radio operator is to assist with communication by receiving and passing messages inside / outside the region as required. This might be to assist communication between agencies, it might be to pass messages between locations (i.e. Disaster Coordination Centre and Evacuation Centre) or it might be to assist members of the Community Disaster Team to pass messages around their community. Your role is to pass messages verbatim. Do not make assumptions, do not speculate and stick to the facts. Be mindful that inappropriate communication can jeopardise the success of the overall operation. Keeping a proper log is an important part of ANY station operation, but it is absolutely essential for an emergency station. You cannot rely on your memory alone, especially in the stressful environment of a disaster scene. Things may be happening fast, but you should still make the effort to log your messages and significant events.

### Recovery

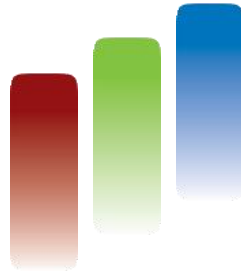
The phase of recovery is often the most protracted and resource intensive phase of any disaster. The length of recovery for any event is unknown and may last days, weeks or even years. Once traditional communications have been reinstated, the role of an amateur radio operators ceases. During this phase, it is likely that a debrief will be held. If amateur operators were formally deployed, they will be invited to be part of a debrief to try and identify what worked well and what needs improvement for the future.

### Further Information

For further information, please contact Sarah Dean – Senior Advisor Emergency Management on Tel: 4089 2324 or Email: [sarahd@trc.qld.gov.au](mailto:sarahd@trc.qld.gov.au)



## Resilient Communications Sub Plan



*Live, discover and invest in a Tablelands community*



Tablelands Regional Council

[trc.qld.gov.au](http://trc.qld.gov.au)

[info@trc.qld.gov.au](mailto:info@trc.qld.gov.au)

1300 362 242



45 Mabel Street, Atherton Qld 4883

PO Box 573, Atherton Qld 4883