



# **Tweed Byron Local Emergency Management Plan (EMPLAN)**

**November 2022**

**Public Document**





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## Part 1 – Administration

### Authority

The Tweed Byron Local Emergency Management Plan (EMPLAN) has been prepared by the Tweed Byron Local Emergency Management Committee in compliance with the State Emergency & Rescue Management Act 1989.

APPROVED



21/02/2023

.....  
**Chair**

**Tweed Byron Local Emergency Management Committee**

Dated: 8 February 2023

ENDORSED



Peter McKenna APM  
Assistant Commissioner  
Commander Northern Region

.....  
**Chair**

**North Coast Regional Emergency Management Committee**

Dated: 7 March 2023

## Purpose

Details arrangements for, prevention of, preparation for, response to and recovery from emergencies within the Tweed and Byron Local Government Areas covered by this plan.

It encompasses arrangements for:

- emergencies controlled by combat agencies;
- emergencies controlled by combat agencies and supported by the Local Emergency Operations Controller (LEOCON);
- emergency operations for which there is no combat agency and are controlled by the LEOCON; and
- circumstances where a combat agency has passed control to the LEOCON.

## Objectives

The objectives of this plan are to:

- define participating organisation and Functional Area roles and responsibilities in preparation for, response to and recovery from emergencies;
- set out the control, co-ordination and liaison arrangements at the Local level;
- detail activation and alerting arrangements for involved agencies; and
- detail arrangements for the acquisition and co-ordination of resources.

## Scope

The plan describes the arrangements at Local level to prevent, prepare for, respond to and recover from emergencies and also provides policy direction for the preparation of Sub Plans and Supporting Plans:

- Arrangements detailed in this plan are based on the assumption that the resources upon which the plan relies are available when required; and
- The effectiveness of arrangements detailed in this plan are dependent upon all involved agencies preparing, testing and maintaining appropriate internal instructions, and/or standing operating procedures.

## Principles

The following principles are applied in this plan:

- a) The Emergency Risk Management (ERM) process is to be used as the basis for emergency planning in New South Wales. This methodical approach to the planning process is to be applied by Emergency Management Committees at all levels.
- b) Responsibility for preparation, response and recovery rests initially at Local level. If Local agencies and available resources are not sufficient, they are augmented by those at Regional level.
- c) Control of emergency response and recovery operations is conducted at the lowest effective level.
- d) Agencies may deploy their own resources from their own service from outside the affected Local area or Region if they are needed.
- e) The Local Emergency Operations Controller (LEOCON) is responsible, when requested by a combat agency, to co-ordinate the provision of resources support. EOCs would not normally assume control from a combat agency unless the situation can no longer be contained. Where necessary, this should only be done after consultation with the Regional Emergency Operations Controller (REOCON) and agreement of the combat agency and the appropriate level of control.
- f) Emergency preparation, response and recovery operations should be conducted with all agencies carrying out their normal functions wherever possible.
- g) Prevention measures remain the responsibility of authorities/agencies charged by statute with the responsibility.

## Test and Review Process

The Tweed Byron Local Emergency Management Committee (LEMC) will review this Plan every three (3) years, or following any:

- activation of the Plan in response to an emergency;
- legislative changes affecting the Plan; and
- exercises conducted to test all or part of the Plan.

## Part 2 – Community Context

### Annexure A – Community Profiles

#### General

#### *Tweed Shire Local Government Area*

Tweed Shire is located in the north-east corner of New South Wales, about 860kms north of Sydney. Tweed Shire is bounded by the Queensland border, the Scenic Rim Regional Council area and the City of Gold Coast in the north, the Coral Sea in the east, Byron Shire and Lismore City in the south, and the Kyogle Council area in the west. In 2021, the population of Tweed Shire was 97,151 with a land area of 1,303 km<sup>2</sup>.

Tweed Shire includes the suburbs, townships and localities of:

*Back Creek, Banora Point, Bilambil, Bilambil Heights, Bogangar, Bray Park, Brays Creek, Bungalora, Burringbar, Byangum, Byrill Creek, Cabarita Beach, Carool, Casuarina, Cedar Creek, Chillingham, Chinderah, Chowan Creek, Clothiers Creek, Cobaki, Cobaki Lakes, Commissioners Creek, Condong, Crabbes Creek, Crystal Creek, Cudgen, Cudgera Creek, Doon Doon, Dulguigan, Dum Dum, Dunbible, Dungay, Duranbah, Duroby, Eungella, Eviron, Farrants Hill, Fernvale, Fingal Head, Glengarrie, Hastings Point, Hopkins Creek, Kielvale, Kings Forest, Kingscliff, Kunghur, Kunghur Creek, Kynnumboon, Limpinwood, Mebbin, Midginbil, Mooball, Mount Burrell, Mount Warning, Murwillumbah, Nobbys Creek, North Arm, North Tumbulgum, Numinbah, Nunderi, Palmvale, Piggabeen, Pottsville, Pumpenbil, Reserve Creek, Round Mountain, Rowlands Creek, Sleepy Hollow, Smiths Creek, South Murwillumbah, Stokers Siding, Stotts Creek, Tanglewood, Terragon, Terranora, Tomewin, Tumbulgum, Tweed Heads, Tweed Heads South, Tweed Heads West, Tyalgum, Tyalgum Creek, Tygalgah, Uki, Upper Burringbar, Upper Crystal Creek, Upper Duroby, Urliup, Wardrop Valley, Wooyung (part) and Zara.*

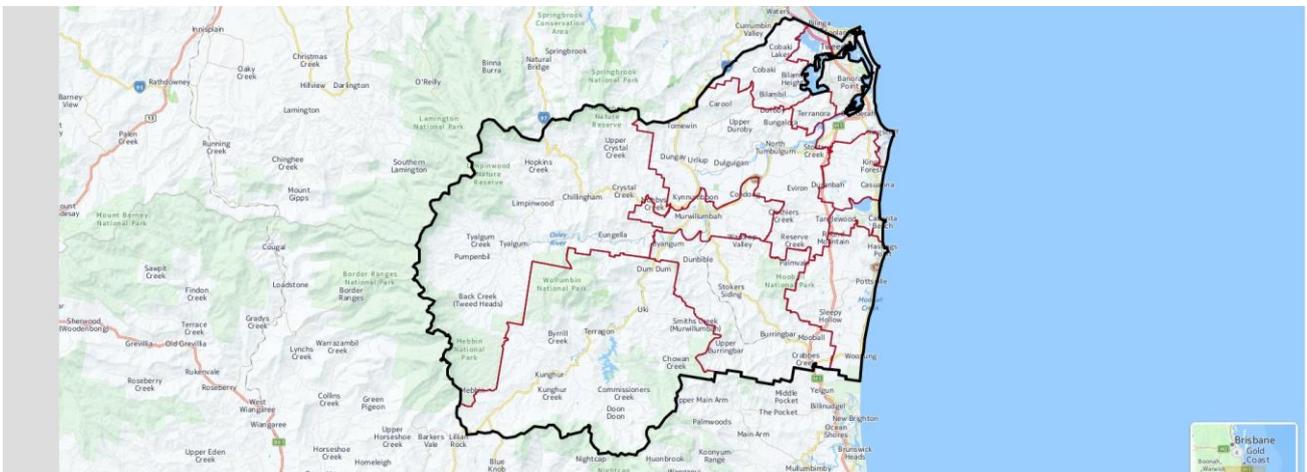


Figure 1: Map area of Tweed Shire Council Local Government Area

## Byron Shire Local Government Area

Byron Shire is located on the far North Coast of New South Wales, about 800kms north of Sydney. Byron Shire is bounded by Tweed Shire in the north, the Coral Sea in the east, Ballina Shire in the south, and Lismore City in the west. In 2021, the population of Byron Shire was 36,077 with a land area of 556 km<sup>2</sup>.

Byron Shire includes the suburbs, townships and localities of:

*Bangalow, Billinudgel, Binna Burra, Booyong (part), Broken Head (part), Brunswick Heads, Byron Bay, Clunes (part), Coopers Shoot, Coorabell, Eureka, Ewingsdale, Federal, Goonengerry, Hayters Hill, Huonbrook, Koonyum Range, Main Arm, McLeods Shoot, Middle Pocket, Montecollum, Mullumbimby, Mullumbimby Creek, Myocum, Nashua, New Brighton, Newrybar (part), Nightcap (part), Ocean Shores, Palmwoods, Possum Creek, Skinners Shoot, South Golden Beach, Suffolk Park, Talofa, The Pocket, Tyagarah, Upper Coopers Creek, Upper Main Arm, Upper Wilsons Creek, Wanganui, Whian Whian (part), Wilsons Creek, Wooyung (part) and Yelgun.*

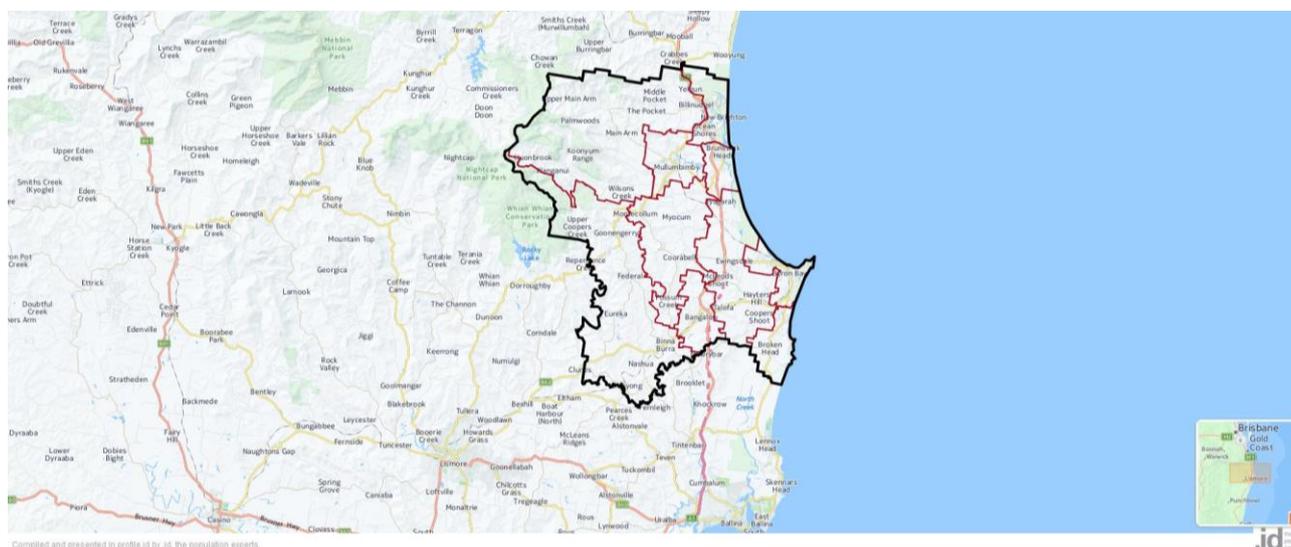


Figure 2: Map area of Byron Shire Council Local Government Area

## Landform and Topography

### Tweed Shire Local Government Area

Tweed Shire is encircled by three mountain ranges - the McPherson Range in the north, the Tweed Range in the west and the Nightcap Range in the south. The two dominating landscape features of the valley are Mount Warning (1,156m high) and the Tweed River which flows into the sea at Tweed Heads.

Mount Warning is the central remnant of an ancient shield volcano, Tweed Volcano, and is where the dawn sun first touches eastern Australia. The steep rim of the caldera surrounds Mount Warning at a radius of approximately 15kms and offers a catchment for the Tweed River whose short tributaries have carved out the caldera. Tweed Valley supports an abundant variety of rainforests, eucalypt forests and coastal wetlands.

There are three river systems in the area (Tweed, Oxley and Rous). They are all subject to flooding, with some centres in major floods either isolated for significant periods or requiring evacuations. The Tweed River is a short river and its drainage basin consists mostly of the eroded caldera of the Tweed Volcano. The Oxley River confluences with the Tweed River upstream from the Murwillumbah township and Bray Park Weir, west of the Byangum Bridge. The Rous River joins the Tweed River just downstream from Tumbulgum township. The Tweed River then flows about 20kms northeast to Tweed Heads where it meets the sea. Because of the junction of these rivers within the Murwillumbah area, this major population centre has in the past been frequently affected by both major and minor flooding.

The nation's seventh busiest airport is located at Coolangatta in Queensland, however, as the runway straddles the Border with nearly half of it in NSW, responsibility for emergencies on the airport rest with Queensland Police with assistance from NSW Police Force.

Major features of the Shire include:

*Border Ranges National Park, Mebbin National Park, Mooball National Park, Mount Jerusalem National Park, Nightcap National Park, Wollumbin National Park, Mount Warning, , Lisnagar Historic Homestead, Madura Tea Estates, Minjungbal Aboriginal Cultural Centre, Tropical Fruit World, Tweed Maritime Museum, Tweed River Art Gallery, Tweed River Regional Museum, World Heritage Rainforest and Information Centre, the Tweed Heads CBD, the Murwillumbah CBD, Tweed City Shopping Centre, North Coast TAFE (Kingscliff and Murwillumbah Campuses), Southern Cross University (Riverside Campus), Tweed Heads District Hospital, Murwillumbah District Hospital, Tweed Regional Aquatic Centre, Kingscliff Pool, Tweed Heads Indoor Pool, Chinderah Golf Course, Club Banora Golf Club, Coolangatta & Tweed Heads Golf Club, Murwillumbah Golf Club, Murwillumbah Civic and Cultural Centre, Billinudgel Nature Reserve, Couchy Creek Nature Reserve, Cudgen Nature Reserve, Hattons Bluff Nature Reserve, Limpinwood Nature Reserve, Mount Nullum Nature Reserve, Numinbah Nature Reserve, Stotts Island Nature Reserve, Tweed Estuary Nature Reserve, Ukerebagh Nature Reserve, Wooyung Nature Reserve, Wollumbin State Conservation Area, the Tweed River, Cobaki Broadwater, Terranora Broadwater, Cudgen Lake, Clarrie Hall Dam and various beaches and small islands.*

### **Byron Shire Local Government Area**

The Byron Shire is predominantly a rural Shire with urban centres of Byron Bay, Mullumbimby, Bangalow, Ocean Shores and Brunswick Heads containing the majority of the Shire's population.

The Byron Shire covers the whole of the Brunswick Valley and a small portion of the Wilson Creek catchment and has one of the highest annual rainfalls in the State. The two major rivers, the Brunswick and Wilson Rivers, provide inland water systems for fishing and boating and add to the area's scenic attraction. The mouth of the Brunswick River feeds into the Pacific Ocean at Brunswick Heads with tidal flows pushing the river west into minor streams and tributaries of the Brunswick Valley and Mullumbimby flood plains.

Both the Wilson and Brunswick rivers flood in times of heavy rain, as do many of the minor streams and tributaries. Those areas most affected are the Marshalls Creek Floodplain,

Wilson's Creek with ten level creek crossings, and Main Arm with approximately 15 creek crossings. The Wilson's River and its tributaries affect the central and southern parts of the Shire and ultimately continue through Lismore to join the Richmond River. In times of significant rainfall Upper Wilson's Creek, Upper Main Arm, Huonbrook and The Pocket can be isolated due to peak flows from other catchment areas.

Major features of the Shire include:

*Arakwal National Park, Goonengerry National Park, Mount Jerusalem National Park, Nightcap National Park, Andrew Johnston Big Scrub Nature Reserve, Billinudgel Nature Reserve, Broken Head Nature Reserve, Brunswick Heads Nature Reserve, Cumbebin Swamp Nature Reserve, Hayters Hill Nature Reserve, Inner Pocket Nature Reserve, Marshalls Creek Nature Reserve, Snows Gully Nature Reserve, Tyagarah Nature Reserve, Cape Byron State Conservation Area, Whian Whian State Conservation Area, Cape Byron Marine Park, Cape Byron Lighthouse, Minyon Falls, numerous beaches, Byron Regional Sports and Cultural Complex and the Brunswick River.*

## Climate

Both the Tweed and Byron Local Government Areas lie in a subtropical zone, experiencing warm summers and mild winters. Weather patterns are further influenced by the mountain ranges that form a semi-circle around the valley, resulting in rainfall levels that are rarely affected by the droughts that impact other regional areas throughout Australia. Reliable rainfall also ensures abundant water supplies and, in combination with the valley's fertile volcanic soils, a thriving agricultural base. Rainfall is the heaviest from January to March.

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Temperature														
Mean maximum temperature (°C)	29.6	29.0	28.1	26.2	23.6	21.3	21.1	22.6	25.1	26.4	27.8	29.1	25.8	46 1972-2022
Mean minimum temperature (°C)	19.8	19.7	18.4	15.6	12.6	9.8	8.6	8.8	11.5	14.2	16.7	18.6	14.5	46 1972-2022
Rainfall														
Mean rainfall (mm)	206.6	237.2	216.3	149.3	131.2	103.0	65.0	51.2	39.7	109.6	120.3	177.6	1595.0	45 1972-2022
Decile 5 (median) rainfall (mm)	177.2	193.8	184.6	98.4	92.6	63.1	45.4	29.6	24.8	78.9	118.6	152.9	1510.2	50 1972-2022
Mean number of days of rain ≥ 1 mm	12.1	13.1	13.7	10.4	9.6	7.1	6.0	5.1	5.5	8.1	9.5	10.8	111.0	50 1972-2022

Table1: Murwillumbah (Bray Park) Weather Data from 1972-2022 (BOM)

Statistics	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Years
Temperature														
Mean maximum temperature (°C)	28.0	27.5	26.5	24.0	21.4	19.3	18.9	20.2	22.1	23.7	25.3	26.7	23.6	20 2002-2022
Mean minimum temperature (°C)	21.3	21.1	20.1	17.7	15.2	13.2	12.3	13.1	15.3	17.0	18.7	20.0	17.1	20 2002-2022
Rainfall														
Mean rainfall (mm)	156.0	204.7	192.3	157.4	100.5	156.8	86.3	66.5	49.9	89.8	89.7	128.4	1473.2	16 2002-2022
Decile 5 (median) rainfall (mm)	144.2	170.1	149.6	132.5	109.0	133.0	71.2	41.3	38.2	70.4	61.2	108.6	1465.4	19 2002-2022
Mean number of days of rain ≥ 1 mm	10.5	12.5	13.2	11.6	10.4	10.7	8.6	5.6	6.2	8.7	8.0	10.3	116.3	19 2002-2022

Table 2: Byron Bay (Cape Byron AWS) Weather Data from 2002-2022 (BOM)

## Land Use

### Tweed Shire Local Government Area

Tweed Shire encompasses rural areas, national parks, growing residential and rural-residential areas, and some commercial and industrial land use. The urban areas are

concentrated in the north-east corner (Tweed Heads) and along the coastal fringe from Kingscliff through to Pottsville in the south, with an inland urban centre at Murwillumbah, and several smaller townships and villages. The Shire includes significant areas of coastline, national park, wetland and forest. Rural land is used largely for agriculture, particularly sugar cane growing, beef and dairy farming, and crop growing, with some forestry and tourism.

### Byron Shire Local Government Area

Byron Shire encompasses rural areas, national parks, residential and rural-residential areas, and some commercial and industrial land use. The urban areas are concentrated along the coast, at Byron Bay, Brunswick Heads, New Brighton, Ocean Shores, South Golden Beach and Suffolk Park. Rural-residential areas are located in the hinterland, including the small townships of Bangalow, Ewingsdale and Mullumbimby. Rural land is used largely for agriculture, particularly dairy farming, and sugar cane, fruit, nut and coffee growing. Tourism is also an important industry.

### Population and People

#### Tweed Shire Local Government Area

The population of Tweed Shire at the date of the 2021 census was 97,151 with 4.5% of the Shire's population identifying as of Aboriginal and Torres Strait Islander origin.

Tweed Shire - Total people (Usual residence)	2021			2016			Change
Population group	Number	%	Regional NSW %	Number	%	Regional NSW %	2016 to 2021
Males	46,804	48.1	49.2	44,109	48.3	49.2	+2,695
Females	50,586	51.9	50.8	47,261	51.7	50.8	+3,325
Aboriginal and Torres Strait Islander population	4,334	4.5	6.6	3,616	4.0	5.5	+718
Australian citizens	85,995	88.3	89.2	80,131	87.7	88.7	+5,864
Eligible voters (citizens aged 18+)	68,318	70.1	69.5	63,117	69.1	68.3	+5,201
Population over 15	81,302	83.5	82.1	76,039	83.2	81.6	+5,263
Employed Population	--	--	--	35,733	92.9	93.4	--
Overseas visitors (enumerated)	112	--	--	603	--	--	-491

Source: Australian Bureau of Statistics, [Census of Population and Housing 2016 and 2021 \(Usual residence\)](#). Compiled and presented in profile.id by [.id](#) (informed decisions).

Tweed Shire - Households (Enumerated)	2021			2016			Change
Dwellings	Number	%	Regional NSW %	Number	%	Regional NSW %	2016 to 2021
Total dwellings	44,661	100.0	100.0	42,793	100.0	100.0	+1,868
Occupied private dwellings	40,683	91.1	89.2	38,497	90.0	87.3	+2,186
Population in non-private dwellings	2,438	--	--	3,082	--	--	-644
Average household size (persons per dwelling)	2.35	--	2.41	2.35	--	2.41	+0.01

Source: Australian Bureau of Statistics, [Census of Population and Housing 2016 and 2021 \(Enumerated\)](#). Compiled and presented in profile.id by [.id](#) (informed decisions).

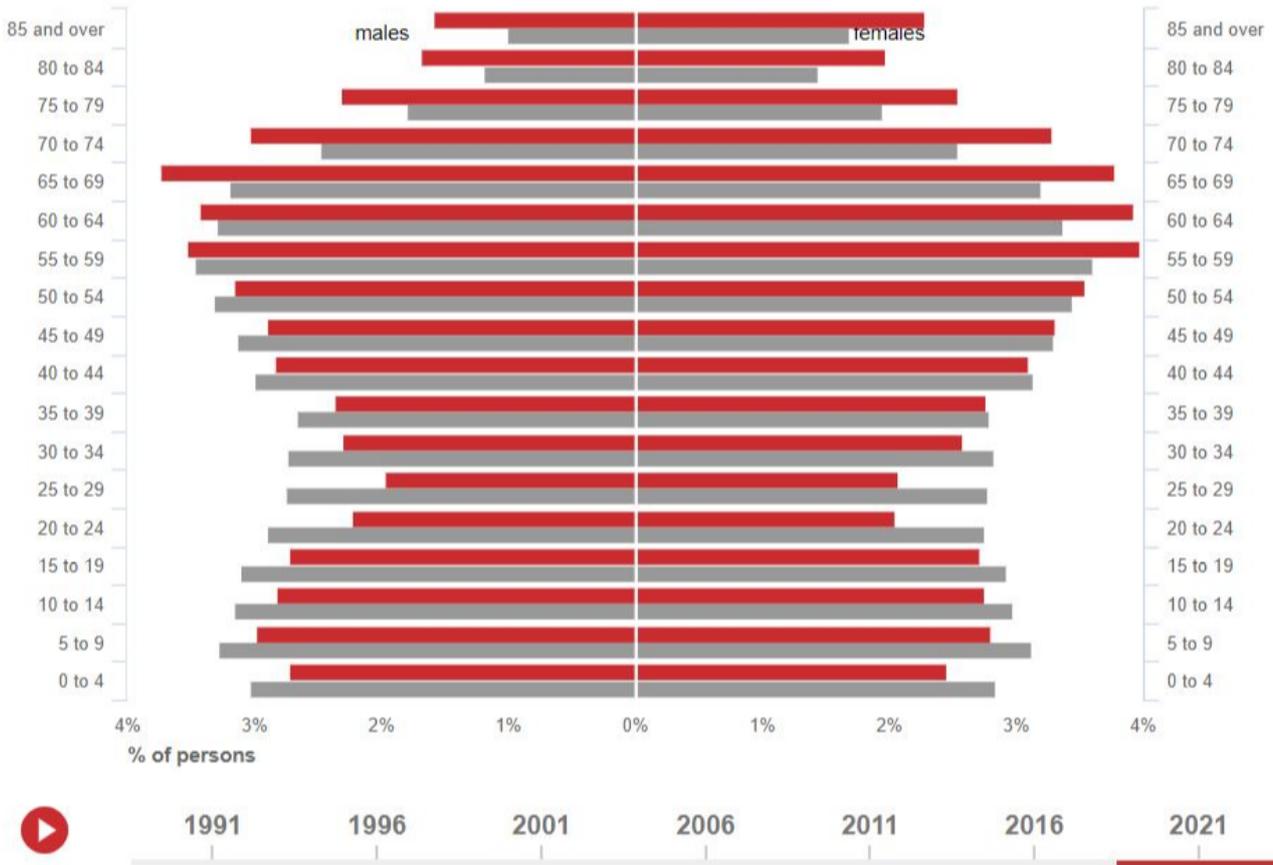
Tweed Shire - Total persons (Usual residence)	2021			2016			Change
English proficiency	Number	%	Regional NSW %	Number	%	Regional NSW %	2016 to 2021
Speaks English only	85,814	88.1	86.8	81,053	88.7	87.1	+4,761
Speaks another language, and English well or very well	4,662	4.8	6.0	3,664	4.0	5.1	+998
Speaks another language, and English not well or not at all	456	0.5	0.9	412	0.5	0.9	+44
Not stated	6,451	6.6	6.3	6,240	6.8	6.9	+211
Total population	97,383	100.0	100.0	91,369	100.0	100.0	+6,014

Source: Australian Bureau of Statistics, Census of Population and Housing 2016 and 2021. Compiled and presented by .id (informed decisions).

### Age-sex pyramid, 2021

export

■ Tweed Shire ■ Regional NSW



Source: Australian Bureau of Statistics, Census of Population and Housing, selected years between 1991-2021 (Enumerated data). Compiled and presented in profile.id by .id

## Byron Shire Local Government Area

The population of Byron Shire at the date of the 2021 census was 36,077 with 4.5% of the Shire's population identifying as Aboriginal and Torres Strait Islander origin.

Byron Shire - Total people (Usual residence)	2021			2016			Change
Population group	Number	%	Regional NSW %	Number	%	Regional NSW %	2016 to 2021
Males	17,313	47.9	49.2	15,197	48.2	49.2	+2,116
Females	18,800	52.1	50.8	16,361	51.8	50.8	+2,439
Aboriginal and Torres Strait Islander population	680	1.9	6.6	575	1.8	5.5	+105
Australian citizens	29,179	80.8	89.2	25,584	81.1	88.7	+3,595
Eligible voters (citizens aged 18+)	23,130	64.0	69.5	20,065	63.6	68.3	+3,065
Population over 15	30,293	83.9	82.1	26,285	83.3	81.6	+4,008
Employed Population	--	--	--	13,560	93.4	93.4	--
Overseas visitors (enumerated)	100	--	--	790	--	--	-690

Source: Australian Bureau of Statistics, Census of Population and Housing 2016 and 2021 (Usual residence). Compiled and presented in profile.id by .id (informed decisions).

Byron Shire - Households (Enumerated)	2021			2016			Change
Dwellings	Number	%	Regional NSW %	Number	%	Regional NSW %	2016 to 2021
Total dwellings	16,996	100.0	100.0	15,646	100.0	100.0	+1,350
Occupied private dwellings	14,568	85.7	89.2	13,482	86.2	87.3	+1,086
Population in non-private dwellings	952	--	--	1,397	--	--	-445
Average household size (persons per dwelling)	2.44	--	2.41	2.33	--	2.41	+0.11

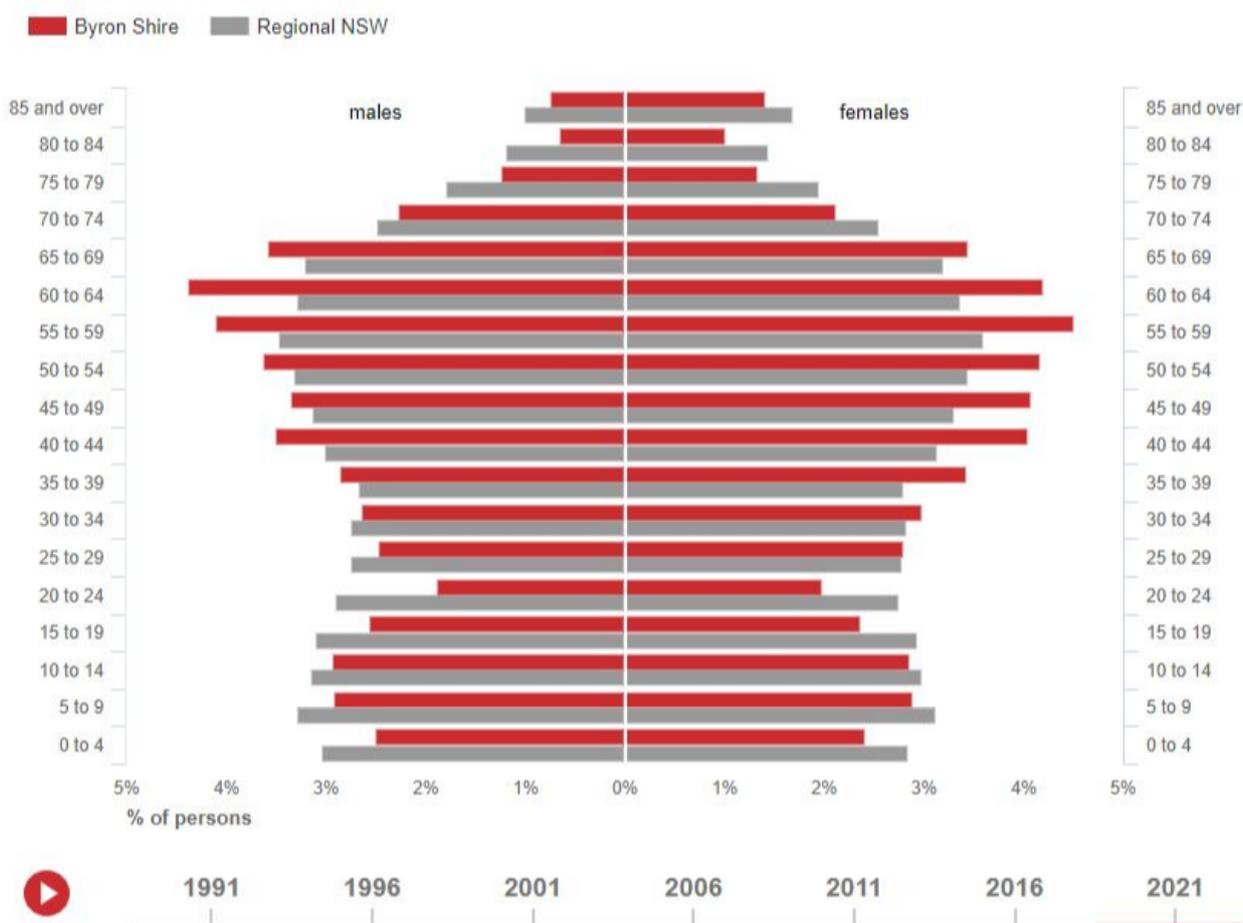
Source: Australian Bureau of Statistics, Census of Population and Housing 2016 and 2021 (Enumerated). Compiled and presented in profile.id by .id (informed decisions).

Byron Shire - Total persons (Usual residence)	2021			2016			Change
English proficiency	Number	%	Regional NSW %	Number	%	Regional NSW %	2016 to 2021
Speaks English only	28,996	80.3	86.8	25,555	81.0	87.1	+3,441
Speaks another language, and English well or very well	3,388	9.4	6.0	2,071	6.6	5.1	+1,317
Speaks another language, and English not well or not at all	195	0.5	0.9	119	0.4	0.9	+76
Not stated	3,537	9.8	6.3	3,807	12.1	6.9	-270
Total population	36,116	100.0	100.0	31,552	100.0	100.0	+4,564

Source: Australian Bureau of Statistics, Census of Population and Housing 2016 and 2021. Compiled and presented by .id (informed decisions).

## Age-sex pyramid, 2021

export 



Source: Australian Bureau of Statistics, [Census of Population and Housing](#), selected years between 1991-2021 (Enumerated data). Compiled and presented in profile.id by .id (informed decisions).

## Transport Routes and Facilities

### Tweed Shire Local Government Area

#### Road Networks

The main arterial roads contained in the Tweed Shire are the Pacific Highway, Tweed Coast Rd and Kyogle Rd. The Pacific Highway traverses the Tweed Shire from the Byron Shire in the south to the City of Gold Coast in the north and carries significant volumes of diversified local, state and interstate traffic. Included in this, are a large number of heavy vehicles which transport an unknown quantity and variety of materials posing a threat to local communities in the event of an accident. This highway also incorporates the Tugun Bypass which takes traffic to the west of the Gold Coast Airport, connecting to the Stewart Road interchange at Currumbin and the Tweed Heads Bypass north of Kennedy Drive at Tweed Heads West.

The Tweed Coast Road follows the 37km stretch of coast from Wooyung in the south through the coastal villages to Kingscliff and Chinderah in the North. Both the Pacific Highway and Tweed Coast Road carry vast quantities of traffic and have recorded numerous fatal traffic accidents.

### *Rail Services*

The State Rail Authority ceased services to Murwillumbah in 2004. The rail line is currently being replaced, turning it into a Rail Trail for cyclists to use which would run from Casino to Murwillumbah. Both councils are liaising with State Government and the other three local governments along the Casino to Murwillumbah rail corridor. Each council will eventually hold leases over their respective portions of corridor for maintenance.

### *Bridges*

Council had a total of 233 bridges throughout the Shire consisting of:

#### **Bridges on Local Roads (Council)**

- Concrete/steel bridges 158 with additional 128 other (does not fit under Grants Commission definition of a traffic bridge) structures

- Timber bridges 29

#### **Bridges on Regional Roads (RMS)**

- Concrete/steel bridges 41

- Timber bridges 4

### *Future Transportation Issues*

Significant residential growth is anticipated within the suburbs surrounding the Queensland/New South Wales border, which when coupled with increasing traffic commuting between Northern NSW and the Gold Coast will place increasing pressure on cross border road connections in the future. In recent years there has also been an increasing trend for northern NSW residents to commute to/from the Gold Coast for work, shopping and recreation facilitated by improved road infrastructure such as the Tugun Bypass, Yelgun-Chinderah Bypass and the Banora Point Upgrade. A Cross Border Traffic Master Plan has been developed to identify what road upgrades are likely to be required and when between 2011 and 2031.

### *Air Services*

An airfield located at Murwillumbah is a grass strip of approximately 800m which can accommodate up to twin propeller aircraft. It operates in unrestricted airspace and is open to use by general aviation. Prior contact with the Airfield is advised to establish local conditions before landing.

Tweed Shire is also home to a larger airport. The Gold Coast Airport is an Australian domestic and international airport located at the southern end of the Gold Coast. The entrance to the airport is situated in the suburb of Bilinga and the runway itself lies across the state border of Queensland and New South Wales.

## ***Byron Shire Local Government Area***

### *Road Networks*

The Pacific Highway traverses the Shire on a north/south axis with Main Road 65 linking Bangalow to Lismore. Both roads carry a vast amount of traffic, including a large number of heavy transports carrying an unknown quantity and variety of materials, which could pose a

threat to local communities in the event of an accident.

### *Rail Services*

The State Rail Authority ceased services in 2004, however, owns the stations in Byron Bay, Mullumbimby, Bangalow and Billinudgel as well as land within its rail corridor. There is a current proposal in place to turn the existing rail network into a Rail Trail for cyclists to use which would run from Casino to Murwillumbah. Both Councils are liaising with State Government and the other three local governments.

### *Bridges*

Council have 42 bridges. Foot bridges not included.

#### **Bridges on Local Roads (Council)**

- Concrete/steel bridges 31
- Timber bridges 6 (3 bridges are proposed for replacement, Englishes, Sherrington and Upper Main Arm)

#### **Bridges on Regional Roads (RMS)**

- Concrete/steel bridges 5

### *Airfields*

Tyagarah Aircraft Landing Area is located on the Old Pacific Highway at Tyagarah and is not a certified or registered Airfield in accordance with the Civil Aviation Safety Regulation Part 139. Parachuting operations, including parachute landings, are conducted as well as considerable ultralight aircraft activity.

Manned balloon activities, including launching and landing, occur on private land adjacent to the Tyagarah Airfield. Balloon landings are not permitted at Tyagarah Airfield. There is no designated helicopter landing area at Tyagarah Airfield, and commercial helicopter operations are not permitted. All pilots intending to use Tyagarah (YTYH) ALA are required to make themselves familiar with En Route Supplement Australia (ERSA) outlining NOTAM services, obstacles, physical characteristics, Fly Neighbourly Procedure and additional information.

Aircraft with a maximum takeoff weight (MTOW) in excess of 5,700kg, or having a main landing gear tyre pressure in excess of 450 kilopascals (65 psi), or any jet powered aircraft are not permitted to land at Tyagarah Airfield. The Airfield has no night landing facilities and there are no public refueling facilities.

## **Economy and Industry**

### ***Tweed Shire Local Government Area***

An analysis (ABS 2016) of the occupations held by the resident population in Tweed Shire in 2016 shows:

Occupation <i>Employed people aged 15 years and over</i>	Tweed (A)	%	New South Wales	%	Australia	%
Professionals	6,168	17.3	798,126	23.6	2,370,966	22.2
Technicians and Trades Workers	5,595	15.7	429,239	12.7	1,447,414	13.5
Community and Personal Service Workers	4,917	13.8	350,261	10.4	1,157,003	10.8
Clerical and Administrative Workers	4,356	12.2	467,977	13.8	1,449,681	13.6
Labourers	4,179	11.7	297,887	8.8	1,011,520	9.5
Managers	3,954	11.1	456,084	13.5	1,390,047	13.0
Sales Workers	3,927	11.0	311,414	9.2	1,000,955	9.4
Machinery Operators and Drivers	2,029	5.7	206,839	6.1	670,106	6.3

The most common occupations in Tweed (A) (Local Government Areas) included Professionals 17.3%, Technicians and Trades Workers 15.7%, Community and Personal Service Workers 13.8%, Clerical and Administrative Workers 12.2%, and Labourers 11.7%.

### With Industry of employment:

Industry of employment, top responses <i>Employed people aged 15 years and over</i>	Tweed (A)	%	New South Wales	%	Australia	%
Hospitals (except Psychiatric Hospitals)	1,562	4.4	119,350	3.5	411,808	3.9
Aged Care Residential Services	1,411	4.0	67,209	2.0	211,621	2.0
Supermarket and Grocery Stores	1,064	3.0	74,487	2.2	254,275	2.4
Cafes and Restaurants	928	2.6	80,552	2.4	253,385	2.4
Primary Education	849	2.4	65,204	1.9	231,198	2.2

Of the employed people in Tweed (A) (Local Government Areas), 4.4% worked in Hospitals (except Psychiatric Hospitals). Other major industries of employment included Aged Care Residential Services 4.0%, Supermarket and Grocery Stores 3.0%, Cafes and Restaurants 2.6% and Primary Education 2.4%.

## Byron Shire Local Government Area

An analysis (ABS 2016) of the occupations held by the resident population in Byron Shire in 2016 shows:

Occupation <i>Employed people aged 15 years and over</i>	Byron (A)	%	New South Wales	%	Australia	%
Professionals	3,312	24.4	798,126	23.6	2,370,966	22.2
Managers	2,034	15.0	456,084	13.5	1,390,047	13.0
Technicians and Trades Workers	1,924	14.2	429,239	12.7	1,447,414	13.5
Community and Personal Service Workers	1,666	12.3	350,261	10.4	1,157,003	10.8
Labourers	1,318	9.7	297,887	8.8	1,011,520	9.5
Sales Workers	1,310	9.7	311,414	9.2	1,000,955	9.4
Clerical and Administrative Workers	1,285	9.5	467,977	13.8	1,449,681	13.6
Machinery Operators and Drivers	473	3.5	206,839	6.1	670,106	6.3

The most common occupations in Byron (A) (Local Government Areas) included Professionals 24.4%, Managers 15.0%, Technicians and Trades Workers 14.2%, Community and Personal Service Workers 12.3%, and Labourers 9.7%.

### With Industry of employment:

Industry of employment, top responses <i>Employed people aged 15 years and over</i>	Byron (A)	%	New South Wales	%	Australia	%
Cafes and Restaurants	577	4.3	80,552	2.4	253,385	2.4
Accommodation	536	4.0	34,450	1.0	113,377	1.1
Hospitals (except Psychiatric Hospitals)	372	2.8	119,350	3.5	411,808	3.9
Other Social Assistance Services	320	2.4	54,259	1.6	158,230	1.5
Supermarket and Grocery Stores	285	2.1	74,487	2.2	254,275	2.4

Of the employed people in Byron (A) (Local Government Areas), 4.3% worked in Cafes and Restaurants. Other major industries of employment included Accommodation 4.0%, Hospitals (except Psychiatric Hospitals) 2.8%, Other Social Assistance Services 2.4% and Supermarket and Grocery Stores 2.1%.

Due to both Byron and Tweed being holiday destinations, employment within the tourism industry peaks substantially, especially during the summer months.

## Annexure B – Hazards and Risks Summary

A Local Emergency Risk Management (ERM) Study has been undertaken by the Tweed Byron Local Emergency Management Committee identifying the following hazards as having risk of causing loss of life, property, utilities, services and/or the community's ability to function within its normal capacity. These hazards have been identified as having the potential to create an emergency. The Emergency Risk Management Study should be referenced to identify the complete list of consequences and risk descriptions.

Hazard	Risk Description	Likelihood Rating	Consequence Rating	Risk Priority	Combat / Responsible Agency
Biosecurity – Animal and Plant	Impact on agriculture, plants and animals, economic loss, risk to community, risk to public amenity and risk to environment.	Possible	Moderate	High	Department of Primary Industries
Bridge Collapse	Failure of a major bridge structure with or without warning owing to structural failure or as a result of external/ internal events or other hazards/ incidents.	Rare	Moderate	Moderate	LEOCON
Building Collapse	Collapse of building owing to structural failure or impact from external/internal event of other hazards /incidents.	Rare	Major	High	FRNSW (USAR) LEOCON
Communicable Diseases (Human)	Pandemic illness that affects, or has potential to affect, large portions of the human or animal population	Possible	Moderate	High	Department of Health

Hazard	Risk Description	Likelihood Rating	Consequence Rating	Risk Priority	Combat / Responsible Agency
Cyclone	Risk of a cyclone resulting in localised or widespread damage to property and infrastructure.	Almost Certain	Major	Extreme	NSW SES
Dam Failure	A dam is compromised that results in localised or widespread flooding.	Rare	Catastrophic	High	Dam Owners NSW SES
Earthquake	Earthquake of significant strength that results in localised or widespread damage.	Rare	Major	High	LEOCON
Explosion	Explosion that results in localised or widespread damage.	Rare	Moderate	Moderate	FRNSW
Fire (Bush or Grass)	Major fires in areas of bush or grasslands.	Likely	Moderate	High	NSW RFS  (Rural Fire District & all s44 Declarations)  FRNSW  (Fire District except where a s44 has been declared)

Hazard	Risk Description	Likelihood Rating	Consequence Rating	Risk Priority	Combat / Responsible Agency
Fire (Industrial/Commercial)	<p>Serious industrial fire in office complexes and/or warehouses within industrial estates.</p> <p>Serious commercial fires in shopping centres, aged persons units, nursing homes and hospitals.</p>	Likely	Moderate	Extreme	<p>FRNSW (Fire District)</p> <p>NSW RFS (Rural Fire District)</p>
Fire (Residential)	Serious residential fire in medium/high rise apartments.	Likely	Minor	High	<p>FRNSW (Fire District)</p> <p>NSW RFS (Rural Fire District)</p>
Flood	Heavy rainfall causes excessive localised flooding with minimal warning time, or river flows exceed the capacity of normal river systems resulting in flood waters escaping and inundating river plains.	Almost Certain	Major	Extreme	NSW SES
Hazardous Materials	Hazardous material released as a result of an incident or accident.	Possible	Moderate	High	<p>FRNSW (Inland Water)</p> <p>RMS (State Water)</p>

Hazard	Risk Description	Likelihood Rating	Consequence Rating	Risk Priority	Combat / Responsible Agency
Infrastructure Failure - Communications	Failure of communications infrastructure resulting in widespread loss of communications.	Possible	Catastrophic	Extreme	LEOCON
Infrastructure Failure - Power	Failure of power infrastructure resulting in widespread loss of electricity.	Possible	Minor	Moderate	Functional Area
Infrastructure Failure - Sewerage	Failure of sewer infrastructure resulting in widespread loss of sewer services.	Unlikely	Minor	Low	Local Council
Infrastructure Failure - Water	Failure of water infrastructure resulting in widespread loss of water services.	Possible	Major	High	Local Council Rous County Council (Byron Shire)
Landslip	Landslip/landslide resulting in localised or widespread damage.	Possible	Moderate	High	LEOCON
Storm/Coastal Erosion	Severe storm with accompanying lightning, hail, wind, and/or rain that causes severe damage, coastal erosion and/or localised flooding.(includes tornado)	Almost Certain	Major	Extreme	NSW SES

Hazard	Risk Description	Likelihood Rating	Consequence Rating	Risk Priority	Combat / Responsible Agency
Terrorism/Act of Violence	Terrorism from domestic and international terrorist groups or Acts of Violence that threaten security, life and/or property.	Almost Certain	Major	Extreme	NSW Police Force
Tunnel Collapse	Destabilisation or collapse of a tunnel that results in damage to life and property.	Rare	Major	High	LEOCON
Transport Accident (Air)	Aircraft crashes in LGA resulting in large number of fatalities, injuries and/or damage to property.	Unlikely	Major	High	LEOCON
Transport Accident (Road)	A major vehicle accident that disrupts one or more major transport routes that can result in risk to people trapped in traffic jams, restrict supply routes and/or protracted loss of access to or from the area.	Likely	Moderate	High	LEOCON
Transport Accident (Water)	A major accident that results in environmental damage and major recovery operation	Unlikely	Major	High	Relevant Port / Maritime
Tsunami	A tsunami wave of magnitude that presents a risk to land and marine elements.	Rare	Catastrophic	Extreme	NSW SES

## Annexure C – Local Sub Plans, Supporting Plans and Policies

Responsibility for the preparation and maintenance of appropriate sub and supporting plans rest with the relevant Combat Agency Controller or the relevant Functional Area Coordinator.

The sub/supporting plans are developed in consultation with the Tweed Byron LEMC and the community.

The plans listed below are supplementary to this EMPLAN. The local sub/supporting plans have been endorsed by the LEMC and are determined as compliant and complementary to the arrangements listed in this EMPLAN. This list is not exhaustive and is not limited to the plans below.

The local plans, sub plans and supporting plans are retained by the LEMO on behalf of the LEMC. State and Regional plans, sub plans, supporting plans and policies are available from the Emergency NSW web-site [www.emergency.nsw.gov.au](http://www.emergency.nsw.gov.au)

Plan/Policy	Purpose	Combat / Responsible Agency
<b><i>Legislation, Guidelines and Policies</i></b>		
<b>State Emergency and Rescue Management Act 1989</b>	Provide the structure/ roles and responsibilities for emergency management, including rescue operations within NSW.	NSW Reconstruction Authority
<b>State Emergency Services Act 1989</b>	Provides the structure / roles and responsibilities for the management of storms, tsunamis and flood operations within NSW.	NSW SES
<b>Rural Fires Act 1997</b>	Provides the structure / roles and responsibilities for the management of bushfire operations and other related operations within NSW.	NSW RFS
<b>Fire Brigades Act 1989</b>	Provides the structure / roles and responsibilities for the management of hazardous material, USAR, urban fires/bushfire operations and other related operations within NSW.	FRNSW
<b>Police Act 1990</b>	Provides the structure / roles and responsibilities for the management of police operations within NSW.	NSW Police Force
<b>NSW Public Health Act 2010</b>	Provides the structure / roles and responsibilities for the management of public health operations within NSW.	NSW Health

Plan/Policy	Purpose	Combat / Responsible Agency
<b>Major Evacuation Centres – Public Health Considerations Guideline 2018</b>	To inform and enhance existing emergency management arrangements for the establishment and operations of Major Evacuation Centres.	State Emergency Management Committee
<b>Evacuation Management Guidelines 2014</b>	The aim of this guideline is to inform and enhance existing emergency management arrangements for evacuations during actual and, or forecast emergencies. This guideline does not replace evacuation arrangements for specific hazards (e.g. floods, bush fires) which are contained within individual Sub Plans and agency specific policies.	State Emergency Management Committee
<b>NSW Disaster Assistance Guidelines 2021</b>	The NSW Disaster Assistance Guidelines outline what assistance is available to individuals, businesses, community groups and others affected by disasters.	State Emergency Recovery Controller
<b>Emergency Operation Centres Policy Document 2013</b>	The aim of this policy is to provide direction and enhance existing emergency management arrangements for the establishment, activation, operation and maintenance of EOCs at State, Regional and Local levels.	State Emergency Recovery Controller
<b>NSW Community Recovery Toolkit 2019</b>	The NSW Recovery Centre Guidelines provide emergency management personnel with the information and tools necessary to facilitate the establishment, operation and closing of recovery centres following an emergency. This guide is designed for emergency management personnel who approve, establish, operate or work in a Recovery Centre.	NSW Reconstruction Authority
<b>NSW State Rescue Policy 2021</b>	The NSW State Rescue Policy exists to ensure the maintenance of efficient and effective rescue services throughout the State.	State Rescue Board of NSW

Plan/Policy	Purpose	Combat / Responsible Agency
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<b><i>State Plan and Sub Plans</i></b>		
<b>NSW State Emergency Management Plan (EMPLAN) 2018</b>	The State Emergency Management Plan (EMPLAN) describes the New South Wales approach to emergency management, the governance and coordination arrangements and roles and responsibilities of agencies. The Plan is supported by hazard specific sub plans and functional area supporting plans.	State Emergency Management Committee
<b>Biosecurity (Animal and Plant) Emergency Sub- Plan V6 2022</b>	The NSW Biosecurity (Animal and Plant) Emergency sub plan (formerly known as the NSW Animal Health Emergency Sub-Plan) has been prepared as a Sub-Plan to the NSW State Emergency Management Plan (EMPLAN) to detail the control and coordination arrangements for the response to and initial recovery from a biosecurity emergency in New South Wales relating to animals and plants (not humans).	Department of Primary Industries
<b>Aviation Emergency Sub-Plan 2020</b>	The State Aviation Emergency sub plan details the arrangements for control and co-ordination of the response to and initial recovery from an aviation impact emergency	State Emergency Management Committee
<b>State Bushfire Plan 2017</b>	The State Bush fire plan sets out the arrangements for preparedness, prevention, mitigation, response to and recovery from bush fire events by combat, participating and support agencies in NSW.	NSW RFS

Plan/Policy	Purpose	Combat / Responsible Agency
<b>Counter Terrorism Plan 2018</b>	The Counter Terrorism plan outlines the counter terrorism arrangements within NSW, including the roles and responsibilities of NSW agencies in relation to counter terrorism. The NSW Counter Terrorism Plan incorporates existing NSW State Disaster Plan arrangements and complements the National Counter Terrorism Plan.	NSW Police Force
<b>NSW State Flood Sub Plan 2021</b>	The NSW State Flood plan details the mitigation, preparation, warning, response and recovery arrangements for flooding in New South Wales and the responsibilities of agencies and organisations with regard to these functions.	NSW SES
<b>Food Industry Emergency Sub Plan 2021</b>	The Food Industry Emergency sub plan provides for both the Government and non-Government organisations to co-operate in a coordinated manner during a food industry emergency within NSW.	NSW Food Authority
<b>Hazardous Materials Emergency Sub Plan 2019</b>	The NSW Hazardous Materials/Chemical, Biological, Radiological and Nuclear Emergency Sub Plan details the arrangements relating to an imminent or actual, accidental or deliberate release of a hazardous material in NSW	State Emergency Management Committee
<b>Heatwave Sub Plan 2018</b>	The NSW State Heatwave sub plan details the arrangements for the control and coordination of, the preparation for, response to and immediate recovery from Heatwave events within NSW to reduce the risk or counter the effects on the community.	State Emergency Management Committee

Plan/Policy	Purpose	Combat / Responsible Agency
<b>Human Influenza Emergency Sub Plan 2018</b>	The NSW Human Influenza Pandemic plan identifies measures and mitigating strategies to protect the community and minimise the impact of an influenza pandemic on NSW	NSW Health
<b>Major Structure Collapse Sub Plan 2021</b>	The Major Structure Collapse sub plan details the special arrangements for major structure collapse emergencies that may occur in NSW	State Emergency Management Committee
<b>State Waters Marine Oil and Chemical Spill Contingency Plan 2016</b>	The NSW State Waters Marine Oil and Chemical Spill Contingency plan details the arrangements to deal with marine oil or chemical spills and marine incidents such as groundings, collisions, disabled vessel, fire on a vessel etc that could result in an oil or chemical spill into State waters of NSW	Transport for NSW
<b>Storm Sub Plan 2018</b>	The NSW State Storm Plan details the damage mitigation, warning, preparedness, response and initial recovery arrangements for severe storm activity in New South Wales and the responsibilities of agencies and organisations with regard to these functions.	NSW SES
<b>Tsunami Emergency Sub Plan 2018</b>	The Tsunami Emergency sub plan covers arrangements for the emergency management of tsunami in New South Wales. The plan deals only with preparedness for and response to tsunami and the initiation of recovery coordination arrangements following the impact of a tsunami.	NSW SES

Plan/Policy	Purpose	Combat / Responsible Agency
<p><b>NSW Emergency Waste Sub-Plan 2020</b></p>	<p>A Sub Plan of the NSW Emergency Management Plan. Details the specific arrangements for the coordinated funding and management of asbestos debris during and following a larger scale emergency, where the presence of asbestos containing material in the community poses a significant risk to public health and safety.</p>	<p>Heads of Asbestos Coordination Authorities (HACA)</p>
<p><b><i>State Supporting Plans</i></b></p>		
<p><b>Agricultural and Animal Services Supporting Plan 2017</b></p>	<p>The Agriculture and Animal Services supporting plan details the control and coordination arrangements for agricultural resources available within the State in response to, and recovery from, the impact and effects of an emergency</p>	<p>NSW DPI</p>
<p><b>Energy and Utility Services EUSPLAN Supporting Plan 2017</b></p>	<p>The Energy and Utilities Supporting Plan outlines the co-ordination arrangements for managing severe and sudden disruptions to the supply of energy and utility services due to severe, widespread or unexpected disruptions which requires a significant and coordinated response to restore the supply.</p>	<p>State Emergency Management Committee</p>
<p><b>Engineering Services ENGPLAN Supporting Plan 2021</b></p>	<p>The Engineering Services Plan identifies the necessary arrangements at State level to effectively and efficiently co-ordinate the mobilisation of all engineering resources available within the State for emergency response and initial recovery operations.</p>	<p>NSW Engineering Services Functional Area</p>
<p><b>Environmental Services ENVIROPLAN Supporting Plan 2019</b></p>	<p>The Environmental Services Supporting Plan focuses on the protection of the environment during emergencies. It applies throughout New South Wales, including its inland and State waters.</p>	<p>EPA</p>

Plan/Policy	Purpose	Combat / Responsible Agency
<b>Health Services HEALTHPLAN Supporting Plan 2013</b>	HEALTHPLAN is the NSW Health Services Functional Area Supporting Plan	NSW Health
<b>Public Information Services Supporting Plan 2019</b>	The Public Information Services Supporting Plan details the arrangements for the co-ordination of the collection, collation and dissemination of public information in a multi-agency emergency which is under the control of an emergency operations controller.	NSW Police Force
<b>Telecommunications Services (TELCOPLAN) Supporting Plan 2018</b>	The Telecommunications Services Functional Area Supporting Plan (TELCOPLAN) sets out the NSW arrangements to coordinate emergency telecommunications services support and resources required by the community, combat agencies and other essential services, in the event of an emergency.	Functional Areas
<b>NSW Transport Services Supporting Plan 2020</b>	The Transport Services Functional Services Supporting Plan identifies the arrangements needed at State level to effectively and efficiently coordinate the mobilisation and deployment of all transport resources available within the State for emergency response and initial recovery operations.	Transport for NSW
<b>NSW Recovery Plan 2021</b>	The New South Wales Recovery Plan outlines the strategic intent, responsibilities, authorities and the mechanisms for disaster recovery in New South Wales.	State Emergency Management Committee

Plan/Policy	Purpose	Combat / Responsible Agency
<b>North Coast Regional Emergency Management Plan 2018</b>	Region Emergency Management plans describe the arrangements at the Regional level to effectively and efficiently prevent, prepare for, respond to and recover from emergencies and also provides policy direction for the preparation of Local Plans.	REMC
<b>Welfare Services Functional Area Supporting Plan 2018</b>	A supporting plan of the NSW Emergency Management Plan. Describes and details preparedness measures and arrangements for the provision of welfare services during response to and recovery from emergencies in NSW.	Department of Family and Community Services
<b><i>Local Plan and Sub and Supporting Plans</i></b>		
<b>Tweed Byron Emergency Management (EMPLAN) Plan 2022</b>	Details arrangements for, prevention of, preparation for, response to and recovery from emergencies within the Tweed/Byron Local Government Areas As required covered by this plan.	Tweed Byron LEMC
<b>Dam Safety Emergency Plan for Clarrie Hall Dam 2021</b>	Dam Safety Emergency Plan to advise the public of flooding levels passing through the dam's spillway and plan for emergency events such as earthquakes.	Tweed Shire Council
<b>Cross Border Sub Plan 2018</b>	Details arrangements for, prevention of, preparation for, response to and recovery from operations by Tweed Shire Council from emergencies within the City of Gold Coast.	Tweed Byron LEMC
<b>Gold Coast Airport Aerodrome Emergency Plan 2022</b>	Details arrangements for, prevention of, preparation for, response to and recovery from operations by Tweed Shire Council from emergencies within the Gold Coast Airport.	Gold Coast Airport

Plan/Policy	Purpose	Combat / Responsible Agency
<b>Tweed Shire Flood Emergency Sub Plan 2014</b>	This plan covers preparedness measures, the conduct of response operations and the coordination of immediate recovery measures from flooding and coastal erosion within the Tweed Shire Council area. It covers operations for all levels of flooding within the council area.	NSW SES
<b>Byron Shire Flood Emergency Sub Plan 2013</b>	This plan covers preparedness measures, the conduct of response operations and the coordination of immediate recovery measures from flooding and coastal erosion within the Byron Shire Council area. It covers operations for all levels of flooding within the council area.	NSW SES
<b>NSW Rural Fire Service Operations Plan Section 52</b>	<b>52 Bush Fire Management Committees to prepare plans</b> (1) Each Bush Fire Management Committee must, in accordance with this Division, prepare and submit to the Bush Fire Co-ordinating Committee a draft of each of the following kinds of bush fire management plans for the rural fire district or other part of the State for which it is constituted: (a) a plan of operations, and (b) a bush fire risk management plan.	NSW RFS
<b>North Byron Parklands Bushfire Emergency Evacuation Plan</b>	As required by NSW Planning Legislation, North Byron Parklands have developed Bushfire Emergency Evacuation Plans for the major festivals held on site. The LEMC are responsible for reviewing and endorsing these plans annually.	Tweed Byron LEMC
<b>Tweed Byron Interim Local Recovery Plan 2022</b>	The Tweed Byron Local Recovery Plan provides a framework for the management and coordination of recovery operations to support the affected community following an emergency	Tweed Byron LEMC

## **Part 3 – Restricted Operational Information**

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