



YOUR REF Issues paper, Northern Australia Insurance Inquiry (October 2017)
 OUR REF ACCC Insurance

8 January 2018

Australian Competition & Consumer Commission (ACCC)

GPO Box 3131
 Canberra ACT 2601

Email – insurance@acc.gov.au

Northern Australia Insurance Inquiry Issues Paper

Dear Sir/Madam,

Thank you for conducting the public forum for the Northern Australia Insurance Inquiry in Mackay on 6 December 2017. It was a welcomed opportunity to hear about the community's insurance issues which have been compounding since 2009.

Council had a couple of officers in attendance at the Mackay forum and we would like to take the opportunity to respond to some of the concerns raised and provide further information on:

- Waterfront Priority Development Area (PDA);
- Flash flooding experienced in February 2008;
- Council's Emergency Action Guide;
- Flood management projects underway;
- Working with the Insurance Council of Australia;
- Snapshot of home insurance premiums.

Waterfront Priority Development Area (PDA)

Council resolved in November 2017 to lodge a request to the Queensland State Government for declaration of the Mackay Waterfront Priority Development Area (PDA). It was suggested at the forum that this development is on flood prone land. We would like to clarify that flood and coastal hazards has been a primary consideration in the proposed PDA. The new development would meet Council's defined flood event criteria which is the 1% Annual Exceedance Probability (AEP) event including an allowance for climate change to 2100. Council would not be proposing to undertake works that would expose new development to flood and coastal hazards.

Flash flooding experienced in February 2008

Mackay experienced an extreme rainfall event and flash flood on 15 February 2008. Over a period of six hours, rainfall intensities of up to 184 mm in an hour and more than 600 mm in total caused significant flash flooding. More than 4,000 homes were damaged, which is approximately 10% of Mackay's households. The peak flood levels

are now used by the council in the calibration of flood studies. Unfortunately, constructing infrastructure to prevent flooding from these extreme events is un-economic.

Further information on this event is attached and can be found at:

https://coastadapt.com.au/sites/default/files/case_studies/STDP1_Extreme_rainfall_in_Mackay.pdf

Council's Emergency Action Guide and Evacuation Maps

Council produces storm tide inundation and evacuation maps in an Emergency Action Guide. This guide is updated every few years and the coloured maps included in the Emergency Action Guide indicate the level of risk associated with cyclone storm tides. A copy of the current Emergency Action Guide is attached. There is a community perception that insurers use this map in setting the flood risk for insurance. We are not aware of any insurers that would use the information for this purpose as it is only storm tide, not riverine or local flooding risk.

Council has had similar maps for more than 15 years and has worked on improving the community's knowledge however the misconception remains. There will be further work in 2018 to improve residents understanding. This will be achieved through new information coming from Council's Mackay Floodplain Management Plan and the Coastal and Inland Flood Hazard Adaptation Strategy.

Flood management projects

Mackay Flood and Stormwater Management Strategy – Preparation of the Mackay Region Flood and Stormwater Strategy commenced in October 2015 with a goal to progressively reduce flood and stormwater risks to the community through the identification and prioritisation of clear actions from works and projects that represent the most effective and efficient use of council's funds. The strategy will ensure that future growth can be serviced whilst also allowing for the repair/maintenance and expansion of existing infrastructure.

Council manages over 700km of flood and stormwater infrastructure, and the network is expected to grow as our population increases. The development of the strategy involved condition assessments of a significant proportion of this infrastructure, combined with flood studies to understand the existing exposure to flood risk of the region. Flood studies also looked at potential exposure to flood risk into the future.

A link to the strategy is:

http://www.mackay.qld.gov.au/business/strategic_planning/waterways_and_coastal_hazards_planning/draft_mackay_region_flood_and_stormwater_management_strategy

Coastal and inland flood hazard adaptation strategy - Council is currently in the initial stages of the Mackay region Coastal and Inland Flood Hazard Adaptation Strategy (CIFHAS) which has received funding assistance through the State Government's QCoast2100 program. Three projects currently underway include terrestrial lidar (street view image and property details such as floor levels, type etc), consultation planning and a condition assessment of seawalls in the Mackay urban area.

Mackay Floodplain Management Plan - Council are in the initial stages of developing the Mackay Floodplain Management Plan. The first stage of the project involves

updating and reviewing flood studies to comply with the recently released Australian Rainfall and Runoff 2016. Hazard maps are being produced and annualised flood damages will be determined following receipt of the terrestrial lidar. This will then be used to test flood mitigation projects such as upgrading levees and installing new flood gates.

Working with Insurance Council of Australia

Over the last few years, Council has been working with the Insurance Council of Australia to understand home insurance and provide insurers with accurate flood risk information. Council's aim is to provide accurate mapping of flood risks to ensure that "flood risk or "inundation" is not over-estimated by insurers which may have occurred in the past (eg. Insurers have tended to be more conservative in their assessment or risk).

Council resolved in early 2017 to provide the Insurance Council of Australia and other insurers with Council's flood and ground level information. Every year, this information will be added to once new flood studies are completed. This information will also be available for residences via an online flood report tool that is currently being developed by Council.

The ICA undertook a first pass assessment of Council's data in February 2017 and advised that of the 68,212 addresses as identified by the ICA that fall within the suburbs of the data Council provided, the industry could reduce premiums based on lower risk categories supported by the new information by approximately \$11 million for the region. The findings included:

- approximately \$0 change for 76% of ICA addresses;
- approximately \$500 premium saving for 22%; and
- approximately \$500 premium increase for 2% of addresses may experience a premium increase of up to \$500.

Council has a role to play in the insurance sector by:

- ensuring land use planning takes into account the natural hazard risks – this is done via the planning scheme and overlay codes (flood and coastal hazards);
- improving risk mitigation against natural hazards such as levees which Mackay has been undertaking over the last few decades; and
- providing accurate flood risk information.

Snapshot of home and contents insurance premiums in Mackay

The community has raised numerous concerns about the affordability of home insurance over the last few years. Council has assisted by providing the best available flood information to residents and liaised with insurance providers about the flood risk. Sometimes this improved information had contributed to reduced premiums.

Some recent examples of premiums paid in East and South Mackay include:

- *family renting a timber house in Harvison Street, East Mackay considered purchasing home and were quoted \$10,150 p.a from RACQ.*
- *family in Harvison St, East Mackay was quoted approximately \$8,000 p.a. for a five bedroom brick home. It has been constructed to the minimum habitable floor level (considering the Defined Flood Event, DFE) as required in the Planning Scheme and did not flood in 2008. They have opted to not insure the home because of affordability.*

- *family in East Mackay pays \$5,200 p.a. to Suncorp.*
- *family in South Mackay was quoted approximately \$7,000 p.a. by Commonwealth Bank Australia, and \$6,000 p.a. by Suncorp. They opted to go with RACQ at \$3,400 p.a. which includes a 30% discount because he and his wife are over 50 years of age.*

Comparing with residents living in areas not prone to flooding:

- *family in Beaconsfield currently pay \$3,000 p.a. for a three bedroom brick home.*
- *family pays \$1,000 p.a. for a standard four bedroom brick home in Beaconsfield with Youi.*
- *family pays \$2,500 p.a. for a larger two storey home in Richmond to Youi.*
- *family in Ooralea pay \$5,200 p.a. to Suncorp.*

We would like to see a healthy home insurance industry supported by all levels for government for Northern Australia and trust that the ACCC's inquiry will provide actions to achieve this.

We hope this information is of assistance to your inquiry. Please contact Robyn Birkett (07 4961 9155 or robyn.birkett@mackay.qld.gov.au) if you have any queries or require further information.

Yours sincerely,



Craig Doyle

Chief Executive Officer

Attachment – Emergency Action Guide 2014-2017 edition



2014 - 2017 Reprint Edition

EMERGENCY ACTION GUIDE

For surviving natural and man-made disasters



mackay.qld.gov.au/emergency | 1300 MACKAY (622 529)



facebook.com/mackayregionalcouncil



twitter.com/mackaycouncil

IMPORTANT CONTACTS

Mackay Regional Council	1300 MACKAY (622 529) mackay.qld.gov.au mackay.qld.gov.au/emergency mimaps.mackay.qld.gov.au facebook.com/mackayregionalcouncil twitter.com/mackaycouncil
Disaster Co-ordination Centre (when activated)	4951 2466
EMERGENCY – police / fire / ambulance	000
Emergency Plus (Free) App	Emergency+ App
Only in life threatening emergencies should the 000 number be used.	
EMERGENCY – Life Threatening Emergency	131 670 or 000
(Ergon Energy) Faults only	132 296
Power Outage Finder	ergon.com.au & Outage Finder App
Bureau of Meteorology	bom.gov.au
State Emergency Service (SES)	132 500 ses.qld.gov.au & SES Assistance App
Mackay Police Station	4968 3444
Policelink (for ALL Non-Urgent Police Reporting).....	131 444
Queensland Ambulance Service	131 233
Queensland Fire and Emergency Services	fire.qld.gov.au
Fire stations	
Mackay city	4944 8000
Beaconsfield	4965 6671
Sarina	4956 1607
Rural Fire Service Queensland.....	4965 6641 ruralfire.qld.gov.au
Disaster Management	4965 6651 www.emergency.qld.gov.au
Road closures	131 940 www.131940.qld.gov.au
Get Ready Queensland website	getready.qld.gov.au
Red Cross Register: Find. Reunite. Service.	www.register.redcross.org.au
Australian Emergency Management Institute.....	www.em.gov.au

EDUCATIONAL RESOURCES

There are a number of websites to assist teachers and parents in disaster education to both educate and assist children in preparing for and surviving an event, including:

- mackay.qld.gov.au/emergency
- www.emergency.qld.gov.au/kids
- fire.qld.gov.au/kids
- emknowledge.gov.au
- em.gov.au (and search for “schools education”)

ACKNOWLEDGMENTS

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Mackay Regional Council acknowledges that advice in this booklet has been obtained from a number of sources including the Bureau of Meteorology, Queensland Fire and Emergency Services, Rural Fire Service Queensland, Get Ready Queensland, Ergon Energy and Australian Emergency Management Institute.

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A MESSAGE FROM THE MAYOR



On average four (4) tropical cyclones affect the Queensland coast each year. In fact, there have been 207 known impacts from tropical cyclones along the Queensland east coast since 1858.

We all accept that living with the cyclone season comes with living in the best area of Australia.

But part of that acceptance is a requirement to be prepared.

Preparing your family and your property for a cyclone is your responsibility.

Planning before the cyclone and storm season can help save lives, minimise property damage and give your family, your business and your neighbours the best chance should a serious event occur.

The greatest danger we face as a community is complacency.

There are three things we all need to commit to doing.

Plan:

- A household emergency plan
- A pet emergency plan
- A business emergency plan

Pack: An emergency and evacuation kit.

Listen: Stay informed and up to date.

It's all outlined in this guide. Please read it. Ask your family members, your neighbours, and your business colleagues to read it.

A community that is prepared and works together will come through any emergency and as a Council we are confident that should the worst happen, our prepared resilience will shine.

Cr Greg Williamson

Mayor

Mackay Regional Council



Queensland
Government



The 2014 - 2017 Reprint Edition of the Mackay Regional Council's Emergency Action Guide (EAG) is a reprint of the 2014 edition with minor changes only. A complete review of the EAG will be undertaken by late 2017 and a revised edition will be issued for 2018 - 2020.



INTRODUCTION

The Mackay Local Disaster Management Group plays a critical role in emergency management. Flooding and cyclones are an inevitable part of living in the tropics and you cannot afford to become complacent about the dangers they present.

Mackay Regional Council encourages residents to be prepared 365 days a year – time spent preparing can save a lot of time during an emergency situation.

This guide will assist you to prepare for such events and to protect yourself, your family, pets and home. Please take the time to read it and then store it somewhere readily accessible.

This action guide is an update to the previous release and contains storm tide inundation and evacuation maps

produced in accordance with the current State Government Mapping Guidelines.

People are required to self-evacuate if ordered, however, if you or someone you know is unable to do so due to a special need (wheelchair reliant, house bound etc) and have no relatives or friends who can assist, you should register with council now by calling 1300 MACKAY (622 529). PLEASE NOTE:- This service is to give special needs residents early warnings for possible actions required. Council CAN NOT guarantee any psychical resources for assistance during an emergency.

This Emergency Action Guide has been produced by the Mackay Local Disaster Management Group as an annexure to the Mackay Local Disaster Management Plan.

COMMUNITY RESILIENCE

Community resilience is a community's capacity to absorb disturbance and adapt so that it can continue to grow and flourish. Resilient communities are better able to help themselves during a crisis and "bounce back" afterwards.

Community resilience is critical in minimising the effect of disasters and contributes to a quicker, more effective response. There is no hard and fast rule on how to build community resilience however it is best strengthened continuously, not just in times of crisis.

It involves people getting together to create sustainable links within their community.

For example, do you know your neighbours? Are you actively involved in your local community? Do you know what to do before, during and after a natural disaster?

To see how well prepared you are, visit www.emergencyvolunteering.com.au (and click on the Queensland Disaster Readiness Index logo) to complete the Disaster Readiness Checklist.



KEY RESILIENCE MESSAGES

- **Disasters will happen**
- **Prepared communities are resilient communities**
- **Know your risk**
- **Get ready then act**
- **Learn from your experience**
- **Connected communities are resilient communities**
- **If you do a little we all accomplish a lot**

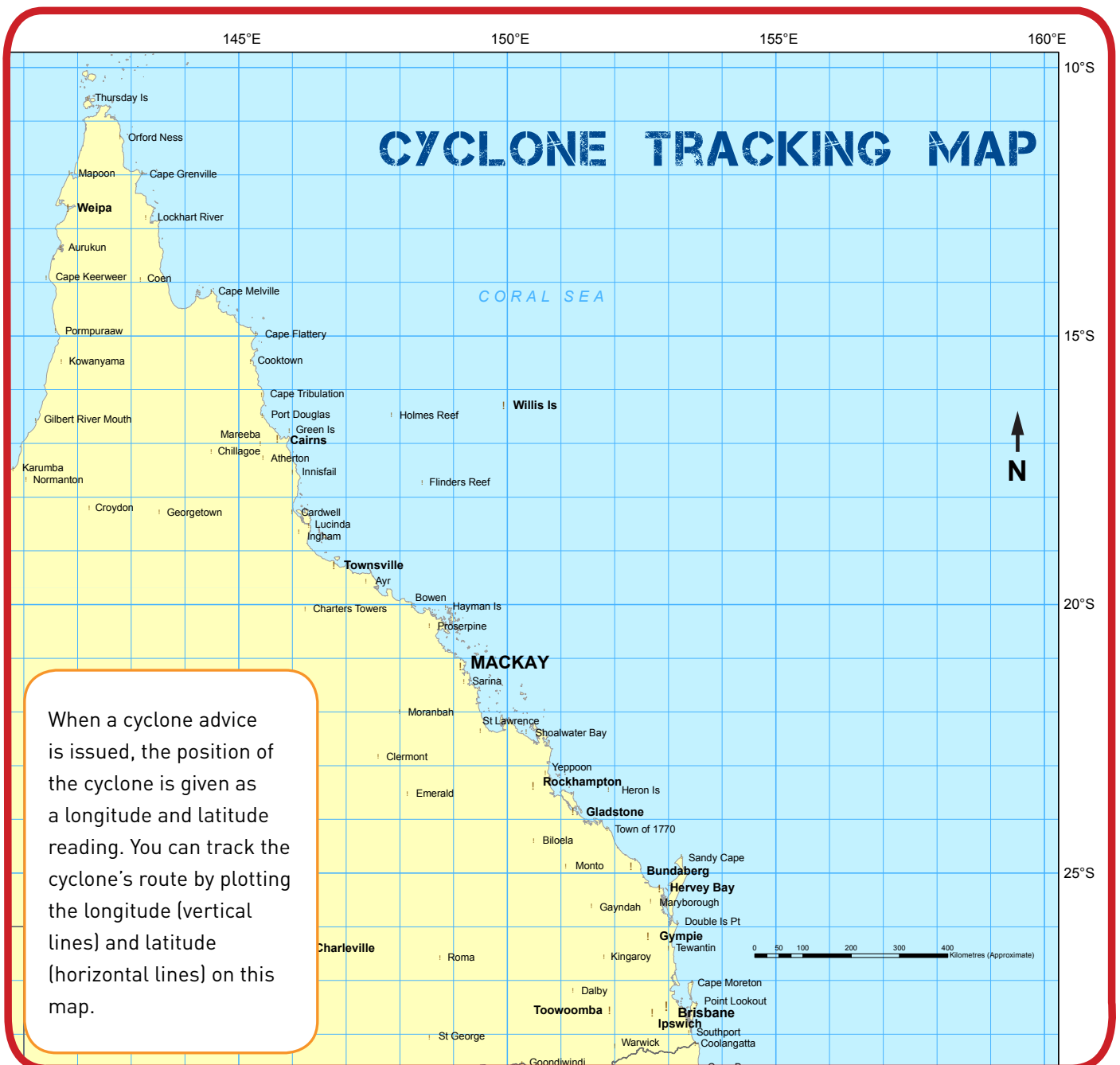
CYCLONES



Tropical cyclones are the most severe storms with strong winds, heavy rain and storm surges that have the potential to cause extensive property damage. Cyclones vary greatly in character, but the one feature they all have in common is a calm centre. This centre or "eye" is an area made up of light winds and often clear skies.

However, this is not the end of the cyclone as very destructive winds from the other direction can follow. Remain inside until it has passed, listen to your radio, and never venture outside until authorities have given the all-clear.

For Tropical Cyclone advice and warnings visit bom.gov.au/cyclones.
The cyclone season extends from November to May.



CYCLONE ADVICES

Cyclone advices can be issued as a “watch” or “warning”. These advices provide information on where the cyclone is, its movement, how strong it is and identify the areas that could be affected.

A cyclone watch is issued every six hours when there are indications that strong winds are expected to affect coastal or island communities within 48 hours.

A cyclone warning is generally issued every three hours (however in some cases it's every hour) as soon as gales or stronger winds are expected to affect coastal or island communities within 24 hours. Forecasts of heavy rainfall, flooding and abnormally high tides are included where necessary.

CATEGORY	CENTRAL PRESSURE IN HECTOPASCALS	STRONGEST WIND GUST	TYPICAL EFFECT (INDICATIVE ONLY)
1	>985 hPa	100-125 km/hour	Minor house damage Damage to some crops, trees and caravans Small craft may drag moorings
2	985-970 hPa	125-170 km/hour	Minor house damage Significant damage to signs, trees and caravans Heavy damage to crops Risk of power failure Small craft may break moorings
3	970-945 hPa	170-225 km/hour	Some roof and structural damage Some caravan destruction Power failure likely
4	945-920 hPa	225-280 km/hour	Significant roof loss and structural damage to buildings Caravans destroyed Dangerous airborne debris Widespread power failure
5	<920 hPa	Greater than 280 km/hour	Extremely dangerous with widespread destruction

PREVIOUS CYCLONES

- **Cyclone Dylan, Category 1:** crossed near Hydeaway Bay in January 2014. Mackay received a storm tide slightly higher (0.33 metres) than king tide level, damaging some homes and causing significant coastal erosion.
- **Cyclone Anthony, Category 2:** crossed near Bowen in January 2011 causing minor damage to the Mackay region.
- **Cyclone Yasi, Category 5:** crossed near Innisfail in February 2011 causing 5 metre storm surge on a falling tide, and 2.3 metre inundation above king tide level at Cardwell. Note: Gale force wind speeds of about 70kph were recorded in Mackay.
- **Cyclone Ului, Category 3:** crossed near Proserpine in March 2010, causing major damage to the Mackay region. Power was lost in residential areas for up to three days and in some rural areas for more than a week.
- **Cyclone Hamish, Category 5:** narrowly missed Mackay in March 2009.
- **Cyclone Larry, Category 4:** crossed Innisfail in March 2006 causing widespread destruction.
- **Cyclone 1918, Mackay** experienced a devastating cyclone (with a 3.6 metre storm surge causing inundation of 1.8 metres above king tide), which resulted in widespread destruction that claimed 30 lives.

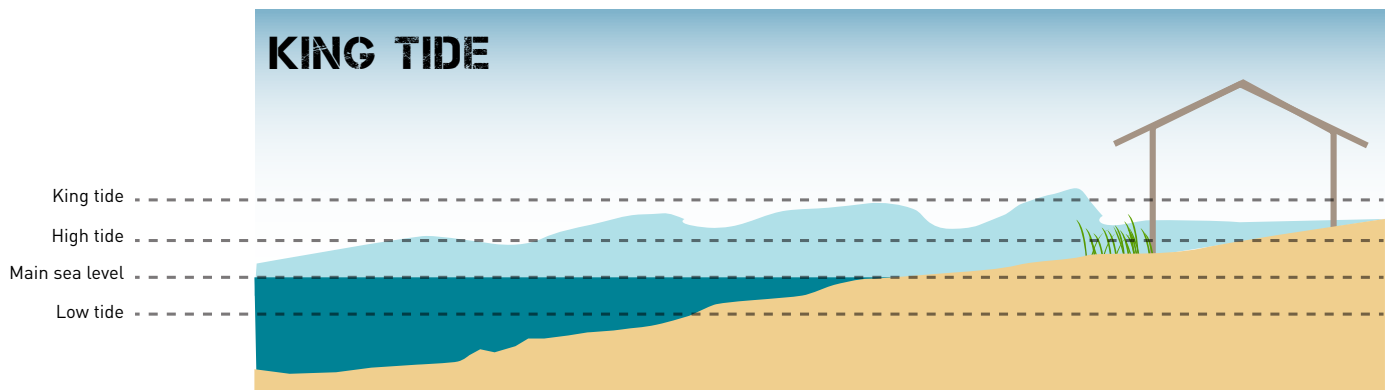


STORM SURGE

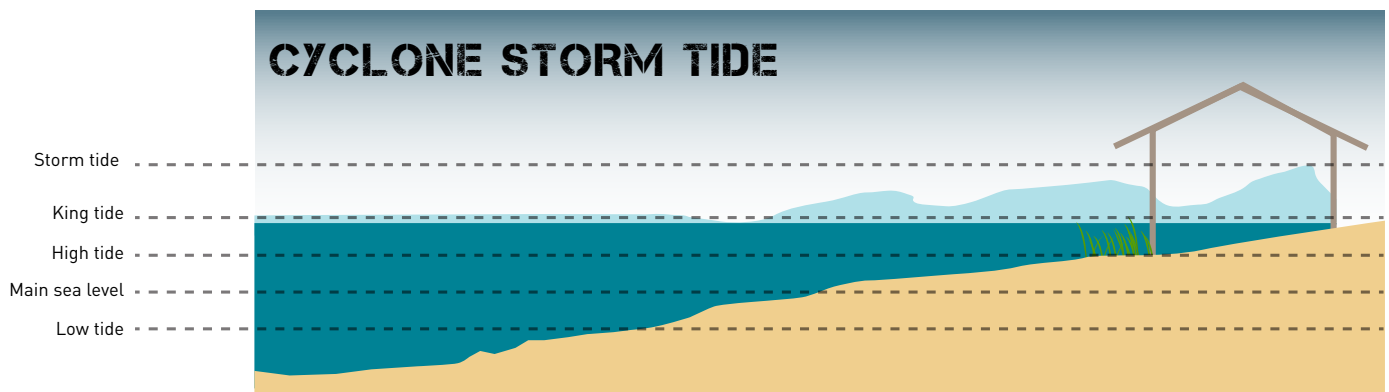
Along with high winds and flooding rains, cyclones produce storm surges (a raised dome of water) stretching up to 100 kilometres long, 50 kilometres wide and typically 2 to 5 metres higher than the normal tide level.

All cyclones produce storm surges but not all are dangerous. If the surge occurs at the same time as a high tide then the area inundated can be quite extensive, particularly in low-lying areas.

KING TIDE



CYCLONE STORM TIDE



- King tide** (Highest astronomical Tide or HAT)
- Mean sea level** (Equals 0 Australian Height Datum or AHD)
- Low tide** (Lowest Astronomical Tide or LAT)



FLOODING

The Mackay region is subject to extreme rainfall between the months of November and May. Due to the short, intense nature of these events and the close proximity of the Pioneer River catchment, it places the city and surrounding communities in an extremely vulnerable position. At times, this may result in mass evacuations of the community.

Use the below checklist to get ready before cyclone season

PROPERTY PREPARATION CHECKLIST

Check that the walls, roof and eaves of your home are secure	<input type="checkbox"/>
Trim tree branches well clear of your home	<input type="checkbox"/>
Trim tree branches well clear of your home	<input type="checkbox"/>
Consider fitting shutters, or at least metal screens, to all glass areas	<input type="checkbox"/>
Secure or store loose material, outdoor furniture, kids' play equipment, etc, that could blow about and possibly cause injury or damage	<input type="checkbox"/>
Check your insurance policy covers storm surge and flooding	<input type="checkbox"/>
Check to see if your home has been built to cyclone standards	<input type="checkbox"/>
Buy sandbags from your local hardware store	<input type="checkbox"/>

IMPORTANT!

Preparing for emergency events is like planning a remote camping trip for three days – you need to be self-sufficient for at least 72 hours. Are you prepared?

A little bit of preparation saves a lot of time in an event. Start preparing now!

Connected communities are resilient communities. To learn how to create sustainable links within your community, visit mackay.qld.gov.au/emergency.

HANDY TIPS

- Cyclone building standards became mandatory in 1981, so if your home was built prior to 1982 it is unlikely to be built to cyclone standards.
- If you're going away on holidays, prepare your property in advance and advise your friends and family of your contact details.





EMERGENCY SAND STOCKPILES

To encourage residents to become self-reliant, resilient and to lessen requests for assistance to the State Emergency Service (who are all volunteers), council provides three 24/7 public access sand stockpiles for emergency sandbagging in the urban area. During storm season sand levels at these stockpile sites will be monitored and replenished by council.

Locations are

- Norris Road Reserve (PCYC end), North Mackay,
- 374 Shakespeare Street, West Mackay, beside the army cadet building,
- Mackay Stadium gravel overflow car park on Leisure Street (off Bridge Road), South Mackay.
- Campwin Beach SES Facility
- Finch Hatton SES Facility
- Grasstree Beach Combined Emergency Services Facility
- Koumala SES Facility
- Mirani - Corner Victoria & Augusta Sts
- Sarina - Brewers Road SES Facility

Residents need to bring their own sandbags and shovel to self-fill bags.



BUSINESS CONTINUITY

If you're a business owner, it's advisable to develop a practical business continuity plan to help you prepare for and continue to operate after an incident or crisis. Your plan will help identify and prepare for risks and will assist in response and return to normal business quickly.

You may not be able to predict every kind of incident that could threaten your business, but you can develop a plan that covers a range of incidents (eg natural disasters, computer problems, staffing or supply issues).

Your plan should contain all of the information you need to get your business running again after an incident, crisis or natural disaster.



The size and complexity of your business continuity plan will depend on your business. You may choose to have separate risk management, incident response and recovery plans. If you are a small business, you might find a single business continuity plan that incorporates all of these elements suits you better. You should update your business continuity plan regularly and keep staff informed. Business continuity equals business resilience!

For more information on how to develop, test and update a business continuity plan, visit mackay.qld.gov.au/emergency.

EMERGENCY KIT CHECKLIST

FOOD AND WATER	
Water in sealed containers (30 litres per person)	<input type="checkbox"/>
Canned food (enough for three-to-four days, however, if you live in a rural area it's advisable to store enough food and water to last one week)	<input type="checkbox"/>
Baby formula (if required for infants)	<input type="checkbox"/>
Can opener	<input type="checkbox"/>
Portable stove with fuel	<input type="checkbox"/>
Cooking utensils	<input type="checkbox"/>
Pet food, water and other animal needs	<input type="checkbox"/>
MEDICAL, SANITATION AND SPECIAL NEEDS	
First Aid Kit and manual	<input type="checkbox"/>
Medications and prescriptions (in a sealed plastic bag)	<input type="checkbox"/>
Toiletry and sanitary supplies (eg toothpaste, toothbrushes, soap, shampoo, towels, insect repellent, sunscreen and other personal hygiene items)	<input type="checkbox"/>
Special needs items for infants, the aged and people with disabilities	<input type="checkbox"/>
LIGHT	
Torch (with spare batteries)	<input type="checkbox"/>
Candles, lighter and waterproof matches	<input type="checkbox"/>
COMMUNICATIONS	
Battery-operated radio (with spare batteries)	<input type="checkbox"/>
Traditional wired telephone (cordless phones require electricity to operate) nbn customers please note:- nbn services require a power source at both the exchange and customer end to operate. As such, unless you have a backup power supply within your premises (battery or generator) you may lose telephone and internet services during power outages. Please consult with your Preferred Retailer Supplier (Telstra, Optus, etc.) for advice on how to mitigate against loss of services during power loss.	<input type="checkbox"/>
Mobile phone charger and car charger	<input type="checkbox"/>
Record your next of kin's telephone number on your mobile phone under "ICE" (In Case of Emergency)	<input type="checkbox"/>

HANDY TIPS

- Rotate food in your emergency kit to ensure all food is within "best before" date.
- As soon as you hear a warning, refuel your car.
- If you're going away on holidays, prepare your property in advance and advise your friends and family of your contact details.



EMERGENCY KIT EXAMPLE



*Special food and medication may be required.

PET EMERGENCY KIT CHECKLIST

Use the following checklist when considering moving your pets (remember public welfare centres may not take pets).

Sufficient non-perishable pet food and water for several days and bowls	<input type="checkbox"/>
A leash and carry cage or box	<input type="checkbox"/>
Toilet litter or old newspapers	<input type="checkbox"/>
Essential medications and vet contact details	<input type="checkbox"/>
Make sure your pet has current vaccinations, registration or other identification	<input type="checkbox"/>
Prepare a room to house your pet, such as the bathroom or laundry	<input type="checkbox"/>

HANDY TIP

- Never leave a cat with a dog in the same room, even if they get along.



FIRST AID KIT CHECKLIST

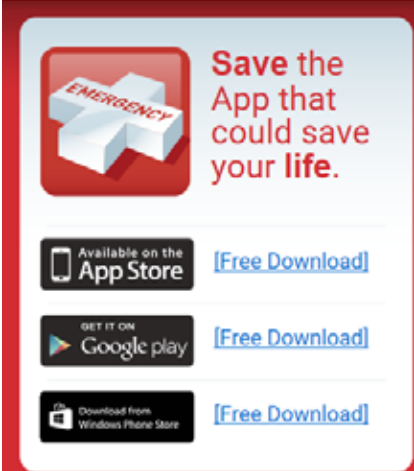
1 x packet of band aids	<input type="checkbox"/>
1 x roll of non-allergic tape	<input type="checkbox"/>
2 x sterile eye pads	<input type="checkbox"/>
4 x triangular bandages	<input type="checkbox"/>
1 x conforming gauze bandage	<input type="checkbox"/>
1 x sterile combine dressing	<input type="checkbox"/>
1 x pair of stainless steel scissors	<input type="checkbox"/>
2 x square gauze swabs	<input type="checkbox"/>
1 x bottle antiseptic cream	<input type="checkbox"/>
1 x bottle antiseptic solution	<input type="checkbox"/>
1 x wound closure steri-strip	<input type="checkbox"/>
15 x safety pins in a bag	<input type="checkbox"/>
5 x alcohol swabs	<input type="checkbox"/>
2 x pairs of disposable gloves	<input type="checkbox"/>

IMPORTANT!

Do you know what storm tide evacuation zones you live in?
Have you got friends or relatives who live in zones outside the evacuation zone?

Now is the time to get prepared!

During an event you should never drive through floodwaters. Even vehicles moving in shallow water can cause bow waves, which can result in further inundation and property damage. Find an alternate route. For more information, visit fire.qld.gov.au/swiftwater. Remember: If it's flooded, forget it.



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HANDY TIP

- A complete First Aid Kit can be purchased from chemists, hardware stores and other retailers. Remember – first aid items have expiry dates so it pays to check your kit regularly.





HOW TO PREPARE FOR AN EVACUATION

Many threats to the Mackay region may require a partial or total relocation of the population.

Follow the below steps

- Know your local risks (cyclones, floods, storm surges, fires, etc)
- Consult the storm tide inundation maps in this booklet
- Find out what inundation area/s your residence is in
- Talk to neighbours and find out what events have occurred in the past
- Find friends and relatives outside the inundation area and reconfirm arrangements
- Regularly update your Emergency Kit
- Familiarise yourself with the route you should take
- Prepare an Evacuation Kit (including treasured family memorabilia such as photos, passports, licences, important documents, etc)



IMPORTANT!

For severe cyclones (Category 3 or above), consider voluntarily relocating until the threat has passed.

If a storm tide evacuation is ordered, the relevant coloured evacuation zone will be broadcast over the radio.

Remember: It's not just cyclones and floods we need to prepare to evacuate for. An evacuation can be ordered for industrial fires, chemical spills and other types of events. Are you ready?

EVACUATION KIT CHECKLIST

CLOTHING AND FOOTWEAR

Several changes of clothes (including a warm jumper, waterproof jacket or raincoat)	<input type="checkbox"/>
Closed-toe shoes or sturdy boots	<input type="checkbox"/>
Gloves and hat	<input type="checkbox"/>

IMPORTANT DOCUMENTS (IN A SEALED BAG OR SCANNED TO USB)

Insurance papers for house and contents, vehicle/s and valuable items	<input type="checkbox"/>
Property deeds and mortgage documents	<input type="checkbox"/>
Inventory of valuable house goods	<input type="checkbox"/>
Wills and life insurance	<input type="checkbox"/>
Birth, marriage certificates, passports/visa details	<input type="checkbox"/>
Medicare and pension cards	<input type="checkbox"/>
Prescriptions and immunisation records	<input type="checkbox"/>
Bank account and credit card details	<input type="checkbox"/>
Back-up copy of important computer files	<input type="checkbox"/>
Photographs	<input type="checkbox"/>
Household Emergency Plan with emergency contact numbers	<input type="checkbox"/>
Other important documents	<input type="checkbox"/>

OTHER SUPPLIES AND TOOLS

Cash (including coins for pay phones)	<input type="checkbox"/>
Spare house and car keys	<input type="checkbox"/>
Amusements for kids (eg books and toys)	<input type="checkbox"/>
Strong plastic bags and ties	<input type="checkbox"/>
Tent or tarpaulin	<input type="checkbox"/>
Sleeping bag, blankets, pillows and bedding	<input type="checkbox"/>
Safety glasses/sun glasses	<input type="checkbox"/>
Dewatering fluid (WD40)	<input type="checkbox"/>
Hammer, nails, masking tape, combination pocket knife/utility knife	<input type="checkbox"/>
Waterproof bags or containers for important documents	<input type="checkbox"/>

IF ORDERED, DO I HAVE TO GO?

Yes!

Once an evacuation order has been issued, police and Emergency Services have the authority to direct you from the Evacuation Zone, under the Disaster Management Act – 2003.



WHEN TOLD TO EVACUATE

When told to evacuate, or if you decide to evacuate prior to being asked, follow the below checklist:

Check the storm tide inundation maps included in this booklet to see what colour zone/s your place of residence corresponds with. NOTE: Your location may be featured in more than one coloured zone map (eg if you are in the green zone, then you are also in the red, orange, brown, yellow and blue zones)	<input type="checkbox"/>
Help friends and neighbours, particularly the elderly, deaf and blind, by passing on the warnings and their meaning	<input type="checkbox"/>
Find friends and relatives in high places who are outside of evacuation zones	<input type="checkbox"/>
Take your prepared Evacuation Kit (including your Emergency Kit and First Aid Kit) with you	<input type="checkbox"/>
Switch off electricity, gas, water and hot water system	<input type="checkbox"/>
Dress appropriately (eg jeans, jumper, strong footwear and a raincoat)	<input type="checkbox"/>
Load your car quickly	<input type="checkbox"/>
Lock up your house	<input type="checkbox"/>
Listen to your radio at all times	<input type="checkbox"/>
Do not ignore warnings or advice	<input type="checkbox"/>
Household pets should be taken to your predetermined location along with your Pet Emergency Kit (including food and water)	<input type="checkbox"/>
Drive to your pre-arranged location, and register with Register. Find. Reunite (at register.redcross.org.au , an Australian Red Cross and Commonwealth initiative)	<input type="checkbox"/>
Inform friends and relatives of your movements	<input type="checkbox"/>
Continue to tune in to warnings	<input type="checkbox"/>

HANDY TIPS

- Remember to remain calm, act quickly and beware of hazards such as fallen powerlines.
- For a complete list of Get Ready disaster preparedness checklists visit mackay.qld.gov.au/emergency. Checklists include: Prepare Your Emergency Plan, Prepare for Evacuation, Emergency Kit, Prepare Your Home, Tune in to Warnings, Check Your Neighbours and a Pet Emergency Plan.



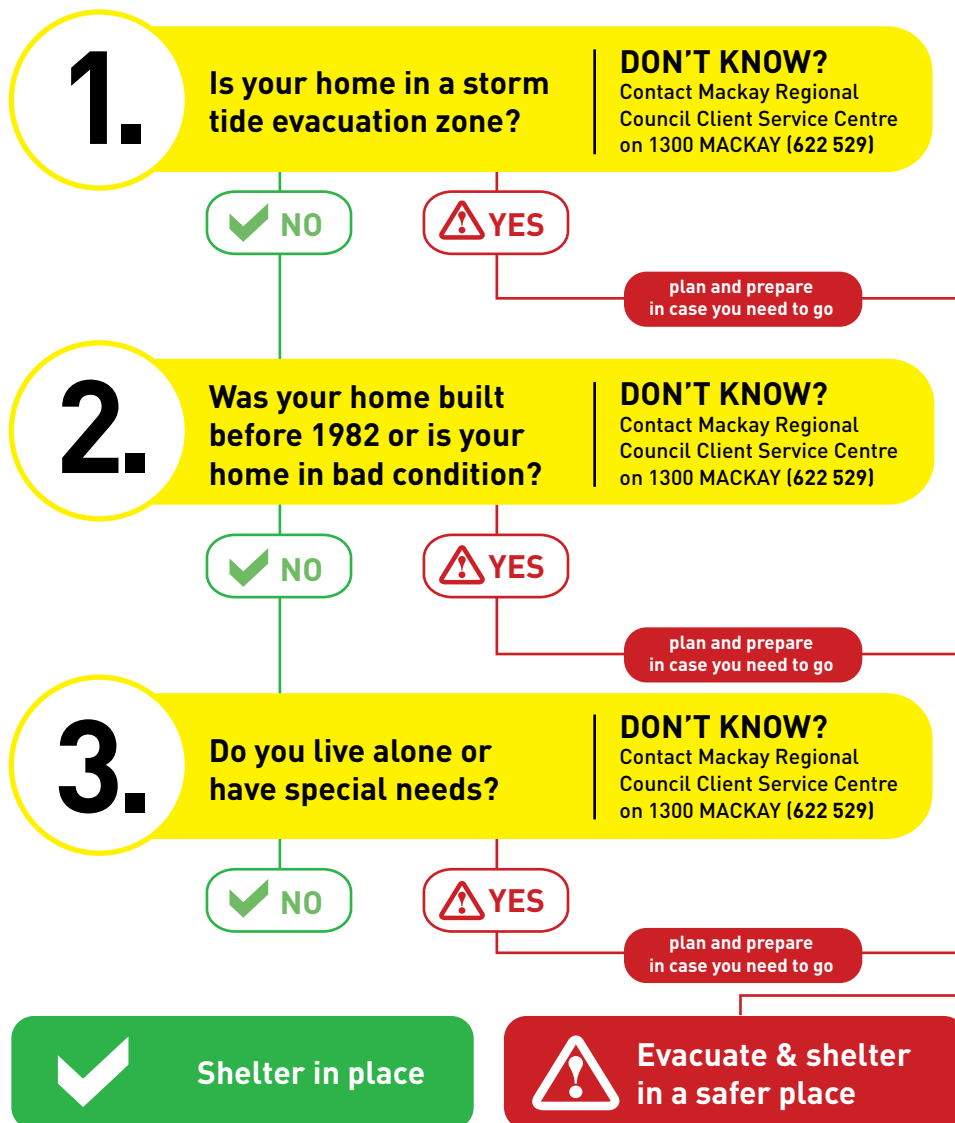
WHEN TOLD TO EVACUATE

REGISTER. FIND. REUNITE.

The Australian Red Cross has established a Register. Find. Reunite. website at register.redcross.org.au and national telephone number (which will be broadcast at the time) to reunite friends and family during a disaster.

PUBLIC CYCLONE SHELTER

Please note that Mackay Regional Council does have one public cyclone shelter located at the Northern Beaches High School available for use during a Category 3 cyclone or above. Space is very limited and conditions of entry will apply. **Most residents should be seeking alternate accommodation, as the shelter is a last resort for those most vulnerable.**



JUST VISITING?

- Follow instructions from your accommodation manager
- If safe to do so, remain indoors with a supply of non-perishable food and water
- Consider leaving town to a location away from the path of the cyclone

For more information, download a copy of council's Cyclone Shelter and Evacuation Options at mackay.qld.gov.au/emergency or pick up a hard copy at any of council's client service centres.



BEFORE, DURING AND AFTER AN EVENT

When you hear a warning issued please assist other people by passing the information onto neighbours and visitors who may not have heard it or may not have understood the meaning.

BEFORE

- Tune in to warnings for information and advice
- Regularly check the Bureau of Meteorology website, council's website and council's Facebook page for updates
- Be prepared to act immediately
- Check for road closures by calling Transport and Main Roads on 131 940 or visit 131940.qld.gov.au and consult council's website at mackay.qld.gov.au
- Fill as many water containers as possible, including the bath and sinks
- Make sure you have an Emergency Kit, Pet Emergency Kit and Evacuation Kit ready (find friends and relatives in high places outside the evacuation zone)
- Prepare your property (refer to the relevant checklist in this guide)
- If your property is in a low-lying area, prepare sandbags (for tips on alternatives to sandbags, visit mackay.qld.gov.au/sandbags)
- Prepare the safest part of your house (usually the bathroom) using strong tables and mattresses and place emergency supplies there
- Top up your car's fuel tank
- Check on elderly or disabled neighbours. Make sure all neighbours are aware of what's happening
- Move household items up high
- If evacuating, turn off electricity, water mains, hot water and gas (and tie down gas bottles)
- Keep an old towel beside the toilet to use as a temporary plug to prevent sewer backflow in low-lying areas
- Ensure all chemicals that may react with water are within a waterproof container and are moved to a higher level

WHEN TOLD TO EVACUATE



DURING

- Ensure everyone (especially children) is safe
- Stay inside in your prepared safe place – remain calm
- Beware of the calm “eye” of the cyclone, tune in to warnings and do not go outside until you are advised to do so by authorities

AFTER

- Remain calm
- Be aware of hazards
- Do not attempt to clear trees from powerlines yourself, instead, call Ergon Energy for advice
- Refrain from making unnecessary demands on emergency services
- If you've had to evacuate don't return home until advised, then use the route recommended
- Do not eat food which has been in contact with flood water
- If flooding has occurred, boil all tap water until water supplies have been declared safe
- Beware of wildlife which may move to drier areas in your house
- Do not use gas or electrical appliances that have been flood-affected until they have been checked for safety by qualified personnel
- Do not let children play in floodwaters as it may be contaminated
- After a cyclone, inspect ceiling insulation to ensure that batts are still in place (not over downlight as this can cause electrical fires)
- Do not go sightseeing and do not drive or walk through floodwaters

Remember: If it's flooded, forget it

Please note: State Emergency Services (volunteers) are only required to attend to emergency situations (eg trees on houses or roof damage). The community is required to attend to and arrange private damage clean-up. Requests for assistance will be prioritised and response times will be affected during major events. Your patience is appreciated. Reminder, SES personnel are volunteers who leave their homes and family to attend call-outs. The SES are not first responders such as Police, Fire or Ambulance.

IMPORTANT!

When disaster threatens, tune in to warnings and follow official advice.

Local radio frequencies are:

- ABC Tropical North 101.1FM
- STAR 101.9FM
- HOTFM 100.3FM
- TRIPLE M 98.7FM
- 4MK AM 1026AM
- 4CRMFM 107.5FM
- MY 105FM 105.9FM

Check the batteries in your radio and carry spares.

Consult council's emergency management webpage at

mackay.qld.gov.au/emergency

Like council's Facebook page at

facebook.com/mackayregionalcouncil

Follow council on Twitter

twitter.com/mackaycouncil



ELECTRICAL SAFETY



- Always assume that fallen powerlines are live and potentially lethal
- Water around fallen powerlines should be considered live and could cause injury or death
- Do not endanger yourself or others
- Warn others and stay well away
- If powerlines have fallen or been damaged, phone Ergon Energy immediately on 131 670
- If unable to contact Ergon Energy regarding fallen powerlines, notify police on 000
- Switch off your power at the switchboard if any wire is short-circuiting or if water enters your ceiling
- Do not use electrical appliances while barefoot or in wet conditions
- Go to the Outage Finder at ergon.com.au or the Outage Finder App for updates

INDUSTRIAL OR CHEMICAL SPILL ACCIDENT

What to do when you come upon the scene of an accident/spill involving hazardous materials

- Notify the police and/or fire service
- Avoid contact with the material and keep onlookers away
- Stay upwind and on high ground well away from the hazard
- Tune in to warnings for further advice
- Do not endanger yourself or others

What to do when a hazardous accident or spill occurs within your area

- Stay indoors and close doors and windows
- Tune in to warnings for further advice
- Evacuate only when advised by police or the fire service
- Prepare to act immediately

IMPORTANT!

Are you prepared to lose electrical power for four-to-six days?

- Consider purchasing a generator to run essential appliances during disasters
- Ensure that generators are only run in well ventilated areas
- Ensure children do not go near generators that are operating
- Be considerate of neighbours when using generators at night

URBAN AND RURAL FIRES



What to do in urban and rural fire situations

Fires should be treated similar to flooding, and may require evacuation. Keep in mind even urban areas can be affected by large fires.

- Have an adequate plan and be prepared to act immediately
- Identify the direction of the fire so you can plan your evacuation route
- Be careful of smoke and embers
- Know your resources and capabilities
- If in doubt, evacuate early
- Evacuate immediately if advised by emergency services

HANDY TIP

- Visit ruralfire.qld.gov.au and click on Understanding Community Warnings to learn more about what actions to take and the type of warnings issued.



PREPARE. ACT. SURVIVE.

It is essential you have a plan in case you or your family are ever at risk. Prepare. Act. Survive. is a bushfire survival plan designed to help you make the right decisions, depending on your home, environment and personal circumstances.

The decision to stay and protect your home or to evacuate, is up to you in most cases. It is important that you assess your resources, preventative actions, capabilities and safety before making a decision. If requested by the authorities to evacuate your residence, you should follow the evacuation procedure listed in this guide.

To create your plan, visit ruralfire.qld.gov.au and click on Bushfire Survival Plan. Remember: Late evacuation can be deadly.

LIGHTING FIRES IN QUEENSLAND

Prior to lighting any fire, a check must be made with your local fire warden, Rural Fire Brigade or fire station. Anyone who is unsure of the local laws regarding lighting and the use of fire in their area should visit council's website mackay.qld.gov.au (and search for "smoke").

In many instances before lighting any fire you must acquire a permit to light fire and check if any fire restrictions and/or bans apply in your area. Some fires do not require a permit to light fire. **For more information (eg such as does your fire require a permit, applying to light a fire and obtaining a permit, restrictions and/or bans regarding the use of fire in your area and becoming a volunteer), visit ruralfire.qld.gov.au.**

If you believe your property (area or home) could be at risk by a bush fire, please feel free to contact your local Rural Fire Brigade or the Rural Fire Service Queensland Area Officer in Mackay to assess the concern and provide advice on how to protect your property.

STORM TIDE INUNDATION AND EVACUATION ZONES

The following storm tide and evacuation maps have been prepared, based on Australian Height Datum and approximate storm surge inundation and evacuation zones, depending on the severity of the cyclone and the time it crosses the coast.

The colours are at staggered intervals above Highest Astronomical Tide (HAT – otherwise known as King Tide level). The Local Disaster Management Group recommends that you find alternative shelter from storm tide inundation with friends or relatives on higher ground outside the evacuation zone.

More detailed and enlarged storm tide maps are available on council's MiMAPS site at mimaps.mackay.qld.gov.au (zoom in to find your street and select the appropriate coloured evacuation zone on the left sidebar you wish to view).

KNOW YOUR ZONE

It's important to identify where your residence is on these maps and what zone you are located in (keep in mind you may be located in multiple zones).

The following coloured zones indicate the level of storm tide risk

Green	Indicates areas at highest risk (waters will rise up to 0.5 metres above Highest Astronomical Tide – HAT). There is up to a 5 per cent chance of this occurring in any year.
Red	Indicates areas at significant risk (up to 1 metre above HAT). There is a 1 per cent chance of this occurring in any year.
Orange	Indicates areas at high risk (up to 2 metres above HAT). There is a 0.2 per cent chance of this occurring in any year.
Brown	Indicates areas at moderate risk (up to 3 metres above HAT). There is less than 0.1 per cent chance of this occurring in any year.
Yellow	Indicates areas at moderate risk (up to 4 metres above HAT). There is less than 0.1 per cent chance of this occurring in any year.
Blue	Indicates areas at low risk (up to 6 metres above HAT). There is less than 0.1 per cent chance of this occurring in any year.

The following zones have not been mapped in this edition (however, other local governments still use these colours)

Grey	Indicates areas of significant risk (up to 1.5 metres above HAT). There is a 0.5 per cent chance of this occurring in any year. Refer to the orange zone for evacuation notification.
Pink	Indicates areas at high risk (up to 2.5 metres above HAT). There is a 0.1 per cent change of this occurring in any year. Refer to the brown zone for evacuation notification.

STORM TIDE INUNDATION AND EVACUATION MAPS

These maps are compiled using 2009 LIDAR data and as such new subdivisions that have been filled may still show the existing 2009 ground levels. The next LIDAR data capture is expected to occur in 2015. (Any zone changes will be made on council's MiMAPS site.)

The coloured zones indicate the level of risk associated with cyclone storm tides. The evacuation zones also include areas which may be above the inundation level but will have either no or limited access, therefore, these properties will require evacuation also.

During an event, these maps will be uploaded to council's Facebook page for ease of reference.

Please note: These maps do not indicate riverine or localised flooding only storm tide inundation.

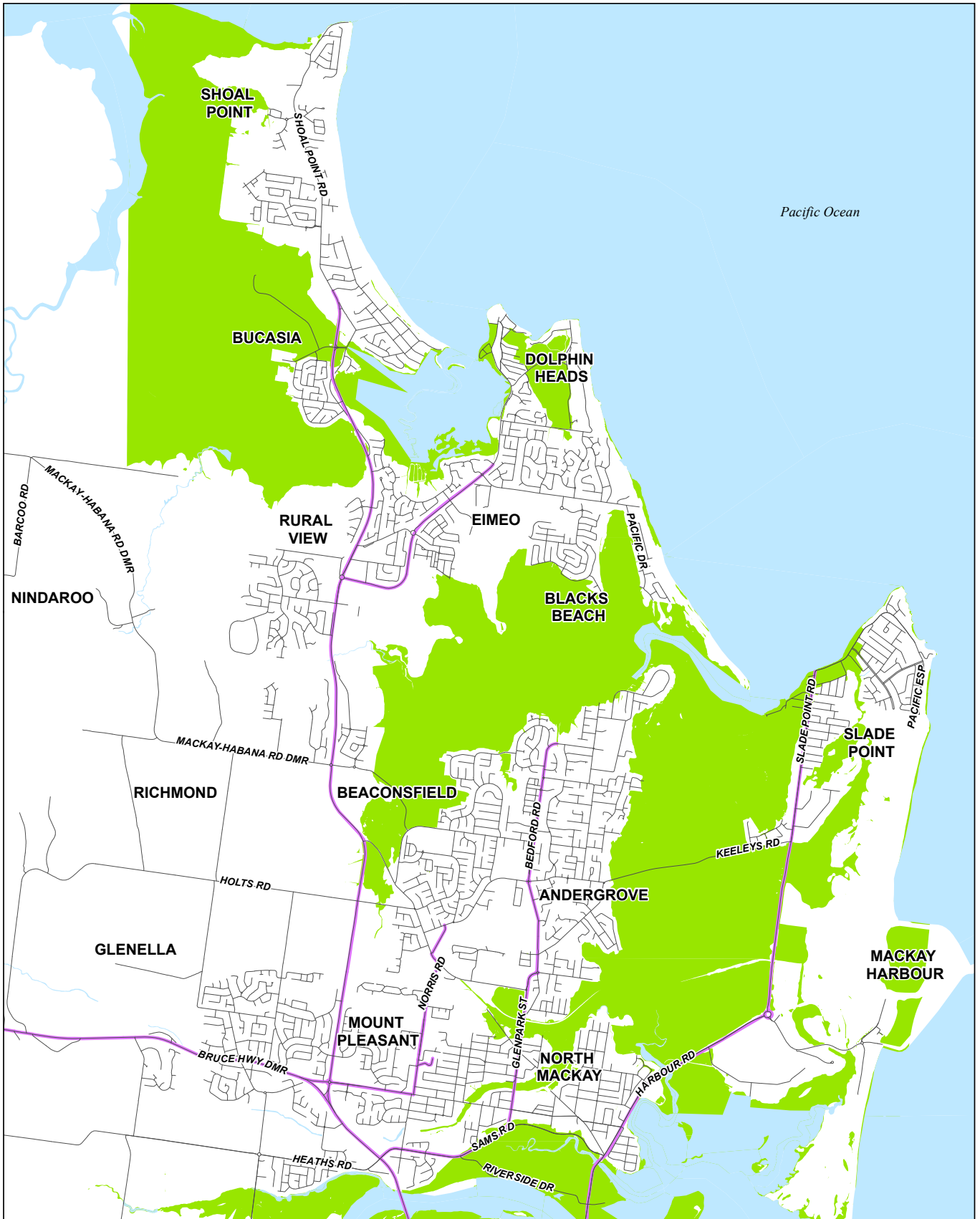
Produced by Mackay Regional Council – Global Information Systems (GIS) section

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**STORM TIDE
INUNDATION AND
EVACUATION MAPS**

**EVACUATION ZONE:
GREEN - NORTH**

Up to 0.5 metres > HAT






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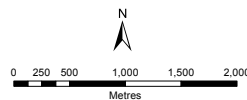
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MACKAY URBAN NORTH

-  Evacuation Routes
-  Evacuation Zone
-  Above Evacuation Zone



EVACUATION ZONE: GREEN - SOUTH

Up to 0.5 metres > HAT




STORM TIDE INUNDATION AND EVACUATION MAPS

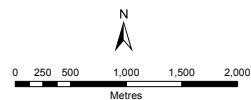


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MACKAY URBAN SOUTH

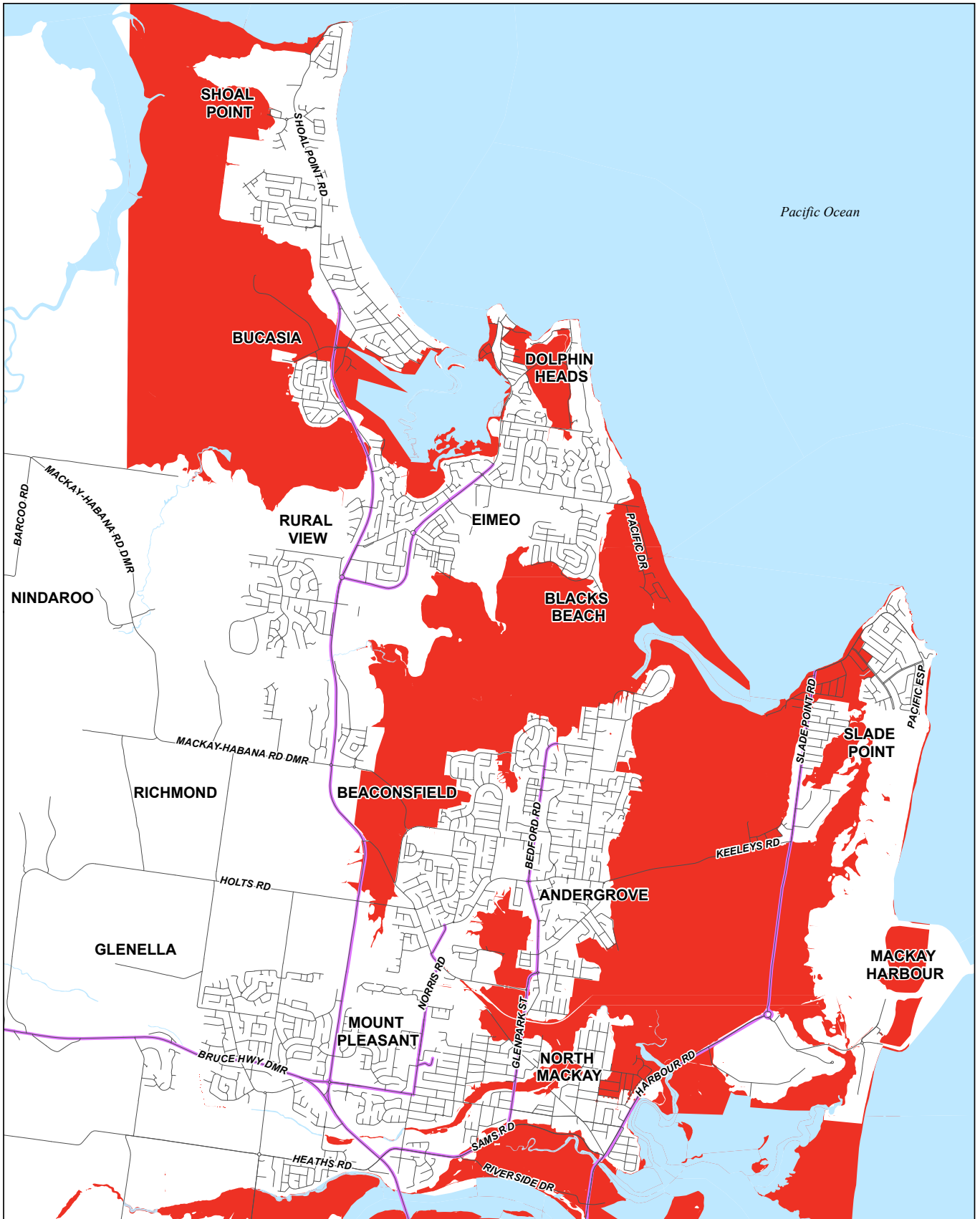
-  Evacuation Routes
-  Evacuation Zone
-  Above Evacuation Zone



**STORM TIDE
INUNDATION AND
EVACUATION MAPS**

**EVACUATION ZONE:
RED - NORTH**

Up to 1 metre > HAT






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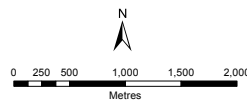
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MACKAY URBAN NORTH

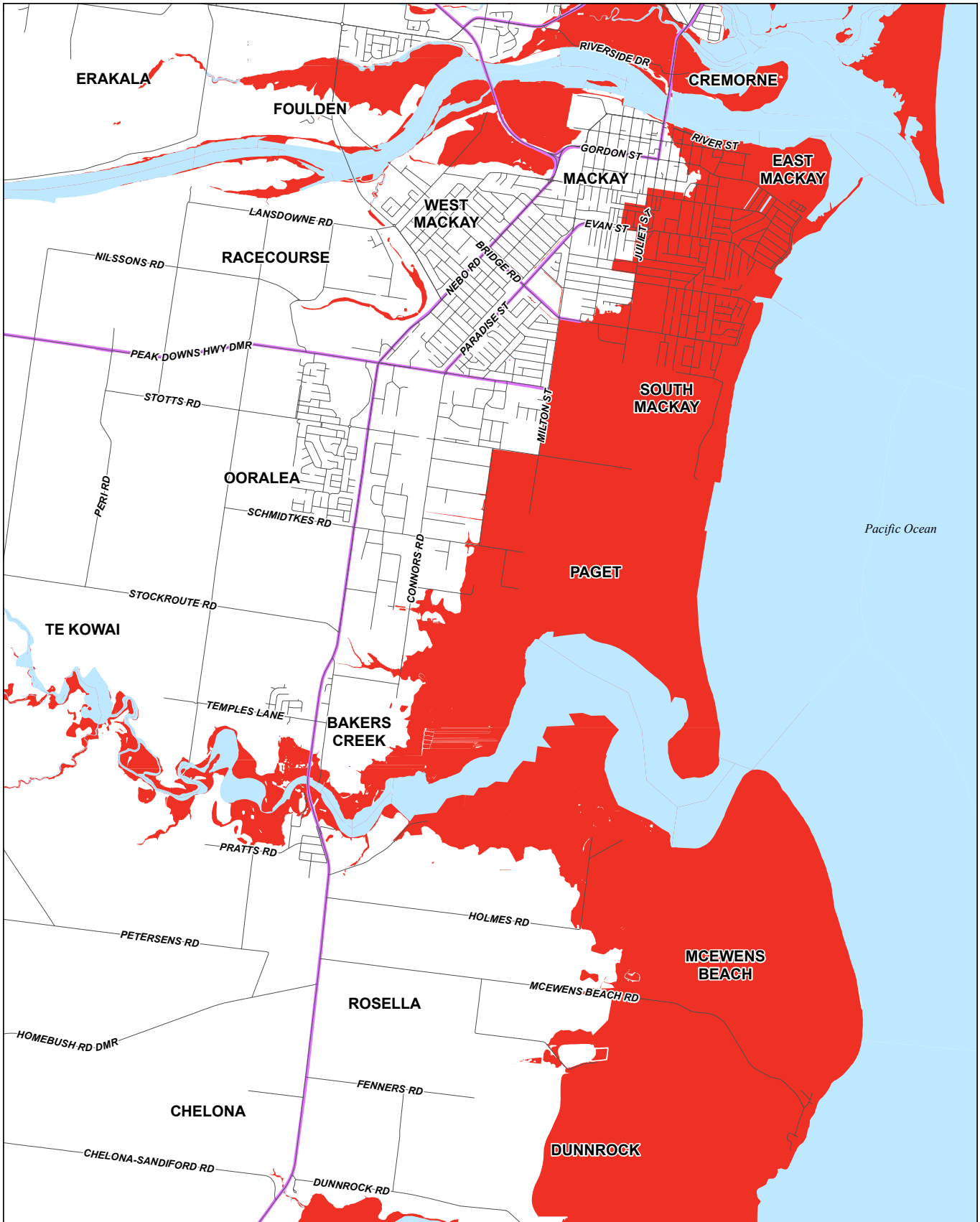
-  Evacuation Routes
-  Evacuation Zone
-  Above Evacuation Zone



EVACUATION ZONE: RED - SOUTH

Up to 1 metre > HAT

STORM TIDE INUNDATION AND EVACUATION MAPS






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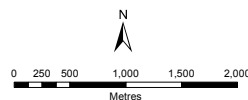
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MACKAY URBAN SOUTH

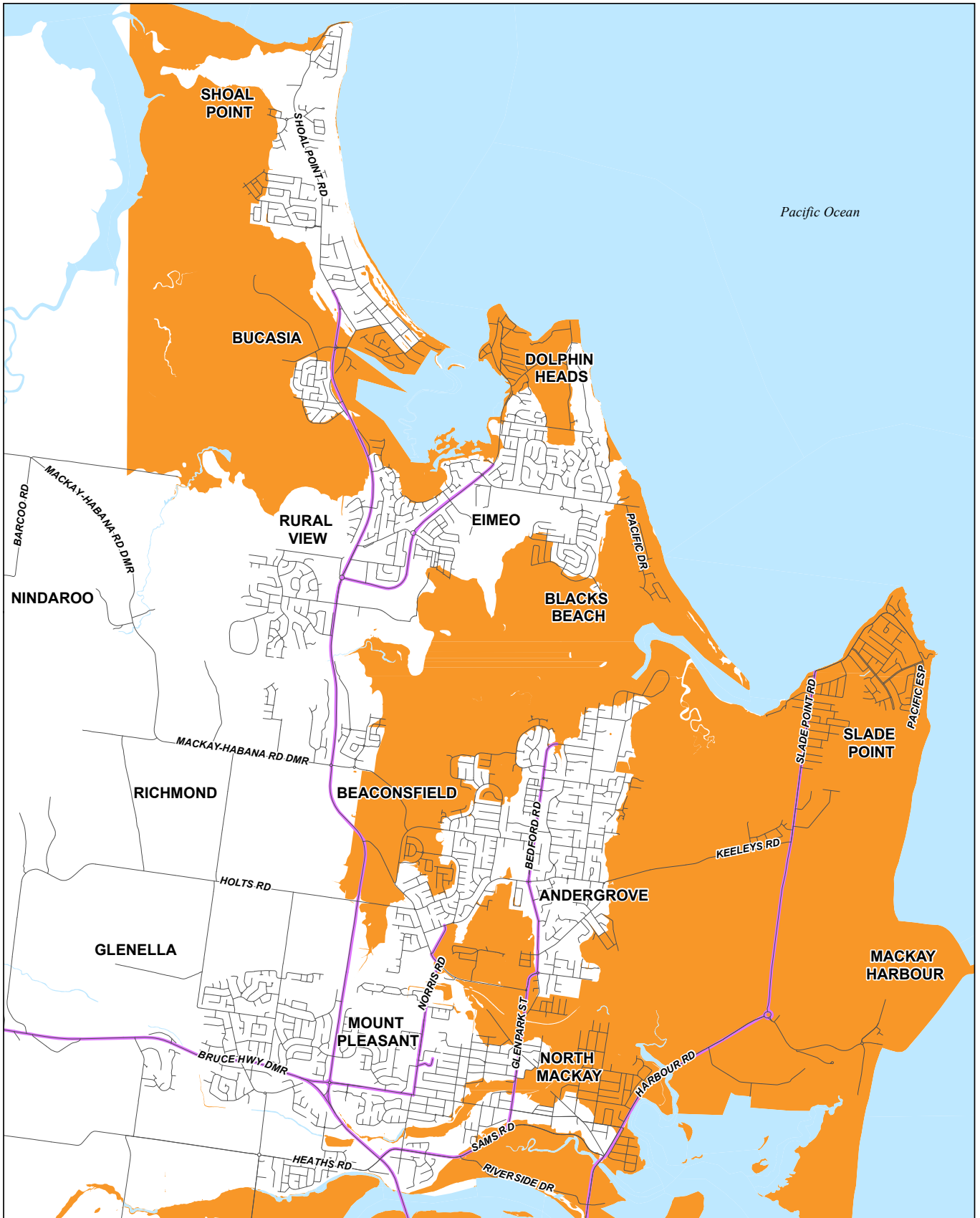
-  Evacuation Routes
-  Evacuation Zone
-  Above Evacuation Zone



**STORM TIDE
INUNDATION AND
EVACUATION MAPS**

**EVACUATION ZONE:
ORANGE - NORTH**

Up to 2 metres > HAT






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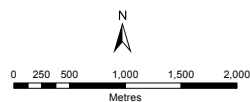
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MACKAY URBAN NORTH

-  Evacuation Routes
-  Evacuation Zone
-  Above Evacuation Zone



EVACUATION ZONE: ORANGE - SOUTH

Up to 2 metres > HAT

STORM TIDE INUNDATION AND EVACUATION MAPS






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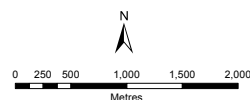
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MACKAY URBAN SOUTH

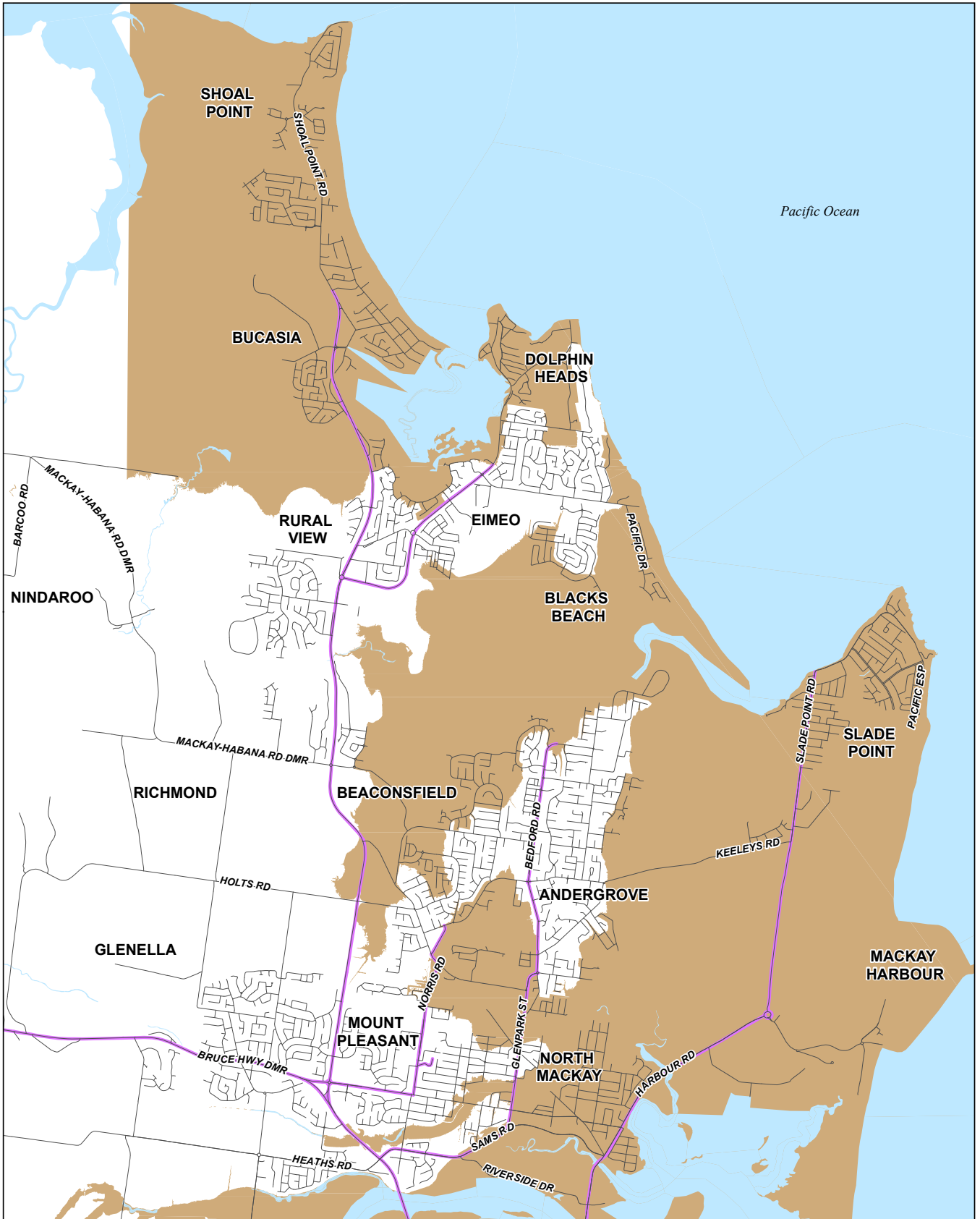
-  Evacuation Routes
-  Evacuation Zone
-  Above Evacuation Zone



STORM TIDE INUNDATION AND EVACUATION MAPS

EVACUATION ZONE: BROWN - NORTH

Up to 3 metres > HAT






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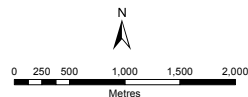
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MACKAY URBAN NORTH

-  Evacuation Routes
-  Evacuation Zone
-  Above Evacuation Zone



EVACUATION ZONE: BROWN - SOUTH

Up to 3 metres > HAT

STORM TIDE INUNDATION AND EVACUATION MAPS






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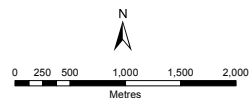
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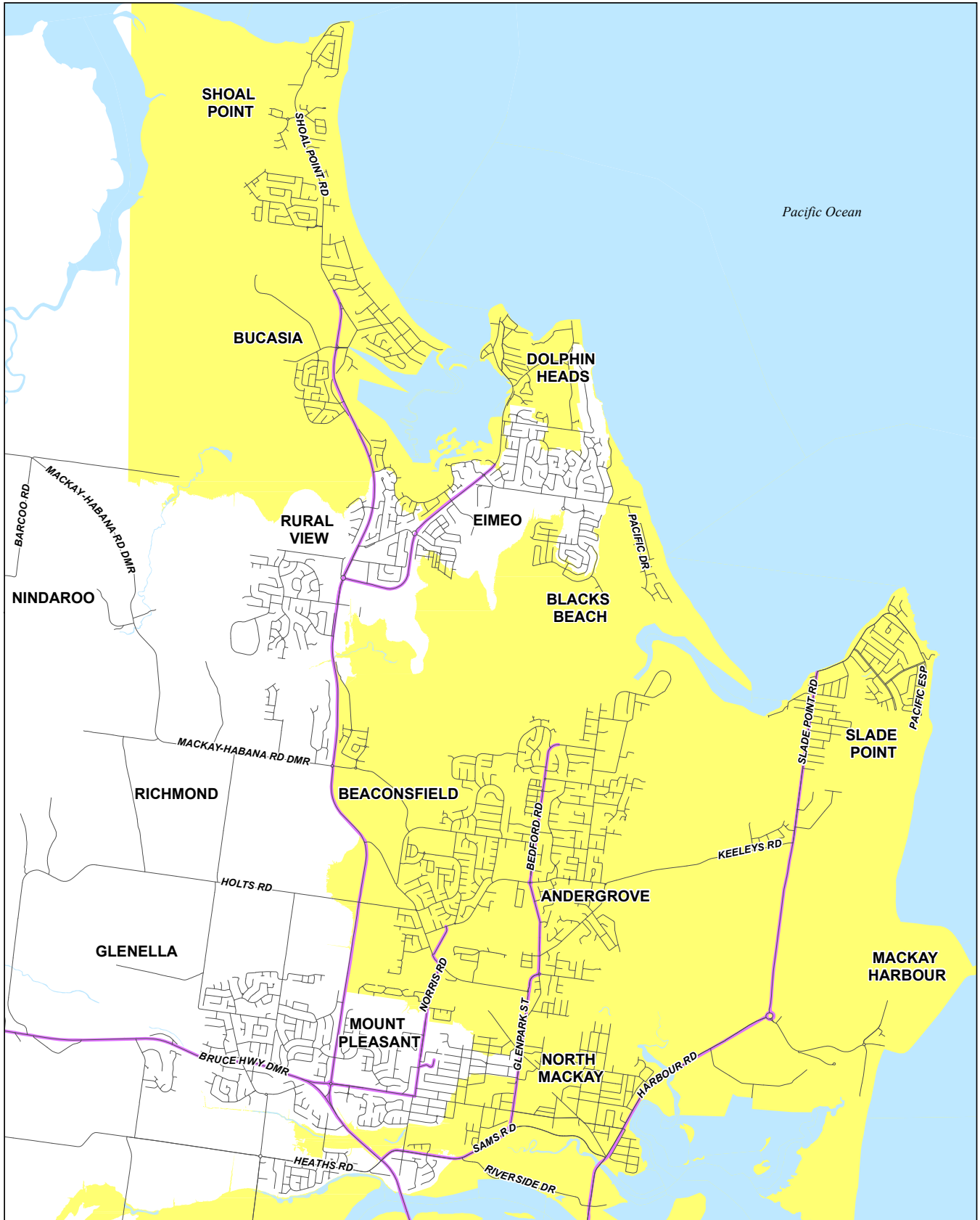
-  Evacuation Routes
-  Evacuation Zone
-  Above Evacuation Zone



**STORM TIDE
INUNDATION AND
EVACUATION MAPS**

**EVACUATION ZONE:
YELLOW - NORTH**

Up to 4 metres > HAT






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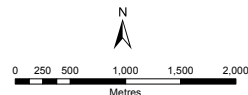
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MACKAY URBAN NORTH

-  Evacuation Routes
-  Evacuation Zone
-  Above Evacuation Zone



EVACUATION ZONE: YELLOW - SOUTH

Up to 4 metres > HAT




STORM TIDE INUNDATION AND EVACUATION MAPS

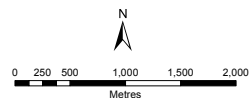


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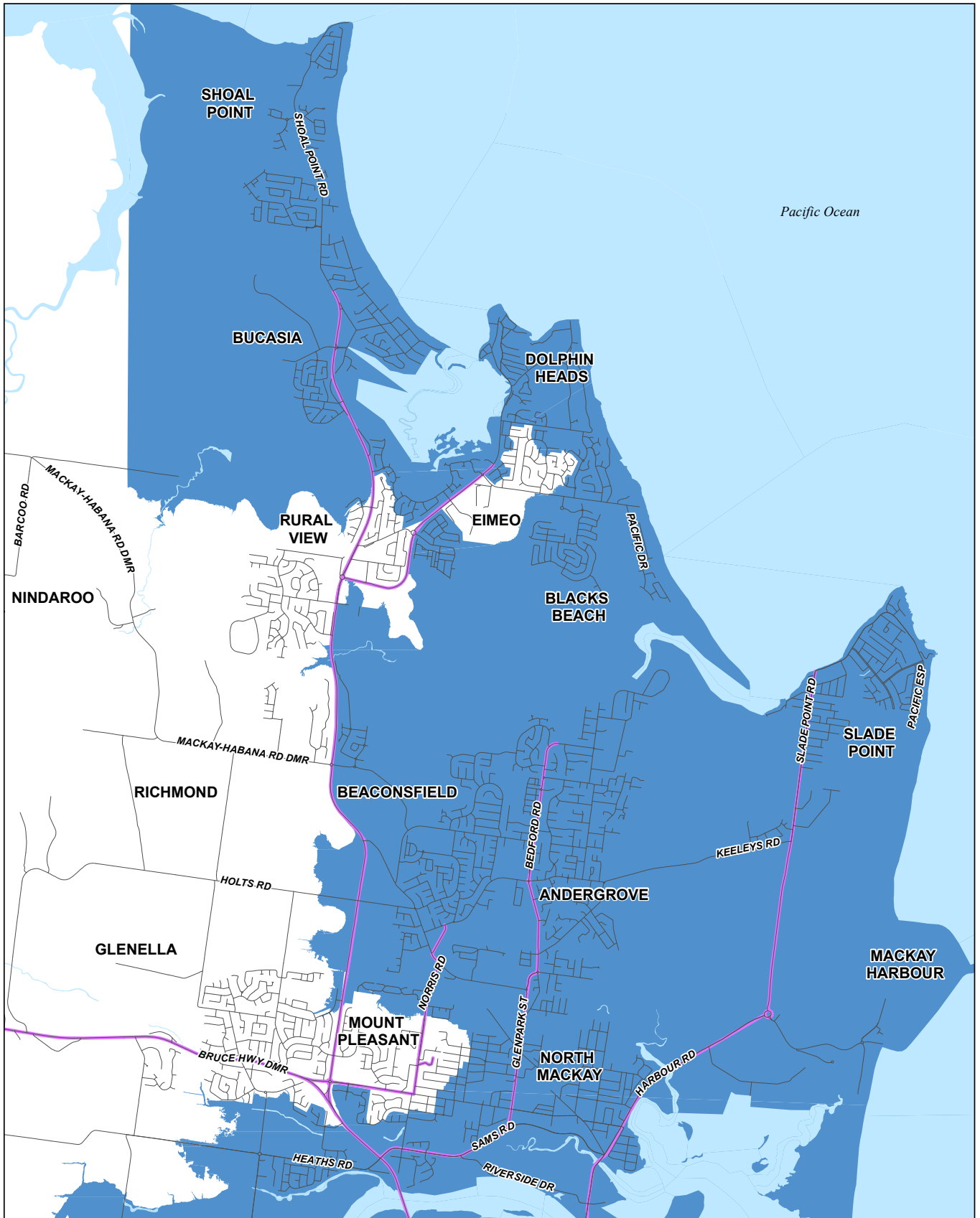
-  Evacuation Routes
-  Evacuation Zone
-  Above Evacuation Zone



STORM TIDE INUNDATION AND EVACUATION MAPS

EVACUATION ZONE: BLUE - NORTH




Up to 6 metres > HAT

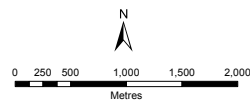


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MACKAY URBAN NORTH

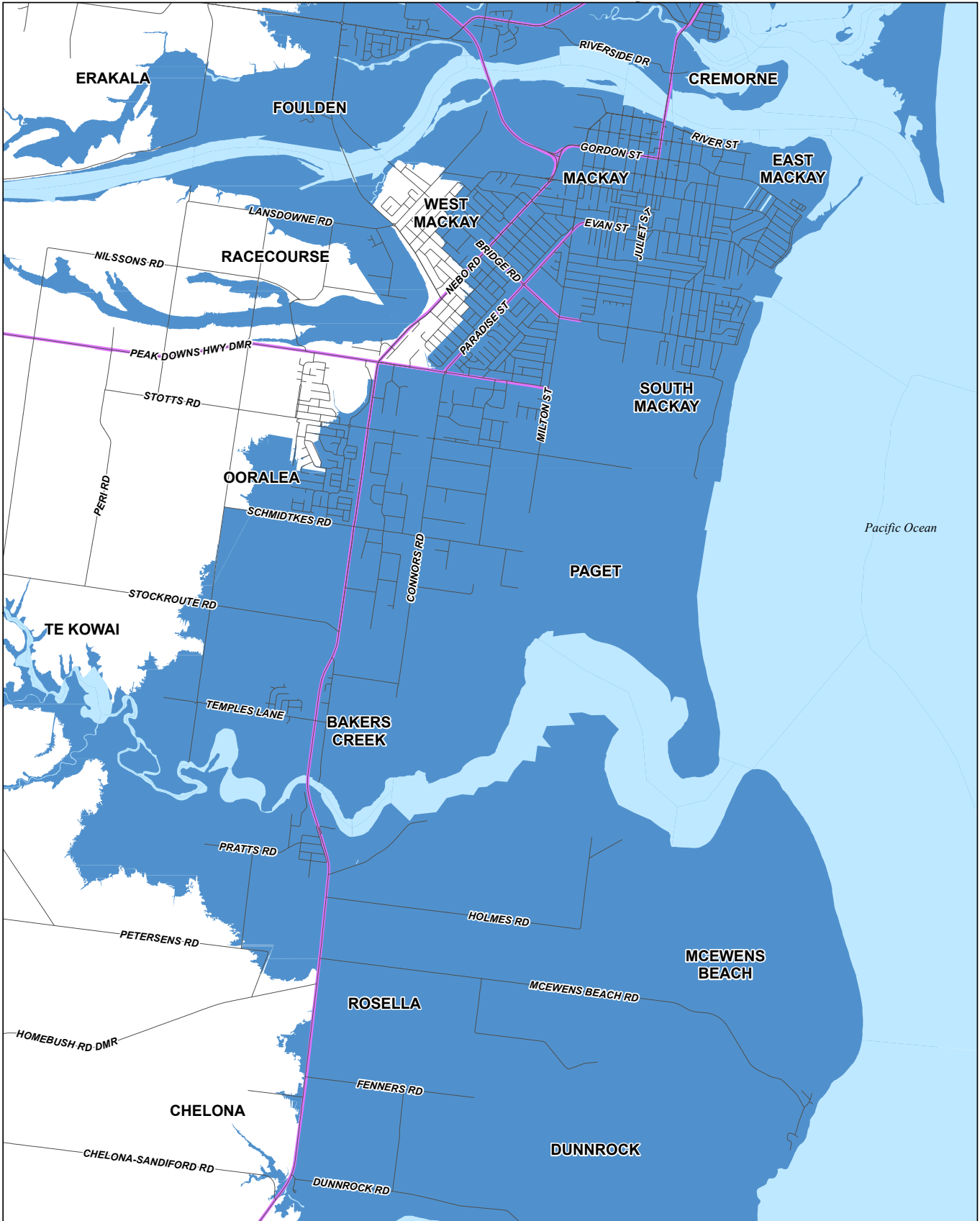
-  Evacuation Routes
-  Evacuation Zone
-  Above Evacuation Zone



EVACUATION ZONE: BLUE - SOUTH

Up to 6 metres > HAT




STORM TIDE INUNDATION AND EVACUATION MAPS

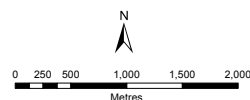


PRODUCED BY MACKAY REGIONAL COUNCIL - GIS SECTION

Based on Cadastral Data provided with the permission of the Department of Natural Resources and Mines (DNRM).
CURRENT AS AT MAY 2014
While every care is taken to ensure the accuracy of this data, the Department of Natural Resources and Mines and Mackay Regional Council give no warranty in relation to the data (including accuracy, reliability, completeness or suitability) and accepts no liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which you might incur as a result of the data being inaccurate or incomplete in any way and for any reason.

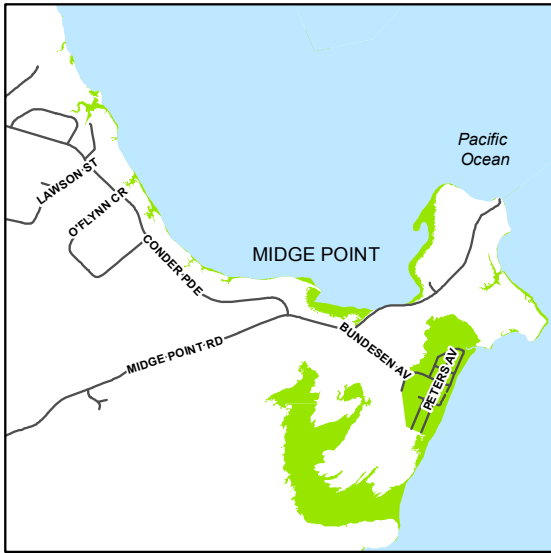
MACKAY URBAN SOUTH

-  Evacuation Routes
-  Evacuation Zone
-  Above Evacuation Zone

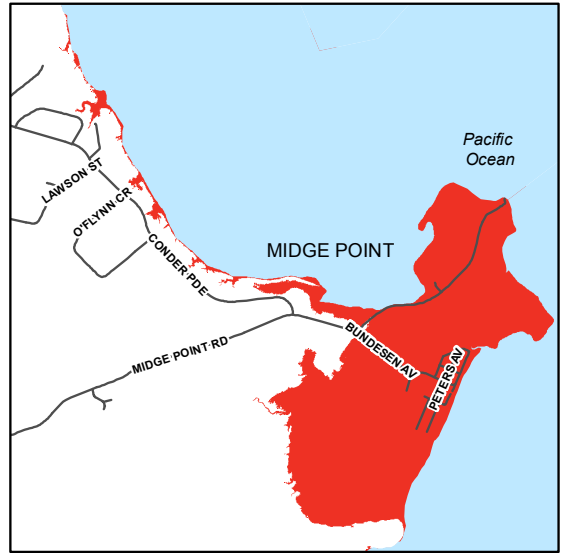


STORM TIDE INUNDATION AND EVACUATION MAPS

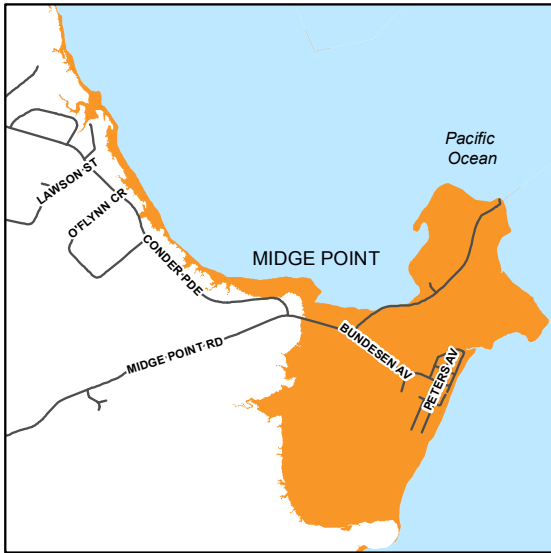
MIDGE POINT



EVACUATION ZONE: GREEN (Up to 0.5m > HAT)



EVACUATION ZONE: RED (Up to 1m > HAT)



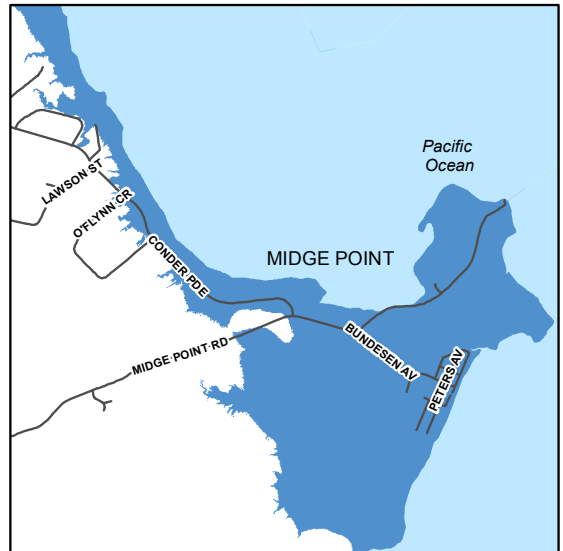
EVACUATION ZONE: ORANGE (Up to 2m > HAT)



EVACUATION ZONE: BROWN (Up to 3m > HAT)



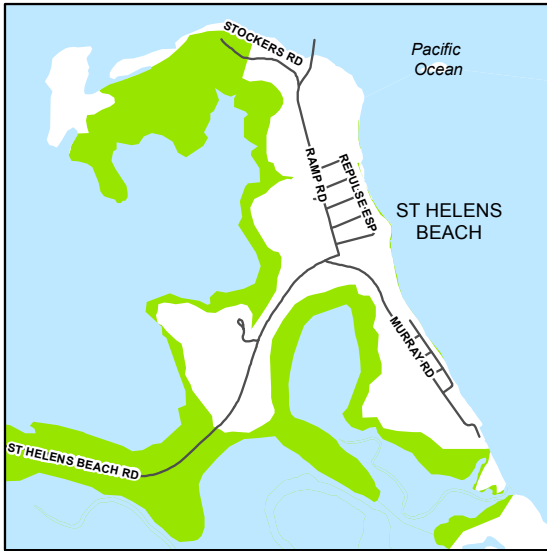
EVACUATION ZONE: YELLOW (Up to 4m > HAT)



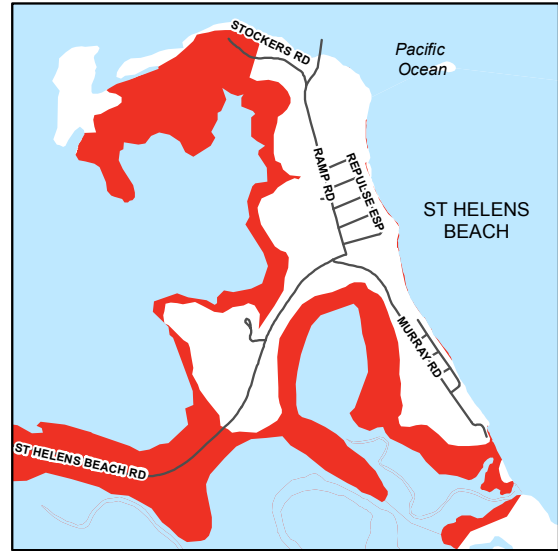
EVACUATION ZONE: BLUE (Up to 6m > HAT)

ST HELENS

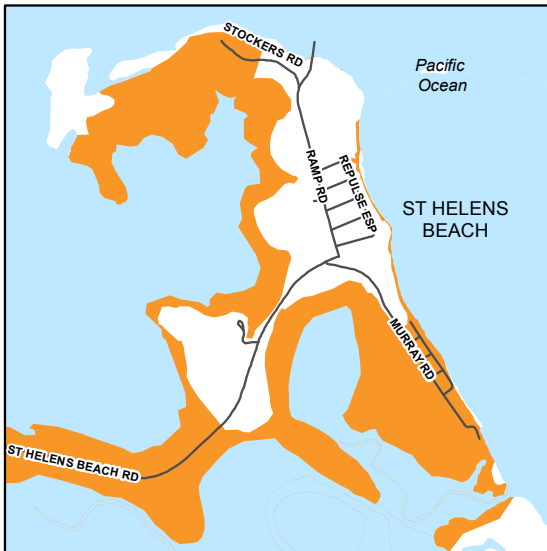
STORM TIDE INUNDATION AND EVACUATION MAPS



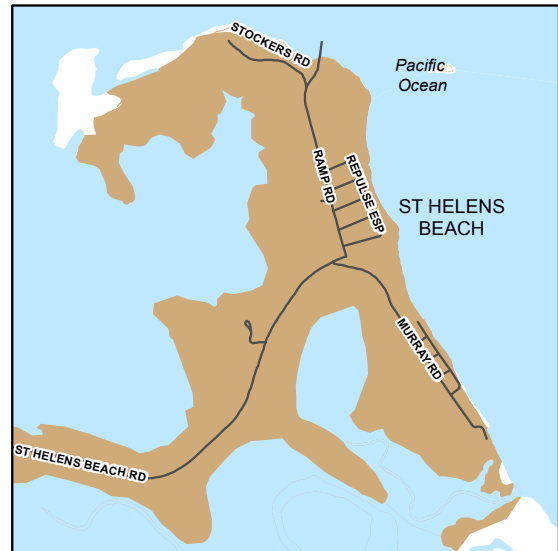
EVACUATION ZONE: GREEN (Up to 0.5m > HAT)



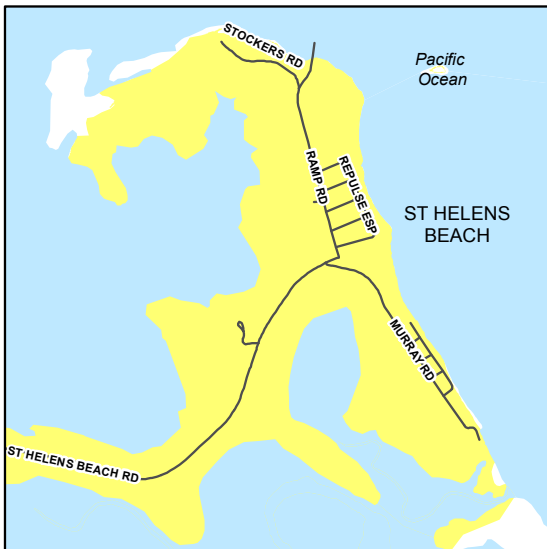
EVACUATION ZONE: RED (Up to 1m > HAT)



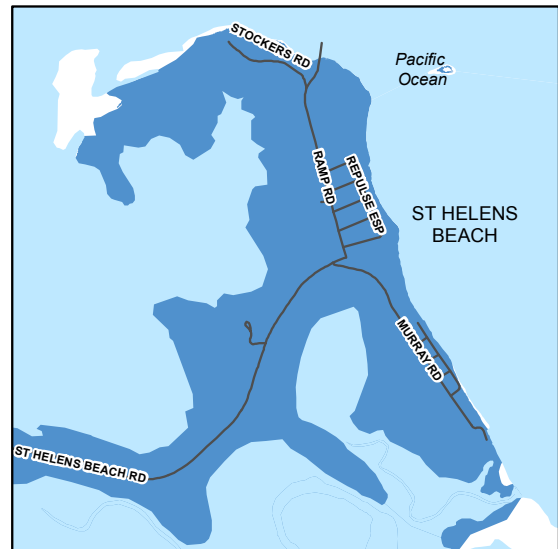
EVACUATION ZONE: ORANGE (Up to 2m > HAT)



EVACUATION ZONE: BROWN (Up to 3m > HAT)



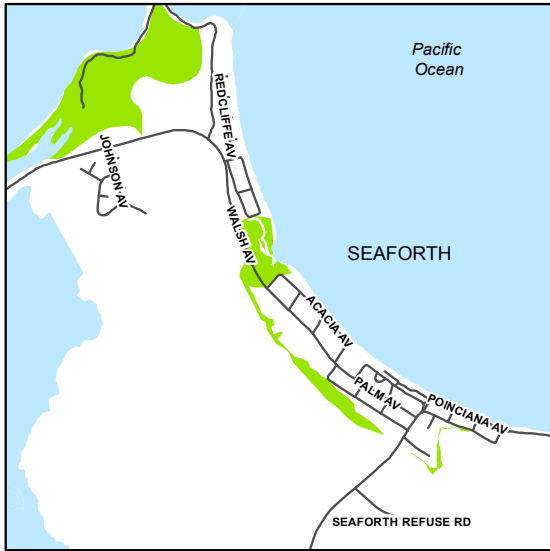
EVACUATION ZONE: YELLOW (Up to 4m > HAT)



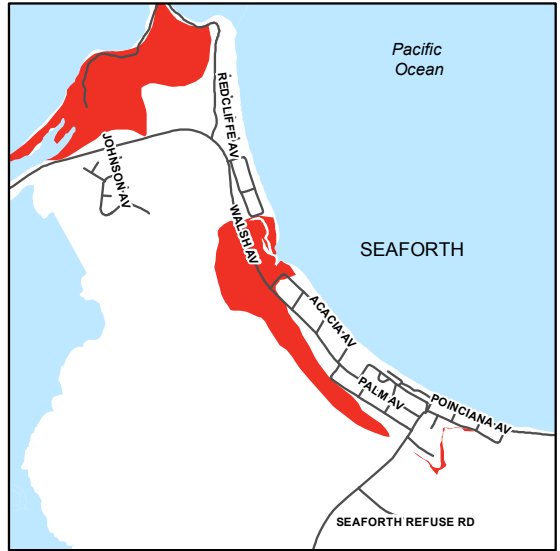
EVACUATION ZONE: BLUE (Up to 6m > HAT)

STORM TIDE INUNDATION AND EVACUATION MAPS

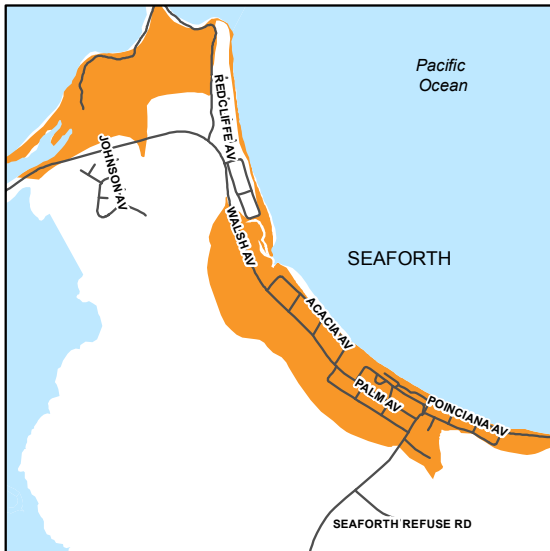
SEAFORTH



EVACUATION ZONE: GREEN (Up to 0.5m > HAT)



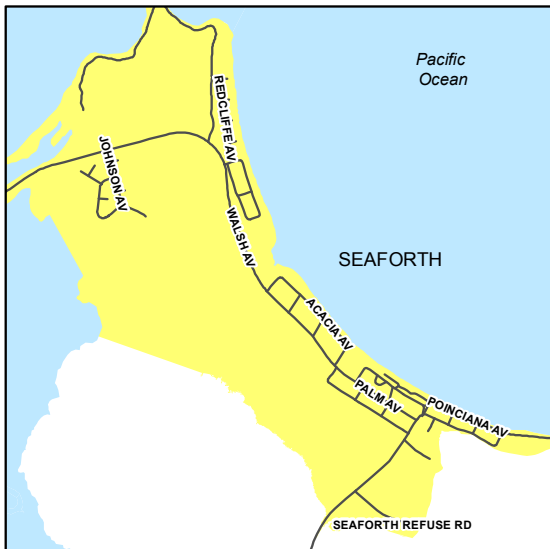
EVACUATION ZONE: RED (Up to 1m > HAT)



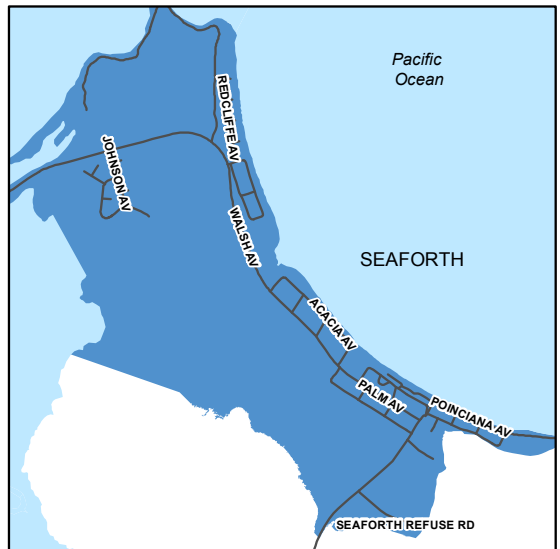
EVACUATION ZONE: ORANGE (Up to 2m > HAT)



EVACUATION ZONE: BROWN (Up to 3m > HAT)



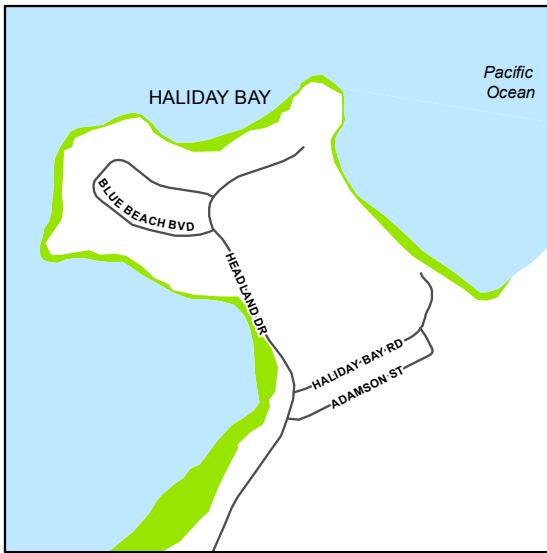
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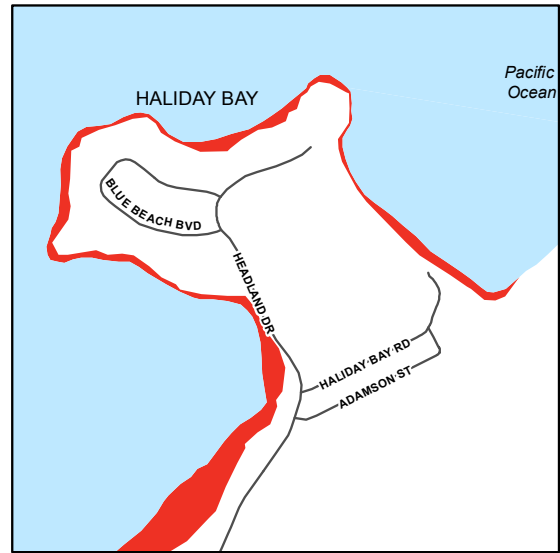
EVACUATION ZONE: BLUE (Up to 6m > HAT)

HALIDAY BAY

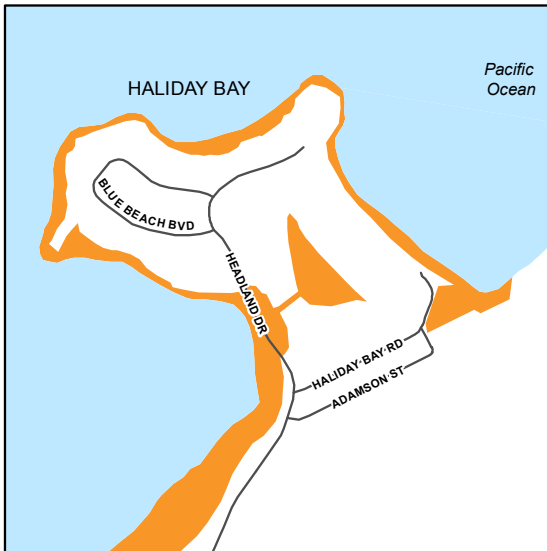
STORM TIDE INUNDATION AND EVACUATION MAPS



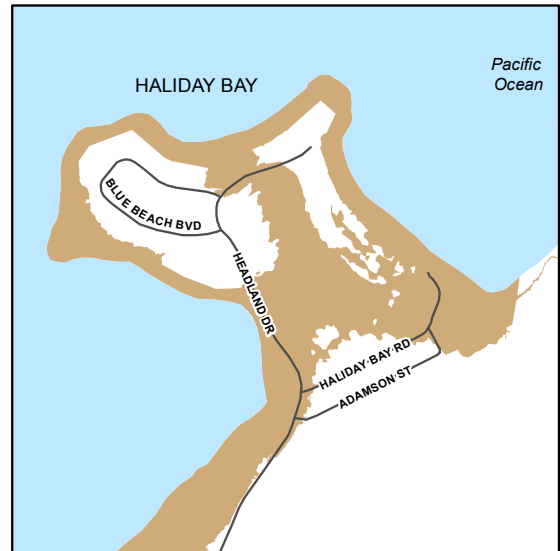
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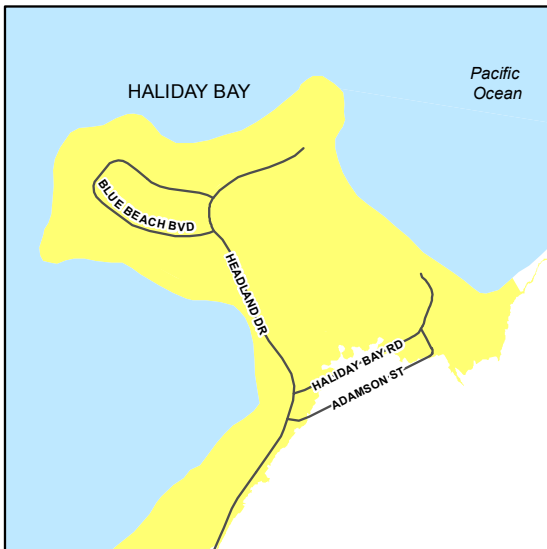
EVACUATION ZONE: RED (Up to 1m > HAT)



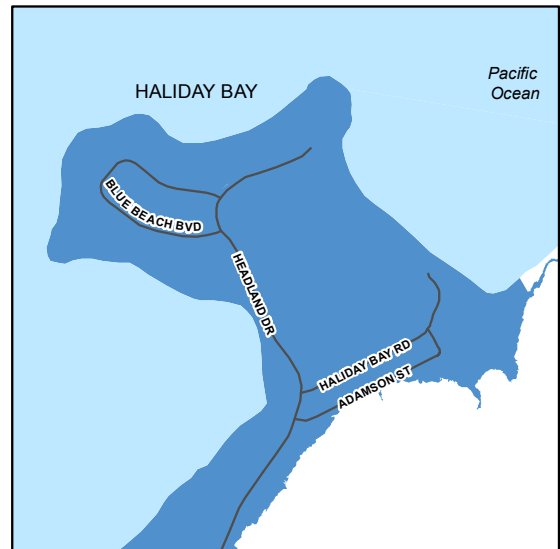
EVACUATION ZONE: ORANGE (Up to 2m > HAT)



EVACUATION ZONE: BROWN (Up to 3m > HAT)



EVACUATION ZONE: YELLOW (Up to 4m > HAT)



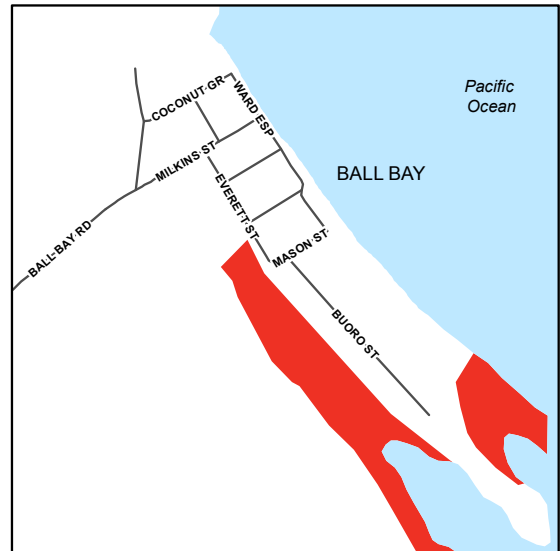
EVACUATION ZONE: BLUE (Up to 6m > HAT)

STORM TIDE INUNDATION AND EVACUATION MAPS

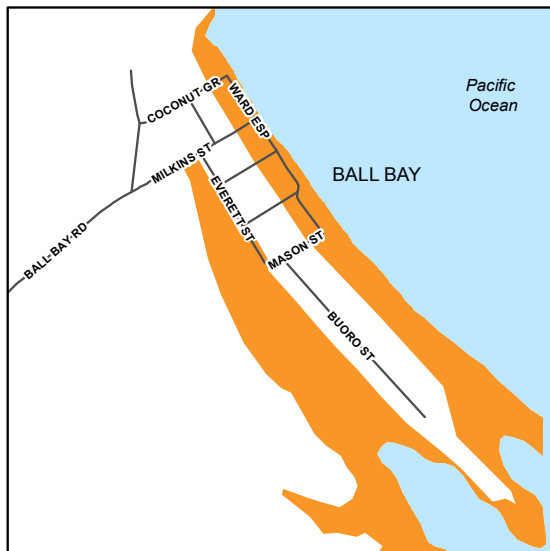
BALL BAY



EVACUATION ZONE: GREEN (Up to 0.5m > HAT)



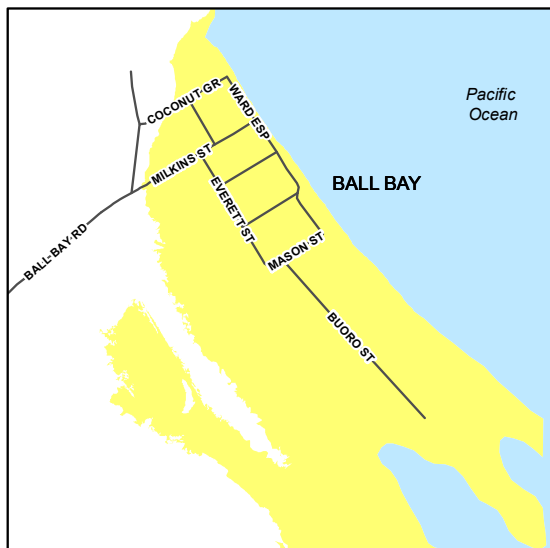
EVACUATION ZONE: RED (Up to 1m > HAT)



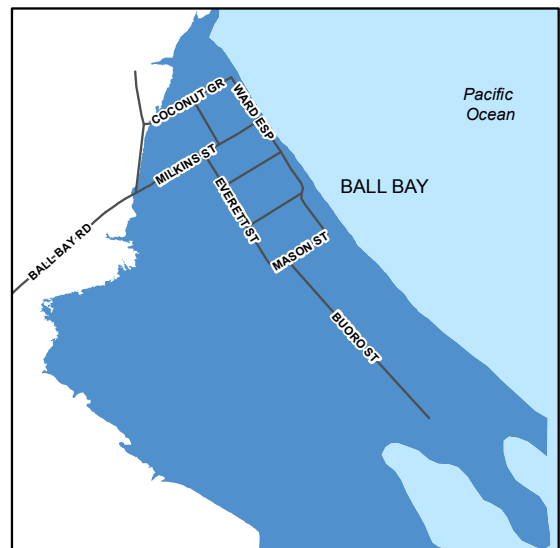
EVACUATION ZONE: ORANGE (Up to 2m > HAT)



EVACUATION ZONE: BROWN (Up to 3m > HAT)



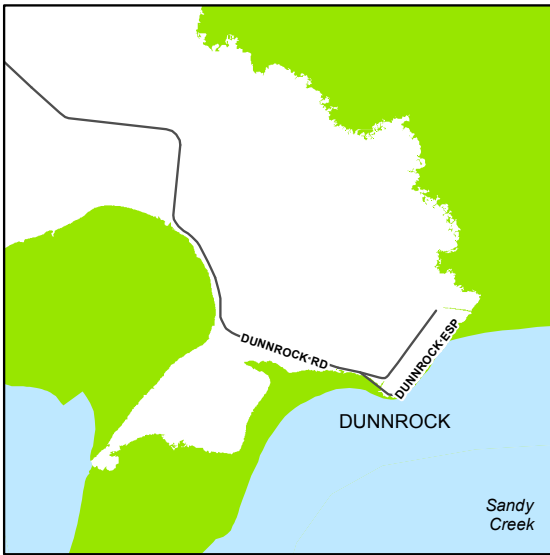
EVACUATION ZONE: YELLOW (Up to 4m > HAT)



EVACUATION ZONE: BLUE (Up to 6m > HAT)

DUNNROCK/MCEWANS BEACHES

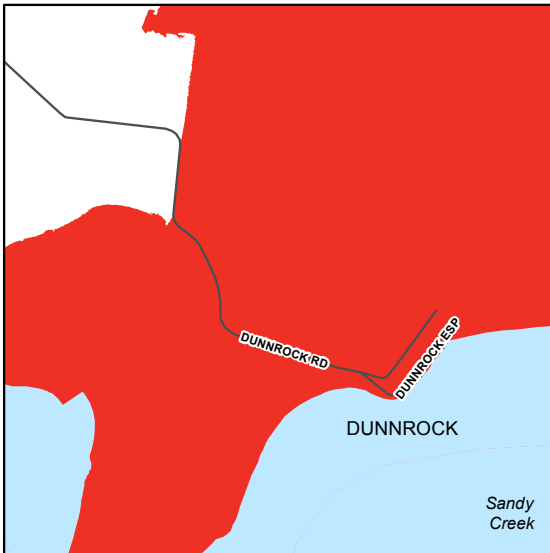
STORM TIDE INUNDATION AND EVACUATION MAPS



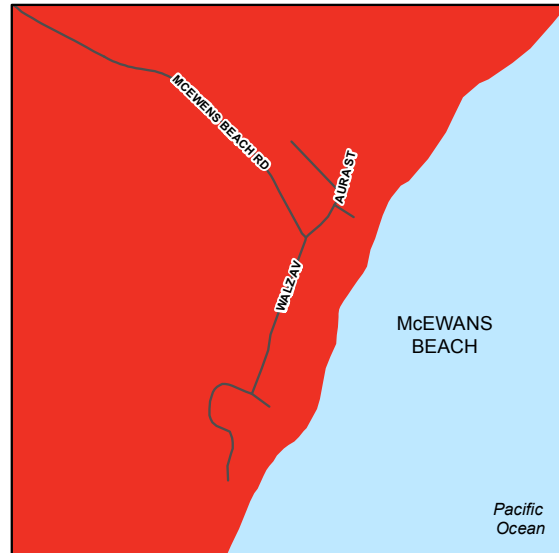
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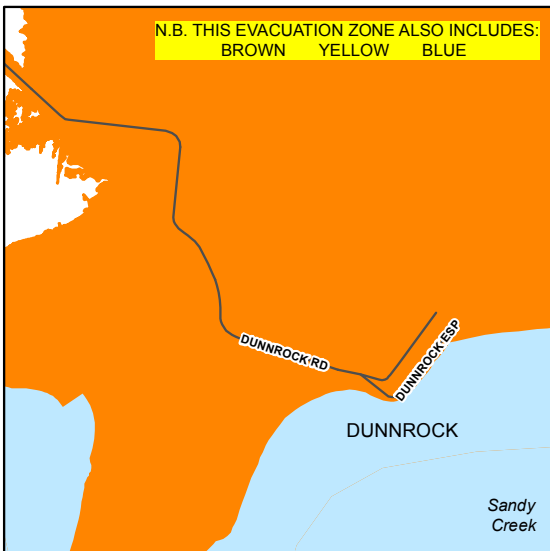
EVACUATION ZONE: GREEN (Up to 0.5m > HAT)



EVACUATION ZONE: RED (Up to 1m > HAT)



EVACUATION ZONE: RED (Up to 1m > HAT)



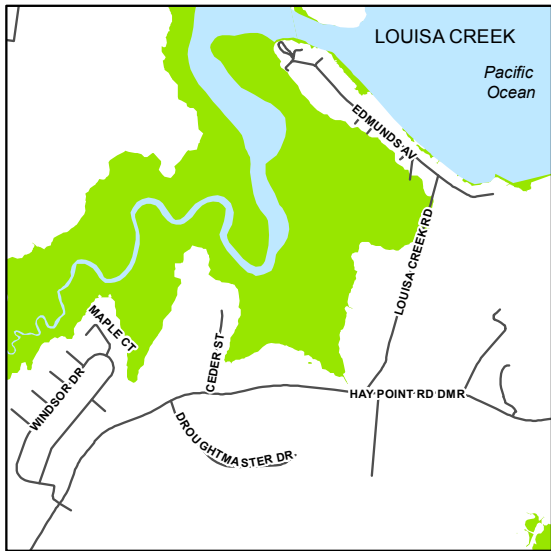
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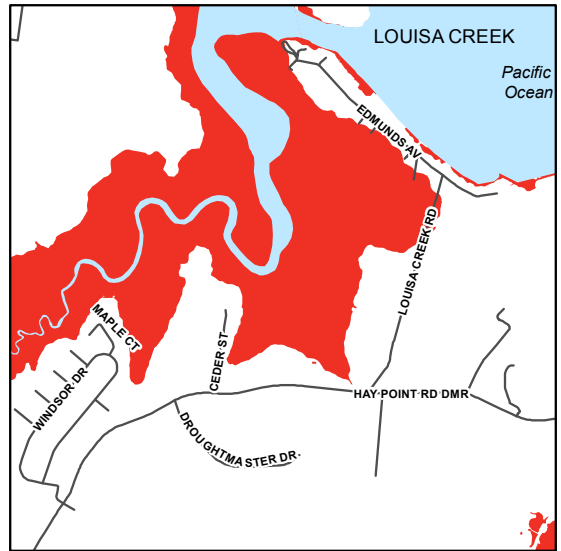
EVACUATION ZONE: ORANGE (Up to 2m > HAT)

STORM TIDE INUNDATION AND EVACUATION MAPS

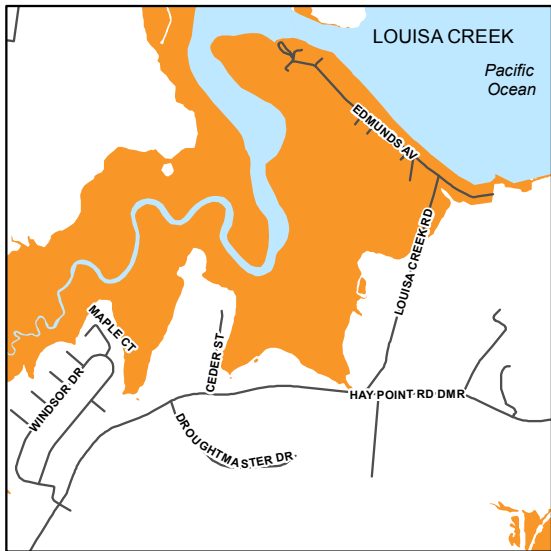
LOUISA CREEK



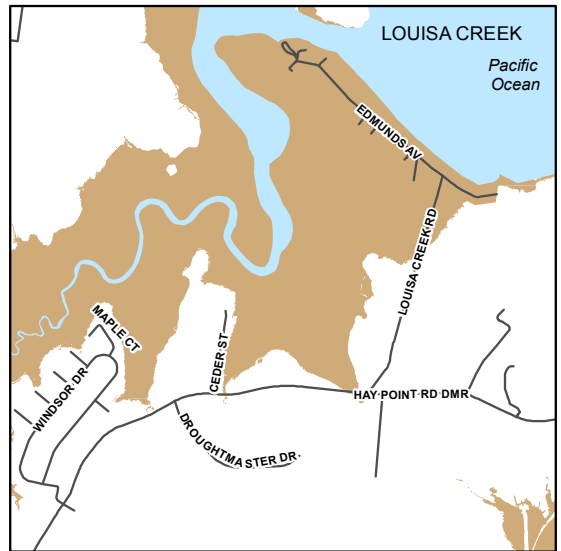
EVACUATION ZONE: GREEN (Up to 0.5m > HAT)



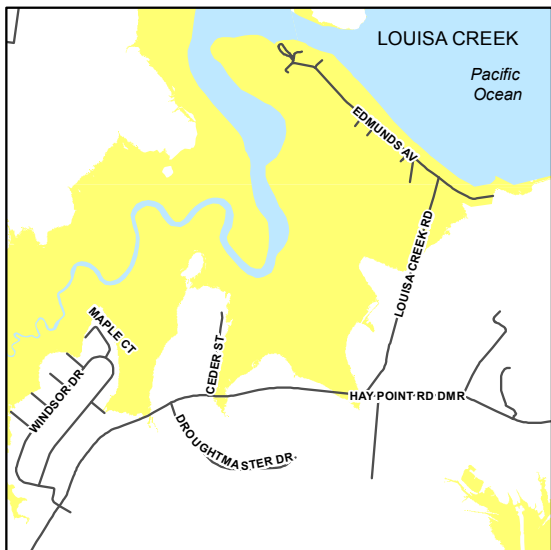
EVACUATION ZONE: RED (Up to 1m > HAT)



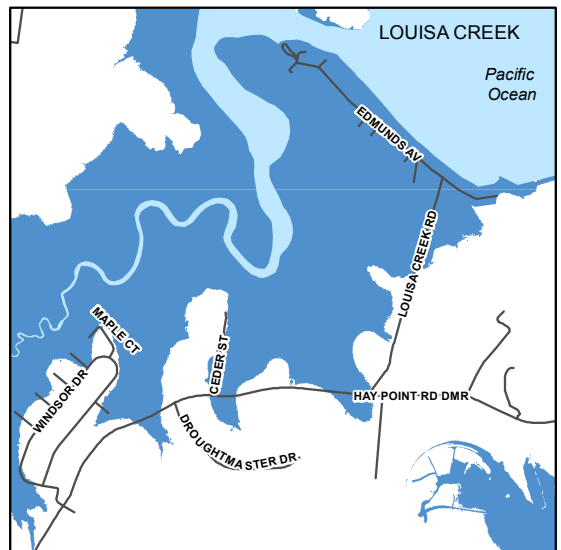
EVACUATION ZONE: ORANGE (Up to 2m > HAT)



EVACUATION ZONE: BROWN (Up to 3m > HAT)



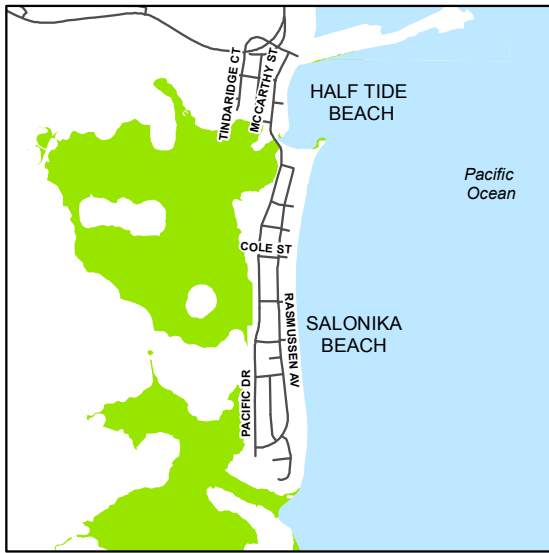
EVACUATION ZONE: YELLOW (Up to 4m > HAT)



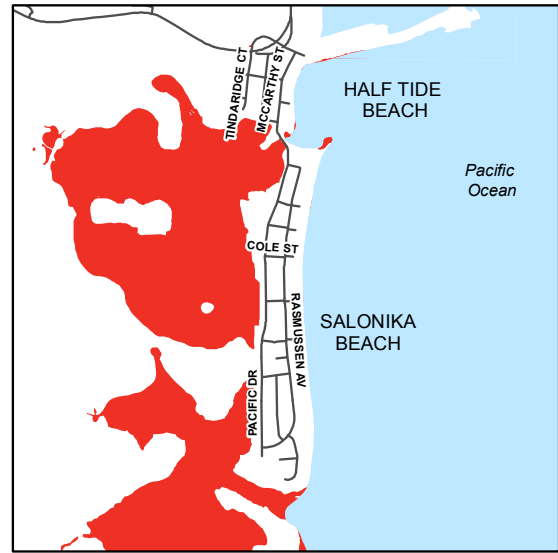
EVACUATION ZONE: BLUE (Up to 6m > HAT)

HALFTIDE/SALONIKA BEACHES

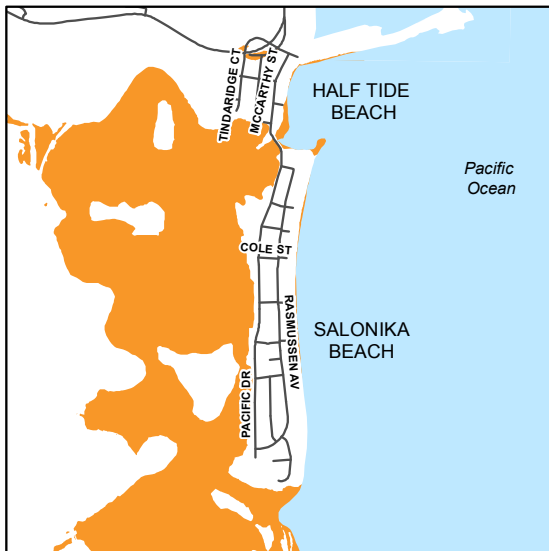
STORM TIDE INUNDATION AND EVACUATION MAPS



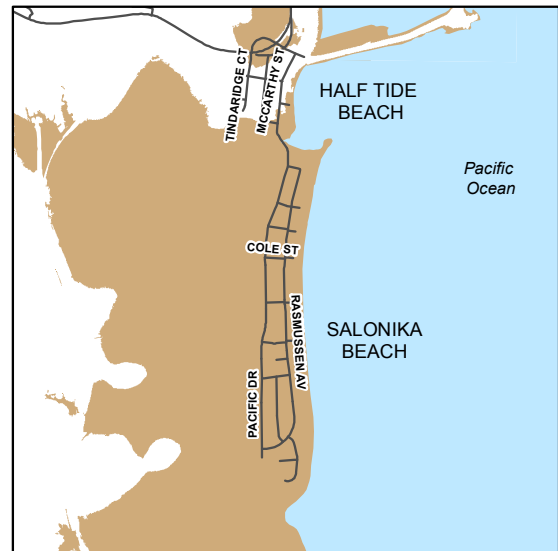
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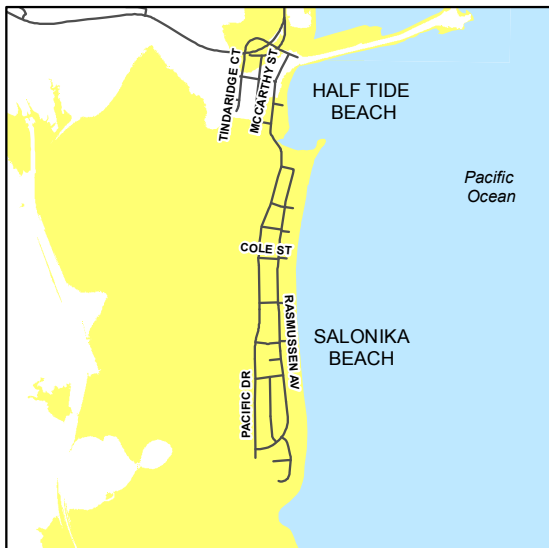
EVACUATION ZONE: RED (Up to 1m > HAT)



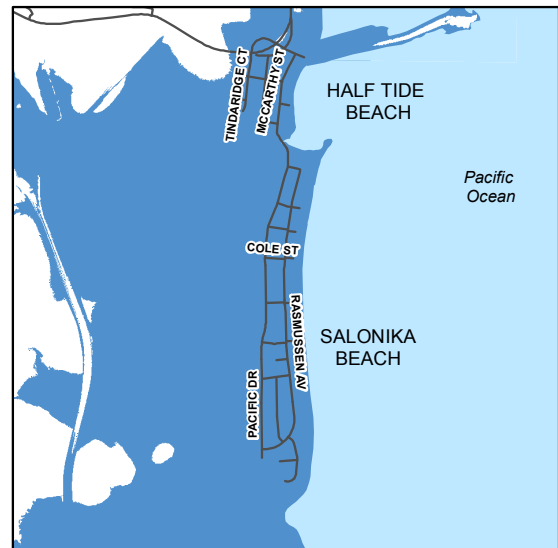
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EVACUATION ZONE: BROWN (Up to 3m > HAT)



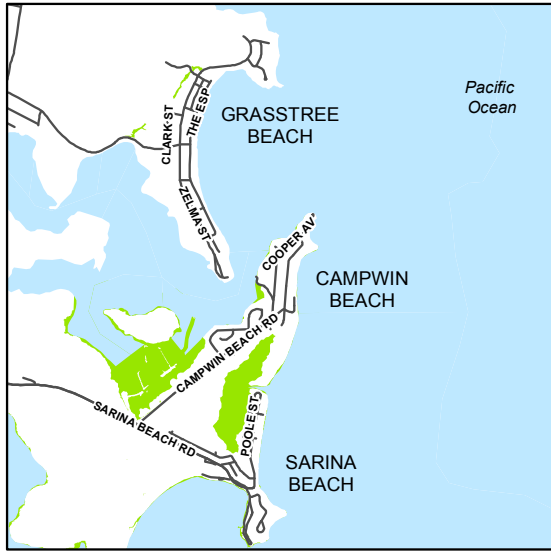
EVACUATION ZONE: YELLOW (Up to 4m > HAT)



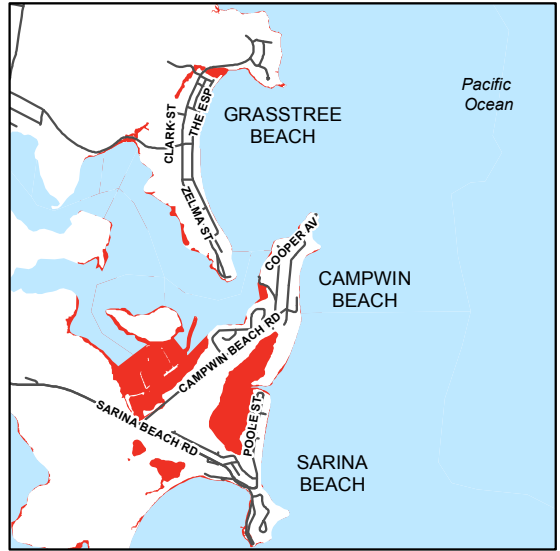
EVACUATION ZONE: BLUE (Up to 6m > HAT)

STORM TIDE INUNDATION AND EVACUATION MAPS

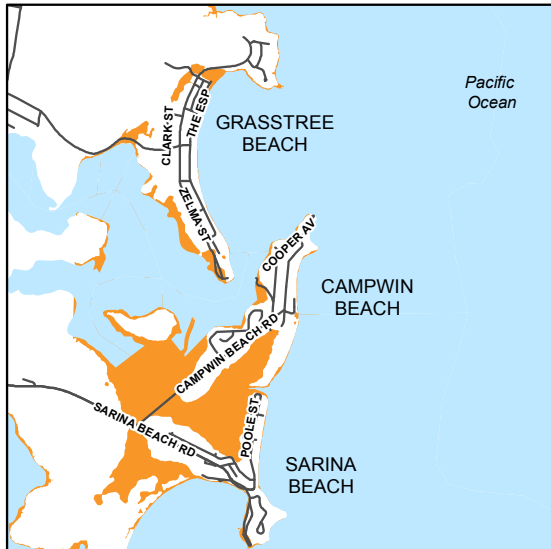
GRASSTREE/CAMPWIN/SARINA BEACHES



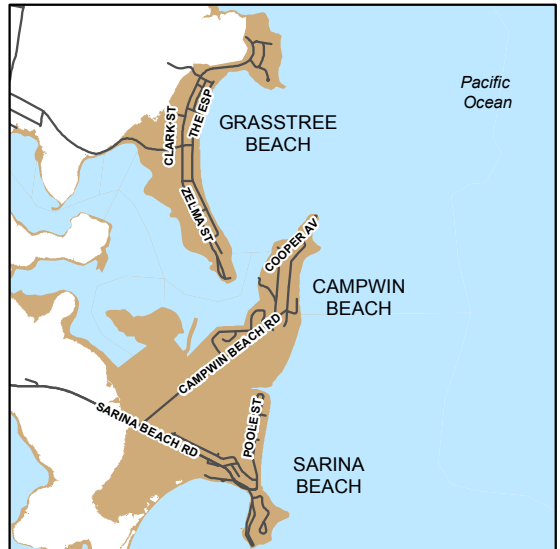
EVACUATION ZONE: GREEN (Up to 0.5m > HAT)



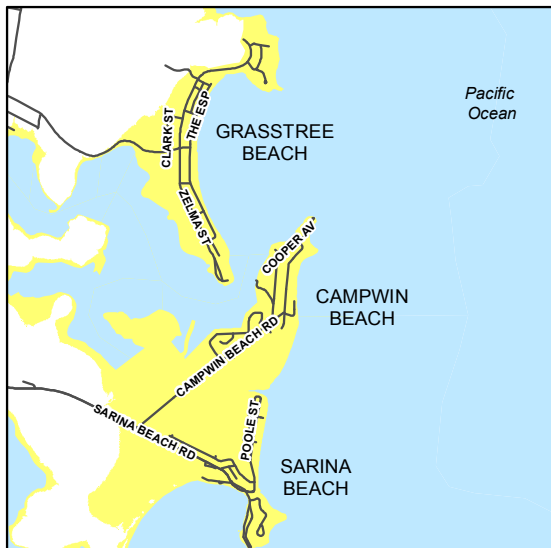
EVACUATION ZONE: RED (Up to 1m > HAT)



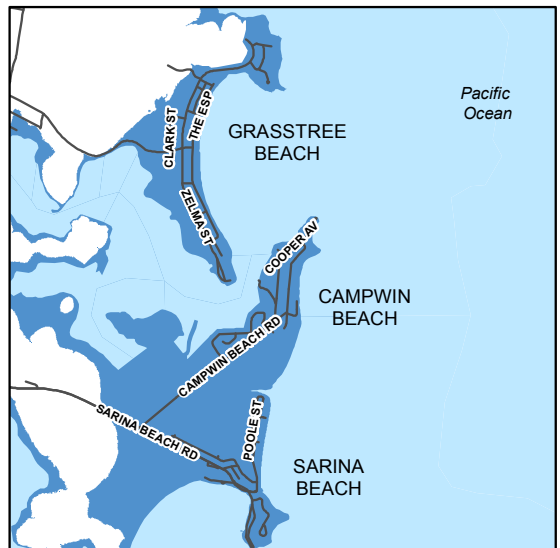
EVACUATION ZONE: ORANGE (Up to 2m > HAT)



EVACUATION ZONE: BROWN (Up to 3m > HAT)



EVACUATION ZONE: YELLOW (Up to 4m > HAT)



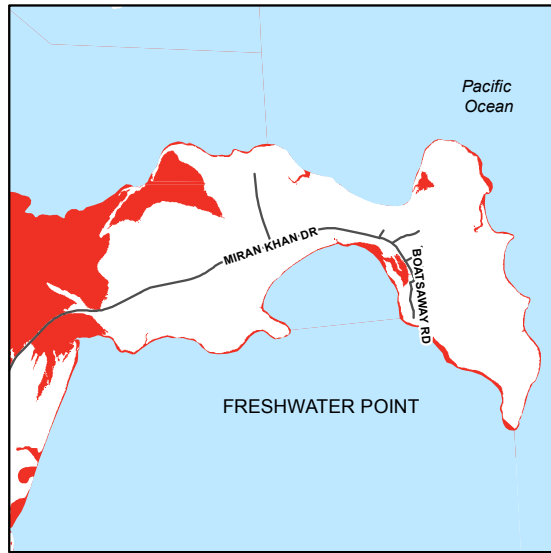
EVACUATION ZONE: BLUE (Up to 6m > HAT)

FRESHWATER POINT

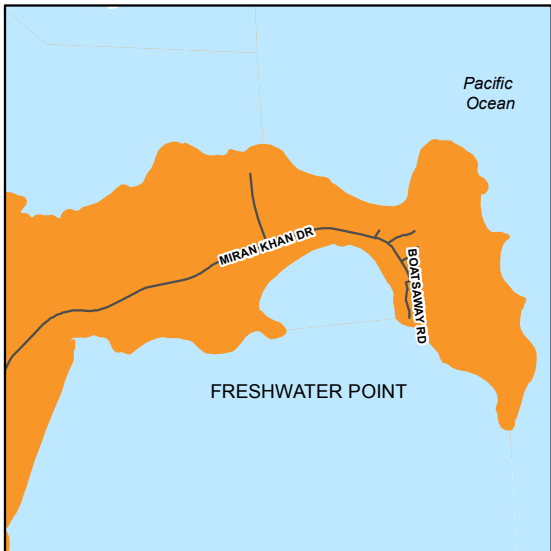
STORM TIDE INUNDATION AND EVACUATION MAPS



EVACUATION ZONE: GREEN (Up to 0.5m > HAT)



EVACUATION ZONE: RED (Up to 1m > HAT)



EVACUATION ZONE: ORANGE (Up to 2m > HAT)



EVACUATION ZONE: BROWN (Up to 3m > HAT)



EVACUATION ZONE: YELLOW (Up to 4m > HAT)



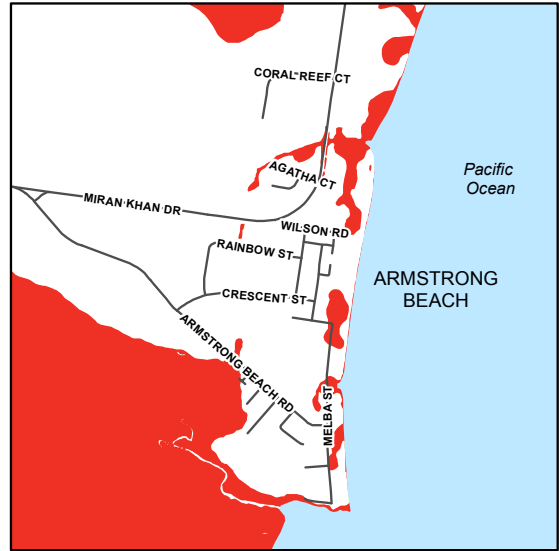
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STORM TIDE INUNDATION AND EVACUATION MAPS

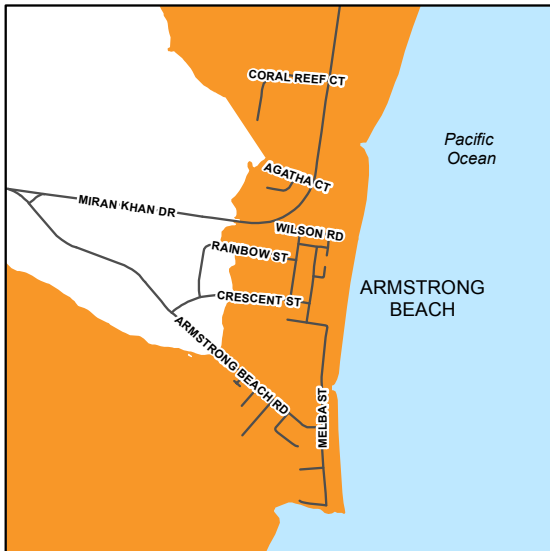
ARMSTRONG BEACH



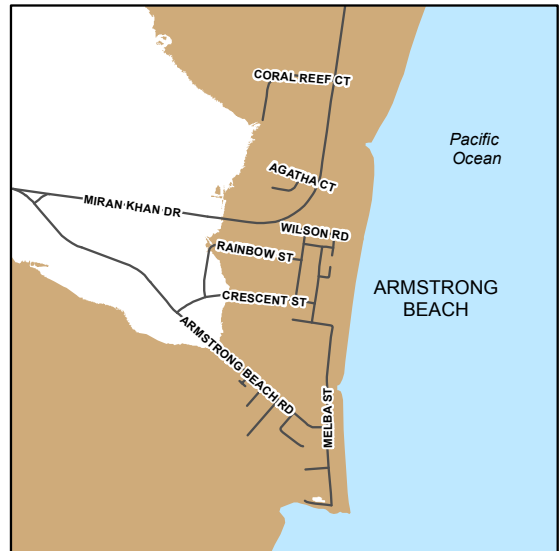
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EVACUATION ZONE: RED (Up to 1m > HAT)



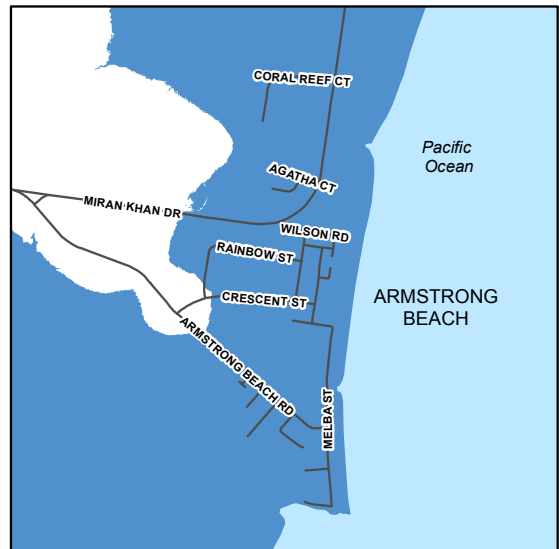
EVACUATION ZONE: ORANGE (Up to 2m > HAT)



EVACUATION ZONE: BROWN (Up to 3m > HAT)



EVACUATION ZONE: YELLOW (Up to 4m > HAT)



EVACUATION ZONE: BLUE (Up to 6m > HAT)

SES

STATE EMERGENCY SERVICE

Always There. **Always Aware**

**FLOOD STORM
EMERGENCY
132 500**

Call for:

- STORM DAMAGE
- RISING FLOOD WATER
- FALLEN TREES
ON BUILDINGS
- DAMAGED ROOF

Help your community - **volunteer today!**



The Mackay Regional Unit has groups in Armstrong Beach, Calen, Koumala, Mackay, Midge Point, Mirani, Sarina and Sarina/Campwin Beach.

Phone **0409 894 721** for more information
www.emergency.qld.gov.au/ses

ARE YOU READY FOR EMERGENCIES SUCH AS CYCLONES, FLOODS AND FIRES?

Make sure you have these items handy at all times

- Emergency Action Guide
- Emergency Kit
- Evacuation Kit and plan
- Pet Emergency Kit

For more information on how to be prepared,
log on to mackay.qld.gov.au/emergency



mackay.qld.gov.au/emergency | 1300 MACKAY (622 529)

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