PLANNING FOR COASTAL RESILIENCE IN TORRES SHIRE

OUR COASTAL VALUES

All of our beaches – every beach has a special purpose or meaning people within the community.

Respecting and protecting the **cultural connections** between land, sea and people.

A **healthy coastal environment** including sea life, coastal vegetation, mangroves, reef systems and water quality.

Recreational activities including fishing, camping, diving and hunting.

The current and potential **economic benefits** that the coast generates for the community.

OUR STRATEGY FOR BUILDING A RESILIENT COAST

Coastal hazards like storm tide inundation, coastal erosion and sea level rise can cause temporary or permanent changes to our coastline, affecting our region's natural beauty and places of cultural and ecological significance as well as our community's infrastructure – our roads, services, drainage, homes, businesses and utilities. Council has developed a Coastal Hazard Adaptation Strategy to help plan for how we will adapt, manage and increase our resilience to the impacts of coastal hazards, now and into the future. You can view the draft Strategy and supporting material in full on Council's website or in the Council office.

Responding to coastal hazards in Torres Shire

The Strategy includes a range of Torres Shire wide adaptation actions which are relevant to all coastal areas and seek to build on existing coastal hazard mitigation mechanisms already in place.

The Strategy also focuses on local adaptation options for special places and important infrastructure in our settlement areas on Thursday, Horn, Prince of Wales, Friday and Entrance Islands. These locations are shown overleaf.

Four adaptation approaches have been developed for Torres Shire. Each approach contains a suite of adaptation actions which form the basis for our response to coastal hazard risk across different areas of our coast (local adaptation pathways). These approaches, and their application to specific locations are summarized below. Further detail on the local adaptation pathways for each location is provided as separate leaflets.

REGION-WIDE ADAPTATION ACTIONS	1	**Maintain & Improve**	involves regular monitoring and the continued use of a place or asset where the current coastal hazard risk profile is low.
	2	**Avoid**	seeks to avoid placing new development or assets in areas affected by coastal hazards. May be achieved through land use planning / asset management.
LOCAL ADAPTATION PATHWAYS	3	**Modify**	uses physical measures to accommodate and mitigate any coastal hazard risks to an acceptable or tolerable level.
	4	**Planned Transition**	involves relocating assets from specific areas that have very high or intolerable exposure to coastal hazards and/or other mitigation actions become infeasible.

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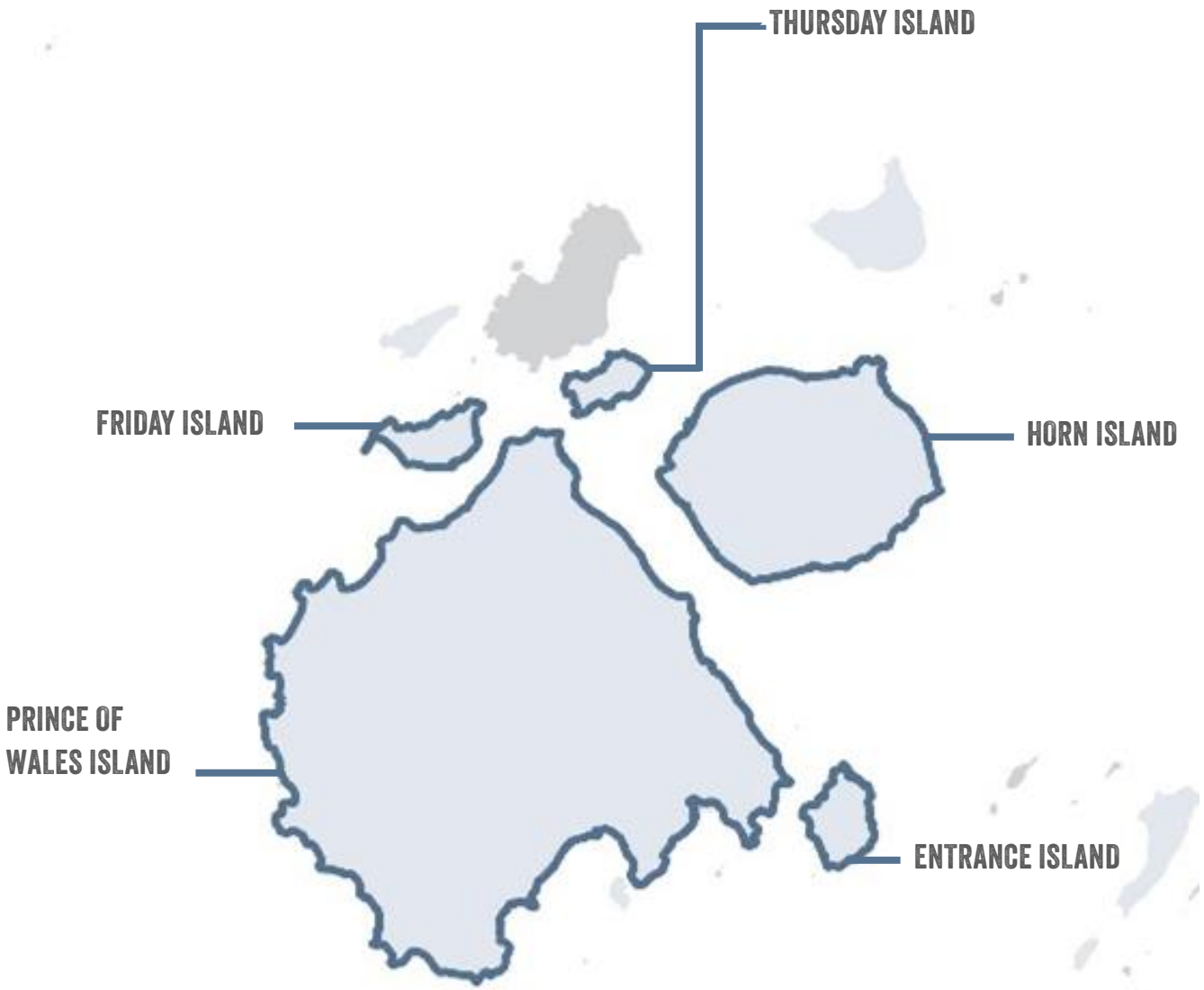

LOCAL ADAPTATION PATHWAYS

The focus of the CHAS is on the coastal settlements of Torres Shire, namely:

- **Waibene** (Thursday Island) – entire coastline
- **Ngurupai** (Horn Island) – Wasaga township and the coastline seaward (north) of the airport
- **Muralug** (Prince of Wales Island) – Front Beach (Community of Muralug), Country Women's Beach, Collis Beach and Long Beach.
- **Gealug** (Friday Island) – Pearl farm site on the south-eastern corner of the Island, as well as three additional settlement areas on the northern and eastern coastlines.
- **Zuna** (Entrance Island) – Two settlement areas along the north-western coastline.

"Each locality is different and requires a unique set of adaptation pathways to respond to coastal hazards, support key community values and address the risk profile over time."

WAIBENE

Waibene (Thursday Island) is the most populous island within the Torres Shire Council area, with nearly 3000 residents recorded in the 2021 census. Approximately 350ha in area, the Island is the administrative centre for the broader Torres Strait region and is home to key community services such as primary health care, higher education, and government administration.

The Strategy focuses on the coastal areas of Waibene, clockwise from Quarantine Jetty to Bach Beach, encompassing the majority of the island's shoreline.

WHAT'S AT RISK?

Some of the key areas and facilities on Waibene at risk from coastal hazards include:

- Coastal parkland
- Coastal properties
- All boating facilities (wharves, jetties, ramps)
- Thursday Island Hospital
- Star of the Sea Aged Care
- Tagai State College
- James Cook University
- Cemetery
- Essential infrastructure –especially roads

LOCAL ADAPTATION ACTIONS

TIMING BASED ON SEA LEVEL RISE

	SHORT TERM 0m	MID TERM 0.3m	LONG TERM 0.8m
SOUTHERN SHORELINE – BAYO BEACH			
Active dune and habitat management including vegetation planting and management	● →	→	→
Hazard resilient design for new/upgraded public infrastructure	● →	→	→
Relocate/re-inter exposed cultural artefacts	● →	→	→
Levees/dykes/low earthen bunds		● →	→
SOUTHERN SHORELINE – MAIRU BEACH			
Active dune and habitat management including vegetation planting and management	● →	→	→
Small scale beach nourishment	● →	→	→
Seawall to protect road		● →	→
SOUTHERN SHORELINE – FEDERAL BEACH			
Hazard resilient design for new/upgraded public infrastructure	● →	→	→
Small scale beach nourishment	● →	→	→
Relocate/re-inter exposed cultural artefacts	● →	→	→
Levees/dykes/low earthen bunds		● →	→
Seawall upgrades to protect esplanade and road		● →	→
Wave attenuator		● →	→
SOUTH-WESTERN SHORELINE – HOSPITAL AREA			
Hazard resilient design for new/upgraded public infrastructure	● →	→	→
Levees/dykes/low earthen bunds	● →	→	→
Seawall upgrades and extensions	● →	→	→
Raising land levels (where practicable during redevelopment)	● →	→	→

LOCAL ADAPTATION ACTIONS

TIMING BASED ON SEA LEVEL RISE

	SHORT TERM 0m	MID TERM 0.3m	LONG TERM 0.8m
NORTH-WESTERN SHORELINE – QUARANTINE JETTY TO LOBAN STREET			
Active dune/ habitat management, vegetation and access management at Kup-Murri site	→	→	→
Relocate/re-inter exposed cultural artefacts	→	→	→
Seawall to protect road and landward assets – Cook Esp and Aplin Rd	→	→	→
WESTERN SHORELINE – BACH BEACH TO SAILA TERRACE			
Active dune and habitat management including vegetation planting and management	→	→	→
Mangrove rehabilitation at the northern end	→	→	→
Beach scraping, small scale beach nourishment	→	→	→
Hazard resilient design for new/upgraded public infrastructure	→	→	→
Relocate/re-inter exposed cultural artefacts	→	→	→
Levees/dykes/low earthen bunds			→
Seawall to protect public assets			→
NORTH-EASTERN SHORELINE – LOBAN STREET TO 'STAR OF THE SEA'			
Hazard resilient design for new/upgraded infrastructure	→	→	→
Adapt existing protection structures to be fit for purpose or offer higher levels of protection	→	→	→
Localised raising of land levels		→	→
EASTERN SHORELINE – SADIES BEACH			
Active habitat management including vegetation planting and management	→	→	→
Hazard resilient design for new/upgraded road	→	→	→
ALL OTHER AREAS			
Allow foreshore recession (habitat loss)	→	→	→
Active dune and habitat management including vegetation planting and management	→	→	→
Relocate/re-inter exposed cultural artefacts	→	→	→

*Options require further consideration and are subject to further detailed site investigations, business case, funding commitments, detailed design and statutory approvals. The lead up time is intended to be a trigger to provide sufficient time for further consideration and detailed investigations/funding commitments and approvals to be obtained.

NGURUPAI

Ngurupai is the second-most populous and second largest island within the Torres Shire Council area. The main settlement area of Wasaga is on the north-western frontage of the Island, closest to Waibene. Wasaga is generally very low-lying.

Ngurupai contains several important infrastructure assets that play a critical role in the community and support the broader region, including Horn Island airport, ferry terminal, public boating facilities, Port of Thursday Island (which includes wharf facilities on Ngurupai) and Loggy Creek Dam, a major water supply reservoir.

The coastal areas of Ngurupai have been divided into four areas of focus: Wasaga north, Wasaga central, Wasaga south, and the Airport area.

WHAT'S AT RISK?

Some of the key areas and facilities on Ngurupai at risk from coastal hazards include:

- Airport land
- Industrial land
- Boating and port facilities
- Commercial land
- Residential land
- Cemetery
- Essential infrastructure
- Natural areas
- Culturally significant sites

LOCAL ADAPTATION ACTIONS

	TIMING BASED ON SEA LEVEL RISE		
	SHORT TERM	MID TERM	LONG TERM
	0m	0.3m	0.8m
WASAGA NORTH			
Hazard resilient design for new/upgraded infrastructure	→	→	→
Levees/dykes/low earthen bunds	→	→	→
Relocate power station		●	→
WASAGA CENTRAL			
Hazard resilient design for new/upgraded infrastructure	→	→	→
Levees/dykes/low earthen bunds	→	→	→
Raise land levels during redevelopment		●	→
WASAGA SOUTH			
Freshwater and saltwater wetland restoration, active dune and habitat management including vegetation planting and management	→	→	→
Allow short-term foreshore recession	→	→	→
Land buy-back / land swap for beachfront parcels, relocate/re-inter exposed cultural artefacts	→	→	→
AIRPORT AREA			
Hazard resilient design for new/upgraded infrastructure	→	→	→
Raise runway land level,	→	→	→
Levees/dykes/low earthen bunds	→	→	→
ALL OTHER AREAS			
Allow foreshore recession (habitat loss)	→	→	→
Active dune and habitat management including vegetation planting and management	→	→	→
Relocate/re-inter exposed cultural artefacts	→	→	→

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MURALUG

Muralug is the largest of the Torres Shire islands and is home to several beachfront settlements at sandy beaches nestled between rocky outcrops. The largest settlements are on the lower hill slopes of the eastern shoreline at Muralug (known as Front Beach) and Country Women's Beach. Smaller clusters of dwellings at Collis Beach on the northern tip of the island and Long Beach on the north-western side of the island are on low coastal plains close to the primary dune system. The remainder of the island is in a relatively natural, well vegetated state.

The island is serviced by a barge landing at Front Beach and beach launching for private watercraft elsewhere.

The areas of focus for the Strategy on Muralug are Front Beach, Country Women's Beach, Collis Beach and Long Beach.

WHAT'S AT RISK?

Some of the key areas and facilities on Muralug at risk from coastal hazards include:

- Esplanade from Front Beach to Country Women's Beach
- Access to the Barge Ramp & helipad
- Recreational areas
- Natural areas
- Culturally significant sites

LOCAL ADAPTATION ACTIONS

	TIMING BASED ON SEA LEVEL RISE		
	SHORT TERM	MID TERM	LONG TERM
	0m	0.3m	0.8m
FRONT BEACH			
Active dune and habitat management including vegetation planting and management	● →	→	→
Hazard resilient design for new/upgraded infrastructure, including road and barge ramp upgrades	● →	→	→
Allow foreshore recession	● →	→	→
Seawall to protect road	● →	→	→
COUNTRY WOMEN'S BEACH			
Active dune and habitat management including vegetation planting and management	● →	→	→
Allow foreshore recession	● →	→	→
Seawall to protect road			● →
COLLIS BEACH AND LONG BEACH			
Coastal building lines/development setback	● →	→	→
Active dune and habitat management including vegetation planting and management	● →	→	→
Hazard resilient design for new/upgraded infrastructure	● →	→	→
ALL OTHER AREAS			
Allow foreshore recession (habitat loss)	● →	→	→
Active dune and habitat management including vegetation planting and management	● →	→	→
Relocate/re-inter exposed cultural artefacts	● →	→	→

GEALUG & ZUNA

Southeast of Muralug, Zuna contains two settlement areas on the western shoreline, one of which is a small private resort consisting of several buildings. Both are situated along small sandy pocket beaches fronted by wide intertidal flats and fringing reef.

Situated to the north of Muralug, Gealug is sparsely populated but contains a pearl farm and a small number of isolated buildings along the northern and eastern shorelines. Near the Pearl Farm on the south-eastern shoreline, the sandy dune system is perched on an outcropping rock shelf, while the eastern and northern shorelines consist of a series of sandy pocket beaches interrupted by rocky outcrops or headlands.

WHAT'S AT RISK?

Some of the key areas and facilities on Gealug & Zuna at risk from coastal hazards include:

- Isolated residential sites (Gealug)
- Resort site (Zuna)
- Natural areas, including high-significance wetlands
- Culturally significant and heritage sites

LOCAL ADAPTATION ACTIONS

	TIMING BASED ON SEA LEVEL RISE		
	SHORT TERM	MID TERM	LONG TERM
	0m	0.3m	0.8m
ZUNA AND GEALUG ISLANDS			
Allow foreshore recession (habitat loss)	→	→	→
Active dune and habitat management including vegetation planting and management	→	→	→
Hazard resilient design for new/upgraded infrastructure	→	→	→
Relocate/re-inter exposed cultural artefacts	→	→	→