



# **Greater Taree Coastal Zone Management Plan**

September 2015

Adopted by Council at the September 2015 Ordinary Meeting



**Photograph of dune restoration at Old Bar undertaken in 2014**

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# 1. Executive summary

The Greater Taree Coastal Zone Management Plan (CZMP) supports *Informed Adaption* in response to the risk posed by our changing coastline.

*Informed Adaption* facilitates a range of flexible responses to the changing coastline and is based on the following objectives:

- people want to be empowered to undertake actions themselves;
- people want a variety of tools that they could use to suit their own circumstances;
- community groups want the ability to seek solutions; and
- people want the ability to use their land for as long as practicable.

*Informed Adaption* may be proactive or reactive and it enables landowners, community groups and public authorities to implement a range of management measures to adapt to the risk from coastal processes on land they own and to preserve the beach and dune amenity they value.

While empowering landowners to make decisions and act, *Informed Adaption* also places responsibility for success or failure on those who choose to implement the management measures. This means:

- if a landowner undertakes a management measure it is their responsibility for the success or failure of this action. For example if a landowner chooses to undertake beach nourishment with the aim of protecting their land from coastal erosion, they need to accept responsibility in relation to the possibility that the sand may be washed away during the next storm;
- if a landowner builds in an area likely to be affected by coastal erosion they must accept that in the future the structure they build may need to be demolished should it be deemed at risk; and
- future owners know from obtaining a section 149 Certificate for the property that the land is in an area potentially affected by coastal erosion and they need to accept this risk when they purchase the land.

Preparation of our CZMP has been a lengthy process that has raised many conflicting views from our community about how the coastal zone should be managed. This CZMP anticipates a dynamic and retreating shoreline, but allows for flexibility in the management of the coastal zone. In the face of changing State Policy, this CZMP does not prescribe the traditional view of protect or retreat, but rather advocates use of the coastal zone in the most appropriate way by detailing specific actions that will be undertaken in relation to each beach compartment. Throughout, it also highlights key elements that underpin the direction of the plan and that involve public and landowner participation in the management of our coastline.

Implicit to the operation of this Plan, is Council's overarching role in the coordination of any proposed management measures and actions. This will ensure that there is a continued balance between potential conflicting uses within the coastal zone that could result from the implementation of these activities.

The management measures and the types of development permitted within the coastal zone under this plan are summarised in the following tables.

**Table 1: Management measures to protect property and maintain beach amenity, and who can undertake them**

Types of Management Measures to protect property and maintain beach amenity	What can I do?		
	Private landowners on private land	Community groups on public land	Public authorities on public land
<p><b>Non-permanent</b></p> <p><b>Examples include:</b></p> <ul style="list-style-type: none"> <li>planting of native vegetation</li> <li>placement of geo-textile fabric material along the eroding face of the dune</li> <li>placement of permeable materials, such as branches, along the scarp of the dune</li> <li>placement of sand (known as beach nourishment)</li> </ul>	No consent required	Letter of Authority from Crown Lands required	No consent required
<p><b>Semi-permanent</b></p> <p><b>Examples include:</b></p> <ul style="list-style-type: none"> <li>use of sand filled geotextile bags to construct a seawall</li> <li>use of sand filled geotextile bags to construct a groyne</li> </ul>	Consent required	Not applicable	Approvals required
<p><b>Permanent</b></p> <p><b>Examples include:</b></p> <ul style="list-style-type: none"> <li>augmentation of existing rock seawalls</li> <li>construction of rock seawalls</li> <li>artificial reefs</li> </ul>	Consent required	Not applicable	Approvals required

**Notes:**

1. For the purposes of this plan a seawall is defined as *a wall or embankment erected to prevent the sea encroaching on or eroding an area of land.*
2. Landowners should seek advice from Council before considering any semi-permanent or permanent management measures to clarify what approvals are required.

**Key Element**

This plan provides in-principle support for community groups to advocate and seek funds for the construction and maintenance of semi-permanent and permanent management measures by public authorities.

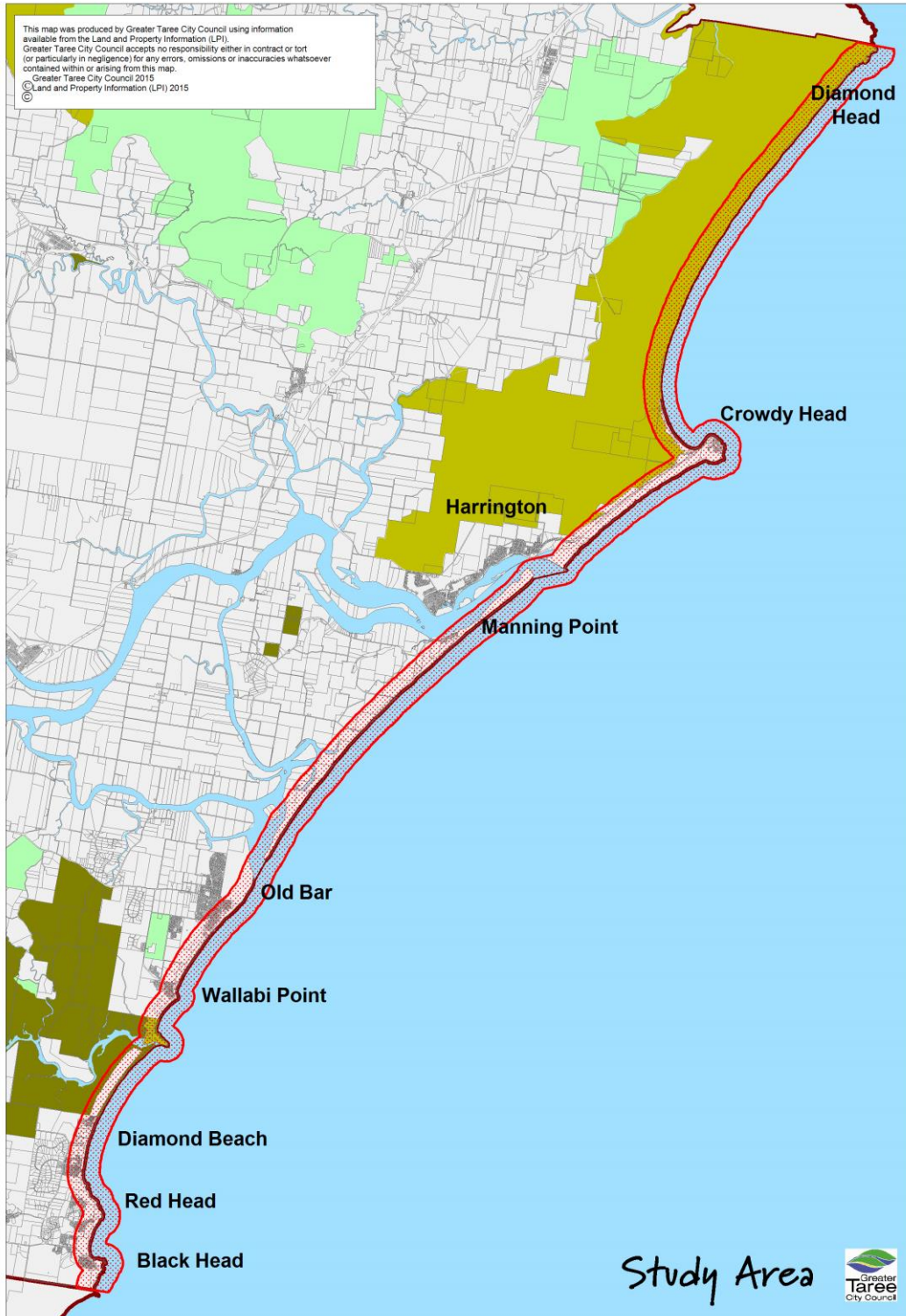
**Table 2: Types of development and who can undertake them**

Development Area	What can be built? (Subject to obtaining the appropriate approvals)		
	Private Landowners	Community Groups	Public Authorities
<b>Seaward of the foreshore building line/immediate hazard line</b>	<p>Any management measures from Table 1 and exempt development - examples include:</p> <ul style="list-style-type: none"> <li>• Seating</li> <li>• Clothes lines</li> <li>• BBQ</li> <li>• Shade sails</li> </ul>	<p>Any low impact management measures from Table 1 and typical park embellishments - examples include:</p> <ul style="list-style-type: none"> <li>• Seating</li> <li>• Picnic Shelters</li> <li>• BBQ</li> <li>• Shade sails</li> </ul>	<p>Any management measures from Table 1 and development permitted under any act - examples include:</p> <ul style="list-style-type: none"> <li>• Seating</li> <li>• Reinforcement of existing revetments</li> <li>• Maintenance of existing rock and training wall structures</li> <li>• Use of sand filled geotextile bags</li> <li>• Construction of new rock seawalls</li> </ul>
<b>Within the Coastal Hazard Risk Zone</b>	<p>Any development permitted under the provisions of an Environmental Planning Instrument (SEPP, LEP, DCP) including the following types of development:</p> <ul style="list-style-type: none"> <li>• Dwelling Houses</li> <li>• Dwelling Additions</li> <li>• Studios</li> <li>• Dual Occupancies</li> <li>• Multi Dwelling housing</li> <li>• Outbuildings (Sheds / Garages / Pergolas)</li> <li>• Swimming pools</li> <li>• Ancillary Structures</li> </ul> <p><b>Note:</b> A risk management plan is required to accompany all development proposals in this area</p>	<p>Any development permitted under the provisions of an Environmental Planning Instrument (SEPP, LEP, DCP).</p> <p><b>Note:</b> A risk management plan is required to accompany all development proposals in this area</p>	
	<p>Subdivision (Torrens, Community, Strata) is not permitted within the Coastal Hazard Risk Zone or seaward of the foreshore building line, unless it is to facilitate the conversion of private land to public land or does not result in additional lots.</p>		
<b>West of the Coastal Hazard Risk Zone</b>	<p>Any development permitted under the provisions of an Environmental Planning Instrument (SEPP, LEP, DCP).</p>		



## 2. Our coastline and its management

This CZMP is a document that enables landowners, community groups and public authorities to undertake management actions to address the risks posed by coastal erosion. The area covered by this plan is the Greater Taree coastline as depicted in Figure 1 below.



**Figure 1: CZMP study area**

Anyone wishing to undertake management actions within this area is encouraged to read the following suite of technical documents that supports this CZMP:

- Coastal Hazard Definition Study (2010)
- Coastline Management Study (2010)
- Greater Taree Coast Emergency Action Plan (2011)
- Coastal Zone Management Plan (2013)
- Old Bar Coastal Protection Design Investigation (2013)
- Hazard Definition Study Amendment Old Bar (2014)
- Coastal Zone Management Plan Amendment Old Bar (2014)
- Coastal Zone Management Plan - GTCC Introduction (2014)

## 2.1 The objectives

It is clear from the work undertaken to date, that in the Greater Taree coastal zone:

- people want to be empowered to undertake actions themselves;
- people want a variety of tools that they can use to suit their own circumstances
- community groups want the ability to seek solutions; and
- people want the ability to use their land for as long as practicable.

These are the objectives upon which this plan has been written.

## 2.2 Council's management strategy

The management strategies that underpin this plan are:

- maximising the beneficial use of the coastal zone for as long as possible;
- a risk based approach to development that is underpinned by landowners taking responsibility for the success or failure of the works they propose;
- implementation of development controls to ensure that risk and responsibility are transferred to successive owners; and
- capitalising on the opportunities that may present as a result of the Stage 2 Coastal Reforms.

Throughout, Council will maintain a role in the coordination of both the management actions identified in the plan and also those management measures that may be implemented as a result of this plan. This will be achieved through collaboration with key stakeholders. It is also critical that Council takes an active role in monitoring management actions, to ensure that they do not pose any further risk or generate offsite impacts.

## 2.3 Our coastline

### 2.3.1 Our beaches

Generally, beaches along the NSW coastline erode during major storms and then have sand naturally replenished over intervening periods, with erosion occurring again due to storms often decades later. While some of our beaches reflect this trend of losing sand and then having it replenished naturally over time, there have been two major exceptions. Both Old Bar Beach and Manning Point Beach have a history of continual sand loss due to erosion. This yearly net loss results in the foreshore retreating in a westerly direction. At Old Bar Beach this process has a greater impact given the proximity of urban development to the beach. A description of each of our beaches and an associated action plan for future works is discussed below.

Figure 2 provides an overview of the maps associated with each beach.

### 2.3.2 Beach condition and public access

Most public access points require ongoing maintenance and often significant restorative work is also required after storm events. After such events some public access points remain closed until relevant approvals are obtained and funds are available to undertake repairs. Beach access points and coastal walking trails are shown on the maps below.

#### **Key Element**

Council will work collaboratively to reduce the number of unlawful beach accesses along our coastline as they can create the potential for beach erosion and have an impact on flora and fauna. At the same time both parties will work towards improving accesses that are intended to remain. Community education will be an important component of this work.



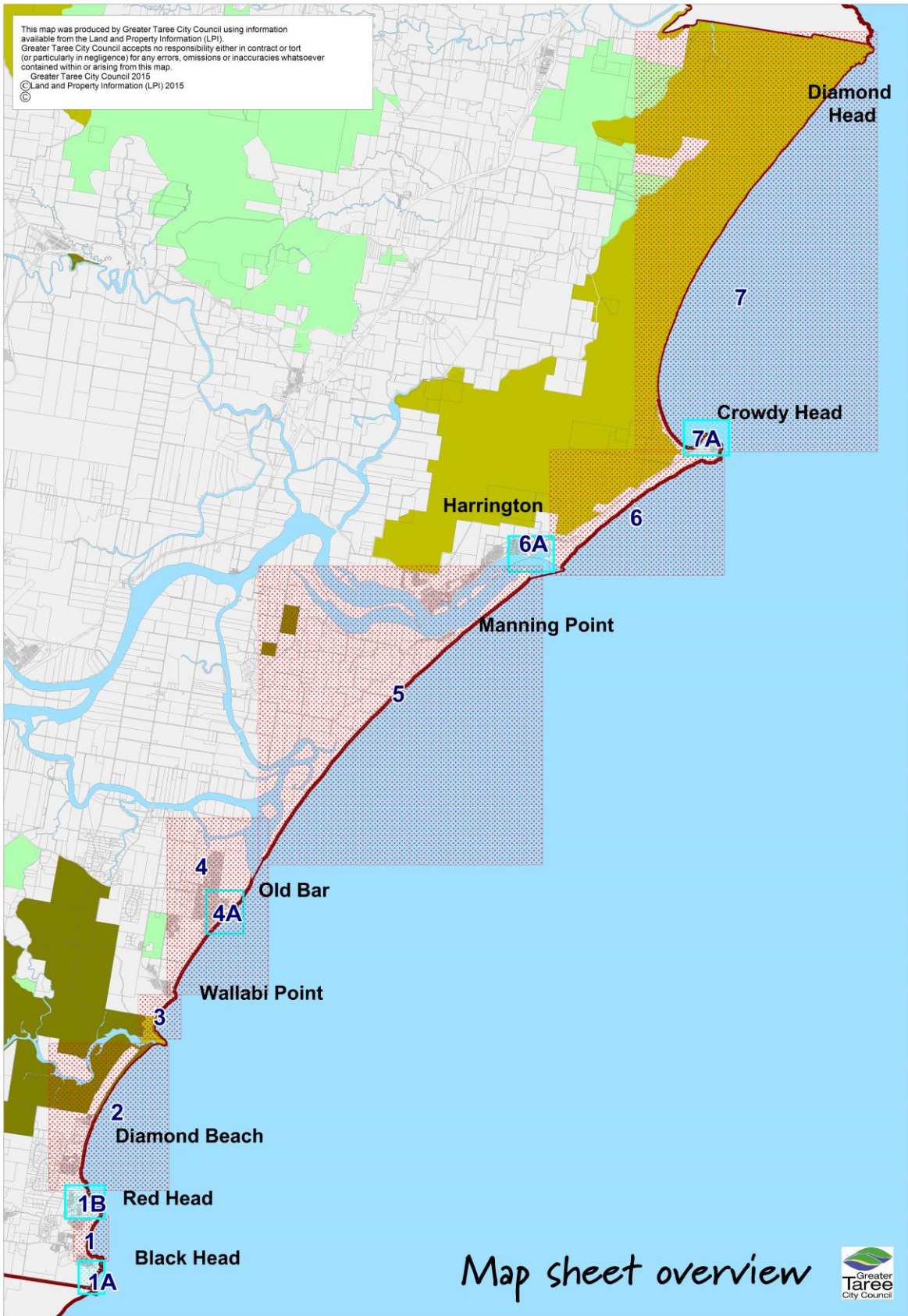


Figure 2: Map sheet overview

### 2.3.3 Black Head Beach/Nine Mile Beach/Red Head headland

Black Head Beach is a relatively stable, closed system with minor long term accretion. Isolated locations of minor historical recession (0.1 to 0.2 m/year) have occurred in the central to northern portion of the beach, possibly due to persistent rips in these locations and/or anthropogenic changes associated with pedestrian access. The long term minor accretion is likely to be due to leaky bypassing around Black Head supplying sediment from the south (Nine Mile Beach), consistent with the net northerly littoral transport potential along the NSW coast. This bypassing is most likely to occur during large southerly storm events.

Black Head Beach is patrolled during the summer months. Permits are required for vehicle access to the beach with the exception of boat launching from the beach ramp. A pedestrian bridge links Black Head Reserve/Black Head Lagoon Flora Reserve to the beach, crossing Black Head Lagoon. Red Head Beach, which is located at the northern end of Black Head Bay, is unpatrolled. There is a rainforest nature walk (with a loop walking track) at Red Head (off the end of Red Head Road) and a viewing platform with stairs to the beach. There are also informal beach access points (sand tracks) from the Beachfront Holiday Resort and houses along Scenic Avenue.

A dune 'blow out' was identified approximately two-thirds of the way up the beach from Black Head (Black Head to Crowdy Head Coastline Hazard Definition Study, WorleyParsons 2010). This area was closed permanently in 2014 and subsequently rehabilitated.

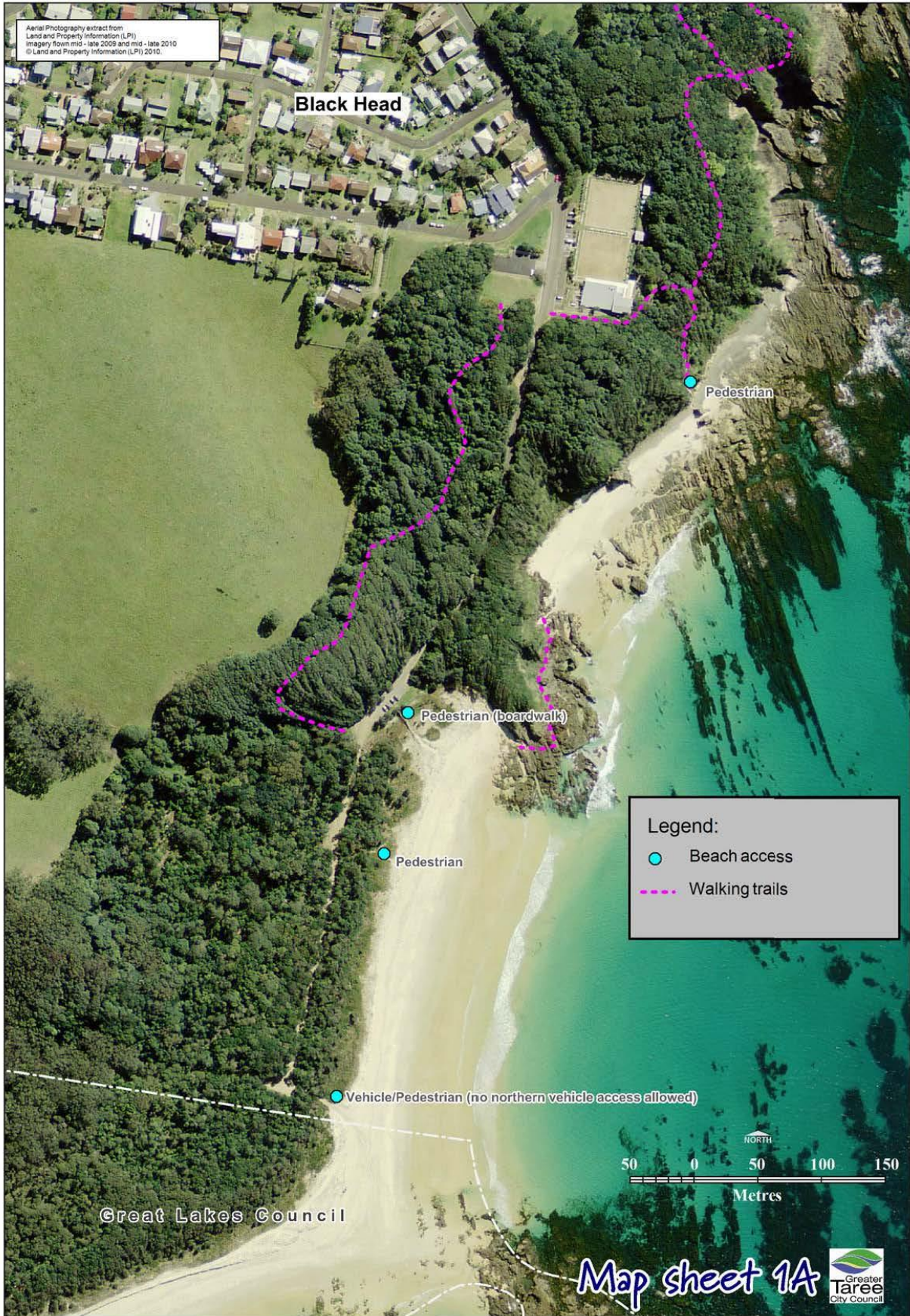
<b>Action Plan for Black Head Beach</b>
Require all development proposals within the Coastal Hazard Risk Zone to be accompanied by a Risk Management Plan.
Council will work collaboratively to reduce the number of unlawful beach accesses and at the same time all parties will work towards improving the accesses that are intended to remain. Community education will be an important component of this work.
Enhance coastal walking trails.
Review and replace beach signage to avoid conflicting messages.





**Figure 3: Black Head Beach**





**Figure 4: Northern end of Nine Mile Beach**





Figure 5: Red Head headland



### 2.3.4 Diamond Beach

Diamond Beach is generally stable with minor, long term recession occurring in the south and north. The beach has been relatively stable in the centre in recent times, however, the presence of exposed indurated sands, 'soft rock' or 'coffee rock' is evidence of recession in the past. There is little net longshore drift along this part of the NSW coastline therefore the amount of sediment moving into and out of the embayment is small. The large reef system off Red Head appears to be acting as a submerged barrier. Subsequently, there is likely to be negligible sand supply from the south.

Similarly, the reef system at Saltwater Point (between Diamond Beach and Saltwater Beach to the north) acts as a submerged barrier at the northern end of the beach minimising the likely bypassing of sediment around this headland. Bypassing may occur under certain conditions such as a major flood event where Khappinghat Creek breaks through, moving sufficient entrance bar material seaward; or a large southerly storm event, followed by predominantly southerly waves. This would represent a net loss of sediment from the embayment.

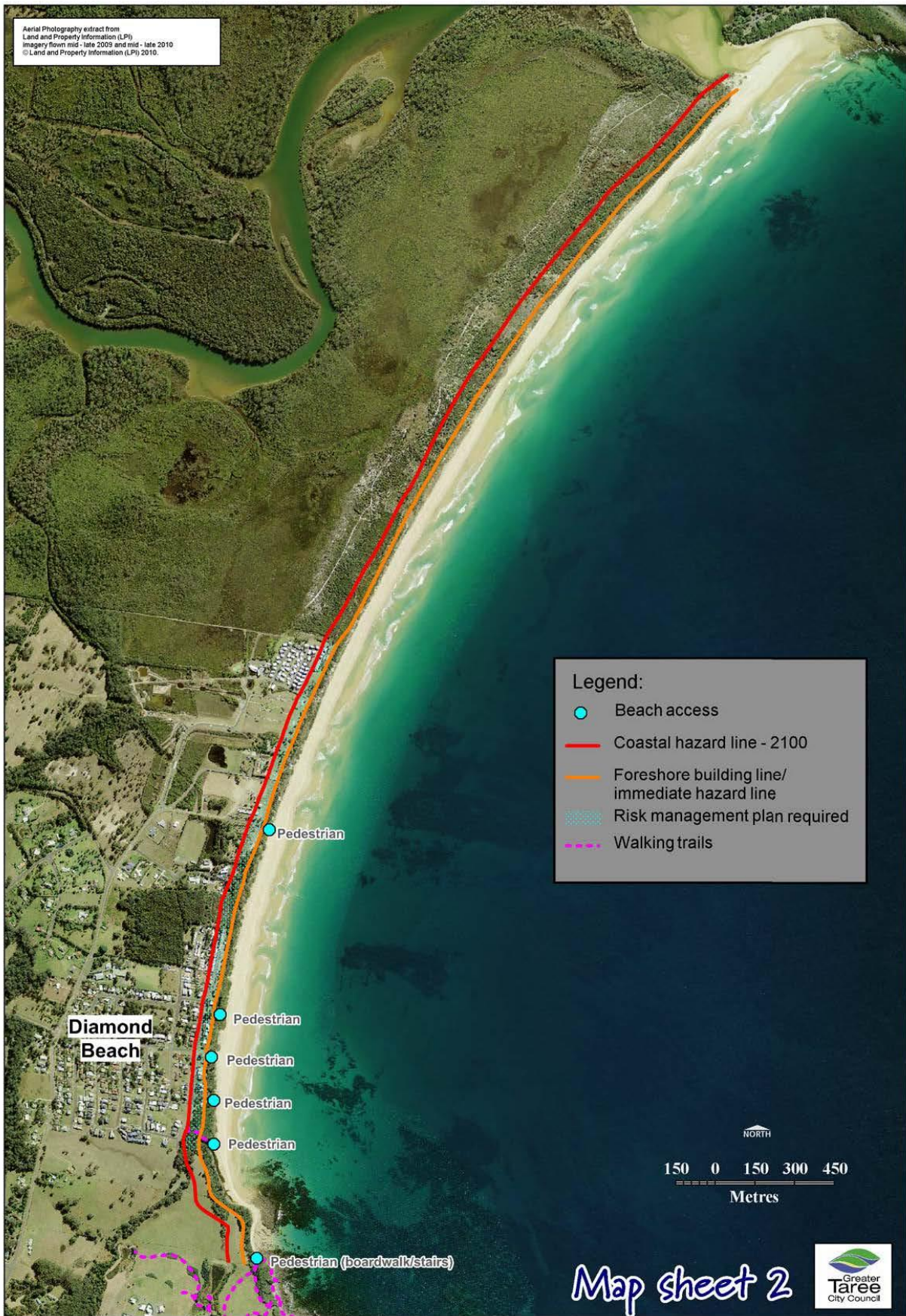
Historical photographs indicate sand mining occurred on the beach and it is uncertain if this may impact the future stability of this beach.

Diamond Beach south is patrolled during the summer school holidays. A small car park, lookout and beach access is situated at the eastern end of Diamond Drive. There is also a beach access within the Diamond Beach Holiday Park at the northern end of Golden Drive and several informal tracks through the dune from beachfront properties to the south.

Access to an area of coastal rainforest is via a walking track off Golden Drive and from the beach via a sand track which includes a section of boardwalk.

Most resorts at north Diamond Beach have constructed beach access ways. There are also a number of informal tracks through the dune in this area that have resulted in erosion and the loss of dune vegetation (Black Head to Crowdy Head Coastline Hazard Definition Study, WorleyParsons 2010).

<b>Action Plan for Diamond Beach</b>
Require all development proposals within the Coastal Hazard Risk Zone to be accompanied by a Risk Management Plan.
Council will work collaboratively to reduce the number of unlawful beach accesses and at the same time all parties will work towards improving the accesses that are intended to remain. Community education will be an important component of this work.
Enhance coastal walking trails.
Review and replace beach signage to avoid conflicting messages.



**Figure 6: Diamond Beach**

### 2.3.5 Saltwater Beach

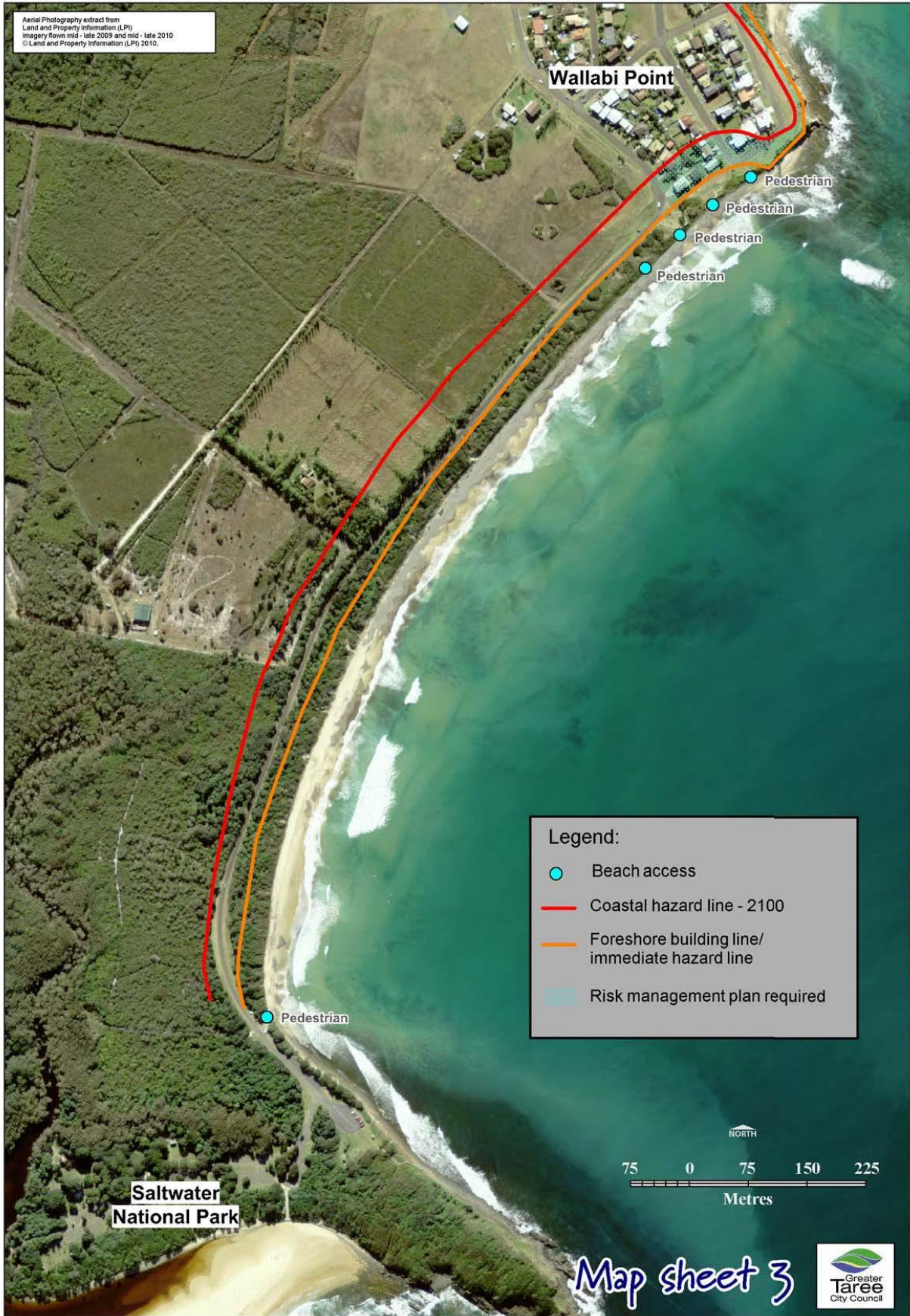
Saltwater Beach is a relatively closed system. It has experienced historical recession of 0.2 m/year in the central portion and is generally stable at the ends. Minor long term sediment loss is likely to be due to leaky bypassing of Wallabi Point to the north, or offshore losses during less frequent storm events.

Saltwater Beach, within Saltwater National Park (at the southern end of the beach) features a headland walking track. There is a car park within the National Park, at the southern end of the beach, three formal timber access ways/lookouts and boat launching facilities (concrete ramps) on Khappinghat Creek and at the beach. Midway along the beach there are both formal and informal access ways and informal car parking areas (Black Head to Crowdy Head Coastline Hazard Definition Study, WorleyParsons 2010).

On the southern side of Wallabi Point there is a small car park, lookout and stairs, which provide pedestrian access. On the northern side of the point there is vehicle/pedestrian access to the beach.

<b>Action Plan for Saltwater Beach</b>
Require all development proposals within the Coastal Hazard Risk Zone to be accompanied by a Risk Management Plan.
Council will work collaboratively to reduce the number of unlawful beach accesses and at the same time all parties will work towards improving accesses that are intended to remain. Community education will be an important component of this work.
Review and replace beach signage to avoid conflicting messages.





**Figure 7: Saltwater Beach**

## 2.3.6 Old Bar Beach/Farquhar Inlet

### Old Bar Beach

Historically, this beach has seen an average net loss of half a metre of dune per year which has increased to one metre per year since the early 2000s. While a number of theories have been proposed for this acceleration, we are no closer to understanding the processes involved. There is uncertainty as to whether the current erosion being experienced at Old Bar will cease at some point, or whether the current rate of dune loss will be maintained or will accelerate further. What we do know, is that the current level of erosion puts private and public assets at risk and creates friction between private and public ownership. The changing profile of the beach, at times, limits opportunity for beach users, particularly at high tide.

Detailed hydrographic surveys undertaken by the Department of Environment, Climate Change and Water (DECCW) show that despite appearances, the area between Wallabi Point and Farquhar Inlet is not part of a single beach system. The Urana Bombora, which is an underwater rock platform (reef) extending out to sea from south of the surf club, influences but does not prevent the exchange of sand along this beach. In addition, there is another reef feature at the southern end of the beach, to the north of Wallabi Point. These features act to form a beach compartment (albeit incomplete) between Wallabi Point and Urana Bombora and accordingly, influence wave, hydrodynamics and subsequent sand transport at Old Bar Beach.

The bathymetric features and numerical modelling of specific wave events indicate the possible formation of a large rip cell with potential to carry sand offshore during major storms. The rip cell head generally forms in the central to southern portion of the beach adjacent to where the most significant recession rates have been identified. Storm direction has been identified as a significant factor in whether sediment carried by the rip cell is predominately lost or partially deposited within the near shore beach compartment. During storm events from the south-east and east-south-east, permanent loss of sand offshore is likely, i.e. sand is deposited in deep water where it cannot return to the beach naturally.

This loss mechanism is supported by the observation of a large rip cell of high turbidity (high suspended sand/sediment load) during an event where significant erosion of Old Bar Beach occurred (Black Head to Crowdy Head Coastline Hazard Definition Study, WorleyParsons 2010). The recorded wave direction during this event at Sydney was east-south-east (the Crowdy Head wave rider buoy within the study area does not record wave direction). Additionally, comparison of cross-shore profiles along Old Bar Beach and Manning Point Beach indicates a significant flattening of the offshore slope at depths of around 8m below mean sea level for Old Bar Beach (indicating possible deposition of sand). At 8m in depth, sand usually moves back onto the beach under lower swell wave conditions.

Although offshore transport may be the dominant mechanism for the ongoing sand loss at Old Bar Beach, there is also likely to be alongshore sand bypassing, both north and south of the Urana Bombora in storm events with directions other than from the south-east and east-south-east sectors. The amount of sand bypassing the Urana Bombora is likely to be influenced by the beach state on either side (including the open/closed status of the entrance to Farquhar Inlet).

#### **Key Element**

Understanding why erosion continues to occur at Old Bar Beach is a priority under this plan.



A sand tracing study with Environmental Tracing Systems Worldwide Ltd (ETS) and Royal HaskoningDHV (RHDHV) was commenced in mid 2014 to understand the movement of sand along this shoreline. While the final results were not available at the time of writing this plan, preliminary results indicate that most sand lost from this beach is transported in a northerly direction, with some lost from the system due to transport offshore.

Public access at Old Bar Beach is focused in the area around the Taree-Old Bar Surf Life Saving Club (SLSC) where there is also patrol/emergency vehicle beach access. Formal pedestrian access ways to the beach are located at the Caravan Park and north of the SLSC. The main beach is patrolled in summer.

The accesses at Old Bar Beach are in need of work due to increasing coastal erosion. In the Greater Taree Coast Emergency Action Plan (WorleyParsons 2011), the patrol/emergency vehicle beach access next to the surf club is also the only authorised point for the transportation of materials to locations where owners are permitted to construct emergency protection works. This access is not open for public use. It is regularly damaged during winter storms and was last reconstructed in January 2015. At this time, it was recognised that when this access point is next affected by coastal erosion it may be impossible to reconstruct it in the same location, as the top of the ramp would need to come under the surf club building. In light of this, a new location immediately north of the Jeff Vandenberg viewing platform has been identified and is likely to require opening in late 2015.

Racecourse Creek, which is intermittently open to the ocean via a beach berm, has historically influenced erosion in the Lewis Street area. In the 1990's Council constructed a gabion wall to train the entrance away from the properties in Lewis Street where it was causing beach erosion, to direct it straight into the ocean. As the beach erodes in this location the end of the training wall has extended into the ocean causing it to break apart and pose a safety risk to beach users. To address this risk, Council has removed gabion baskets at the end of the structure and continues to make the structure safe after storm events. Ongoing monitoring and removal of end baskets are likely to be required as erosion continues.

The dune in front of Pacific Parade (behind which Racecourse Creek sits) has migrated north as it erodes. This has led to Racecourse Creek opening further to the north, away from the area where it was once causing erosion. The loss of this dune is likely to lead to Pacific Parade coming under threat from erosion.

Informal beach accesses and vehicle parking along this road needs to be considered in a holistic fashion to retain vegetation in order to slow erosion. Pacific Parade is a Council asset and it is intended to maintain this asset while ever it is practical to do so.

Management of the northern end of this beach comes under the Manning Entrance State Park Trust jointly managed by GTCC and Crown Lands.

<b>Action Plan for Old Bar Beach</b>
Undertake an analysis of Farquhar and Harrington Inlets to determine whether these have an impact on beach erosion occurring at Old Bar and Manning Point beaches and determine whether management measures undertaken at the entrances can prevent further beach erosion.
Require all development proposals within the Coastal Hazard Risk Zone to be accompanied by a Risk Management Plan.
Council will work collaboratively to reduce the number of unlawful beach accesses and at the same time all parties will work towards improving accesses that are intended to remain. Community education will be an important component of this work.
Undertake adaptive maintenance to the Jeff Vandenberg viewing platform as erosion occurs.
Create an alternate surf club vehicular beach access to the north of the Jeff Vandenberg viewing platform.
Close vehicular access in front of the surf club if a major erosion event prevents its re-opening in the current location and convert the access into a raised pedestrian walkway including rehabilitation of the dune.
Complete sand tracing study.
Maintain the Racecourse Creek gabion training wall.
Restrict beach access by formalising fencing and car parking on the eastern side of Pacific Parade to reduce the risk to Council infrastructure.
Review and replace beach signage to avoid conflicting messages.

## **Farquhar Inlet**

The Manning River is one of only two deltas in the southern hemisphere with two river entrances, the main entrance being at Harrington in the north and the second at Farquhar Inlet to the south.

Unlike many other river entrances in NSW, there has never been significant development at Farquhar Inlet. Therefore, the entrance remains in a natural state, with sand islands, intertidal mud flats and mangroves lining the bank.

The entrance is not permanently open to the sea, however, flood events can cause the removal of the sand 'plug' at the junction of Manning Point and Old Bar beaches. This opening slowly closes as sand is deposited on the beach through natural deposition.

There is a *Farquhar Inlet, Old Bar - Entrance Opening Management Plan (WorleyParsons 2010)*, which has triggers for the manual opening of the entrance as a result of a high water levels in the estuary or low water quality indicators which affect oyster production. Under the plan the entrance is opened in the north and gradually gravitates to the south over a number of years, eventually closing against the 'soft rock' at Mudbishops.

### Action Plan for Farquhar Inlet

Undertake an analysis of Farquhar and Harrington Inlets to determine whether these have an impact upon beach erosion being experienced at Old Bar and Manning Point beaches and determine whether management measures undertaken at the entrances can prevent further beach erosion.

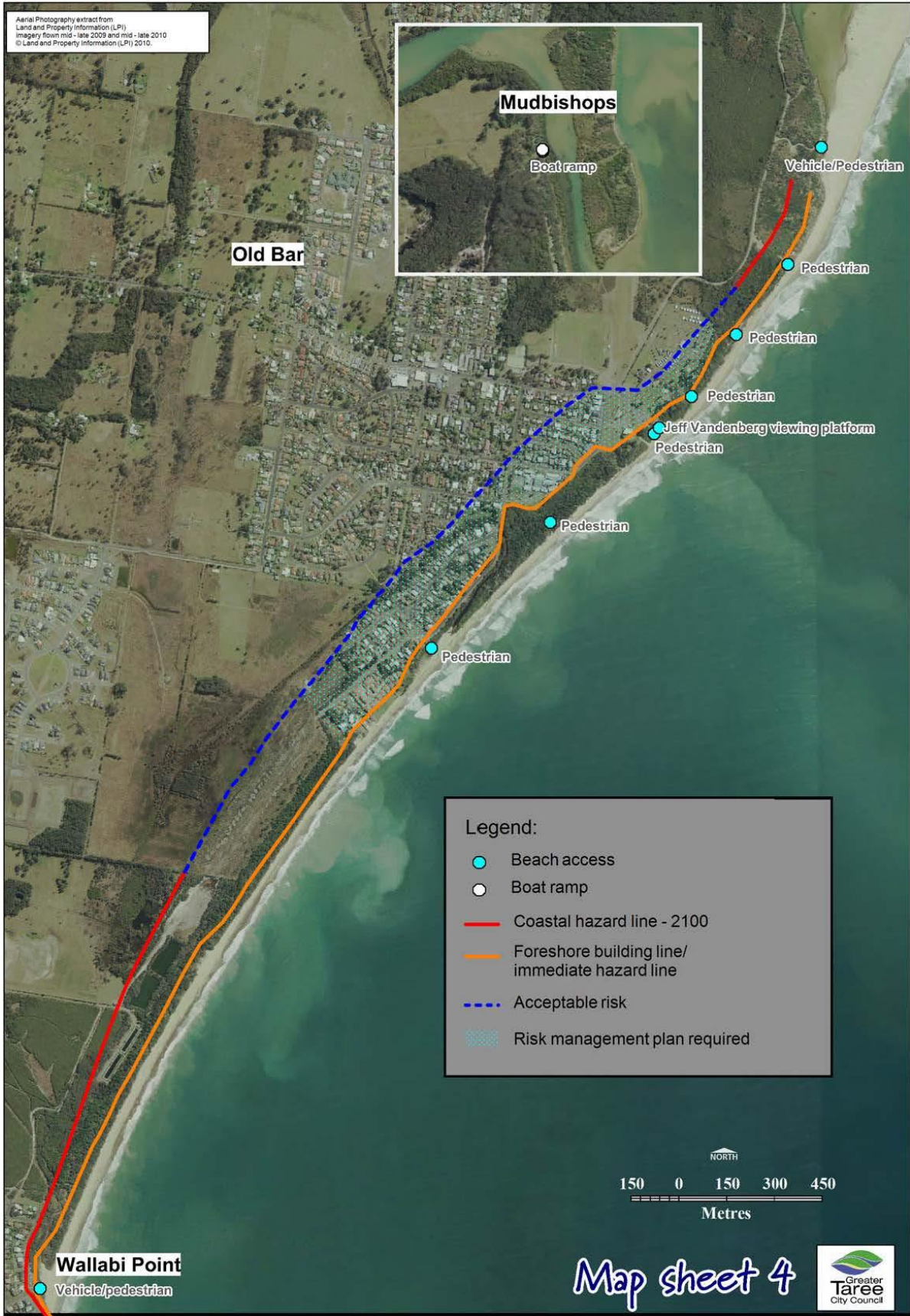
Undertake maintenance dredging in accordance with the *Manning River Maintenance Dredging Strategy 2010* to improve/maintain navigation.

Develop a sand transport monitoring program to assess the effectiveness of maintenance dredging within the Farquhar Inlet.

Maintain assets (management of assets comes under the Manning Entrance State Park Trust jointly managed by GTCC and Crown Lands).

Monitor water quality and river levels to mechanically open the entrance in accordance with the *Farquhar Inlet, Old Bar - Entrance Opening Management Plan 2010*.

Council will work collaboratively to reduce the number of unlawful beach accesses and at the same time all parties will work towards improving accesses that are intended to remain. Community education will be an important component of this work.



**Figure 8: Old Bar Beach**





**Figure 9: Old Bar Beach at the township of Old Bar**



### 2.3.7 Manning Point Beach

Manning Point Beach appears to increase in size at times to the north (northern third of the beach), while the southern two-thirds of the beach recedes. However, this trend can be reversed through short-term fluctuations as a result of refracted wave patterns possibly influenced by the state of the Farquhar Inlet entrance and the Urana Bombora. The state of the Harrington Inlet entrance and estuary flow is an added complexity influencing the northern portion of Manning Point Beach.

The state of Manning Point Beach may be affected by the relative state of the entrances at Farquhar and Harrington. Some possible processes include:

- entrance sediment sink;
- offshore losses due to flood flows;
- refraction around the ebb tide delta/bar; and
- beach rotation due to medium term fluctuations in wave direction climate.

However, these processes are extremely complex and no consistent behaviour can be discerned from historical records.

Manning Point Beach is not patrolled. Formal beach access from the village of Manning Point consists of a 4WD track and adjacent pedestrian track at Vic Shoemith Reserve at Manning Point.

Management of this beach comes under the Manning Entrance State Park Trust jointly managed by GTCC and Crown Lands.

#### Key Element

Understanding why erosion continues to occur at Manning Point Beach is a priority under this plan.

#### **Action Plan for Manning Point Beach**

Undertake an analysis of Farquhar and Harrington Inlets to determine whether these have an impact upon beach erosion being experienced at Old Bar and Manning Point beaches and determine whether management measures undertaken at the entrances can prevent further beach erosion.

Require all development proposals within the Coastal Hazard Risk Zone to be accompanied by a Risk Management Plan.

Council will work collaboratively to reduce the number of unlawful beach accesses and at the same time all parties will work towards improving accesses that are intended to remain. Community education will be an important component of this work.

Review and replace beach signage to avoid conflicting messages.



**Figure 10: Manning Point Beach**

### 2.3.8 Harrington Beach/Harrington Inlet

#### Harrington Beach

Harrington Beach has historically shown stability, with a net increase in sand deposition occurring between 1965 and 2006. Harrington Beach is supplied with sand from the Harrington entrance bar. The shape of the southern portion of the beach is determined by wave diffraction patterns in the lee of the northern training wall which makes it stable.

Harrington Beach is not patrolled. There is a 4WD access track to the northern end of the beach. Pedestrian access is available through the Harrington Beach Holiday Park to the south and via access tracks to the north.

Management of this beach comes under the Manning Entrance State Park Trust which is jointly managed by GTCC and Crown Lands.

Action Plan for Harrington Beach
Enhance coastal walking trails.
Council will work collaboratively to reduce the number of unlawful beach accesses and at the same time all parties will work towards improving accesses that are intended to remain. Community education will be an important component of this work.
Review and replace beach signage to avoid conflicting messages.
Investigate the potential to use the railway corridor used to transport quarry rock from Crowdy Head to Harrington as a cycleway/walkway.

#### Harrington Inlet

The Manning River is one of only two deltas in the southern hemisphere with two river entrances, the main entrance being at Harrington in the north and the second at Farquhar Inlet to the south.

The Harrington Inlet entrance is open permanently and has settlements on both sides. There is a breakwall located on the northern side which was constructed in the early 1900s to improve safety for boats traversing the bar.

The entrance fluctuates in its position gradually over time from being against the breakwall to being further south towards Manning Point.

Action Plan for Harrington Inlet
Undertake an analysis of Farquhar and Harrington Inlets to determine whether these have an impact upon beach erosion being experienced at Old Bar and Manning Point beaches and determine whether management measures undertaken at the entrances can prevent further beach erosion.
Undertake maintenance dredging in accordance with the <i>Manning River Maintenance Dredging Strategy 2010</i> to improve/maintain navigation.



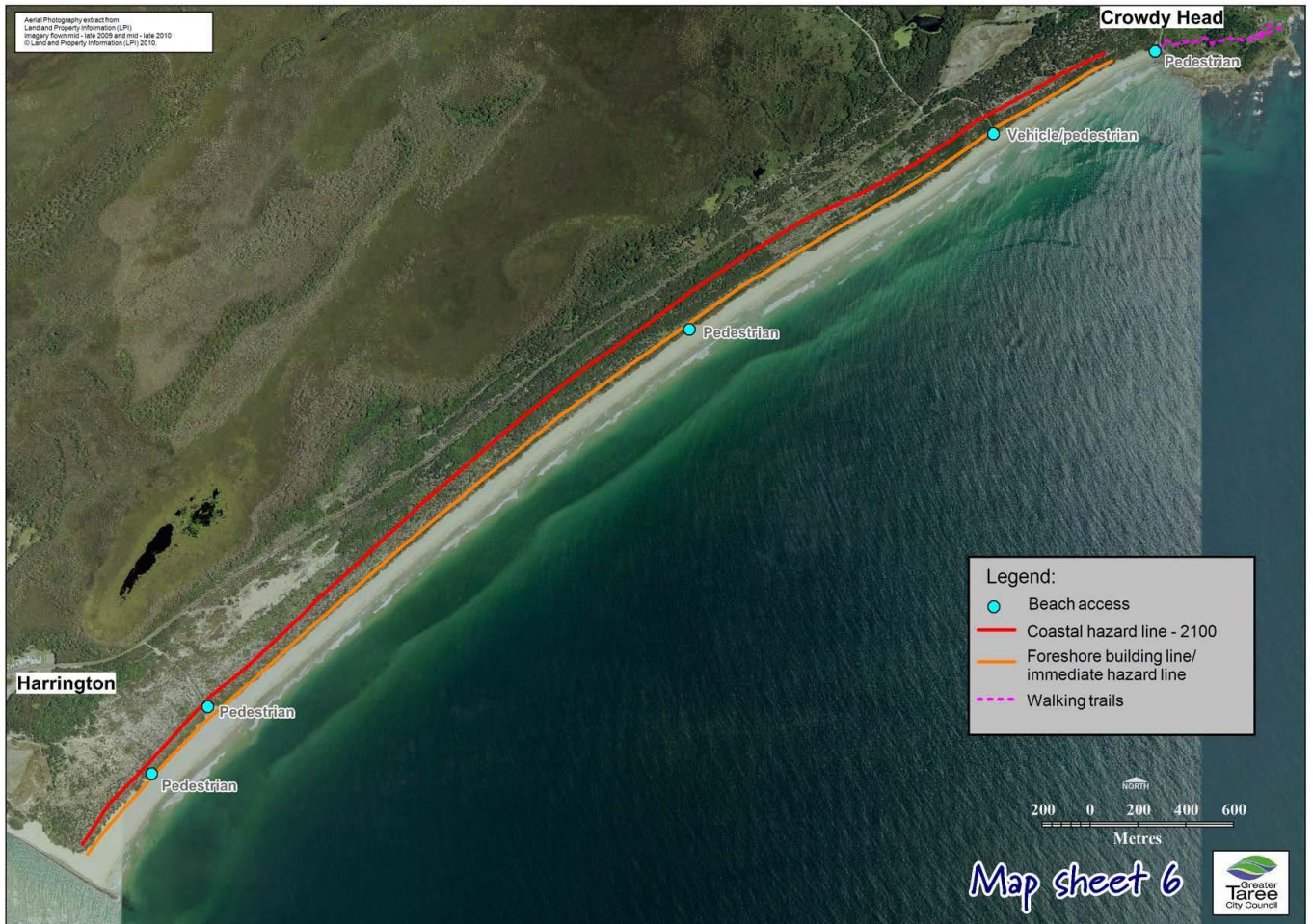


Figure 11: Harrington Beach





**Figure 12: Southern end of Harrington Beach at the township of Harrington**



### 2.3.9 Crowdy Bay

Changes to the coastline at Crowdy Bay (Crowdy Head to Diamond Head) have not been analysed. Much of this coast is Crowdy Bay National Park and there are unlikely to be any assets at immediate risk from coastal hazards north of Crowdy Head.

Crowdy Head Beach near the Crowdy Head Surf Life Saving Club (SLSC) is patrolled during the summer months. There is a car park adjacent to the SLSC, and a 4WD and pedestrian access to the beach to the north.

<b>Action Plan for Crowdy Bay</b>
Maintain public beach accesses (the Diamond Head beach access is maintained by the NPWS whilst the others come under the management of the Harrington Beach State Park Trust jointly managed by GTCC and Crown Lands).
Construct a formal carpark and demolish and reconstruct public toilet facilities at the Crowdy Head SLSC.
Council will work collaboratively to reduce the number of unlawful beach accesses and at the same time all parties will work towards improving accesses that are intended to remain. Community education will be an important component of this work.
Review and replace beach signage to avoid conflicting messages.



Figure 13: Crowdy Bay

### 2.3.10 Crowdy Bay Harbour

Crowdy Harbour is an all-weather deep-water boat access and provides a refuge for boats during storms. The Harbour also houses a small fishing fleet and previously had a fishermen's co-op. The harbour and both breakwalls which created the harbour are maintained by Crown Lands.

The harbour also has a 4-lane regional boat ramp, and an adjacent boat trailer parking area and toilet facilities maintained by Council.

Management of this harbour comes under the Manning Entrance State Park Trust jointly managed by GTCC and Crown Lands.

<b>Action Plan for Crowdy Harbour</b>
Maintain assets (management of assets comes under the Manning Entrance State Park Trust jointly managed by GTCC and Crown Lands).
Undertake maintenance dredging of the harbour in accordance with the <i>Manning River Maintenance Dredging Strategy 2010</i> to improve/maintain navigation.





**Figure 14: Crowdy Bay Harbour**

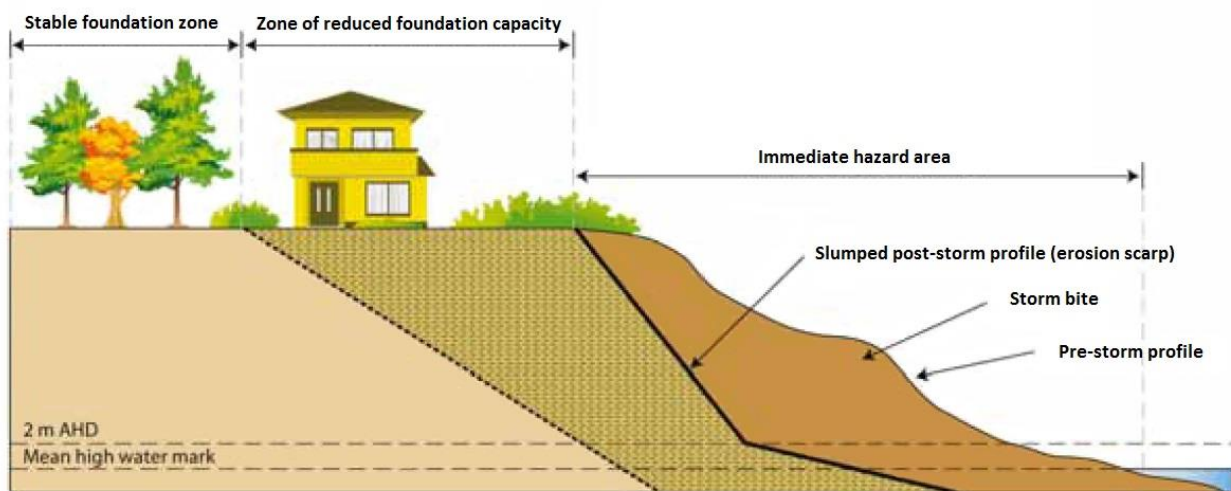


## 2.4 Coastline impacts and risks

### 2.4.1 Risks associated with our changing coastline

The highest risk posed by the changing coastline is the risk to public safety, particularly on open beaches during storm events. The Greater Taree Coast Emergency Action Plan (WorleyParsons 2011) has mitigated the impact that storms have on human life by providing a structured response that involves monitoring the severity of storm events to ensure appropriate action is taken. Actions include closing beach accesses and informing the public of the risk. If significant erosion or over-topping of dunes from waves occurs during a storm event, the State Emergency Service (SES) directly notifies residents and manages any evacuations.

The second-most significant risk posed by coastal erosion is the loss of private and public assets (land and structures). Depending on the location of the structures (relative to the dune scarp following a storm event), they may be at risk of collapse. If a structure is deemed to be at risk the demolition or removal of the structure is required. Figure 15 shows a typical beach profile where built assets such as houses tend to be located.



**Figure 15: Typical beach profile with built assets**

While the 'zone of reduced foundation capacity' has traditionally been used as a way to determine structures that may be at risk immediately following a storm event, we have found that structures built on a concrete slab maintain their integrity even when protruding over the dune scarp by a metre. This was the case with the houses removed in Lewis Street, Old Bar in 2008. The zone of reduced foundation capacity is more relevant to multi-level unit blocks. There are no multi-level unit blocks within our coastal areas at risk of erosion.

Therefore, the risk is not associated with the dune crest reaching the zone of reduced foundation capacity, but instead, when erosion impacts on a structure to such an extent that its integrity is compromised. Monitoring of erosion provides time to consider the structural integrity of assets and order its removal before the asset collapses.

#### **Key Element**

Under this plan we have not used the 'zone of reduced foundation capacity' as the sole means of identifying the risk to a structure as it may remain structurally sound for many years until further erosion ultimately results in the structure being considered at risk of collapse.

There are also incidents that occur infrequently, but have the potential to dramatically impact on our coastline. Devastating storm events similar to those that hit the NSW coastline in the early 1970s can cause significant erosion and result in the loss of buildings. These storm events cannot be predicted in timing or intensity and hence planning for something that may only occur once in living memory, is not supported by this plan.

Based on calculations from the abovementioned devastating storms, the potential maximum scarp movement that could occur during such a storm event has been calculated for each of the developed beaches along the Greater Taree coastline (see Table 3).

**Table 3: Maximum potential dune loss due to devastating storms**

Location	Typical dune crest height (AHD)	Design storm cut volume <sup>1</sup>	Max. expected scarp movement <sup>2</sup>	Historical scarp movement <sup>3</sup>
<b>Black Head to Red Head</b>	5 – 8m	220 m <sup>3</sup> /m	35m	Generally prograding beach, little evidence of storm cut in photogrammetry
<b>Diamond Beach South</b> (south of caravan park)	6 – 10m	220 m <sup>3</sup> /m	30m	Beach recession of up to 16m between 1970 and 1972
<b>Diamond Beach North</b> (north of caravan park)	9 – 11m	220 m <sup>3</sup> /m	20m	Little evidence of storm cut in photogrammetry
<b>Saltwater Beach</b>	6 – 8m	220 m <sup>3</sup> /m	30m	Little evidence of storm cut in photogrammetry
<b>Wallabi Point to Old Bar Beach</b> (south of SLSC)	7 – 10m	220 m <sup>3</sup> /m	25m	25m recession at Old Bar between 2004 and 2012
<b>Old Bar SLSC to Farquhar Inlet</b> (north of SLSC)	7 – 12m	180 m <sup>3</sup> /m	20m	Some recession at SLSC, but increases towards Farquhar Inlet
<b>Manning Point Beach</b>	6 – 10m	220 m <sup>3</sup> /m	30m	Shoreline retreat of up to 30m has occurred within 5 year periods
<b>Harrington Beach</b>	9 – 15m	220 m <sup>3</sup> /m	20m	Generally prograding, recession of up to 40m occurred between 1965 and 1972

**Notes:**

1. Maximum predicted storm cut volume for 100 year ARI storm. Refer to *Black Head to Crowdy Head Coastline Hazard Definition Study* (WorleyParsons 2010).
2. Estimated maximum landward movement of erosion scarp for design storm cut, from pre-storm scarp or dune crest.
3. Little information on the scarp movement due to a single storm is available due to a lack of reliable pre-storm and post-storm surveys. This information is based on photogrammetry with an interval of 2 to 10 years.

### 2.4.2 Climate change impacts

The sea level rise figures used to support this CZMP were originally based on the figures produced by the CSIRO, which were used as the basis for the State Government's Sea Level Rise Policy Statement 2009 (no longer supported by the State). These were an increase above 1990 mean sea levels of 40cm by the year 2050 and a rise of 90cm by the year 2100.

If predictions prove correct then we will see significant coastal erosion by the year 2100 in a uniform manner behind each beach. As erosion intensifies, there is the potential for many houses and the property they are located on, to be lost as the sea moves westward. If the predictions on sea level rise are not realised then significant loss of the beach as well as public and private assets is unlikely to be experienced for much of our coastline.

Climate change models predict an increased intensity of storm events and increased frequency. As this is difficult to model it will be important to review this plan regularly.

### 2.4.3 Socio-economic impacts

The primary location on our coastline experiencing notable impacts from coastal erosion is Old Bar Beach. This situation could change in the future if sea level rise has a corresponding erosion impact on other beaches, as shown on the maps within this plan.

In relation to Old Bar Beach, the NSW Office of Environment and Heritage engaged the Balmoral Group to undertake a cost benefit analysis that aimed to understand the socio-economic impact of various coastal management measures. While a number of economic outcomes were detailed, the social impact of the current situation was not addressed.

The direct economic impact on landowners relates to the loss of a significant asset, house and land, and the subsequent need to move to another location. From a financial perspective not only does the landowner need to fund the acquisition of a house elsewhere, they also need to fund the demolition and removal of their existing house and any other structures present on their land. There is little research in relation to the social impact of such events, however it is assumed that continued coastal erosion that results in loss of homes is likely to have an effect on personal and family networks not only within community, but potentially, within individual households. The effect will vary dependent on the nature of ownership, whether the asset is the primary or sole home for family or an investment property; the connection of the property owner to the community and services within the immediate community; the age and stage of life of the property owner; disposable income, level of independence and isolation and; individual level of resilience. Emergency measures in place, ensure that neither extreme events nor the gradual coastal erosion currently experienced are likely to pose a risk to life, however, the constant change and associated sense of loss has the potential to take a toll on mental health and subsequently the functionality of individuals and the family units affected. An increased demand on State and private health support services needs to be assumed.

Under current State policy there is no compensation or buy-back scheme available to landowners exposed to coastal erosion and as such the landowner must fund the full cost. In line with our 2014 conversations with the NSW Office of Environment and Heritage about the incentives that might be provided to encourage Planned Retreat and our understanding that a State position on this matter is being considered as part of Stage 2 Coastal Reform.

#### **Key Element**

This Plan supports continued advocacy of the State to include the provision of financial assistance to landowners forced to move as a result of coastal erosion.

It is also understood that the insurance industry does not cover the loss of assets from coastal erosion. Therefore, the impact on those who cannot afford the cost of moving and / or demolition is likely to be significant, particularly for those who are asset rich and cash poor.

An area experiencing coastal erosion will also be impacted at a community level. From an economic perspective, if an area is seen as being a risky proposition for investment due to coastal erosion, this will impact on house and land prices for the entire community and impact on business viability, particularly those dependent on the tourism trade which is highly dependent on the good reputation of an area.

The loss of key community infrastructure, including roads, services, open space and community facilities in Old Bar is a reality and is likely to change the character of the seaside village significantly.

Localised response to the effects of coastal erosion, puts an onus on communities and local authorities to tackle the issues affecting them. The potential is for increased disadvantage in regional coastal locations that already experience a level of isolation from the benefits of metropolitan living. It is recognised that without considerable support from the State, we are unlikely to be equipped to deal with the socio-economic issues facing our communities under threat from coastal erosion.

#### **Key Element**

This Plan supports continued conversations with the State in relation to financial and State service support to address the socio-economic impact of changing communities as a result of coastal erosion.



## 2.5 'Informed Adaption' management framework

### 2.5.1 Framework overview

The Greater Taree Coastal Zone Management Plan (CZMP) supports *Informed Adaption* in response to the risk posed by our changing coastline.

*Informed Adaption* facilitates a range of flexible responses to the changing coastline and is based on the following objectives:

- people want to be empowered to undertake actions themselves;
- people want a variety of tools that they could use to suit their own circumstances;
- community groups want the ability to seek solutions; and
- people want the ability to use their land for as long as practicable.

*Informed Adaption* may be proactive or reactive, and it enables landowners, community groups and public authorities to implement a range of management measures to adapt to the risk from coastal processes on land they own and to preserve the beach and dune amenity they value.

While empowering landowners to make decisions and act, *Informed Adaption* also places responsibility for success or failure on those who choose to implement the management measures. This means:

- if a landowner undertakes a management measure it is their responsibility for the success or failure of this management measure. For example if a landowner chooses to undertake beach nourishment with the aim of protecting their land from coastal erosion, they need to accept responsibility in relation to the possibility that the sand may be washed away during the next storm;
- if a landowner builds in an area likely to be affected by coastal erosion, they must accept that in the future the structure they build may need to be demolished should it be deemed at risk; and
- future owners know from obtaining a section 149 Certificate for the property that the land is in an area potentially affected by coastal erosion and they need to accept this risk when they make their purchase.

Nobody is locked into preserving or maintaining property or structures should a decision be made to no longer do so. *Informed Adaption* is about being able to make decisions yourself about what is viable to adapt to coastal processes. Likewise, community groups and public authorities that undertake management measures are not locked into doing so in perpetuity.

#### **Key Element**

Trialling new or untested management measures is encouraged under this plan, as a means of adapting to our changing coastline.

### 2.5.2 Management measures

Actions undertaken in accordance with this plan are referred to as 'management measures' in the plan. There are three types of management measures that can be undertaken under this plan: non-permanent, semi-permanent and permanent. Where development consent is required for management measures the consent authority is the State Government prior to this plan being certified by the NSW Minister for the Environment, with Council becoming the consent authority

following certification of the plan. Appendix 2 provides further information on obtaining development consent.

### **Non-permanent**

These types of management measures do not require consent from any public authority under this plan and can be undertaken by:

- private landowners on private land;
- community groups on public land following the issue of a *Letter of Authority* from Crown Lands; and
- public authorities on public land.

Non-permanent management measures are actions that have negligible impact upon the environment or a neighbour's property. Examples include:

- planting of native vegetation;
- placement of geotextile fabric material along the eroding face of the dunes;
- placement of permeable materials, such as branches along the scarp of the dune; and
- placement of sand, known as beach nourishment.

Temporary coastal protection works under the *Coastal Protection Act 1979*, such as the installation of sand filled geotextile bags can be undertaken at authorised locations (Old Bar Beach) but need to comply with the relevant Code of Practice and associated Guide – see the NSW Office of Environment and Heritage's website for further information [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au).

Any sand used as part of Temporary coastal protection works also needs to conform to the sand material requirements under section 9 of the *Guide to the Statutory Requirements for Temporary Coastal Protection Works 2013* available on the NSW Office of Environment and Heritage's website [www.environment.nsw.gov.au](http://www.environment.nsw.gov.au).

### **Semi-permanent**

This category of management measure requires development consent when undertaken by private landowners on private land and relevant approvals when undertaken by public authorities on public land. Landowners should seek advice from Council before considering such management measures.

When implementing any semi-permanent structures, consideration must be given to:

- end effects;
- maintenance; and
- ease of removal should it be required.

Examples of semi-permanent management measures include:

- the installation of sand filled geotextile bags by private owners on private land; and
- the installation of sand filled geotextile bags by a public authority to protect a road on public land.

### **Permanent**

Permanent structures are permitted with development consent when undertaken by private landowners on private land and with relevant approvals when undertaken by public authorities on public land. Landowners should seek advice from Council before considering such management measures.

When implementing any permanent structures, consideration must be given to:

- design continuity;
- management of end effects;
- maintenance access and funding for maintenance; and
- augmentation at end of design life or when maintenance becomes unacceptable.

Examples of permanent structures include:

- augmentation of existing rock seawalls;
- construction of new rock seawalls; and
- artificial reefs.

### **2.5.3 Ongoing responsibility**

Any management measures implemented under this plan do not lock the party undertaking the management measure into carrying out this activity in perpetuity. For example, Council may protect a road from coastal erosion while it remains physically practicable and financially feasible to do so but protection may not be maintained when this is no longer the case.

Existing and future landowners who are reliant on the protection of the road for the protection of their own property, knowingly take on the risk of owning such property and having to remove structures when they come under threat if Council decides that it will no longer protect the road.

### **2.5.4 Existing development**

Current and future owners accept the risk of living in an area potentially affected by coastal hazards (any locality within the coastal hazard risk zone) by choosing to stay in, or relocate to this area.

#### **Key Element**

Under this plan Council will determine when a structure is at risk of collapse or is a risk to beach users and will serve a Notice of Intention to serve an Order for demolition/removal followed by formal Order. If the structure is in immediate risk of collapse we will issue an emergency Order to demolish/remove the structure. Monitoring of coastal assets following erosion events will be undertaken by Council to mitigate this risk.

In addition, when assets reach a position close to the dune crest (even though they may not yet be deemed at risk of collapse or a risk to beach users) Council will advise the asset owners of the potential risk posed by future erosion events. This will enable asset owners to make preparations should the need arise to remove/demolish the asset in the future.

### **2.5.5 Future development**

#### **Seaward of the foreshore building line/immediate hazard line**

The foreshore building line/immediate hazard line is shown on the maps contained in Section 2.2. The line reflects the line of best fit for the current location of housing in coastal settlements and the immediate hazard line outside of these settlements.



In this area:

- all management measures can be undertaken;
- construction of private assets such as houses, sheds, pools and the like are not permitted; and
- construction of public authority assets are permitted.

#### **Key Element**

No subdivision (whether Torrens, Community or Strata) is permitted seaward of the foreshore building line/immediate hazard line, unless it is to facilitate the conversion of private land to public land or an amendment between boundaries provided that the amendment does not result in the creation of additional lots.

#### **Key Element**

No change of zoning to increase development potential is permitted seaward of the foreshore building line/immediate hazard line.

### **Coastal hazard risk zone**

The coastal hazard risk zone comprises the area of land between the 2100 year coastal hazard line/acceptable risk line and the foreshore building line/immediate hazard line. This area is shown on the maps contained in Section 2.2.

Development is permitted in this area at the landowner's risk. By developing in this area, landowners accept that they may ultimately have to demolish or remove the structure if the coastline continues to recede.

#### **Key Element**

All development proposals submitted in relation to land within the coastal hazard risk zone must be accompanied by a *Risk Management Plan* that demonstrates that the landowner is aware of the risks applicable to the land. The complexity of the *Risk Management Plan* will be dependent on the size and location of the development and therefore proponents are encouraged to seek advice from Council prior to preparing their proposal.

The *Risk Management Plan* must include:

- an acknowledgement of the risk of developing in this area; and
- details indicating how the identified risks will be managed (this could be as simple as detailing how the structure can be demolished or removed in the future.
- if development is of a scale that has the potential to generate offsite impacts, evidence of how these impacts have been considered and addressed.

Section 88E of the *Conveyancing Act 1919* enables Council to impose a public positive covenant on any land. This will not only serve as a mechanism to link *Risk Management Plan* outcomes to

each allotment in perpetuity, but will also have the added benefit of making future purchasers aware of the risk.

If the property is reassessed in the future as being west of the coastal hazard risk zone following a reassessment of the coastal erosion hazard then this public positive covenant can be removed.

**Key Element**

Council will condition any development consent issued within the coastal hazard risk zone with a requirement to create a *public positive covenant* under Section 88E the *Conveyancing Act 1919* that reflects the commitments in the Risk Management Plan.

**Key Element**

No subdivision (whether Torrens, Strata or Community) is permitted in this area, unless it is to facilitate the conversion of private land to public land, or does not result in additional lots.

**Key Element**

No change of zoning to increase development potential is permitted within the coastal hazard risk zone.

**West of the coastal hazard risk zone**

Any development permitted under the *Environmental Planning and Assessment Act 1979* or any other applicable Act is permissible in this area. No additional development controls apply under this plan to this area.

# 3. Implementation and review

## 3.1 Implementation schedule

Council is required to undertake the following actions to implement this Coastal Zone Management Plan:

- adopt the draft CZMP following community consultation;
- update the section 149 Certificate property messages affecting the land covered by this CZMP to inform of the risk of owning land affected by our changing coastline;
- refer the CZMP to the NSW Minister for the Environment for Certification;
- update the Greater Taree Development Control Plan 2010 to include provision in this plan for future development;
- update the Greater Taree Local Environmental Plan 2010 to change the lot sizes and clauses affecting subdivision where the CZMP does not intend for this to occur; and
- apply for funding to implement actions identified in Section 4 and for additional management measures Council chooses to implement as a result of Informed Adaption and updating the CZMP.

## 3.2 Review period

Based on the assumption that the shoreline will continue to retreat, regular review and update of the plan will ensure that the impact on individual properties is kept current. This will mean that landowners and future residents will be able to rely on this document to inform themselves of their responsibilities and of the potential impact that coastal erosion has on their land.

This CZMP should be reviewed a minimum of every five (5) years so that coastal hazard information remains as current as possible, or sooner if the following triggers occur:

- NSW government change in policy or legislation, such as the Stage 2 Coastal Reforms;
- a change in funding opportunities;
- a change in scientific opinion;
- geotechnical information is available that identifies rock in and/or behind dunes which would influence modelled erosion lines; or
- significant storm events and/or considerable erosion.



## 4. Related documents

- Black Head to Crowdy Head Coastline Hazard Definition Study Volume 1 and 2 2010 (WorleyParsons)
- Greater Taree Coastline Management Study 2010 (WorleyParsons)
- Greater Taree Coast Emergency Action Plan 2011 (WorleyParsons)
- A Coastal Zone Management Plan for Greater Taree 2013 (WorleyParsons)
- A Review of Artificial Reefs for Coastal Protection 2013 (Water Research Laboratory)
- Old Bar Coastal Protection Design Investigation 2013 (Royal HaskoningDHV)
- Risk Assessment to Define Appropriate Development Setbacks and Controls in Relation to Coastline Hazards at Old Bar 2014 (Royal HaskoningDHV)
- Addendum to Coastal Zone Management Plan for Old Bar 2014 (Royal HaskoningDHV)
- Executive Summary for Coastal Zone Management Plan Documents 2014 (GTCC)
- Cost-Benefit Analysis of Options to Protect Old Bar from Coastal Erosion 2014 (The Balmoral Group)
- Manning River Estuary Processes Study 1997 (Webb, McKeown & Associates Pty. Ltd.)
- Manning River Estuary Management Study 2009 (WorleyParsons)
- Manning River Estuary Management Plan 2009 (WorleyParsons)
- Manning River Estuary Management Plan Implementation Schedule – 2014 Update (GTCC)
- Entrance Opening Management Plan – Farquhar Inlet, Old Bar 2010 (WorleyParsons)
- Manning River Maintenance Dredging Strategy 2010 (GTCC)
- State of the Manning Report Card 2014 (GTCC)

# Appendix 1 – Compliance of this CZMP with the NSW Coastal Protection Act 1979 and the Guidelines for Preparing Coastal Zone Management Plans July 2013

The NSW Minister for the Environment adopted the above guidelines under section 55D of the *Coastal Protection Act 1979*. Coastal councils are to prepare draft plans in accordance with these guidelines. A reference is provided below as to where each component of this guide is addressed in this CZMP or the accompanying documents.

## **CZMP Preparation – minimum requirements for planning process content and outcomes**

### 1. A description of:

- *how the relevant Coastal Management Principles have been considered in preparing the plan;*

Principle	Reference
1 Consider the objectives of the <i>Coastal Protection Act 1979</i> and the goals, objectives and principles of the NSW Coastal Policy 1997.	All CZMP documentation.
2 Optimise links between plans relating to the management of the coastal zone.	Section 2 of this CZMP outlines the suite of technical documents that underpin this CZMP.
3 Involve the community in decision-making and make coastal information publicly available.	Appendix 5 of this CZMP outlines community involvement and all information related to this work has been available throughout the process on Council's website: <a href="http://www.gtcc.nsw.gov.au">www.gtcc.nsw.gov.au</a>
4 Base decisions on the best available information and reasonable practice; acknowledge the interrelationships between catchment, estuarine and coastal processes; adopt a continuous improvement management approach.	Appendix 4 of this CZMP outlines the science that supports this CZMP. The interrelationship between catchment and coastal processes is evident in the actions tables identified in Sections 2.2.6 & 2.2.7 to better understand this relationship. Section 3.2 of this CZMP outlines the triggers for review of this CZMP which allow for continuous improvement.
5 The priority for public expenditure is public benefit; public expenditure	The action plan for each beach compartment and for the two river entrances for the Manning River

	should cost-effectively achieve the best practical long-term outcomes.	are shown in Section 2.2 of this CZMP. These actions are within Council's ability to cost-effectively fund when matching State government funding is available.
6	Adopt a risk management approach to managing risks to public safety and assets; adopt a risk management hierarchy involving avoiding risks where feasible and mitigation where risks cannot be reasonably avoided; adopt interim actions to manage high risks while long-term options are implemented.	Section 2.3 of this CZMP outlines the risks associated with our changing coastline. The management framework of Informed Adaption outlined in Section 2.4 of this CZMP provides a means for landowners, community groups and public authorities to manage the risk posed by coastal erosion within the financial capacity of each.
7	Adopt an adaptive risk management approach if risks are expected to increase over time, or to accommodate uncertainty in risk predictions.	The management framework of Informed Adaption adopted by this CZMP is an adaptive approach to managing our changing coastline.
8	Maintain the condition of high value coastal ecosystems; rehabilitate priority degraded coastal ecosystems.	The management framework of Informed Adaption adopted by this CZMP enables landowners, community groups and public authorities to undertake management measures that will restore and protect important coastal ecosystems where it is practical and cost-effective to do so.
9	Maintain and improve safe public access to beaches and headlands consistent with the goals of the NSW Coastal Policy.	The action plans for each beach in this CZMP (Section 2.2) include measures to rationalise the number of beach accesses to improve degraded coastal ecosystems whilst at the same time improving accesses that are intended to be retained.
10	Support recreational activities consistent with the goals of the NSW Coastal Policy.	The action plans within Section 2.2 of this CZMP include measures to improve beach access and walking trails which will support public use of these areas.

- *the community and stakeholder consultation process, the key issues raised and how they have been considered; and*
  - Appendix 5 of this CZMP details community involvement in the process of preparing a CZMP over a period of seven years and feedback to various stages of the CZMP. The objectives detailed in Section 2.2 are in direct response to feedback received from the community and provide the fundamental principles that underpin this CZMP.
- *how the proposed management options were identified, the process followed to evaluate management options, and the outcomes of the process.*
  - Appendix 3 provides an overview of the seven year history of preparation of this CZMP and the different approaches that focused preparation over that period; and
  - see the Coastline Management Study (WorleyParsons 2010), Coastal Zone Management Plan (WorleyParsons 2013) and Old Bar Coastal Protection Design Investigation 2013 (Royal HaskoningDHV).



## **2. Proposed management actions over the CZMP's implementation period in a prioritised implementation schedule which contains:**

- *proposed funding arrangements for all actions, including any private sector funding;*
  - all actions from the tables in Section 2.2 of this CZMP, which have a direct cost component are intended to be funded on a 50/50 basis between Council and the State government through the Coast & Estuary Management Grant Scheme as shown in Section 3.1 of this CZMP; and
  - Any actions to be carried out on private land are the responsibility of the private land owner.
- *actions to be implemented through other statutory plans and processes;*
  - these actions are shown in Section 3.1 of this CZMP.
- *actions to be carried out by a public authority or relating to land or other assets it owns or manages, where the authority has agreed to these actions (section 55C(2) (b) of the Coastal Protection Act 1979); and*
  - no approval has been received from any other public authority to include actions that are the sole responsibility of that authority.
- *proposed actions to monitor and report to the community on the plan's implementation, and a review timetable.*
  - Section 3.2 of this CZMP includes the triggers to review the CZMP if these are reached or otherwise the plan will be reviewed every 5 years. These reviews will include consideration of any management measures undertaken during this time and their effectiveness.

## **Coastal Risk Management – minimum requirements for coastal risks**

### **1. A description of:**

- *coastal processes within the plan's area, to a level of detail sufficient to inform decision-making;*
  - the Coastal Hazard Definition Study (WorleyParsons 2010) and Risk Assessment to Define Appropriate Development Setbacks and Controls in Relation to Coastline Hazards at Old Bar 2014 (Royal HaskoningDHV) provide a detailed explanation of the coastal processes that have informed the preparation of this CZMP.
- *the nature and extent of risks to public safety and built assets from coastal hazards;*
  - while documents relating to the CZMP identify risks, the most recent detailed assessment can be found in the document titled Risk Assessment to Define Appropriate Development Setbacks and Controls in Relation to Coastline Hazards at Old Bar 2014 (Royal HaskoningDHV); and
  - risks associated with the remaining beach compartments, can be found in the Coastal Hazard Definition Study (WorleyParsons 2010)
- *projected climate change impacts on risks from coastal hazards (section 55C(f) of the Coastal Protection Act 1979), based on council's adopted sea level rise projections or range of projections. Councils should consider adopting projections that are widely accepted by competent scientific opinion;*
  - as identified in Section 2.3.2 of this CZMP, the sea level rise figures used to support this CZMP were originally based on the figures produced by the CSIRO, which were used as the basis for the State Government's Sea Level Rise Policy Statement 2009 (no longer supported by the State). These were a predicted increase above 1990 mean sea levels of 40cm by the year 2050 and a rise of 90cm by the year 2100.
- *suitable locations where landowners could construct coastal protection works (provided they pay for the maintenance of the works and manage any offsite impacts), subject to the requirements of the Environmental Planning and Assessment Act 1979; and*
  - Table 1 of this CZMP identifies the categories and types of management measures that landowners can construct and whether these require consent. Section 2.4.2 of

this CZMP provides more detail on the management measures. Appendix 2 outlines the approvals process.

- *property risk and response categories for all properties located in coastal hazard areas.*
  - the Coastal Hazard Definition Study (WorleyParsons 2010) identified the hazard lines along the coastline and these were refined at Old Bar in the Risk Assessment to Define Appropriate Development Setbacks and Controls in Relation to Coastline Hazards at Old Bar 2014 (Royal HaskoningDHV) as a result of an increase in the rates of erosion since the work undertaken by WorleyParsons in 2010. This CZMP uses a combination of hazard lines from both documents.

**2. Proposed actions in the implementation schedule to manage current and projected future risks from coastal hazards, including risks in an estuary from coastal hazards. Actions are to focus on managing the highest risks (section 55C(d) and (e) of the Coastal Protection Act 1979).**

- this is addressed in:
  - Manning River Estuary Processes Study
  - Manning River Estuary Management Study
  - Manning River Estuary Management Plan
  - Manning River Estuary Management Plan Implementation Schedule – 2014 Update.
- the proposed actions in relation to our beaches, are outlined in Section 2.2 of this CZMP. In addition landowners, community groups and public authorities are able to undertake the management measures outlined in Table 1 and Section 2.4.2 of this CZMP. Section 2.4.5 also details requirements for future development within areas identified as being at risk now or in the future. The Implementation Schedule (Section 3.1) of this CZMP relates to actions required to implement the Informed Adaption management framework upon which this document has been written.

**3. Where the plan proposes the construction of coastal protection works (other than temporary coastal protection works) that are to be funded by the council or a private landowner or both, the proposed arrangements for the adequate maintenance of the works and for managing associated impacts of such works (section 55C(g) of the Coastal Protection Act 1979).**

- this CZMP enables landowners and public authorities to undertake semi-permanent and permanent management measures (see Table 1 and Section 2.4.2). The erection of such management measures requires development consent from the determining authority, being the State government prior to Certification of this CZMP and Council following Certification. As detailed in Section 2.4.2 the development application will need to address the maintenance of the proposed structure and the management of end effects to the satisfaction of the determining authority. The determining authority will impose conditions to this effect following a merits assessment of the development application, should consent be provided.

**4. An emergency action subplan, which is to describe:**

- *intended emergency actions to be carried out during periods of beach erosion such as coastal protection works for property or asset protection, other than matters dealt with in any plan made under the State Emergency and Rescue Management Act 1989 relating to emergency response (sections 55C(b) and (g) of the Coastal Protection Act 1979);*
- *any site-specific requirements for landowner temporary coastal protection works; and*
- *the consultation carried out with the owners of land affected by a subplan.*
  - the Greater Taree Coast Emergency Action Plan 2011 (WorleyParsons) was Certified by the NSW Minister for the Environment, the Hon Robyn Parker MP, on 28 February 2012.

## **Coastal Ecosystem Health – minimum requirements for coastal ecosystems**

### **1. A description of:**

- *the health status of estuaries within the plan's area;*
- *the pressures affecting estuary health status and their relative magnitude; and*
- *projected climate change impacts on estuary health (section 55C(f) of the Coastal Protection Act 1979), based on council's adopted sea level rise projections or range of projections.*
  - this is addressed in:
    - Manning River Estuary Processes Study;
    - Manning River Estuary Management Study;
    - Manning River Estuary Management Plan; and
    - Manning River Estuary Management Plan Implementation Schedule – 2014 Update.

### **2. Proposed actions in the implementation schedule to respond to estuary health pressures (section 55C(e) of the Coastal Protection Act 1979).**

- see the Manning River Estuary Management Plan Implementation Schedule – 2014 Update.

### **3. An entrance management policy for intermittently closed and open lakes and lagoons (ICOLLs).**

- this is addressed in the Farquhar Inlet, Old Bar - Entrance Opening Management Plan (WorleyParsons 2010).

### **4. An estuarine monitoring program, consistent with the NSW Natural Resources Monitoring, Evaluation and Reporting (MER) Strategy.**

- Council has partnered with the NSW Office of Environment & Heritage to undertake water quality monitoring throughout each year (commenced in 2013) to produce the annual State of the Manning Report Card. The first report card released in 2014 showed an overall estuary health score of B – Good.

## **Community Uses – minimum requirements for community use**

### **1. Proposed actions in the implementation schedule that protect and preserve beach environments and beach amenity, and ensure continuing and undiminished public access to beaches, headlands and waterways, particularly where public access is threatened or affected by accretion (section 55C(c) of the Coastal Protection Act 1979).**

- see the action plan for each beach shown in Section 2.2 of this CZMP.

### **2. A description of:**

- *the current access arrangements to beaches, headlands and waterways in the plan's area, their adequacy and any associated environmental impacts;*
  - the maps for each beach in Section 2.2 of this CZMP show current and proposed beach accesses, headlands and waterways. The action plans for each beach show a clear intention of Council to work collaboratively to reduce the number of unlawful beach access to reduce environmental degradation and increase vegetation connectivity. At the same time both parties see the need to improve remaining accesses and undertake community education.



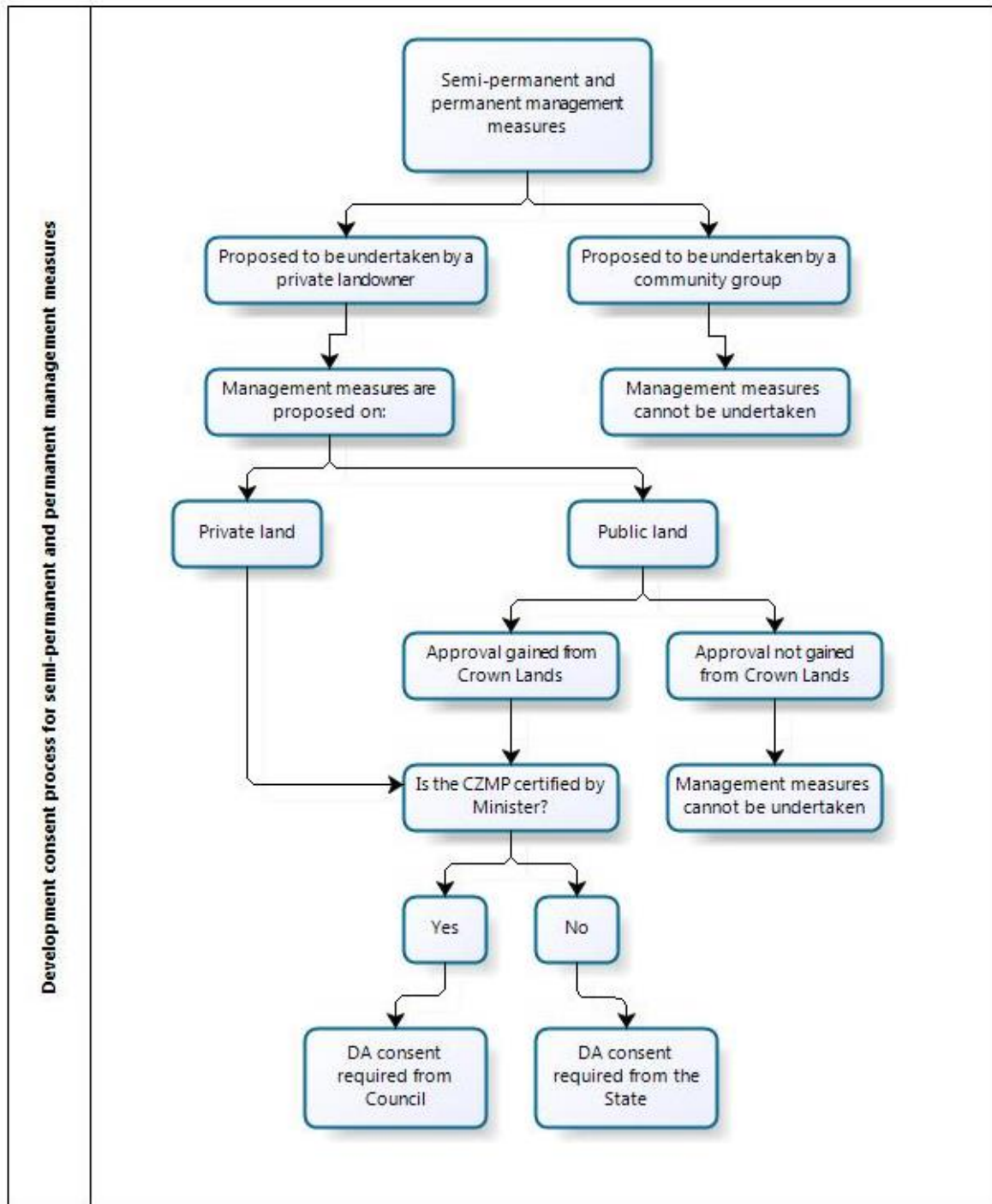
- *any potential impacts (e.g. erosion, accretion or inundation) on these access arrangements; and*
  - the potential impacts predominantly relate to Old Bar Beach in the area near the surf life saving club (see Section 2.2.6). The action plan for this beach specifies the actions required to accesses as a result of erosion.
- *the cultural and heritage significance of the plan's area.*
  - see Appendix 6 of this CZMP.

**3. Proposed actions in the implementation schedule to manage any environmental or safety impacts from current access arrangements, and to protect or promote the culture and heritage environment.**

- the action plans for each beach in Section 2.2 outline the actions to manage environmental and safety impacts of beach accesses, namely improving beach accesses intended to be retained and closing accesses which have an adverse environmental or safety impact.
- European heritage is protected by identification in heritage studies (see Council's website [www.gtcc.nsw.gov.au](http://www.gtcc.nsw.gov.au)) and subsequent listing as a heritage item in the Greater Taree Local Environmental Plan 2010. Council has produced a number of brochures which can be used to undertake self-guided heritage walks in the Local Government Area which are available on our website. Council's Strategic Heritage Advisory Committee also actively works to promote heritage in the Manning Valley and a number of heritage signs have been established along the river and coastline to promote better understanding of heritage.
- Aboriginal cultural heritage is protected by identification of items and places on a database managed by the NSW Office of Environment & Heritage. Due to cultural sensitivity promotion of cultural areas is left to the Aboriginal community with the exception of Saltwater Beach State Park which is jointly managed by the Aboriginal community and the National Parks & Wildlife Service and where partnerships have been established to promote cultural heritage for specific sites, such as Cattai Wetlands where we are currently working with the Aboriginal community on cultural signage.

# Appendix 2 – Development consent process for management measures

Non-permanent management measures do not require consent on private land (if on public land a Letter of Authority from Crown Lands is required).



# Appendix 3 – The history

Old Bar Beach is currently identified by the NSW Government as the worst hotspot for coastal erosion in NSW. There has been active erosion in this location for a number of decades, but it is only since the early 2000s that erosion has accelerated. In 2008, this resulted in the removal of three houses that were a risk to occupants and beach users.

Historically, this beach has seen an average net loss of half a metre of dune per year, which has increased to one metre per year since the early 2000s. While a number of theories have been proposed for this acceleration, we are no closer to predicting the frequency of storm events and the intensity of related erosion. There is uncertainty as to whether the current erosion being experienced at Old Bar will cease at some point, or whether the current rate of dune loss will be maintained or accelerate further. What we do know, is that the current level of erosion puts private and public assets at risk and creates friction between private and public ownership. The changing profile of the beach, at times limits opportunity for beach users, particularly at high tide.

Since 2008, we have been through an exhaustive process with consultants, our community and the State Government. Following the identification of the hazard and associated risk, a number of coastal management measures were documented for different beaches. Two documents in particular, the Black Head to Crowdy Head – Coastline Hazard Definition Study (WorleyParsons 2010) and the Greater Taree Coastline Management Study – Black Head to Crowdy Head (WorleyParsons 2010) formed the basis of community consultation in late 2010.

We found it difficult to engage people in conversations unless they were directly affected by coastal erosion. Additionally, the management measures proposed were extremely expensive to implement and were unaffordable without significant financial assistance. Therefore, no one solution was preferred above others.

As a way to move forward we prepared the draft Coastal Zone Management Plan for Greater Taree (WorleyParsons 2013), which included all of the management measures with a view that should funding become available, any of the measures could be implemented.

Without funding to implement any protective measures, doing nothing became the most affordable option.

At this time the NSW Government commenced what has been termed, the ‘coastal reforms’. Stage 1 of the reform is now complete and included some changes to temporary protection works and sea level rise advice. Stage 2 reform which relates to a strategic approach to managing coastlines is currently underway. During this period, conversations between the State and individual Councils about CZMPs continued, but finalisation of plans was placed on hold.

In 2013, the then NSW Minister for the Environment, The Hon. Robyn Parker MP attended a media briefing at Old Bar to announce additional funding to Council to prepare a study to determine a structural solution to protect public and private assets and was quoted as saying ‘*Planned Retreat is not an option for NSW*’.

In response, we embarked on a three month study with Royal HaskoningDHV and prepared the Old Bar Beach Coastal Protection Structure Design Investigation (RHDHV 2013). This study determined that the best structural solution to protect public and private land from erosion was a revetment wall. This wall would have needed to be built in four stages and if all stages were constructed would have cost in the order of \$48.1M. The first two stages were identified as being the most critical and offered protection to private assets, public road and utilities infrastructure.



These stages were estimated to cost \$15M. The third stage offered protection to State assets, including Old Bar Primary School at an estimated cost of \$8.8M and the last stage, which offered protection to the sewerage infiltration ponds was the most expensive at an estimated \$24.3M. The revetment wall had a design life of 60 years and incorporated a walkway/cycleway along the top. This allowed for public access to the foreshore as it is likely the beach in front of the wall would be reduced and eventually lost over time.

Consultation with the Old Bar community was undertaken in late 2013 to explain the design and answer questions about its impact. The feedback was mixed ranging from those who wanted the revetment wall constructed to protect property, to those who opposed its construction based on the effect it would have on beach amenity.

On the basis that '*Planned Retreat was not an option for NSW*' we revised our Coastal Zone Management Plan 2013 to incorporate the revetment wall as the preferred management measure at Old Bar by incorporating an Addendum to the Coastal Zone Management Plan (RHDHV 2014). In light of the accelerated erosion being experienced since the original hazard/risk assessment was undertaken, we undertook a Risk Assessment to Define Appropriate Development Setbacks and Controls in Relation to Coastline Hazards at Old Bar (RHDHV 2014). Management measures for the rest of the coastline remained unchanged, continuing to limit any future development in sensitive areas.

Further community consultation on the suite of documents making up the draft CZMP was undertaken in early 2014 and was again met with mixed reaction from the community. Those outside of Old Bar felt no need to be involved as they were still not affected by coastal erosion. Residents of Old Bar again provided mixed feedback centred on either property protection or beach amenity consistent with the previous feedback mentioned above.

Council adopted the CZMP suite of documents at its Ordinary Meeting in May 2014 and these documents were sent to the NSW Minister for the Environment for Certification.

In late 2014, the then NSW Minister for the Environment, The Hon. Rob Stokes MP, would not certify the plan as it stood, advising that following a cost-benefit analysis the NSW Government had decided that it would not fund a revetment wall at Old Bar. He further advised that he would certify the plan if it was re-written and re-lodged on the basis of Planned Retreat. The Minister also advised that from July 2015, all State funding for coastal management measures would only be allocated to those measures identified in certified CZMPs.

In late 2014, a number of conversations were had with the NSW Office of Environment and Heritage about the incentives that might be provided to encourage retreat under a policy of Planned Retreat. These incentives are the subject of Stage 2 coastal reform discussions, which are not scheduled to be finalised until the end of 2015. Without knowing the State's position on the provision of compensation to help landowners relocate under a policy of Planned Retreat, and therefore the outcome for residents of our community, we are unable to commit to such a policy position. Without Stage 2 of coastal reform, Planned Retreat is little more than "do nothing". The Informed Adaption approach in this plan asks landowners to determine via a Risk Management Plan how they will respond to coastal erosion which places the accountability on landowners to plan for the future. In this way it deals with new actions in the hazard zone in a *planned retreat* style.

In early 2015 we reflected on what we had learnt from this process and from our community, and decided to prepare a new CZMP that provided certainty to our community in terms of what we would allow and what we would support, despite there being no certainty at the State level. We also needed a CZMP that would support our community in their desire to be proactive in adapting to the risk posed by coastal processes, maintain quality of life and provide economic stimulus in those areas that are affected by coastal erosion.

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Throughout this period the following coastal management options have been identified. These options have not progressed due to economic feasibility at each point in time.

Year	Location	Management option
2013 CZMP	Entire coastline	Planned retreat
		Property Purchase/Acquisition/ Partial Acquisition
	Diamond Beach	Geotextile bag seawall
		Buried Seawall – sand from creek to maintain beach amenity
		Buried Seawall – sand trucked in to maintain beach amenity
		Nourishment – sand from creek
		Nourishment – sand trucked in
		Groynes – sand from creek for beach amenity
		Groynes – sand trucked in for beach amenity
		Old Bar
	Revetment and nourishment to maintain beach amenity	
	Nourishment	
	Entrance structure and nourishment	
	Groyne field and nourishment	
	Offshore reef and nourishment	
Blackhead	Review adequacy of rock protection to SLSC	
Harrington	Maintain training wall	
2014 CZMP Addendum	Old Bar	Rock revetment

# Appendix 4 – Coastal risk identification

Under the NSW *Coastal Protection Act 1979*, the NSW Government requires all coastal Councils to prepare CZMPs that propose management options to address risks from coastal hazards.

A CZMP is required to estimate coastal recession as a result of storm events and sea level rise, as well as identifying the management options that can be undertaken to address the areas affected by these naturally occurring processes.

The first stage of this work, to identify the risks associated with coastal processes, was undertaken via the preparation of a *Coastline Hazard Definition Study* (WorleyParsons 2010). The main risks identified by this study were long term recession due to sediment loss and sea level rise. The risks identified by the study were then graphically represented by establishing hazard lines on coastline maps, which have been condensed in subsequent documents to the following mapped areas:

- immediate hazard line (area currently at risk from storm events);
- 2050 year hazard line (area that could be lost due to erosion over this time period); and
- 2100 year hazard line (area that could be lost due to erosion over this time period).

The main factor in determining these lines (outside the current erosion being experienced at Old Bar as a result of storm events) is anticipated sea level rise and the impact that may have on coastal erosion. For most of our coastline, which is not experiencing coastal erosion, the 2050 and 2100 year hazard lines have been established solely as a result of predicted sea level rise.

The sea level rise figures used to support this CZMP were originally based on the figures produced by the CSIRO, which were used as the basis for the State Government's Sea Level Rise Policy Statement 2009 (no longer supported by the State). These were an increase above 1990 mean sea levels of 40cm by the year 2050 and a rise of 90cm by the year 2100.

In response to the increase in coastal erosion being experienced at Old Bar, Royal HaskoningDHV was engaged to prepare an addendum to the *Hazard Definition Study*, which is titled *Risk Assessment to Define Appropriate Development Setbacks and Controls in Relation to Coastline Hazards at Old Bar* (2014). This work was based on the previous State Government benchmarks for sea level rise. Rather than basing a CZMP on the traditional approach of identifying a revised 2050 and 2100 year hazard line, we used a new method which instead determines an area that will likely be at risk from coastal erosion over a buildings structural design life of 60 years.

The anticipated levels of sea level rise and associated impacts need to be monitored over time, to see whether predictions change to a degree significant enough to warrant remodelling of the hazard lines.

Another trigger for reviewing the hazard line modelling is when detailed geotechnical information about our coastline becomes available. The current hazard lines have been modelled assuming that each beach and the land behind the beach is primarily sand, which has the potential to erode. Detailed geotechnical investigations were not undertaken due to the cost associated with such an exercise.

The second stage of the work was to prepare a *Coastline Management Study* (2010). This study identified two areas (Diamond Beach and Old Bar Beach), where measures could be undertaken to manage the risks associated with coastal erosion. A number of management options as described below were examined:



- Diamond Beach (southern end): temporary geotextile revetment; buried seawall; groyne field and beach nourishment; and
- Old Bar Beach (in the vicinity of Lewis Street): revetment (with and without beach nourishment); massive beach nourishment; Farquhar Inlet entrance structure and beach nourishment; groyne field and beach nourishment; and offshore reef and beach nourishment.

The third stage of the process is to prepare a CZMP.

# Appendix 5 – Community involvement and consultation

In 2008, Council engaged a coastal engineering consultant to commence a study of the hazards affecting the coastline between Wallabi Point in the south and the Manning River South Channel Entrance (Farquhar Inlet) in the north. This work was done primarily because Old Bar Beach had been more excessively and significantly impacted by coastal hazards than other beaches along the coastline. This work was expanded and resulted in the completion of a Coastline Hazard Definition Study (2010) and a Coastline Management Study (2010). Both of these documents were placed on public exhibition from October to November 2010 to obtain feedback from the community, particularly in relation to the content of the studies and the management options proposed. Submissions were received and collated and the matter was reported to Council in February 2011.

In the absence of significant funding commitments to implement any of the management options, Council at its February 2011 Ordinary Meeting, resolved to prepare the draft Coastal Zone Management Plan (2013). This plan was prepared on the default basis of 'planned retreat' being the likely management response, with all other management options remaining in the event they could be funded by private landowners or other levels of government. As erosion continued at Old Bar Beach the removal of property by order had become imminent. This draft management plan was completed, but public exhibition was delayed pending coastal planning reform until April 2014.

On Thursday 21 November 2013, a community forum was held at Club Old Bar. The session was well attended by almost 100 hundred members of the community. The session had been scheduled at the commencement of the project with the intention of gauging community sentiment in relation to the construction of a permanent coastal protection structure, as this was one of the key concerns raised by the NSW Coastal Panel in their consideration of a development application in Lewis St, Old Bar. Twenty five submissions were received and their analysis identified a divided community in relation to the management options available for Old Bar. This was confirmed from the feedback received following the community drop-in sessions, held in relation to the *Old Bar Coastal Protection Design Investigation* (2013). The feedback received was gathered through face to face conversations, on feedback forms left by attendees and in the numerous submissions received. The views of the community ranged from agreement that protection of property, infrastructure and assets is paramount to the future of Old Bar to those that maintained that an uninterrupted sand beach is an essential element of the Old Bar village environment.

A full suite of Coastal Zone Management Planning documents was made available to the public on 8 April 2014 and formally placed on public exhibition on 11 April 2014 for a period of 21 days as is the requirement of the *Coastal Protection Act NSW 1979*. No submissions were received in relation to the broader *CZMP* (2013). 33 submissions and 194 survey responses were however received in relation to the *CZMP* (2014) Addendum Old Bar. Council staff also received phone calls from members of the community seeking responses to questions, resulting in the placement of a Question and Answer Fact Sheet on Council's website.

In late 2014, the then NSW Minister for the Environment, The Hon. Rob Stokes MP, advised that he would not certify the plan as it stood, advising that following a cost-benefit analysis the NSW Government had decided that it would not fund a revetment wall at Old Bar and advised Council that he would certify the plan if it was re-written and re-lodged on the basis of Planned Retreat.

In April and May 2015, a total of 42 people attended six briefing sessions to discuss the revised *CZMP*. The 42 people were largely from Old Bar and largely people with interests in the hazard

zone. Our experience is that the broader community have little interest in engaging on how we manage coastal erosion presumably because they are not impacted. This is despite media releases, flyers, posters and direct emails. Only positive feedback was received and Council was complimented on the CZMP because of its flexibility in meeting landowner and community group expectations to undertake actions. The phrase 'Council has listened to us' was heard at all sessions.

The 'owner accepts the risk' strategy, and reducing the rules and restrictions that currently apply for coastal landowners, were embraced in the group discussions. The information briefing method of consultation was accepted by the community who felt comfortable to express their opinions in a smaller group setting. Council staff have also received phone calls and emails from members of the community following the briefing sessions showing their appreciation for the time taken by staff to respond to questions.

The feedback from the information sessions is summarised below:

- there was confusion around land ownership and management, in particular, the roles Council, Crown Lands and the State Park Trust have in regard to approvals;
- it was felt that more examples should be provided in Table 1 of management measures that can be undertaken;
- it was felt that the plan should make specific reference to management measures such as reefs, groins and rock seawalls rather than remaining silent on whether these are possible;
- it was felt that the reference in the plan that it provides in-principle support for community groups to advocate and seek funds for the construction and maintenance of semi-permanent and permanent management measures should be made more visible by moving it to the front of the document;
- it was requested that the current erosion in the vicinity of Pacific Parade and any impact this may have on road maintenance be investigated and referenced in the plan;
- it was requested that the proposed future surf club beach access to the north of the Jeff Vandenberg viewing platform be better referenced in the plan; and
- it was suggested that Council pursue its advocacy role with State government agencies regarding coastal management until suitable outcomes for the community are realised.

Consultation was also undertaken with Crown Lands and the Taree-Old Bar Surf Life Saving Club and the document revised based on all the feedback received during this period. The revised *Greater Taree Coastal Zone Management Plan June 2015* was made available on Council's website on 4 June 2015.



# Appendix 6 – Cultural and heritage significance

## Aboriginal Sites

The original occupiers of the Manning Valley were the Biripi people. Many Aboriginal sites (e.g. scarred trees, artefact scatters, shell middens, stone tool manufacturing sites and ceremonial sites) are located in coastal areas of the Greater Taree LGA. A number of Aboriginal burial sites occur along beaches (Klaver & Kefferan 2009). Artefacts including 'flakes', remnant 'cores' and 'stone axes' have also been recorded (Orogen 2007).

The predominant area of occupation by the Biripi was around Old Bar/Wallabi Point through to Saltwater Reserve. The majority of artefacts found within the Greater Taree LGA have been recorded in this area. There is also an area of significance in this locality known as 'The Turtle'.

Saltwater reserve while owned by the NSW National Parks and Wildlife Service is jointly managed by the Aboriginal community.

## Natural and Non-Indigenous Cultural Heritage

Pockets of coastal rainforest are present in a number of areas along the Greater Taree coast. These areas are protected under *State Environmental Planning Policy (SEPP) No. 26 Littoral Rainforest* and are considered an Endangered Ecological Community (EEC) under the NSW *Threatened Species Conservation (TSC) Act 1995* (i.e. Littoral Rainforest in the NSW North Coast, Sydney Basin and South East Corner Bioregions). In addition, Littoral Rainforest and Coastal Vine Thickets of Eastern Australia are listed as Critically Endangered under the Federal *Environment Protection and Biodiversity Conservation (EPBC) Act 1999*.

The rainforest at North Harrington is a significant invertebrate habitat. The site is the only known locality for five species of beetle. These include a member of a primitive genus, *Helperella manningensis*, two beetles belonging to the Lagriidae and Rhipiphoridae families, the jewel beetle *Paratrachys australia* and *Trachys blackburni*, which has not been found anywhere else since its discovery last century. A neocuris jewel beetle (*Coleoptera buprestidae*) is also known only from this site and a littoral rainforest remnant at Manning Point immediately to the south.

Several coastal wetlands listed under *SEPP No. 14 Coastal Wetlands* are located at Farquhar and Harrington Inlets. Saltmarsh associated with these wetlands is listed under the *Threatened Species Conservation (TSC) Act 1995* (i.e. Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner Bioregions). Mangroves and seagrasses are protected under the *Fisheries Management (FM) Act 1994*.

Some areas of the Greater Taree coast are listed on the Register of the National Estate for these and other natural and cultural heritage values.

Crowdy Head Lighthouse, built in 1879, is a significant lighthouse designed by the Colonial Architect James Barnet. It shows typical characteristics of this style such as the oversailing bluestone platform supported by corbels. The lighthouse is significant as one of five small lighthouses built on the NSW north coast in the late nineteenth century and is listed in the Greater Taree Local Environment Plan 2010 as being of local heritage significance.