

1901-9245 SRA

Yours sincerely



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enc Attachment 1 - Referral agency conditions
Attachment 2 - Advice to the applicant
Attachment 3 - Reasons for referral agency response
Attachment 4 - Change representation provisions
Attachment 5 - Approved plans and specifications

1901-9245 SRA

Attachment 1—Referral agency conditions

(Under section 56(1)(b)(i) of the *Planning Act 2016* the following conditions must be attached to any development approval relating to this application) (Copies of the plans and specifications referenced below are found at Attachment 5)

No.	Conditions of Preliminary Approval	Condition timing
Material change of use (Preliminary Approval)		
Schedule 10, Part 9, Division 4, Subdivision 2, Table 4, Item 1 and Schedule 10, Part 9, Division 4, Subdivision 1, Table 1, Item 1 —The chief executive administering the <i>Planning Act 2016</i> nominates the Director-General of the Department of Transport and Main Roads to be the enforcement authority for the development to which this development approval relates for the administration and enforcement of any matter relating to the following condition(s):		
1.	<p>The development must be carried out generally in accordance with the following plans:</p> <ul style="list-style-type: none"> Sarina Beach – Structure Plan prepared by RPS dated 19 December 2019, reference 102915-07d, as amended in red to clearly identify the location of approved accesses to the State-controlled road. 	Prior to the commencement of use and to be maintained at all times.
2.	A shared path of 2.5 metres width must be provided along Sarina Beach Road from the Main Access, eastwards for the length of Structure Plan area as shown on Sarina Beach – Structure Plan prepared by RPS dated 19 December 2018, reference 102915-07d, as amended in red to show location of required shared path.	Prior to the commencement of use.
3.	<p>The development must be carried out in accordance with sections 6, 7, 8, 9 and 10 of the Stormwater Management Plan for Proposed Development at L1/C11905, L2/RP852611 and L823/C124111 Sarina Beach Road, Sarina Beach QLD 4737 prepared by Premise dated 04 December 2018 reference MIS-0316 R02, Revision B, in particular:</p> <ul style="list-style-type: none"> Section 6.2 which shows the achievement of post development peak flow rates at lawful points of discharge to Sarina-Beach Road that are equal to or less than pre-development peak flow rates. 	At all times.
4.	<p>(a) The road access locations are to be located generally in accordance with Sarina Beach – Structure Plan prepared by RPS dated 19 December 2018, reference 102915-07d, as amended in red to show approved road access locations.</p> <p>(b) Road access works comprising basic left (BAL) / channelized right (CHR) turn treatments must be provided on Sarina Beach Road at the Main Access location (Approx. TMR Ch. 11.5km).</p> <p>(c) The road access works for the Main Access must be designed and constructed in accordance with:</p> <ul style="list-style-type: none"> Austroads Guide to Road Design Part 4A: Unsignalised and Signalised Intersections, Figure 8.2: Rural basic left-turn; Austroads Guide to Road Design Part 4: Intersections 	Prior to the commencement of use.

1901-9245 SRA

	and Crossings – General, Figure A 30 for CHR.	
	(d) Road access works comprising a single lane round-a-bout must be provided on Sarina-Beach Road at the Secondary Access location (Approx. TMR Ch. 12.25).	
	(e) The road access works for the Secondary Access must be designed and constructed in accordance with Austroads Guide to Road Design Part 4B: Roundabouts, central island radius minimum 8m, minimum 19m long (semi-trailer) design vehicle.	

1901-9245 SRA

Attachment 2—Advice to the applicant

General advice	
1.	Terms and phrases used in this document are defined in the <i>Planning Act 2016</i> its regulation or the State Development Assessment Provisions (SDAP) v2.4. If a word remains undefined it has its ordinary meaning.
State-controlled Road	
2.	Road works approval Under section 33 of the <i>Transport Infrastructure Act 1994</i> , written approval is required from the Department of Transport and Main Roads to carry out road works on a state-controlled road. Please contact the Department of Transport and Main Roads' on mackay.whitsunday.idas@tmr.qld.gov.au or phone (07) 4951 8555 for more information on how to make an application for road works approval. This approval must be obtained prior to commencing any works on the state-controlled road reserve. The approval process may require the approval of engineering designs of the proposed works, certified by a Registered Professional Engineer of Queensland (RPEQ). Please contact the Department of Transport and Main Roads' as soon as possible to ensure that gaining approval does not delay construction.

1901-9245 SRA

Attachment 3—Reasons for referral agency response

(Given under section 56(7) of the *Planning Act 2016*)

The reasons for the department's decision are:

- The development application specifically seeks a **Preliminary Approval (Material Change of Use)** for the Sarina Beach Eco Village concept generally in accordance with the Sarina Beach Structure Plan (prepared by RPS, reference no. 102915-07d, dated 19 December 2018).
- The development application also includes a request for **variation approval** to vary the current and future planning scheme so future development can be carried out in accordance with the Structure Plan.
- Proposed access to the Structure Plan area is via two new intersections to Sarina Beach Road which is a State-controlled Road. The western intersection will provide access to most of the development area and is identified on the Structure Plan as the "Main Access". The eastern intersection ("Secondary Access") will provide access to an isolated section of the proposed development area. This area is shown as Low-Density Residential Type 1 (Average Lot size 800m²) on the Structure Plan.
- The development, subject to conditions, will comply with the relevant performance outcomes of the *State Development Assessment Provisions* (version 2.4) State code 1: Development in a state-controlled road environment and State code 6: Protection of State Transport Networks.
- Specifically, the development and imposed conditions will:
 - o ensure that road access locations (including design) to the state-controlled road from the site does not compromise the safety and efficiency of the state-controlled road
 - o ensure that the impacts of stormwater events associated with development are minimised and managed to avoid creating any adverse impacts on the state-transport corridor
 - o ensure pathways are planned and designed to ensure that pedestrian traffic seeking to access the proposed development can do so safely.
- The development also complies with the relevant performance outcomes of the *State Development Assessment Provisions* (version 2.4) State code 16: Native vegetation clearing.
- Specifically, the development will:
 - o avoid and minimise native vegetation clearing.
 - o ensure sufficient vegetation is retained to maintain ecological processes.

Material used in the assessment of the application:

- The development application material and submitted plans
- *Planning Act 2016*
- Planning Regulation 2017
- The *State Development Assessment Provisions* (version 2.4), as published by the department
- The Development Assessment Rules
- SARA DA Mapping system

1901-9245 SRA

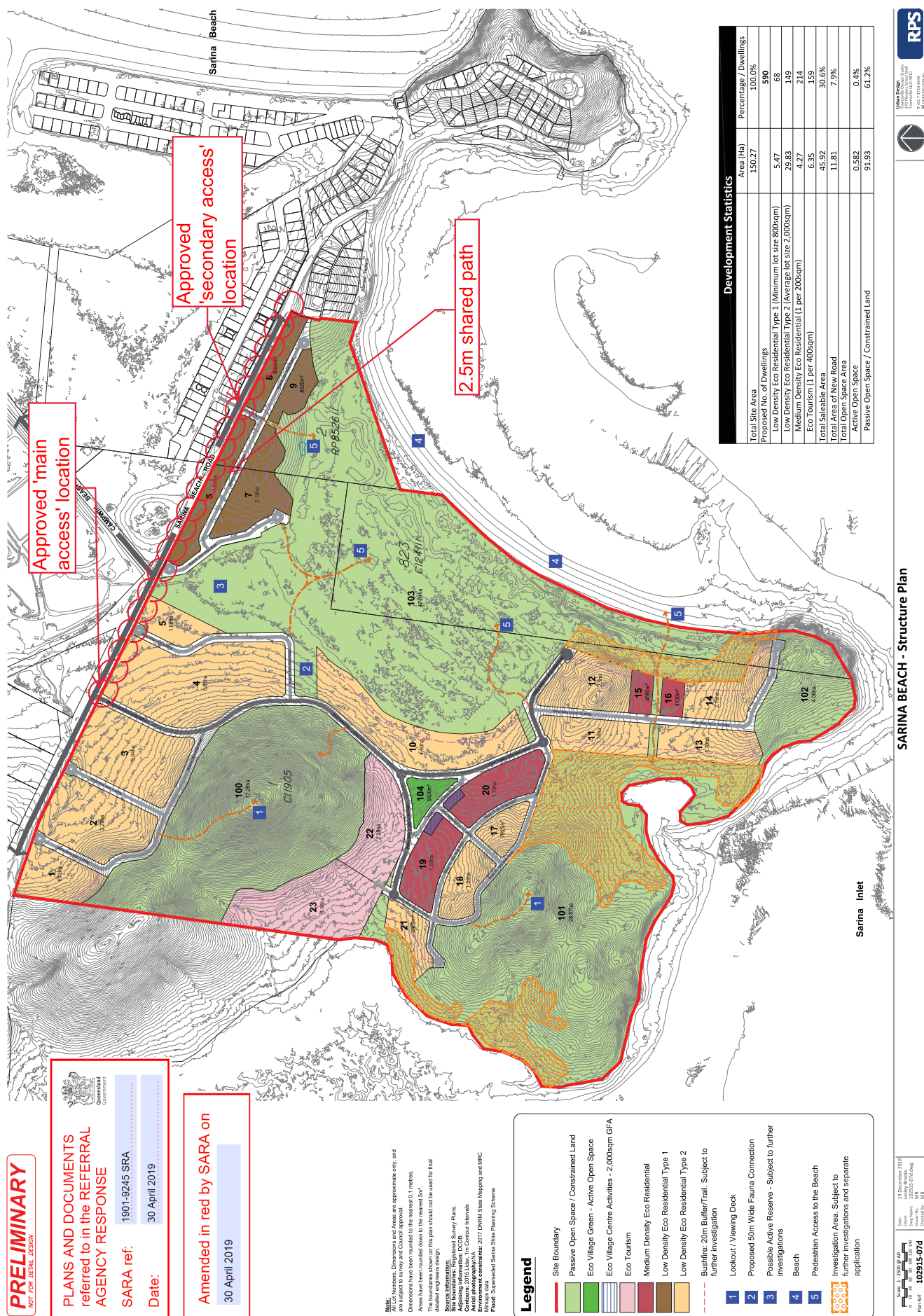
Attachment 4—Change representation provisions

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1901-9245 SRA

Attachment 5—Approved plans and specifications

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PLANS AND DOCUMENTS referred to in the REFERRAL AGENCY RESPONSE	
SARA ref:	1901-9245 SRA
Date:	30 April 2019



Premise

WATER

STORMWATER MANAGEMENT PLAN

FOR PROPOSED DEVELOPMENT AT L1/CI1905, L2/RP852611 AND
L823/C124111 SARINA BEACH ROAD, SARINA BEACH QLD 4737

LESLEY BROOKS

Report No: MIS-0316 R02 REV: B

Template Code: CP2-TE25 Rev A.1

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111
Sarina Beach Road, Sarina Beach QLD 4737



6 HYDRAULIC MODELLING

The XPSWMM model was used to estimate flow rates and detention requirements in the post-development scenario for the 63% AEP to 1% AEP design storm events. The key objective of the hydraulic modelling was to demonstrate that the post-development peak discharge from the site up to and including the 1% AEP storm event is less than or equal to the pre-development peak discharge.

6.1 Detention Basin

To maintain the pre-development flow rates for all AEP events, it was necessary to include two detention basins, located at the downstream extent of the catchment, refer to Appendix A for the basin location. A standard two-stage outlet configuration has been nominated, with a set of low-flow pipes and high-flow weir as the nominated outlet controls for the detention basin. The preliminary sizing used for hydraulic modelling of the detention basins are shown in **Table 6.1** and **Table 6.2**.

Table 6.1 – Nominated Detention Basin Parameters

Basin ID	Basin Invert Level (mAHD)	Basin Peak 1% AEP Water Level (mAHD)	Weir configuration	Low-Flow Pipe Outlet
OSD 1	4.1	4.99	2.5m wide @ RL4.82m AHD	5x450mm RCP @ IL4.10m AHD 8x375mm RCP at IL4.55mAHD
OSD 2	9.0	9.99	20m wide @ RL9.87m AHD	5x450mm RCP @ IL9.0m AHD 7x375mm RCP at IL9.35mAHD

Table 6.2 – Nominated Detention Basin Storage Levels

OSD1			OSD2		
Basin area (ha)	Basin Invert Level (mAHD)	Detention Basin Depth (m)	Basin area (ha)	Basin Invert Level (mAHD)	Detention Basin Depth (m)
1.386	4.1	0	0.1132	9.0	0
1.451	4.4	0.3	0.1322	9.3	0.3
1.586	4.7	0.6	0.1526	9.6	0.6
1.655	5.0	0.9	0.1743	9.9	0.9
1.725	5.3	1.2	0.1975	10.2	1.2

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111

Sarina Beach Road, Sarina Beach QLD 4737



6.2 Hydraulic Modelling Results

A peak flow rate assessment has been provided below which compares the peak flow rates between the pre- and post-development at the Detention Basin Outlets. **Table 6.3** and **Table 6.4** summarizes the findings.

Table 6.3 – Peak Flow Rate Assessment for all AEP Design events – OSD 1

AEP Storm Event	Pre-Development (m ³ /s)	Post-Development (Mitigated) (m ³ /s)	Impact (m ³ /s)
63%	0.899	0.847	-0.05
39%	1.293	1.277	-0.02
18% (Minor)	2.178	1.879	-0.30
10%	2.883	2.131	-0.75
5%	3.663	3.034	-0.63
2%	3.980	3.910	-0.07
1% (Major)	4.606	4.571	-0.04

Table 6.4 – Peak Flow Rate Assessment for all AEP Design events – OSD 2

AEP Storm Event	Pre-Development (m ³ /s)	Post-Development (Mitigated) (m ³ /s)	Impact (m ³ /s)
63%	0.846	0.846	0.00
39%	1.239	1.145	-0.09
18% (Minor)	2.086	2.078	-0.01
10%	2.798	2.766	-0.03
5%	3.440	3.275	-0.17
2%	4.162	3.714	-0.45
1% (Major)	4.685	4.681	0.00

The results of this assessment indicate the peak flow rate at the Lawful Point of Discharge, with the inclusion of the detention basins, the pre-development peak flow rate is maintained for all standard AEP events. The design of the basin is in preliminary stages and will require further refinements at the operational works phase, as the development's layout progresses.

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111
Sarina Beach Road, Sarina Beach QLD 4737



Table 6.5 – Basin Inundation Levels at all AEP Design Event – OSD 1

AEP Storm Event	Relative level (mAHD)	Actual Depth (m)
63%	4.444	0.344
39%	4.581	0.481
18% (Minor)	4.663	0.563
10%	4.692	0.592
5%	4.792	0.692
2%	4.895	0.795
1% (Major)	4.991	0.891

Table 6.6 – Basin Inundation Levels at all AEP Design Event – OSD 2

AEP Storm Event	Relative level (mAHD)	Actual Depth (m)
63%	9.323	0.323
39%	9.398	0.398
18% (Minor)	9.571	0.571
10%	9.712	0.712
5%	9.878	0.878
2%	9.922	0.922
1% (Major)	9.993	0.993

The results above provide an indication of peak inundation levels that may be expected within the basins during each AEP design storm event.

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111
Sarina Beach Road, Sarina Beach QLD 4737



7 STORMWATER QUALITY

7.1 Stormwater Quality Treatment (Construction Phase)

During the construction phase various pollutants are generated which can find their way into the stormwater runoff. These pollutants can affect the quality of the stormwater runoff and hence pollute both the site and the downstream receiving environment. **Table 7.1** below outlines the major sources of pollutants.

Table 7.1 – Typical Construction Phase Pollutants

Construction Phase Pollutants
Litter from construction packaging, paper, food packaging, off cuts, etc.
Sediment from erosion of exposed soils and stockpiles.
Hydrocarbons - from fuel and oil spills, leaks from construction equipment.
Toxic Materials - cement slurry, solvents, cleaning agents, wash waters.
pH altering substances - cement slurry, wash waters.

Erosion and sediment control measures used during the construction phase of the development will be designed and installed in accordance with International Erosion Control Association (Australasia) - "Best Practice Erosion and Sediment Control – for building and construction sites" November 2008 as well as MRC Council's Development Guidelines for Erosion and Sediment Control.

7.2 Temporary Sediment Basins

Temporary sediment basins will be constructed in the location of the proposed bio retention basins to cater for runoff from disturbed areas during construction. It is recommended that High efficiency sediment (HES) basins are sized based on the maximum disturbed area within each basin's catchment at any one time during construction.

The State Planning Policy 2017 (SPP) introduces a new stormwater management design objective for sediment control on construction sites. The design objective by the SPP states that all exposed areas greater than 2500 m² must be provided with sediment controls which are designed, implemented and maintained to a standard which would achieve at least 80% of the average annual runoff volume of the contributing catchment treated (i.e. 80% hydrologic effectiveness) to 50mg/L Total Suspended Solids (TSS) or less, and pH in the range (6.5–8.5).

7.3 State Planning Policy – Stormwater Management Design Objectives

The latest SPP Stormwater Management Design Objectives (SMDO's) in accordance with Mackay Regional Council Planning Scheme 2017 Table SC6.6.2.4.B, has been adopted for the operational phases of the development and is detailed in **Table 7.2** below.

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111
Sarina Beach Road, Sarina Beach QLD 4737



Table 7.2 – SMDO's obtained from the SPP (Appendix 2, Table B) – Stormwater Management Design Objectives

Pollutant	Reductions in mean annual load from unmitigated development (%)
Suspended Solids	90
Total Phosphorus	75
Total Nitrogen	60
Gross Pollutants	35

7.4 Stormwater Quality Modelling

Stormwater Pollutant modelling for the development has been generated using the modelling program 'Model for Urban Stormwater Improvement Conceptualisation' (MUSIC), version 6.1.0, adhering to the prescribed Water by Design MUSIC modelling guidelines Version 1.0, 2010 (WBDMG). A Lumped catchment approach has been adopted for the following typical site areas:

- Roof Catchment which flows to the below ground stormwater drainage system;
- Road Catchment (which includes the verge); and
- Ground Level (driveways, sheds, yards and general landscaped areas).

Values for typical Impervious Fractions used in Lumped-catchments have been adopted from Table 3.5 in the Water by Design MUSIC Modelling Guidelines Version 1.0, 2010, for a land use type of Residential (High and Low-density parameters).

Details of Catchment assumptions in **Table 7.3** below.

Table 7.3 – MUSIC Model Catchment Parameters

Catch ID	Total Area (ha)	Catch ID	Total Area (ha)
Catch A	2.219	Catch F	6.117
Catch B	16.562	Catch G	2.216
Catch C	7.951	Catch H	9.620
Catch D	3.997	Catch I	3.502
Catch E	2.394	Catch J	4.206

Each sub-catchment area contained a preliminary bio-retention strategically positioned within each sub-catchment. The model schematic is shown in **Figure 6**.

Further assumptions associated with the model involve:

- The rainfall-runoff parameters have been based off the Residential Land Use parameters set out in WBDMG Table 3.7;
- The pollutant export parameters for Lumped-catchment Residential land use has been

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111
Sarina Beach Road, Sarina Beach QLD 4737



adopted from WBDMG Table 3.9;

- Default routing (No flow routing or translation between nodes);
- No seepage/exfiltration (0 mm/hr);
- Adopted meteorology data from Sarina - 033067, 6-minute time step from 1980-1989; and
- All other parameters used within the modelling were based on Water by Design MUSIC Modelling Guidelines Version 1.0, 2010.

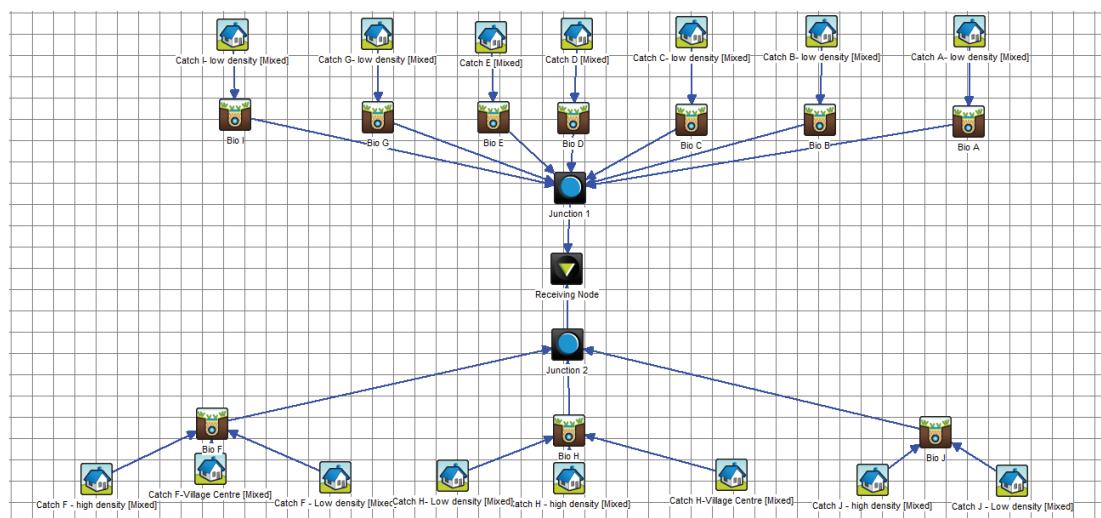


Figure 6 – MUSIC Model Schematic (Source: eWater MUSIC)

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111
Sarina Beach Road, Sarina Beach QLD 4737



7.5 SQID Sizing Requirements

The required preliminary bio-retention parameters are based on the model output for compliance with the SPP SMDO's.

Table 7.4 – Bio-Retention Systems Parameters

Catchment ID	Surface Area (m ²)	Filter Area (m ²)	Filter Depth (m)	Extended Detention Depth (m)	Overflow Weir Width (m)
Catch A	159	125	0.5	0.3	16
Catch B	1195	1100	0.5	0.3	119
Catch C	586	520	0.5	0.3	59
Catch D	458	400	0.5	0.3	46
Catch E	264	220	0.5	0.3	26
Catch F	448	390	0.5	0.3	45
Catch G	164	130	0.5	0.3	16
Catch H	702	630	0.5	0.3	70
Catch I	231	190	0.5	0.3	23
Catch J	318	270	0.5	0.3	32

Further specifications are as follows:

- Filter Medium - Sandy loam
- Transition layer - See Note 1 Below
- Drainage layer - 200mm 2-5mm gravel in accordance with WSUD TDG 2006
- Underdrain System - An under drain system of slotted drainage pipes (100mm dia.) at 1.5m centers.

Note 1: Transition Layer comply with the following: Top of drainage layer is to be at least 100mm above the top of the pipe and filter media/drainage layer material to comply with Drainage of Subsurface Water from Road – Technical Bulletin No 32 (VicRoads)

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111
Sarina Beach Road, Sarina Beach QLD 4737



7.6 Results

Table 7.5 outlines the effectiveness of the MUSIC Model Treatment Train in achieving the set Stormwater Management Design Objectives (SMDO's) for pollutant reduction for the proposed Development.

Table 7.5 – Treatment Train Effectiveness by Bioretention

Pollutant	Unmitigated Load (kg/yr)	Mitigated Load (kg/yr)	Reduction (%)
Suspended Solids (TSS)	61100	14700	76
Total Phosphorus (TP)	121	38.9	68
Total Nitrogen (TN)	605	343	43
Gross Pollutants > 5mm	7160	0	100

8 CONSTRUCTION AND ESTABLISHMENT OF THE BIORETENTION SYSTEMS

There are many risks during both the Subdivision Construction and the Allotment Building Phase of the development which can affect the performance of bio retention systems. During the subdivision construction, typical civil works such as earthworks, road and services construction activities can generate large sediment loads which can smother vegetation and clog bio retention filter media. Likewise, the allotment building phase, which is effectively an “uncontrolled” phase due to the number of contractors and subcontractors present on the house sites, represents a phase where bio retention system establishment can be at great risk. Due to the above risks, a Staged Establishment Method will be adopted for the bio retention basins proposed for the development.

The Staged approach will be in accordance with Option 4 of the Healthy Waterways Construction and Establishment Guidelines 2010.

8.1 Stage 1 – Civil Construction

Stage 1 involves the civil works excavation and building construction of the full basin depth to create the form of the bio retention system following which the system operates as a temporary sediment basin.

8.2 Stage 2 – Landscape Establishment

Once the civil works and building construction phase is complete, the system is cleaned out of sediment. The various bio retention system treatment layers are constructed and landscaped in accordance with Healthy Waterways Construction and Establishment Guidelines 2010 Forms A – H.

The Basin will be protected during the house construction phase with erosion and sediment control

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111
Sarina Beach Road, Sarina Beach QLD 4737



measures.

8.3 Filter Media Specification

The filter media sourced for use within the proposed bio retention systems shall be based on the specifications and requirements described in Section 4.3.1 of the Bioretention Technical Design Guidelines (Water by Design, 2014), or may be sourced by local suppliers which provide pre-made bioretention filter media. Local Suppliers can be from: North – Townsville, East – The Queensland Coast, South – Mackay, or West – Collinsville.

8.4 Landscaping

Landscaping to the bio retention basin will be undertaken in accordance with Appendix 'A' of the WSUD Technical Design Guidelines for South East Queensland – Version 1 June 2006.

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111

Sarina Beach Road, Sarina Beach QLD 4737



9 STORMWATER QUALITY IMPLEMENTATION AND STAGING

Purpose:	
Element	To maintain or enhance pre-development water quality and natural vegetation during the construction and operation of the development. Compliance with this objective is to meet requirements set out in the <i>Environmental Protection Act</i> (1994) the <i>Environmental Protection (Water) Policy</i> (1997) and Guideline on Identifying and Applying Water Quality Objectives.
Policy	The Principal Contractor is to be made aware of the requirements with respect to water quality within the <i>Environmental Protection Act</i> (1994) and the <i>Environmental Protection (Water) Policy</i> (1997) at the time of tendering. The Principal Contractor is to implement the measures for <i>Erosion and Sediment Control</i> to reduce contaminants entering the waterway system. Refer to the <i>Erosion and Sediment Control</i> section for full details.
Performance Indicators	Measured levels for water quality indicators shall fall within the value range as set out in the MRC guidelines. In addition, the measured levels shall not exceed the baseline levels by more than 10% during the construction period and the measured levels shall not exceed the baseline levels during the maintenance period.
Monitoring	<p>Monitoring frequency shall be in accordance with industry standards.</p> <p>In addition, visual inspections will be performed periodically, but at no less than fortnightly intervals, during the construction and maintenance period and during seasons of traditionally low rainfall (autumn, winter).</p> <p>Visual inspections performed periodically, but at no less than weekly intervals during the construction and maintenance period and during seasons of traditionally high rainfall (spring, summer).</p> <p>Undertake tests after any significant rainfall in any 24-hour period. A significant rainfall event is defined as rainfall of more than 20mm as measured by the Bureau of Meteorology at the nearest rain gauging station.</p>
Reporting	Premise shall receive the results of any testing and analysis conducted by the testing authority. Comparison of results with the baseline measurements shall be undertaken and the comparison results and recommendations reported on a monthly basis along with production of an annual report that will summarise the results for the year and identify any trends.
Corrective Action	Identify the reasons for the deterioration of water quality and determine if it is linked to construction activities. If construction activities are responsible, then isolate the specific cause and determine the best method to prevent the incident from occurring again. The work practice causing the pollution is to cease immediately and clean-up operations to commence immediately and to be completed within 5 working days. If other sources are responsible, then notify the Local Authority of the situation for their action.

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111

Sarina Beach Road, Sarina Beach QLD 4737



9.1 Erosion and Sedimentation Management

Purpose:	
Element	<p>To minimise the adverse impact on the quality of the environment by:</p> <p>Minimising the potential of on-site erosion; and</p> <p>Controlling the off-site deposition of sediment.</p> <p>In accordance with the requirements of the Environmental Protection Policy (Water) 1997 and the MRC Development Guidelines.</p>
Policy	<p>These objectives will be achieved by the implementation of an Erosion and Sediment Control Program during the construction phase of the development.</p>
Performance Requirements	<p>The preparation of an Erosion and Sediment Control Program will be the responsibility of Premise as consulting engineers for the development. The program will consist of the following elements:</p> <p>The characteristics of the site will be investigated including a soils investigation to determine soil characteristics as they apply to soil erosion and sediment control;</p> <p>The existing of proposed drainage patterns will be determined;</p> <p>Areas suitable for stockpiling soil and construction materials will be identified;</p> <p>The need for temporary erosion control devices will be assessed and suitable devices selected; and</p> <p>Medium and long term measures to rehabilitate and stabilise the site will be formulated.</p> <p>Preparation of erosion and sediment control plans as required by Council's Subdivision Approval. The control plans will be designed in accordance with:</p> <p>MRC Development Guidelines 'Erosion and Sediment Control Guidelines';</p> <p>Design of sediment basins, Brisbane City Council; and</p> <p>Soil Erosion and Control, Engineering Guidelines for Queensland Sites, Institute of Engineers.</p> <p>The control plans will incorporate the following:</p> <p>Design details of structures;</p> <p>A program for implementation and phasing of erosion control activities; and</p> <p>An ongoing program detailing maintenance and servicing requirements of control structures.</p> <p>This document will be dynamic and as such will be subject to scrutiny and revision as the development progresses.</p>
Performance Requirements	<p>The following indicators are used to gauge the implementation and effectiveness of the Erosion and Sediment Control Plan (ESCP) process:</p> <p>Construction Phase;</p> <p>Installation of temporary erosion and sediment control devices in accordance with contract documentation and a council approved ESCP to this site;</p> <p>Maintenance of temporary erosion and sediment control devices;</p> <p>Minimal evidence of erosion after significant rainfall;</p> <p>Capture of sediment within devices after significant rainfall; and</p> <p>Measured levels for water quality in the area below the flood line within acceptable levels.</p>

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111

Sarina Beach Road, Sarina Beach QLD 4737



Purpose:	
	<p>Compliance with the MRC Development Guidelines</p> <p><u>Maintenance Phase</u></p> <p>Installation of temporary and permanent erosion and sediment control devices prior to the establishment of ground cover in accordance with the contract documentation and the approved ESCP;</p> <p>Maintenance of temporary and permanent erosion and sediment control devices;</p> <p>Minimal evidence of erosion after significant rainfall;</p> <p>Capture of sedimentation within devices after significant rainfall;</p> <p>The presence and maintenance of grass strike and turfed areas; and</p> <p>Measured levels for water quality in the area below the flood line within acceptable levels.</p> <p>Compliance with the MRC Development Guidelines.</p> <p><u>Post Maintenance</u></p> <p>Maintenance of permanent sedimentation control devices;</p> <p>Negligible erosion after significant rainfall;</p> <p>Capture of sediment within devices after significant rainfall;</p> <p>Maintenance of grass strike and turfed areas; and</p> <p>Measured levels for water quality in the area below the flood line within acceptable levels.</p>
Monitoring	The monitoring of erosion and sediment control processes will be a periodical visual inspection by Premise and/or the Principal Contractor but at no less than weekly intervals during the construction and maintenance periods.
Reporting	<p>Premise will:</p> <p>During periodic site inspections ensure that all erosion and sediment controls are installed and maintained in accordance with the Contract Documents: MRC Development Guidelines;</p> <p>Instruct the Principal Contractor to install additional measures to prevent erosion as determined necessary during periodic site inspections;</p> <p>Liaise with MRC's inspection officer during the construction and maintenance periods; and</p> <p>Liaise with MRC's Erosion and Sediment Control Compliance Officer.</p>
Corrective Action	<p>The superintendent in consultation with the Principal Contractor is to determine the source and the reason for the erosion and/or sedimentation and:</p> <p>Implement measures to prevent further erosion occurring; and/or</p> <p>Locate the source of the sediment entering the system and implement measures to prevent further ingress of sediment to the system; and/or</p> <p>Where practicable remove the sediment deposited in the system.</p>

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111
Sarina Beach Road, Sarina Beach QLD 4737



10 STORMWATER QUALITY MAINTENANCE

Key stormwater quality treatment devices requiring maintenance during the operational works phase of the project are the specified bio retention systems.

Maintenance required for bio retention systems consists of:

- Regular and storm event inspections to insure:
 - Sufficient vegetation is still established;
 - No erosion has occurred; and
 - Any clean-up required is undertaken.
- Regular mowing / harvesting to ensure vegetation is maintained at acceptable levels; and
- Removal of litter.

MAINTENANCE PLAN DETAILS

BIORETENTION SYSTEMS

SCHEDULE OF SITE VISITS													
Purpose of Visit	Frequency	J	F	M	A	M	J	J	A	S	O	N	D
Routine inspection	Monthly	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Annual inspection	1/year				✓								
Routine maintenance	2/year				✓						✓		
Routine clean out of sediment	1/2 year				✓								

The above schedule is a guideline only. Routine clean out and maintenance should be scheduled based on the outcome of routine inspection.

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111

Sarina Beach Road, Sarina Beach QLD 4737



INSPECTION	
1.	Routine Inspection
1.1	Routine inspection should be carried out on a regular monthly basis. The purpose of the inspection is to indicate when maintenance of the Bio retention system is required.
1.2	Inspections should consider erosion, condition of vegetation, ponded water.
1.3	Complete appropriate Maintenance Form. Maintenance is required if failure of the above sediment.
2.	Annual Inspection
2.1	Once a year, the condition of the bio retention system should be closely inspected. Any damage or problems should be noted on the Maintenance Form for action.

ROUTINE MAINTENANCE	
1.	Purpose
1.1	Routine maintenance of the bio retention system involves weed control and the collection of any litter, removal of dead or diseased vegetation, and mulch replacement.
2.	Weed Management
2.1	If weeds have been observed during routine inspection, these weeds should be removed from the bio retention system. Weeding generally involves manual removal of perennial species.
2.2	The aim is to remove the weed including the roots when the weeds are less than 3 months old; otherwise weeds infestation rapidly occurs and is difficult to control.
2.3	Herbicides should not be used, as they would contaminate the water in the creek.
2.4	The weed should be disposed offsite at appropriate waste management facility.
2.5	Replant appropriate plant species, where necessary, in areas that have been extensively weeded.
3.	Litter Management
3.1	Remove and dispose of litter that may be visible around the bio retention system.
4.	Dead or Diseased Vegetation
4.1	Remove or dispose of any dead or diseased vegetation within system
5.	Mulch Replacement
5.1	Mulch replacement is recommended when erosion is evident, or system looks unattractive.
CLEANOUT OF SEDIMENT	
1.	Setup and Prepare site for Cleanout
1.1	Notify adjacent residents at least three days prior to date of cleanout.
1.2	Setup equipment onsite
2.	Cleanout of Sediment – Bio retention basin
2.1	The preferred method of cleanout of the bio retention system is replacing the clogged medium.
2.2	Position the equipment on the side of the system to allow easy access into the bio retention system and transfer of material into adjacent tipper truck. The truck should be positioned so that water from the

Proposed Development at L1/CI1905, L2/RP852611 and L823/C124111

Sarina Beach Road, Sarina Beach QLD 4737



	truck body drains into the bio retention systems.
2.3	Drain waste in the truck thoroughly before proceeding to the disposals point.
3.	Cleanout of Sediment – Sediment Forebays
3.1	Cleanout of forebays should be undertaken periodically by shovelling out accumulated sediment and conveying to maintenance truck via wheel barrow or by similar means.

Bio retention Construction and Maintenance should also be undertaken in accordance with Healthy Waterway's Bio-Retention Construction and Maintenance Checklists.

11 CONCLUSION

This Stormwater Management Report details the proposed stormwater design and infrastructure for the project in accordance with the Queensland Urban Drainage Manual, Australian Rainfall and Runoff 2016, MRC Guidelines and the State Planning Policy's Stormwater Management Design Objectives (SMDO's).

The Stormwater Quality Improvement Devices (SQID's) proposed for the development is a set of preliminary bio-retention basins. Two detention basins have also been proposed in order to mitigate the peak flows leaving from the northern part of the site onto Sarina Beach Road, to ensure no peak flow attenuation from the pre to post-developed scenario. The modelling of the proposed SQID's achieved the SPP's Pollutant Load SMDO's for the development. As such, by implementing the above SQID into the proposed development, stormwater runoff from the site will be treated to the satisfaction of MRC.

12 QUALIFICATIONS

Our analysis and overall approach has been specifically catered for the requirements of Lesley Brooks, and may not be applicable beyond this scope. For this reason, any other third parties are not authorised to utilise this report without further input and advice from Premise.

Premise has relied on the following information as outlined in **Section 4** of this Report.

While Premise's report accurately assesses peak flows from design storms in accordance with current industry standards and guidelines, however the future observed flows may vary from that predicted. For these reasons appropriate freeboards should be adopted.

11.4.5. MACKAY COAST OUR FUTURE STUDY - COASTAL HAZARD ADAPTATION STRATEGY (CHAS)

Author	Acting Principal Engineer (Luke Ferguson)
Responsible Officer	Director Planning, Growth & Sustainability (Aletta Nugent)
File Reference	SPSW-034

Attachments

1. Mackay Coast Our Future - Coastal Hazard Adaptation Study [11.4.5.1 - 90 pages]
2. Register of Amendments - draft Mackay Coast Our Future Study [11.4.5.2 - 3 pages]

Purpose

For Council to consider adopting the 'Mackay Coast Our Future – Coastal Hazard Adaptation Study' following public consultation.

Related Parties

- Alluvium
- Local Government Association of Queensland (LGAQ)
- Department of Environment and Science

Corporate Plan Linkage

Community and Environment

Sustainable Practices - We are responsible and active custodians of our natural environment, with future targets and commitments aimed at driving us towards a cleaner, greener and more sustainable region. Climate change will continue to be a consideration in forward planning and we will continue to implement sustainability initiatives in council operations.

Live and Visit

Places and Spaces - We provide well planned and designed places, facilities and infrastructure that meet the needs of our residents and visitors.

Background/Discussion

Mackay Regional Council received funding from the Queensland Government QCoast 2100 project (administered by the LGAQ) to develop a coastal hazard adaptation study. The Mackay Coast Our Future project will improve our understanding of coastal hazards and make the Mackay Region's coastline and coastal communities more resilient. The Mackay Coast Our Future – Coastal Hazard Adaptation Study (CHAS) provides a proactive plan to manage the impact of coastal hazards on the Region's communities, environment, cultural values and built assets.

The project was completed in line with the QCoast2100 guidelines in eight phases:

1. Plan for life-of-project stakeholder communication and engagement;
2. Scope coastal hazard issues for the LGA;
3. Identify areas exposed to current and future coastal hazards;
4. Identify key assets potentially impacted;
5. Undertake risk assessment of key assets in coastal hazard areas;
6. Identify potential adaptation actions;
7. Undertake socio-economic appraisal of adaptation options; and

8. Strategy development, implementation and review.

The key outcomes of each phase and the regional and location-specific implementation actions to adapt to projected future coastal hazards is provided in the attached Mackay Coast Our Future – Coastal Hazard Adaptation Study (see Attachment 1). The project is in the eighth phase, with this report considering the adoption of the study.

Previous community consultation identified that the community highly values the unique landscapes, features and natural beauty, natural ecosystems and wildlife, outdoor recreation, access to beaches and business, and work and education opportunities associated with the Region's coastline. Additionally, there is a strong preference for considering nature-based solutions as the primary/initial pathway for coastal hazard adaptation. Understanding community preferences and preserving these values has informed the development of adaptation pathways in the CHAS.

Prior to seeking community input on adaptation options, the project provided detailed information and fact sheets on coastal hazards and adaptation options. Coastal hazards include cyclones, erosion, temporary inundation from seawater due to big tides and storms (known as storm tide inundation), or longer-term inundation due to sea-level rise. The risks presented by coastal hazards depends on the likelihood of exposure and the vulnerability to exposure, which varies significantly between our coastal communities.

Adaptation pathway development considers the community's exposure to risk, including both public and private infrastructure, and how this risk profile will potentially change through time. Two horizons were considered for the risk assessment, including existing climate conditions and projected climate conditions for the year 2100. Coastal hazard information, which defined the nature and extent of potential exposure with either a 1% or 0.2% chance of occurring in any one year, were overlayed onto spatial datasets of key assets to identify coastal hazard exposure. The consequence of an asset being exposed to coastal hazards is dependent on how vulnerable the asset is to the exposure. For example, a road experiencing inundation has a much lower consequence than a house being inundated. The consequence of exposure was considered against three key consequence categories; place, planning and sustainability, community wellbeing and culture and the environment. How exposure will potentially impact these values determined the consequence rating from insignificant through to catastrophic. The likelihood of exposure was considered against the consequence of exposure to define coastal hazard risk across the region on a scale of low to very high. Coastal hazard risks are summarised for the Region's buildings and facilities, transport and utilities assets and planning scheme zones to provide a regional perspective. Of note, the number of houses at high risk to king tides across the region grows from approximately 50 to over 700 under projected 2100 climate conditions. The report also notes coastal communities with septic tank systems may be impacted.

As expected, coastal hazard risks increase with projected changes to climate conditions. At a regional scale, average annual damage (AAD) associated with combined coastal hazard impacts on built assets is estimated to increase from \$90 million in the present day to \$900 million by 2100 in the absence of mitigation.

A range of adaptation options are outlined within the general framework of avoid and accommodate, monitor and maintain, actively mitigate and managed retreat. Against this framework, adaptation themes are defined under region wide initiatives, planning and internal policy updates, maintaining and improving infrastructure and nature-based coastal management and coastal engineering.

In addition to region wide initiatives, community specific actions are identified as individual adaptation pathways for each of the Region's coastal communities. Adaptation responses are identified for the short-term, medium-term and long-term. Of note, managed retreat is identified as a long-term adaptation pathway for limited areas within Midge Point, Slade Point, Town and Far Beach, Bakers Creek, Dunnrock and Armstrong Beach. Across

several communities, short-term actions are monitor and maintain, with the exception of Cape Hillsborough, Haliday Bay, Shoal Point, Bucasia, Louisa Creek, Half Tide Beach and Salonika Beach, Grasstree, Campwin and Sarina Beaches and the Islands where 'avoid and accommodate' is nominated. Critically, at Slade Point, Harbour Beach, McEwens Beach and Armstrong Beach, actively mitigate is nominated.

The CHAS outlines 35 prioritised actions from high priority (within five years) through to long-term (implemented or reviewed within 20 years) for each of the Region's coastal communities. The majority of high-priority actions are region wide initiatives which apply to every coastal community that do not involve the implementation of physical works on the ground.

Consultation and Communication

The project has been informed through consultation with the community over 2022 and 2023. Engagement events and activities were undertaken in a range of virtual and in-person formats and included:

- Notification of the project in 2022 rates notice
- Community surveys during 8 June to 18 September 2022 and 17 November 2022 to 18 December 2022.
- Community drop-in sessions during June 2022, November 2022, February 2023 and October 2023
- Stakeholder workshops during November 2022 and February 2023.
- Targeted briefings with key industry stakeholders.
- Council briefings in May 2022, November 2022, January 2023, September 2023 and a workshop with Councillors in May 2023.

The draft Mackay Coast Our Future study was endorsed for public consultation at the Council meeting on 27 September 2023. Consultation was undertaken from Friday, 29 September 2023 to Sunday, 5 November 2023. Consultation included community drop-in sessions at Jubilee Community Centre, Sarina Beach Surf Life Saving Club, Eimeo Surf Life Saving Club, St Helens Beach, Mackay Surf Life Saving Club and at Caneland Shopping Centre as part of the Disaster Ready Saturday.

Ongoing consultation and communication activities have been supported by a permanent online presence on Council's Connecting Mackay online platform. The page facilitated an online survey inviting feedback on the draft document with the following statistics were recorded:

- 60 residents attended community drop in sessions
- 17 surveys (and 1 letter to Councillors)
- 627 web page visits
- 235 document downloads

Connecting Mackay also provides project status updates, links to fact sheets and hazard information to assist with achieving the objectives of the project.

Feedback received did not trigger material changes to the draft Mackay Coast Our Future Study, and a register of the changes to the document is provided in Attachment 2. General themes that arose from the consultation varied significantly, highlighting the diverse values that the community associate with coastal settings.

Resource Implications

The report identifies nine high priority actions recommended for implementation in the next five years. Of note, the first action is establishing roles and responsibilities within Council to support implementation of the CHAS, which will need to be considered upon endorsement of the final CHAS by Council.

The review of coastal management guidelines and implementation of local coastal plans for dune and vegetation protection and maintenance is identified as a high priority action across each coastal community.

Risk Management Implications

The CHAS identifies a range of adaptation options across the region and also identifies adaptation pathways for specific coastal areas. The CHAS includes managed retreat as part of the long-term adaptation pathway for limited areas within Midge Point, Slade Point, Town and Far Beach, Bakers Creek, Dunrock and Armstrong Beach. Managed retreat does not rely on actively mitigating against coastal hazards but rather supports movement away from areas exposed to an intolerable risk. The CHAS will be the first clear signal that Council will not actively plan for or commit to the protection of certain areas within some coastal communities. This has the potential to be received negatively by those affected communities and property owners.

The CHAS provides Council with the foundation for effective short-term decision making in line with long-term objectives. It also provides the existing community and potential future residents with critical information to make informed decisions about coastal hazards. In the absence of the CHAS, Council is at risk of making reactive decisions about managing coastal hazards that do not align to long-term objectives, does not represent efficient investment and potentially could generate other unintended consequences.

Conclusion

Adapting to coastal hazards is a shared responsibility for all stakeholders and the Mackay community. The CHAS represents the start of an ongoing and strategic approach to adaptation over time. Adaptation pathways will be continually informed by community input and ideas, new knowledge and monitoring the effectiveness of actions. Adoption of the Mackay Coast Our Future – Coastal Hazard Adaptation Study represents a significant milestone for long-term coastal hazard adaptation across the Mackay local government area.

Officer's Recommendation

THAT the Mackay Coast – Our Future, Coastal Hazard Adaptation Study be adopted.

Council Resolution ORD-2023-324

THAT the Mackay Coast – Our Future, Coastal Hazard Adaptation Study be adopted.

Moved Cr Jones

Seconded Cr Hassan

CARRIED UNANIMOUSLY

Mackay Coast ***Our Future***

Coastal Hazard Adaptation Study (CHAS)





**Acknowledgement
to Country**

Mackay Regional Council respects the traditional custodians of the lands that make up our region, the Yuwi and Widi people. We also acknowledge all other Aboriginal and Torres Strait Islander people who call our region home.

Mayor’s Foreword

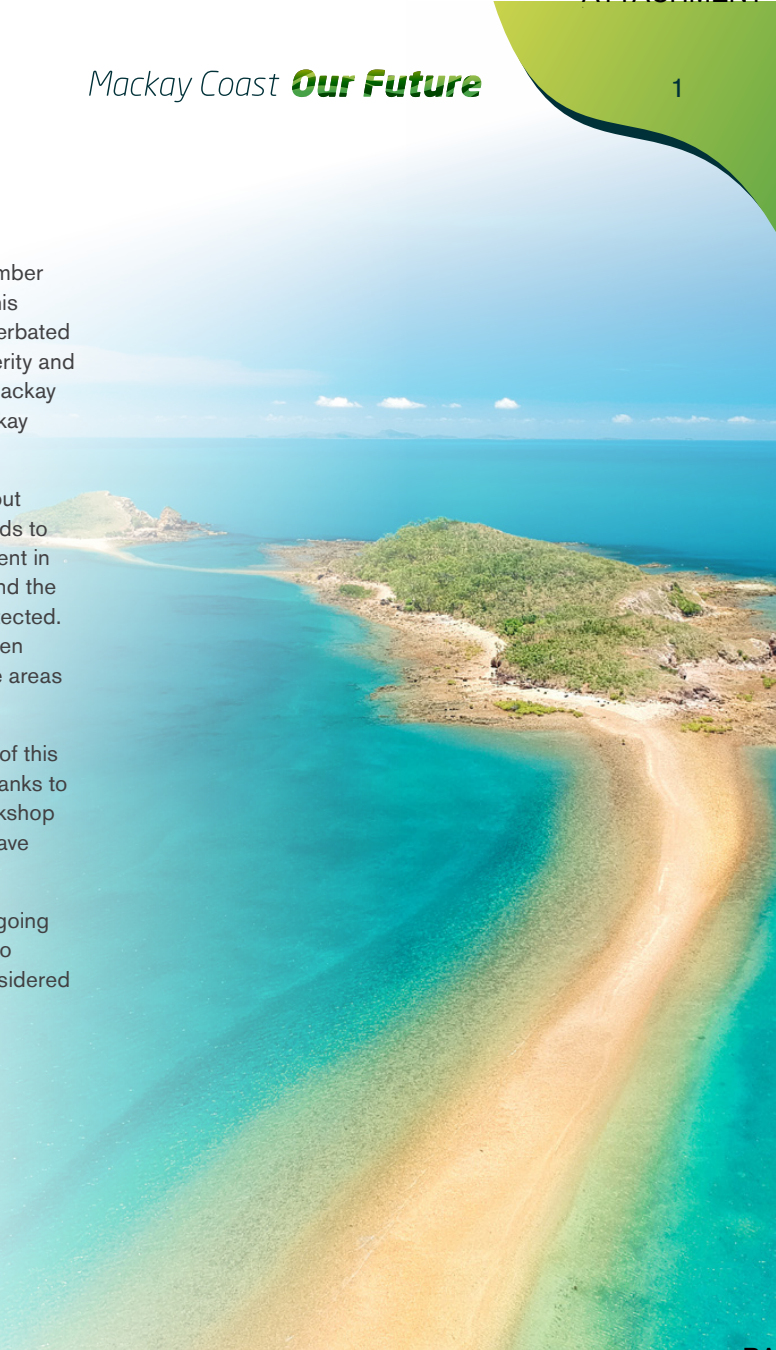
The Mackay region has a significant coastline and a large number of coastal communities. The impacts of coastal hazards on this coastline and these communities will continue to occur, exacerbated by climate change in future years. The ongoing safety, prosperity and liveability of these communities is of upmost importance to Mackay Regional Council, which is why we have undertaken the Mackay Coast Our Future Coastal Hazard Adaptation Study.

Mackay Coast Our Future will help inform the community about coastal hazards and inform future decision making with regards to our coastal areas. It will guide land use planning and investment in infrastructure, ensuring that the values of our coastal areas and the contribution they make to the community’s way of life are protected. It is important we have a shared understanding and focus when responding to coastal hazards, given the importance of these areas to our way of life.

The community has been at the forefront of the development of this study and have contributed to its development. My sincere thanks to everyone who took the time to voice an opinion, attend a workshop or to provide feedback. Without you, this project would not have been possible.

Implementation of the actions outlined in the study will be ongoing into the future. We will continue to work with the community to ensure that the important values of our coastal areas are considered and prioritised in future management activities.

Mayor Greg Williamson



1 INTRODUCTION	3	3.4 Storm tide inundation	12	Community 6: Cape Hillsborough	47
1.1 Our coastal landscape and communities	3	3.5 Current and future exposure	13	Community 7: Shoal Point	49
1.2 Coastal Hazard Adaptation Study	4	3.5.1 Coastal hazard information	13	Community 8: Bucasia	51
1.2.1 Context	4	3.5.2 Planning horizons	15	Community 9: Eimeo	53
1.2.2 Purpose	4	3.6 How do coastal hazards impact our region	16	Community 10: Dolphin Heads	55
1.2.3 Approach	4	3.6.1 How we identified potential impacts	16	Community 11: Blacks Beach	57
1.3 Engagement	5	3.6.2 What assets and values are within coastal hazard areas	16	Community 12: Slade Point	59
1.3.1 Process	5	3.6.4 Overview of assets at risk	19	Community 13: Lamberts Beach	61
1.3.2 Communication	5	3.6.5 Communities	20	Community 14: Harbour Beach	63
1.3.3 Outcomes	5	3.6.6 Change in risk profile	20	Community 15 – 16: Andergrove and Beaconsfield	65
1.4 Content of Mackay Coast Our Future	6	3.6.7 Understanding the economic risk (base case)	25	Community 17: Town and Far Beach	67
2 MACKAY REGION COASTAL ZONE	7	4 APPROACH TO ADAPTATION	27	Community 18: Bakers Creek	69
2.1 Coastal landscape	7	4.1 Framework	27	Community 19: McEwens Beach	71
2.1.1 Values	7	4.1.1 Shared roles and responsibility	27	Community 20: Dunnrock	73
2.1.1 Environment	8	4.1.2 A strategic approach	27	Community 21 – 23: Louisa Creek, Half Tide Beach and Salonika Beach	75
2.1.3 Economy	8	4.1.3 Adaptation objectives	28	Community 24 – 26: Grasstree Beach, Campwin Beach and Sarina Beach	77
2.2 Communities	8	4.1.4 Adaptation response	29	Community 27: Armstrong Beach	79
2.2.1 Northern Beaches	9	4.1.5 Adaptation options	31	Community 28: Islands	81
2.2.2 Mackay Urban Beaches	9	5 ADAPTATION RESPONSE	32	8 IMPLEMENTATION	83
2.2.3 Southern Beaches	9	5.1 Determining adaptation actions	33	8.1 Next steps	83
2.2.4 Islands	9	6 REGION-WIDE ACTIONS SUMMARY	34	8.2 Summary of priority actions across the Mackay region	84
2.3 Towards a resilient coast	10	7 COMMUNITY-SPECIFIC ACTIONS	37	References	89
2.3.1 Change, resilience and adaptation	10	Community 1: Midge Point	37		
3 COASTAL HAZARDS	11	Community 2: St Helens Beach	39		
3.1 Hazards	11	Community 3: Seaforth	41		
3.2 Coastal erosion	11	Community 4: Haliday Bay	43		
3.2.1 Shoreline recession	11	Community 5: Ball Bay	45		
3.2.2 Short-term erosion	12				
3.3 Tidal inundation due to sea level rise	12				



SECTION 1
INTRODUCTION

1.1 | Our coastal landscape and communities

The Mackay Regional Council Local Government Area (LGA) covers an area of approximately 7300 km², including 320km of coastline, extending from Midge Point in the north to Koumala in the south (Figure 1).

The region's coastline is sheltered by the Great Barrier Reef and has a number of offshore islands and is backed inland by the Clarke and Connor Ranges. The region has an estimated resident population of around 123,000 and is growing, with the highest expected population growth between 2021 and 2041 in Eimeo – Rural View (7500 additional residents), Shoal Point - Bucasia (5500 additional residents) and Sarina (5250 additional residents) (QGSO 2022).

The Traditional Custodians of the region's coastal areas are the Yuwi people, who value and maintain a strong connection to land and sea country.

The coastal zone is characterised by a diverse range of features, including the Pioneer River, coastal wetlands, extensive tidal flats (up to four kilometres wide) with a large tidal range (up to eight metres), a network of sandy beaches, rocky headlands and the adjacent Great Barrier Reef. The landscape has been shaped by coastal processes and the sandy bedload of the Pioneer River over many thousands of years. Sandy beaches, tidal flats, rivers and estuarine areas, and wetlands characterise much of the coastline, along with residential settlements and urbanised foreshore areas. The region contains large areas of low-lying land.

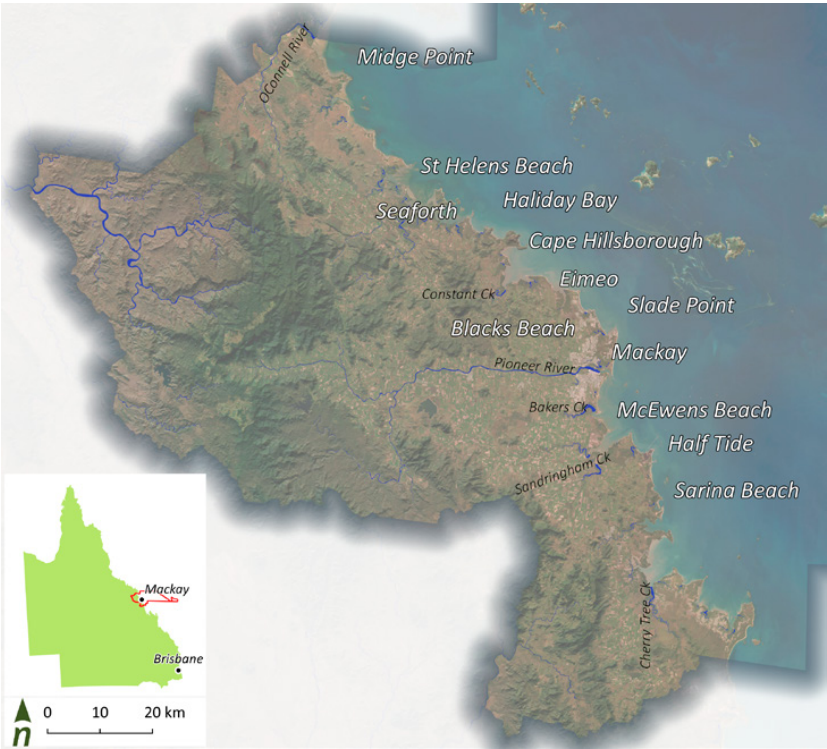


Figure 1. Mackay Regional Council LGA

1.2 | Coastal Hazard Adaptation Study

1.2.1 CONTEXT

The QCoast2100 program is a state-wide initiative of the Queensland Government and Local Government Association of Queensland (LGAQ). Its purpose is to help coastal councils proactively plan for managing coastal hazard impacts, from present day to 2100.

Council was awarded funding through the QCoast2100 program to undertake Mackay Coast Our Future and develop a study for the Mackay region.

Mackay Coast Our Future has been:

- Developed to proactively manage the impact of coastal hazards, now and into the future.
- Developed in consultation with stakeholders, and communities.
- Tailored to include the whole coastal landscape and communities.

1.2.2 PURPOSE

The purpose of Mackay Coast Our Future is to:

- Inform future decisions regarding the protection and management of our coast and foreshore areas.
- Inform future land use strategic planning.
- Guide the management of public utilities and facilities.
- Inform the management of areas of environmental and cultural significance.
- Foster collaboration and the shared custodianship of our coastline.

1.2.3 APPROACH

Mackay Coast Our Future has been developed through an eight-phase process as outlined in the QCoast2100 Minimum Standards and Guideline¹ (Figure 2).

The process has included a series of technical studies and activities that sought to:

- Identify coastal hazard areas.
- Identify vulnerabilities and risks to assets.
- Engage with community to understand the preferred approach to managing coastal hazards through adaptation.
- Determine adaptation actions, costs, priorities, and time-frames for implementation.



Figure 2. QCoast2100 process for developing a Coastal Hazard Adaptation Strategy.

1.3 | Engagement

1.3.1 PROCESS

Mackay Coast Our Future has been informed through consultation with key stakeholder groups and Mackay region communities over 2022 and 2023.

Engagement events and activities were undertaken in a range of virtual and in-person formats and included:

- Community surveys during June 8 to September 18, 2022, and November 17, 2022 to December 18, 2022.
- Council briefings in May 2022, November 2022 and January 2023.
- 14 community drop-in sessions during June 2022, November 2022 and February 2023, October 2023.
- Stakeholder workshops during November 2022 and February 2023.
- Targeted briefings with key industry stakeholders.
- a four- week public comment period on the draft Mackay Coast Our Future Study in October and November 2023.



1.3.2 COMMUNICATION

A range of communications materials were produced during development of Mackay Coast Our Future, including project updates, past coastal hazards videos, and a series of factsheets relevant to coastal hazard adaptation. The factsheets are accessible on the website below and are provided as Supplement A to the Mackay Coast Our Future.

Council's Mackay Coast Our Future website was used for publicising the project, sharing information and encouraging participation.

The engagement and communication process across all phases of Mackay Coast Our Future development was informed by planning undertaken in Phase one and two (Figure 2).

1.3.3 OUTCOMES

All input and feedback have assisted in shaping the direction of technical investigations underpinning Mackay Coast Our Future, and priority adaptation actions for the Mackay region's coastline.

Additional outcomes included:

- A shared understanding of the coastal values, issues affecting coastal communities, and implications for the protection of public and private assets.
- Optimal use of resources (time and financial).
- Community awareness of the CHAS and a willingness to participate.
- Stakeholders having the capacity to contribute meaningfully to the CHAS development and long-term implementation.
- Planning and management decisions based on evidence, knowledge and dialogue.
- Shared accountability and responsibility for managing coastal hazards.
- Maximum acceptance of planning outcomes and decisions (in the short and long-term).



1.4 | Content of Mackay Coast Our Future

Mackay Coast Our Future includes:

- **Section Two:** An overview of landscape features, values, history, and important elements of a resilient coastline for the Mackay region.
- **Section Three:** An overview of coastal hazards, including erosion and inundation, areas that may be exposed to coastal hazards, and the implications of exposure including potential economic costs.
- **Section Four:** Mackay Regional Council's approach to adaptation, including a framework for shared responsibilities, adaptation responses and options.
- **Section Five:** Priority adaptation actions across the region.
- **Section Six:** Local adaptation pathways for different communities.
- **Section Seven:** The approach to implementation including adaptive management and change management planning.



SECTION 1 INTRODUCTION

SECTION 2

MACKAY REGION COASTAL ZONE**2.1 | Coastal landscape****2.1.1 VALUES**

As the traditional home of the Yuwi people, the Traditional Owners of the Mackay region have a deep connection with country and continue to have a shared living culture with their environment. The coastal landscape, including freshwaters, tidal and coastal waters, has a high cultural significance for First Nations communities, who value the protection and sustainability of the land and sea (country).

Access to the coast is a strong lifestyle value, including boating, camping, and fishing at beaches, waterways and natural environmental areas.

These values are considered to be important:

- **Unique landscapes features and natural beauty** – including extensive tidal inlets, estuaries, coastal plains and sandy beaches.
- **Natural ecosystems and wildlife** – including both land and marine environments (eg wetlands, mangroves, native dune vegetation, shorebirds, turtles, native wildlife and fish).
- **Outdoor recreation** – including boating, fishing, camping, four-wheel driving (4WD), swimming, water play, walkways and cycleways.
- **Access to beaches** – safe and easy access to beaches, fishing areas, and boat ramps for all users.
- **Business, work and education opportunities** – low-density development along the foreshore to attract more people to visit and live in our region.



Figure 3. A selection of community values for the coastline captured through engagement activities.



2.1.1 ENVIRONMENT

The environment and ecosystems of the Mackay region are diverse, with many unique habitats, supporting rich flora and fauna.

The coastal environment underpins a diversity of environmental, social and cultural values, and supports lifestyle and recreational opportunities unique to the Mackay region.

2.1.3 ECONOMY

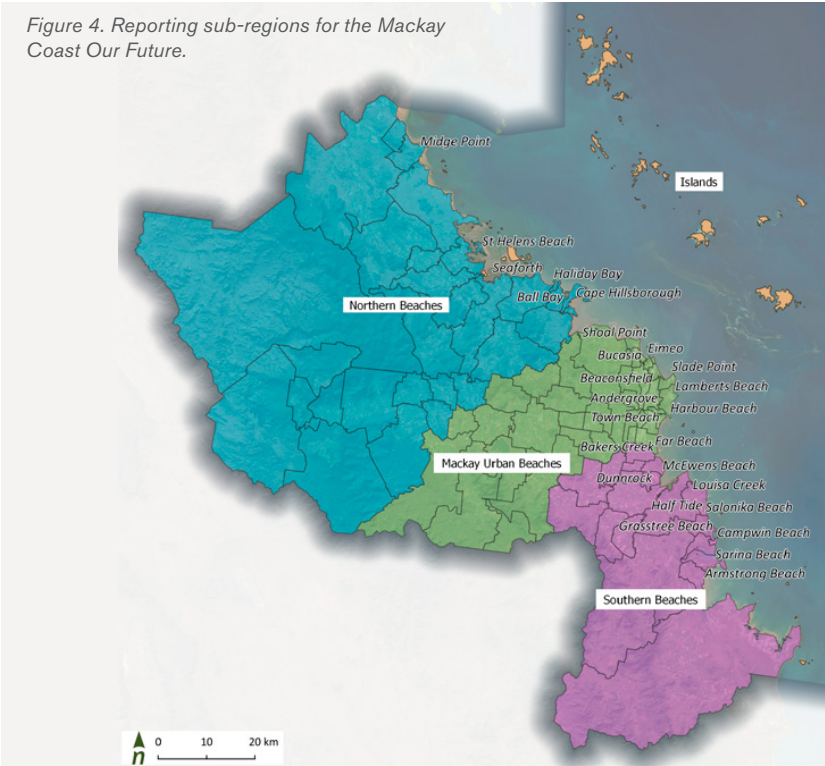
The economy of the Mackay region is underpinned by four large sectors:

1. Mining.
2. Rental, hiring and real estate services.
3. Construction.
4. Manufacturing.

Together these sectors are the largest value adding contributor (50.9 per cent) to the region's economy.

2.2 | Communities

Mackay Coast Our Future considers all parts of the Mackay region that are at risk from coastal hazards, including estuaries and waterways. Our coastal communities and places are unique, each having different experiences with coastal hazards and their own needs in the present and future. Each community will have its own locally responsive adaptation journey. Figure 4 shows the communities grouped into sub-regions which are described below.



**SECTION 2
MACKAY REGION COASTAL ZONE**



2.2.1 NORTHERN BEACHES

The Northern Beaches sub-region extends from Midge Point to Cape Hillsborough and includes the communities of Midge Point, St Helens Beach, Seaforth, Halliday Bay, Ball Bay and Cape Hillsborough. This area includes boating facilities, inlets, agricultural land, conservation and national parks, community halls, emergency services, park amenities, access roads and low-density residential communities.



2.2.2 MACKAY URBAN BEACHES

The Mackay Urban Beaches sub-region includes the suburbs of Shoal Point, Bucasia, Eimeo, Dolphin Heads, Blacks Beach, Slade Point, Lamberts Beach, Harbour Beach, and Town and Far Beach, as well as the Mackay CBD. There are inlets, boating facilities such as Mackay Harbour, beaches, emergency services, park amenities, hospital, cemetery, museum, access roads, medium-high density residential areas, and agricultural land. This sub-region also includes the inland estuarine communities of Andergrove and Beaconsfield.



2.2.3 SOUTHERN BEACHES

The sub-region of the Southern Beaches includes the communities of McEwens Beach, Dunnrock, Louisa Creek, Half Tide Beach, Salonika Beach, Grasstree Beach, Campwin Beach, Sarina Beach and Armstrong Beach. The southern sub-region includes Hay Point Terminal, numerous inlets, state forest, conservation and national parks, agricultural land, park amenities, access roads and low-density residential areas. This sub-region also includes the estuarine community of Bakers Creek.



2.2.4 ISLANDS

This sub-region includes all the offshore islands of the Mackay region, including Newry Island, Rabbit Island, Outer Newry Island, Goldsmith Island, Brampton Island, Carlisle Island, Scawfell Island, St Bees Island and Keswick Island. There is some transport infrastructure, including runways and boat moorings, as well as tourism facilities.

**SECTION 2
MACKAY REGION COASTAL ZONE**

2.3 | Towards a resilient coast

2.3.1 CHANGE, RESILIENCE AND ADAPTATION

The coastline is a dynamic and picturesque part of the landscape, where the land meets the sea. One of the more challenging aspects of the coastal landscape is that it experiences constant, and often rapid change.

Wind and waves continually work to move sediment and shape the shoreline, and extreme weather events can periodically result in substantial erosion and inundation of coastal land.

A resilient coast has social, economic and environmental systems in place to avoid, manage and mitigate the impact of hazardous events or disturbances (eg coastal hazards, see Section 3.1).

Resilience also means the ability to respond or reorganise in ways that maintain the essential function, identity and values of a region, while also being able to proactively adapt to change.

For the Mackay region, coastal hazard adaptation options have been developed in keeping with the identity and values of our coastal communities.

Important coastal values identified during the consultation activities include:

- Unique landscape features and natural beauty.
- Place and culture.
- Natural ecosystems and wildlife.
- Outdoor recreation and access to beaches.
- Business, work and education opportunities.

There is a strong preference for considering nature-based solutions as the primary/initial pathway for coastal hazard adaptation.

Resilience in the Greater Whitsundays Region

The Queensland Strategy for Disaster Resilience (QSDR) defines resilience as:

A system or community's ability to rapidly accommodate and recover from the impacts of hazards, restore essential structures and desired functionality, and adapt to new circumstances. (QRA 2022)

Resilience is the capacity of social, economic, and environmental systems to cope with a hazardous event, trend, or disturbance, responding or reorganising in ways that maintain their essential function, identity, and structure, while also maintaining the capacity for adaptation, learning, and transformation.

SECTION 2 MACKAY REGION COASTAL ZONE

SECTION 3

COASTAL HAZARDS

3.1 | Hazards

Natural coastal processes such as short- and long-term erosion and inundation shape the diverse features of the coastal zone. These processes are often referred to as coastal hazards when they impact on coastal values and uses, including infrastructure. These adverse impacts may affect safety, environmental, cultural, social and economic values.

Coastal hazards considered in adaptation planning for Mackay Coast Our Future include:

- Coastal erosion of the shoreline.
- Inundation of low-lying coastal land from expanding tidal extents associated with sea level rise.
- Storm tide inundation.

3.2 | Coastal erosion

Coastlines naturally erode and accrete periodically over time, driven by sediment supply, tidal currents and waves.

3.2.1 SHORELINE RECESSION

In other cases, due to changing sediment supply or climate conditions, the beach may not be able to rebuild between storm events. Without intervening, long-term erosion (recession) may occur, which is the landward movement of the shoreline over a longer time frame (decades).

Both short-term and long-term erosion processes may impact coastal assets, depending on how close to the shoreline assets are located.



3.2.2 SHORT-TERM EROSION

Coastal erosion occurs when winds, waves and coastal currents take sand away from the shoreline. This can be a temporary change, often associated with storm activity (storm bite), and the beach will gradually rebuild (Figure 5). When a beach is stable, all the sand moved offshore during a storm eventually moves back onto the beach (potentially taking months to years). In this case, short-term beach erosion does not result in a long-term landward movement of the shoreline.

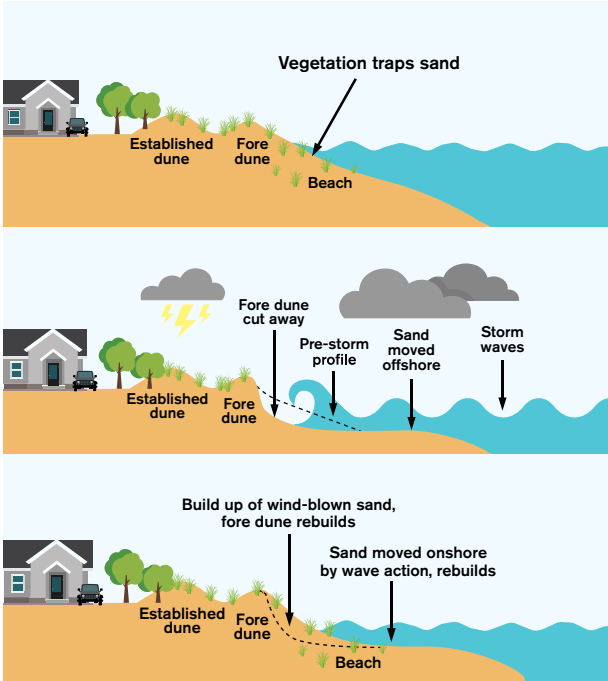


Figure 5. Natural short-term erosion and dune rebuilding process

3.3 | Tidal inundation due to sea level rise

Tidal inundation is regular flooding from the tidal cycle, including up to the Highest Astronomical Tide (HAT). Very high tides, also called king tides, can impact low-lying areas. This can lead to increased damage especially if a high tide coincides with a cyclone or other storm. Areas of low-lying coastal land will experience increasing tidal inundation with sea level rise.

3.4 | Storm tide inundation

Storm tide inundation is the temporary flooding of low-lying coastal land from a locally raised sea level (the 'storm tide'). The storm tide is a combination of the normal tide, storm surge and wave action (Figure 6). Storm surge is driven by the low atmospheric pressure and high winds associated with events such as tropical cyclones.

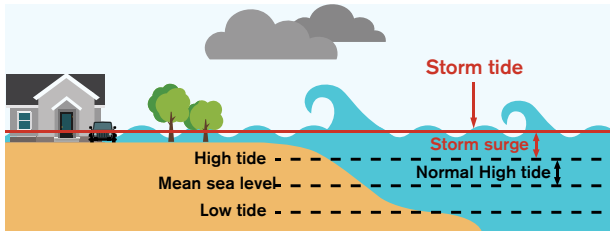


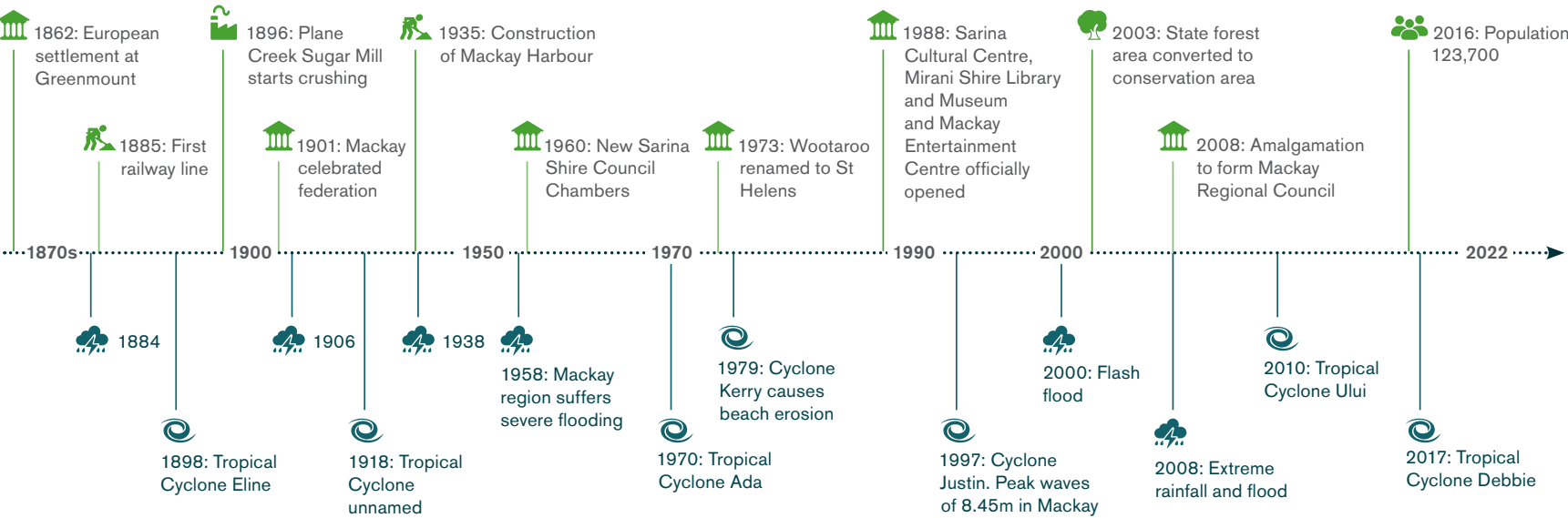
Figure 6. Components of storm tide.

SECTION 3
COASTAL HAZARDS

3.5 | Current and future exposure

3.5.1 COASTAL HAZARD INFORMATION

The Mackay region’s coastline occasionally experiences cyclone and storm events which can cause direct and indirect coastal hazard impacts. Extreme events were recorded in 1898, 1918, 1958, 1970, 1979, 1997, 2010 and 2017. The 1918 and 1958 extreme events have caused substantial flooding and erosion in the Mackay region and left lasting impacts on local history.



SECTION 3
COASTAL HAZARDS

Mackay region coastal zone – erosion prone area (EPA)

- The EPA buffer is defined as 40m landward of the modelled present day HAT, except where approved revetments exist, in which case the buffer line is measured 10m landward of the upper seaward edge of the revetment. This combines tides, water levels, wave conditions and cyclones.
- The State Government defined EPA has been adopted and applied across the Mackay coastline, except Blacks Beach, Town Beach and Far Beach, where revised calculated erosion prone widths have been adopted.
- Permanent inundation due to sea level rise has been defined as part of the hydrodynamic modelling undertaken in the storm tide study.



Coastal hazard impacts are predicted to increase with projected sea level rise. While the coastline is sheltered by the Great Barrier Reef, the region still experiences erosion and inundation as a result of cyclones, offshore wind and the wave climate. King tides associated with storm and cyclone events also cause flooding. Coastal hazard impacts are predicted to increase with a changing climate and rising sea levels.

State-wide mapping of areas that may be prone to coastal hazards by 2100 – including erosion and storm tide inundation – are already publicly available for the entire Queensland coastline² and are included in the Mackay Region Planning Scheme 2017.

As part of Mackay Coast Our Future, the existing mapping for predicted storm tide and tidal inundation zones have been updated for the full coastline. These updates have been based on the best available technical data, and included:

- Application of the Queensland Government approach to determining coastal hazard areas³.
- A storm tide inundation study⁴, including modelling.

Based on the state-wide approach to mapping, the Erosion Prone Area (EPA) includes components of:

- **Open coast erosion:** A calculated component of open coast erosion potential. This includes a defined horizontal buffer.
- **Tidal areas:** Areas that may be prone to regular or permanent inundation by the HAT.

The mapped storm tide inundation area is an area that may be prone to temporary inundation driven by storm events. As required by the Queensland Government, a projected sea level rise of 0.8m by 2100 has been adopted for Mackay Coast Our Future.

SECTION 3 COASTAL HAZARDS

3.5.2 PLANNING HORIZONS

Mackay Coast Our Future has assessed risk from coastal hazards for present day to 2100, including multiple planning timeframes or horizons and event likelihoods⁵ (Table 1).

What are planning horizons?

Planning horizons are points in the future for which strategic decisions are made. This study considers two planning horizons: present day and 2100.

What are likelihoods?

Likelihood describes how common or rare an event is. Likely events are expected to happen regularly and multiple times within the average human lifespan. Possible events are expected to happen every so often and a few times in the average lifespan. Rare events are unusual and might occur once or twice in the average lifespan.

What is Annual Exceedance Probability (AEP)?

The Annual Exceedance Probability is the probability of a storm event occurring in a given year. The defined storm event for Queensland State coastal hazard mapping is a one per cent AEP. This means that in any given year there is a one per cent chance of an event of that magnitude occurring or a 55 per cent chance over an 80 year period.

Table 1. Likelihood of occurrence scenarios

Likelihood of occurrence	Hazard AEP	Planning horizons
Storm tide inundation		
Possible	1%	Present day, 2100
Unlikely	0.2%	Present day, 2100
Tidal inundation		
Almost certain		Present day, 2100
Erosion prone area		
Unlikely		Present day
Possible		2100

EPA and storm tide inundation zones do not represent a predicted loss of coastal land. Mapped hazard areas provide an indication of areas that may be exposed to erosion or inundation processes (now or in the future), and in many cases the impacts can be avoided, mitigated or managed through adaptation planning.

Relevant maps are provided as Supplement B of the Mackay Coast Our Future document.



Coastal hazard maps can be viewed at:
connectingmackay.com.au/future-coast



Interactive maps including coastal hazard layers are available at: mimaps.mackay.qld.gov.au

Future Impacts

Projected sea level rise and an increase in cyclone intensity for the Queensland coastline is anticipated to increase the extent and impact of coastal hazards.

Coastal erosion:

- Increased water levels will accelerate coastal erosion.
- Sediment transport patterns may be altered by shifts in wave direction, triggering changes to the form and location of shorelines.
- Low-lying land may be permanently inundated.
- Increased cyclone and storm activity will escalate the severity of coastal erosion events.

Storm tide inundation:

- Sea level rise will increase the apparent severity and frequency of storm tide inundation and will cause inundation to occur further inland.
- Increased cyclone and storm intensity will add to the magnitude of storm tide events and the extent of inundation.

Source: Coastal Hazard Technical Guideline (DEHP 2013)

3.6 | How do coastal hazards impact our region

3.6.1 HOW WE IDENTIFIED POTENTIAL IMPACTS

Coastal hazards have the potential to negatively impact Mackay communities, infrastructure, essential community services such as water supply and our lifestyle today and into the future.

As part of Mackay Coast Our Future, technical assessments have been used to determine the coastal hazard risk for a range of assets that exist in the communities. Risk is the possibility of loss, damage or injury. In a coastal context, risk arises from exposure to coastal hazards such as storm tide inundation and erosion. Risk can be measured by considering both the likelihood and consequence of loss, damage or injury.



St Helens Beach. Source: Alluvium

The risk assessment has included analysis of:



Beach and foreshore assets

Access, stairs, boardwalks, protection structures, beaches.



Planning scheme

Zones and overlays.



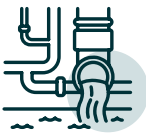
Buildings and facilities

Building footprints (public and private), surf life saving clubs, amenities, shelters, park and street furniture.



Transport infrastructure

Roads, bridges, crossing, paths and trails.



Other infrastructure and utilities

Drainage, sewerage, electricity, telecommunications, stormwater, water supply, boat ramps, coastal protection structures such as seawalls.



Land use, environmental and cultural

Dune system, vegetation, habitat, ecosystems, sensitive sites, cultural areas.

Extensive spatial analysis has been undertaken to assess which assets (or portions of assets) are exposed to the mapped coastal hazard scenarios.

Exposure and risk information is captured spatially for each asset or land parcel and summarised for different asset types and communities to inform Mackay Coast Our Future as well as asset management planning and disaster management.

3.6.2 WHAT ASSETS AND VALUES ARE WITHIN COASTAL HAZARD AREAS

The mapped coastal hazard extents indicate areas and assets that may be exposed to different hazards now, and/or in the future.

For the Mackay region, there is a range of land uses and asset types, as well as cultural resources that are likely to experience increased exposure to erosion and inundation by 2100.

The potential impact or consequence of exposure provides an appreciation of the relative risk of coastal hazards, as presented in the following section.

SECTION 3 COASTAL HAZARDS

3.6.3 HOW DO WE DEFINE RISK

Risk is assessed based on the likelihood of an asset being exposed to a coastal hazard, combined with the consequence of that exposure.

A risk assessment matrix (Table 2) and consequence table (Table 4) have been developed based on using leading practise approach incorporating the Mackay Regional Council Risk Management Plan Framework. Consideration of risk tolerance is provided for each risk category (Table 3).

To complete the risk assessment:

1. The likelihood of exposure (almost certain, possible, unlikely) was determined for each asset/land parcel, separately for erosion and inundation.
2. The consequence of exposure (insignificant, minor, moderate, major, catastrophic) was determined for each asset/land parcel, separately for erosion and inundation.
3. Coastal hazard risk was assessed (low, medium, high, very high), based on the likelihood and consequence for each asset/land parcel, separately for erosion and inundation.

Table 2. Risk matrix for the MRC CHAS

		Consequence				
Likelihood	AEP	Insignificant	Minor	Moderate	Major	Catastrophic
Inundation risk						
Almost certain	HAT inundation	Medium	High	High	Very high	Very high
Possible	1%	Low	Medium	Medium	High	High
Unlikely	0.20%	Low	Low	Medium	Medium	High
Erosion risk						
Rare	Present day			Low		
Possible	2100 (Approx. 1%)			High		

Table 3. Tailored risk tolerance categories

Risk	Action required	Acceptance/Risk tolerance
Very high	Immediate and/or ongoing action is needed to eliminate or reduce risk to acceptable levels.	Unacceptable/intolerable
High	Short-term action is needed to eliminate or reduce risk to acceptable levels.	Tolerable
Medium	Short to longer-term action is needed to eliminate or reduce risk to acceptable levels.	Tolerable/acceptable
Low	Manage the risk as part of current operations and provide for periodic maintenance.	Acceptable

SECTION 3 COASTAL HAZARDS

Table 4. Consequence categories for the MRC CHAS

Consequence	Place, planning and sustainability			Community wellbeing and culture		Environment
	Asset and infrastructure	Economy and growth	Public safety	Services, wellbeing and culture	Traditional Owner values	Environmental values
Catastrophic	Loss of critical infrastructure or significant asset destruction (> 7 days or long-term). MRC assets and infrastructure > \$16 million	Significant structural adjustment required by identified industry to respond and recover from emergency event.	Loss of lives and/or permanent disabilities.	Widespread semi-permanent impact (more than a month) to highly utilised community services, wellbeing, or culture of the community with no suitable alternatives.	Severe and widespread, permanent impact on one or more sites of cultural significance, including loss of land, connection to land, and ability to continue traditional practices. Recovery unlikely.	Widespread, irreversible damage to aquatic and/or terrestrial ecosystems. Permanent loss of one or more species with potential to lead to collapse. Full/partial recovery may take more than 10 years.
Major	Loss of critical infrastructure (1–7 days). MRC assets and infrastructure \$7 million to \$16 million	Significant industry or business sector is significantly impacted by the emergency event, resulting in medium-term (i.e. more than one year) profit reductions.	Widespread serious injuries/illnesses and hospitalisation.	Major widespread long-term (less than a month) disruption to well-utilised services, wellbeing, or culture of the community with very few alternatives available.	Severe and widespread semi-permanent impact on one or more sites of cultural significance, including loss of land, connection to land, and ability to continue traditional practices. Full recovery may take many years.	Widespread, long-term reversible or local irreversible, damage to aquatic and/or terrestrial ecosystems. Significant reduction in one or more species. Full recovery may take 3–10 years.
Moderate	Moderate interruption and loss of critical infrastructure (4 hours - < 1 day). MRC assets and infrastructure \$4 million to \$7 million	Significant industry or business sector is impacted by the emergency event, resulting in short-term (i.e. less than one year) profit reductions.	Isolated serious injuries/illnesses and/or multiple minor injuries/illnesses.	Minor medium-to long-term (less than a week) or major short-term disruption to moderately utilised services, wellbeing, or culture of the community with limited alternatives.	Substantial impact on one or more sites of indigenous significance. Full recovery may take 1–2 years.	Localised, medium term reversible damage to aquatic and/or terrestrial ecosystems. Moderate reduction in one or more species. Full recovery may take 1–2 years.
Minor	Minor interruption to critical asset and non-critical infrastructure (1–4 hours) MRC assets and infrastructure \$2 million to \$4 million	Inconsequential business sector disruption.	Minor and isolated injuries and illnesses.	Small to medium short-term disruption (less than a day) to moderately utilised services, wellbeing, finances, or culture of the community with some alternatives available, or more lengthy disruption of infrequently utilised services.	Small, contained and reversible short-term impact on sites of cultural significance. Full recovery may take less than 1 year.	Localised minor reversible damage to aquatic and/or terrestrial ecosystems. Temporary reduction in one species. Full recovery may take less than 1 year.
Insignificant	No impact to infrastructure. MRC assets and infrastructure < \$2 million	No impact on the economy.	Negligible injuries or illnesses.	Very small short-term disruption (less than an hour) to services, wellbeing, finances, or culture of the community with numerous alternatives available.	No impact to sites of cultural significance.	No measurable adverse impact to aquatic and/or terrestrial ecosystems. No noticeable species reduction.

3.6.4 OVERVIEW OF ASSETS AT RISK

Outputs from the risk analysis were mapped for all localities across the region⁶ to better understand the distribution of assets and land parcels at risk from coastal hazards. Mapping has identified that some assets are exposed to risk categories ranging from low to very high⁷.

Risk is largely associated with storm tide inundation and coastal erosion hazards. Potential tidal inundation risk is limited to localised areas but increases by 2100.

Buildings and infrastructure

There are a low number of buildings likely to be at low-medium risk of exposure to storm tide inundation and erosion in the present day. The number of buildings at risk of exposure to storm tide inundation increases by 2100 (Table 5). There are very few buildings expected to be at risk from tidal inundation from present day to 2100.

The present day erosion assessment considered long-term erosion processes. Hence the quantity of buildings vulnerable to present day erosion remains the same over time, but the risk to these buildings increases over time. Locations where houses are expected to be most affected (> 100 all building types) include Andergrove, Armstrong Beach, Bakers Creek, Ball Bay, Beaconsfield, Blacks Beach, Campwin Beach, East Mackay, Eimeo, Grasstree Beach, Hay Point, Mackay, McEwens Beach, Midge Point, North Mackay, Paget, Sarina Beach, Seaforth, Slade Point and South Mackay.

Other vulnerable buildings which may be exposed to erosion by 2100 include ambulance station, marine rescue or coast guard station, SES facility and hospital. Other buildings that are vulnerable are six retirement villages, seven treatment plants, 15 schools and one hospital building.



SECTION 3 COASTAL HAZARDS



Transport and utilities assets

There is a small proportion of transport and utilities assets at risk from exposure to erosion and tidal inundation in the present day (Table 6). Storm tide inundation is likely to affect a high proportion of transport and utilities assets in the present day, with the risk to assets increasing by 2100. The assets in the region with the greatest proportion of storm tide risk are rising sewer main (12 per cent), electrical line (one per cent) and local roads (two per cent).

Key access roads have been identified as Bundesen Avenue, Yakapari-Seaforth Road, Ocean Avenue, Golf Links Road and Keeleys Road are potentially at risk of coastal hazards in the present day.

Additionally, communities with septic tank systems may be impacted and include Midge Point, St Helens Beach, Seaforth, Ball Bay, McEwens Beach, Half Tide, Campwin Beach, Sarina Beach and Armstrong Beach.

Planning scheme zones

There are a number of planning scheme zones that have increased exposure to coastal hazards (Table 7).

Planning scheme zones that are at low risk in the present day increasing to high risk in 2100 are the Mackay Waterfront PDA (38 per cent), open space (37 per cent, sport and recreation (23 per cent), special purpose zones (18 per cent) and emerging community (13 per cent).

In present day, there is a limited proportion of planning scheme areas exposed to tidal inundation. Storm tide risk is spread across the planning scheme zones. A notable increase in risk from storm tide inundation is expected from present day to 2100 for industry investigation (two per cent at high risk to 14 per cent), low impact industry (three per cent at high risk to 11 per cent), sports and recreation (24 per cent at high risk to 35 per cent).

3.6.5 COMMUNITIES

Our understanding of coastal hazard risk for assets and land across the region provides a basis to begin targeting our adaptation response and actions.

For the purposes of the Mackay Coast Our Future, the Mackay region includes four reporting sub-regions with key coastal communities within each sub-region (Table 8). Adaptation effort, response and actions in the Mackay Coast Our Future are tailored to the location's specific needs.

3.6.6 CHANGE IN RISK PROFILE

The emerging risk profile from present day to 2100 is not linear. Between now and 2100 the risk profile increases most significantly in the later half of this period.

This indicates that there is a good opportunity to implement adaptation actions over the coming decades in a way that can mitigate the step-change (refer to Table 10) before it occurs and avoid (or minimise) the associated impacts.

**SECTION 3
COASTAL HAZARDS**

Table 5. Percentage (%) of buildings and facilities at risk

Building type		Total count	Erosion prone area	Expanding tidal inundation						Storm tide			
			2100	Present day			2100 (HAT+0.8m)			Present day		2100	
			High	Medium	High	Very high	Medium	High	Very high	Low	Medium	Low	Medium
Residential	Vacant	128	24%		7%			20%			2%	4%	8%
	House	25,077	10%		0.2%			3%		2%	1%	3%	5%
	Homestead	15	7%										
	Retirement village	592	1%				4%		1%	3%		4%	
	Apartment block	43	60%				7%			7%		16%	
Educational	Other	37	3%				19%		5%	14%	5%	27%	
	Primary school	348	1%				6%		1%	5%	3%	9%	
	Secondary school	91									1%		
	Primary and secondary school	96	8%	1%		4%				4%	6%	14%	
	Kindergarten or preschool	5	20%						20%	0%	20%	80%	
	Tertiary institution	22									5%	5%	
Emergency services	Ambulance station	11	9%									9%	
	Fire station	4										25%	
	Marine rescue or coast guard station	2	100%		50%		50%		50%		50%		
	State Emergency Service facility	10	10%										
	Fire station rural	15	7%									7%	
	Hospital	21	5%									100%	
	Police beat	1											

SECTION 3 COASTAL HAZARDS

Table 6. Percentage (%) of transport and utilities assets at risk

Transport and utilities asset		Total length (m)	Erosion prone area	Expanding tidal inundation				Storm tide					
			2100	Present day		2100 (HAT+0.8m)		Present day			2100		
			High	High	Very high	High	Very high	Low	Medium	High	Low	Medium	High
Transport	Connector	197,094	4%		1%		1%		0.2%	1%		0.3%	2%
	Highway	258,180	2%		1%		1%		0.0%	1%		1%	1%
	Local	2,994,779	5%	0.5%		3%		1%	2%		2%	5%	0.0005%
	Restricted	73,576	8%	0.1%		2%		0.1%	2%		5%	3%	
	Secondary	293,710	4%	0.1%	0.3%	0%	0.4%	0.1%	0.3%	0.3%	0.5%	1%	1%
	Track	550,271	4%	1%		1%		0.2%	1%		0.3%	1%	
	Unconstructed	643,673	13%	2%		4%		1%	6%		2%	8%	
	Walkway	22,416	4%	0.1%		1%		0.2%	0.4%		0.1%	1%	
Electrical	Cable	1,069,681	4%	1%		2%		1%	1%		2%	3%	
	Line	5,523,471	3%	0.2%		2%		1%	2%		2%	5%	
Sewer	Pipework	49	82%		18%		18%		16%			54%	
	Sewer gravity main	811,176	5%		0.5%		6%		5%			11%	
	Sewer main	12,831	7%		0.1%		2%		3%			22%	
	Sewer rising main	148,648	16%		3%		9%		12%			21%	
Stormwater	Culvert	29,189	5%	1.2%		3%		1%	2%		2%	3%	
	Drain	669,787	6%	0.8%		6%		5%			13%		
	Levee	16,039	87%		1%		2%	0.2%	1%		6%	6%	
	Open drain	166,222	22%	11.4%		20%		24%			35%		
Telecom-munications	Fibre dable	272,659	5%	1%		1%		0.4%	2%		1%	6%	
	Lightweight dable	12,797	10%	1%		2%		2%	6%		1%	8%	
	Support trench	94,590	8%	3%		6%		5%			15%		
Water	Balance pond recycled water mains	25,254	1%										
	Water main	1,234,511	8%	1%		5%		2%	4%		4%	9%	

SECTION 3 COASTAL HAZARDS

Table 7. Percentage (%) of planning scheme zones at risk

Planning scheme zones	Total area (m ²)	Erosion prone area	Expanding tidal inundation				Storm tide			
		2100	Present day		2100 (HAT+0.8m)		Present day		2100	
		High	High	Very high	High	Very high	Low	Medium	Low	Medium
Andergrove PDA	177,220								11%	
Community facilities	5,608,560	4%	1%		4%		1%	2%	2%	6%
Conservation	1,622,210,803	4%	3%		3%		0.05%	1%	0.1%	1%
District centre	250,227	4%	0%		1%					
Emerging community	15,016,485	13%	7%		15%		2%	11%	4%	16%
High density residential	208,243	37%					1%	4%	9%	8%
High impact industry	6,874,518	8%	3%		8%		2%	2%	10%	14%
Industry investigation	2,944,409	4%	1%		6%		2%	4%	9%	10%
Local centre	183,790	8%	0%		7%					
Low density residential	25,491,424	4%	0%		5%		1%	3%	2%	6%
Low impact industry	1,825,322	6%	1%		6%		1%	3%	5%	11%
Mackay Waterfront PDA	954,399	38%		13%		44%		36%		70%
Major centre	597,281	0.03%								
Medium density residential	4,769,747	7%	1%		10%		3%	6%	3%	14%
Mixed use	299,675	14%	1%		14%		4%	6%	2%	19%
Neighbourhood centre	4,524	21%								0%
No zone	62,219	8%	0%		0%		2%	0.4%	3%	2%
Open space	386,156,400	37%	32%		34%		23%		24%	
Principal centre	1,270,286	3%	0%		0%		0.1%	0.2%	1%	2%
Rural	5,164,256,617	2%	2%		2%		0.3%	1%	0.4%	1%
Rural residential	40,095,390	3%	1%		2%		1%	1%	1%	2%
Special purpose	132,069,228	18%		14%		16%		8%		11%
Specialised centre	229,399									
Sport and recreation	5,227,766	23%	15%		31%		3%	24%	4%	35%
Tourism	19,762,610	10%	6%		8%		2%	5%	2%	8%
Township	6,496,039	23%	0%		4%		6%	1%	11%	8%

SECTION 3 COASTAL HAZARDS

Table 8. Reporting sub-regions and adaptation needs

Reporting sub-regions	Key communities		Implications for adaptation
Northern Beaches	→ Midge Point → St Helens Beach → Seaforth → Haliday Bay → Ball Bay → Cape Hillsborough		<p>The northern beaches communities highly value access to the coast for water-based recreation, its natural areas and the associated coastal lifestyle. The communities in this reporting sub-region have smaller populations.</p> <p>There are a high number of built assets, natural assets and land zoning areas within the coastal hazard area by 2100.</p> <p>Bundesen Avenue and Yakapari-Seaforth Road are at risk of storm tide inundation. These roads are the only local connector roads connecting their respective communities and when these roads are cut, it means that these communities may become isolated.</p> <p>Storm tide inundation poses the greatest risk to the natural and built assets in the sub-region.</p>
Mackay Urban Beaches	→ Shoal Point → Bucasia → Eimeo → Dolphin Heads → Blacks Beach → Slade Point	→ Lamberts Beach → Harbour Beach → Andergrove* → Beaconsfield* → Town and Far Beach	<p>Communities highly value access to the coast for water-based recreation and its natural areas, and the associated coastal lifestyle.</p> <p>There are a large number of built assets within the coastal hazard zone that will be exposed to significant coastal erosion, tidal and storm tide inundation by 2100.</p> <p>Ocean Avenue is at risk of storm tide inundation. This road is the only local connector road connecting Slade Point and Lamberts Beach and when this road is cut, it means that these communities may become isolated.</p> <p>Coastal erosion and storm tide inundation poses the greatest risk to the natural and built assets in the sub-region.</p> <p>Existing levees and seawalls are providing protection to some parts of the coastal zone.</p>
Southern Beaches	→ Bakers Creek* → McEwens Beach → Dunnrock* → Louisa Creek → Half Tide Beach	→ Salonika Beach → Grasstree Beach → Campwin Beach → Sarina Beach → Armstrong Beach	<p>Small coastal and estuarine communities whose residents highly value access to the coast for water-based recreation, its natural areas and the associated coastal lifestyle. The communities in this reporting sub-region have smaller populations.</p> <p>There is a high number of built assets within the coastal hazard zone that will be exposed to significant coastal erosion, tidal and storm tide inundation by 2100.</p> <p>Storm tide inundation poses the greatest risk to the natural and built assets in the sub-region.</p>
Islands	→ Newry Island → Rabbit Island → Outer Newry Island → Goldsmith Island → Brampton Island	→ Carlisle Island → Scawfell Island → St Bees Island → Keswick Island	<p>Residents and tourists value access to the coastal areas for water-based recreation and its natural areas.</p> <p>There are fewer built assets at risk from coastal hazards.</p>

*Estuarine communities

3.6.7 UNDERSTANDING THE ECONOMIC RISK (BASE CASE)

In the absence of intervention/adaptation, there are economic costs associated with coastal hazards.

Economic analysis is important for determining the best approach to coastal hazard adaptation for different localities. Economics is used in several ways including to:

- Value assets and key industries.
- Define a base case (cost of no action).
- Assess adaptation options.

After assigning values to key infrastructure and natural assets, the foundational step of an economic assessment in coastal hazard adaptation is to define a base case (Figure 7). This means determining the potential economic costs or losses associated with coastal hazards (and no additional adaptation/intervention, ie business as usual). This becomes the baseline for a cost-benefit assessment of implementing adaptation options.

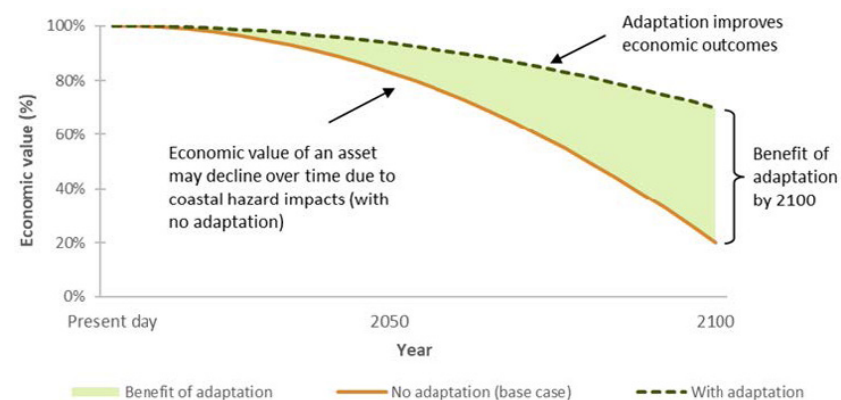


Figure 7. Economic base case and benefit of adaptation

The base case for the Mackay region has been determined by examining the likelihood and consequence (\$ damage) of coastal hazard impacts on assets, and at different timeframes (eg present day, 2050 and 2100).

Five key components of damages have been considered for the base case:

- 1. Damage to buildings and facilities** – Buildings and facilities include public and private buildings, and structures such as swimming pools and sports centres, among others. This is the financial cost of repairing or replacing these assets.
- 2. Damage to transport infrastructure** – Transport assets include roads, pathways, 4WD tracks, bridges and railway tracks. This is the financial cost of repairing or replacing these assets and can also trigger other economic losses where access to key sites is lost.
- 3. Natural asset damages** – Land, environmental and cultural assets include natural assets such as wetlands, coastal forests, urban parks and livestock grazing areas. This is the lost value from a reduction in the extent of these assets.
- 4. Indirect damages** – Indirect damages include factors such as displaced tourism activity, emergency costs and alternative accommodation that occur as a result of direct damages to buildings and facilities and transport infrastructure.
- 5. Intangible damages** – Intangible damages include factors such as stress, anxiety, injury and loss of life that occur as a result of direct and indirect damages to buildings and facilities and transport infrastructure.

SECTION 3 COASTAL HAZARDS



For the Mackay region, the present day average annual damages (AAD) associated with combined coastal hazard impacts on built assets is estimated to be in the order of \$91.8 million (Figure 9).

In the absence of adaptation, this may increase up to \$914.1 million (AAD) by 2100.

The majority of the potential damages are associated with increases in the tidal area due to sea level rise. Across both time periods, the majority of potential damages are associated with coastal hazard impacts on buildings and facilities (a mix of private and public, but predominantly private assets).

Strategic adaptation can assist to avoid, mitigate and manage the impacts and potential economic damage associated with coastal hazards.

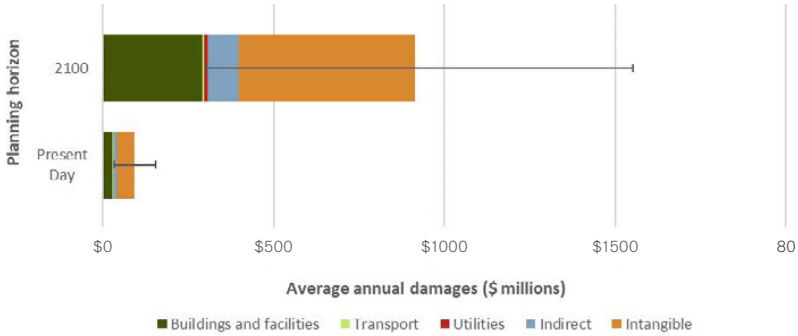


Figure 9. Potential average annual damages from coastal hazards for built and natural assets (base case) by asset category.

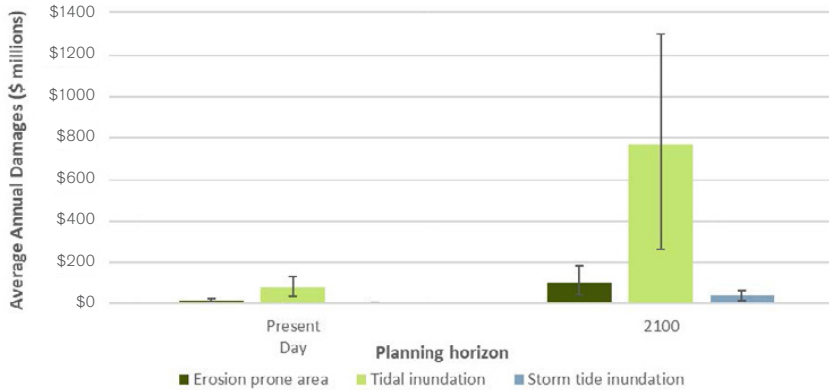


Figure 8. Potential average annual damages from coastal hazards for built and natural assets (base case) by hazard.

Economic impacts on natural assets

Coastal hazard impacts for natural assets may include:

- Loss of wetland ecosystems.
- Erosion and inundation of turtle beach habitat areas.
- Loss of fish habitat impacting recreational values.
- Loss of tourism value through loss of natural assets.
- Loss of agriculture areas.

The present day average annual damage (AAD) associated with coastal hazard impacts on natural assets is assumed to be minor for wetland ecosystems (relative to future planning horizons) due to current existence of wetlands within the tidal area (i.e. periodic inundation is unlikely to cause any issues within a reasonable range of depths). In the absence of adaptation, this is likely to increase up to \$242.9 million by the year 2100. These damages are primarily associated with the potential tidal inundation impacts on marsh and wetland areas. Predicted damages will also vary depending on the ability of natural areas to migrate organically, such as wetlands gradually extending inland, in response to sea level rise.

**SECTION 3
COASTAL HAZARDS**



SECTION 4
APPROACH TO ADAPTATION

4.1 | Framework

4.1.1 SHARED ROLES AND RESPONSIBILITY

Council recognise a shared responsibility for the management of coastal hazard risk; shared by council, other land managers and private landowners.

Council’s primary responsibility is the maintenance and protection of council land and assets, and to inform statutory planning.

Objectives for the Mackay region’s coast, as informed by consultation with stakeholders and the community, include to:

- **Inform** – Council will make available to all stakeholders (including public and private land and asset owners) the outcomes of relevant council-led investigations on coastal hazard risk, planning and adaptation options.
- **Observe** – Council will actively observe / monitor coastal hazard risk for council-owned land and assets. For land and assets owned or managed by others, council may, as part of everyday activities, observe a risk from coastal hazards and will notify the relevant landowner / manager.
- **Plan** – Council will develop strategic planning measures to mitigate the risk of coastal hazard impacts on council-owned land and assets, and to inform appropriate land use planning across the region.
- **Act** – Council will implement strategic planning measures to mitigate the risk of coastal hazard impacts on council owned land and assets, and to inform appropriate land use planning across the region.

Initiatives in Mackay Coast Our Future also seek to inform private owners of the potential coastal hazard impacts on their property in order to support proactive management in accordance with Mackay Coast Our Future and Council Policy No. 032.

4.1.2 A STRATEGIC APPROACH

Across Australia and internationally, coastal land managers are taking a strategic approach to managing the risk of coastal hazards and enhancing the resilience of our coastal zones. Common elements of this strategic approach include:

- Assigning a strategic adaptation response to different communities, to guide decision making with a pathways approach across present day and 2100 planning horizons.
- Assessing the range of adaptation options suitable in different locations to help avoid, mitigate, and manage the risk of coastal hazards.
- Developing a study for coastal adaptation, with prioritised actions over a 10 year timeframe.

A tailored approach has been developed to guide decision-making on adaptation response and options across the Mackay region coastal zone.

Table 9. Council’s role in coastal hazard adaptation

		Land or asset type		
		Council owned	Managed by other authorities	Privately owned
Council's role	Inform	✓	✓	✓
	Observe	✓	O	×
	Plan	✓	×	×
	Act	✓	×	×

O = shared responsibility





4.1.3 ADAPTATION OBJECTIVES


Clarifying adaptation objectives helps guide appropriate adaptation response/s, and to screen adaptation options and actions, across the region and at different localities.


Stakeholder and community perspectives on coastal values and thoughts for the future have informed an understanding of adaptation objectives across the Mackay region.


Objectives for Mackay Coast Our Future are:


- 

Retain the natural beauty of the coastal landscape and its features.
- 

Maintain safe access to our beaches and retain sandy beaches.
- 

Protect and preserve the natural ecosystems and wildlife.
- 

Protect the business, work and education opportunities offered by the region.
- 

Continue access to waterways and coastal areas for outdoor recreational activities.
- 

Preserve the cultural values of the region.

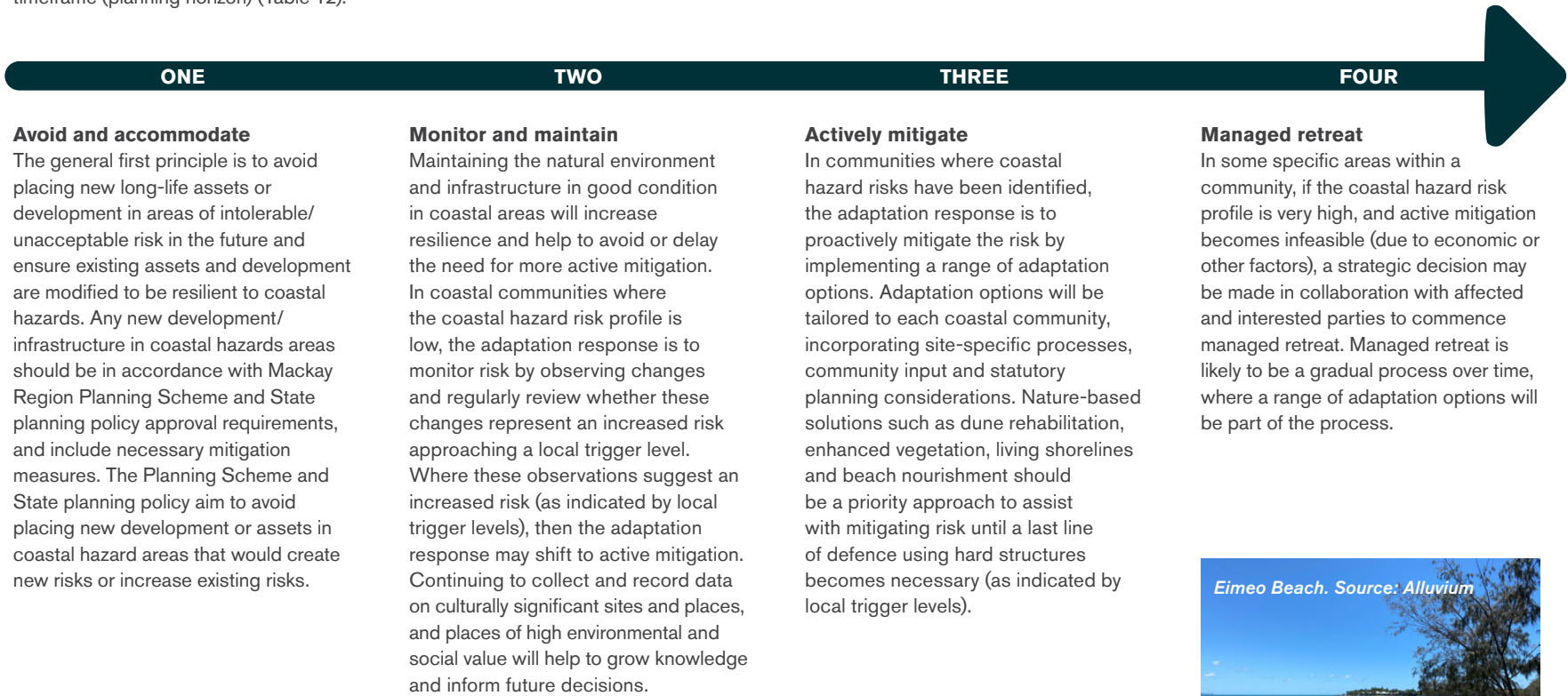
These objectives provide a reference for considering and assessing the suitability of different coastal hazard adaptation responses across the coast.

Town Beach. Source: Alluvium



4.1.4 ADAPTATION RESPONSE

The tailored framework for Mackay Coast Our Future includes four adaptation responses – avoid and accommodate, monitor and maintain, actively mitigate and managed retreat (Table 10). The framework builds on best practice approaches and incorporates new advances in adaptation categories – with adaptation responses determined for each Mackay region community and for each timeframe (planning horizon) (Table 12).



Eimeo Beach. Source: Alluvium

Table 10. Adaptation framework for Mackay

	Coastal hazard adaptation			
	Avoid and accommodate	Monitor and maintain	Actively mitigate	Managed retreat
Adaptation response – How do we respond and adapt to coastal hazards?	<p>Avoid placing new long-life assets or development in areas of intolerable/ unacceptable risk in the future.</p> <p>Ensure existing assets and development are modified to be resilient to coastal hazards.</p>	<p>Monitor the risk of coastal hazards.</p> <p>Monitor until local trigger levels are reached to initiate mitigation.</p>	<p>Proactively manage or mitigate the risk of coastal hazards through a range of adaptation options.</p> <p>Mitigate until management options are no longer socially, culturally or economically feasible, or local trigger levels are reached to initiate managed retreat.</p>	<p>A strategic decision made in collaboration with affected and interested parties to manage the relocation or retreat of individual or collective infrastructure and assets, or transition to an alternative land use where the risk is intolerable/ unacceptable and cannot be effectively managed with mitigation works.</p> <p>This will likely occur gradually over time.</p>
Adaptation options – What can we do?	<p>Continue to use land use and development planning controls*.</p> <p>Create community custodians and educate people about coastal hazards and how to care for our coasts.</p> <p>Plan for possible natural disasters.</p>	<p>Watch for any changes to the coast that might indicate a change in the risk.</p> <p>Collect and record information about significant changes to important natural, cultural or social sites.</p> <p>Maintain assets in good condition.</p>	<p>Use nature-based solutions to create healthy dunes and coasts.</p> <p>Protect natural landscapes and beaches from harm.</p> <p>Upgrade infrastructure and sites to be more resilient.</p> <p>Change how land is used.</p> <p>Relocate infrastructure to safer locations.</p>	

* Council currently has development planning controls in place for areas subject to coastal hazards using the flood and coastal hazard overlay code within the Mackay Region Planning Scheme 2017.

SECTION 4 APPROACH TO ADAPTATION

4.1.5 ADAPTATION OPTIONS

Four adaptation themes have been defined for the Mackay Coast Our Future document, which encompass a range of options that aim at addressing the risks associated with coastal hazards. The themes are related to the adaptation framework of avoid and accommodate, monitor and maintain, actively mitigate and managed retreat and they are as follows:

- Region-wide initiatives to enhance custodianship.
- Planning and internal policy updates.
- Maintaining and improving infrastructure.
- Nature-based coastal management and coastal engineering.

The range of common adaptation options across these themes are described in Table 11. Detailed descriptions of the options are provided in Supplement C to the Mackay Coast Our Future document, along with preliminary screening of the relevance of options to different communities.

Table 11. Adaptation options by theme

Theme	Adaptation options	Description	Supplement C summary sheet number
Region-wide initiatives to enhance custodianship	Community stewardship	Developing programs and partnerships to enhance custodianship of the coastline	Sheet 1
	Education and knowledge sharing	Facilitating knowledge sharing and education on coastal values, hazards and adaptation	Sheet 2
	Monitoring	Monitoring changes in coastal hazard risk and effectiveness of adaptation	Sheet 3
Planning and internal policy updates	Strategy planning and planning scheme	Informing statutory planning and strategies includes consideration of land purchase or land swap/relocation	Sheet 4
	Disaster management	Updating emergency response planning	
Maintaining and improving infrastructure	Increase infrastructure resilience	Modifying critical infrastructure (eg raising floor levels) Modifying drainage networks Building resilient homes	Sheet 5
	Relocate infrastructure	Relocating critical infrastructure	
Nature-based coastal management and coastal engineering	Relocate infrastructure	Relocating critical infrastructure	Sheet 6
	Dune protection and maintenance	Minimising dune disturbance, maintaining vegetation, controlling weeds and managing access	
	Beach nourishment	Beach scraping and/or importing additional sand to the beach	Sheet 7
	Living shorelines	Nature-based methods of coastal protection that creates a zone for wave energy to break and dissipate	Sheet 8
	Structures to assist with sand retention	Using structures (groynes, sand fencing) to help retain sand	Sheet 9
	Structures to dissipate wave energy	Constructing offshore breakwaters or artificial reefs to dissipate wave energy (submerged or exposed)	Sheet 10
	Last line of defence structures	Constructing seawalls/revetments	Sheet 11
	Structures to minimise inundation	Constructing levees	Sheet 12

SECTION 4 APPROACH TO ADAPTATION

SECTION 5 ADAPTATION RESPONSE

An adaptation response and pathway have been assigned for each sub-region across the Mackay region. Further detailed adaptation response and pathways have been developed for localities within the sub-regions and are presented in Section 7.

The adaptation response takes into consideration what is at risk (land and assets), and how the risk is changing over time – the emerging risk profile (present day and 2100) (Table 12).

Active management is already ongoing at a number of locations, typically in response to shoreline erosion. By 2100, approximately 13 buildings across the region where coastal hazard risk is intolerable and transition to an alternative land use may be appropriate (due to increasing coastal hazard risk), subject to the outcome of initial priority adaptation actions for these locations.

Table 12. Adaptation response by reporting sub-region (all coastal hazards)

Reporting region	Key coastal communities	Present day <i>Short-term</i>	2070 ¹ <i>Medium-term</i>	2100 <i>Long-term</i>
Northern	Midge Point	Monitor and maintain	Actively mitigate	Managed retreat ²
	St Helens Beach	Monitor and maintain	Monitor and maintain	Actively mitigate
	Seaforth	Monitor and maintain	Actively mitigate	Actively mitigate
	Haliday Bay	Avoid and accommodate	Monitor and maintain	Actively mitigate
	Ball Bay	Monitor and maintain	Actively mitigate	Actively mitigate
	Cape Hillsborough	Avoid and accommodate	Avoid and accommodate	Avoid and accommodate
Central	Shoal Point	Avoid and accommodate	Monitor and maintain	Actively mitigate
	Bucasia	Avoid and accommodate	Avoid and accommodate	Monitor and maintain
	Eimeo	Monitor and maintain	Actively mitigate	Actively mitigate
	Dolphin Heads	Monitor and maintain	Monitor and maintain	Actively mitigate
	Blacks Beach	Monitor and maintain	Actively mitigate	Actively mitigate
	Slade Point	Actively mitigate	Actively mitigate	Managed retreat ²
	Lamberts Beach	Monitor and maintain	Actively mitigate	Actively mitigate
	Harbour Beach	Avoid and accommodate	Monitor and maintain	Monitor and maintain
	Andergrove ³	Monitor and maintain	Monitor and maintain	Monitor and maintain
	Beaconsfield ³	Monitor and maintain	Monitor and maintain	Monitor and maintain
	Town and Far Beach	Monitor and maintain	Actively mitigate	Managed retreat ²
	Bakers Creek ³	Monitor and maintain	Actively mitigate	Managed retreat ²
	McEwens Beach	Actively mitigate	Actively mitigate	Actively mitigate
Southern	Dunnrock	Monitor and maintain	Actively mitigate	Managed retreat ²
	Louisa Creek	Avoid and accommodate	Monitor and maintain	Actively mitigate
	Half Tide Beach	Avoid and accommodate	Monitor and maintain	Actively mitigate
	Salonika Beach	Avoid and accommodate	Monitor and maintain	Actively mitigate
	Grasstree Beach	Avoid and accommodate	Monitor and maintain	Actively mitigate
	Campwin Beach	Avoid and accommodate	Monitor and maintain	Actively mitigate
	Sarina Beach	Avoid and accommodate	Monitor and maintain	Actively mitigate
	Armstrong Beach	Actively mitigate	Actively mitigate	Managed retreat ²
	All offshore islands	Avoid and accommodate	Avoid and accommodate	Avoid and accommodate
Islands	All offshore islands	Avoid and accommodate	Avoid and accommodate	Avoid and accommodate

¹ Medium-term impacts have not been assessed, but it is assumed that the impacts would be between present day and 2100

² Managed retreat response may be appropriate for limited areas within the locality/community only

³ Estuarine communities

SECTION 5 ADAPTATION RESPONSE

5.1 | Determining adaptation actions

A range of adaptation actions have been defined to enable a strategic approach to coastal hazard adaptation across the Mackay region. A suite of priority actions across the six themes (Table 11) have been defined at:

- The regional scale (outlined in Section 6).
- The community scale as part of the adaptation response pathway (outlined in Section 7).

The program of priority actions has been informed by the initial screening of options, as well as a detailed cost-benefit analysis for tailored coastal engineering options.

Though there is not a strong economic case at the present day for investing in the majority of the options considered, other factors such as broader strategic initiatives to maintain access, local uses and values should be considered to determine feasibility and suitability of these options, and willingness to invest. The economic case for investment does strengthen by 2100.

Baseline actions of dune protection and maintenance, and vegetation protection and enhancement, will be critical for enhancing resilience, and there is benefit in commencing trials early to monitor effectiveness and update economic assessments accordingly in the future.

Actions across capacity building, land use planning, and commencing nature-based trials and adaptation options are

the core focus for most locations, combined with some site-specific targeted investigations to inform future updates to the adaptation pathways.

Results may also change over time and should be the subject of future Study updates.

Coastal adaptation – Survey #2

November – December 2022

The coastal adaptation survey received more than 30 responses and was designed to assess the community's understanding of, and preferences for, different adaptation options.

Highlights from this survey:

- Respondents spent the most time at Seaforth, Bucasia, Sarina, Ball Bay, Eimeo and Shoal Point.
- More than 50 per cent of respondents had some degree of familiarity with different adaptation options and were most familiar with dune protection and maintenance.
- 74 per cent of the respondents felt that the most important consideration when selecting a coastal hazard adaptation option was the impact it may have on environmental and ecological values.
- Most respondents felt that it was likely that additional adaptation options would be necessary in the future.
- Respondents rated dune protection and maintenance as the most suitable adaptation option, followed by changes and upgrades to infrastructure and land use planning.

SECTION 5 ADAPTATION RESPONSE

SECTION 6
**REGION-WIDE
ACTIONS SUMMARY**

The Coastal Hazard Adaptation Study priority actions across the region including a range of actions relevant to the four themes identified for the Plan:



Region-wide initiatives to enhance custodianship.



Planning and internal policy updates.



Maintaining and improving infrastructure.



Nature-based coastal management and coastal engineering.

Priority region-wide five to 20 year actions to each of these themes are summarised in Table 13, with additional information / guidance in Supplement C to the Mackay Coast Our Future.

Adaptation response and actions specific to different communities across the region are provided in the location summaries (Section 7).

SECTION 6
REGION-WIDE ACTIONS SUMMARY

Table 13. Region-wide actions

Adaptation actions		2023 Priority strategic actions (completed within 5 - 20 years)
1. Region-wide initiatives to enhance custodianship		
1.1 Community stewardship	1.1.1	Establishing clear roles and responsibilities within council to support Coastal Hazard Adaptation Study implementation, stewardship activities and to seek co-funding resources and stakeholder collaboration.
	1.1.2	Establish engagement programs to maximise community capacity and involvement in dune protection and maintenance activities through a mix of council, Traditional Custodians, partnerships, volunteering and community input – and implement at relevant communities (linked to 4.1).
	1.1.3	Seek co-funding/resources for further initiatives through grants and stakeholder collaborations.
	1.1.4	Identify and promote opportunities for collaboration with Traditional Custodians in managing coastal hazards.
	1.1.5	Utilise monitoring data from environmental and conservation groups to better understand the risk of coastal hazards to wildlife, such as turtles and migratory shorebirds, and use this information for future coastal adaptation options.
1.2 Education and knowledge sharing	1.2.1	Continue to advance relationships and collaboration with Traditional Custodians to further consider needs, aspirations and involvement in coastal hazard adaptation, including the identification of cultural values and management of significant sites, supporting their ongoing role in caring for country and informing future adaptation approaches.
	1.2.2	Develop a coastal management communication and engagement plan to continue to collaborate and engage with key stakeholders and enhance community awareness of coastal hazards.
	1.2.3	Enhance community adaptive capacity to coastal hazards, including awareness of increasing coastal hazard exposure and risk (particularly inundation) and ways to improve individual preparedness and adaptive capacity – through training, education, events.
	1.2.4	Include the Mackay Coast Our Future coastal hazard mapping in council's online systems (i.e. MADI, MiMAPS).
	1.2.5	Educate 4WD users about regulations and conditions.
1.3 Monitoring	1.3.1	Establish a long-term coastal monitoring program which may include photo point monitoring systems at key areas.
	1.3.2	Create a platform/process for data monitoring and management identifying synergies and collaboration opportunities, with existing monitoring programs.
1.4 Research opportunities	1.4.1	Apply for collaborative government funding grants for relevant actions.
	1.4.2	Identify key pilot sites for nature-based solutions where research partnerships/collaborations may be feasible.
2. Planning and internal policy updates		
2.1 Land use planning	2.1.1	Use the Mackay Coast Our Future to inform corporate and operational policy, including the Planning Scheme, Asset Management Plans, Council Policy, etc.
	2.1.2	Review future development and infrastructure (including coastal hazard protection) servicing options for urban areas subject to 2100 HAT
	2.1.3	Develop a long-term managed retreat plan for targeted areas at some coastal communities (as specified in location-based pathways).

SECTION 6 REGION-WIDE ACTIONS SUMMARY

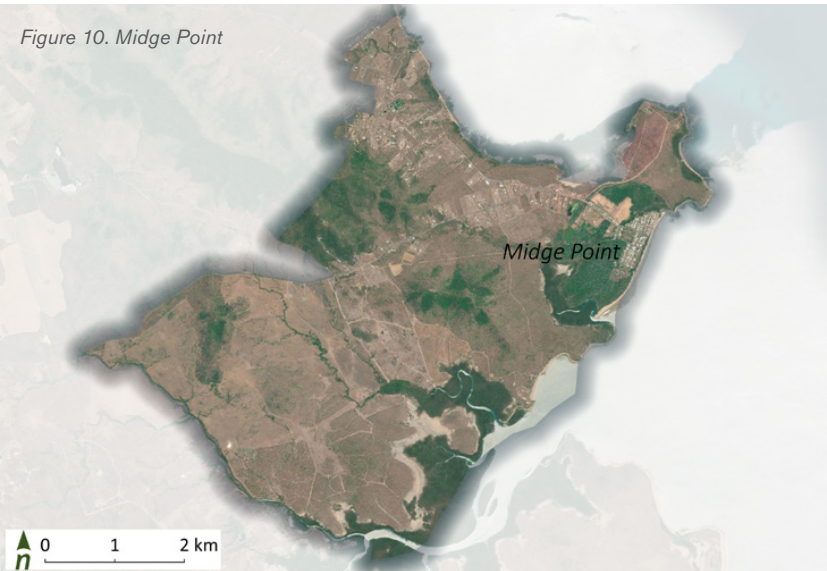
Adaptation actions		2023 Priority strategic actions (completed within 5 - 20 years)
2.2 Disaster management	2.2.1	Review/update disaster management plans using the erosion prone area and storm tide inundation mapping, the CHAS risk assessment and information on economic implications.
	2.2.2	Review the long-term adequacy of evacuation facilities and evacuation routes for different coastal hazard adaptation planning horizons.
3. Maintaining and improving infrastructure		
3.1 Increasing infrastructure resilience	3.1.1	Review at risk infrastructure and embed coastal hazard risk information into asset planning and management.
	3.1.2	Develop/update design guidelines for infrastructure (stormwater drainage assets, wastewater assets, water assets, waste assets, community and cultural assets, property assets, ICT assets, roads, fleet assets, marine assets, parks and open space assets).
	3.1.3	Review access road renewals, upgrades (prioritisation), and design requirements considering future coastal hazards.
	3.1.4	Promote resilient and sustainable design principles within the community and building sector (link in with action 1.2).
3.2 Relocate infrastructure	3.2.1	Relocate specific assets, where defined in adaptation pathways as part of asset renewal process.
4. Nature-based coastal management and coastal management		
4.1 Dune protection and maintenance	4.1.1	Undertake dune, wetland and riparian protection, enhancement, and management in areas identified in location-specific adaptation pathways.
	4.1.2	Review the coastal management guidelines and implement local coastal plans for dune and vegetation protection and maintenance.
4.2 Beach nourishment	4.2.1	Scope for potential future works, in accordance with adaptation pathway planning.
	4.2.2	Investigate the cost-effectiveness and environmental soundness of sand sources for beach nourishment.
	4.2.3	Identify key areas for long-term ongoing beach nourishment.
4.3 Living shorelines	4.3.1	Commence environmental enhancement and maintenance program (vegetation, mangroves) to all relevant areas (linked to the outcome of action 1.2 and location-based actions).
	4.3.2	Pilot a living shoreline project.
4.4 Coastal hazard protection works	4.4.1	Prepare a region-wide Shoreline Erosion Management Plan which focuses on areas identified in the CHAS.
	4.4.2	Review existing flood studies with coincidental conditions such as tailwater conditions. If required, update model with appropriate tailwater conditions for estuarine areas to understand the implications of the combined coastal and riverine processes for inundation and erosion vulnerability.
	4.4.3	Maintain and review the condition of public coastal hazard protection structures, in accordance with adaptation pathway planning.
	4.4.4	Consult with State Government regarding unapproved coastal hazard protection structures to determine the management approach to existing and future structures.

SECTION 6 REGION-WIDE ACTIONS SUMMARY

SECTION 7
**COMMUNITY-
SPECIFIC ACTIONS**

Informed by local context of values, risk and coastal processes, adaptation pathways have been used to guide decision making at this localised scale.

Adaptation pathways include a collective package and sequencing of adaptation actions for managing coastal hazards (coastal erosion, permanent tidal inundation, storm tide inundation) at relevant locations along the coast. These pathways are adaptive and may be subject to change. Actions will also be subject to prioritisation across all communities over time as part of ongoing implementation and budget considerations. Detailed pathways used localised context established from a range of technical and strategic assessments, as well as findings from stakeholder and community engagement.



COMMUNITY 1: MIDGE POINT

Midge Point is located on the northern side of Swizet Creek and extends along approximately 10 kilometres of coastline (Figure 10). Highly valued places within the coastal area include conservation areas, beaches and beach side facilities, including parks and boat ramps.

Midge Point beach stretches across a low-gradient sandy coastline, spanning approximately 1.8 kilometres. It is bordered by Yard Creek to the south and a creek fringed with mangroves to the north. There is an existing buried geotextile sand container seawall in place on the northern end of Midge Point beach to manage shoreline position and mitigate erosion.

This area is likely to be increasingly exposed to coastal erosion, storm tide and tidal inundation into the future. Assets that may be at risk include residential areas, access roads, infrastructure and septic tank systems.

Important infrastructure including

Midge Point SES Facility, Midge Point Esplanade park amenities, Midge Point Rural Fire Brigade and Midge Point Community Hall may be at risk from erosion and inundation by 2100.

Bundesen Avenue is the only local connector road connecting Midge Point, and when cut, means that Midge Point becomes an isolated community.

The adaptation response for Midge Point is to continue to maintain and monitor coastal hazard risk and begin preparations for additional hazard mitigation and potential transition of the foreshore use in the future.

The adaptation pathway includes a focus on dune vegetation and enhancement, maintenance and upgrades for foreshore protection works and resilient homes. Review of the adaptation pathway will be ongoing and guided by the outcome of high priority and short-term actions (Table 14). Region-wide actions also apply where relevant to this community.

0.4m

Sea level rise projections

	High priority	Short-term	Medium-term	Long-term (2100)
Adaptation response	Monitor and maintain	Monitor and maintain	Actively mitigate	Managed retreat
Adaptation actions				
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:			
<i>Monitoring</i>	Establish photo-point (CoastSnap) monitoring system.			
Planning and internal policy updates	As per region-wide actions, including:			
<i>Strategic planning and planning scheme</i>			Develop a long-term managed retreat plan for high risk inundation areas of Midge Point to assist with coordinated adaptation and managed retreat planning in the long- term.	Review adaptation pathway and reduce 2100 adaptation to “actively mitigate” if a resilient built form for very high intolerable risk properties is achieved.
<i>Disaster management</i>		Review Emergency Action Guide for this community based on coastal hazard maps.		
Maintaining and improving infrastructure	As per region-wide actions, including:			
<i>Increasing infrastructure resilience</i>	Undertake feasibility study for road/services raising for Bundesen Avenue or alternative adaptation options.	Promote resilient homes and public infrastructure within the community and building sector (link in with action 1.2).	If triggered, implement road/ services raising.	
<i>Relocate infrastructure</i>		Assess septic system vulnerability to coastal hazards.		
Nature-based coastal management and coastal engineering	As per region-wide actions, including:			
<i>Dune and vegetation protection and maintenance</i>	Review and implement Local Coastal Plan recommended activities.			
<i>Coastal hazard protection works</i>	Maintain existing shoreline protection works. Review and update Shoreline Erosion Management Plan based on new risk information		Consider undertaking concept planning for additional structural protection or upgrades in conjunction with long-term managed retreat plan (if applicable) and establish triggers for implementation If triggered, implement additional structural protection or upgrades in conjunction with long- term managed retreat plan (if applicable).	

MACKAY REGIONAL COUNCIL

COMMUNITY 2: ST HELENS BEACH



Figure 11. St Helens Beach

St Helens Beach is located along the coast within a complex network of estuaries, creeks and tidal inlets (Figure 11). The coastal communities are located along Repulse Esplanade and Wootaroo Esplanade. St Helens Beach faces northeast, with rocky sections of coastline and mangroves in sections, extending out to Carpet Snake Island. Highly valued places within this community include the beaches, inlets, boating facilities and conservation areas.

St Helens Beach is connected to the Mackay region by St Helens Beach Road. There is minimal infrastructure in the coastal zone. However, there are agricultural areas inland of the beach. Septic tank systems may be at risk from tidal inundation due to sea level rise.

This section of the coast is likely to be increasingly prone to erosion, tidal and storm tide inundation in the

future. Storm tide inundation poses the greatest risk to assets in the coastal area by 2100. St Helens Beach Road is at risk of storm tide inundation, and as this is the only local connector road for the community, the St Helens Beach community may become isolated if this road is cut during extreme events.

The adaptation response for St Helens Beach is to continue to monitor coastal hazard risk and begin preparations for additional hazard mitigation in the future, particularly along the southern side of St Helens Beach.

The adaptation pathway includes a focus on protecting existing natural coastal hazard defences (mangroves and vegetation), trialling a living shoreline design and reviewing the adaptation pathway over time (Table 15). Region-wide actions also apply where relevant to this community.

Table 15. St Helens Beach adaptation pathway

Table 15. St Helens Beach adaptation pathway					0.8m
					Sea level rise projections
		0.4m			
		High priority	Short-term	Medium-term	Long-term (2100)
Adaptation response		Monitor and maintain	Monitor and maintain	Monitor and maintain	Actively mitigate
Adaptation actions					
Region-wide initiatives to enhance custodianship		As per region-wide actions, including:			
Knowledge sharing			Focus on action 1.2.3 - enhance signage on hazards and role of mangroves and vegetation in maintaining natural buffer.		
Planning and internal policy updates		As per region-wide actions, including:			
Disaster management			Review Emergency Action Guide for this community based on coastal hazard maps.		
Maintaining and improving infrastructure		As per region-wide actions, including:			
Relocate infrastructure			Assess septic system vulnerability to coastal hazards.		
Nature-based coastal management and coastal engineering		As per region-wide actions, including:			
Dune and vegetation protection and maintenance		Review and implement Local Coastal Plan recommended activities.			
Living shorelines			Living shoreline pilot site - develop concept design and monitoring plan for living shoreline in front of Wootaroo Esplanade (south) (link to action 1.3.2). Implement living shoreline design. Review effectiveness of living shoreline design.	If successful, continue to implement living shoreline design and expand as necessary. Review effectiveness of living shoreline design. If living shoreline does not achieve expected level of service, consider hybrid or other solutions. Review pathway options and establish triggers for change of pathway.	Review effectiveness of living shoreline design. Review pathway options.

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 3: SEAFORTH



Figure 12. Seaforth

Seaforth is located along the coast to the north of Seaforth Creek (Figure 12). The beach faces northeast and is approximately five kilometres in length. It is a narrow, predominantly sandy beach with rocky headlands and mangroves anchoring the northern and southern ends of the beach.

Seaforth Beach is a wide, low gradient beach backed by a reserve with a caravan park, which contains a range of recreational and picnic facilities, including a tidal swimming enclosure in the middle section of the beach. Other coastal infrastructure includes facilities at Seaforth Esplanade Reserve, Maralyn Ross Playground, Seaforth Boating Club, and the Port Newry boat ramp. At the northern end of Seaforth Beach, there are two rocky outcrops of North Red Cliff Island and South Red Cliff Island.

Most of the residential buildings and infrastructure are located in close proximity to the beach. Important infrastructure including Seaforth decommissioned Ambulance Station, decommissioned Seaforth Police Beat, Seaforth Depot, Seaforth Recreation Centre Community Hall and Seaforth Post Office may be at risk from erosion

and storm tide inundation by 2100. Further inland, there are pockets of agricultural land.

Yakapari-Seaforth Road is the only local connector road connecting Seaforth, and when cut, means that Seaforth becomes an isolated community.

The Seaforth community already observes and experiences some impacts of coastal hazards. The Seaforth foreshore is likely to be increasingly exposed to open coast erosion into the future. Low-lying areas are also vulnerable to storm tide and face increasing risk from these hazards into the future. Septic tank systems may become exposed to tidal inundation in the future.

The adaptation response for Seaforth is to continue to monitor coastal hazard risk and begin preparations for additional hazard mitigation in the future.

The adaptation pathway includes a focus on protecting existing natural coastal hazard defences (dune vegetation) and reviewing the adaptation pathway over time (Table 16). Region-wide actions also apply where relevant to this community.

**SECTION 7
COMMUNITY-SPECIFIC ACTIONS**

Table 16. Seaforth adaptation pathway

					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Monitor and maintain	Monitor and maintain	Actively mitigate	Actively mitigate		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:					
<i>Community stewardship</i>	Utilise monitoring data from environmental and conservation groups to better understand the risk of coastal hazards to wildlife, such as turtles and migratory shorebirds, and use this information for future coastal adaptation options.					
<i>Knowledge sharing</i>	Facilitate knowledge sharing and education on coastal values, hazards and adaptation (link to 1.2).					
<i>Monitoring</i>	Establish photo-point (CoastSnap) monitoring system.					
Planning and internal policy updates	As per region-wide actions, including:					
<i>Disaster management</i>		Review Emergency Action Guide for this community based on coastal hazard maps.				
Maintaining and improving infrastructure	As per region-wide actions, including:					
<i>Increasing infrastructure resilience</i>		Undertake feasibility study for road/services raising for Yakapari-Seaforth Road and Poinciana Avenue or alternative adaptation options.	Implement drainage upgrades and road/services raising.			
<i>Relocate infrastructure</i>		Assess septic system vulnerability to coastal hazards.				
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
<i>Dune and vegetation protection and maintenance</i>	Review and implement Beach Plan/Local Coastal Plan recommended activities.					
<i>Coastal hazard protection works</i>	Review and update Shoreline Erosion Management Plan based on new risk information. Establish triggers for implementation.		If triggered, undertake concept planning for structural protection or upgrades (if applicable).	If triggered, implement additional structural protection or upgrades (if applicable).		

COMMUNITY 4: HALIDAY BAY



Figure 13. Haliday Bay

Haliday Bay is a small coastal community located to the south of Seaforth Creek (Figure 13). The sandy section of coastline faces to the northeast, while the rocky headland faces northward.

Haliday Bay Beach is a northeast facing high tide beach with a tidal swimming enclosure located against the northern rocks and a boat launching area in the southern corner. This beach section is also identified as a turtle nesting habitat. The Haliday Bay golf course is also located along the eastern shoreline behind the beach. Most of the residential buildings are located around the north and west facing section of the

shoreline. Important infrastructure such as Haliday Bay Rural Fire Service may be at risk from erosion and inundation by 2100.

Coastal hazard risk for Haliday Bay is expected to remain low by 2100. Limited assets and infrastructure may still be affected by coastal hazards during extreme events.

The adaptation pathway includes a focus on avoiding placing new development or assets in coastal areas, continue to monitor coastal hazard risk in the future and reviewing the adaptation pathway over time (Table 17). Region-wide actions also apply here where relevant to this community.

Table 17. Holiday Bay adaptation pathway

Table 17. Holiday Bay adaptation pathway					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Avoid and accommodate	Avoid and accommodate	Monitor and maintain	Actively mitigate		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:					
Community stewardship	Utilise monitoring data from environmental and conservation groups to better understand the risk of coastal hazards to wildlife, such as turtles and migratory shorebirds, and use this information for future coastal adaptation options.					
Education and knowledge sharing	Facilitate knowledge sharing and education on coastal values, hazards and adaptation (link to 1.2).					
		Focus on action 1.2.3 – enhance signage on hazards and role of mangroves vegetation in maintaining natural buffer and emphasize the importance of minimising light sources during nesting season.				
Planning and internal policy updates	As per region-wide actions identified in Table 10.					
Maintaining and improving infrastructure	As per region-wide actions identified in Table 10.					
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
Dune and vegetation protection and maintenance	Review and implement Local Coastal Plan/Beach Plan recommended activities.					
Coastal hazard protection works			Concept planning for additional structural protection or upgrades (if applicable) and establish triggers for implementation.			

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 5: BALL BAY

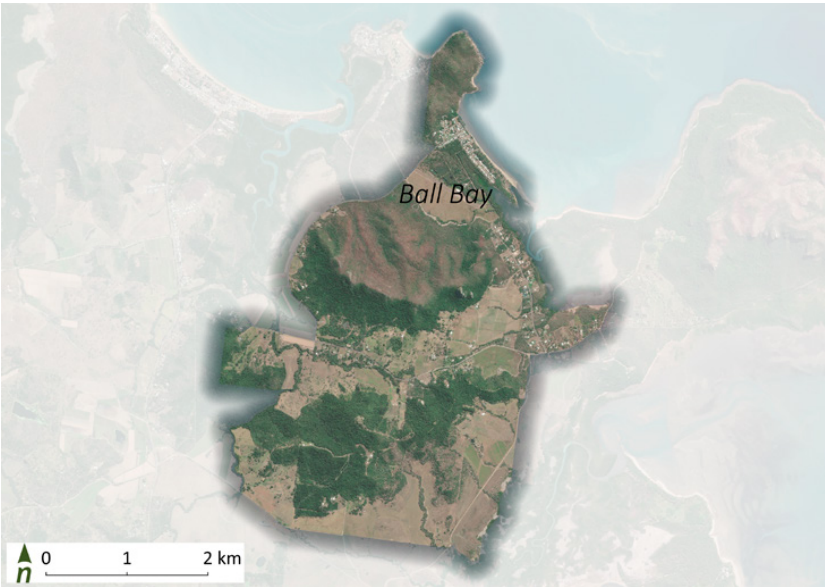


Figure 14. Ball Bay

Ball Bay is a small coastal community which extends further inland into agricultural areas (Figure 14). The community is bound to the north by the rocky headland to the south of Haliday Bay Beach and to the south by a small creek flowing into Ball Bay. The sandy beach running along Ward Esplanade faces northeast.

Ball Bay beach is a low gradient sandy beach that is backed by a small settlement, which includes a camping reserve along the foreshore, enabling tourists to easily access the natural environments.

Aside from the residential buildings, there is minimal infrastructure within the coastal zone of this community. Most of the houses are located within several blocks of the Ball Bay foreshore.

Coastal hazard risk for Ball Bay is expected to remain low by 2100. Limited assets and infrastructure may still be affected by coastal hazards during extreme events. Septic tank systems are at risk of exposure to tidal inundation due to sea level rise by 2100.

The adaptation approach for Ball Bay is to continue to monitor coastal hazard risk and begin preparations for additional hazard mitigation in the future.

The adaptation pathway includes a focus on protecting existing natural coastal hazard defences (dune vegetation) and reviewing the adaptation pathway over time (Table 18). Region-wide actions also apply here where relevant to this community.

Table 18. Ball Bay adaptation pathway

					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Monitor and maintain	Monitor and maintain	Actively mitigate	Actively mitigate		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:					
<i>Education and knowledge sharing</i>	Facilitate knowledge sharing and education on coastal values, hazards and adaptation (link to 1.2).					
Planning and internal policy updates	As per region-wide actions identified in Table 10.					
Maintaining and improving infrastructure	As per region-wide actions, including:					
<i>Increasing infrastructure resilience</i>	Avoid placement of non-relocatable public assets (eg coastal pathway) along the dune, foreshore and beach areas at high risk from coastal hazards.					
<i>Relocate infrastructure</i>		Assess septic system vulnerability to coastal hazards.				
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
<i>Dune and vegetation protection and maintenance</i>	Review and implement Local Coastal Plan/Beach Plan recommended activities.					
<i>Coastal hazard protection works</i>	Develop Shoreline Erosion Management Plan for priority areas Establish triggers for implementation.		If triggered, undertake concept planning for structural protection or upgrades (if applicable).	If triggered, implement additional structural protection or upgrades (if applicable).		

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 6: CAPE HILLSBOROUGH



Figure 15. Cape Hillsborough

Cape Hillsborough is an elevated rocky outcrop located within Cape Hillsborough National Park extending seaward to the south of Ball Bay (Figure 15). The beaches at Cape Hillsborough are anchored by rocky headlands at the north and south. A small rocky island, Wedge Island, is located just off the southern point of Cape Hillsborough.

Cape Hillsborough is highly valued for its scenic amenity and natural values. The beaches provide habitat for native animals, which coincidentally add to the economic (tourism) value for the Mackay region. There are facilities available close to the foreshore, including a tourist park and amenities.

Coastal hazards pose a low risk to assets and infrastructure within the Cape Hillsborough community from the present day to 2100. Coastal hazard risk for Cape Hillsborough is expected to remain low by 2100.

The adaptation response for Cape Hillsborough is to avoid placing new development or assets in high risk coastal areas and continue to monitor coastal hazard risk in the future.

The adaptation pathway includes a focus on avoiding placing new development or assets in coastal areas and reviewing the adaptation pathway over time (Table 19). Region-wide actions also apply where relevant to this locality.

Table 19. Cape Hillsborough adaptation pathway

Sea level rise projections				
0.4m				
0.8m				
	High priority	Short-term	Medium-term	Long-term (2100)
Adaptation response	Avoid and accommodate	Avoid and accommodate	Avoid and accommodate	Avoid and accommodate
Adaptation actions				
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:			
Education and knowledge sharing	Facilitate knowledge sharing and education on coastal values, hazards and adaptation (link to 1.2).			
Planning and internal policy updates	As per region-wide actions identified in Table 10.			
Maintaining and improving infrastructure	As per region-wide actions, including:			
Increasing infrastructure resilience	Avoid placement of non-relocatable public assets (eg coastal pathway) along the dune, foreshore and beach areas at high risk from coastal hazards.			
Nature-based coastal management and coastal engineering	As per region-wide actions identified in Table 10.			



SECTION 7
COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 7: SHOAL POINT



Figure 16. Shoal Point

Shoal Point extends from Reliance Creek to the Shoal Point rocks, which forms the northern border of Bucasia Beach (Figure 16). The north facing shoreline is low energy and it is lined with discontinuous rock walls along the foreshore. The east facing low gradient high tide beach is fronted by a 150 metres wide intertidal bar with rocky outcrops.

Shoal Point Park is the main recreational area with a toilet block, barbeque (BBQ), tables, playground and parking facilities. There are three designated access points to the beach. Residential buildings on the eastern side adjoin a foreshore reserve spanning from the northern point to Shoal Point rocks.

Coastal hazards pose a low risk to assets and infrastructure at Shoal Point in the present day and the risk remains low to 2100. The western

side of Shoal Point is likely to be increasingly prone to tidal and storm tide inundation in the future. Limited assets that may be at risk include public foreshore infrastructure, roads and private assets. Denman Avenue is the only local connector road connecting Shoal Point, and when cut, means that Shoal Point becomes an isolated community.

The adaptation response for Shoal Point is to avoid placing new development or assets in high risk coastal areas and continue to monitor coastal hazard risk in the future.

The adaptation approach includes a focus on avoiding placing new development or assets in high risk coastal areas, reviewing the adaptation pathway over time and considering future alternatives (Table 20). Region-wide actions also apply here where relevant to this community.

Table 20. Shoal Point adaptation pathway

				0.4m	Sea level rise projections
	High priority	Short-term	Medium-term	Long-term (2100)	
Adaptation response	Avoid and accommodate	Avoid and accommodate	Monitor and maintain	Actively mitigate	
Adaptation actions					
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:				
Education and knowledge sharing	Facilitate knowledge sharing and education on coastal values, hazards and adaptation (link to 1.2).				
		Focus on action 1.2.3 – enhance signage on hazards and role of mangroves vegetation in maintaining natural buffer.			
Planning and internal policy updates	As per region-wide actions identified in Table 10.				
Maintaining and improving infrastructure	As per region-wide actions, including:				
Increasing infrastructure resilience	Avoid placement of non-relocatable public assets (eg coastal pathway) along the dune, foreshore and beach areas at high risk from coastal hazards.				
Relocate infrastructure		Assess septic system vulnerability to coastal hazards.			
Nature-based coastal management and coastal engineering	As per region-wide actions, including:				
Dune and vegetation protection and maintenance	Review and implement Local Coastal Plan/Beach Plan recommended activities.				
Coastal hazard protection works			Concept planning for additional structural protection or upgrades (if applicable) and establish triggers for implementation.		

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 8: BUCASIA



Figure 17. Bucasia

Bucasia is located directly south of Shoal Point. Bucasia beach faces northeast, extending from Shoal Point rocks to the mouth of Eimeo creek to the south (Figure 17). The beach is a low gradient high tide beach on the northern end and transitions into a steep high tide beach fronted by one kilometre of intertidal sand flats on the southern end.

The Bucasia community is established directly behind a wide foreshore reserve. There is also a caravan park at the southern end of Bucasia, with a boat ramp backing Eimeo Creek. Highly valued places within this community such as Mackay's biggest tree.

Coastal hazards pose a low risk to

assets and infrastructure within the Bucasia community from present day to 2100. The risk of open coast erosion, storm tide and tidal inundation is low.

The adaptation response for Bucasia is to avoid placing new development or assets in high risk coastal areas and continue to monitor coastal hazard risk in the future.

The adaptation pathway includes a focus on avoiding placing new development or assets in coastal areas, protecting and enhancing vegetation, reviewing the adaptation pathway over time and considering future alternatives (Table 21). Region-wide actions also apply here where relevant to this community.

Table 21. Bucasia adaptation pathway

Sea level rise projections				
0.4m				
0.8m				
	High priority	Short-term	Medium-term	Long-term (2100)
Adaptation response	Avoid and accommodate	Avoid and accommodate	Avoid and accommodate	Monitor and maintain
Adaptation actions				
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:			
<i>Community stewardship</i>	Utilise monitoring data from environmental and conservation groups to better understand the risk of coastal hazards to wildlife, such as turtles and migratory shorebirds, and use this information for future coastal adaptation options			
<i>Education and knowledge sharing</i>		Focus on action 1.2.3 – enhance signage on hazards and role of dune vegetation in maintaining natural buffer.		
<i>Monitoring</i>	Establish photo-point (CoastSnap) monitoring system.			
Planning and internal policy updates	As per region-wide actions identified in Table 10.			
Maintaining and improving infrastructure	As per region-wide actions, including:			
<i>Increasing infrastructure resilience</i>	Avoid placement of non-relocatable public assets (eg coastal pathway) along the dune, foreshore and beach areas at high risk from coastal hazards.			
Nature-based coastal management and coastal engineering	As per region-wide actions, including:			
<i>Dune and vegetation protection and maintenance</i>	Review and implement Local Coastal Plan/Beach Plan recommended activities.			
<i>Coastal hazard protection works</i>				Concept planning for additional structural protection or upgrades (if applicable) and establish triggers for implementation.

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 9: EIMEO



Figure 18. Eimeo

Eimeo is a coastal community located between Eimeo Creek and a small mangrove-filled creek (Figure 18). Eimeo Point at the northern end is a 60 metres high headland and Eimeo beach is a 400 metres long, northeast facing, low energy beach that extends from the rocky outcrop on the northern end to the sand spit on the southern end at the creek mouth.

Eimeo beach is a popular swimming spot during high tide for locals as well as tourists. There are facilities available within the foreshore area, including park amenities, playground and parking facilities. Eimeo beach is connected to the Mackay region by Eimeo Road, which runs along Eimeo Creek

The Eimeo community already observes and experiences some impacts of coastal hazards. The Eimeo

foreshore is likely to be increasingly exposed to open coast erosion and storm tide inundation into the future.

There is currently active mitigation of erosion directly in front of the Surf Life Saving Club on the northern end of Eimeo beach to manage shoreline position and mitigate erosion.

The adaptation response for Eimeo is to continue to monitor coastal hazard risk and begin preparations for additional hazard mitigation in the future.

The adaptation pathway includes a focus on maintaining existing protection works, reviewing the adaptation pathway over time and considering future alternatives (Table 22). Region-wide actions also apply here where relevant to this community.

Table 22. Eimeo adaptation pathway

0.4m					0.8m
Sea level rise projections					
	High priority	Short-term	Medium-term	Long-term (2100)	
Adaptation response	Monitor and maintain	Monitor and maintain	Actively mitigate	Actively mitigate	
Adaptation actions					
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:				
Education and knowledge sharing	Enhance community adaptive capacity to coastal hazards, including awareness of increasing coastal hazard exposure and risk (particularly inundation) and ways to improve individual preparedness and adaptive capacity.				
Monitoring	Establish photo-point (CoastSnap) monitoring system.				
Planning and internal policy updates	As per region-wide actions identified in Table 10.				
Maintaining and improving infrastructure	As per region-wide actions identified in Table 10.				
Nature-based coastal management and coastal engineering	As per region-wide actions, including:				
Dune and vegetation protection and maintenance	Review and implement Local Coastal Plan/Beach Plan recommended activities.				
Coastal hazard protection works	Maintain existing shoreline protection works. Develop Shoreline Erosion Management Plan for priority areas. Establish triggers for implementation.		If triggered, undertake concept planning for additional structural protection or upgrades (if applicable).	If triggered, implement additional structural protection or upgrades (if applicable).	

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 10: DOLPHIN HEADS



Figure 19. Dolphin Heads

Dolphin Heads is a coastal community located along the coast south of Eimeo (Figure 19). The beach extends for approximately two kilometres, including around a headland. The north-facing and upper east-facing sections of the beach are gravelly beaches sitting between rocky headlands. The southerly, eastern-facing beach is sandy, interspersed with rocky outcrops. This coastal area has tourism value with Dolphin Heads Resort located along the north-facing side beach.

Existing structures are in place to manage shoreline position and mitigate erosion, such as seawalls. The western end of the shoreline is in a dynamic zone at the mouth of the creek.

This area is likely to be increasingly exposed to erosion, tidal and storm tide inundation into the future. Across the foreshore area, residential areas, roads and infrastructure may be at risk from erosion and inundation by 2100.

The adaptation response for Dolphin Heads is to continue to monitor coastal hazard risk and begin preparations for additional hazard mitigation in the future.

The adaptation pathway includes a focus on dune protection and enhancement, reviewing the adaptation pathway over time and considering future alternatives (Table 23). Region-wide actions also apply here where relevant to this community.

Table 23. Dolphin Heads adaptation pathway

					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Monitor and maintain	Monitor and maintain	Monitor and maintain	Actively mitigate		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:					
<i>Education and knowledge sharing</i>	Enhance community adaptive capacity to coastal hazards, including awareness of increasing coastal hazard exposure and risk (particularly inundation) and ways to improve individual preparedness and adaptive capacity.					
Planning and internal policy updates	As per region-wide actions identified in Table 10.					
Maintaining and improving infrastructure	As per region-wide actions identified in Table 10.					
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
<i>Dune and vegetation protection and maintenance</i>	Review and implement Local Coastal Plan/Beach Plan recommended activities.					
<i>Coastal hazard protection works</i>			Develop Shoreline Erosion Management Plan for priority areas. Establish triggers for implementation.	If triggered, undertake concept planning for additional structural protection or upgrades (if applicable).		

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 11: BLACKS BEACH



Figure 20. Blacks Beach

Blacks Beach is a coastal community located along the beachfront south of Dolphin Heads (Figure 20). Blacks Beach is a narrow and sandy north-easterly facing beach, extending for approximately three and a half kilometres. At the southern limit, Blacks Beach is bound by McCreadys Creek.

The Blacks Beach community has significant scenic amenity, as well as natural and tourism value. There are public amenities located along the foreshore, including at Blacks Beach Park. Several nature reserves are located within this coastal community, including Whitsans Blue Reserve, Blacks Beach Reserve, Black Beach Spit as well as Blacks Beach constructed wetlands. Its coastal areas support an abundance of marine wildlife, including turtles. Towards the

northern end of Blacks Beach, there are numerous holiday parks and tourist facilities.

This section of the coast is likely to be increasingly prone to tidal and storm tide inundation in the future. Assets that may be at risk include public foreshore infrastructure, roads and private assets.

The adaptation response for Blacks Beach is to continue to monitor coastal hazard risk and begin preparations for additional hazard mitigation in the future.

The adaptation pathway includes a focus on protecting and enhancing vegetation, reviewing the adaptation pathway over time and considering future alternatives (Table 24). Region-wide actions also apply where relevant to this community.

Table 24. Blacks Beach adaptation pathway

					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Monitor and maintain	Monitor and maintain	Actively mitigate	Actively mitigate		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:					
<i>Community stewardship</i>	Utilise monitoring data from environmental and conservation groups to better understand the risk of coastal hazards to wildlife, such as turtles and migratory shorebirds, and use this information for future coastal adaptation options.					
<i>Education and knowledge sharing</i>	Enhance community adaptive capacity to coastal hazards, including awareness of increasing coastal hazard exposure and risk (particularly erosion) and ways to improve individual preparedness and adaptive capacity.					
<i>Monitoring</i>	Establish photo-point (CoastSnap) monitoring system.					
Planning and internal policy updates	As per region-wide actions identified in Table 10.					
Maintaining and improving infrastructure	As per region-wide actions identified in Table 10.					
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
<i>Dune and vegetation protection and maintenance</i>	Review and implement Local Coastal Plan/Beach Plan recommended activities.					
<i>Coastal hazard protection works</i>	Develop Shoreline Erosion Management Plan for priority areas. Undertake a trial/case study in line with revised Council Policy 32 - Coastal Erosion Protection Works.		If triggered, implement alternative structural protection or upgrades (if applicable).	If triggered, implement additional structural protection or upgrades (if applicable).		

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 12: SLADE POINT



Figure 21. Slade Point

The coastal community of Slade Point is located to the northwest of the rocky headland which forms Slade Point, north of Lamberts Beach (Figure 21). The narrow, north-west facing sandy beach extends over 2km.

Slade Point offers scenic amenity, as well as providing natural habitat and tourism value to the greater Mackay region. There are mangrove areas along the foreshore at the mouth of McCreadys Creek, which flows into Slade Bay. Also along the foreshore are tourist facilities. There is a lookout at the headland of Slade Point. South of Slade Point, towards Lamberts Beach, there is Slade Point Nature Reserve.

The Slade Point community already observes and experiences some impacts of coastal hazards. The Slade Point foreshore is likely to be increasingly exposed to open coast erosion into the future. Low-lying areas are also vulnerable to tidal and storm

tide inundation and facing increasing risk from these hazards into the future. Ocean Avenue is at risk of erosion, tidal and storm tide inundation and as this is the only local connector road for the community, the community may become isolated.

The adaptation response for Slade Point is to actively mitigate coastal hazard risk, begin preparations for additional hazard mitigation and plan for impacts including potential managed retreat of the foreshore use and very high intolerable risk areas in the future.

The adaptation pathway includes a focus on dune vegetation and enhancement, maintenance and upgrades for foreshore protection works and resilient homes. Review of the adaptation pathway will be ongoing and guided by the outcome of high priority and short-term actions (Table 25). Region-wide actions also apply where relevant to this community.

SECTION 7
COMMUNITY-SPECIFIC ACTIONS

Table 25. Slade Point adaptation pathway

0.4m					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Actively mitigate	Actively mitigate	Actively mitigate	Managed retreat		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:					
Knowledge sharing	Facilitate knowledge sharing and education on coastal values, hazards and adaptation (link to 1.2).					
Planning and internal policy updates	As per region-wide actions, including:					
Strategic planning and planning scheme			Develop a long-term managed retreat plan for high risk inundation areas of Slade Point to assist with coordinated adaptation and managed retreat planning in the long-term.	Review adaptation pathway and reduce 2100 adaptation to “actively mitigate” if a resilient built form for very high intolerable risk properties is achieved.		
Disaster management		Review Emergency Action Guide for this community based on coastal hazard maps.				
Maintaining and improving infrastructure	As per region-wide actions, including:					
Increasing infrastructure resilience	Undertake feasibility study for road/services raising for Ocean Avenue or alternative adaptation options.	Implement drainage upgrades and road/services raising. Promote resilient homes within the community and building sector (link in with action 1.2).				
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
Dune and vegetation protection and maintenance	Review and implement Local Coastal Plan recommended activities.					
Coastal hazard protection works	Maintain existing shoreline protection works. Develop Shoreline Erosion Management Plan for priority areas. Establish triggers for implementation.	Consider undertaking concept planning for additional structural protection or upgrades in conjunction with long-term managed retreat plan (if applicable). If triggered, implement additional structural protection or upgrades in conjunction with long-term managed retreat plan (if applicable).				

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 13: LAMBERTS BEACH



Figure 22. Lamberts Beach

The coastal community of Lamberts Beach is the east- facing beach located south of Slade Point (Figure 22). Lamberts Beach is a sandy beach, bound at the northern extent by a rocky headland then runs south for approximately 1.5 kilometres.

This coastal community offers scenic and tourism value to the greater Mackay region. Within the foreshore area, there are public amenities and a lookout at the rocky, northern end of Lamberts Beach. At the southern end of the beach, Slade Point Natural Reserve Lookout and Slade Point Nature Reserve offer scenic and natural value.

This section of the coast is likely to be increasingly prone to erosion in the future. Assets that may be at risk include public foreshore infrastructure and roads.

The adaptation response for Lamberts Beach is to continue to monitor coastal hazard risk and begin preparations for additional hazard mitigation in the future.

The adaptation pathway includes a focus on protecting and enhancing vegetation, maintaining existing protection works, reviewing the adaptation pathway over time, and considering future alternatives (Table 26). Region-wide actions also apply where relevant to this community.

Table 26. Lamberts Beach adaptation pathway

					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Monitor and maintain	Monitor and maintain	Actively mitigate	Actively mitigate		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:					
<i>Community stewardship</i>	Continue stewardship program/initiatives.					
<i>Monitoring</i>	Establish photo-point (CoastSnap) monitoring system, supported by survey calibration.					
Planning and internal policy updates	As per region-wide actions identified in Table 10.					
Maintaining and improving infrastructure	As per region-wide actions identified in Table 10.					
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
<i>Dune and vegetation protection and maintenance</i>	Review and implement Slade Pont Local Coastal Plan.	Review and implement Local Coastal Plan recommended activities.	Support community dune protection initiatives.			
<i>Beach nourishment</i>	Review the effectiveness of beach nourishment campaign.		Review and consider a long-term program for beach nourishment and maintenance.			
<i>Coastal hazard protection works</i>	Review and update Shoreline Erosion Management Plan based on new risk information.	If beach nourishment is not providing adequate protection, investigate last line of defence structures (eg seawall, revetment). Establish triggers for implementation.	If triggered, prepare design and approvals for last line of defence structure (if applicable).	If triggered, implement last line of defence structures (if applicable).		

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 14: HARBOUR BEACH



Figure 23. Harbour Beach

Harbour Beach is a coastal community located on the northern side of the Mackay CBD (Figure 23). The foreshore area at Harbour Beach extends for approximately 6.5 kilometres to its southern extent at the Pioneer River mouth. Harbour Beach is a narrow sandy beach with sections of rocky revetments and a training wall along the southern end at the Pioneer River mouth. Slade Island Reef is located offshore from Harbour Beach.

The Harbour Beach coastal community provides significant economic, scenic and natural amenity to the Mackay region. Its coastal areas support an abundance of marine wildlife, including turtles. Within the foreshore area, there are public amenities and tourist facilities. At the southern end of Harbour Beach, estuarine areas are located behind the beach at the Pioneer River. Mackay Harbour is located within this coastal community

and includes sugar and petroleum terminals, as well as numerous berths.

Coastal hazards pose a low risk to assets and infrastructure within the Harbour Beach community from the present day to 2100. Coastal hazard risk for Harbour Beach is expected to remain low by 2100.

The adaptation response for Harbour Beach is to continue to avoid placing new development or assets in coastal areas and continue to monitor coastal hazard risk in the future.

The adaptation pathway includes a focus on protecting and enhancing the existing natural coastal hazard defences (the dune system), collaborating with local environmental groups and reviewing the adaptation pathway over time (Table 27). Region-wide actions also apply where relevant to this locality.

Table 27. Harbour Beach adaptation pathway

					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Avoid and accommodate	Avoid and accommodate	Monitor and maintain	Monitor and maintain		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:					
<i>Community stewardship</i>	Utilise monitoring data from environmental and conservation groups to better understand the risk of coastal hazards to wildlife, such as turtles and migratory shorebirds, and use this information for future coastal adaptation options.					
<i>Education and knowledge</i>	Develop a Use Plan that includes a 4WD traffic management plan to formalise and maintain defined access tracks, as well as provide appropriate signage.					
Planning and internal policy updates	As per region-wide actions identified in Table 10.					
Maintaining and improving infrastructure	As per region-wide actions identified in Table 10.					
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
<i>Dune and vegetation protection and maintenance</i>	Develop a Local Coastal Plan for East Point/Harbour Beach.	Support community dune and significant habitat protection initiatives.				

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 15 - 16: ANDERGROVE AND BEACONSFIELD



Figure 24. Andergrove and Beaconsfield

Andergrove and Beaconsfield are estuarine communities located between McCreadys Creek and the Pioneer River (Figure 24). Located on the Pioneer floodplains, both communities are north and east bound by hundreds of metres of mangroves.

Andergrove and Beaconsfield communities are likely to be increasingly exposed in the future. The estuarine areas of Andergrove and Beaconsfield may be at risk of potential expanding tidal area due to sea level rise. These areas include Golf Links Road and Keeleys Road.

The adaptation response for Andergrove and Beaconsfield is to continue to monitor and maintain the coastal areas.

The adaptation pathway includes a focus on maintaining the natural environment and infrastructure in good condition in coastal areas. Review of the adaptation pathway will be ongoing and guided by the outcome of high priority and short-term actions (Table 28). Region-wide actions also apply where relevant to this community.

Table 27. Harbour Beach adaptation pathway

				0.4m	Sea level rise projections
	High priority	Short-term	Medium-term	Long-term (2100)	
Adaptation response	Monitor and maintain	Monitor and maintain	Monitor and maintain	Monitor and maintain	
Adaptation actions					
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:				
Community stewardship	Raise community awareness and enhance social adaptive capacity for inundation hazards.				
Knowledge sharing		Focus on action 1.2.3 - facilitate training/education workshops/events, focusing on nature-based solutions (mangroves and dunes) and resilient homes.			
Planning and internal policy updates	As per region-wide actions identified in Table 10.				
Maintaining and improving infrastructure	As per region-wide actions identified in Table 10.				
Nature-based coastal management and coastal engineering	As per region-wide actions, including:				
Coastal hazard protection works		Review existing Pioneer River flood studies with coincidental conditions such as tailwater conditions. If required, update model with appropriate tailwater conditions for estuarine areas to understand the implications of the combined coastal and riverine processes for inundation and erosion vulnerability for Andergrove and Beaconsfield.			
		Concept planning for additional structural protection or upgrades (if applicable) and establish triggers for implementation.	If triggered, implement additional structural protection or upgrades (if applicable).		

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 17: TOWN AND FAR BEACH



Figure 25. Town Beach and Far Beach

Town Beach and Far Beach are coastal communities located on the southern side of Mackay CBD (Figure 25). These beaches are narrow, sandy beaches along the coast south of the Pioneer River mouth. The southern training wall of the Pioneer River encompasses the northern section of Town Beach. Behind Town Beach is the suburbs of East Mackay and South Mackay. Mackay Airport is in land from Far Beach.

These coastal communities offer natural values and scenic amenity for the greater Mackay region. At the northern end of Town Beach and the southern end of Far Beach, there are areas of mangroves and saltmarsh.

Along Binnington Esplanade, there are public amenities and carparks at the northern (Iluka Park) and southern

(Quota Park) ends. A section of the Bluewater Sculpture Trail is located within Town Beach. There are also sporting facilities within the foreshore as well as tourist facilities along the foreshore.

The response for Town Beach and Far Beach is to continue to monitor coastal hazard risk. If triggered, begin preparations for hazard mitigation and planning for potential managed retreat of the foreshore use and very high intolerable risk areas in the future.

The adaptation pathway includes a focus on protecting and enhancing vegetation. Review of the adaptation pathway will be ongoing and guided by the outcome of high priority and short-term actions (Table 29). Region-wide actions also apply where relevant to this community.

Table 29. Town and Far Beach adaptation pathway

					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Monitor and maintain	Monitor and maintain	Actively mitigate	Managed retreat		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions identified in Table 10.					
Planning and internal policy updates	As per region-wide actions, including:					
<i>Strategic planning and planning scheme</i>			Develop a long-term managed retreat plan for high risk inundation areas of Town Beach and Far Beach to assist with coordinated adaptation and managed retreat planning in the long-term.	Review adaptation pathway and reduce 2100 adaptation to "actively mitigate" if a resilient built form for very high intolerable risk properties is achieved.		
Maintaining and improving infrastructure	As per region-wide actions, including:					
<i>Increasing infrastructure resilience</i>			Implement infrastructure upgrades (if applicable) (link to transformation plan).			
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
<i>Dune and vegetation protection and maintenance</i>	Review and implement Local Coastal Plan/Beach Plan recommended activities.					

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 18: BAKERS CREEK



Figure 26. Bakers Creek

Bakers Creek is a small estuarine community (Figure 26). The one kilometre wide tidal creek forms the southern boundary of Mackay.

Dense mangroves fringe along the creek and approximately three kilometres of tidal flats extend offshore. There is a 1.5 metre long low energy beach on the south side of the creek mouth. Several residential establishments are located at the western tip of the beach, accessible by a gravel road.

Bakers Creek community is likely to be increasingly exposed in the future. The low-lying areas of Bakers Creek are at increasing risk of inundation.

The adaptation response for Bakers Creek is to continue to monitor coastal hazard risk. If triggered, begin preparations for hazard mitigation and planning for potential managed retreat of the foreshore use and very high intolerable risk areas in the future.

The adaptation pathway includes a focus on avoiding placing new development or assets in high risk coastal areas. Review of the adaptation pathway will be ongoing and guided by the outcome of priority and short-term actions (Table 30). Region-wide actions also apply where relevant to this community.

Table 30. Bakers Creek adaptation pathway

Table 30. Bakers Creek adaptation pathway					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Monitor and maintain	Monitor and maintain	Actively mitigate	Managed retreat		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions identified in Table 10.					
Community stewardship	Raise community awareness and enhance social adaptive capacity for inundation hazards.					
Knowledge sharing		Focus on action 1.2.3 - facilitate training/education workshops/events, focusing on nature-based solutions (mangroves and dunes) and resilient homes.				
Planning and internal policy updates	As per region-wide actions, including:					
Strategic planning and planning scheme			Develop a long-term managed retreat plan for high risk inundation areas of Bakers Creek to assist with coordinated adaptation and managed retreat planning in the long-term.	Review adaptation pathway and reduce 2100 adaptation to “actively mitigate” if a resilient built form for very high intolerable risk properties is achieved.		
Maintaining and improving infrastructure	As per region-wide actions, including:					
Increasing infrastructure resilience		Promote resilient homes within the community and building sector (link in with action 1.2).				
Relocate infrastructure		Assess septic system vulnerability to coastal hazards.				
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
Coastal hazard protection works		Review existing flood studies with coincidental conditions such as tailwater conditions. If required, update model with appropriate tailwater conditions for estuarine areas to understand the implications of the combined coastal and riverine processes for inundation and erosion vulnerability for Bakers Creek.				
		Consider undertaking concept planning for additional structural protection or upgrades in conjunction with long-term managed retreat plan (if applicable) and establish triggers for implementation. If triggered, implement additional structural protection or upgrades in conjunction with long-term managed retreat plan (if applicable).				

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 19: MCEWENS BEACH



Figure 27. McEwens Beach

McEwens Beach is a small coastal community located on the northern side of Sandringham Bay (Figure 27). The sandy, narrow beach extends for approximately five kilometres. There is a rock seawall in front of the residential area towards the northern end of the Esplanade.

This coastal community has important natural and community value. Towards the northern end of McEwens Beach, there are large areas of mangroves. These areas offer natural coastal protection. There is a swimming enclosure located on the southern side of McEwens Beach at McEwens Beach Reserve.

There is an existing structure in place on the northern end of McEwens Beach to manage shoreline position and mitigate erosion.

This area is likely to be increasingly exposed to coastal erosion, storm tide and tidal inundation into the future. Across the foreshore area, residential areas, roads and infrastructure may be at risk from erosion and inundation by 2100.

The adaptation response for McEwens Beach is to actively manage coastal hazard risk and begin preparations for additional hazard mitigation in the future.

The adaptation pathway includes a focus on protecting and enhancing vegetation, monitoring any shoreline changes to support adjoining property owners to maintain existing shoreline protection works, trialling a living shoreline design and reviewing the adaptation pathway over time (Table 31). Region-wide actions also apply where relevant to this community.

Table 31. McEwens Beach adaptation pathway

					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Actively mitigate	Actively mitigate	Actively mitigate	Actively mitigate		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:					
<i>Monitoring</i>	Establish photo-point (CoastSnap) monitoring system.					
Planning and internal policy updates	As per region-wide actions identified in Table 10.					
Maintaining and improving infrastructure	As per region-wide actions, including:					
<i>Relocate infrastructure</i>		Assess septic system vulnerability to coastal hazards.				
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
<i>Dune and vegetation protection and maintenance</i>	Review and implement Local Coastal Plan recommended activities.					
<i>Living shoreline</i>	Investigate erosion issues south of swimming enclosure. Living shoreline pilot site - develop concept design and monitoring plan for living shoreline in front of the existing seawall (link to action 1.3.3). Implement living shoreline design. Review effectiveness of living shoreline design.	Review effectiveness of living shoreline design.	If living shoreline does not achieve expected level of service, consider hybrid or other solutions. Review pathway options and establish triggers for change of pathway.	Review effectiveness of living shoreline design. Review pathway options.		
<i>Coastal hazard protection works</i>		Monitor any shoreline changes to support adjoining property owners to maintain existing shoreline protection works. Review and update Shoreline Erosion Management Plan based on new risk information. Establish triggers for implementation.	If triggered, undertake concept planning for additional structural protection or upgrades (if applicable).	If triggered, implement additional structural protection or upgrades (if applicable)		

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 20: DUNNROCK

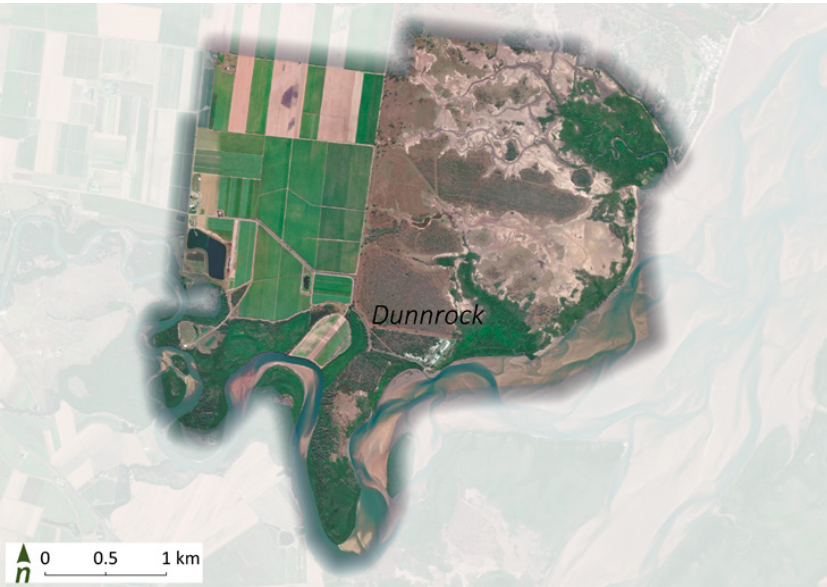


Figure 28. Dunnrock

Dunnrock is a coastal community located on the northern side of the mouth of Alligator Creek which enters Sandringham Bay (Figure 28). The coastline extends for approximately five kilometres along the Dunnrock shoreline. There is a small residential area towards the southern end of this community.

The Dunnrock coastal community has natural and community value. Inland of the Dunnrock community, there is a reserve, as well as a conservation area. At the end of Dunnrock Esplanade there is also a boat ramp.

The Dunnrock community is likely to be increasingly prone to tidal and storm tide inundation in the future.

The adaptation response for Dunnrock is to continue to monitor coastal hazard risk, and actively mitigate and begin preparations for additional hazard mitigation and planning for impacts. This includes potential transformation of foreshore use and very high intolerable risk areas in the future.

The adaptation pathway includes a focus on avoiding placing new development or assets in high risk coastal areas. Review of the adaptation pathway will be ongoing and guided by the outcome of priority and short-term actions (Table 32). Region-wide actions also apply where relevant to this community.

Table 32. Dunnrock adaptation pathway

Table 32. Dunnrock adaptation pathway					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Monitor and maintain	Monitor and maintain	Actively mitigate	Managed retreat		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:					
Community stewardship	Raise community awareness and enhance social adaptive capacity for inundation hazards.					
Knowledge sharing		Focus on action 1.2.3 - facilitate training/education workshops/events, focusing on nature-based solutions (mangroves and dunes) and resilient homes.				
Planning and internal policy updates	As per region-wide actions, including:					
Strategic planning and planning scheme			Develop a long-term managed retreat plan for high risk inundation areas of Dunnrock to assist with coordinated adaptation and managed retreat planning in the long-term.	Review adaptation pathway and reduce 2100 adaptation to “actively mitigate” if a resilient built form for very high intolerable risk properties is achieved.		
Maintaining and improving infrastructure	As per region-wide actions, including:					
Increasing infrastructure resilience		Promote resilient homes within the community and building sector (link in with action 1.2).				
Relocate infrastructure		Assess septic system vulnerability to coastal hazards.				
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
Coastal hazard protection works		Consider undertaking concept planning for additional structural protection or upgrades in conjunction with long-term managed retreat plan (if applicable) and establish triggers for implementation. If triggered, implement additional structural protection or upgrades in conjunction with long-term managed retreat plan (if applicable).				

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 21 - 23: LOUISA CREEK, HALF TIDE BEACH AND SALONIKA BEACH



Figure 29. Louisa Creek, Half Tide Beach and Salonika Beach

Louisa Creek, Half Tide Beach and Salonika Beach are small coastal communities facing north-easterly into Dalrymple Bay (Figure 29). The communities are bound to the north by Louisa Creek and to the south by a small creek. The Hay Point loading facility sits between Louisa Creek and Half Tide Beach and Salonika Beach.

Half Tide Beach lies between the southern breakwater and a low rocky point. The beach is fronted by a 100 metres wide low tide bar and backed by a small reserve and amenities block. Salonika Beach is directly south of the low rocky point and it is moderately steep and wide, with a 100 metres wide lower tide bar that increases to 150 metres in width at the southern creek mouth. There is good beach access along the beach.

Coastal hazards pose a low risk to assets and infrastructure within the

Louisa Creek, Half Tide Beach and Salonika Beach communities from present day to 2100. The risk of open coast erosion, storm tide and tidal inundation is low.

The adaptation response for Louisa Creek, Half Tide Beach and Salonika Beach is to avoid placing new development or assets in high risk coastal areas and continue to monitor coastal hazard risk in the future.

The adaptation pathway includes a focus on avoiding placing new development or assets in coastal areas, protecting and enhancing vegetation, reviewing the adaptation pathway over time and considering future alternatives including new protection works for critical assets (Table 33). Region-wide actions also apply here where relevant to this community.

Table 33. Louisa Creek, Half Tide Beach and Salonika Beach adaptation pathway

Table 33. Louisa Creek, Half Tide Beach and Salonika Beach adaptation pathway					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Avoid and accommodate	Avoid and accommodate	Monitor and maintain	Actively mitigate		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:					
Community stewardship	Raise community awareness and enhance social adaptive capacity for inundation hazards.					
	Utilise monitoring data from environmental and conservation groups to better understand the risk of coastal hazards to wildlife, such as turtles and migratory shorebirds, and use this information for future coastal adaptation options.					
Knowledge sharing		Focus on action 1.2.3 - facilitate training/education workshops/events, focusing on nature-based solutions (mangroves and dunes) and resilient homes.				
Planning and internal policy updates	As per region-wide actions identified in Table 10.					
Maintaining and improving infrastructure	As per region-wide actions, including:					
Relocate infrastructure		Assess septic system vulnerability to coastal hazards.				
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
Dune and vegetation protection and maintenance	Review and implement Sarina Coastal Sustainable Landscapes Project recommended actions.					
Coastal hazard protection works	Make the Mackay Coast Our Future and coastal hazard extents available to North Queensland Bulk Ports Corporation.		Concept planning for additional structural protection or upgrades (if applicable) and establish triggers for implementation.			

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 24 - 26: GRASSTREE BEACH, CAMPWIN BEACH AND SARINA BEACH



Figure 30. Grasstree Beach, Campwin Beach and Sarina Beach

Grasstree Beach, Campwin Beach and Sarina Beach are coastal communities located towards the southern end of the Mackay region coastline (Figure 30). These three coastal communities extend approximately 10 kilometres along the coastline. There are residential communities located along the foreshore at each of these beaches.

This community supports significant natural value. Grasstree Beach coastal areas support an abundance of wildlife, including turtles, mangrove mouse and coastal sheath-tailed bat. Cabbage Tree Creek separates Grasstree Beach and Campwin Beach.

At the southern end of Grasstree Beach and Sarina Beach there are boat ramps. There is also tourism value for the greater Mackay region. Along Sarina Beach, there are numerous tourist facilities.

Coastal hazards pose a low risk to assets and infrastructure within the Grasstree Beach, Campwin Beach and Sarina Beach communities in present day. However, erosion risk may increase to high risk by 2100. It is important to note that Grasstree Beach is experiencing localised erosion on the southern end of the Esplanade.

The adaptation response for Grasstree Beach, Campwin Beach and Sarina Beach is to avoid placing new development or assets in potentially high risk coastal areas and continue to monitor coastal hazard risk in the future.

The adaptation pathway includes a focus on avoiding placing new development or assets in coastal areas, protecting and enhancing vegetation, reviewing the adaptation pathway over time (Table 34). Region-wide actions also apply here where relevant to this community.

**SECTION 7
COMMUNITY-SPECIFIC ACTIONS**

Table 34. Grasstree Beach, Campwin Beach and Sarina Beach adaptation pathway

		Sea level rise projections		
		0.4m	0.8m	
Adaptation response	High priority	Short-term	Medium-term	Long-term (2100)
	Avoid and accommodate	Avoid and accommodate	Monitor and maintain	Actively mitigate
Adaptation actions				
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:			
<i>Community stewardship</i>	Raise community awareness and enhance social adaptive capacity for inundation hazards. Utilise monitoring data from environmental and conservation groups to better understand the risk of coastal hazards to wildlife, such as turtles and migratory shorebirds, and use this information for future coastal adaptation options.			
<i>Knowledge sharing</i>		Focus on action 1.2.3 - facilitate training/education workshops/events, focusing on nature-based solutions (mangroves and dunes) and resilient homes.		
<i>Monitoring</i>	Establish photo-point (CoastSnap) monitoring system at Sarina Beach.			
Planning and internal policy updates	As per region-wide actions identified in Table 10.			
Maintaining and improving infrastructure	As per region-wide actions, including:			
<i>Increasing infrastructure resilience</i>	Avoid placement of non-relocatable public assets (eg coastal pathway) along the dune, foreshore and beach areas at high risk from coastal hazards.			
Nature-based coastal management and coastal engineering	As per region-wide actions, including:			
<i>Dune and vegetation protection and maintenance</i>	Review and implement Local Coastal Plan and Sarina Coastal Sustainable Landscapes Project recommended actions. Review Draft Sarina Local Coastal Plan recommended actions and implement upon adoption.			
<i>Coastal hazard protection works</i>	Develop Shoreline Erosion Management Plan for priority areas (Grasstree Beach only).		Concept planning for additional structural protection or upgrades (if applicable) and establish triggers for implementation.	

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 27: ARMSTRONG BEACH



Figure 31. Armstrong Beach

Armstrong Beach is a small coastal community located seven kilometres east of Sarina (Figure 31). The east facing beach is approximately 3.6 kilometres within Llewellyn Bay, bordered by Freshwater Point to the north and the rocky outcrops to the south. The beach is a low gradient high tide beach, fronted by fine sand to muddy tidal flats that extend up to two kilometres off the northern end of the beach.

The Armstrong Beach community already observes and experiences some impacts of coastal hazards. The Armstrong Beach foreshore is likely to be increasingly exposed to open coast erosion into the future. Low-lying areas are also vulnerable to storm tide and are facing increasing risk from these hazards into the future. Septic tank systems may become exposed to tidal

inundation in the future.

Across the foreshore area, residential areas, roads and infrastructure may be at risk from erosion and inundation by 2100.

The adaptation response for Armstrong Beach is to continue to actively manage coastal hazard risk and begin preparations for additional hazard mitigation and potential transition of the foreshore use in the future.

The adaptation pathway includes a focus on dune vegetation and enhancement and resilient homes. Review of the adaptation pathway will be ongoing and guided by the outcome of priority and short-term actions (Table 35). Region-wide actions also apply where relevant to this community.

Table 35. Armstrong Beach adaptation pathway

Table 35. Armstrong Beach adaptation pathway					0.4m	0.8m
					Sea level rise projections	
	High priority	Short-term	Medium-term	Long-term (2100)		
Adaptation response	Actively mitigate	Actively mitigate	Actively mitigate	Managed retreat		
Adaptation actions						
Region-wide initiatives to enhance custodianship	As per region-wide actions, including:					
Community stewardship	Raise community awareness and enhance social adaptive capacity for inundation hazards.					
Knowledge sharing		Focus on action 1.2.3 - facilitate training/education workshops/events, focusing on nature-based solutions (mangroves, dunes, living shorelines) and resilient homes.				
Planning and internal policy updates	As per region-wide actions, including:					
Strategic planning and planning scheme			Develop a long-term transformation plan for targeted areas of Armstrong Beach to assist with coordinated adaptation and transformation planning in the long-term.	Review adaptation pathway and reduce 2100 adaptation to “actively managed” if a resilient built form for very high intolerable risk properties is achieved.		
Maintaining and improving infrastructure	As per region-wide actions, including:					
	Promote resilient homes within the community and building sector (link in with action 1.2).					
Increasing infrastructure resilience		Undertake feasibility study for drainage upgrades and road/ services raising for Armstrong Beach Road and Donald Place or alternative adaptation options.	Implement drainage upgrades and road/services raising.			
Relocate infrastructure		Assess septic system vulnerability to coastal hazards.				
Nature-based coastal management and coastal engineering	As per region-wide actions, including:					
Dune and vegetation protection and maintenance	Review and implement Sarina Coastal Sustainable Landscapes Project recommended actions.					
Coastal hazard protection works	Develop Shoreline Erosion Management Plan for priority areas.	Consider undertaking concept planning for additional structural protection or upgrades in conjunction with long-term managed retreat plan (if applicable) and establish triggers for implementation. If triggered, implement additional structural protection or upgrades in conjunction with long-term managed retreat plan (if applicable).				

SECTION 7 COMMUNITY-SPECIFIC ACTIONS

COMMUNITY 28: ISLANDS

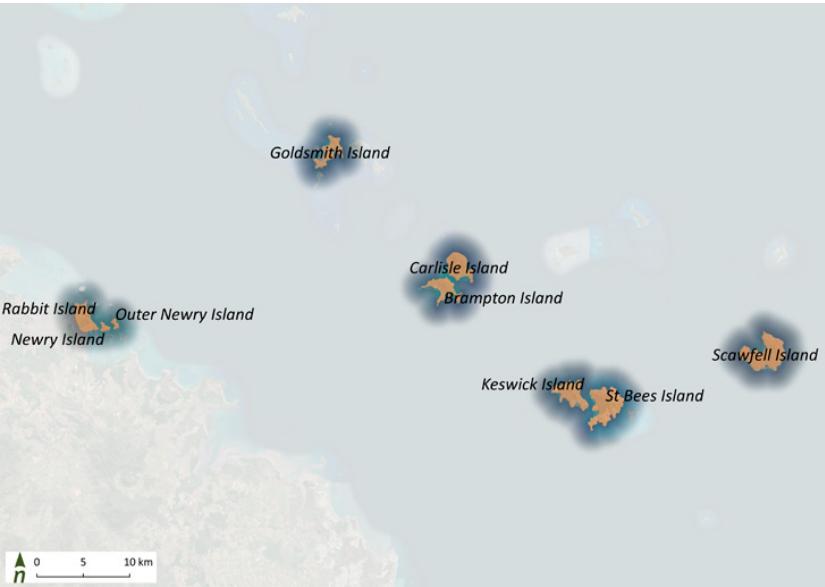


Figure 32. Islands

Newry Island, Rabbit Island, Outer Newry Island, Goldsmith Island, Brampton Island, Carlisle Island, Scawfell Island, St Bees Island and Keswick Island are islands directly offshore of Mackay mainland (Figure 32).

These islands have highly valued environmental areas and significant habitats including for koalas. They also have a high recreational value, and are popular locations for camping, boating and ecotourism. There are various facilities on the islands to help support these activities.

Coastal hazards pose a low risk to assets and infrastructure on the

islands from the present day to 2100. Coastal hazard risk for the islands is expected to remain low by 2100.

The adaptation response for the islands is to avoid placing new development or assets in high risk coastal areas and continue to monitor coastal hazard risk in the future.

The adaptation pathway includes a focus on avoiding placing new development or assets in coastal areas and reviewing the adaptation pathway over time (Table 36). Region-wide actions also apply where relevant to this locality.

Table 36. Islands adaptation pathway

Table 36. Islands adaptation pathway					0.8m
					Sea level rise projections
		0.4m			
	High priority	Short-term	Medium-term	Long-term (2100)	
Adaptation response	Avoid and accommodate	Avoid and accommodate	Avoid and accommodate	Avoid and accommodate	
Adaptation actions					
Region-wide initiatives to enhance custodianship	As per region-wide actions identified in Table 10.				
Planning and internal policy updates	As per region-wide actions identified in Table 10.				
Maintaining and improving infrastructure	As per region-wide actions, including:				
Increasing infrastructure resilience		Avoid placement of non-relocatable public assets (eg coastal pathway) along the dune, foreshore and beach areas at high risk from coastal hazards.			
Nature-based coastal management and coastal engineering	As per region-wide actions, including:				
Dune protection and maintenance		Develop coastal plans for the protection of highly-valued environmental areas and significant habitat.			



SECTION 7
COMMUNITY-SPECIFIC ACTIONS

SECTION 8

IMPLEMENTATION

Mackay Regional Council will implement the Coastal Hazard Adaptation Study through a range of mechanisms including:

- An adaptive management framework.
- Embedding outcomes and actions from Mackay Coast Our Future into existing Council process and activities.
- Implementing new initiatives from Mackay Coast Our Future.

To guide implementation, a plan has been developed that includes additional detail on:

- Timeframes for actions.
- Costing for priority 10–20 year actions.
- Instruments, plans and processes (existing, modified, new) required to deliver adaptation options.
- Potential funding sources.
- Monitoring and evaluation.
- Barriers to implementation and change management actions.
- Partnership opportunities with stakeholders.

It is also expected that council will work with the State Government and review the outputs of Mackay Coast Our Future to inform future coastal hazard areas and coastal management districts as part of State Planning interests. Relevant information from Mackay Coast Our Future's risk assessment process will also inform an amendment to the planning scheme.

A summary of the priority actions the Mackay region is presented in Table 37.

8.1 | Next steps

This is the start of the adaptation process

Adapting to coastal hazards is a shared responsibility for all stakeholders and the Mackay community. We look forward to working together as we continue the adaptation journey.

This study represents the start of an ongoing process of planned adaptation over time.

Adaptation pathways will be continually informed by community input and ideas, new knowledge, and monitoring the effectiveness of actions. We encourage everyone to consider how you can build your own resilience and adapt to future climate change.

It is intended that the Coastal Hazard Adaptation Study will be reviewed approximately every 10 years. The next review of the Mackay Coast Our Future is due in 2032.

The review will include consideration of:

- Success of implementation:
 - » Integration into council and stakeholder plans and processes.
 - » Delivery of on-ground activities.
 - » Community perspectives on adaptation effectiveness.
 - » Reduction in coastal hazard risk.
- Triggers to update Mackay Coast Our Future include consideration of:
 - » Any changes in the science/policy environment (eg sea level rise, predictions, approach to defining coastal hazard areas).
 - » Updated technical information that may be available.
 - » Any new urban development or substantial landscape changes in the region.
 - » Any rapid environmental change imposing limitations on current preferred adaptation pathways.
 - » Any changes in community attitudes and risk tolerance.
 - » A strategic decision by Council linked to other strategic objectives.

8.2 | Summary of priority actions across the Mackay region

To guide implementation, a detailed action plan is presented in Table 37.

Table 37. Summary of adaptation actions by locality

- High priority (to be implemented within 5 years)
- Short-term (to be implemented within 10 years)
- Medium-term (to be implemented or reviewed in 15 years)
- Long-term (to be implemented or reviewed in 20 years)

Adaptation actions			2023 Priority strategic actions (completed within 5–20 years)																																	Midge Point	St Helens Beach	Seaforth	Haliday Bay	Ball Bay	Cape Hillsborough	Shoal Point	Bucasia	Eimeo	Dolphin Heads	Blacks Beach	Slade Point	Lamberts Beach	Harbour Beach	Andergrove	Beaconsfield	Town and Far Beach	Bakers Creek	McEwens Beach	Dunnrock	Louisa Creek	Half Tide Beach	Salonika Beach	Grasstree Beach	Campwin Beach	Sarina Beach	Armstrong Beach	Islands
1. Region-wide initiatives to enhance custodianship																																																															
1.1 Community stewardship	1.1.1	Establishing clear roles and responsibilities within council to support Coastal Hazard Adaptation Study implementation, stewardship activities, and seek co-funding resources and stakeholder collaboration.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●																													
	1.1.2	Establish engagement programs to maximise community capacity and involvement in dune protection and maintenance activities through a mix of council, Traditional Custodians, partnerships, volunteering and community input – and implement at relevant communities (linked to 4.1).	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●																													
	1.1.3	Seek co-funding/resources for further initiatives through grants and stakeholder collaborations.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●																													
	1.1.4	Identify and promote opportunities for collaboration with Traditional Custodians in managing coastal hazards.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●																													
	1.1.5	Utilise monitoring data from environmental and conservation groups to better understand the risk of coastal hazards to wildlife, such as turtles and migratory shorebirds, and use this information for future coastal adaptation options.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●																													

Adaptation actions		2023 Priority strategic actions (completed within 5–20 years)	Midge Point	St Helens Beach	Seaforth	Haliday Bay	Ball Bay	Cape Hillsborough	Shoal Point	Bucasia	Eimeo	Dolphin Heads	Blacks Beach	Slade Point	Lamberts Beach	Harbour Beach	Andergrove	Beaconsfield	Town and Far Beach	Bakers Creek	McEwens Beach	Dunnrock	Louisa Creek	Half Tide Beach	Salonika Beach	Grasstree Beach	Campwin Beach	Sarina Beach	Armstrong Beach	Islands
1.2 Education and knowledge sharing	1.2.1	Continue to advance relationships and collaboration with Traditional Custodians to further consider needs, aspirations and involvement in coastal hazard adaptation, including the identification of cultural values, management of significant sites, supporting their ongoing role in caring for country and informing future adaptation approaches.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1.2.2	Develop a coastal management communication and engagement plan to continue to collaborate and engage with key stakeholders and enhance community awareness of coastal hazards	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1.2.3	Enhance community adaptive capacity to coastal hazards, including awareness of increasing coastal hazard exposure and risk (particularly inundation) and ways to improve individual preparedness and adaptive capacity – through training, education, events.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1.2.4	Include the Mackay Coast Our Future coastal hazard mapping in Council's online systems (ie MADI, MiMAPS).	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1.2.5	Educate 4WD users about regulations and conditions.													●															
1.3 Monitoring	1.3.1	Establish a long-term coastal monitoring program which may include photo point monitoring systems at key areas.	●	●						●	●		●		●						●							●		
	1.3.2	Create a platform/process for data monitoring and management identifying synergies and collaboration opportunities, with existing monitoring programs.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
1.4 Research opportunities	1.4.1	Apply for collaborative government funding grants for relevant actions.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	1.4.2	Identify key pilot sites for nature-based solutions where research partnerships/ collaborations may be feasible.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	

Adaptation actions			2023 Priority strategic actions (completed within 5–20 years)			Midge Point	St Helens Beach	Seaforth	Haliday Bay	Ball Bay	Cape Hillsborough	Shoal Point	Bucasia	Eimeo	Dolphin Heads	Blacks Beach	Slade Point	Lamberts Beach	Harbour Beach	Andergrove	Beaconsfield	Town and Far Beach	Bakers Creek	McEwens Beach	Dunnrock	Louisa Creek	Half Tide Beach	Salonika Beach	Grasstree Beach	Campwin Beach	Sarina Beach	Armstrong Beach	Islands			
2. Planning and internal policy updates																																				
2.1 Strategic planning and planning scheme	2.1.1	Use the Mackay Coast Our Future to inform corporate and operational policy, including the Planning Scheme, Asset Management Plans, Council Policy, etc.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●			
	2.1.2	Review future development and infrastructure servicing options for urban areas subject to 2100 HAT.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	2.1.3	Develop a long-term managed retreat plan for targeted areas at some coastal communities (as specified in location-based pathways).	●														●						●	●		●							●			
2.2 Disaster management	2.2.1	Review/update disaster management plans using the erosion prone area and storm tide inundation mapping, the CHAS risk assessment, and information on economic implications.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	2.2.2	Review the long-term adequacy of evacuation facilities and evacuation routes for different coastal hazard adaptation planning horizons	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
3. Maintaining and improving infrastructure																																				
3.1 Increasing infrastructure resilience	3.1.1	Review at risk infrastructure and embed coastal hazard risk information into asset planning and management.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
	3.1.2	Develop/update design guidelines for infrastructure (stormwater drainage assets, wastewater assets, water assets, waste assets, community and cultural assets, property assets, ICT assets, roads, fleet assets, marine assets, parks and open space assets).	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	3.1.3	Review access road renewals, upgrades (prioritisation), and design requirements considering future coastal hazards.	●		●													●															●			
	3.1.4	Promote resilient and sustainable design principles within the community and building sector (link in with action 1.2).	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●

Adaptation actions		2023 Priority strategic actions (completed within 5–20 years)	Midge Point	St Helens Beach	Seaforth	Haliday Bay	Ball Bay	Cape Hillsborough	Shoal Point	Bucasia	Eimeo	Dolphin Heads	Blacks Beach	Slade Point	Lamberts Beach	Harbour Beach	Andergrove	Beaconsfield	Town and Far Beach	Bakers Creek	McEwens Beach	Dunnrock	Louisa Creek	Half Tide Beach	Salonika Beach	Grasstree Beach	Campwin Beach	Sarina Beach	Armstrong Beach	Islands
3.2 Relocate infrastructure	3.2.1	Relocate specific assets, where defined in adaptation pathways as part of asset renewal process.	●	●	●		●													●	●	●	●	●	●				●	
4. Nature-based coastal management																														
4.1 Dune and vegetation protection and maintenance	4.1.1	Undertake dune, wetland and riparian protection, enhancement, and management in areas identified in location-specific adaptation pathways.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	4.1.2	Review the coastal management guidelines and implement local coastal plans for dune and vegetation protection and maintenance.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
4.2 Beach nourishment	4.2.1	Scope for potential future works, in accordance with adaptation pathway planning.													●															
	4.2.2	Investigate the cost-effectiveness and environmental soundness of sand sources for beach nourishment.													●															
	4.2.3	Identify key areas for long-term ongoing beach nourishment.													●															
4.3 Living shorelines	4.3.1	Commence environmental enhancement and maintenance program (vegetation, mangroves) to all relevant areas (linked to the outcome of action 1.2 and location-based actions).	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	4.3.2	Pilot a living shoreline project.		●																	●									

Adaptation actions		2023 Priority strategic actions (completed within 5–20 years)	Midge Point	St Helens Beach	Seaforth	Haliday Bay	Ball Bay	Cape Hillsborough	Shoal Point	Bucasia	Eimeo	Dolphin Heads	Blacks Beach	Slade Point	Lamberts Beach	Harbour Beach	Andergrove	Beaconsfield	Town and Far Beach	Bakers Creek	McEwens Beach	Dunnrock	Louisa Creek	Half Tide Beach	Salonika Beach	Grasstree Beach	Campwin Beach	Sarina Beach	Armstrong Beach	Islands
4.4 Coastal hazard protection works	4.4.1	Prepare a region-wide Shoreline Erosion Management Plan which focuses on areas identified in the CHAS.	●	●	●		●				●	●	●	●	●						●					●			●	
	4.4.2	Undertake coincident flood modelling for estuarine areas to understand the implications of the combined coastal and riverine processes for inundation and erosion vulnerability.															●	●	●	●										
	4.4.3	Maintain and review the condition of public coastal hazard protection structures, in accordance with adaptation pathway planning.	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
	4.4.4	Consult with State Government regarding unapproved coastal hazard protection structures to determine the management approach to existing and future structures.																		●										

REFERENCES

- 1 LGAQ and DEHP 2016
- 2 Refer to Queensland Spatial Catalogue – QSpatial
qldspatial.information.qld.gov.au
- 3 Refer to coastal hazard technical guide – determining
coastal hazard areas - [www.qld.gov.au/ data/assets/pdf_](http://www.qld.gov.au/data/assets/pdf_file/0025/67462/hazards-guideline.pdf)
[file/0025/67462/hazards-guideline.pdf](http://www.qld.gov.au/data/assets/pdf_file/0025/67462/hazards-guideline.pdf)
- 4 Refer to Mackay Region Storm Tide Study (BMT WBM 2013)
- 5 Likelihoods are defined by Annual Exceedance Probabilities
(AEPs) which indicate the probability that an event will occur
in any given year.
- 6 Refer Phase Five Summary Report (MRC 2022e)
- 7 Relative to all assets within the region



Learn more and subscribe to project updates at
connectingmackay.com.au/future-coast

Mackay Coast **Our Future**

Coastal Hazard Adaptation Study (CHAS)

For more information call **1300 MACKAY** (622 529) or
visit connectingmackay.com.au





Attachment 2

Register of amendments

Draft Mackay Coast Our Future Study survey

Consultation period: September 27, 2023 to November 15, 2023

Section 1.3.1

Add October 2023 to this list to the community drop in session bullet point

Add October 2023 to this list to the community drop in session bullet point

Section 2.1.1

Accessibility reference amended

Section 3.6.3 – Table 4

Heading colours changed

Section 3.6.4 – Table 5

% added

Section 3.6.5 – Table 8

~~Existing levees and seawalls are protecting a significant length of the coastline~~

Existing levees and seawalls are providing protection to some parts of the coastal zone

Section 3.6.4 – Table 5

% added

Section 4.1.4 – Formatting change

Clarify order of adaptation pathways

To learn more visit connectingmackay.com.au/future-coast and subscribe to project update emails.





Section 5.1

November to December ~~2023~~ 2022

Section 6

~~six~~ four themes

Community 3 – Seaforth

Acknowledge Ambulance and Police are decommissioned

Table 16

Strategic planning and planning scheme – row removed

Community 4 – Haliday Bay

Table 17

Amend to match Table 12 - Adaptation response by reporting sub-region (all coastal hazards)

~~Managed Retreat~~ actively mitigate

Community 10 – Dolphin Heads

Table 23

Amend to match Table 12 - Adaptation response by reporting sub-region (all coastal hazards)

~~actively mitigate~~ monitor and maintain

Community 14 – Harbour Beach

Acknowledge incorrect statement, motorbikes and ATVs may be ridden in this area but this is often done illegally and the area is not designated for this purpose

estuarine areas are located behind the beach at the Pioneer River mouth, ~~and there are designated areas for motorbike/ATV riding.~~

Community 20 – Dunnrock

Table 32

Planning and Policy row added.

Review adaptation pathway and reduce 2100 adaptation to “actively mitigate” if a resilient built form for very high intolerable risk properties is achieved.

To learn more visit connectingmackay.com.au/future-coast and subscribe to project update emails.





Develop a long-term managed retreat plan for high risk inundation areas of Dunnrock to assist with coordinated adaptation and managed retreat planning in the long-term.

To learn more visit connectingmackay.com.au/future-coast and subscribe to project update emails.



11.5. INFRASTRUCTURE AND OPERATIONS

11.5.1. LEASE RENEWAL - EIMEO SURF LIFE SAVING CLUB

Author	Land & Property Officer (Jacinta Pollock Bonnett)
Responsible Officer	Acting Director Infrastructure and Operations (Jim Carless)
File Reference	Current Securities Lease 187 6 Eimeo Esplanade EIMEO QLD 4740

Attachments

1. Lease Area [11.5.1.1 - 1 page]

Purpose

To consider a lease renewal request for Eimeo Surf Life Saving Club Inc for a total area of approximately 544 square meters being Lot 1 on RP719065, known as 6 Eimeo Esplanade, Eimeo for a period of ten (10) years with such lease to commence on 1 February 2024.

Related Parties

Eimeo Surf Life Saving Club Inc
Eimeo Surf Life Saving Supporters Club

Corporate Plan Linkage

Live and Visit

Community Participation and Active Lifestyles - Our region is vibrant and culturally rich, home to a wide variety of events, experiences and attractions.

Live, Visit and Play - We have a diverse mix of accessible spaces to live, visit and play.

Background/Discussion

Eimeo Surf Life Saving Club Inc (ESLSC) commenced their 20-year lease in February 2004, in which they were joint tenants with the Sunset Bay Outrigger Canoe Racing Association Club Inc (Outriggers) over 4 and 6 Eimeo Esplanade, Eimeo. In 2006/2007 the Outriggers transferred their interest in the lease over 6 Eimeo Esplanade, to ESLSC who then sub-leased to the Eimeo Surf Life Saving Supporters Club Inc.

ESLSC run multiple programs for a range of ages and abilities, as well as competitions and events with assistance from the Supporters Club.

The Nippers program provides a nurturing environment for young members to learn and develop valuable knowledge; from ocean awareness and surf safety to basic first aid and rescue techniques, combining education, physical activity and fun.

The Eimeo Albatross Nippers program commenced in the 2021 season, expanding the current Nippers program to be inclusive of kids with special needs. Eimeo is the only Albatross Nipper program outside of Southeast Queensland and the only one currently offered in our region.

Discussions between ESLSC and the Supporters Club have been positive and are agreeable to continue assisting each other by allowing shared usage when required for events. ESLSC have confirmed they wish to provide a new sub-lease agreement to the Supporters Club.

According to Section 236 (1) (b) (ii) of the Local Government Regulation 2012, “a local government may dispose of a valuable non-current asset other than by tender or auction if – the valuable non-current asset is disposed of to a community organisation.”

Section 236 (1) (c) (iii) of the Local Government Regulation 2012, “a local government may dispose of a valuable non-current asset other than by tender or auction if – the disposal of land or an interest in land is for the purpose of renewing the lease of land to the existing tenant of the land.”

Therefore, Council is not required to tender this before granting a new lease.

Consultation and Communication

Representatives of Eimeo Surf Life Saving Club Inc, Manager Property Services, Supervisor Land Operations, Land and Property Officer, Land and Road Use Committee

Resource Implications

All costs incurred in respect to the preparation and lodgement of the lease documentation will be borne by the Lessee.

The lease will be a standard community lease, inclusive of rental in accordance with the Mackay Regional Council's Community Leasing Policy and other like conditions.

Risk Management Implications

ESLSC provides ocean awareness and surf safety to a range of members within the community. Should the lease not be renewed, both our community and region would not be able to benefit from the opportunities that arise from such a community group.

Conclusion

The approval of a new ten (10) year lease to ESLSC and sub-lease to the Supporters Club, who have shown a long-term commitment to the land, its infrastructure and the local community, is the most advantageous outcome to Mackay Regional Council.

Officer's Recommendation

THAT Council

1. Resolves that an exemption applied under Section 236 (1) (b) (ii) of the Local Government Regulation 2012, "a local government may dispose of a valuable non-current asset other than by tender or auction if – the valuable non-current asset is disposed of to a community organisation;" and
2. Approves a new lease for Eimeo Surf Life Saving Club Inc for a total area of approximately 544 square meters being Lot 1 on RP719065, known as 6 Eimeo Esplanade, Eimeo for a period of ten (10) years with such lease to commence on 1 February 2024.
3. Provides consent to a new sub-lease from Eimeo Surf Life Saving Club Inc to Eimeo Surf Life Saving Supporters Club on similar terms as the current sub-lease.

Council Resolution ORD-2023-325

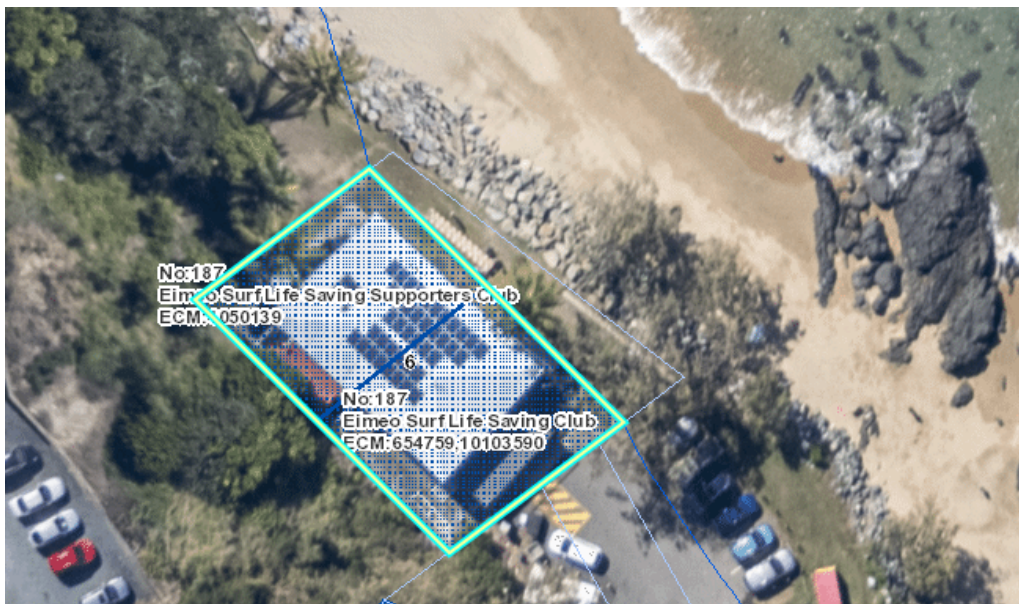
THAT Council

1. Resolves that an exemption applied under Section 236 (1) (b) (ii) of the Local Government Regulation 2012, "a local government may dispose of a valuable non-current asset other than by tender or auction if – the valuable non-current asset is disposed of to a community organisation;" and
2. Approves a new lease for Eimeo Surf Life Saving Club Inc for a total area of approximately 544 square meters being Lot 1 on RP719065, known as 6 Eimeo Esplanade, Eimeo for a period of ten (10) years with such lease to commence on 1 February 2024.
3. Provides consent to a new sub-lease from Eimeo Surf Life Saving Club Inc to Eimeo Surf Life Saving Supporters Club on similar terms as the current sub-lease.

Moved Cr Green

Seconded Cr Englert

CARRIED UNANIMOUSLY



Eimeo Surf Life Saving Club – Lot 1 on RP719065

11.5.2. LEASE RENEWAL - EIMEO SURF LIFE SAVING CLUB INC AND SUNSET BAY OUTRIGGER CANOE RACING ASSOCIATION CLUB INC

Author	Land & Property Officer (Jacinta Pollock Bonnett)
Responsible Officer	Acting Director Infrastructure and Operations (Jim Carless)
File Reference	Current Securities Lease 187, Eimeo Esplanade, EIMEO QLD 4740

Attachments

1. Lease Area [11.5.2.1 - 1 page]

Purpose

To consider a lease renewal request for Eimeo Surf Life Saving Club Inc and Sunset Bay Outrigger Canoe Racing Association Club Inc for a total area of approximately 1337 square meters being Part of Lot 1 on SP192532, known as 4 Eimeo Esplanade, Eimeo for a period of ten (10) years with such lease to commence on 1 February 2024.

Related Parties

Eimeo Surf Life Saving Club Inc
Sunset Bay Outrigger Canoe Racing Association Club Inc

Corporate Plan Linkage

Live and Visit

Community Participation and Active Lifestyles - Our region is vibrant and culturally rich, home to a wide variety of events, experiences and attractions.

Live, Visit and Play - We have a diverse mix of accessible spaces to live, visit and play.

Background/Discussion

Eimeo Surf Life Saving Club Inc (ESLSC) and Sunset Bay Outrigger Canoe Racing Association Club Inc (Outriggers) commenced their 20-year lease in February 2004, in which they were joint tenants over 4 and 6 Eimeo Esplanade, Eimeo. In 2006/2007 the Outriggers transferred their interest in the lease over 6 Eimeo Esplanade and remained as a joint tenant over 4 Eimeo Esplanade for storage of their equipment.

ESLSC run multiple programs for a range of ages and abilities, as well as competitions and events. Their programs encourage members to learn and develop valuable skills such as ocean awareness, surf safety, basic first aid and rescue techniques.

Outriggers cater for all paddlers with experienced coaches to ensure maximum safety during training sessions. The club offers a relaxed environment to enjoy the sport of outrigger canoeing whether members wish to race competitively or to train to stay fit and healthy.

ESLSC and Outriggers are agreeable to continue the joint tenants Lease Agreement by allowing shared usage for storage purposes.

According to Section 236 (1) (b) (ii) of the Local Government Regulation 2012, “a local government may dispose of a valuable non-current asset other than by tender or auction if – the valuable non-current asset is disposed of to a community organisation.”

Section 236 (1) (c) (iii) of the Local Government Regulation 2012, “a local government may dispose of a valuable non-current asset other than by tender or auction if – the disposal of land or an interest in land is for the purpose of renewing the lease of land to the existing tenant of the land.”

Therefore, Council is not required to tender this before granting a new lease.

Consultation and Communication

Representatives of Eimeo Surf Life Saving Club Inc and Sunset Bay Outrigger Canoe Racing Association Club Inc, Executive Manager Property and Plant, Supervisor Land Operations, Land and Property Officer, Land and Road Use Committee

Resource Implications

All costs incurred in respect to the preparation and lodgement of the lease documentation will be borne by the Lessee.

The lease will be a standard community lease inclusive of rental in accordance with the Mackay Regional Council's Community Leasing Policy and other like conditions.

Risk Management Implications

ESLSC provides ocean awareness and surf safety to a range of members within the community, and Outriggers provide a safe environment for members to enjoy the outrigger canoeing sport. Should the lease not be renewed, both our community and region would not be able to benefit from the opportunities that arise from such a community group.

Conclusion

The approval of a new ten (10) year lease to ESLSC and Outriggers, who have shown a long-term commitment to the land, its infrastructure and the local community, is the most advantageous outcome to Mackay Regional Council.

Officer's Recommendation

THAT Council

1. Resolves that an exemption applied under Section 236 (1) (b) (ii) of the Local Government Regulation 2012, "a local government may dispose of a valuable non-current asset other than by tender or auction if – the valuable non-current asset is disposed of to a community organisation;" and
2. Approves a new lease for Eimeo Surf Life Saving Club Inc and Sunset Bay Outrigger Canoe Racing Association Club Inc for a total area of approximately 1337 square meters being Part of Lot 1 on SP192532, known as 4 Eimeo esplanade, Eimeo for a period of ten (10) years with such lease to commence on 1 February 2024.

Council Resolution ORD-2023-326

THAT Council

1. Resolves that an exemption applied under Section 236 (1) (b) (ii) of the Local Government Regulation 2012, "a local government may dispose of a valuable non-current asset other than by tender or auction if – the valuable non-current asset is disposed of to a community organisation;" and
2. Approves a new lease for Eimeo Surf Life Saving Club Inc and Sunset Bay Outrigger Canoe Racing Association Club Inc for a total area of approximately 1337 square meters being Part of Lot 1 on SP192532, known as 4 Eimeo esplanade, Eimeo for a period of ten (10) years with such lease to commence on 1 February 2024.

Moved Cr Jones

Seconded Cr Green
CARRIED UNANIMOUSLY



Eimeo Surf Life Saving Club and Sunset Bay Outrigger Canoe Club – Lot 1 on SP192532

11.5.3. LEASE RENEWAL - MACKAY RIDING FOR DISABLED ASSOCIATION INC

Author	Land and Property Officer (Jacinta Pollock Bonnett)
Responsible Officer	Acting Director Infrastructure and Operations (Jim Carless)
File Reference	Current Securities Lease 171 & 172, 9-10 Loughnane Court, NORTH MACKAY QLD 4740

Attachments

1. Lease Area [11.5.3.1 - 1 page]

Purpose

To consider a Lease for Mackay Riding for Disabled Association Inc for a total area of approximately 2.43ha being part of Lot 1 on SP262693 and Lot 296 on CI3986, known as 9 and 10 Loughnane Court, North Mackay for a period of ten (10) years with such lease to commence on 1 January 2024.

Related Parties

Mackay Riding for Disabled Association Inc

Corporate Plan Linkage

Live and Visit

Community Participation and Active Lifestyles - Our region is vibrant and culturally rich, home to a wide variety of events, experiences and attractions.

Live, Visit and Play - We have a diverse mix of accessible spaces to live, visit and play.

Background/Discussion

Mackay Riding for Disabled Association Inc (MRDA) were granted a 20-year lease in January 2002, over Lot 1 on SP262693 and Lot 296 on CI3986, both previous landfill sites.

MRDA provide both recreational and therapeutic horse-riding programs for children and adults with disabilities. Many students are referred to MRDA by physiotherapists involved in the special education units at local schools. The riding program is an integral part of the rider's ongoing exercise and education, promoting confidence and self-esteem.

Coach's design and execute a workable program which includes classical equestrian principles as well as games which focus on promoting body awareness and improvements in posture and control, encouraging decision-making, participation and concentration. MRDA are committed and should the lease not be approved, the community would not be able to benefit from the opportunities that arise from the activities of the organisation.

Due to the previous landfill use at the sites, Council's Waste Services team have been investigating the quantity of landfill and level of rehabilitation required at the sites. At the expiry of the leases in 2021, it was decided to grant a two-year licence agreement, with a right for Council to terminate early if Council's Waste Services team required the sites for rehabilitation. MRDA have reached out to Council to advise the licence agreement limits their ability to apply for funding opportunities and their preference at the expiry of the licence is to enter into a new 10-year Lease. A new 10-year Lease is consistent with Council's community leasing policy.

MRDA have been co-operative in allowing Council's Waste Services team access to the sites when testing has been required.

Waste Services, Property and Plant, and Legal Counsel have been consulted, and parameters have been determined for MRDA to enter into a Lease, with the ability for Council to give notice to MRDA to vacate the sites when Council requires use of the sites for rehabilitation.

The lease will be a standard "trustee" lease inclusive of rental in accordance with Council's Community Leasing Policy and other like conditions. Additional clauses relating to specific use and the previous landfill use of the sites will be included in the lease.

According to Section 236 (1) (b) (ii) of the Local Government Regulation 2012, "a local government may dispose of a valuable non-current asset other than by tender or auction if – the valuable non-current asset is disposed of to a community organisation. MRDA currently occupy the sites and is a community group for the purposes of the exception in Section 236 (1) (b) (ii) of the Local Government Regulation.

Section 236 (1) (c) (iii) of the Local Government Regulation 2012, "a local government may dispose of a valuable non-current asset other than by tender or auction if – the disposal of land or an interest in land is for the purpose of renewing the lease of land to the existing tenant of the land."

Therefore, Council is not required to tender this before granting a new lease.

Consultation and Communication

Representatives of Mackay Riding for Disabled Association Inc, Executive Manager Property and Plant, Supervisor Land Operations, Land and Property Officer, Legal Counsel, Waste Services Coordinator, Project Manager Waste Services

Resource Implications

All costs incurred in respect to the preparation and lodgement of the lease documentation will be borne by the Lessee.

The lease will be a standard trustee lease inclusive of rental in accordance with the Mackay Regional Council's Community Leasing Policy and other like conditions.

Risk Management Implications

MRDA provides recreational and therapeutic horse-riding programs for children and adults with disabilities. Should the lease not be approved, both our community and region would not be able to benefit from the opportunities that arise from such a community group.

Conclusion

The approval of a new ten (10) year lease to MRDA, who have shown a long-term commitment to the land, its infrastructure and the local community, is the most advantageous outcome to Mackay Regional Council and the community.

Officer's Recommendation

THAT Council

1. Resolves that an exemption applied under Section 236 (1) (b) (ii) of the Local Government Regulation 2012, "a local government may dispose of a valuable non-current asset other than by tender or auction if – the valuable non-current asset is disposed of to a community organisation;" and
2. Approves a new lease for Mackay Riding for Disabled Association Inc for a total area of approximately 2.43ha being part of Lot 1 on SP262693 and Lot 296 on CI3986, known as 9 and 10 Loughnane Court, North Mackay for a period of ten (10) years with such lease to commence on 1 January 2024.

Council Resolution ORD-2023-327

THAT Council

1. Resolves that an exemption applied under Section 236 (1) (b) (ii) of the Local Government Regulation 2012, "a local government may dispose of a valuable non-current asset other than by tender or auction if – the valuable non-current asset is disposed of to a community organisation;" and
2. Approves a new lease for Mackay Riding for Disabled Association Inc for a total area of approximately 2.43ha being part of Lot 1 on SP262693 and Lot 296 on CI3986, known as 9 and 10 Loughnane Court, North Mackay for a period of ten (10) years with such lease to commence on 1 January 2024.

Moved Cr Townsend

Seconded Cr Englert

CARRIED UNANIMOUSLY



Mackay Riding for Disabled Association – Lot 1 on SP262693 and Lot 296 on CI3986

11.5.4. DRAFT NORTHERN BEACHES COMMUNITY HUB REFERENCE GROUP - MINUTES - 22 NOVEMBER 2023

Author Executive Support Officer (Annette Eckart)
Responsible Officer Acting Director Infrastructure and Operations (Jim Carless)
File Reference SPLP-017 Northern Beaches Community Hub

Attachments

1. 231122 - NBCH - Reference Group meeting MINUTES [11.5.4.1 - 5 pages]

Purpose

To receive the draft minutes of the Northern Beaches Community Hub (NBCH) Reference Group meetings held on 22 November 2023

Related Parties

Related Parties include members of the NBCH Reference Group, as listed in the attached minutes.

Corporate Plan Linkage

Live and Visit

Places and Spaces - We provide well planned and designed places, facilities and infrastructure that meet the needs of our residents and visitors.

Background/Discussion

Council established the NBCH Reference Group in January 2021. The aim of the NBCH Reference Group is to provide a forum for the Northern Beaches community, relevant community groups and stakeholders to provide their views on the plans for the NBCH, in keeping with the most efficient use of public funds and resources.

A project status update was provided to the group. Minor design revisions to the current master plan, resulting from matters raised at the last reference group meeting as well as relevant council staff consultation, were presented. It was also confirmed that stage 2 and 3 will remain future works.

Communication of the project to promote the community's awareness has been primarily done through the Connecting Mackay web page. The reference group members were encouraged to promote the Connecting Mackay web page to colleagues and the community, including subscription to the project's dedicated eNewsletter.

Consultation and Communication

The minutes of the meetings were approved by the NBCH Reference Group Chair and will be circulated to the NBCH Reference Group members.

Conclusion

That the draft minutes of the NBCH Reference Group meetings held on 22 November 2023 be received.

Officer's Recommendation

THAT the draft minutes of the NBCH Reference Group meetings held on 22 November 2023 be received.

Council Resolution ORD-2023-328

THAT the draft minutes of the NBCH Reference Group meetings held on 22 November 2023 be received.

Moved Cr May

Seconded Cr Hassan

CARRIED UNANIMOUSLY



**Northern Beaches Community Hub Reference Group
(Agencies and Community members)**

MINUTES – November 22, 2023

Date:	Wednesday, 22 November 2023	Time: 4.30pm – 6.30pm
Venue:	Sir Albert Abbott Administration Building (Reception Room) Gordon Street, Mackay	
Chairperson:	Deputy Mayor Karen May	
Agency Representatives:	Fiona Branch (Department of Treaty, Aboriginal and Torres Strait Islander Partnerships, Communities and the Arts), Dorne Wallace (Greater Whitsunday Communities), Scott McPherson (Ideal Placements), Snr Sgt Mitch Benson (Queensland Police Service) Via Teams: Andrew Hammonds (Department of State Development, Infrastructure, Local Government and Planning – DSDILGP), Jonathan Greenhalgh (headspace),	
Community Representatives:	Via Teams: Maighan Grant, Maria Nowela Maglente	
Guests:		
Council:	Cr Karen May, Cr Michelle Green, Cr Belinda Hasson, Aletta Nugent (Director Planning, Growth and Sustainability), Janine McKay (Director Community Services), James Careless (Priority Projects Director), Michael Zimmerle (Executive Manager Portfolio Management Office), Jaco Ackerman (Executive Manager Strategic Planning), Talita Bijos (Project Manager), Debbie Knight (Community Engagement Officer), Judith Raines (Project Support Officer)	
Apologies:	Valerie Pilcher (ATSICHS Mackay Ltd), Cait Bester (Department of the Premier and Cabinet), Nicolette Ffrost (The Neighbourhood Hub), Sian Burrows (Mackay Northern Beaches State High School), Valeriya Edsall, Laurence Mayer, David Southwood, Cheryl Johnson (Department of Children, Youth Justice and Multicultural Affairs), Carmen Davey (headspace), Mia Sammut-Landt (Northern Queensland Primary Health Network – NQPHN), Rob Cocco (Regional Development Australia Greater Whitsundays), Rae Lee Cox (Eimeo Road State School)	
Purpose:	Project update	

Item	Item	Discussion/ Actions	By
1	Welcome and Introductions		
1.1	Acknowledgement of Country	Cr May welcomed all to the meeting and gave an Acknowledgement of Country	Cr Karen May
1.2	Introduction	Meeting overview and introductions	Cr Karen May



Item	Item	Discussion/ Actions	By
2	Background and update of the Northern Beaches Community Hub		
2.1	Background	Background on the project was provided, including a refresh from the master plan endorsed back in December 2021, previous consultation outcomes and staging.	Aletta Nugent
2.2	Project update	<p>Master plan / Design:</p> <p>Talita Bijos presented the current master plan which featured slight adjustments resulting from matters raised at the last reference group meeting and updated feedback from council's Library and Community Development teams. It was also confirmed that stage 2 and stage 3 will remain future works.</p> <p>Design revisions, such as the robust workshop room, a large meeting space suitable for church meetings and a space for acoustic workshops were influenced from feedback received from members in the previous reference group meeting.</p> <p>The design of stage 1B incorporates two interconnected buildings operating as an unified structure, complete with an undercroft car park and versatile meeting rooms. Café patrons will be able to overlook the nature play area. Furthermore, stage 1A's green space is well-suited for hosting food trucks and markets.</p> <p>The current library design utilises natural light, large and open flexible spaces for all age groups.</p> <p>The group discussed if the meeting rooms would include specific user requirements, such as hand-washing facilities and secondary exits.</p> <p>Jaco Ackerman stated that specific user requirements mentioned above, were not identified in the consultation to date and not included in the current design. The design still includes the elements raised in during consultation including the robust workshop, flexible and bookable meeting rooms, a shared kitchenette and after-hour access.</p> <p>Aletta Nugent responded that council had undertaken extensive targeted consultation which included agencies and not-for-profit organisations.</p>	Talita Bijos



Item	Item	Discussion/ Actions	By
		<p>Progress/timeline: The current activities are the new road construction, and design of stage 1A and 1B. The next activities will be stage 1A construction.</p> <p>Construction of stage 1B is subject to funding Council is awaiting the outcome of two funding applications.</p> <p>Stage 1A tender for construction works is progressing and construction planned to start in 2024. The tender is broken into three portions of work – stage 1A (multipurpose space and play area), landscaping along the new road and works for the site's eastern drainage.</p> <p>Council has been seeing an escalation in construction costs, and consequently adjustments to the project's scope may be necessary.</p> <p>Nature play elements: The group discussed the level of consultation with potential users of the play area. The current nature play design includes climbing elements, a trampoline and spinner. The group discussed the nature play elements, and Maighan Grant suggested there is an opportunity to consult regarding the current design for the nature play area with Nature Play Queensland.</p> <p>It was discussed that in terms of further consultation, council needs to consider the impact on the current budget of the project and the ability to meet stage 1A's funding deadlines given the status of the detailed design.</p> <p>Car parking and connectivity: The group discussed interim car parking and how it would be managed through the staged construction.</p> <p>Jaco Ackerman noted that following the completion of stage 1A, there exists an option for temporary parking on the stage 1B site if required. Stage 1B incorporates a substantial number of parking spaces, including those in the undercroft area. Additionally, the introduction of a new road has created further opportunities for additional parking.</p>	



Item	Item	Discussion/ Actions	By
		<p>Aletta Nugent stated that council projects need to apply for a Development Application (DA) where car parking needs will again be assessed as part of the DA application process.</p> <p>The master plan considered adjacent development connectivity. Connectivity will go from the shopping centre through to the future retirement village.</p> <p>Tenancies: The subject of the café's tenancy was raised. Aletta Nugent said at this stage of the project, council is focussed on securing funding and management/lease arrangements would be considered as the project progresses.</p>	
3	Community engagement update		
3.1	Communications	<p>The group discussed the community's awareness of the project in the Northern Beaches.</p> <p>Cr May noted building awareness also relied on the reference group to promote the project. Reference group agency members could promote the project on their social media.</p> <p>The group suggested council utilise council's database of agencies and Facebook community noticeboards.</p> <p>Debbie Knight informed the group the primary communication tool for this project is the Connecting Mackay web page. She said in the past 12 months there had been three media releases, social media, project eNewsletters, digital billboards, articles in school newsletters and notification letters to residents and businesses near the site.</p> <p>When the master plan was released, communication included walking business to business in the Northern Beaches area to discuss the project. The majority of businesses offered to help promote the project by displaying posters and flyers.</p>	Debbie Knight



Item	Item	Discussion/ Actions	By
		The reference group members were encouraged to promote the Connecting Mackay web page to colleagues and the community, letting them know they can subscribe to the project's dedicated eNewsletter through the web page.	
3.2	Purpose of next meeting	The next meeting will be a progress update.	Debbie Knight
3.3	Next meeting date and venue	Cr May said the reference group members would remain similar but Councillor representatives may change due to the result of the upcoming LGA election. Cr May thanked the reference group members for their valuable contribution to date.	Debbie Knight

11.6. CORPORATE SERVICES

11.6.1. STRATEGIC FINANCIAL REPORT - NOVEMBER 2023

Author	Financial Accounting Co-ordinator (Jena Prinsloo)
Responsible Officer	Director Corporate Services (Angela Hays)
File Reference	Strategic Financial Report

Attachments

1. November 23 Strategic Report Final 05 12 2023 [**11.6.1.1** - 19 pages]

Purpose

To adopt Mackay Regional Council's (MRC) Strategic Financial Report for the month of November 2023.

Related Parties

Insert Related Parties here

Corporate Plan Linkage

Financial Strength

Ethical Decision-Making and Good Governance - We are committed to keeping our community informed about our activities and performance and employing robust governance policies and procedures to ensure legislative compliance and organisational integrity.

Background/Discussion

Under Part 9, section 204 of the Local Government Regulation 2012, the local government is required to prepare a financial report which the Chief Executive Officer presents at a meeting of the local government once a month.

The financial report must state the progress that has been made in relation to the local government's budget for the period of the financial year up to a day as near as practicable to the end of the month before the meeting is held.

Consultation and Communication

Chief Executive Officer, Directors, Chief Financial Officer.

Resource Implications

MRC is forecasting an operating deficit of \$5.4M for the 2023/24 financial year. The variance of the actual operating result for YTD November 2023 against YTD budget is an unfavourable variance of \$782K, this variance is in the 3% to \pm 4.99% range.

Risk Management Implications

Variances will be closely reviewed and considered in future budget processes where required.

Conclusion

For the period ending November 2023, MRC reported an unfavourable operating surplus variance of \$782K against YTD budget. Operating revenue is reporting slightly below YTD budget, with a favourable variance in grants and subsidies received of \$308K; and unfavourable variances in rates and charges of \$488K, and sales, contracts and recoverable works of \$384K. Higher than anticipated expenditure across council is largely attributable to materials and services of 1.9M, specifically repairs and maintenance (\$872K), contractors (\$775K), and electricity (\$448K). This has been offset by a favourable variance of \$1.28M in employment benefit expenses due to ongoing employee vacancies.

To date, \$43M has been expended in the delivery of Council Projects; \$41.9M capital expenditure and \$1.1M operational expenditure. Council projects includes accrued expenditure for works in progress and associated operational costs expended in the delivery of these works.

Officer's Recommendation

THAT the Strategic Financial Report for November 2023 be received.

Council Resolution ORD-2023-329

THAT the Strategic Financial Report for November 2023 be received.

Moved Cr Bella

Seconded Cr Englert

CARRIED UNANIMOUSLY



Strategic Financial Report

> November 2023

Executive summary

Council is forecasting an operating deficit of \$5.4M for the 2023/24 financial year following the adoption of the September budget review by Council on 25 October 2023.

	Annual Original Budget \$000	Annual Revised Budget \$000	YTD Budget \$000	YTD Actual \$000	YTD Variance \$000
Total operating revenue	292,142	293,037	143,223	142,989	(234)
Total operating expenses	291,591	298,462	125,140	125,688	(548)
Operating surplus or (deficit)	551	(5,425)	18,083	17,301	(782)

% YTD Variance from YTD Budget (KPI)

YTD Variance between 0% and $\pm 2.99\%$

YTD Variance between $\pm 3\%$ and $\pm 4.99\%$

YTD Variance equal to or greater than $\pm 5\%$

For the month ended 30 November, an unfavourable operating variance of \$0.78M against YTD budget is reported. Operating revenue is reporting slightly below YTD budget, with a favourable variance in grants and subsidies received of \$308K; and unfavourable variances in rates and charges of \$488K, and sales, contracts and recoverable works of \$384K. Higher than anticipated expenditure across council is largely attributable to materials and services of 1.9M, specifically repairs and maintenance (\$872K), contractors (\$775K), and electricity (\$448K). This has been offset by a favourable variance of \$1.28M in employment benefits expenses due to ongoing employee vacancies.

To date, \$43M has been expended in the delivery of council projects, including associated operational expenditure in the delivery of these projects, representing 35% of the revised budget. The delivery of several major projects under construction is progressing during this favourable construction period, including projects such as Finch Hatton Mountain Biking, Pioneer River Levee, Pioneer River Floating Pontoon, Mackay Bus Station (Canelands) and the Reseal and Asphalt Program of works. Stage 1A Northern Beaches construction tender is open to market. Planning work continuing on other large projects to commence construction in the new calendar year.

Chris Molyneaux

Chief Financial Officer

Angela Hays

Director Corporate Services

Figures provided are accurate as at the date of publication and are cumulative year to date. Amounts disclosed are rounded to the nearest thousand (\$000) unless otherwise stated. Consequently, rounded balances in the categories may not exactly add to the reported totals.

Table of Contents

1	Economic and industry factors	4
2	Budget analysis	5
2.1	Operating result	5
2.2	Revenue and expenditure	6
2.3	Council projects expenditure	7
	• Capital Expenditure	7
3	Balance Sheet	8
3.1	Statement of Financial Position	8
3.2	Cash and investment portfolio	9
	• Investments	10
3.3	Current receivables	10
	• Rates receivables	11
3.4	Property, plant and equipment	12
3.5	Borrowings	13
4	Cash Flow	14
4.1	Statement of Cash Flows	14
5	Financial analysis	15
5.1	Key performance indicators	15
6	Budget analysis - Commercial businesses	18
6.1	Mackay Water Services	18
6.2	Mackay Waste Services	19

1 Economic and industry factors

Area/issue of Concern	Comment
Australian inflation rate	Changes in the Australia inflation rate forecast could impact ongoing budget review processes, due to its direct impact on MRC expenditure.
Operational expenditure	Current market influences are negatively impacting Council's employee retention. Employee benefits and materials and services (including external labour hire, consultants and contractors) will continue to be monitored.

2 Budget analysis

2.1 Operating result

Income Statement For the period ending 30 November 2023

	Annual Original Budget \$000	Annual Revised Budget \$000	YTD Budget \$000	YTD Actual \$000	YTD Variance \$000
Rates and charges	240,557	240,557	120,950	120,462	(488)
Fees and charges	19,806	20,019	10,420	10,461	41
Rental income	1,497	1,432	825	708	(117)
Interest income	6,676	6,676	2,957	3,082	125
Sales contracts and recoverable works	8,230	8,112	3,013	2,629	(384)
Other recurrent income	5,537	5,753	2,455	2,736	281
Grants, subsidies, contributions and donations	9,839	10,488	2,603	2,911	308
Total operating revenue	292,142	293,037	143,223	142,989	(234)
Employee benefits	99,822	98,441	39,185	37,897	1,288
Materials and services	103,100	104,524	46,742	48,680	(1,938)
Finance costs	3,230	6,785	2,878	2,931	(53)
Depreciation and amortisation	85,439	88,712	36,335	36,180	155
Total operating expenses	291,591	298,462	125,140	125,688	(548)
Operating surplus or (deficit)	551	(5,425)	18,083	17,301	(782)
Grants, subsidies, contributions and donations	31,410	28,008	6,847	4,640	(2,207)
Other capital revenue	-	68	52	77	25
Capital expenses	2,740	2,740	1,463	1,379	84
Total capital revenue and expenses	28,670	25,336	5,435	3,338	(2,098)
Net result	29,221	19,911	23,518	20,639	(2,880)

% YTD Variance from YTD Budget (KPI)

YTD Variance between 0% and ± 2.99%

YTD Variance between ± 3% and ± 4.99%

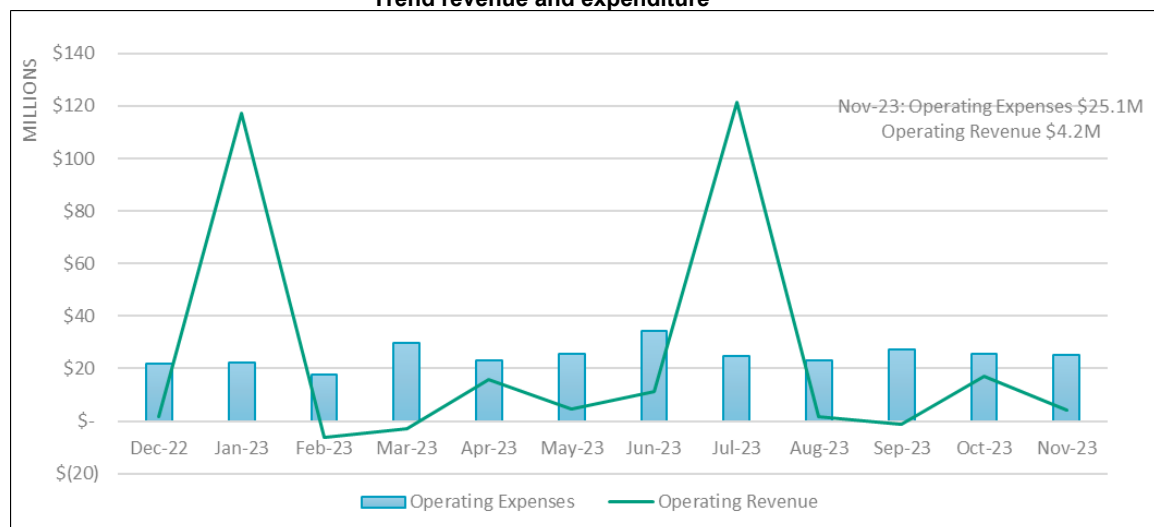
YTD Variance equal to or greater than ± 5%

2.2 Revenue and expenditure

MRC is currently reporting an unfavourable operating variance of \$0.78M against YTD budget for the period ending November 2023.

	YTD Variance \$'000	Comment
REVENUE		
Rates and charges	(488)	Unfavourable variance due to an increased number of Mackay residents taking up the Pay on time-rates discount.
Sales contracts and recoverable works	(384)	Due to the timing of recognition of sales, contracts and recoverable works-revenue, specifically works related to the water network. On track to reach budgeted revenue for the year.
Grants, subsidies, contributions and donations	308	Revenue recognised from government grant funding is more than anticipated, partially due to council reaching performance milestones earlier than expected for the QRA Disaster Recovery funding project.
EXPENSES		
Materials and services	(1,938)	Repairs and maintenance higher than forecasted, due to an increase in costs and additional work done for particularly property and plant, and water networks; in total \$872k. This are partially due to the early completion of the re-tiling of Pioneer Pool, and the sealed road maintenance program being ahead of schedule in anticipation of the wet season. Contractor costs also continues to trend higher than forecasted by \$775K due to staff vacancies, and electricity and utilities has been \$448K more than anticipated.
Employee benefits	1,288	Ongoing vacancies due to market influences, especially closer to Christmas.
CAPITAL REVENUE AND EXPENSES		
Grants, subsidies, contributions and donations	(2,207)	Delays in the 8 River Street improvements-project in meeting safety regulations. Timing of recognition of non-cash donated assets.

Trend revenue and expenditure



2.3 Council projects expenditure

Council is responsible for the provision of a diverse range of services to meet community needs and expectations. A significant number of these services are provided through infrastructure assets and other property, plant, and equipment. Council manages the construction, upgrade, and renewal of community assets as part of its capital works program.

	Annual Original Budget \$000	Annual Revised Budget \$000	YTD Budget \$000	YTD Actual \$000	YTD Variance \$000
Capital expenditure ^	124,420	120,686	48,763	41,915	(6,848)
Operational expenditure	2,128	3,089	1,748	1,116	(632)
Total council projects expenditure	126,548	123,775	50,511	43,031	(7,480)

^ as depicted in the below graph

% YTD Variance from YTD Budget (KPI)

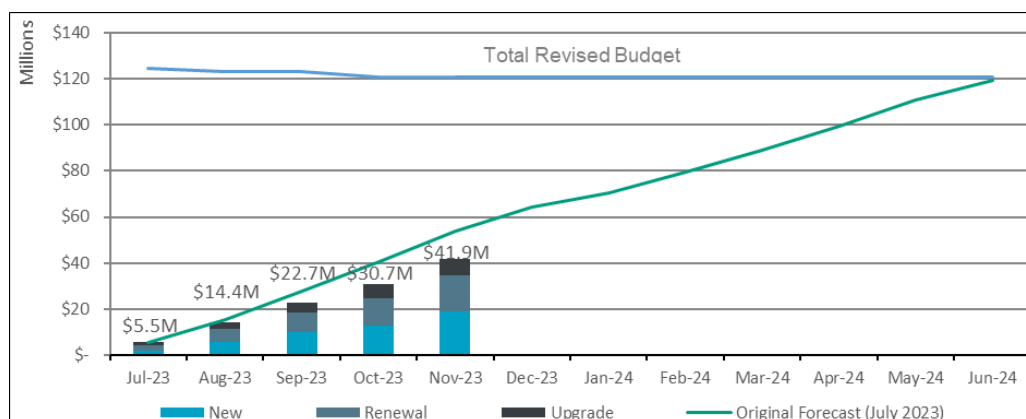
YTD Variance between 0% and $\pm 2.99\%$
YTD Variance between $\pm 3\%$ and $\pm 4.99\%$
YTD Variance equal to or greater than $\pm 5\%$

Total council projects expenditure is currently tracking \$7.5M below YTD forecast, with \$43M expended to date in the delivery of these projects, representing 35% of the revised budget for November 2023.

- Capital Expenditure

Capital expenditure is currently tracking below YTD forecasts.

Cumulative capital expenditure



3 Balance Sheet

3.1 Statement of Financial Position

The statement of financial position shows council's assets and liabilities. The result of these two components determines the net worth of our community equity (what we own less what we owe).

Statement of Financial Position For the period ending 30 November 2023	Annual Original Budget \$'000	Annual Revised Budget \$'000	Actual \$'000
Current assets			
Cash and cash equivalents	142,190	113,306	87,121
Financial assets	-	-	70,000
Trade and other receivables	21,059	21,098	25,555
Contract assets	3,500	3,500	3,409
Other assets	3,216	4,506	592
Inventories	2,988	3,136	3,338
Non-current assets classified as held for sale	79	-	-
Total current assets	173,032	145,546	190,015
Non-current assets			
Investment property	5,277	5,580	5,580
Property, plant and equipment	3,730,542	3,970,976	3,979,229
Right of use assets	1,143	1,143	1,189
Intangible assets	3,927	4,106	4,125
Total non-current assets	3,740,889	3,981,805	3,990,123
Total assets	3,913,921	4,127,351	4,180,138
Current liabilities			
Trade and other payables	8,488	8,895	15,854
Employee entitlements	14,135	1,883	21,387
Borrowings	11,644	11,646	10,716
Lease liabilities	66	68	47
Provisions	49,858	59,631	60,685
Contract Liabilities	3,500	3,500	3,731
Other liabilities	19,572	14,947	15,014
Total current liabilities	107,263	100,570	127,434

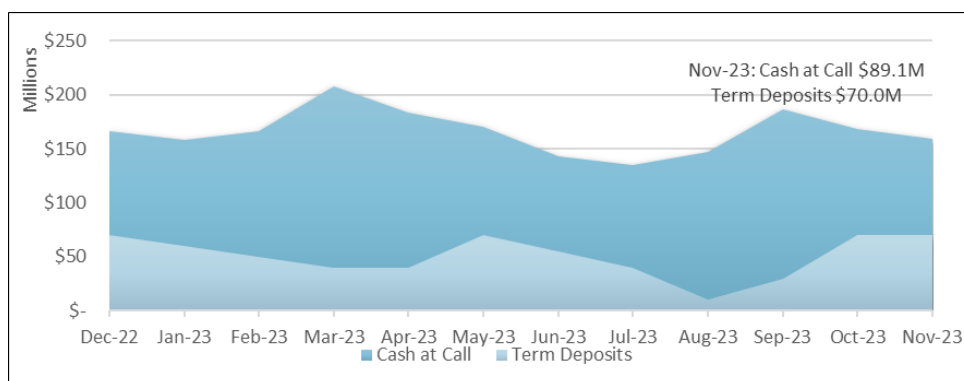
**Statement of Financial Position
For the period ending 30 November 2023**

	Annual Original Budget \$000	Annual Revised Budget \$000	Actual \$000
Non-current liabilities			
Employee entitlements	1,699	1,601	1,601
Borrowings	48,406	48,408	38,755
Lease liabilities	1,241	1,213	1,230
Provisions	13,268	21,685	23,617
Other liabilities	11,691	9,685	6,184
Total non-current liabilities	76,305	82,592	71,387
Total liabilities	183,568	183,162	198,821
Net community assets	3,730,353	3,944,189	3,981,317
Community equity			
Retained surplus	2,340,937	2,333,099	2,370,227
Asset revaluation surplus	1,389,416	1,611,090	1,611,090
Total community equity	3,730,353	3,944,189	3,981,317

3.2 Cash and investment portfolio

The total balance of cash at call and investments at the end of the reporting period is shown in the graph below. The balance of cash at call will vary from the reported balance of cash and cash equivalents on the statement of financial position due to unbanked cheques and other uncleared amounts.

Currently, 54% of the total investment portfolio is currently deposited with Queensland Treasury Corporation (QTC). Cash held at call with QTC continues to be reviewed for yield and liquidity requirements. The market is monitored during the month for investment opportunities that will deliver comparable or better than what can be achieved via the QTC at call account.

Closing portfolio balance

- Investments**

MRC maintains an investment portfolio diversified across various institutions and terms to maturity, which is reviewed regularly to maximise performance and minimise risk. MRC currently has \$70M invested with financial institutions other than QTC. Maturity of these investments is scheduled between January 2024 and September 2024.

Portfolio returns continues to exceed the benchmark of Ausbond Bank Bill Index. Financial indicators and other available data suggest further increase in interest rate yields is possible. Investment opportunities to maximise returns where possible will continue to be investigated.

	November 2023	12 Month Comparative
MRC Portfolio	5.09%	4.24%
AusBond Bank Bill Index	3.66%	2.43%

3.3 Current receivables

Revenue is recognised at the amounts due at the time of sale or service delivery. Council's standard settlement terms for trade receivables are 30 days from invoice date.

	Actual \$000	Actual %
Trade and other receivables		
Rates and utility charges	13,073	29%
Development contributions	5,316	12%
Other debtors	7,165	16%
Total	25,554	57%

- **Rates receivables**

Rates and charges revenue represent 82% of MRC's original operating revenue budget for the financial year.

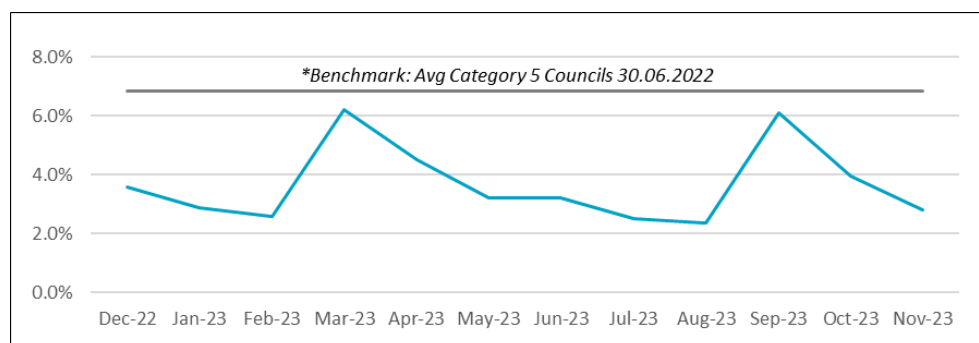
MRC frequently reviews its collection process to ensure rates are collected efficiently and effectively, whilst being cognisant of individual circumstances. Collection action is continuing, both with our external collection agency and monitoring of in-house payment schedules. In-house collection methods include the use of SMS reminders for ratepayers.

	Total Overdue \$000	Current year 2023/2024 \$000	1 year 2022/2023 \$000	2 years 2021/2022 \$000	> 3 years \$000
Total rate arrears	6,765	3,516	2,025	767	457

	Issue date of notice	Due date of payment
Rates notice	14/08/2023	13/09/2023
Pensioner rates notice	14/08/2023	1/12/2023
Rates reminder notice	25/09/2023	9/10/2023

Rates arrears as depicted in the trend rate arrears % graph remains consistent with the previous reporting period, noting rates notices are issued twice per financial year. The current arrears balance is anticipated to decrease as collection action continues.

Trend rate arrears %



* Each year the Department of State Development, Infrastructure, Local Government and Planning collects information from local governments about the key services they provide and publishes it in the Queensland local government comparative information report. The report includes a suite of efficiency, effectiveness and quality-of-service indicators covering key functional and financial areas of local government, including rates arrears performance indicators. The benchmark reported above represents the average rates arrears of like councils (category 5) for comparative years 30 June 2022 – 6.9%.

3.4 Property, plant and equipment

	Annual Original Budget \$000	Annual Revised Budget \$000	Actual \$000
Opening balance as at 1 July	3,690,867	3,938,870	3,938,870
Opening balance adjustment	-	-	36,400
Net additions (including WIP) and contributed assets	127,859	123,535	41,731
Depreciation	(85,354)	(88,599)	(36,133)
Disposals and write offs	(2,830)	(2,830)	(1,640)
Closing written down value	3,730,542	3,970,976	3,979,228

A majority of MRC's assets are in the form of infrastructure, such as roads, drainage, water, sewerage and waste assets. Significant parts of MRC's long-term financial forecast are focused on the construction, upgrade, and renewal of these assets, with the associated capital expenditure recognised as work in progress (WIP) until projects are complete and assets are ready for their intended use.

Refer to section 3.3 Council Projects Expenditure for current year budget estimates.

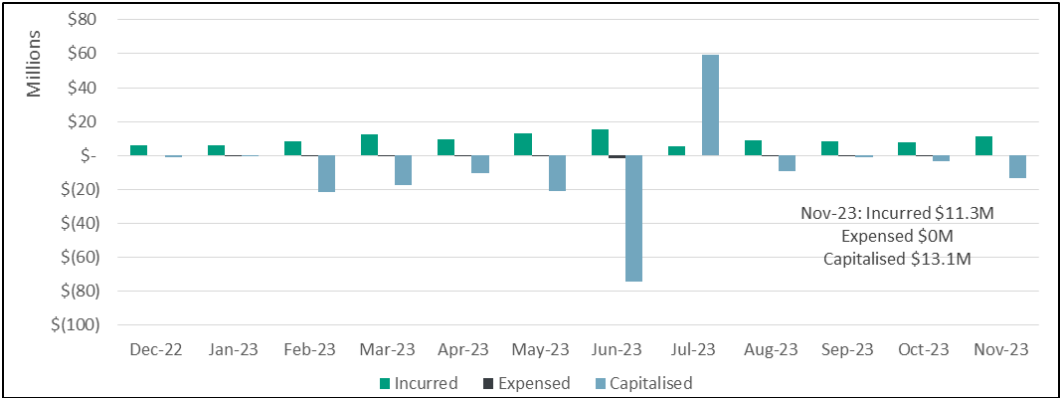
Total WIP as at the end of November represents \$163M, inclusive of current year additions and accruals. **Of this, \$46M relates to projects complete, with assets in use.** MRC employs a 180-day target from project completion through to capitalisation of detailed assets within the corporate asset register as detailed in the MRC non-asset accounting policy.

Project Phase	Actual \$'000
Business case	4,331
Design	24,497
Construction	87,849
Projects completed	46,079
Total WIP	162,756

Total Projects Completed	Aged				
	> 180 days	> 90 days	> 60 days	> 30 days	< 30 days
\$'000	\$'000	\$'000	\$'000	\$'000	\$'000
46,079	15,447	25,888	1,435	2,870	439

The below graph details movement in WIP by period.

Work in progress movement



Note: Incurred; represents capital expenditure for the construction or acquisition of assets. These assets are incomplete and are non-depreciating. Capitalised; refers to the recognition of property, plant and equipment in Mackay Regional Council's asset register. Expended; relates to costs transferred from WIP that will not be capitalised, with expenditure recognised in the Income Statement.

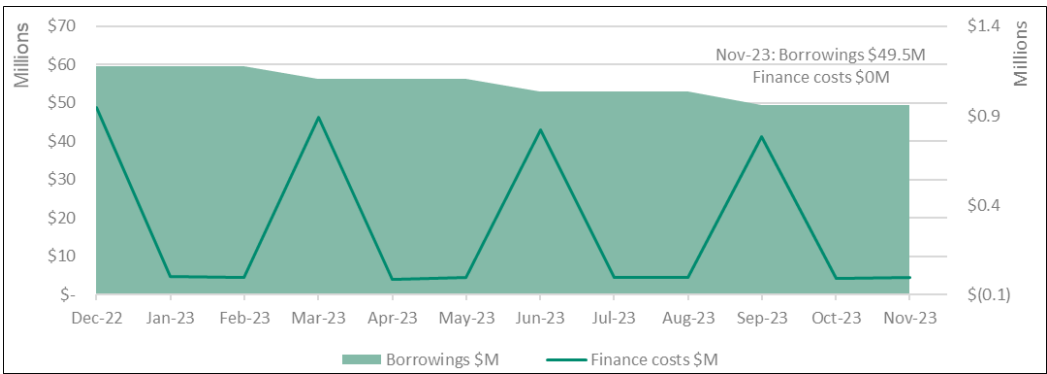
3.5 Borrowings

Loan borrowings are an important funding source for local government; reflecting that the full cost of infrastructure should not be borne entirely by present-day ratepayers alone, rather by all those who benefit from the infrastructure over its lifetime.

Borrowing costs associated with the debt balance are recognised when the principal repayments are made, on a quarterly basis.

At the end of November, MRC had \$49.5M in total loan borrowings outstanding.

Borrowings movement



4 Cash Flow

4.1 Statement of Cash Flows

Statement of Cash Flows For the period ending 30 November 2023

	Annual Original Budget \$000	Annual Revised Budget \$000	Actual \$000
Cash flows from operating activities			
Receipts from customers	275,075	277,575	139,833
Receipts from grantors, donors for operational activities	9,824	10,981	2,911
Payments to suppliers and employees	(204,004)	(235,704)	(95,110)
Interest income	6,676	6,676	3,082
Borrowing costs	(2,787)	(2,787)	(989)
Net cash inflow from operating activities	84,784	56,741	49,728
Cash flows from investing activities			
Payments for property, plant and equipment	(123,863)	(119,535)	(41,731)
Payments for investments	-	-	(15,000)
Payments for other investing activities	(2,000)	(4,130)	-
Proceeds from sale of property, plant and equipment	2,090	2,090	260
Receipts from grantors, donors for capital projects	27,410	20,837	2,156
Net cash outflow from investing activities	(96,363)	(100,738)	(54,315)
Cash flows from financing activities			
Proceeds from borrowings	21,200	21,200	-
Repayment of borrowings	(14,045)	(14,045)	(3,426)
Repayments made on leases (principal only)	(17)	(17)	(31)
New cash outflow from financing activities	7,138	7,138	(3,457)
Net increase or (decrease) in cash and cash equivalents	(4,441)	(36,859)	(8,044)
Cash and cash equivalents at beginning of the period	146,631	150,165	95,165
Cash and cash equivalents at end of the period	142,190	113,306	87,121

5 Financial analysis

5.1 Key performance indicators

Ratio	Description	Target	FY2022	FY2023	Revised Budget FY2024	November FY2024
Operating surplus ratio (%)	Extent to which operating revenues covers operating expenses (excludes capital items)	0% - 10%	0.2%	(1.5%)	(1.9%)	12.1%
Debt service cover ratio	Extent to which available cash flow covers current debt obligations	>2 times	3.2	4.9	4.5	5.5
Net financial liabilities ratio (%)	Extent to which net financial liabilities can be serviced by operating revenues	< 60%	4.3%	9.6%	12.8%	7%
Current ratio	Extent to which current assets cover current liabilities	Between 1 and 4	1.5	1.3	1.4	1.5
Asset sustainability ratio (%)	Extent to which the infrastructure assets are being replaced/renewed	> 90%	65.4%	63.6%	84.4%	43.5%
Capital expenditure ratio (times)	Extent to which capital expenditure exceeds depreciation.	> 1.1 times	1.3	1.3	1.9	1.2

The timing of receipts impacts the YTD results and are anticipated to return to budget levels by the end of the financial year following finalisation of year end processes.

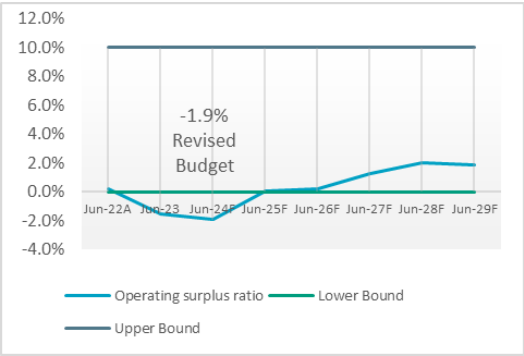
The actual asset sustainability ratio is consistently below target as MRC boasts a relatively new asset base. Significant investment in new assets over prior years has reduced the immediate need for renewal of those assets. MRC continues to invest adequately in asset renewals to ensure continued services to the community over the long-term as well optimising operating and maintenance costs of the assets over their useful life.

The key performance indicator trends are observed in the following graphs. Historical financial years are represented on the axis using actual (a) results, with revised budget forecasts (f) applied in future financial periods.

MRC will be adopting the new Local Government Sustainability Framework ratios in the 2023/24 Annual Financial Statements.

Operating surplus ratio %

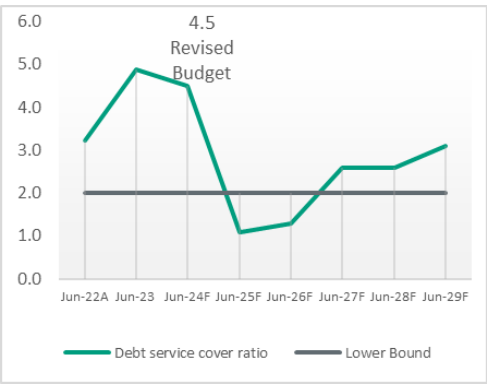
A percentage between 0% and 10% over the long term means Council is expecting to generate healthy levels of revenue with an ability to fund proposed capital expenditure and / or debt repayments.



Debt service coverage ratio

This ratio measures the extent to which available cash flow covers current debt obligations.

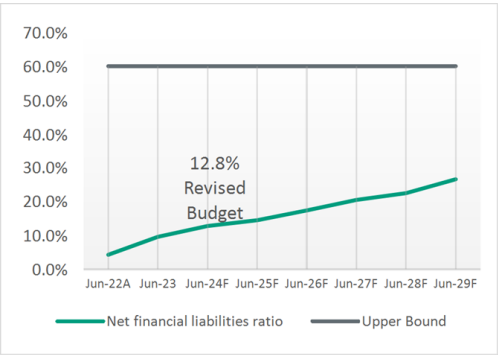
It is noted that MRC is expected to remain within target bounds indicative that the financial risk is being effectively managed.



Net financial liabilities ratio %

This ratio measures Council's ability to fund its net financial liabilities from recurrent revenue.

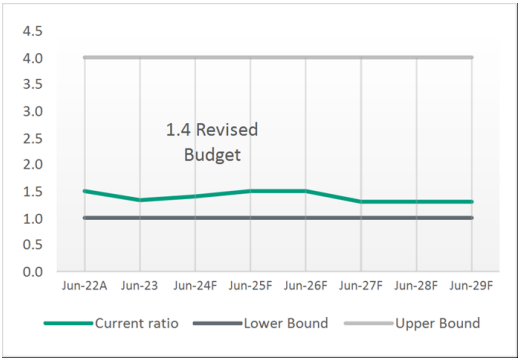
It is noted that MRC is expected to remain within target bounds indicative that the financial risk is being effectively managed.



Current ratio

The current ratio is a good indicator of Council’s liquidity and ability to meet short term obligations.

If the current ratio is too high over a sustained period, this may indicate that council may not be efficiently using its current assets or its short-term financing facilities and may also indicate problems in working capital management.

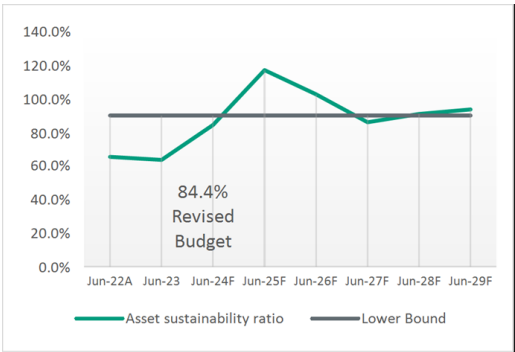


Asset sustainability ratio %

This ratio is calculated based on the planned capital expenditure on the renewal of assets.

MRC is confident that although it does not reach the set target in the first few years of the LongTerm Financial Forecast, it does contribute to sustainable asset replacement over the long term.

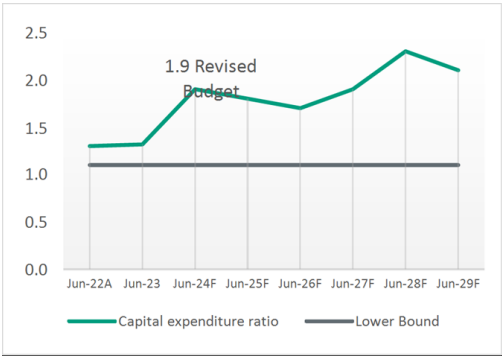
This ratio is also reflective of the relative new age of MRC’s asset base following a period of high growth and investment in new assets. This means the requirement to spend significant funds on renewals at this stage is relatively low but will be monitored to ensure future spend is sufficient.



Capital expenditure ratio (times)

This ratio measures the extent to which annual capital expenditure is covered by annual depreciation. A ratio above 1.1 indicates investment in long term asset growth beyond current existing levels.

This ratio indicates that council is willing to invest more than depreciation into expanding its assets base for the life of the adopted Long Term Financial Forecast.



6 Budget analysis - Commercial businesses

6.1 Mackay Water Services

Income Statement

For the period ending 30 November 2023

	Annual Original Budget \$000	Annual Revised Budget \$000	YTD Budget \$000	YTD Actual \$000	YTD Variance \$000
Operating revenue	105,453	105,411	52,779	52,130	(649)
Operating expenses	40,727	40,499	17,717	18,233	(516)
Earnings before interest, depreciation, dividends and tax	64,726	64,912	35,062	33,897	(1,165)
Finance costs	1,176	1,176	316	349	(33)
Depreciation	32,488	34,080	14,099	14,007	92
Earnings before dividend and tax	31,062	29,656	20,647	19,541	(1,106)
Dividend and tax	29,571	29,549	12,317	12,321	(4)
Operating surplus or (deficit)	1,491	107	8,330	7,220	(1,102)
Total capital revenue	5,050	4,944	1,143	459	(684)
Total capital expenses	600	600	250	526	(276)
Net result	5,941	4,451	9,223	7,153	(2,062)

% YTD Variance from YTD Budget (KPI)

YTD Variance between 0% and ± 2.99%
YTD Variance between ± 3% and ± 4.99%
YTD Variance equal to or greater than ± 5%

Mackay Water Services is reporting an operating surplus of \$7.1M for the period ended November 2023, which is in line with YTD budget.

Operating revenue is \$0.65M below YTD budget at period end. Favourable variance to budget is seen in interest received of \$152K. Unfavourable variances to budget include sales contracts and recoverable works \$317K; and rates, levies, and charges \$318K.

Operating expenses is \$0.5M below YTD budget at period end. Materials and services reported an unfavourable variance of \$708K against budget and is partially offset by a favourable variance against budget for employee benefits of \$192K.

Capital revenue is \$0.68M below YTD budget at period end.

6.2 Mackay Waste Services

Income Statement

For the period ending 30 November 2023

	Annual Original Budget \$000	Annual Revised Budget \$000	YTD Budget \$000	YTD Actual \$000	YTD Variance \$000
Operating revenue	34,324	34,324	16,668	16,400	(268)
Operating expenses	22,847	22,541	7,002	6,772	230
Earnings before interest, depreciation, dividends and tax	11,477	11,783	9,666	9,628	(38)
Finance costs	475	3,920	2,035	2,032	3
Depreciation	2,133	2,571	878	810	68
Earnings before dividend and tax	8,869	5,292	6,753	6,786	33
Dividend and tax	3,193	3,146	1,311	1,330	(19)
Operating surplus or (deficit)	5,676	2,146	5,442	5,456	52
Total capital revenue	-	-	-	-	-
Total capital expenses	100	100	42	3	39
Net result	5,576	2,046	5,400	5,453	91

% YTD Variance from YTD Budget (KPI)

YTD Variance between 0% and $\pm 2.99\%$
YTD Variance between $\pm 3\%$ and $\pm 4.99\%$
YTD Variance equal to or greater than $\pm 5\%$

Mackay Waste Services is reporting an operating surplus of \$5.4M for the month of November, which is in line with YTD budget.

Operating revenue is \$268K above YTD budget at period end, with a favourable variance seen in interest received of \$238K.

Total expenses (operating expenses, finance costs and depreciation) are reporting an unfavourable variance of \$301K against YTD budget at period end. The results report a favourable variance in materials and services against YTD budget at period end of \$209K.

Total capital revenue and expenses is yet to see any significant activity.

12. RECEIPT OF PETITIONS

12.1. EPETITION - INSTALLATION OF A BOOM GATE AT THE EIMEO SURF LIFESAVING CLUB CARPARK

Author	Chief Executive Officer (Scott Owen)
Responsible Officer	Chief Executive Officer (Scott Owen)
File Number	Petitions
Attachments	1. E-petition - Cynthia Hegerty - Eimeo Surf Lifesaving Club Boom Gate at carpark [12.1.1 - 3 pages]

Purpose

A petition was received by Council on the 13 November 2023 and relates to a request to install a boom gate at the Eimeo Surf Lifesaving Club carpark.

Related Parties

Listed petitioners per the attached petition.

Corporate Plan Linkage

N/A

Background/Discussion

In terms of Council's Standing Orders, where a petition is put to a meeting no debate is undertaken on the petition itself, with the only motion which may be moved being:

- (a) the petition be received, and consideration stand as an order of the day for:
 - (i) the meeting; or
 - (ii) a future meeting; or
- (b) the petition be received and referred to the Chief Executive Officer for consideration and a report to the local government; or
- (c) the petition not be received.

The petition meets the requirements as per the Standing Orders, in that it is legible and has more than 25 signatures.

Consultation and Communication

That the petitioners, through their lead petitioner, be informed that Council acknowledges receipt of the Petition and that it has been accepted as a formal submission. The issues raised will be addressed in the report to be tabled before Council in the future.

Resource Implications

NIL at this stage as the recommendation relates only to the preparation of a report on the matter.

Risk Management Implications

NIL.

Conclusion

It is proposed that as the petition meets the necessary requirement for consideration by Council, that the petition be referred to the Chief Executive Officer for a report to be prepared for further consideration by Council.

Officer's Recommendation

THAT the petition be received and referred to the Chief Executive Officer for a report to be prepared for consideration by Council which investigates the issues identified within the petition.

THAT the principle petitioner be advised of Council's determination.

Council Resolution ORD-2023-330

THAT the petition be received and referred to the Chief Executive Officer for a report to be prepared for consideration by Council which investigates the issues identified within the petition.

THAT the principle petitioner be advised of Council's determination.

Moved Cr Townsend

Seconded Cr Green

CARRIED UNANIMOUSLY

From: "Cynthia Hegerty" <president@eimeoslsc.com.au>
Sent: Mon, 13 Nov 2023 15:59:55 +1000
To: "Mackay Regional Council" <council@mackay.qld.gov.au>
Cc: "Colleen Harris" <secretary@eimeoslsc.com.au>
Subject: e-Petition - Eimeo Lifesaving Club - Boom Gate at carpark
Attachments: sign_epetition-submission-log.xlsx

Good afternoon

Please find attached the submission and supporting documents for the need to install a boom gate to protect Junior Members.

Over the past few years, we have had a number of near misses with vehicle to person interactions on Nippers days in the carpark directly in front of the Eimeo Surf Life Saving Club. Last season, there was a near miss between a Hippy Camper van and a child that was only stopped due to the intervention of a vigilant parent.

The layout of the Club house and the beach means on a Nippers days kids need to walk through the carpark. Kids need to walk through the carpark to access the public shower and toilet as it is located on the other side of the carpark (this causes further issues for our patrollers on busy beach days where kids often run through the carpark to use the shower or go to the toilet without parents and fail to look out for vehicles).

A core foundation of the Eimeo SLSC is rigorous risk management to protect our members and the public. We have consulted our members and the general public on ways we can manage the risk of vehicle to person interactions in the carpark between the club house and the beach. The consensus is that an Engineering Control of a boom gate is required to effectively control this risk when there are children around. The Club has previously used signage in an attempt to control the risk with limited effect.

The Eimeo Surf Life Saving Club is requesting a boom gate be installed at the entrance to the carpark at the Eimeo Surf Life Saving Club to enable the Club to restrict vehicle access in the carpark directly in front of the Surf Club during Nippers mornings and other events where children are present. The Club is prepared to cover the cost of this boom gate if required (however would appreciate some council assistance from Council to achieve this outcome).

*Kind Regards
Cynthia Hegerty
President Eimeo SLSC*

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From: Pamela Currell <pamela.currell@mackay.qld.gov.au>
Sent: Monday, September 4, 2023 2:04:56 PM
To: Cynthia Hegerty <president@eimeoslsc.com.au>
Subject: e-Petition - Eimeo Lifesaving Club

Good afternoon,

We confirm that your e-Petition has expired and is now attached.

The petition has met Mackay Regional Council's requirements and you as principal petitioner may now lodge the e-petition with Council.

Regards

Mackay Regional Council

Pam Currell | Senior Governance Officer | Executive Office | Mackay Regional Council

Phone: 07 4961 9493 | pamela.currell@mackay.qld.gov.au | mackay.qld.gov.au

Submission Time	First name	Last name	Email	Address
24/08/2023 16:57	Cynthia	Hegerty	cynthia.hegerty@gmail.com	14 Coral Ridge Drive
24/08/2023 17:28	Andrew	Hegerty	andrew.hegerty@gmail.com	14 Coral Ridge Drive
24/08/2023 17:31	Ross	Gee	ross@ehw.net.au	2 Gair St
24/08/2023 17:35	Caitlin	Maskey	Maskey_x@hotmail.com	9 callaway court
24/08/2023 17:36	Neil	John	njohn@westnet.com.au	3 Sarina Beach Rd
24/08/2023 17:46	Kerri	Barden	Kerri.barden@outlook.com	96 Slater Avenue
24/08/2023 17:49	Alecia	Malouf	aleciamalouf@gmail.com	10 Beth Street
24/08/2023 17:50	Kylie	Tate	K-tate@outlook.com	
24/08/2023 17:54	Lauren	Armstrong	pollee90@yahoo.com.au	58 Wall street
24/08/2023 18:20	Harriet	Mclennan	Harriet.mclennan@gmail.com	5 Mowlam Street
24/08/2023 18:27	Colleen	Harris	Marticolleenh@gmail.com	13 Turtle Place
24/08/2023 18:56	Eve	Phegan	allovertiling@hotmail.com	12 Starboard circuit
24/08/2023 19:01	Andrew	Malouf	Shedyeah@outlook.com	10 Beth Street
24/08/2023 19:37	Yvette	Rothwell	yvette.rothwell@live.com.au	
24/08/2023 19:43	Sarah	DOWDEN	sarahjdowden@gmail.com	29 Wall St
24/08/2023 19:45	Kelly	Anderson	Kellyandersonpsychology@gmail.com	7 creese st
24/08/2023 19:53	Andrew	Walmsley	Weaslie85@hotmail.com	4 Tymons Court
24/08/2023 19:56	Michelle	Byrne	chelle1401@gmail.com	16 companion way
24/08/2023 19:57	Natalie	McDonald	natlmcdonald@gmail.com	6 Matilda Court
24/08/2023 19:58	Glenn	Anderson	Glenn.anderson@outlook.com.au	7 creese street
24/08/2023 19:59	Anna	Muller	anna.phillips@y7mail.com	9 Danelles Way
24/08/2023 20:44	Linda	Mills	linda.m.mills@outlook.com	5 Coral Ridge Drive
24/08/2023 20:45	Richard	Mills	rattys4@bigpond.com	5 Coral Ridge Drive
24/08/2023 21:43	Kim	Baker	bubble1706@icloud.com	47 Barber Drive
24/08/2023 22:45	Natalie	Stepan	bart1ett@hotmail.com	
24/08/2023 23:01	Majella	Sammut	Majella@ajsammutelectrical.com.au	6 whittles lane
25/08/2023 2:35	Tahn timer	Malagueno	Tahn timer.malagueno@gmail.com	17 Benarid Drive
25/08/2023 8:06	Belinda	Quakawoot	Bellamac75@gmail.com	
25/08/2023 9:06	Craig	Holloway	hollowaycrg@yahoo.com.au	13 coot street
25/08/2023 18:32	Nele	Hahne	hahne.nele@gmail.com	5 Chapman Court
26/08/2023 5:36	Elizabeth	Robinson	librobinson@bigpond.com	6/90 Milton Street
26/08/2023 7:47	Martina	Nacev	Martina.susser@gmail.com	165 Waverley Street
26/08/2023 7:54	Sina	Higgins	sina_heller@hotmail.com	10 Admiral Dr
26/08/2023 10:59	Tammy	Louch	Tammy@stgglobal.net	53 corella way
26/08/2023 13:14	Grahame	Bundesen	westsunitied01@outlook.com	Unit 1 58 Celeber Drive
27/08/2023 7:04	David	Dowden	d.dowden78@outlook.com	29 Wall St
27/08/2023 12:46	Todd	Bollard	Freerider383@hotmail.com	33 bucas drive

13. TENDERS

Nil

14. CONSIDERATION OF NOTIFIED MOTIONS

14.1. NOTIFIED MOTION AREAS OF INTEREST

Author	Acting Executive Officer (Kerri Verroen)
Responsible Officer	Chief Executive Officer (Scott Owen)
File Number	Council Policies, Notice of Motion
Attachments	N/a

Purpose

To present a Notified Motion as presented by Cr Martin Bella, Cr Laurence Bonaventura, and Cr Russell Seymour.

Related Parties

- MRC Councillors

Corporate Plan Linkage

Financial Strength

Ethical Decision-Making and Good Governance - We are committed to keeping our community informed about our activities and performance and employing robust governance policies and procedures to ensure legislative compliance and organisational integrity.

Background/Discussion

Under clause 6.3 of Council's Standing Orders, any Councillor can request that a matter be included on a Council meeting agenda. This matter was discussed at the Council's Ordinary Meeting on 22 November 2023 and was Lost.

Councillors Bella, Bonaventura, and Seymour have requested that a Notified Motion as below be represented to Council –

THAT the Chief Executive Officer undertake for consideration by the newly elected Council at its first Ordinary Meeting the formulation of a proposed operating guideline and structure for Councillors linked to individual areas of responsibility and interest.

The Notified Motion in effect is Council setting a framework for involvement of Councillors in both Council business and linkage to the community, and as such may result in changes to supporting Council Guidelines and Policies.

In support of the Notified Motion, Councillors Bella, Bonaventura, and Seymour have provided the below –

The proposed operating guideline should include specific areas of responsibility and interest which align with such things as experience, interest etc. This would also include being the “face of council” with regard to activities in that specific area.

This would also provide a clear pathway for resident requests, and enable councillors to have better insight in subject knowledge of a specific and defined area.

As presenters of the Notified Motion it is believed that this is essential in preventing the confusion that has reigned both within and outside council during this term.

It is also believed it will go some way to preventing “councillor shopping”, and mixed messages being given to residents, for whatever reason by councillors.

This report has been re-tabled due to the confusion around the voting at the last Council meeting and due to a Councillor being unexpectedly absent when it was presented.

Consultation and Communication

Mayor and Councillors.

Resource Implications

Work has already commenced in line with the Operational Plan which is to build a strategic framework for Councillors. This will include a presentation of various options available that the elected Council will consider for formal adoption or change as required.

Risk Management Implications

Risk mitigation measures will form part of the assessment and recommendations presented in any overall operating guideline or framework.

Conclusion

Councillors are able to request a Notified Motion be presented for consideration of Council on any matter. In relation to this particular issue, work has already begun investigating options with the view to presenting a recommended position for the newly elected Council.

Timing could align with tabling at the first Ordinary Meeting of the newly elected Council in 2024.

Recommendation

THAT Council considers the Notified Motion by Councillors Bella, Bonaventura, and Seymour of –

THAT the Chief Executive Officer undertake for consideration by the newly elected Council at its first Ordinary Meeting the formulation of a proposed operating guideline and structure for Councillors linked to individual areas of responsibility and interest.

Council Resolution ORD-2023-336

THAT the Chief Executive Officer undertake for consideration by the newly elected Council at its first Ordinary Meeting the formulation of a proposed operating guideline and structure for Councillors linked to individual areas of responsibility and interest.

Moved Cr Bella

Seconded Cr Mann

For: Cr Bella, Cr Bonaventura, Cr Jones, Cr Mann, Cr Seymour, Cr Townsend,

Against: Cr Englert, Cr Green, Cr Hassan, Cr May, Cr Williamson

CARRIED

14.2. NOTIFIED MOTION - POLICIES

Author Acting Executive Officer (Kerri Verroen)
Responsible Officer Chief Executive Officer (Scott Owen)
File Reference Council Policies, Notice of Motion

Attachments Nil

Purpose

To present a Notified Motion as presented by Cr Martin Bella.

Related Parties

MRC Councillors

Corporate Plan Linkage

Financial Strength

Ethical Decision-Making and Good Governance - We are committed to keeping our community informed about our activities and performance and employing robust governance policies and procedures to ensure legislative compliance and organisational integrity.

Background/Discussion

Under clause 6.3 of Council's Standing Orders, any Councillor can request that a matter be included on a Council Ordinary Meeting Agenda.

Cr Bella, has requested that a Notified Motion as below be presented to Council:

That Policies to be brought to council for adoption are to be presented to councillors for consideration and evaluation no less than 2 weeks before it is to be presented to an Ordinary Meeting.

Further, that a briefing/discussion be held with councillors in this time at earliest point reasonably possible.

This briefing is to cover, but not be limited to;

- *History of the policy*
- *Need for the policy (what it is designed to achieve)*
- *Consideration as to whether this is best practice to achieve the intended outcome.*
- *Whether the policy complements or conflicts with any other policy.*
- *Possible unintended consequences/associated effects of the implementation of said policy.*

The Notified Motion in effect is Council setting a framework for involvement of Councillors in both Council business and linkage to the community, and as such may result in changes to supporting Council Guidelines and Policies.

In support of the Notified Motion, Cr Bella has provided the below –

Policies are the “instruction Manual” of council. They ensure that there is consistency and equity across instances dealt with in the area the policy is responsible for.

While every decision requires careful thought and consideration, the thought, background, and consideration involved in the formulation of a policy ensures that much of the work has already been done by officers.

Owing to the undeniable importance of policies, they must therefore be carefully considered by elected members before implementation or renewal.

This cannot be done if insufficient time and opportunity to investigate are given. It can be said that rushed decisions are rarely good decisions.

This motion has its eyes firmly fixed on giving new councillors next term every opportunity to have the time to make considered decisions while coping with the immense load of new information put before new councillors.

Consultation and Communication

Mayor and Councillors

Resource Implications

Internal resources

Risk Management Implications

Risk mitigation measures will form part of the assessment and recommendations presented in any overall operating guideline or framework.

Conclusion

Councillors are able to request a Notified Motion be presented for consideration of Council on any matter. In relation to this particular issue, work has already begun investigating options with the view to presenting a recommended position for the newly elected Council.

Recommendation

That Council considers the Notified Motion by Cr Bella of -

That Policies to be brought to council for adoption are to be presented to councillors for consideration and evaluation no less than 2 weeks before it is to be presented to an Ordinary Meeting.

Further, that a briefing/discussion be held with councillors in this time at earliest point reasonably possible.

This briefing is to cover, but not be limited to;

- *History of the policy*
- *Need for the policy (what it is designed to achieve)*
- *Consideration as to whether this is best practice to achieve the intended outcome.*
- *Whether the policy complements or conflicts with any other policy.*
- *Possible unintended consequences/associated effects of the implementation of said policy.*

Council Resolution ORD-2023-331

That Policies to be brought to council for adoption are to be presented to councillors for consideration and evaluation no less than 2 weeks before it is to be presented to an Ordinary Meeting.

Further, that a briefing/discussion be held with councillors in this time at earliest point reasonably possible.

This briefing is to cover, but not be limited to;

- *History of the policy*
- *Need for the policy (what it is designed to achieve)*
- *Consideration as to whether this is best practice to achieve the intended outcome.*
- *Whether the policy complements or conflicts with any other policy.*
- *Possible unintended consequences/associated effects of the implementation of said policy.*

Moved Cr Bella

Seconded Cr Seymour

Amendment Motion proposed by Cr May

That New Policies to be brought to council for adoption are to be presented to councillors for consideration and evaluation no less than 2 weeks before it is to be presented to an Ordinary Meeting.

Further, that a briefing/discussion be held with councillors in this time at earliest point reasonably possible.

This briefing is to cover, but not be limited to;

- *History of the policy*
- *Need for the policy (what it is designed to achieve)*
- *Consideration as to whether this is best practice to achieve the intended outcome.*
- *Whether the policy complements or conflicts with any other policy.*
- *Possible unintended consequences/associated effects of the implementation of said policy.*

Moved Cr May

Seconded Cr Green

For: Cr Green, Cr May, Cr Williamson

Against: Cr Bella, Cr Bonaventura, Cr Englert, Cr Hassan, Cr Jones, Cr Mann, Cr Seymour, Cr Townsend

LOST

The Mayor then put the original Notified Motion to the Vote -

That Policies to be brought to council for adoption are to be presented to councillors for consideration and evaluation no less than 2 weeks before it is to be presented to an Ordinary Meeting.

Further, that a briefing/discussion be held with councillors in this time at earliest point reasonably possible.

This briefing is to cover, but not be limited to;

- History of the policy*
- Need for the policy (what it is designed to achieve)*
- Consideration as to whether this is best practice to achieve the intended outcome.*
- Whether the policy complements or conflicts with any other policy.*
- Possible unintended consequences/associated effects of the implementation of said policy.*

For: Cr Bella, Cr Bonaventura, Cr Mann, Cr Jones, Cr Seymour, Cr Townsend

Against: Cr Englert, Cr Green, Cr Hassan, Cr May, Cr Williamson

CARRIED

15. PUBLIC PARTICIPATION

16. LATE BUSINESS

17. CONFIDENTIAL REPORTS

17.1. APPROVED SPONSORSHIP UNDER THE INVEST MACKAY EVENTS CONFERENCE ATTRACTION PROGRAM - NOVEMBER 2023

Confidential

Confidential Report to be forwarded separately.

This report is **CONFIDENTIAL** in accordance with the Section 254J (3) (c) of the *Local Government Regulation 2012* which permits the meeting to be closed to the public to discuss a matter **relating to Council's budget**.

Council Resolution ORD-2023-337

{resolution}

Moved Cr May

Seconded Cr Englert

CARRIED UNANIMOUSLY

17.2. APPROVED CONCESSIONS UNDER THE FACILITATING DEVELOPMENT IN THE MACKAY REGION POLICY – NOVEMBER 2023

Confidential

Confidential Report to be forwarded separately.

This report is **CONFIDENTIAL** in accordance with the Section 254J (3) (c) of the *Local Government Regulation 2012* which permits the meeting to be closed to the public to discuss a matter **relating to Council's budget**.

Council Resolution ORD-2023-338

THAT the concessions approved under the Facilitating Development in the Mackay Region Policy are noted.

Moved Cr Englert

Seconded Cr Green

CARRIED UNANIMOUSLY

17.3. SALE OF LAND FOR ARREARS OF RATES COUNCIL REPORT

Confidential

Confidential Report to be forwarded separately.

This report is **CONFIDENTIAL** in accordance with the Section 254J (3) (g) of the *Local Government Regulation 2012* which permits the meeting to be closed to the public to discuss a matter relating to **negotiations relating to a commercial matter involving the Council for which a public discussion would be likely to prejudice the interests of the Council.**

Council Resolution ORD-2023-345

THAT pursuant to section 140(2) of the *Local Government Regulation 2012*, Council sells the land described as Lots 7, 8, 12 & 13 on BUP 106981 for overdue rates and charges; and

THAT Council delegates to the Chief Executive Officer its power to take all further steps under Chapter 4, Part 12, Division 3 of the *Local Government Regulation 2012* to sell the lots by auction or by negotiation or further auction if they do not sell in the first auction, or to end the sale procedures if appropriate.

Moved Cr Bonaventura

Seconded Cr Townsend

CARRIED UNANIMOUSLY

18. MEETING CLOSURE

Meeting closed at 11:54 am.

19. FOR INFORMATION ONLY

19.1. DEVELOPMENT APPLICATIONS - NOVEMBER 2023

Applications Received

App No.	Code / Impact	Address	Applicant	Description	Officer
DA-2005-296/H	Code	Lot 1 Sugarshed Road ERAKALA	Sugar Shed Road Pty Ltd	Generally In Accordance Reconfiguration of a Lot – 2 Lots into 43 Park Residential lots and one drainage lot	Brogan Jones
DA-2005-332/D	Impact	17 Ambrose Way NORTH MACKAY	Mackay Christian Colleges Ltd	Change Application (Minor) - Material Change of Use for an Educational Establishment (Primary School) and Place of Worship and Reconfiguration of a Lot to create 20 Urban Residential lots	Patrick Hobson
DA-2011-6/A	Code	173 Greenmount Road PLEYSTOWE	George Vella and Jane Vella	Change Application (Other)1 Rural Lot into 5 Rural Residential Lots and one balance rural lot	Teagan Darvill
DA-2015-3/C	Impact	23897 Peak Downs Highway ETON	Eton Transit Pty Ltd	Extension Application Preliminary Approval (s241-SPA) - Service Station, Transport Terminal, Heavy Vehicle Parking and Catering Shop (Eton Transit Centre)	Cherise Ayling
DA-2022-94/A	Code	106 Eaglemount Road BEACONSFIELD	Griffith Group Pty Ltd	Change Application (Minor)Material Change of Use - Childcare Centre	Renee Andrea
DA-2023-207	Code	191 Nebo Road WEST MACKAY	Bower Property Group	Material Change of Use - Development Permit for Childcare Centre	Darryl Bibay
DA-2023-209	Code	63 Bucasia Esplanade BUCASIA	Maree C O'Grady	Reconfiguring a Lot - Development Permit for Boundary Realignment (2 into 2 Lots)	Patrick Hobson
DA-2023-211	Code	126 Sarina Beach Road SARINA	Scott N Ashworth	Reconfiguring a Lot - Development Permit (1 Lot into 2 Lots)	Patrick Hobson
DA-2023-212	Impact	26 Hill Street ETON	Kevin M Hannan	Material Change of Use - Development Permit for Dwelling House (Landslide Hazard Overlay)	Patrick Hobson
DA-2023-213	Impact	23-47 Cemetery Road WEST MACKAY	Ergon Energy Corporation Limited	Material Change of Use - Development Permit for Low Impact Industry	Teagan Darvill
DA-2023-215	Code	2 Poco Place ANDERGROVE	Halfback Pty Ltd	Material Change of Use - Development Permit for 2 x Food and Drink Outlets	Emma Langford
DA-2023-216	Impact	839-873 Mackay-Bucasia Road BUCASIA	Paul J Camilleri and Michelina M Camilleri	Material Change of Use - Development Permit for Warehouse (Storage Yard), Office and Shop	Patrick Hobson
DA-2023-217	Code	466 Newbury-Mount Vince Road MARIAN	Andrew F Creedon	Reconfiguring a Lot - Development Permit for Boundary Realignment (2 Lots into 2 Lots)	Patrick Hobson
DA-2023-219	Impact	267 Barrie Lane HOMEBUSH	Note Park Grazing Co.	Material Change of Use - Development Permit for Function Facility (Ancillary Farm Tours)	Teagan Darvill
DA-2023-221	Code	12 Bundesen Avenue MIDGE POINT	AAA Building Consultants	Material Change of Use - Development Permit for Dwelling House (Dwelling - Class 1a)	Teagan Darvill

DA-2023-222	Code	176 Victoria Street MACKAY	Petersen Property Group	Material Change of Use - Development Permit for Caretaker's Accommodation	Emma Langford
DA-2023-224	Code	9 Preston Street SLADE POINT	Maurice J Hokins and Norma F Hokins	Material Change of Use - Development Permit for Dwelling House (Dwelling House and Shed - Class 1a and 10a)	Brogan Jones
DA-2023-225	Code	151 Boundary Road East PAGET	Oro 6 Pty Ltd and Oro 7 Pty Ltd	Material Change of Use - Development Permit for Transport Depot and Warehouse and Reconfiguring a Lot - Development Permit for Access Easements	Brogan Jones
DA-2023-226	Code	24 Melba Street ARMSTRONG BEACH	Dennis J Wilson and Judith M Wilson	Material Change of Use - Development Permit for Dwelling House (Carport - Class 10a) In Flood and Coastal Hazards Overlay	Patrick Hobson
DA-2023-227	Code	82 Andergrove Road ANDERGROVE	Daniel J Warrener	Reconfiguring a Lot - Development Permit for Subdivision (1 into 2 Lots)	Dennis O'Riely
DA-2023-228	Code	16 Highview Close FARLEIGH	Amanda J McKinnon	Material Change of Use – Development Permit for Dwelling House (Shed - Class 10a)	Brogan Jones
DA-2023-229	Impact	Lot 599 Bruce Highway BAKERS CREEK	Cougar Developments Pty Ltd	Material Change of Use - Development Permit for Multiple Dwellings	Cherise Ayling
DA-2023-230	Code	102 Lansdowne Road RACECOURSE	Ross A Powell and Riley N Powell	Reconfiguring a Lot - Development Permit for Boundary Realignment (6 into 5 Lots)	Patrick Hobson
DA-2023-231	Code	19 Fordyces Road MARIAN	Boldon Pty Ltd	Reconfiguring a Lot - Development Permit for Boundary Realignment (6 into 4 Lots)	Patrick Hobson

Applications Entering Decision Making Period

App No.	Code / Impact	Address	Applicant	Description	Officer
DA-2023-103	Code	Lot 602 Norwood Parade BEACONSFIELD	SHD Pty Ltd	Reconfiguring a Lot - Development Permit for Subdivision (2 into 127 Lots and Balance Lot) - Kerrisdale Estate (Stages 5C, 6, 7 and 8)	Darryl Bibay
DA-2023-159	Impact	6 George Street MACKAY	George Street Neighbourhood Centre Inc	Material Change of Use - Development Permit for Community Care Centre	Teagan Darvill
DA-2023-165	Code	56 Ocean Avenue SLADE POINT	Diane B O'Connell	Reconfiguring a Lot - Development Permit for Subdivision (1 into 2 Lots)	Teagan Darvill
DA-2023-174	Code	119 Ian Reddacliff Drive THE LEAP	AAA Building Consultants	Material Change of Use - Development Permit for Dwelling House (Secondary Dwelling - Class 1a) (Bushfire Hazard and Landslide Hazard Overlay)	Darryl Bibay
DA-2023-204	Code	13-15 Southlink Drive BAKERS CREEK	MJ Mahon Transport	Material Change of Use - Development Permit for Transport Depot	Brogan Jones
DA-2023-222	Code	176 Victoria Street MACKAY	Petersen Property Group	Material Change of Use - Development Permit for Caretaker's Accommodation	Emma Langford

DA-2023-25	Code	8 Brandon Street SARINA	The Bobbermein Family Trust & The Hawkins Family	Material Change of Use - Childcare Centre	Darryl Bibay
DA-2023-54	Code	532 Kinchant Dam Road KINCHANT DAM	Victor C Deguara	Reconfiguring a Lot - Development Permit for Subdivision (2 Lots into 19 Lots in 2 Stages)	Patrick Hobson

Applications Finalised

App No.	Code / Impact	Address	Applicant	Description	Officer
Approved Subject to Conditions					
DA-2005-296/H	Code	Lot 1 Sugarshed Road ERAKALA	Sugar Shed Road Pty Ltd	Generally In Accordance Reconfiguration of a Lot – 2 Lots into 43 Park Residential lots and one drainage lot	Brogan Jones
DA-2013-395	Impact	4948 Mackay- Eungella Road FINCH HATTON	Est Late Michael Offord	Material Change of Use - Development Permit for Undefined Use (Travel Home Sites and Tourist Accommodation in Existing Hall)	Teagan Darvill
DA-2013-434/C	Code	8 Petrie Street EAST MACKAY	Aldev Holdings Pty Ltd	Change Application (Minor)Reconfiguring a Lot – Development Permit for 9 Special Activities (Tourism) Lots into 17 Lots and Common Property and Material Change of Use – Development Permit for Multiple Dwelling (89 Dwellings – Stages 2-4), Dwelling House (14 Dwellings – Stages 1 & 1B), and Catering Shop	Darryl Bibay
DA-2014-90/C	Code	Lot 599 Bruce Highway BAKERS CREEK	Cougar Developments Pty Ltd	Change Application (Minor) - Reconfiguring a Lot - 146 Residential Lots	Darryl Bibay
DA-2017-4/B	Impact	15 Charlotte Street WEST MACKAY	Ozcare	Change Application (Other)Material Change of Use - Development Permit for Extensions to an Existing Residential Care Facility	Emma Langford
DA-2021-23/A	Code	100 Hodges Road SHOAL POINT	Point Bay Developments Pty Ltd	Change Application (Other) – Development Permit for Material Change of Use – Shopping Centre	Emma Langford
DA-2022-229	Code	115-155 Maggiolo Drive PAGET	Mackay Land Holdings Pty Ltd	Material Change of Use – Development Permit for Warehouse (extension of Hardstand Storage Area)	Patrick Hobson
DA-2023-112	Impact	6 Shady Lane HABANA	Scott C Gillespie and Cathryn J Gillespie	Material Change of Use - Development Permit for Shop and Ancillary Food and Drink Outlet	Teagan Darvill
DA-2023-124	Code	41 Meadowlands Road RACECOURSE	Brian T Barfield and Mavis J Barfield	Reconfiguring a Lot - Development Permit for Boundary Realignment (9 into 7 Lots)	Renee Andrea
DA-2023-146	Code	776 Mount Martin Loop Road MOUNT MARTIN	AAA Building Consultants	Material Change of Use - Development Permit for Dwelling House (Bushfire Hazard Overlay)	Patrick Hobson

DA-2023-147	Code	47 Pindo Circuit RURAL VIEW	Dominic P Dennis and Lauren J Dennis	Material Change of Use - Development Permit for Dwelling House (Shed - Class 10a) - (Siting and Flood and Coastal Hazard Overlay)	Teagan Darvill
DA-2023-155	Code	Lot 400 Eimeo Road RURAL VIEW	Mackay Regional Council	Material Change of Use - Development Permit for Community Use	Emma Langford
DA-2023-166	Code	Lot 112 Eungella Dam Road EUNGELLA DAM	Eungella Wind Pty Ltd	Material Change of Use - Development Permit for Telecommunications Facility	Darryl Bibay
DA-2023-182	Code	20 Steen Street SOUTH MACKAY	AAA Building Consultants	Material Change of Use - Development Permit for Dwelling House (Heritage and Neighbourhood Character and Flood and Coastal Hazards Overlay)	Teagan Darvill
DA-2023-188	Code	22-24 Silverton Court PAGET	LD West Nominees Pty Ltd	Material Change of Use - Development Permit for Warehouse (2 Stages)	Patrick Hobson
DA-2023-189	Code	16 Poinciana Avenue SEAFORTH	Darcy S Sleeman and Breannan V Black	Material Change of Use - Development Permit for Dwelling House in Flood and Coastal Hazards Overlay (Storm Tide Inundation Area)	Patrick Hobson
DA-2023-191	Code	36 Marsh Street EAST MACKAY	AAA Building Consultants	Material Change of Use - Development Permit for Dwelling House (Extension - Class 1A - Heritage and Neighbourhood Character Overlay and Flood and Coastal Hazard Overlay)	Darryl Bibay
DA-2023-193	Code	50 Palm Ridge Drive RICHMOND	AAA Building Consultants	Material Change of Use - Development Permit for Dwelling House (Siting and Overlays)	Patrick Hobson
DA-2023-196	Code	100 Camelzulis Road BALNAGOWAN	AAA Building Consultants	Material Change of Use - Development Permit for Dwelling House (Shed - Class 10a)	Teagan Darvill
DA-2023-201	Code	Lot 3 Mount Ossa- Seaforth Road SEAFORTH	Frank R Cowley	Reconfiguring a Lot - Development Permit for Boundary Realignment (2 into 2 Lots)	Darryl Bibay
DA-2023-203	Code	11 Le Gardes Road HABANA	Brenton J Wade and Pagean J Wade	Material Change of Use - Development Permit for Dwelling House (Dwelling Additions - Class 1a) - Siting	Cherise Ayling
DA-2023-208	Code	Lot 52 Geeberga Station Road KUTTABUL	AAA Building Consultants	Material Change of Use - Development Permit for Dwelling House (Bushfire Hazard and Extractive Resources and High Impact Activities Overlays)	Teagan Darvill
DA-2023-209	Code	63 Bucasia Esplanade BUCASIA	Maree C O'Grady	Reconfiguring a Lot - Development Permit for Boundary Realignment (2 into 2 Lots)	Patrick Hobson
DA-2023-217	Code	466 Newbury- Mount Vince Road MARIAN	Andrew F Creedon	Reconfiguring a Lot - Development Permit for Boundary Realignment (2 Lots into 2 Lots)	Patrick Hobson
DA-2023-224	Code	9 Preston Street SLADE POINT	Maurice J Hokins and	Material Change of Use - Development Permit for Dwelling	Brogan Jones

			Norma F Hokins	House (Dwelling House and Shed - Class 1a and 10a)	
DA-2023-3	Code	40 Hill End Road GLENELLA	Wall Planning & Environmental Consulting	Material Change of Use - Development Permit for Childcare Centre and Reconfiguring a Lot - Development Permit for Boundary Realignment (2 into 2 Lots)	Renee Andrea
DA-2023-63	Code	63 Norris Road MOUNT PLEASANT	Brisbane Prestige Property Developments Pty Ltd	Material Change of Use - Development Permit for Childcare Centre	Teagan Darvill
Generally in Accordance With					
DA-2008-700/C	Code	2 Mangrove Road MACKAY	Sentinel Caneland Mackay Investment Pty Ltd	Generally in Accordance Material Change of Use – Development Permit for Shopping Centre - Covered Walkway	Darryl Bibay
Application Withdrawn					
DA-2022-241	Impact	191 Nebo Road WEST MACKAY	Bower Group	Material Change of Use - Development Permit for a Service Station and Reconfiguring a Lot - Development Permit for a Boundary Realignment (2 into 2 Lots)	Darryl Bibay
DA-2023-118	Impact	Lot 2 Lindeman Island LINDEMAN ISLAND	Well Smart Investment Holdings (Bris) Pty Ltd	Material Change of Use - Development Permit for Undefined Use (Minor Electricity Infrastructure)	Patrick Hobson
DA-2023-229	Impact	Lot 599 Bruce Highway BAKERS CREEK	Cougar Developments Pty Ltd	Material Change of Use - Development Permit for Multiple Dwellings	Cherise Ayling
Negotiated Decision					
DA-2022-72	Code	49-57 Malcomson Street NORTH MACKAY	Fort Knox Storage	Material Change of Use - Development Permit for Warehouse and Operational Works – Development Permit for Earthworks and Stormwater (Stage 3)	Patrick Hobson

19.2. BUILDING WORKS STATISTICS - NOVEMBER 2023

Class	Description	Total November 2023	Total Value of Proposed Works	Average Proposed Floor Area (m2)	Total November 2022	YTD
Class 1A	A single dwelling being a detached house, or one of a group of two or more attached dwellings, each being a building, separated by a fire-resisting wall, including a row house, terrace house, town house or villa unit	46	\$14,473,990	13,778	56	472
Class 1B	A boarding house, guest house, hostel or the like with a total area of all floors not exceeding 300m2, and where not more than 12 people reside, and is not located above or below another dwelling or another Class of building other than a private garage	0			1	3
Class 2	A building containing 2 or more sole-occupancy units each being a separate dwelling	0			0	1
Class 3	A residential building, other than a Class 1 or 2 building, which is a common place of long term or transient living for a number of unrelated persons. Example: boarding-house, hostel, backpackers accommodation or residential part of a hotel, motel, school or detention centre	0			1	9
Class 4	A dwelling in a building that is Class 5, 6, 7, 8 or 9 if it is the only dwelling in the building	0			0	0
Class 5	An office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9	3	\$4,472,347	567	2	20
Class 6	A shop or other building for the sale of goods by retail or the supply of services direct to the public. Example: café, restaurant, kiosk, hairdressers, showroom or service station	6	\$4,569,900	109	5	48
Class 7A	A building which is a car park	0			0	0
Class 7B	A building which is for storage or display of goods or produce for sale by wholesale	0			2	15
Class 8	A laboratory, or a building in which a handicraft or process for the production, assembling, altering, repairing, packing, finishing, or cleaning of goods or produce is carried on for trade, sale or gain	1	\$4,323,223	1,517	0	16
Class 9A	A health care building, including those parts of the building set aside as a laboratory	0			0	1
Class 9B	An assembly building, including a trade workshop, laboratory or the like, in a primary or secondary school, but	1	\$138,900	460	4	12

	excluding any other parts of the building that are of another class					
Class 9C	An aged care building	1	\$899,249	0	0	1
Class 10A	A private garage, carport, shed or the like	92	\$4,722,656	86	71	967
Class 10B	A structure being a fence, mast, antenna, retaining or free standing wall, swimming pool or the like	21	\$1,788,966	8	25	213
Class 10C	A private bushfire shelter	0			5	0
Sundry	Demolition residential/commercial/industrial, class n/a, class s/s	0		N/A	1	11
Totals		171	\$35,389,231	16,524	173	1,789

Description	Total November 2023	Total Value of Proposed Works	Average Proposed Floor Area (m2)	Total November 2022	YTD
New building or structure	113	\$22,412,091	133	109	1,258
Change of building classification	0			0	6
Demolition	2	\$116,798	N/A	13	77
Repairs, alterations, additions	39	\$4,532,407	16,124	33	339
Swimming pool and/or pool fence	18	\$2,783,672	N/A	25	210
Relocation or removal	0			0	7
Totals	172	\$29,844,968	16,255	180	1,897

