



Local Resilience Plan 2023

Hibiscus Coast





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1 About this Local Resilience Plan

Localised resilience planning has emerged as a gap in our knowledge, identified by contemporary resilience studies. Approaches to longer term risk reduction and reinforcing the principles of the Queensland Strategy for Disaster Resilience at the local level are an opportunity to further build community resilience.

To fill this gap, the Hibiscus Coast Local Resilience Plan is an identified resilience improvement action stemming from the Greater Whitsunday Regional Resilience Strategy 2022, prepared by the Queensland Reconstruction Authority.

The vision for the QSDR is 'Stronger, safer and more resilient Queensland communities'.

Four objectives underpin the QSDR:

- **Objective 1** – We understand the potential disaster risks we face
- **Objective 2** – We work together to better manage disaster risk
- **Objective 3** – We seek new opportunities to reduce disaster risk
- **Objective 4** – We continually improve how we prepare for, respond to and recover from disasters.

Figure 1-1: The QSDR Objectives

This Local Resilience Plan completes the line of sight from national, state, regional and local risk reduction actions. The Hibiscus Coast Local Resilience Plan seeks to reduce risk and build resilience, responding to the objectives of the QSDR (Figure 1-1) in the following ways:

1. **Understanding risk** for the Hibiscus Coast is detailed in section three and discussed through the lens of six small communities. This detailed approach to exposure in place allows property-scale understanding of risks. The local resilience plan addresses both mapped and unmapped hazards in a multi-hazard approach.
2. **Managing the risk** for the Hibiscus Coast is achieved through the ongoing work as a result of this plan in identifying place-based issues to better understand the management strategies required to respond to risk through risk reduction and emergency management actions.
3. **New opportunities** are outlined in the resilience pathways and follow the establish CSIRO Resilience Adaptation Pathways and Transformation Approach for doing the same, doing better and doing differently.
4. **Continuous improvement** is achieved through the understanding of local exposure and vulnerabilities to enable improved responses and strategies in resilience and disaster management.



Figure 1-2: The progression of resilience building and risk reduction across scales in Queensland

This plan can be read in conjunction with the Technical Evidence Report for the Hibiscus Coast Local Resilience Plan Pilot Project for additional insights and information.

2 The Hibiscus Coast Communities

The Hibiscus Coast is located about 40 minutes north of Mackay city along the Bruce Highway and turning right at The Leap onto Yakapari-Seaforth Road, which is a sealed state-controlled road to the Hibiscus Coast communities. Alternative access is via Yakapari- Habana Road or Mt Ossa Road, both of which are unsealed. The Hibiscus Coast is comprised of the small settlements of:

- Seaforth, north and south including:
 - Settlements north of Sandy Creek at Finlayson’s Point.
 - Residential areas towards Victor Creek on Port Newry Road.
 - The core Seaforth township.
 - Residential areas to the west between Cape Hillsborough Road turn off and Seaforth around the Seaforth Primary School, Aviland and Springcliffe drives.
- Holiday Bay.
- Ball Bay.
- Smalleys Beach (including Kippen Drive).
- Cape Hillsborough.
- Belmunda.

There are many lifestyle-lots along Cape Hillsborough Road and farming land with residences and lifestyle-lots along Yakapari-Seaforth Road at Mount Jukes and Yakapari and all points between. The roads to Belmunda, Ball Bay, Holiday Bay and Cape Hillsborough are council-controlled roads. All roads are sealed except the short drive into Smalleys Beach and the roads to Belmunda. Figure 2-1 below shows the Hibiscus Coast area.



Figure 2-1: Hibiscus Coast Study Area

There are no major waterways in the area, but smaller waterways are characterised by numerous short run creeks and crossings with fast rising and falling waters. The landscape along Yakapari-Seaforth Road varies between low lying flat land used for cane growing, grazing and small acreages to steep and vegetated landscape of the Pioneer Peaks National Park including the picturesque Mount Jukes at 944m.

The coastal area is also low lying with numerous creek deltas, wetlands and mangroves. The coastal area is a popular fishing, picnicking and day trip location and Seaforth features a swimming enclosure and newly redeveloped foreshore areas. Cape Hillsborough National Park is a local iconic place which attracts a high volume of tourists, with images of the wallabies at sunset used in regional promotional material.

There are five Statistical Areas (Level 1) (SA1) data boundaries in the study area for the purposes of statistical information collected by the Australian Bureau of Statistics (ABS):

- Cape Hillsborough which includes Belmunda, Smalleys Beach, Kippen Drive and all areas south and west of Ball Bay Road.
- Haliday Bay which includes Ball Bay and areas north of Ball Bay Road.
- Seaforth to Mt Ossa which includes areas of Seaforth such as Aviland Drive and Springcliffe drives.
- Seaforth North which includes the areas surrounding the core urban township of Seaforth.
- The Seaforth township.

These SA1 boundaries have been used to describe context of the Hibiscus Coast settlements and data is from the 2021 census.

2.1 Cape Hillsborough and Belmunda

The Cape Hillsborough and Belmunda area shown in Figure 2-2 below extends from Ball Bay Road in the northwest, around the Cape Hillsborough coastline to the north and east to Belmunda Beach and township, with the southern boundary formed by the inlet and Belmunda Road. Dunwoody Road and Seaforth Creek form the western boundary.

This area is characterised by significant National Park estate capturing about 20 per cent of the land mass, and low-lying wetlands and intertidal areas from Spring Creek near Smalleys Beach, to Nobbler Creek between Cape Hillsborough and Belmunda.

Primary settlements include the rural residential areas around Kippen Drive, Smalleys Beach and Belmunda residences. The locality has a population of 266 people. Belmunda is accessed from Yakapari-Seaforth Road, while the other settlements stem from



Figure 2-2: Cape Hillsborough and Belmunda SA1 Boundary

Cape Hillsborough Road. All roads are local council roads in this area. There is no sewerage system, but all dwellings have reticulated water. There are some hills inland from the coast, but these are not of significance.

The low-lying and flat terrain is predominantly lifestyle rural residential living with some sugar cane cropping and grazing. There are no commercial premises or centres save the Cape Hillsborough Tourist Park. There are no residences at Cape Hillsborough apart from the tourist park owner and staff.

2.2 Haliday Bay and Ball Bay

This area is directly north of the Cape Hillsborough SA1 and includes the townships of Haliday Bay and Ball Bay. The area is bound to the south by Ball Bay Road, the coastline to the east and north, and Seaforth Creek to the west as shown in Figure 2-3. The area has a population of 334 people.



Figure 2-3 Haliday Bay and Ball Bay SA1 boundary

The area features part of Cape Hillsborough National Park, accounting for about 25 per cent of the land area. It is quite elevated, as is the land of the former Halliday Bay Resort running parallel to Adamson Street, with bushland connecting to the township area. The McBrides Lookout walking trail is a short walk up the eastern side of the bay. Halliday Bay Resort is a central feature and has now accommodated caravanning on the foreshore. The Haliday Bay RFS shed is well-equipped and located on the junction of the entry roads.

There is a public campground and an RFS shed at Ball Bay which houses equipment only. Ball Bay has no commercial services or accommodation. There is no sewerage system, but all dwellings have reticulated water. There is also a private airstrip on the edge of Ball Bay just outside the SA1 boundary.

2.3 Seaforth north and south

These two SA1s have a combined population of 513 people and include the township of Seaforth, and areas north to Finlayson’s Point and Newry Island and the Johnson Avenue area and Victor Creek boat ramp. Seaforth is the central urban area of the coast and features a new foreshore, parklands, swimming enclosure and camping area. It is popular for day trips, camping and holidaying.

Seaforth has a small post office, two convenience stores and takeaway, both with diesel and petrol available, and a bowls club that provides meals and entertainment. The Community Hall is a focal point with parkland and playground. There is one commercial short-term accommodation option. Seaforth has a dedicated Queensland Police Officer. There is no sewerage system, but all dwellings have reticulated water. It is noted that some infrastructure and land uses supporting Seaforth are in the SA1 which is discussed below.

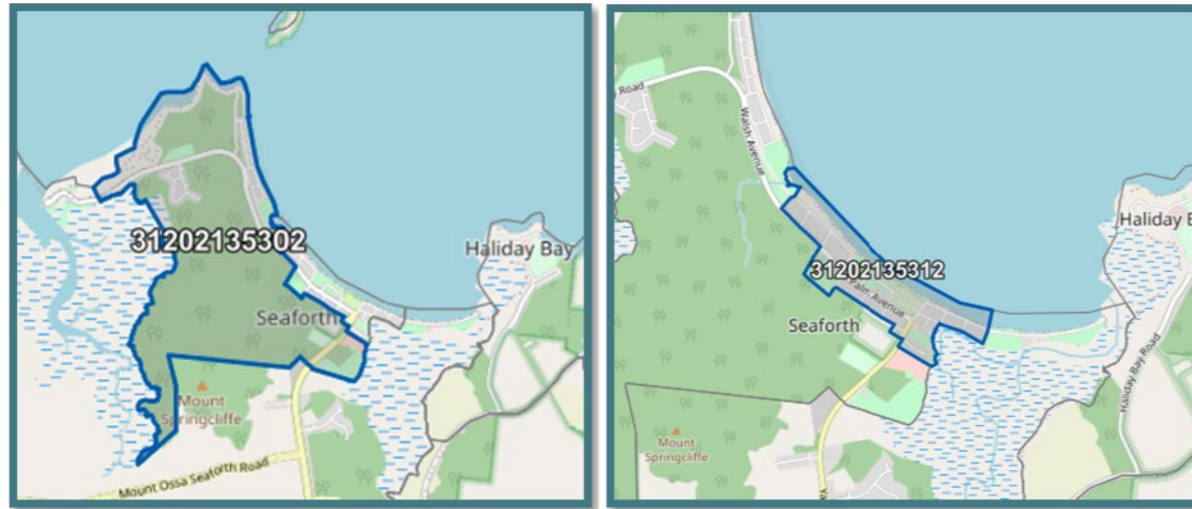


Figure 2-4: The Seaforth and North Seaforth SA1 boundaries

2.4 Seaforth to Mt Ossa

This area includes urban land uses along Yakapari-Seaforth Road which service Seaforth and the broader Hibiscus Coast. These include:

- Seaforth Pines Outdoor Education and Conference Centre.
- Seaforth State Primary School.
- Seaforth Waste Transfer Station.
- Mackay and District Bowmen, outdoor archery facility.

The Mt Ossa SA1 starts at the coastline excluding the areas within the Seaforth SA1 and includes areas on the north and south side of Yakapari-Seaforth Road, south to Miers Road and west for both sides of Mt Ossa Road to Mulherin’s Road. Apart from the land uses mentioned above the area is rural in nature and features cane growing land and grazing. All localities have a council wheelie bin collection service.



Figure 2-5 Seaforth to Mt Ossa SA1 boundary

2.5 Hibiscus Coast Statistics Summary

Collectively the area has 1397 residents in 1001 dwellings. Table 2-1 below provides selected statistics for the area. There are some significant statistics that shape the profile of the area including a significantly older age profile. Queensland’s median age is 38 years, however the median at Seaforth is 59.

Across the five SA1s there is low multicultural population with over 90 per cent of the population identifying as English, Irish, Scottish or Australian heritage and over 85 per cent born in Australia, which is much higher than the Queensland proportions. Similarly, 91 per cent speak only English at home, which is significantly higher than the 80 per cent Queensland average.

Occupations are spread across a range of professions; however, the mining sector dominates at around 11 per cent. For those in the workforce, full time employment was the predominant status. There is a much higher than average proportion of the population no longer in the workforce at Hibiscus Coast with all SA1s over 40 per cent and Seaforth at 53 per cent compared to the state average of 32 per cent.

There are high numbers of ‘couples without children’ households, lower incomes and high proportions of the population with health issues. Together these statistics describe a retirement focussed community.

In summary, the Hibiscus Coast has very high numbers of owner-occupied homes with small household numbers and high proportions of ageing, retired or non-working households compared to the balance of Queensland.

Table 2-1: Selected Statistics across SA1s

Statistic (Qld equivalent)	Seaforth	Seaforth Nth	Mt Ossa	Haliday Bay	Cape Hillsborough	Total Study Area
Population	267	247	283	334	266	1397
Median Age (38)	59	57	48	57	55	55.2
People per household	2	2.1	2.3	2	2.3	2.1
Number of dwellings	253	185	142	241	180	1001
Vehicles per dwelling	1.9	1.9	2	2	2.2	2
English only (80%)	85.4%	81.8%	79.5%	85%	91%	Mt Ossa recorded almost 2% Tagalog
Not in the labour force (32%)	51.3%	44%	41.6%	41.4%	40%	All SA1s are considerably higher than Qld average
Median Household incomes (\$1625)	\$933	\$1166	\$ 1218	\$ 1125	\$ 1675	All SA1s are considerably lower than the Qld average except Cape Hillsborough which is slightly above.
Health issues						Health issues are much higher across all SA1s compared to the Queensland averages.
Arthritis (8.8)	21%	9.7%	10.2%	15%	15.8%	People with no health issues were a much lower proportion in all SA1s compared to the state
Cancer (3.1)	4.9%	2%	3.9%	6.6%	4.9%	
Heart Disease (4.2)	11.2%	4%	7.8%	6.9%	7.1%	
Diabetes (4.5)	6%	5.7%	3.5%	3.9%	8.6%	
No health conditions (58.2)	47.6%	53%	45.6%	48.2%	52.6%	
Couple without children (40%)	78.6%	65.7%	50%	64.5%	63%	This statistic is much higher across all SA1s and reflect age and employment status
Home ownership (owned or mortgaged 63.5%)	78.3%	89.2%	87.1%	79%	91.4%	All SA1s recorded very high home ownership and consequently very low levels of rental accommodation.

3 Hazards in each Community

This section provides information using a range of resources including community engagement to outline exposure by functional line of recovery, place and hazard.

- Table 3-1 provides a qualitative summary along the five functional lines of recovery.
- Table 3-2 provides a quantitative summary of selected data from the Australian Exposure Index (Geoscience Australia) by place.
- Table 3-3 provides a GIS analysis on the proportion of lots impacted by selected Functional lines of recovery.
- Tables 3-4 to 3-9 provides the place assessment using existing open data sources such as the Mackay Region Planning scheme and the Queensland Flood Assessment Overlay.

KNOW YOUR HAZARDS


Publicly available information and mapping sources for all hazards include:




- The Mackay Disaster Dashboard (storm tide evacuation zones).
- The Mackay Region Planning Scheme and online mapping system (landslide and flood studies).
- The Mackay Coastal Hazard Adaptation Strategy (coastal hazards).
- The Queensland Flood Assessment Overlay (for areas without a flood study).
- The Bureau of Meteorology Cyclone Knowledge Centre.
- The Bureau of Meteorology Heatwave Knowledge Centre and Australian heatwave Service.


3.1 Exposure Summary

Table 3-1 provides a summary of exposure overall. The table expresses exposure using the five functional lines of recovery.

Table 3-1: Summary of Hibiscus Coast exposure by functional lines of recovery

Element	Exposure
 <p>SOCIAL AND PEOPLE</p>	<ul style="list-style-type: none"> • Many long-time residents have strong connection to Hibiscus Coast. • The median age is extremely high at 55 and projected to increase. • There is a higher-than-average proportion of people with health issues. • There is a lower-than-average workforce participation. • There is a historic and strong community voice, especially in Seaforth through the Seaforth Progress Association. • Community and social assets have a range of exposure to bushfire hazard. • All community assets are exposed to tropical cyclones or coastal low and heatwave hazards. This includes all emergency services and schools. • Some community assets are exposed to storm tide and costal erosion but generally those on the foreshore (these are not counted in Table 3-3). • There is no aged care, or permanent medical or Queensland Ambulance Service (QPS has a dedicated office, but the officer does not live in the community and opening hours are limited. Likewise, the pharmacist does not live at Seaforth and is open in afternoons only). • All communities are more vulnerable due to isolation and single road access. • The area attracts a high number of itinerant population and visitors that may be unfamiliar with the area.

<p>ROADS AND ACCESS</p> 	<ul style="list-style-type: none"> • The road network is critical to the livelihoods of the community from both a social perspective (access to healthcare and essential services) and economic perspective for access to jobs. • Access by road to the region is only via Yakapari-Seaforth Road and Cape Hillsborough and Ball Bay roads. • Yakapari-Seaforth Road is exposed to flash flooding at a number of crossings which can be subject to fast flowing flood waters including: <ul style="list-style-type: none"> ○ Constant Creek near Rutlands Road. ○ Neilson Creek adjacent to Neilson Creek Road, (multiple crossings). ○ Seaforth Creek near Gormley’s Road. ○ Plantation Creek at the Cape Hillsborough Road junction. • Cape Hillsborough Road is impacted by Seaforth Creek which collects water from a number of smaller tributaries around the Cape Hillsborough Road area where it crosses just before the Ball Bay turnoff. • The crossing at Seaforth Creek is very low and not well signed. • Coincident flooding can be an issue in the low-lying areas which are also tidal, where a freshwater flood occurs at the same time a high tide or storm tide occurs. These events have the capacity to impact many local roads. • Some roads are also susceptible to landslide such as Yakapari-Seaforth Road at the Seaforth Range and Cape Hillsborough Road near the resort. • Roads can also be affected by visibility from smoke, and direct bushfire attack from flame contact and radiant heat flux where vegetation is in close proximity to roadways. • Boat ramps are exposed to flood waters and coastal hazards. • All communities are more vulnerable due to isolation and the potential for evacuation options to be constrained due to road access.
<p>ENVIRONMENT</p> 	<ul style="list-style-type: none"> • National Parks dominate the area and attract visitors and day trippers. Cape Hillsborough National Park is fragmented across several sites. • Beaches, foreshore and assets on foreshores are exposed. • The waste transfer station on Cape Hillsborough Road may be exposed to leachate.
<p>ECONOMY</p> 	<ul style="list-style-type: none"> • A high number of fully owned private dwellings across all communities. • The region is supported by tourism; however, these are generally day trippers. There are a small number of advertised accommodation options available plus the public camp grounds, caravan parks and Cape Hillsborough Tourist Park. • Commercial activities include the bowls club, local stores and fuel. • Outside the townships, agriculture is the primary industry in cane and grazing for employment, however the industry is supported by services in Mackay rather than Hibiscus Coast. • There are no other industry or commercial land uses, therefore connectivity to Mackay and surrounds is critical from an economic perspective.

<p>INFRASTRUCTURE</p> 	<p>Summarising much of the above, infrastructure exposed includes:</p> <ul style="list-style-type: none"> • Petrol stations, boat ramps, public infrastructure on foreshores. • Electricity networks especially overhead power lines. • Communication towers. • RFS sheds and community halls. • Campgrounds. • Some water networks where pumping may be affected.
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Maintaining the SA1 boundaries for analysis, Table 3-2 below provides selected data from Geoscience Australia specifically for exposure data. The table shows that there is limited agricultural value, and while registered business addresses are many, built form is largely comprised of single dwellings. Across the board, about one fifth of the population moved in the intercensal period and high numbers require physical assistance.

Table 7-3 shows exposure by number of properties across selected hazards that are mapped using a GIS analysis and also presented by SA1 boundary. The table shows high numbers of dwelling exposure across all SA1s for bushfire. Generally, there are moderate to high numbers of dwellings exposed to all hazards excluding high storm tide across the region.

Table 3-2: Australian exposure index data

Exposure Theme	Cape Hillsborough	Haliday and Ball Bays	Seaforth to Mt Ossa	Seaforth South	Seaforth North
Environmental Exposure					
Great Barrier Reef Marine Park	116	14	127	12	12
Other Bioregional designations (ha)	3171	315	6159	56	551
Agricultural Exposure					
Total (ha)	2052	Nil	5368.4 or \$ 1,079,000	Nil	Nil
Business Exposure					
Primary Production	7 (all grazing)	Nil	6 (all grazing)	Nil	Nil
Non-GST registered	45	40	25	37	45
GST registered	32	26	21	14	17
Infrastructure Exposure					
Items	1 airstrip	Nil	1 Telephone exchange 4 railway stations and 9km track (cane rail) 13km arterial road	1 liquid fuel station 1 km arterial road	1 waste management site 1 km arterial road
Institution Exposure					
Items	Nil	2 x fire stations	1 primary school	1 fire station 1 ambulance station (non-operational) 1 police station	Nil
Building Exposure					
Buildings (total)	140	328	189	226	194
Buildings (dwellings)	140	329	189	232	199
Pre 1980 Construction	33	180	63	195	93
Potential Asbestos	101	272	75	218	193
Replacement Value	\$ 84,720,000	\$ 220,650,000	\$ 96,870,000	\$ 156,000,000	\$ 144,230,000
Contents Value	\$ 9,320,000	\$ 20,460,000	\$ 12,590,000	\$ 15,020,000	\$ 12,950,000
Social Exposure					
SEIFA* index (dwellings)	140 in 4th decile	329 in 2 nd decile	189 in 2 nd decile	232 in 3 rd decile	199 in the 3 rd decile
Public Housing	Nil	Nil	Nil	Nil	Nil
Require assistance for self-care	10.3%	9.2%	7.7%	5.8%	4.8%
Moved to the region in the last five years	20.5%	18.9%	18.9%	18.8%	15.8%

Table 3-3: Number of properties exposed*





SA1 and Township	total properties	Erosion Prone Area		High Storm tide Inundation		Medium Storm Tide Inundation		Bushfire Prone Area		Landslide	
		# of lots	% of lots	# of lots	% of lots	# of lots	% of lots	# of lots	% of lots	# of lots	% of lots
302 – Seaforth North	227	118	52%	21	9%	28	12%	227	100%	7	3%
Special purpose	2	2	100%	2	100%	2	100%	2	100%	1	50%
Sport and recreation	1	1	100%	1	100%	1	100%	1	100%		0%
Township	199	99	50%	3	2%	5	3%	199	100%	2	1%
312- Seaforth South	252	150	60%	57	23%	250	99%	219	87%	12	5%
Community facilities	10	2	20%	2	20%	10	100%	9	90%	1	10%
Sport and recreation	2	2	100%	2	100%	2	100%	2	100%		0%
Township	234	140	60%	47	20%	232	99%	202	86%	7	3%
315 – Cape Hillsborough and Belmunda	187	62	33%	48	26%	59	32%	184	98%	97	52%
Rural	170	47	28%	35	21%	44	26%	168	99%	84	49%
Tourism	2	2	100%		0%	2	100%	2	100%	2	100%
317 – Seaforth to Mt Ossa	265	38	14%	38	14%	39	15%	241	91%	148	56%
Community facilities	2		0%		0%	1	50%	2	100%	1	50%
Low density residential	3		0%		0%		0%	3	100%		0%
Rural	105	18	17%	18	17%	19	18%	105	100%	87	83%
Special purpose	9		0%		0%		0%	9	100%	3	33%
Township	130	5	4%	5	4%	5	4%	112	86%	47	36%
320 – Haliday and Ball bays	361	160	44%	35	10%	140	39%	322	89%	55	15%
Community facilities	2	1	50%	1	50%	1	50%	2	100%	1	50%
Rural	6	5	83%	4	67%	4	67%	6	100%	3	50%
Special purpose	1		0%		0%		0%	1	100%	1	100%
Township	335	144	43%	22	7%	126	38%	298	89%	43	13%
Grand Total	1292	528	41%	199	15%	516	40%	1193	92%	319	25%

3.1.1 Belmunda

This area includes the catchment of Nobbler Creek, skirting and crossing Miers Road and Belmunda Road to Belmunda Beach. The township is a cluster of 15 residential-sized properties (800 – 1000 m²) all in the rural zone on Macartney Drive, directly accessing Pietzner Esplanade. Both streets are unformed. There are no services or infrastructure networks at Belmunda. Some dwellings are built across two lots and some lots are vacant, therefore total number of dwellings appears to be 12 with numerous outbuildings and tanks.

The residential street is nestled between low lying wetlands and intertidal area of Nobbler Creek at below 10m RL AHD and a headland rising to 50m RL AHD. Both Miers and Belmunda roads are unsealed as is the alternate route on old Cape Hillsborough Road. There is no flood warning infrastructure on these roads. Tracks indicate local launch boats off the beach.





Table 3-4: Hazard Identification – Belmunda

Hazard	Description
 BUSHFIRE	<ul style="list-style-type: none"> Mapped bushfire includes areas of high, very high and medium risk across the township. The township is separated from other areas of risk by low-lying wetland and therefore it is most susceptible from fires starting within the immediate area rather than by fire spreading from other areas which would reach the community and risk is confined to localised ignition. Evacuation challenges may exist if evacuation is not undertaken early, safe shelter in place may not be available. Housing stock is largely of an age which is not constructed to current bushfire protection standards. The closest RFS is at Seaforth and there is no water source at Belmunda save for domestic tanks. Limited asset protection (separation) from hazard is available.
 FLOOD	<ul style="list-style-type: none"> The Queensland Flood Assessment Overlay (QFAO) entirely covers Belmunda (although accuracy at the headland at 40m higher than surrounding wetlands is reduced). As described above, the community is perched on a headland between two tributaries and on the seaward side of their respective tributaries and intertidal areas. It is expected that in times of good rains and high tides, the Belmunda Road will be inundated. The characteristics of the location do not appear to promote fast flowing waters.
 LANDSLIDE	<ul style="list-style-type: none"> Landslide hazard is confined to the headland. There are a number of residences on the edge of this area which may be affected by debris flow in times of extreme rainfall, which may act as a trigger. The access route to Yakapari-Seaforth Road is relatively flat and traverses cane fields and wetlands.
 COASTAL HAZARDS	<ul style="list-style-type: none"> The Belmunda community is impacted by: <ul style="list-style-type: none"> The erosion prone area - which includes sea level rise. The high-risk storm tide inundation. The medium risk storm tide inundation. Macartney Drive residences are elevated a few meters above the storm tide extent. There is no storm tide evacuation map for Belmunda. Belmunda Road is impacted by storm tide inundation all the way back to Dunwoody Road, effectively creating an island. As the road is unsealed it presents a greater vulnerability for access in or out should inundation occur. The road may be completely washed away.

3.1.2 Cape Hillsborough

For the purposes of this table, Cape Hillsborough includes the area at the end of Cape Hillsborough Road, the visitor areas in the bay and National Park day-use areas, the Cape Hillsborough Resort and the council roads which lead to these areas from Smalleys Beach Road west.





Table 3-5: Hazard Identification - Cape Hillsborough

Hazard	Description
 BUSHFIRE	<ul style="list-style-type: none"> Mapped bushfire includes areas of high, very high and medium fireline intensity across the cape and bay areas. These areas have significant elevation from the coast. Rate of spread of fire (speed) increases on uphill slopes. Under certain conditions, erratic fire behaviour may be experienced due to the terrain of the area. The resort area is moderately exposed however the road access has high and very high exposure. Evacuation challenges may exist if evacuation is not undertaken early, safe shelter in place may not be available. It is unlikely the resort is constructed to current bushfire protection standards. The closest RFS is at Holiday Bay.
 FLOOD	<ul style="list-style-type: none"> The QFAO is not mapped at Cape Hillsborough. Hyper local inundation may still occur due to the steep surrounding slopes as water cascades from the surrounding bushland to the lower areas including running across the access road. This type of flow may occur during periods of intense rainfall, have little warning and is potentially unsafe for people and vehicles. There are two unnamed creeks which cross Cape Hillsborough Road at the boardwalk area. There is no kerb and channel or stormwater system, but culverts dominate the entry road conveying surface water from the slopes to the north.
 LANDSLIDE	<ul style="list-style-type: none"> Landslide hazard is confined to the steep slopes surrounding the resort and beach area. There are slopes to the north and south of the public recreation areas. As for bushfire and flash flooding the road is exposed to steep slopes which may cause access or evacuation issues where a landslide occurs in association with intense rainfall or a cyclone. Landslide could impact the southern areas of the resort and access to the walking trails and lookout.
 COASTAL HAZARDS	<ul style="list-style-type: none"> Cape Hillsborough is impacted by: <ul style="list-style-type: none"> The erosion prone area - which includes sea level rise. The high-risk storm tide inundation. The medium risk storm tide inundation. To varying degrees across the resort and national park. Generally, the coastline is quite steep and while all areas are impacted, the extent inland is not significant. It is noted that the storm tide mapping does not cover the resort or public recreational areas. As for other hazards, the Cape Hillsborough Road is exposed especially from storm tide around the boardwalk area. There is no storm tide evacuation map for Cape Hillsborough.

3.1.3 Smalleys Beach

The Smalleys Beach area includes Smalleys Beach Road and Kippen Drive. Smalleys Beach itself is a Queensland Parks and Wildlife camping ground with an informed access track. The small area is characterised by lifestyle allotments, especially along both sides of Kippen Drive.





Table 3-6: Hazard identification - Smalleys Beach

Hazard	Description
 <p>BUSHFIRE</p>	<ul style="list-style-type: none"> Mapped bushfire includes areas of very high, high and mostly medium fireline intensity across the area stretching from Cape Hillsborough Road north to the Smalleys beach coastline. Almost all properties are completely covered by either bushfire hazard or the buffer area. The buffer area is still affected by radiant heat flux and ember attack, and to a lesser degree potential for flame content in immediate proximity to vegetation. The topography is generally flat with low-lying wetlands of Spring Creek. There is some thick vegetation at Smalleys Beach, however the area is dominated by relatively cleared lifestyle lots. The closest RFS is at Holiday Bay.
 <p>FLOOD</p>	<ul style="list-style-type: none"> The QFAO is not mapped at Smalleys Beach. Spring Creek crosses Kippen Drive and the watercourse travels through the lifestyle lots. Road access to Smalleys Beach is unsealed from Cape Hillsborough Drive. Flash flooding and intense rainfall events may cause localised issues.
 <p>LANDSLIDE</p>	<ul style="list-style-type: none"> Landslide hazard is confined to the north end of Kippen Drive where steep slopes meet the boundaries of the lifestyle lots. Exposure may be exacerbated where the land has been cleared to the boundary. Likely events include debris flow from intense rainfall events.
 <p>COASTAL HAZARDS</p>	<ul style="list-style-type: none"> The community is impacted by: <ul style="list-style-type: none"> The erosion prone area - which includes sea level rise along the Smalleys beach frontage. The high-risk storm tide inundation. The medium-risk storm tide inundation within the spring creek wetlands and tributaries. There are a number of residences on Kippen drive which are completely inundated on the east side of Kippen drive and the storm tide would potentially cover the road in the vicinity of spring creek crossing. Storm tide also covers Smalleys Beach Road. A storm tide evacuation map is available for the north end of Kippen Drive.

3.1.4 Holiday Bay

Holiday Bay is a small township bounded by Holiday Bay Road to the south and Adamson Street which backs onto the boundary of the Cape Hillsborough National Park. The area includes the small bay and the rocky point which is residential in nature. The Halliday Bay Resort and Golf Course is in the centre of the settlement.





Table 3-7: Hazard identification - Holiday Bay

Hazard	Description
 <p>BUSHFIRE</p>	<ul style="list-style-type: none"> Mapped bushfire includes areas of high, very high and medium fireline intensity across the township. The highest hazard stems from the steep slopes behind the township sharing a boundary with Cape Hillsborough National Park. Moderate hazard is also found in the bushland on the western side of the bay and the Seaforth Creek delta. All the dwellings on Holiday Bay Road are either in the moderate hazard area or the buffer zone, which is still subject to potential radiant heat flux and ember attack. The Holiday Bay Road is impacted by high and very high bushfire hazard for a large proportion back to Cape Hillsborough Road. The township has an RFS shed which is also in the moderate hazard area.
 <p>FLOOD</p>	<ul style="list-style-type: none"> The QFAO is mapped in the Seaforth Creek area which may impact Holiday Bay on Headland Drive (below right). The flood overlay impacts the intersection with Cape Hillsborough Road and the Seaforth Creek crossing further west. There are a number of overland flow paths off the steep slopes which may carry fast flowing water in times of intense rainfall.
 <p>LANDSLIDE</p>	<ul style="list-style-type: none"> Landslide hazard is confined to the steep slopes behind Holiday Bay Road and Adamson Street dwellings. The slopes do not impact the dwellings directly, however as evidenced in consultation some homes have experienced debris flow from the slopes through the dwellings.
 <p>COASTAL HAZARDS</p>	<ul style="list-style-type: none"> The Holiday Bay community is impacted by: <ul style="list-style-type: none"> The erosion prone area - which includes sea level rise and extends into the Holiday Bay foreshore. The high-risk storm tide inundation which generally hugs the rocky shoreline. The medium risk storm tide inundation which penetrates the community across the golf course from the low-lying wetlands of Seaforth Creek. The storm tide evacuation map shows significant areas in the brown and orange zones, however most of the dwellings are in the yellow or blue zone.

3.1.5 Ball Bay

Ball Bay is a small settlement nestled in the bay and accessed from Ball Bay Road. It is surrounded by relatively steep slopes to the north and west, the bay to the east and the wetlands of Spring Creek to the south.





Table 3-8: Hazard identification - Ball Bay

Hazard	Description
 <p>BUSHFIRE</p>	<ul style="list-style-type: none"> Mapped bushfire includes areas of high, very high and medium fireline intensity across the township. Importantly the access road and surrounds are also mapped as subject to high and very high hazard. The dwellings within the township are not within the mapped hazard extent but are entirely within the buffer area which continues to be subject to radiant heat flux and ember attack. These dwellings are largely unlikely to be constructed to bushfire standards. The closest RFS is as Haliday Bay.
 <p>FLOOD</p>	<ul style="list-style-type: none"> The QFAO is not mapped across Ball Bay, however run off from the very steep hill behind the settlement could cause disruption and damage in intense rainfall events. The external roads may be impacted by floods and affected access such as Cape Hillsborough Road at Seaforth Creek.
 <p>LANDSLIDE</p>	<ul style="list-style-type: none"> Landslide hazard is confined to the steep slopes. The slopes from sturgeon street are approximately 25 per cent rising from 10 metres to 110 metres. The dwellings sharing a boundary with the steep slopes are exposed to debris flow and the potential for landslide from the steep slope.
 <p>COASTAL HAZARDS</p>	<ul style="list-style-type: none"> The community is impacted by: <ul style="list-style-type: none"> The erosion prone area, which includes sea level rise, covers all the dwellings parallel to the esplanade. The high-risk storm tide inundation impacts some dwelling on the esplanade and isolate the south end with sea water entering from spring creek. The medium- risk storm tide inundation impacts most of the community. The storm tide impacts the roads as well. The storm tide evacuation map has most of the community in a brown or orange area.

3.1.6 Seaforth

The Seaforth settlement includes the complete township area from the Cape Hillsborough Road turnoff to the Seaforth foreshore and residential uses north and south of the esplanade, along with settlement to Finlaysons Point and west to Victor Creek.

Table 3-9: Hazard identification - Seaforth

Hazard	Description
 <p>BUSHFIRE</p>	<ul style="list-style-type: none"> Mapped bushfire includes areas of high, very high and medium fire line intensity across the north end of the township. Importantly, while the dwellings have some buffer to bushfire, all roads in the area are exposed with vegetation on both sides. There is a significant expanse of bushfire prone area between the northern end of Seaforth and the area off Johnson Avenue. At the south end, the dwellings are separated from hazard, but these areas are high risk areas skirting the township to the west. Bushfire hazard is also present in the vicinity of the pines. Bushfire hazard is also very high on the slopes around Aviland Drive. Dwellings in the town are unlikely to be constructed to bushfire standards. The closest RFS is within the Seaforth township. There is also a rural / district RFS group.
 <p>FLOOD</p>	<ul style="list-style-type: none"> The QFAO maps Seaforth Creek and Victor Creek. In terms of Seaforth Creek, the one per cent AEP hugs the boundary of the township on the south end and does not encroach on any dwellings. For Victor Creek, the floodplain stretches across the road and boat ramp but does not impact dwellings. The flood water extent covers the road west of Johnson Avenue and takes up the area of Pichowski Reserve.
 <p>LANDSLIDE</p>	<ul style="list-style-type: none"> There is no landslide hazard mapped immediately surrounding the Seaforth township. There is some mapped extent on Aviland Drive, which impacts the dwellings below on Seaforth-Yakapari Road. The road is at approximately 10 metres and the peak at the communications tower is at 110m. There are a number of flow paths which may impact homes in intense rainfall events.
 <p>COASTAL HAZARDS</p>	<ul style="list-style-type: none"> The Seaforth community is impacted by: <ul style="list-style-type: none"> The erosion prone area – (which includes sea level rise) covers all of the northern end of Seaforth and the first two rows of dwellings from the esplanade to the south end. The high-risk storm tide inundation area breaks through at Sandfly Creek and also across the Yakapari-Seaforth Road. The medium risk storm tide inundation impacts many dwellings at the south end. The storm tide evacuation map has all dwellings in either brown or orange.

4 Risk Analysis for each Community

This section draws together the contextual information and exposure information to provide a summary risk analysis for each community using a simple traffic light system.

Table 4-1: Risk identification categories

Simplified Risk identification
Risk is lower due to absence of a key element or hazard. Impacts from this hazard would not interrupt normal function of the community.
Risk is evident and a number of localised factors may contribute to this. Impacts from this hazard would interrupt normal function of the community. Risk may be mitigable.
Risk is dominant and requires action. Local factors increase risk. Impacts from this hazard may permanently or significantly interrupt normal function of the community. Risk must be mitigated, or awareness raised.

The analysis approaches impacts from a community level and does not apply significant weight to broader regional matters, especially infrastructure. For example, energy networks are *all* vulnerable and potentially impacted during heatwaves, just as communication networks are *all* vulnerable during cyclonic events. The analysis focusses on place-based finer grained characteristics and circumstances.

4.1 Belmunda

Table 4-2: Belmunda risk analysis

	ENVIRONMENT	ECONOMY	COMMUNITY AND PEOPLE	ROADS AND TRANSPORT	INFRASTRUCTURE
BUSHFIRE	Fire in this location is isolated and limited to localised sources	There are no commercial premises at Belmunda	Isolation, age and health profile increases risk	The single road access contributes to risk levels	There are no public facilities, networks or assets at Belmunda.
FLOOD	The vegetation and topography lend themselves to fresh and saltwater intrusion	Can impact ability to access work	Road will likely be cut early and can cause isolation	The unformed road is vulnerable to wash out and damage	All private assets are at risk with no local RFS
LANDSLIDE	Negligible as steep topography is limited in Belmunda	Negligible as steep topography is limited in Belmunda	Negligible as steep topography is limited in Belmunda	Negligible as the road is not exposed	All private assets are at risk of flood however water is likely slow moving and low
COASTAL HAZARDS	The vegetation and topography lend themselves to fresh and saltwater intrusion	Can impact ability to access work	Long term isolation.	The unformed road is at risk of permanent inundation and more frequent saltwater intrusion	Some private assets at the south of Macartney Drive may be at risk of debris flow
HEATWAVE	While immediate risk from coastal hazards is low, the community is at risk of longer-term isolation and disconnection to the location of the access. The low-lying wetland vegetation as a breeding location may be impacted by heat	There are no commercial premises at Belmunda	Isolation, age, and health profile increases risk		There are no public facilities, networks, or assets at Belmunda. Access to household insurance will contribute to risk
CYCLONE	The low-lying wetland vegetation may be impacted by storms and vegetation damage on the slopes	There are no commercial premises, however individuals may be impacted through loss of property or employment	Isolation, age, and health profile increases risk, the ability to prepare and potentially be isolated for time after a cyclonic event.		There are no public facilities, networks, or assets at Belmunda.

4.2 Cape Hillsborough

Table 4-3: Cape Hillsborough risk analysis

	ENVIRONMENT	ECONOMY	COMMUNITY AND PEOPLE	ROADS AND TRANSPORT	INFRASTRUCTURE
BUSHFIRE	Fire can surround the area and impact the access route. As a National Park, damage can be extensive to protected areas	The resort is a primary attraction and employer. The park is similarly a cornerstone of visitors to the area	Although there are no private dwellings, visitors are likely to be vulnerable for a range of reasons	The single road access contributes to risk levels	There is limited public facilities, networks or assets at Cape Hillsborough All private assets are at risk with no local RFS
FLOOD	The vegetation and topography lend themselves to fresh and saltwater intrusion	Can impact ability to access the Park and resort, but would be short lived	Roads could be cut for short periods, but potentially swift and dangerous	The road is somewhat vulnerable but unlikely to sustain significant damage	Private assets have minimal exposure
LANDSLIDE	The steep topography hugs the public areas. The landslide may impact areas valuable to visitors	The steep topography hugs the public areas. The landslide may impact areas valuable to visitors	Negligible as low numbers of people and the resort is clear of the steep land.	The road is exposed in small sections	Only roads are exposed, and potentially QPWS trails or lookout Private assets may have low risk were downstream
COASTAL HAZARDS	The vegetation and topography lend themselves to fresh and saltwater intrusion	Buildings are clear of coastal hazards; Visitation may be impacted if the boardwalk is damaged	Negligible as low numbers of people and the resort is clear of the steep land.	The road is at risk of inundation during a storm tide	Only roads are exposed and potentially the QPWS boardwalk
HEATWAVE	Sensitive vegetation and species may be impacted by heat	Visitor numbers may be impacted for prolonged events	Isolation, age, and health profile increases vulnerability. Visitors may not be used to high temperatures	The road is not significantly impacted	There are no public facilities, networks, or assets at Cape Hillsborough
CYCLONE	Protected vegetation may be impacted by storms and vegetation damage on the slopes	The resort may suffer damage which takes time to repair. Loss of employment	Isolation, age, and health profile increases vulnerability. Visitors may have no knowledge of cyclones	The road may have washouts or fallen debris	All private property is at risk which may require assessment of structural integrity. Access to insurance will contribute to vulnerability

Mackay Local Disaster Management Group












4.3 Smalleys Beach

Table 4-4: Smalleys Beach risk analysis

	ENVIRONMENT	ECONOMY	COMMUNITY AND PEOPLE	ROADS AND TRANSPORT	INFRASTRUCTURE
BUSHFIRE	Fire can surround the area and impact the access route. As a National Park, damage can be extensive to protected areas	There are no commercial premises at Smalleys. Visitation may be impacted	Isolation, age and health profile increases risk of health issues associated with smoke inhalation	The single road access contributes to risk levels	There are no public facilities, networks or assets at Smalleys. All private assets are at risk with no local RFS
FLOOD	The topography lends itself to fresh and saltwater intrusion around Spring Creek	There is no mapped flood hazard	No significant population exposed	The unformed road is vulnerable to wash out and damage from intense rainfall	Negligible private assets are at risk of flood however some are in flow paths
LANDSLIDE	Negligible as steep topography is limited to the north end of Kippen Drive	Negligible as steep topography is limited to the north end of Kippen Drive	Negligible as steep topography is limited to the north end of Kippen Drive	Negligible as the road is not exposed	Some private assets may be at risk of debris flow from the steep slopes
COASTAL HAZARDS	The low-lying topography lends itself to and saltwater intrusion from Spring Creek	Negligible impacts. There are no commercial premises at Smalleys Beach	Negligible impacts. Residential properties are relatively clear	Negligible impacts. May damage the unsealed portion to Smalleys Beach	Access to household insurance will contribute to risk for private assets exposed in Kippen Drive
HEATWAVE	The low-lying wetland vegetation as a breeding location may be impacted by heat	Visitor numbers may be impacted for prolonged events	Isolation, age and health profile increases vulnerability. Visitors may not be used to high temperatures	The road is not significantly impacted	There are limited public facilities, networks or assets Smalleys or Kippen Drive
CYCLONE	The low-lying wetland may be impacted by storms and vegetation damage on the slopes and National Parks	Individuals may be impacted through loss of property or employment	Isolation, age, and health profile increases risk, the ability to prepare and potentially be isolated for time after a cyclonic event	The road and evacuation routes are at risk of inundation closure, wash out and be unsafe to evacuate	All private property is at risk which may require assessment of structural integrity. Access to household insurance will contribute to vulnerability












4.4 Holiday Bay

Table 4-5: Holiday Bay risk analysis

	 ENVIRONMENT	 ECONOMY	 COMMUNITY AND PEOPLE	 ROADS AND TRANSPORT	 INFRASTRUCTURE
 BUSHFIRE	Fire in this location can spread through the steep terrain, impacting a large expanse of bushland	There is limited impact. The resort is not directly affected	Isolation, age and health profile increases risk of respiratory issues	The single road access contributes to risk levels - the access road is impacted by fire risk on both sides	There are limited public facilities, networks or assets. Private assets are at risk. However, there is an RFS in the community
 FLOOD	Negligible impacts. There is no mapped flood hazard	Negligible impacts. There is no mapped flood hazard	Negligible impacts. There is no mapped flood hazard	Negligible impacts within the community, but access may be cut back to the highway and Seaforth	Negligible impacts. There is no mapped flood hazard
 LANDSLIDE	Potential for impacts for dwellings	Negligible impacts as the commercial uses are clear of the hazard	Some people may be at risk of debris flow	Negligible as the road is not exposed	Some private assets may be at risk of debris flow
 COASTAL HAZARDS	Damage to areas frequented by visitors including beaches and foreshore	Operation of the resort, caravan area and foreshore damage may deter visitors	Lack of insurance cover and loss of valued beach may impact community recovery	Negligible impacts – storm tide may overtop Headland Drive	There are limited public facilities, networks or assets exposed save those on the foreshore
 HEATWAVE	The low-lying wetland vegetation as a breeding location may be impacted by heat in Seaforth Creek	Visitor numbers may be impacted for prolonged events	Isolation, age and health profile increases vulnerability. Visitors may not be used to high temperatures	The road is not significantly impacted	There are limited public facilities, networks or assets at Holiday Bay
 CYCLONE	Vegetation may be impacted by storms and bring down trees and debris the slopes	Resort closure may impact the community and through loss of property or employment	Isolation, age, and health profile increases risk, the ability to prepare and potentially be isolated for time after a cyclonic event	The road and evacuation routes are at risk of inundation, closure and may be unsafe to evacuate	All private property is at risk which may require assessment of structural integrity. Access to household insurance will contribute to impacts

4.5 Ball Bay

Table 4-6: Ball Bay risk analysis

	 ENVIRONMENT	 ECONOMY	 COMMUNITY AND PEOPLE	 ROADS AND TRANSPORT	 INFRASTRUCTURE
 BUSHFIRE	Fire in this location can spread through the steep terrain, impacting a large expanse of bushland	There are no commercial premises at Belmunda	Isolation, age and health profile increases risk of respiratory issues	The single road access contributes to risk levels - the access road is impacted by fire risk on both sides	There are limited public facilities, at risk. All private assets are at risk with local RFS located at Holiday Bay
 FLOOD	The topography lends itself to fresh and saltwater intrusion around Spring Creek	Negligible impacts. There is no mapped flood hazard	Negligible impacts. There is no mapped flood hazard	Negligible impacts within the community, but access may be cut back to the highway and Seaforth	Negligible impacts. There is no mapped flood hazard
 LANDSLIDE	Potential for impacts for dwellings	Negligible impacts as there are no commercial enterprises at Ball Bay	Some people may be at risk of debris flow	Negligible as the road is not exposed	Some private assets may be at risk of debris flow
 COASTAL HAZARDS	Damage to areas frequented by visitors including beaches and foreshore	Lack of insurance cover may impact community recovery	Lack of insurance cover and loss of valued beach may impact community recovery	Potential impacts for community roads, however evacuation remains open (unless cut at Seaforth)	Public facilities, networks or assets exposed on the foreshore which includes a toilet block and BBQ area
 HEATWAVE	The low-lying wetland vegetation as a breeding location may be impacted by heat	There are no commercial premises at Ball Bay	Isolation, age, and health profile increases risk, Ability to locate cool places	The road is not impacted by heat	There are limited public facilities, networks or assets at Ball Bay impacted by heat
 CYCLONE	Vegetation may be impacted by storms and bring down trees and debris the slopes	There are no commercial premises, however individuals may be impacted through loss of property or employment	Isolation, age, and health profile increases risk and the ability to prepare. Residents may potentially be isolated after a cyclonic event	The road and evacuation routes are at risk of inundation or closure and may be unsafe to evacuate	All private property is at risk which may require assessment of structural integrity. Access to household insurance will contribute to impacts

4.6 Seaforth

Table 4-7: Seaforth risk analysis

	ENVIRONMENT	ECONOMY	COMMUNITY AND PEOPLE	ROADS AND TRANSPORT	INFRASTRUCTURE
BUSHFIRE	Fire in this location can spread through the steep terrain, impacting a large expanse of bushland and public reserves	If fire spreads it may impact commercial and community premises	Isolation, age and health profile increases the risk of respiratory issues	The single road access is impacted by fire risk on both sides. Potential for isolation if fire separates parts of the community	Many public and private assets are at risk with local RFS located at Seaforth and a district brigade in the rural area.
FLOOD	The vegetation and topography lend themselves to fresh and saltwater intrusion	Can impact the ability to access work if roads are cut	Road will likely be cut early and can cause isolation	Yakapari-Seaforth and Cape Hillsborough roads are vulnerable to flash flooding and damage	There is limited infrastructure impacted by flood in the community
LANDSLIDE	Negligible as steep topography is limited in Seaforth	Negligible as steep topography is limited in Seaforth	Negligible as steep topography is limited in Seaforth	Yakapari Seaforth Road may be impacted in areas such as the Seaforth rage during intense rainfall	Some private assets at Aviland Drive may be impacted
COASTAL HAZARDS	The vegetation and topography lend themselves to fresh and saltwater intrusion	Lack of insurance cover may impact community recovery	Lack of insurance cover and loss of valued beach may impact community recovery	Potential impacts for community roads, and isolation of parts of the community	Public facilities, networks or assets are exposed on the foreshore which includes the new parklands, public camping ground, enclosure and boat ramp at Victor Creek
HEATWAVE	The low-lying wetland vegetation as a breeding location may be impacted by heat	Commercial premises operations may be impacted (eg fuel pumps)	Isolation, age, and health profile increases risk. Ability to locate cool places	The road is not impacted by heat	Public facilities (eg splash park) may be in high demand, community hall is not air conditioned
CYCLONE	Vegetation may be impacted by storms and bring down trees and debris the slopes	Commercial premises operations, and individuals may be impacted through loss of property or employment	Isolation, age, and health profile increases risk, the ability to prepare and potentially be isolated for time after a cyclonic event	The road is at risk of inundation closure, wash out, debris, landslide and be unsafe to evacuate	All private property is at risk which may require assessment of structural integrity. Access to household insurance will contribute to risk

5 Resilience Pathways

The CSIRO developed the Resilience Adaptation Pathways and Transformation Approach (RAPTA) to help practitioners navigate resilience improvements. The RAPTA was modified to suit the Queensland context by the QRA. The RAPTA shapes the design and implementation of programs for achieving resilience in highly dynamic decision contexts. The key messages stemming from the CSIRO work are provided in Box 1 and illuminate the complex nature of decision making in natural hazards preparedness and resilience.

The RAPTA model is underpinned by primary principles of active learning and adaptive governance. These are applied through three channels for transformation:

1. People dialogue and visions.
2. Systems and analysis.
3. Options and pathways to action.

The Hibiscus Coast Local Resilience Plan focused on the first channel during engagement; the systems analysis in the preceding risk assessment reflects channel two; and this document presents the channel three options and pathways for actions.

The RAPTA is focused on the dynamic post-event situation, and the community decision-making time. The three pathway options include: to bounce back by doing the same thing (rebuilding, going back to 'normal'), opting for betterment (mitigation) to ensure future safety, or realising that things need to be done differently (adapting) to ensure future safety (See Figure 5-1).

This highlights the long-term nature of resilience as distinct from disaster management. While the two concepts share many principles and overlap, a resilience action plan focusses on decisions and actions that decrease the need for event-based responses. Bouncing back in itself is difficult to define as this depends on the depth of the shock and the underlying stresses.

Chronic stresses are underlying systemic issues that localised actions cannot control, such as megatrends, population, literacy, social inequality, natural environment health, digital connectivity and climate change. Chronic stresses create uncertainty about the longer-term future and weaken the fabric of a place on a day-to-day or cyclical basis. Periodic stresses place pressure on the coping mechanisms of community on a daily basis, but some of these can be alleviated through resilience

KEY MESSAGES – RAPTA RESILIENCE PATHWAYS MODEL

- It is widely understood that approaches need to change as events are changing and so is our society.
- Resilience is multifaceted – some components are obvious and easy to address, such as insurance (where available) whereas other aspects are complex and involve personal circumstances such as the tension between health issues and place attachment.
- Tradeoffs are inevitable. Every person, community or organisation makes decisions based on personal risk tolerance and values.
- Greater collaboration at all levels and scales is needed to support long-term resilience.

Box 1: RAPTA key messages

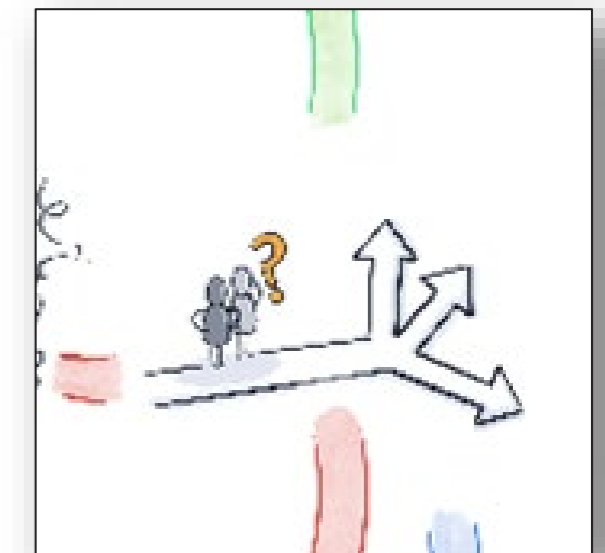


Figure 5-1: At a crossroads: RAPTA presents three decision pathways for the future.

Source: CSIRO

enhancing actions. Over time, tolerance to these stresses may give way to significant socio-economic and environmental impacts on the wellbeing of people and community. Meanwhile, **acute shocks** are sudden, short-term events that threaten a place, region or catchment scale in a single event and are closely related to disaster management.

Many communities are now experiencing **compounding stresses**. Events are no longer isolated and the time to recover is uncertain between bushfires and cyclones. When a strong understanding of risk prevails, there is a greater opportunity to address acute shocks through resilience decisions. **Resilience seeks to recognise and address longer term stresses and shocks while being cognisant of underlying trends.**

The following figure (Figure 5-2) was developed for the Hibiscus Coast context and shows the contributing trends stresses and potential shocks and how they impact or can be influenced.

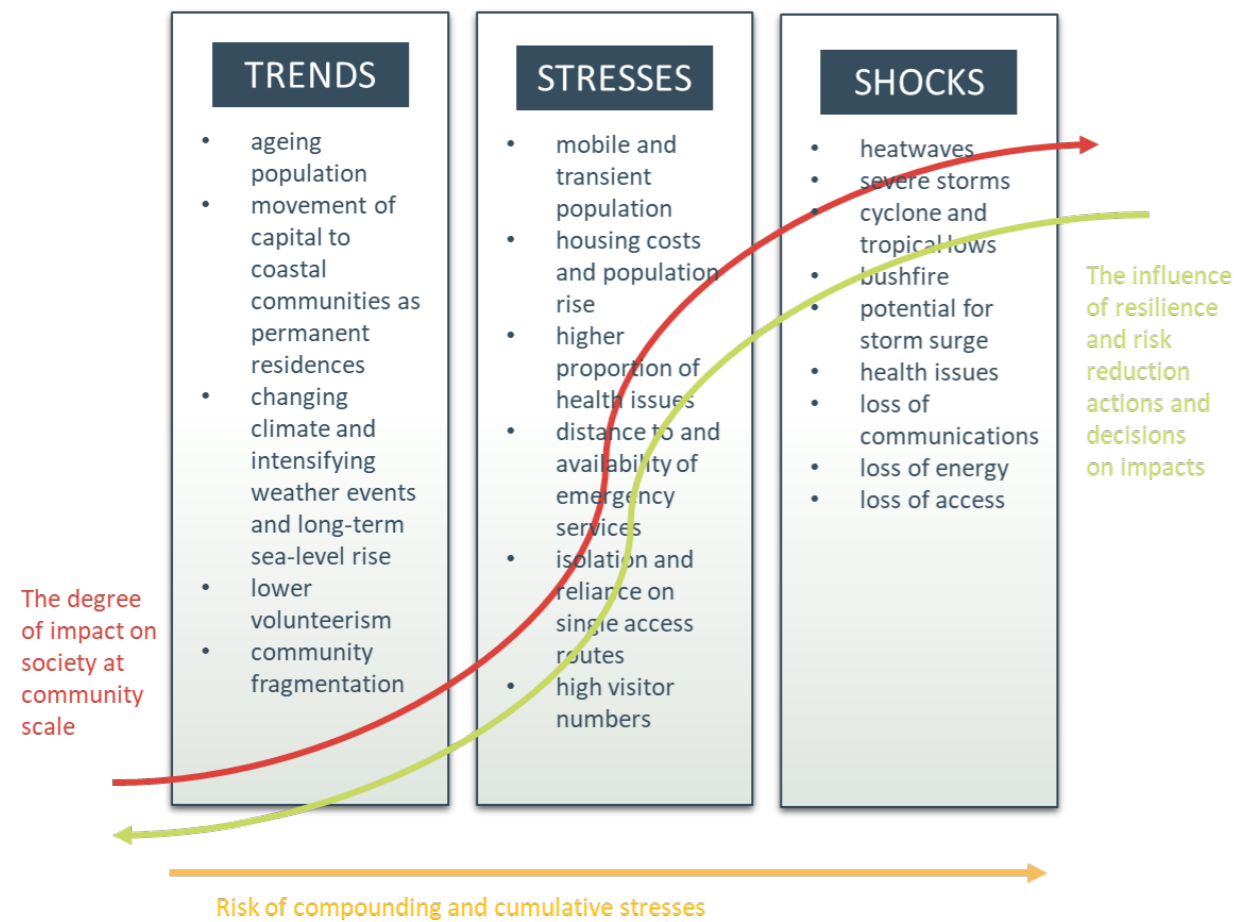


Figure 5-2: Hibiscus Coast trends, stresses and shocks impact and influence

The following resilience pathways approach is developed specifically as a result of the Hibiscus Coast engagement and risk assessment process. It shows the type of actions that can be characterised along the three pathways.

Section 6 below provides a more formal action plan and for further information and details on this project, outcomes, recommendations and observations, please refer to the accompanying Technical Evidence Report.

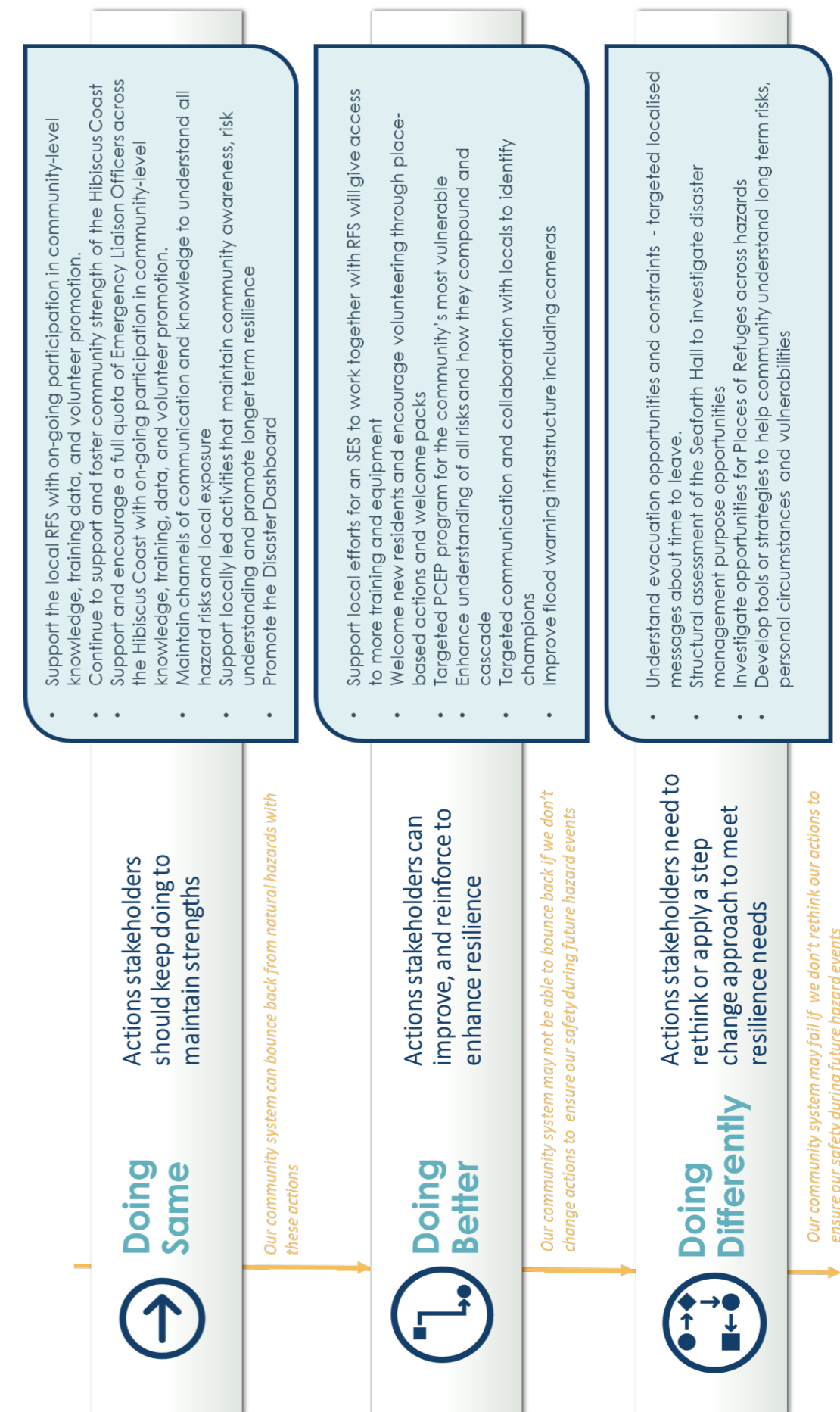


Figure 5-3: Hibiscus Coast resilience pathways

6 Resilience in Action

The resilience action plan for the Hibiscus Coast is targeted at actions that council can drive, facilitate or partner. It is oriented at the community scale and specific to the Hibiscus Coast, although some actions are applicable across the board. There are many other actions the community and individuals can take on for themselves. The table below sets out relevant actions against the QSDR statewide initiatives and goals.

Table 6-1: Resilience Actions

QSDR strategic commitment	Hibiscus Coast Place-Based Resilience Action response
Objective 1 – We understand the potential disaster risks we face	
C1.1 Embed disaster risk reduction, mitigation and resilience into decision making	<ul style="list-style-type: none"> Ensure risk reduction and resilience actions are considered in all disaster management activities including LDMP review and as the first option for mitigation at the governance scale. Foster, support and drive actions that embed disaster risk reduction and resilience building at the community scale in all disaster management activities. Deliver information on personal and property scale vulnerability and decision making that enhances resilience.
C1.2 Drive attitudinal, cultural and behavioural change across the state, enabling Queenslanders to anticipate, respond and adapt to disaster impacts	<ul style="list-style-type: none"> Continue to roll out the local resilience plan project across the Mackay region to build community resilience and inform the LDMG and associated roles and responsibilities. Foster and support existing community strengths to maintain Hibiscus Coast volunteering and cohesion levels.
C1.3 Understand the risks associated with a changing climate	<ul style="list-style-type: none"> Ensure place-based risk assessment are complete for each resilience plan or by the LDMG for specific localities to inform risk and response knowledge. Ensure heatwave is included in all community awareness projects. Focus on multi hazard messages (eg landslide and coastal erosion) and extend messaging beyond weather events to evacuation issues, access to emergency services and the like for Hibiscus Coast where response is highly constrained. Update the storm tide evacuation maps to include new modelling from the Mackay Coastal Hazard Adaptation Strategy.
C1.4 Increase community awareness and preparedness for all hazards through community engagement	<ul style="list-style-type: none"> Continue to roll out the local resilience plan project across the Mackay region with a focus on purposeful and effective community engagement to harness community strength and motivation. Identify community champions to forward resilience messaging. Prepare community awareness project that focus on longer term resilience rather than event-based decisions – this should include an understanding of personal exposure and vulnerability. Shape messaging around specific evacuation issues for Hibiscus Coast - consider self-shelter types of messages so they don't conflict with formal ones. Consider integrating Facebook feeds from all agencies (not just council) on to front of the Disaster Dashboard to stop residents from going to other sources for information. Consider a dedicated Mackay Disaster Management Facebook page.

	<ul style="list-style-type: none"> Proactively maintain regular communications and events, training and information with the Hibiscus Coast community on resilience and risk reduction. Explore opportunities for a local version of Get Ready day.
C1.5 Initiate research and evaluation projects to promote the positive trajectory of building resilience in Queensland	<ul style="list-style-type: none"> Initiate and evaluate local resilience planning through the Monitoring framework that accompanies this project.
Objective 2 – We work together to better manage disaster risk	
C2.1 Address systemic disaster risk by coordinating across stakeholders and sectors	<ul style="list-style-type: none"> Provide opportunity for engagement, discussion, training and other circumstances at community scale between emergency services, LDMG, ELOs, volunteers and community with a disaster management focus. Update the evacuation subplan with localised 2021 census data and guidance from the 2023 Australian Institute of Disaster Resilience Evacuation Handbook.
C2.2 Develop locally led and community-based solutions to the impacts of disasters	<ul style="list-style-type: none"> Continue to roll out the local resilience plan project across the Mackay region with a focus on purposeful and effective community engagement to harness community champions and place-based action plans. Support local SES group development to work in harmony with existing RFS. Support the ELO program and provide robust program inclusion and training to retain officers.
C2.3 Build partnerships across community, industry, research organisations and government to better manage disaster risk and strengthen resilience	<ul style="list-style-type: none"> Provide opportunity for engagement, discussion, training and other circumstances at community scale between emergency services, LDMG, volunteers and community with a resilience focus on longer term and community-led decision making.
C2.4 Implement the Queensland Flood Risk Management Framework	<ul style="list-style-type: none"> Explore the principles of the QFRMF to determine the flood narrative for the Hibiscus Coast.

Objective 3 – We seek new opportunities to reduce disaster risk	
C3.1 Enhance risk reduction, mitigation and capacity building programs drawn from local need	<ul style="list-style-type: none"> • Create programs that stimulate conversations on individual roles and responsibilities for personal vulnerabilities (such as the P-CEP program for the highly vulnerable) that are fit for purpose for the Hibiscus Coast community profile. • Review the Greater Whitsunday Regional Resilience Strategy - Local Action Plan component - for already identified actions that are applicable to local resilience planning. • Commence a program of active risk reduction burning around critical infrastructure and council assets through the three local RFS branches. • Investigate options for RFS / SES to close flooded roads from the Hibiscus Coast side under LDMG / QPS direction.
C3.2 Deliver more resilient infrastructure to enhance connectivity and supply chain resilience	<ul style="list-style-type: none"> • Explore options for greater Flood warning infrastructure on Seaforth-Yakapari Road, Seaforth Creek and Cape Hillsborough Road, including flood cameras and automated signage. • See also C4.1. • Review essential services to Hibiscus Coast in emergency events (eg extent and duration of water supply from local sources without electricity, amount of time available to receive electronic communications after electricity fails at mobile phone towers) to better inform response capabilities and constraints.
C3.3 Protect and enhance the natural environment through effective land use planning	<ul style="list-style-type: none"> • Ensure the Mackay CHAS is integrated into the planning scheme. • Ensure resilience is integrated into the planning scheme through the strategic narratives.
C3.4 Promote the incorporation of risk reduction in all planning and development	<ul style="list-style-type: none"> • Ensure the Mackay CHAS is integrated into the planning scheme. • Consider including (pluvial) flash flooding and overland flow into the planning scheme and Level 1 flood information where local studies are not available.
C3.5 Encourage innovation in urban area design for living with the impacts of disasters	<ul style="list-style-type: none"> • Promote the QRA resilient building suite of guidance materials (and others) at community scale. • Ensure community is aware of insurance implications. • Promote tropical design to combat heatwave conditions.
C3.6 Further the understanding and management of natural landscapes to reduce the impacts and effects of disaster events	<ul style="list-style-type: none"> • Foster and maintain relationships with QPWS officers in the Cape Hillsborough region. • Implement actions from the CHAS on shoreline erosion management. • Harness any opportunities for council or other volunteer groups' environmental initiatives that may benefit from Hibiscus Coast community input and assistance.
C3.7 Build greater individual and business resilience and preparedness	<ul style="list-style-type: none"> • Make available business continuity planning for Seaforth and Cape Hillsborough businesses, seek opportunities to raise their existing resilience profiles as community champions.

Objective 4 – We continually improve how we prepare for, respond to, and recover from disasters	
C4.1 Align investment pathway opportunities to local needs	<ul style="list-style-type: none"> • Identify fundable capital works such as: <ul style="list-style-type: none"> ○ The Seaforth Creek crossing upgrade to assist evacuation options. ○ The Seaforth Hall air conditioner to provide public cool spaces. ○ Identify improvements for the Seaforth Hall to meet Standards for Places of Refuge. ○ Outcomes of essential services review at C3.2. ○ Review disaster mitigation funding opportunities for primary and alternate road access improvement under extreme weather conditions.
C4.2 Identify adaptation opportunities following disasters and recognising the impacts of climate change	<ul style="list-style-type: none"> • Embed the culture of “doing differently” for decision making post-event.
C4.3 Drive continuous improvement in disaster management in Queensland via assurance frameworks and accompanying Strategy performance measures	<ul style="list-style-type: none"> • Create a system of debrief for ELOs after events for improvement and training purposes. • Create a system of debrief for RFS and SES or informal feedback loops to improve local actions. • Ensure monitoring and evaluation frameworks are utilised and report back systems are in place. • Complete a (desktop) Hibiscus Coast evacuation exercise for training purposes.

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