

# Warraber Island Master Plan

Prepared for

Department of Seniors, Disability Services and  
Aboriginal and Torres Strait Islander Partnerships  
and Torres Strait Island Regional Council



# Warraber Island Master Plan

## Contact Information

### Cardno (Qld) Pty Ltd

ABN 57 051 074 992

15 Scott Street

Paramatta Park

Cairns QLD 4870

Australia

www.cardno.com

Phone +61 7 4034 0500

## Project Information

Prepared for  
Department of Seniors,  
Disability Services and  
Aboriginal and Torres Strait  
Islander Partnerships and  
Torres Strait Island Regional  
Council

Project Name  
Torres Strait Master Planning

Job Reference  
Insert job reference

## Document Information

File Reference  
Q194171-004.08WR.R28.001 -  
Warraber Island Master Plan

Date  
31 March 2022

Version Number  
002

Author(s):

Helena Charlton

Principal Planner

Approved By:

Stephen Whitaker

Senior Planner, Technical Lead - Planning

Effective Date  
9/03/2022

## Document History

Version	Effective Date	Description of Revision	Prepared by	Reviewed by
001	29/06/2020	First Draft	Helena Charlton	Stephen Whitaker
002	09/03/2022	Final	Camilla Lee	Camilla Lee



## Table of Contents

1	Introduction	4
1.1	Purpose	4
1.2	Structure	4
1.3	Relationship to the Zenadth Kes Planning Scheme	4
1.4	Acknowledgement	4
2	Vision	6
3	Community Aspirations	7
4	Projects	8
4.1	Land Use Categories	8
4.2	Project Listing	9
4.3	Project Detail	10
5	Infrastructure	29
5.1	Topography/Climate Change	29
5.2	Roads	29
5.3	Stormwater	29
5.4	Water Supply	29
5.5	Sewerage	30
5.6	Electricity Supply and Street Lighting	31
5.7	Telecommunications	31
6	Action Plan	32

## Appendices

<b>Appendix A</b>	Master Plan Map	4
<b>Appendix B</b>	Master Plan Project Index	4
<b>Appendix C</b>	Action Plan Summary	4
<b>Appendix D</b>	Infrastructure Costings	4
<b>Appendix E</b>	Precinct Plans	4
<b>Appendix F</b>	Analytical Translation	6

## Tables

Table 4-1	Project Listing	9
Table 6-1	Action Plan	32

## Figures

Figure 1-1	Master Plan Elements	5
------------	----------------------	---

## 1 Introduction

### 1.1 Purpose

Torres Strait Island Regional Council (TSIRC), with the support of the Department of Aboriginal and Torres Strait Islander Partnerships (DATSIP), has developed the Warraber Island Master Plan. The Warraber Island Master Plan is intended to be used by TSIRC, Prescribed Body Corporates (PBCs), State agencies, service providers and the broader community to inform planning decisions in relation to future development.

The Warraber Island Master Plan seeks to guide the future use of land on Warraber Island in a manner that is cognisant of community needs, demands and aspirations. The Warraber Island Master Plan identifies a range of future residential; industrial; commercial / tourism; community facilities; and recreation and open space development projects. The Master Plan has been prepared to ensure the orderly, efficient and effective use of land in a way that is reflective of relevant opportunities and constraints. The Master Plan seeks to coordinate the actions of a range of different stakeholders to maximise the benefits of new development projects to the community.

The Warraber Island Master Plan is a living document endorsed by TSIRC, intended to be progressively updated as new development occurs to reflect the changing needs and aspirations of the community.

### 1.2 Structure

The Warraber Island Master Plan includes the following elements:

- > A **Master Plan Map**, provided as **Appendix A**;
- > A **Vision**, provided in Chapter 2;
- > **Community Aspirations**, provided in Chapter 3;
- > **Master Plan Projects**, the details of which are articulated in Chapter 4; and
- > An **Action Plan**, provided in Chapter 6.

The Master Plan is also supported by a separate Technical Report.

The relationship between these elements is shown in **Figure 1-1**.

### 1.3 Relationship to the Zenadth Kes Planning Scheme

The Warraber Island Master Plan is intended to identify a high level strategic direction for the future development of Warraber Island having regard to all relevant planning considerations, including the *Zenadth Kes Planning Scheme* ('the Planning Scheme').

The Master Plan does not replace or alter the Planning Scheme as it relates to Warraber Island and does not change current development approval requirements. Projects or works identified by the Master Plan may require development approvals and/or changes to the Planning Scheme and these are identified in the Master Plan itself as appropriate.

The Planning Scheme forms part of the statutory town planning framework established under the *Planning Act 2016*, which provides for the regulation of development activity. The Master Plan is a non-statutory strategic planning document intended to guide decision making with regard to the long term development of Warraber Island. It may be appropriate in certain circumstances for TSIRC to amend the Planning Scheme to reflect findings of the Master Plan. Recommendations in this regard are made in the Master Plan.

### 1.4 Acknowledgement

Gogobithiay (land, sea and sky) is fundamental to the Torres Strait Islander way of life. Gogobithiay cannot be separated into land, sea and sky and it cannot exist without the Torres Strait people.

The Warrber Island Master Plan acknowledges the native title holders, The Warraberalgal (the Warraber People) as the traditional custodians of Warraber Island. The Master Plan also acknowledges all community members.

Any person proposing to undertake development on Warraber Island should pay respect to The Warraberalgal's custodianship of the island by seeking permission to use its resources and ensuring that development acknowledges the special and ongoing cultural relationship of the Warraber Island community with Gogobithiay.

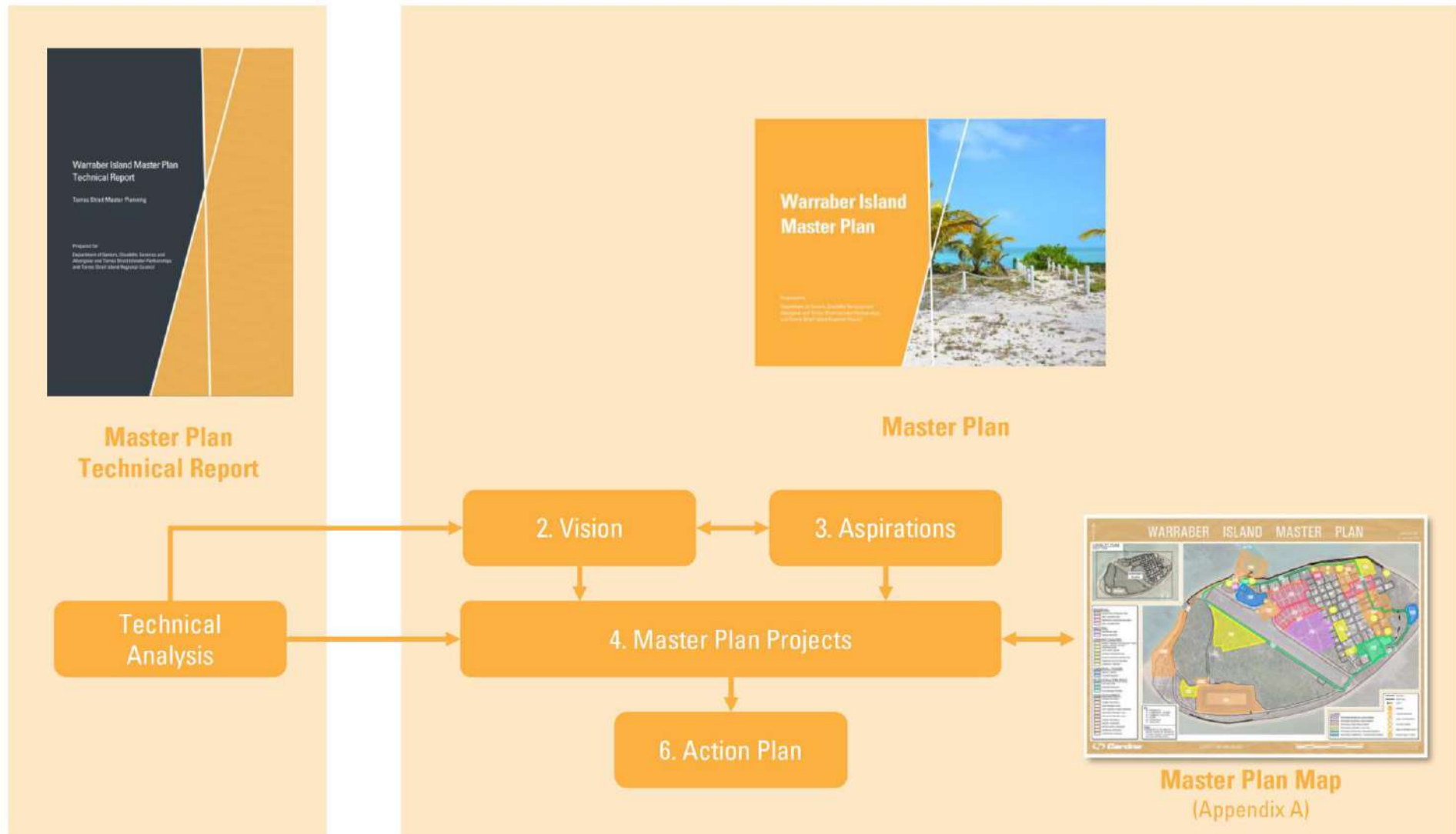


Figure 1-1 Master Plan Elements



## 2 Vision

***Warraber Island** will develop in a manner that maximises a range of opportunities in urban and economic development to improve the social and economic environment of the local community.*

*Development will consolidate and enhance the clear settlement pattern of the island and provide improved accessibility and embellishments throughout. The island will further promote its established role as a place for tourism, through the provision of facilities and infrastructure that enhance the visitor experience. The establishment of new areas for visitor accommodation and improved accessibility to the island by air and sea will promote sustainable social and economic development for the community. The inclusion of dedicated arts centre and community facility improvements will promote the regions rich history and culture.*

*Opportunities for new business enterprises should be embraced, particularly those that have a connection to marine activities, to provide access for local jobs and services. The establishment and promotion of research and education facilities will also provide opportunities for local employment and skills building.*

*The CBD's accessibility will be improved and its role in providing key day to day commercial, community and recreational services will be consolidated.*

*Warraber Island's population is accommodated in dedicated residential areas that will expand and relocate from coastal hazards where possible. A community that is accessible for all ages and abilities will be promoted.*

*New development should seek to improve the quality of services provided to the community, including water and sewerage infrastructure, roads, lighting, and telecommunications access.*



## 3 Community Aspirations

- > The Warraber Island community will be provided with housing that meets its needs.
- > The Warraber Island community will be provided with access to key community services that support the day to day needs of its residents, including shopping/business, child care and health care.
- > The Warraber Island community will expand local business and enterprise opportunities, to support economic activity and local employment, particularly in the sectors of tourism, research, training and marine industry.
- > The Warraber Island community will celebrate its culture, history and character and this will be reflected through the protection of existing facilities and features and new development such as arts and cultural centres.
- > The Warraber Island community will be easily accessed from the surrounding region by air and sea.
- > The Warraber Island community will increase physical activity, for both movement and recreation, through the use of dedicated facilities and networks.
- > The Warraber Island community will have access to quality urban infrastructure services.
- > The Warraber Island community will be responsive to the changing environment including sea level rise, tidal inundation and climate change

## 4 Projects

### 4.1 Land Use Categories

The consideration of land uses as part of the Warraber Island Master Plan has been undertaken using a number of land use categories. An explanation of each land use category is provided below.

Residential	Commercial / Tourism	Recreation and Open Space
Residential land uses primarily relate to the provision of housing. Residential land may support a range of dwelling types of varying scale (for example, single low-rise homes, duplexes, and unit complexes). Open space is often integrated within residential areas to soften the built environment and provide land for passive and active recreation.	Commercial land uses typically involve business activities which may include the sale of goods (such as shops and cafes) or services (such as offices and medical centres).  Tourism land uses also involve business activities, however these are focussed on providing goods, services, facilities and entertainment for tourists. Examples of tourism land uses include tourist parks, accommodation and businesses operating tours.	Recreation land uses support the provision of land for recreational activities, which may be organised or informal. This includes sporting facilities such as fields, courts, stadiums and arenas, rodeo grounds, walking / cycling paths and outdoor exercise equipment.  Open space areas provide dedicated natural spaces throughout an urban area enhance the beauty and environmental quality of neighbourhoods. They may include formalised landscaping also comprise recreational opportunities.  Recreation and open space areas are commonly collocated.
Industrial	Community Facilities	Other
Industrial land uses generally involve the manufacturing, processing, treatment or repair of goods. Industrial land uses involve varying degrees of intensity and severity, generally linked to their potential level of impact on nearby land uses associated with their emissions (such as air, noise and odour). Examples of industrial land uses include manufacturing plants, processing plants, mechanical workshops, transport depots, storage sheds and warehouses.	Community facilities land uses support the delivery of community services or provide community benefit. Community facilities include uses for health services, education (schools and colleges), arts and culture, religion, community support, civic infrastructure (water, sewer, waste, transport and other similar facilities), employment and training.	The “Other” land use category has been used to describe other uses and projects which commonly support the primary land uses. This may include infrastructure projects such as new roads or urban services and civic improvements such as beautification and landscaping.



## 4.2 Project Listing

**Table 4-1** provides a listing of projects identified by the Master Plan. Further detail is provided in relation to each project as follows:

- > The land to which each project relates is identified by the Warraber Island Master Plan Map, a copy of which is provided as **Appendix A**.
- > Key details relating to each project are outlined in Section 4.3 of this report.
- > A summary of the Master Plan projects is provided in the project index included as **Appendix B**.
- > Detailed breakdowns of the infrastructure costings for each project are provided in **Appendix D**.

Table 4-1 Project Listing

<b>RS1</b>	Residential Expansion Area	<b>CF1</b>	Market Garden / Food Security Area	<b>OT1</b>	Connecting Road 1
<b>RS2</b>	Infill Housing West	<b>CF2</b>	Landfill Protection and Expansion Area	<b>OT2</b>	Connecting Road 2
<b>RS3</b>	Residential Investigation Area	<b>CF3</b>	Child Care Centre	<b>OT3</b>	Land Rehabilitation
<b>RS4</b>	Infill Housing East	<b>CF4</b>	Sacred Site Protection	<b>OT4</b>	Jetty and Boat Ramp Upgrades
<b>ID1</b>	Enterprise Area	<b>CF5</b>	Place of Worship Protection	<b>OT5</b>	CBD North Precinct Plan
<b>ID2</b>	Fishing Industry	<b>CF6</b>	Cemetery Protection Area	<b>OT6</b>	CBD South Precinct Plan
<b>CT1</b>	Arrival Centre	<b>CF7</b>	Community Precinct	<b>OT7</b>	Connecting Road 3
<b>CT2</b>	Tourism Precinct	<b>OS1</b>	Path Network	<b>OT8</b>	Airport Upgrades
<b>CT3</b>	Environmental Tourism	<b>OS2</b>	Sporting Precinct	<b>OT9</b>	Water Supply Upgrades
		<b>OS3</b>	Playground Upgrade	<b>OT10</b>	Sewerage Upgrades
				<b>OT11</b>	Foreshore Upgrades
				<b>OT12</b>	Telecommunications Upgrades
				<b>OT13</b>	Carbon and Renewable Energy Opportunities

Note: Projects CT3, OT11, OT12 and OT13 are not shown on the Master Plan Map provided as **Appendix A**.

## 4.3 Project Detail

### Residential Projects

The Master Plan has identified a range of residential projects in order to accommodate an anticipated demand for eight additional dwellings whilst also providing additional land to support future demand. The Master Plan also includes projects that seek to diversify the housing products provided on Warraber Island. These key directions were identified as part of the technical analysis which is documented in the Warraber Island Master Plan Technical Report. Further detail is also provided in **Appendix F**.

RS1 Residential Expansion Area				
<b>Summary</b> A large vacant land parcel located at the north western end of the township, accessed from Garnier Street and between the airport and the existing residential area has been identified as a residential expansion area. This land is identified as being suitable for the long-term demand of the community for residential purposes where required. Further investigation of the land is required to identify the extent to which it could be developed having regard to coastal hazard impacts.  <b>Recommendations</b> Explore whether land requires filling or other coastal management works to address coastal hazard impacts to facilitate future development. It may be necessary to identify the future land use intent of this land in the Planning Scheme, which would require an amendment to be undertaken.	New Lots		12 Lots	
	Lot Size		940m <sup>2</sup> -1,624m <sup>2</sup>	
	Priority		Short Term	
	Infrastructure Cost		\$5,117,381	
	Associated Projects		RS2	OT1
	Key Actions		1	8
			7	

## RS2 Infill Housing West

### Summary

West of the northern town centre, three vacant residential allotments are identified for infill housing opportunities. Future development of these lots should accommodate a range of housing products that maximise the location of the land proximate to the core of the township.

New Lots	3 Lots (existing)
Lot Size	1,031m <sup>2</sup> -1,276m <sup>2</sup>
Priority	Short Term
Infrastructure Cost	\$1,119,485
Associated Projects	RS1
Key Actions	

## RS3 Residential Investigation Area

### Summary

Land on the southern side of Garnier Street immediately opposite **RS1** is identified for long term residential expansion. This land may be appropriate for the establishment of residential properties, particularly where existing residents need to relocate due to high coastal hazard risks and impacts. This land is more centrally located to the island away from the coastline and adjoins the existing residential township, forming a logical extension for long-term residential development. The residential area would be accessible from Garnier Street or via an extension of James Street (**OT2**). Development of the land will need to consider the provision of an appropriate interface to the adjoining airstrip.

New Lots	14 Lots
Lot Size	778m <sup>2</sup> -1,082m <sup>2</sup>
Priority	Long Term
Infrastructure Cost	\$2,873,653
Associated Projects	RS1 OT2
Key Actions	1 7

### Recommendations

Explore whether land requires filling or other coastal management works to address coastal hazard impacts to facilitate future development.

It may be necessary to identify the future land use intent of this land in the Planning Scheme, which would require an amendment to be undertaken.



RS4 Infill Housing East		
<b>Summary</b> Immediately south of the northern town centre, seven residential allotments that are significantly vacant or sparsely developed are identified for infill housing opportunities. Future development of these lots should accommodate a range of housing products that maximise the location of the land proximate to the core of the township. The owners / residents of the existing houses should be consulted with prior to development of this land	New Lots	6 Lots (existing)
	Lot Size	660m <sup>2</sup> -1,624m <sup>2</sup>
	Priority	Long Term
	Infrastructure Cost	\$3,307,869
	Associated Projects	-
	Key Actions	-

## Industrial Projects

The Master Plan provides opportunities for industry, enterprise and other business development. This key direction was identified as part of the technical analysis which is documented in the Warraber Island Master Plan Technical Report. Further detail is also provided in **Appendix F**.

ID1 Enterprise Area			
<b>Summary</b> A large vacant land area west of the existing town area and east of the airport is identified as a potential enterprise area for industry development. The area would be accessed by an extension of Ioane Street. Future development of the area would need to ensure that an appropriate interface was provided to future residential land ( <b>RS3</b> ) to the north. Access to the land would also be improved through proposed road upgrades ( <b>OT2</b> ).	New Lots	4 Lots	
	Lot Size	4,823m <sup>2</sup> -7,830m <sup>2</sup>	
	Priority	Long Term	
	Infrastructure Cost	\$3,977,439	
	Associated Projects	RS3	OT2
	Key Actions	1	4
ID2 Fishing Industry			
<b>Summary</b> In order to support the local fishing industry, the community is seeking to provide a range of infrastructure proximate to the boat ramp and jetty, including a seafood butchery and commercial freezer. It is likely that this project will be delivered in coordination with the Torres Strait Regional Authority (TSRA).  <b>Recommendations</b> It may be necessary to identify the future land use intent of this land in the Planning Scheme, which would require an amendment to be undertaken.	New Lots	N/A	
	Lot Size	N/A	
	Priority	Medium Term	
	Infrastructure Cost	\$633,602	
	Associated Projects	OT4	
	Key Actions	4	7

## Commercial / Tourism Projects

The Master Plan seeks to ensure that the community is provided with sufficient access to commercial land uses. The Master Plan also seeks to promote the development of uses and infrastructure associated with tourism, in appropriate locations. These key direction were identified as part of the technical analysis which is documented in the Warraber Island Master Plan Technical Report. Further detail is also provided in **Appendix F**.

CT1 Arrival Centre					
<b>Summary</b> The Master Plan has identified an Arrival Centre adjacent to the jetty/boat ramp. This node is intended to serve a variety of purposes, including providing arrival services for tourists and visitors and formalising various infrastructure associated with passenger movements from the jetty. The arrival centre may also provide opportunities for tourist accommodation and an art centre.	New Lots	N/A			
	Lot Size	N/A			
	Priority	Short Term			
	Infrastructure Cost	\$2,344,847			
	Associated Projects	CT2	OS1	OT1	OT4
	Key Actions	4			

CT2 Tourism Precinct					
<b>Summary</b> Warraber Island is one of the few Torres Strait Islands which encourages tourist visitations and provides existing dedicated visitor accommodation. The existing facilities (currently utilised by TSIRC workers) are to be maintained and improved to encourage economic development through the tourism industry. Further development of the tourism precinct should be coordinated with the Arrival Centre ( <b>CT1</b> ) and the Path Network ( <b>OS1</b> ). Ultimately, it is anticipated that CT2 will be managed by the PBC.	New Lots	N/A			
	Lot Size	N/A			
	Priority	Short Term			
	Infrastructure Cost	\$2,331,320			
	Associated Projects	CT1	OS1		
	Key Actions	4			



CT3 Environmental Tourism			
<b>Summary</b> Opportunity exists in various locations throughout the island for the environmental values of the area to be protected and enhanced for the benefit of tourist activities aimed at the appreciation of any unique environmental features or areas. Any tourism operations should occur in a manner that is sensitive to the fragility of the natural environment, to ensure it can be sustained over the long term.	New Lots	N/A	
	Lot Size	N/A	
	Priority	Medium Term	
	Infrastructure Cost	N/A	
	Associated Projects	-	
	Key Actions	4	6

## Community Facilities Projects

The Master Plan seeks to promote the protection and expansion of key community facilities. The Master Plan also provides opportunities for the establishment of new community facilities where demand exists. These key directions were identified as part of the technical analysis which is documented in the Warraber Island Master Plan Technical Report. Further detail is also provided in **Appendix F**.

CF1 Market Garden / Food Security Area				
<b>Summary</b> An area of land to the west of the airstrip has been identified as being suitable for the development of market gardens or other cropping activities that can supply the community with fresh produce. Further investigation of this land should be undertaken to identify suitable areas for the establishment of these uses. The establishment of local agricultural uses will improve the food security of the community, improve community health and provide a potential source of economic activity through the trading of surplus food with neighbouring communities. The interface of the area with the Landfill Protection and Expansion Area (CF2) should be appropriately defined.	New Lots	N/A		
	Lot Size	N/A		
	Priority	Medium Term		
	Infrastructure Cost	N/A		
	Associated Projects	CF2	OS1	OT7
	Key Actions	1	6	
	<b>Recommendations</b> The viability of the market garden will be largely dependent on a reliable supply of freshwater. Future investigations of this project would be required to determine whether such supply exists or is capable of being reasonably provided and any environmental protection constraints being resolved.			

## CF2 Landfill Protection and Expansion Area

### Summary

The landfill located to the west of the airstrip is an important piece of infrastructure that should be protected from encroachment by incompatible development. The future needs of the community should also be identified, so that land for the expansion of this infrastructure (if required) can also be protected. Ongoing future use of the site should also seek to improve the efficiency of operations so that use of the facility is minimised where possible. The interface of the area with the Market Garden / Food Security Area (CF1) should be appropriately defined.

### New Lots

N/A

### Lot Size

N/A

### Priority

Short Term

### Infrastructure Cost

N/A

### Associated Projects

CF1

OT7

### Key Actions

3

## CF3 Child Care Centre

### Summary

The community has identified a need for child care facilities, which the Master Plan will deliver either through an expansion of any existing child care facilities or the provision of additional facilities to diversify the service. Child care services should be expanded as demand necessitates.

Child care has been acknowledged as a regional issue which comprises significant complexity with regard to legal compliance. On this basis it is anticipated that future child care services will be delivered as a coordinated service covering multiple islands or the entire region.

### Recommendations

Child care has the potential to be delivered in a new dedicated facility, improved existing dedicated facility or provided through in home child care services. The delivery model for child care is to be explored further with consultation required to ensure that specific needs are identified and aspirations are appropriately met.

### New Lots

N/A

### Lot Size

N/A

### Priority

Short Term

### Infrastructure Cost

N/A

### Associated Projects

-

### Key Actions

3

6



## CF4 Sacred Site Protection

### Summary

The Master Plan has identified the location of sacred sites that should be protected for the benefit of all members of the community. As part of the protection of the area, the community value of the site should be documented. Where access to the site is in keeping with the community and cultural value, this should be sensitively facilitated. Opportunity may exist to provide tourism access, again where in keeping with the value of the site.

### New Lots

N/A

### Lot Size

N/A

### Priority

Ongoing

### Infrastructure Cost

N/A

### Associated Projects

-

### Key Actions

3

4

6

9

## CF5 Place of Worship Protection

### Summary

The Master Plan has identified that existing places of worship should be protected and maintained as an important asset to the local community. Further embellishment of the existing structures and/or grounds may be appropriate where it is in keeping with the character and nature of the site.

### New Lots

N/A

### Lot Size

N/A

### Priority

Ongoing

### Infrastructure Cost

N/A

### Associated Projects

-

### Key Actions

3

9

## CF6 Cemetery Protection Area

### Summary

The cemetery, located south of the Esplanade, should be subject to ongoing protection to ensure that the cultural and spiritual connection of the community with this land is maintained. Where appropriate, improvements such as access works and fencing may be provided, however any such works should be undertaken sensitively. As part of the protection of the area, the community value of the site should be documented.

The future needs of the community will need to be met through the identification of additional land that is suitable to accommodate a second cemetery. Site selection should be undertaken in consultation with the community.

### New Lots

N/A

### Lot Size

N/A

### Priority

Ongoing

### Infrastructure Cost

N/A

### Associated Projects

-

### Key Actions

3

6

9

## CF7 Community Precinct

### Summary

The Master Plan identifies a parcel of land (Lot 59 on SP270859) located between Ioane, Phillemon and Dadus Streets, which already accommodates a well and community garden, as the location of a future Community Precinct. The Master Plan seeks to facilitate the community aspirations for improved access to community facilities, services and community spaces through the development of this land.

### New Lots

N/A

### Lot Size

N/A

### Priority

Medium Term

### Infrastructure Cost

N/A

### Associated Projects

-

### Key Actions

3

6

## Recreation and Open Space Projects

The Master Plan seeks to provide improved opportunities for recreation, through the provision of an integrated network of active transport infrastructure and the identification of land for dedicated sporting facilities. These key directions were identified as part of the technical analysis which is documented in the Warraber Island Master Plan Technical Report. Further detail is also provided in **Appendix F**.

OS1 Path Network				
<b>Summary</b> A pathway network has been identified across Warraber Island, connecting the western and eastern parts of the township, whilst also providing a loop around the west of the airport.  The pathway network will serve to improve connectivity whilst also supporting recreational opportunities and enhanced access to sacred sites (where appropriate). Development of the pathway network should be combined with supporting infrastructure such as seats, lighting and landscaping to improve its contribution to the community.	New Lots	N/A		
	Lot Size	N/A		
	Priority	Short Term		
	Infrastructure Cost	\$625 per metre (concrete) \$400 per metre (gravel) \$200 per metre (earth)		
	Associated Projects	-		
	Key Actions	2		
OS2 Sporting Precinct				
<b>Summary</b> A large vacant area at the southern end of the township west has been identified as a potential location for a multipurpose sports facility that has links to the southern CBD and the pathway network around the island. The provision of a grass surface in this location is a high priority to facilitate community use.	New Lots	N/A		
	Lot Size	N/A		
	Priority	Long Term		
	Infrastructure Cost	\$1,798,841		
	Associated Projects	OS1		
	Key Actions	1	2	6
<b>Recommendations</b> Site specific investigation are required including coastal hazard impact assessment for site suitability.				

## OS3 Playground Upgrade

### Summary

The existing playground facilities located south of the jetty (on Lot 87 on SP270859) has been identified by the community as requiring maintenance and overall upgrading to improve its ability to be used by the community. Delivery of the playground upgrade may be coordinated with the path network (**OS1**).

### New Lots

N/A

### Lot Size

N/A

### Priority

Medium Term

### Infrastructure Cost

To Be Costed

### Associated Projects

OS1

### Key Actions

2



## Other Projects

The Master Plan identifies a range of other projects intended to ensure the community is serviced with appropriately located facilities and infrastructure. These projects have been identified in response to direct community needs and include precinct plans, further investigations and new/upgraded infrastructure. These key directions were identified as part of the technical analysis which is documented in the Warraber Island Master Plan Technical Report. Further detail is also provided in **Appendix F**.

OT1 Connecting Road 1					
<b>Summary</b> To facilitate an orderly and connected community Connecting Road 1 is identified as a project to improve connection from future housing and enterprise precincts to the Esplanade Road and the jetty/boat ramp, allowing for improved community access throughout the township and from port and airport arrivals.	New Lots	N/A			
	Lot Size	N/A			
	Priority	Short Term			
	Infrastructure Cost	\$773,711			
	Associated Projects	RS1	CT1	OT4	OT8
	Key Actions	3			

OT2 Connecting Road 2					
<b>Summary</b> An extension of James Street (west) towards the airport has been identified to facilitate the orderly development of the large vacant land parcels identified for the establishment of future uses associated with projects <b>RS3</b> and <b>ID1</b> of the Master Plan.	New Lots	N/A			
	Lot Size	N/A			
	Priority	Medium Term			
	Infrastructure Cost	\$1,687,201			
	Associated Projects	RS3	ID1		
	Key Actions	3			

## OT3 Land Rehabilitation

### Summary

An area of informal landfill is located at the arrival gateway to the island adjacent to the jetty/barge ramp and next to a sacred site. This area is considered incompatible with the current and future utility and economic opportunities to be established in this prominent location. The area is identified for remediation and all landfill activities are to be consolidated to the areas of CF2.

### New Lots

NA

### Lot Size

NA

### Priority

Short Term

### Infrastructure Cost

N/A

### Associated Projects

CT1

CF2

OT4

### Key Actions

3

4

## OT4 Jetty and Boat Ramp Upgrades

### Summary

The jetty and boat ramp located to the north-west of the township is a key arrival and departure location for people and goods. Further improvements in this location will support the efficient and safe use of this facility, whilst also expanding the ability for it to be used in a manner that supports economic activity. Upgrades may include in water works such as channel works and dredging, markers and a rockwall while on land works may include a freezer, parking, storage and setdown areas.

Jetty and boat ramp upgrades are a common project across all communities within the region. It is anticipated that required upgrades may be delivered as a regional work package which is progressively rolled out across each community.

### New Lots

N/A

### Lot Size

N/A

### Priority

Short Term

### Infrastructure Cost

To Be Costed

### Associated Projects

OS1

### Key Actions

4

6

8

### Recommendation

It is recommended that all improvement works are identified in consultation with key stakeholders using the jetty and boat ramp.

## OT5 CBD North Precinct Plan

### Summary

The protection and expansion of the primary administrative and commercial functions of Warraber Island should be supported through the dedicated planning of the CBD North Precinct. The precinct is at the northern end of the island with a direct link to the esplanade and jetty/ boat arrivals area and forms a key arrival zone. The development of this precinct should be coordinated with the CBD South Precinct (OT6).

A copy of a preliminary Precinct Plan is provided as **Appendix E**.

New Lots	N/A			
Lot Size	N/A			
Priority	Medium Term			
Infrastructure Cost	N/A			
Associated Projects	RS4	CF6	OS1	OT6
Key Actions	4			

## OT6 CBD South Precinct Plan

### Summary

A southern CBD is identified surrounding the second supermarket and encompassing other facilities such as the school and police station. Dedicated planning of the CBD South Precinct will ensure it positively contributes to the ongoing development of the community. The development of this precinct should be coordinated with the CBD North Precinct (OT5).

A copy of a preliminary Precinct Plan is provided as **Appendix E**.

New Lots	N/A			
Lot Size	N/A			
Priority	Long Term			
Infrastructure Cost	N/A			
Associated Projects	CF3	CF5	OS1	OT5
Key Actions	4			

## OT7 Connecting Road 3

### Summary

An upgraded road corridor linking the jetty and township to the western side of the island has been identified. The upgrading of this road connection has the potential to support a range of other projects.

### Recommendations

Subject to coastal hazard investigation. An inland unformed road corridor adjacent project areas CF1 and CF2 is an alternate corridor to investigate for access should the coastal route be inappropriate because of hazards.

### New Lots

N/A

### Lot Size

N/A

### Priority

Medium Term

### Infrastructure Cost

\$3,966,918

### Associated Projects

CF1

CF2

OT11

### Key Actions

8

## OT8 Airport Upgrades

### Summary

In order to improve access to Warraber Island and the utility of airport infrastructure, further upgrades to the airstrip should be investigated. These upgrades may include night time lighting for night landing; terminal and waiting area facilities; storage and maintenance facilities; car parking and ancillary facilities; improving the arrival experience and improving the interface with surrounding land. At all times, lighting at the airport must be maintained in the event of a medical evacuation.

### New Lots

N/A

### Lot Size

N/A

### Priority

Medium Term

### Infrastructure Cost

To Be Costed

### Associated Projects

OT1

### Key Actions

6

## OT9 Water Supply Upgrades

### Summary

The water supply network should be upgraded to meet current and future demand and treatment standards. Details of specific works and upgrades required upgrades are provided in Chapter 5 of the Master Plan.

### New Lots

N/A

### Lot Size

N/A

### Priority

Short Term

### Infrastructure Cost

To Be Costed

### Associated Projects

-

### Key Actions

3

## OT10 Sewerage Upgrades

### Summary

The sewerage network should be upgraded to meet current and future demand and treatment standards. Details of specific works and upgrades required upgrades are provided in Chapter 5 of the Master Plan.

### New Lots

N/A

### Lot Size

N/A

### Priority

Short Term

### Infrastructure Cost

To Be Costed

### Associated Projects

-

### Key Actions

3



## OT11 Foreshore Upgrades

### Summary

The foreshore at the western end of the island has been identified as an area requiring upgrades and embellishment for community use. Upgrades to this area may include seating and sheltered areas, defined pathways, playground equipment, public amenities, dune and vegetation restoration and a designated parking area. Further investigation of the land is required to identify the extent to which it could be developed having regard to coastal hazard impacts.

### New Lots

N/A

### Lot Size

N/A

### Priority

Medium Term

### Infrastructure Cost

N/A

### Associated Projects

-

### Key Actions

6

8

## OT12 Telecommunications Upgrades

### Summary

The community's access to telecommunications should be improved to ensure that coverage is available throughout the township, its immediate surrounds where activity occurs and within the surrounding ocean to allow ease of communication with vessels, particularly in an emergency. Various upgrades should be identified in consultation with service providers.

### New Lots

N/A

### Lot Size

N/A

### Priority

Short Term

### Infrastructure Cost

To Be Costed

### Associated Projects

-

### Key Actions

6

## OT13 Carbon and Renewable Energy Opportunities

### Summary

As explained in the Warraber Island Master Plan Technical Report, the Queensland Government has identified a target to be carbon neutral by 2050. A variety of opportunities exist across Warraber Island to implement carbon initiatives that can assist in achieving this target. Key opportunities including renewable energy installations (wind and solar), reductions in fossil fuel use, carbon burning and blue carbon. Further investigations should be undertaken to identify suitable initiatives and potential sites. These opportunities also provide the potential to generate employment for the local community.

<b>New Lots</b>	N/A
<b>Lot Size</b>	N/A
<b>Priority</b>	Medium Term
<b>Infrastructure Cost</b>	N/A
<b>Associated Projects</b>	-
<b>Key Actions</b>	6

## 5 Infrastructure

In order to support future residential, industrial, commercial, tourism, community facilities, recreation and open space development on Warraber Island in accordance with the Master Plan, upgrades to existing infrastructure networks and new infrastructure will be required as detailed below. High level costings of supporting infrastructure are included in **Appendix D**.

### 5.1 Topography/Climate Change

Warraber Island is an elliptical coral cay. The community is located on the eastern side of the island above the current Highest Astronomical Tide (HAT) level, except for the low beach flats around the resort area, which are subject to inundation during King Tides. The highest ground level is six (6) metres above sea level. The undeveloped portion of the island is covered with vine forest.

All new development should be constructed above HAT level to protect residents and the community from inundation. The community is protected by an existing low seawall and low sand ridges.

Costings of infrastructure upgrades required do not include the cost of any future seawall, wave return wall and berms required to protect the community from tidal surge inundation associated with future climate change sea level rises.

### 5.2 Roads

Some existing roads within the community are surfaced with concrete pavers with the balance constructed from graded and compacted sandy soil. For durability, new roads should be constructed six (6) metres wide in either 150 mm thick fibre reinforced concrete or concrete pavers to match the existing road surfaces. Roads to be provided with either a 300 mm wide concrete edge strip or mountable kerb and channel either side as appropriate.

### 5.3 Stormwater

The Queensland Urban Drainage Manual (QUDM) provides current criteria for the design of stormwater drainage in urban residential developments. QUDM generally requires systems for primary drainage in streets to carry 39% Annual Exceedance Probability (AEP) (1 in 2 yr. ARI) runoff, and 1% AEP (1:100 yr. ARI) runoff for major drainage paths and cross road culverts, to limit flooding of public and private property to acceptable levels.

Due to ground levels within the community it is not considered feasible to install underground drainage systems, with surface drainage systems required. Care needs to be exercised to ensure that the stormwater drainage system performs in accordance with the requirements of QUDM.

Stormwater runoff captured from newly developed areas is required to be treated to remove nutrients from the runoff prior to discharge to the ocean. Runoff collected from new developments should be discharged over any future seawall barrier using dewatering pumps rather than outfall pipes penetrating the seawalls.

### 5.4 Water Supply

Raw water is sourced from direct rainfall capture stored in a raw water lagoon with a capacity of 24 ML and is augmented by a desalination plant with a maximum capacity of 40 kL per day. The supply of captured raw water for treatment is insufficient to meet current demand without further augmentation by the desalination plant. The cover over the raw water lagoon becomes contaminated with bird droppings which results in increased raw water turbidity, and a cover cleaning operational issue.

There is no available recorded pH data for Warraber Island, however the pH of the treated water should be maintained within the guideline recommended range of 6.5 to 8.5 to reduce corrosion and encrustation in pipes and fittings. Turbidity of the raw water supply ranges from <1.5 NTU to < 7.0 NTU, which exceeds the recommended maximum turbidity value of 1.0 NTU. Levels of iron, manganese, and aluminium are not recorded, but are expected to be within guideline requirements.

The existing water treatment plant capacity is required to be increased from 79 kL per day to 136.5 kL per day to meet current, and future demand at 350 l/c/d for Mean Day Maximum Month (MDMM) consumption. The current capacity of the treatment plant does supply sufficient treated water to meet current demand. The current storage capacity for treated water is a 90 kL steel panel ground level reservoir which is to be made redundant and replaced with a 150 kL stainless steel ground level storage tank. Storage capacity is required to be increased to 312.75 kL to meet current and future demand at target consumption. The reticulation system is pressurised using Variable Speed Drive (VSD) pumps.

Emergency standby power generation equipment should be installed to all critical infrastructure in the water supply system to maintain supply during loss of electricity supply.

Reticulation mains of adequate size are to be extended to all new development and be provided with fire hydrants and metered service connections.

Current per capita consumption of 391.66 litres per day exceeds the TSIRC's target consumption of 350 litres per person per day, which may be reduced through demand and leak detection management.

The following upgrades to the existing water supply network will be required to support planned future development:

- > Installation of a permanent desalination plant to provide not less than future average day demand of 91 kL per day;
- > Increase treatment plant capacity from 79 kL per day to 136.5 kL per day;
- > Increase clear water storage to 312.75 kL at target consumption;
- > Install coagulation/flocculation equipment to deduce turbidity to guideline levels;
- > Undertake leakage detection and rectification in the reticulation system to reduce wastage;
- > Install SCADA equipment to permit remote monitoring of system performance to enable prompt rectification of breakdowns that occur from time to time;
- > Install emergency power supply generators at all critical infrastructure; and
- > Provide adequate training for operators.

## 5.5 Sewerage

The sewerage system comprises of gravity sewers, manholes, effluent pump stations, rising mains and an "Eppco" treatment plant used for treatment prior to discharge of effluent to the ocean. The treatment plant capacity is marginally oversized for the current and future populations. Effluent discharged from the treatment plant to the ocean currently does not meet licence discharge standards. The treatment plant is considered to be in average condition and requires upgrading to ensure satisfactory performance. The flow metering and UV sterilisation equipment is subject to damage from power surges and is no longer operational.

All new development is to be connected to the existing sewerage network and will require the installation of an additional pump station and rising main for the expansion of the residential and industrial area.

The following upgrades to the existing sewerage network will be required to support planned future development:

- > Upgrade the existing treatment plant;
- > Stairways, walkways and platforms require maintenance to prevent further corrosion;
- > Replace damaged flow meters and UV sterilisation equipment with standard chlorination equipment;
- > Undertake maintenance of the treatment plant building and compound perimeter fence;
- > Undertake treatment plant management to ensure effluent discharged meets licence requirements;
- > Install SCADA equipment to permit remote monitoring of system performance to enable prompt rectification of breakdowns that occur from time to time;
- > Install emergency power supply generators at all critical infrastructure; and
- > Provide adequate training for operators.

# Warraber Island Master Plan

## 5.6 Electricity Supply and Street Lighting

Reticulated electricity to the community is provided from an unmanned isolated fully automated multi-unit diesel generators installed in a power station owned and operated by Ergon.

New development to be delivered under the Master Plan will need to be provided with underground electricity reticulation supplied from new transformers where required, installed to Ergon standards.

New street lighting shall comply with Ergon standards for urban residential developments.

## 5.7 Telecommunications

New development is to be provided with connections for landline and internet services supplied from underground cabling in the street, all installed by Telstra. Mobile services are currently not available.

## 6 Action Plan

The Action Plan is summarised in **Table 6-1** and identifies future actions arising from the Master Plan. Actions listed in the Action Plan are identified as Key Actions for each project.

Table 6-1 Action Plan

1	<b>Undertake further investigations in relation to specific land parcels</b> The Master Plan has identified a number of locations that may be suitable for further development, subject to specific on-site investigations, which will likely identify developable and constrained land.	6	<b>Consultation with Key Stakeholders</b> The Master Plan identifies a number of conceptual opportunities which require consultation with stakeholders relevant to these projects, in order to determine more detailed design requirements to support the delivery of these projects.
2	<b>Develop a Recreation Strategy</b> A strategy should be developed to guide the provision of active travel and recreational infrastructure so that it may form part of a coordinated and integrated network. This is of particular importance for walking and cycling paths.	7	<b>Planning Scheme Amendments</b> In a number of instances it may be necessary for the Planning Scheme to be amended to reflect the Master Plan projects identified and ultimately support the delivery of these projects.
3	<b>Protection of Community Facilities and Infrastructure</b> The Master Plan identifies a number of community facilities and infrastructure that are to be protected and maintained for the benefit of the community. The ongoing maintenance of these facilities should be prioritised, with further expansion or embellishment considered when necessary.	8	<b>Coastal Inundations Investigations and Works</b> Undertake specific investigations into coastal inundation required to identify land that may be suitable for future projects identified by the Master Plan, subject to specific mitigation and protection works.
4	<b>Encourage Economic Activity</b> The Master Plan identifies a number of locations which will support economic activity, however there is a need to encourage businesses to take up the opportunities provided by this land, particularly relating to industry and tourism.	9	<b>Documentation of Cultural Values</b> The cultural and spiritual values of significant sites such as churches and cemeteries should be documented for the community.
5	<b>Investigate Cultural, Economic and Recreational Areas</b> Further investigation of potential cultural, economic and recreational areas beyond the township should be undertaken.		



APPENDIX

# A

MASTER PLAN MAP







# WARRABER ISLAND MASTER PLAN

VERSION 003  
31 January 2022

## LOCALITY PLAN

SCALE 1:15,000



### RESIDENTIAL:

- RS1** RESIDENTIAL EXPANSION AREA
- RS2** INFILL HOUSING WEST
- RS3** RESIDENTIAL INVESTIGATION AREA
- RS4** INFILL HOUSING EAST

### INDUSTRIAL:

- ID1** ENTERPRISE AREA
- ID2** FISHING INDUSTRY

### COMMUNITY FACILITIES:

- CF1** MARKET GARDEN / FOOD SECURITY AREA
- CF2** LANDFILL PROTECTION AND EXPANSION AREA
- CF3** CHILD CARE CENTRE
- CF4** SACRED SITE PROTECTION
- CF5** PLACE OF WORSHIP PROTECTION
- CF6** CEMETERY PROTECTION AREA
- CF7** COMMUNITY PRECINCT

### COMMERCIAL / TOURISM:

- CT1** ARRIVAL CENTRE
- CT2** TOURISM PRECINCT

### RECREATION & OPEN SPACE:

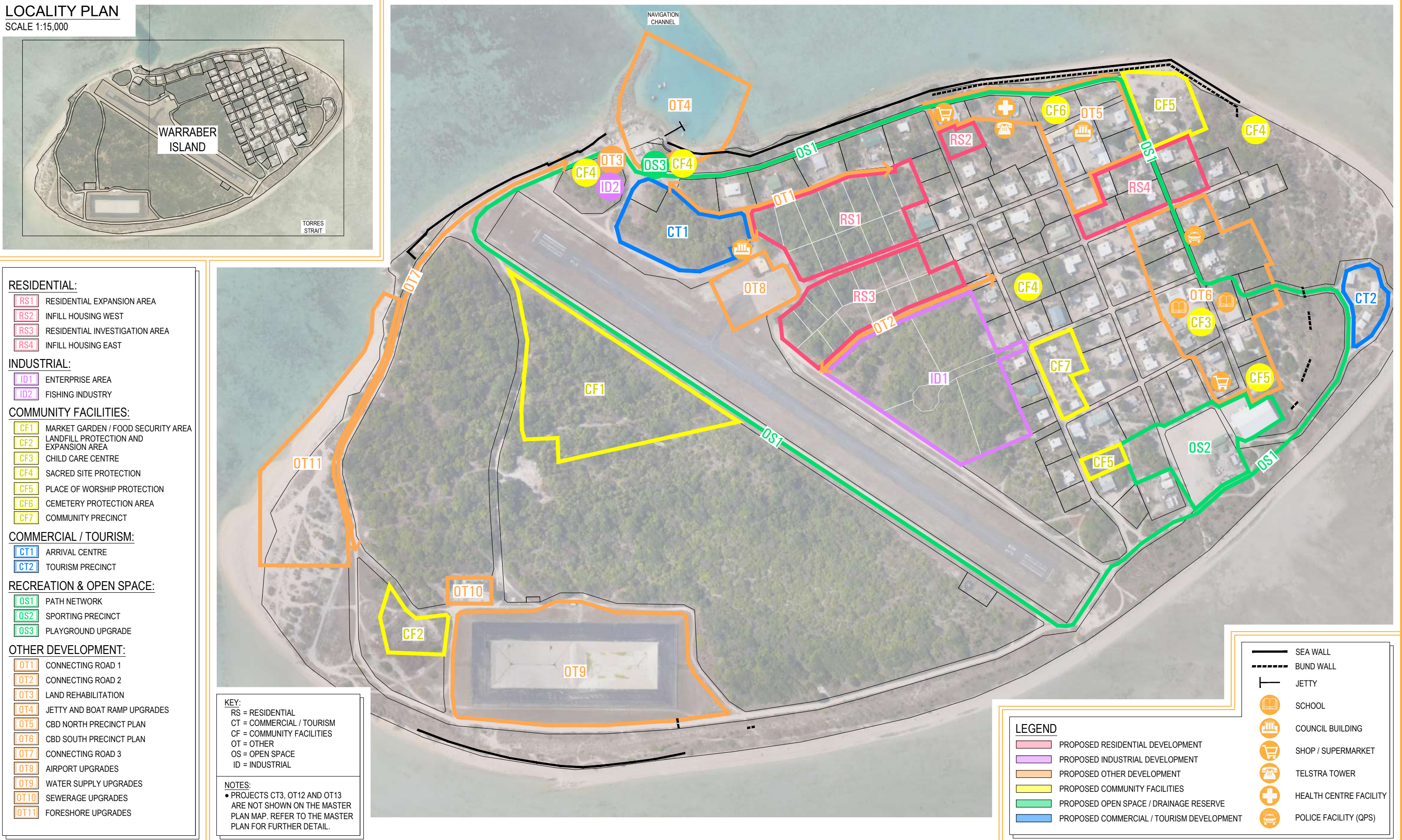
- OS1** PATH NETWORK
- OS2** SPORTING PRECINCT
- OS3** PLAYGROUND UPGRADE

### OTHER DEVELOPMENT:

- OT1** CONNECTING ROAD 1
- OT2** CONNECTING ROAD 2
- OT3** LAND REHABILITATION
- OT4** JETTY AND BOAT RAMP UPGRADES
- OT5** CBD NORTH PRECINCT PLAN
- OT6** CBD SOUTH PRECINCT PLAN
- OT7** CONNECTING ROAD 3
- OT8** AIRPORT UPGRADES
- OT9** WATER SUPPLY UPGRADES
- OT10** SEWERAGE UPGRADES
- OT11** FORESHORE UPGRADES

**KEY:**  
RS = RESIDENTIAL  
CT = COMMERCIAL / TOURISM  
CF = COMMUNITY FACILITIES  
OT = OTHER  
OS = OPEN SPACE  
ID = INDUSTRIAL

**NOTES:**  
• PROJECTS CT3, OT12 AND OT13 ARE NOT SHOWN ON THE MASTER PLAN MAP. REFER TO THE MASTER PLAN FOR FURTHER DETAIL.



### LEGEND

- PROPOSED RESIDENTIAL DEVELOPMENT
- PROPOSED INDUSTRIAL DEVELOPMENT
- PROPOSED OTHER DEVELOPMENT
- PROPOSED COMMUNITY FACILITIES
- PROPOSED OPEN SPACE / DRAINAGE RESERVE
- PROPOSED COMMERCIAL / TOURISM DEVELOPMENT

- SEA WALL
- BUND WALL
- JETTY
- SCHOOL
- COUNCIL BUILDING
- SHOP / SUPERMARKET
- TELSTRA TOWER
- HEALTH CENTRE FACILITY
- POLICE FACILITY (QPS)



APPENDIX

# B

MASTER PLAN PROJECT INDEX



# WARRABER ISLAND MASTER PLAN

## PROJECT INDEX

The below table provides a summary of the projects identified in the Master Plan.

ID	Project Name	New Lots	Lot Sizes	Priority	Infrastructure Cost	Associated Projects	Key Actions
RS1	Residential Expansion Area	12 Lots	940m <sup>2</sup> -1,624m <sup>2</sup>	Short Term	\$5,117,381	RS2, RS3, OT1	1, 7, 8
RS2	Infill Housing West	3 Lots (existing)	1,031m <sup>2</sup> -1,276m <sup>2</sup>	Short Term	\$1,119,485	RS1	-
RS3	Residential Investigation Area	14 Lots	778m <sup>2</sup> -1,082m <sup>2</sup>	Long Term	\$2,873,653	RS1, OT2	1, 7
RS4	Infill Housing East	6 Lots (existing)	660m <sup>2</sup> -1,624m <sup>2</sup>	Long Term	\$3,307,869	-	-
ID1	Enterprise Area	4 Lots	4,823m <sup>2</sup> -7,830m <sup>2</sup>	Long Term	\$3,977,439	RS3, OT2	1, 4
ID2	Fishing Industry	N/A	N/A	Medium Term	\$633,602	OT4	4, 7
CT1	Arrival Centre	N/A	N/A	Short Term	\$2,344,847	CT2, OS1, OT1, OT4	4
CT2	Tourism Precinct	N/A	N/A	Short Term	\$2,331,320	CT1, OS1	4
CT3	Environmental Tourism	N/A	N/A	Medium Term	N/A	-	4, 6
CF1	Market Garden / Food Security Area	N/A	N/A	Medium Term	N/A	CF2, OS1, OT7	1, 6
CF2	Landfill Protection and Expansion Area	N/A	N/A	Short Term	N/A	CF1, OT7	3
CF3	Child Care Centre	N/A	N/A	Short Term	N/A	-	3, 6
CF4	Sacred Site Protection	N/A	N/A	Ongoing	N/A	-	3, 4, 6, 9
CF5	Place of Worship Protection	N/A	N/A	Ongoing	N/A	-	3, 9

ID	Project Name	New Lots	Lot Sizes	Priority	Infrastructure Cost	Associated Projects	Key Actions
CF6	Cemetery Protection Area	N/A	N/A	Ongoing	N/A	-	3, 6, 9
CF7	Community Precinct	N/A	N/A	Medium Term	N/A	-	3, 6
OS1	Path Network	N/A	N/A	Short Term	\$625/ metre (concrete) \$400/ metre (gravel) \$200/ metre (earth)	-	2
OS2	Sporting Precinct	N/A	N/A	Long Term	\$1,798,841	OS1	1, 2, 6, 8
OS3	Playground Upgrade	N/A	N/A	Medium Term	To Be Costed	OS1	2
OT1	Connecting Road 1	N/A	N/A	Medium Term	\$773,711	RS1, CT1, OT4, OT8	3
OT2	Connecting Road 2	N/A	N/A	Medium Term	\$1,687,201	RS3, ID1	3
OT3	Land Rehabilitation	N/A	N/A	Short Term	N/A	CT1, CF2, OT4	3, 4
OT4	Jetty and Boat Ramp Upgrades	N/A	N/A	Short Term	To Be Costed	OS1	4, 6, 8
OT5	CBD North Precinct Plan	N/A	N/A	Medium Term	N/A	RS4, CF6, OS1, OT6	4
OT6	CBD South Precinct Plan	N/A	N/A	Long Term	N/A	CF3, CF5, OS1, OT5	4
OT7	Connecting Road 3	N/A	N/A	Medium Term	\$3,966,918	CF1, CF2, OT11	8
OT8	Airport Upgrades	N/A	N/A	Medium Term	To Be Costed	OT1	6
OT9	Water Supply Upgrades	N/A	N/A	Short Term	To Be Costed	-	3
OT10	Sewerage Upgrades	N/A	N/A	Short Term	To Be Costed	-	3

ID	Project Name	New Lots	Lot Sizes	Priority	Infrastructure Cost	Associated Projects	Key Actions
0T11	Foreshore Upgrades	N/A	N/A	Medium Term	N/A	-	6, 8
0T12	Telecommunications Upgrades	N/A	N/A	Short Term	To Be Costed	-	6
0T13	Carbon and Renewable Energy Opportunities	N/A	N/A	Medium Term	N/A	-	6



APPENDIX

# C

ACTION PLAN SUMMARY



# WARRABER ISLAND MASTER PLAN

## ACTION PLAN SUMMARY

The below table provides a summary of the relationship between the Action Plan and the projects identified in the Master Plan.

ID	Action	RS1	RS2	RS3	RS4	ID1	ID2	CT1	CT2	CT3	CF1	CF2	CF3	CF4	CF5	CF6	CF7
1	Undertake further investigations in relation to specific land parcels	RS1		RS3		ID1					CF1						
2	Develop a Recreation Strategy																
3	Protection of Community Facilities and Infrastructure											CF2	CF3	CF4	CF5	CF6	CF7
4	Encourage Economic Activity					ID1	ID2	CT1	CT2	CT3				CF4			
5	Investigate Cultural, Economic and Recreational Areas																
6	Consultation with Key Stakeholders	RS1								CT3	CF1		CF3	CF4		CF6	CF7
7	Planning Scheme Amendments	RS1		RS3			ID2										
8	Coastal Inundations Investigations and Works																
9	Documentation of Cultural Values													CF4	CF5	CF6	

ID	Action	OS1	OS2	OS3	OT1	OT2	OT3	OT4	OT5	OT6	OT7	OT8	OT9	OT10	OT11	OT12	OT13
1	Undertake further investigations in relation to specific land parcels		OS2														
2	Develop a Recreation Strategy	OS1	OS2	OS3													
3	Protection of Community Facilities and Infrastructure						OT3						OT9	OT10			
4	Encourage Economic Activity				OT1	OT2	OT3	OT4	OT5	OT6							
5	Investigate Cultural, Economic and Recreational Areas																
6	Consultation with Key Stakeholders		OS2					OT4				OT8			OT11	OT12	OT13
7	Planning Scheme Amendments																
8	Coastal Inundations Investigations and Works		OS2					OT4			OT7				OT11		
9	Documentation of Cultural Values																

APPENDIX

# D

INFRASTRUCTURE COSTINGS





# TORRES STRAIT MASTER PLANNING INFRASTRUCTURE COST ESTIMATES

Prepared for the Department of Aboriginal and Torres Strait Islander Partnerships



## 08WR WARRABER ISLAND

Last Update:

4-Mar-22

Project			RS1		RS2		RS3		RS4		ID1		ID2	
Yield (Number of Lots)			12		3		14		6		4		1	
Item	Unit	Rate	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount
<b>HEADWORKS INFRASTRUCTURE UPGRADES</b>														
Sewage Treatment Plant Upgrade	Item													
Water Treatment Plant Upgrade	Item													
Reservoirs Upgrade	Item													
<b>DEVELOPMENT</b>														
<b>Earthworks</b>														
Site clearing and disposal of material	Ha	\$ 14,000	1.40	\$ 19,600	0.45	\$ 6,300	1.25	\$ 17,500	0.84	\$ 11,760	2.4	\$ 33,600	0.16	\$ 2,240
Erosion and sediment control	m	\$ 40	250	\$ 10,000	100	\$ 4,000	200	\$ 8,000	225	\$ 9,000	250	\$ 10,000	100	\$ 4,000
Strip topsoil and respread	m <sup>3</sup>	\$ 30	1,400	\$ 42,000	450	\$ 13,500	1200	\$ 36,000	840	\$ 25,200	2400	\$ 72,000	160	\$ 4,800
Cut to fill on lots	m <sup>3</sup>	\$ 40	1,400	\$ 56,000	450	\$ 18,000	1200	\$ 48,000	840	\$ 33,600	2400	\$ 96,000	160	\$ 6,400
Import filling to lots (Ex Cairns)	m <sup>3</sup>	\$ 300	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Cut in open drains to fill on lots	m <sup>3</sup>	\$ 40	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Cut in roads and table drains to fill on lots	m <sup>3</sup>	\$ 40	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
<b>Roadworks</b>														
Concrete Road (7.0 m)	m	\$ 3,000	325	\$ 975,000	80	\$ 240,000	0	\$ -	320	\$ 960,000	150	\$ 450,000	0	\$ -
<b>Stormwater Drainage</b>														
Concrete edge strips/K & C to road pavement	m	\$ 400	650	\$ 260,000	160	\$ 64,000	0	\$ -	640	\$ 256,000	300	\$ 120,000	0	\$ -
Concrete invert to table drain	m	\$ 1,500	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
1200 x 450 RCBC incl conc base/invert crossing	m	\$ 3,000	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Headwalls, Wingwalls and Aprons	m <sup>3</sup>	\$ 3,600	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Bio-Basins	m <sup>2</sup>	\$ 900	345	\$ 310,500	100	\$ 90,000	300	\$ 270,000	210	\$ 189,000	600	\$ 540,000	40	\$ 36,000
Bio basin concrete spillway	m <sup>2</sup>	\$ 700	100	\$ 70,000	25	\$ 17,500	75	\$ 52,500	50	\$ 35,000	150	\$ 105,000	0	\$ -
<b>Water Reticulation</b>														
100 dia. PVC pipe	m	\$ 400	400	\$ 160,000	100	\$ 40,000	370	\$ 148,000	320	\$ 128,000	150	\$ 60,000	100	\$ 40,000
150 dia. PVC pipe	m	\$ 500	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
200 dia PVC pipe	m	\$ 650	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
SV's	No	\$ 3,000	4	\$ 12,000	1	\$ 3,000	2	\$ 6,000	2	\$ 6,000	1	\$ 3,000	1	\$ 3,000
Hydrants	No	\$ 4,550	4	\$ 18,200	1	\$ 4,550	5	\$ 22,750	4	\$ 18,200	2	\$ 9,100	2	\$ 9,100
Single house connections	No	\$ 2,000	12	\$ 24,000	3	\$ 6,000	14	\$ 28,000	6	\$ 12,000	4	\$ 8,000	1	\$ 2,000
Connect to existing main	No	\$ 6,000	2	\$ 12,000	1	\$ 6,000	2	\$ 12,000	2	\$ 12,000	1	\$ 6,000	1	\$ 6,000
VSD Pump Building	Item	\$ 300,000	0.33	\$ 99,000	0	\$ -	0.33	\$ 99,000	0	\$ -	0.33	\$ 99,000	0	\$ -
Variable speed drive pump set	Item	\$ 200,000	0.33	\$ 66,000	0	\$ -	0.33	\$ 66,000	0	\$ -	0.33	\$ 66,000	0	\$ -

# TORRES STRAIT MASTER PLANNING INFRASTRUCTURE COST ESTIMATES

Prepared for the Department of Aboriginal and Torres Strait Islander Partnerships



## 08WR WARRABER ISLAND

Last Update:

4-Mar-22

Project			RS1		RS2		RS3		RS4		ID1		ID2	
Yield (Number of Lots)			12		3		14		6		4		1	
Item	Unit	Rate	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount
Standby generator	Item	\$ 100,000	0.33	\$ 33,000	0	\$ -	0.33	\$ 33,000	0	\$ -	0.33	\$ 33,000	0	\$ -
<b>Sewerage Reticulation</b>														
150 dia. PVC	m	\$ 400	200	\$ 80,000	80	\$ 32,000	200	\$ 80,000	160	\$ 64,000	330	\$ 132,000	150	\$ 60,000
Manholes	No	\$ 10,000	3	\$ 30,000	2	\$ 20,000	3	\$ 30,000	3	\$ 30,000	6	\$ 60,000	3	\$ 30,000
Lot connections	No	\$ 1,500	12	\$ 18,000	3	\$ 4,500	14	\$ 21,000	6	\$ 9,000	4	\$ 6,000	2	\$ 3,000
FRP Pump Station	Item	\$ 950,000	0.30	\$ 285,000	0	\$ -	0.3	\$ 285,000	0	\$ -	0.3	\$ 285,000	0	\$ -
Standby Generator	Item	\$ 100,000	0.30	\$ 30,000	0	\$ -	0.3	\$ 30,000	0	\$ -	0.3	\$ 30,000	0	\$ -
90 OD polyethylene pressure main	m	\$ 400	200	\$ 80,000	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
110 OD polyethylene pressure main	m	\$ 600	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
140 OD polyethylene pressure main	m	\$ 700	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
<b>Electricity Supply</b>														
Conduits, pits and pole bases	Lots	\$ 12,000	12	\$ 144,000	3	\$ 36,000	14	\$ 168,000	6	\$ 72,000	4	\$ 48,000	1	\$ 12,000
Cabling and street lights	Lots	\$ 15,000	12	\$ 180,000	3	\$ 45,000	14	\$ 210,000	6	\$ 90,000	4	\$ 60,000	1	\$ 15,000
Transformer	No	\$ 200,000	0.25	\$ 50,000	0.1	\$ 20,000	0.25	\$ 50,000	0.1	\$ 20,000	0.25	\$ 50,000	0.50	\$ 100,000
<b>Sub Totals</b>				\$ 3,064,300	\$ 670,350	\$ 1,720,750	\$ 1,980,760	\$ 2,381,700	\$ 333,540					
Contingencies	Item	30%		\$ 919,290		\$ 201,105		\$ 516,225		\$ 594,228		\$ 714,510		\$ 100,062
<b>Preliminaries</b>														
Establishment, insurance, As-constructed	Item	22%		\$ 674,146		\$ 147,477		\$ 378,565		\$ 435,767		\$ 523,974		\$ 100,000
<b>Project Management</b>														
Survey, design, and construction administrator	Item	15%		\$ 459,645		\$ 100,553		\$ 258,113		\$ 297,114		\$ 357,255		\$ 100,000
<b>TOTALS</b>				\$ 5,117,381	\$ 1,119,485	\$ 2,873,653	\$ 3,307,869	\$ 3,977,439	\$ 633,602					



# TORRES STRAIT MASTER PLANNING

## INFRASTRUCTURE COST ESTIMATES

Prepared for the Department of Aboriginal and Torres Strait Islander Partnerships

Project			CT1		CT2		OS2		OT1		OT2		OT7	
Yield (Number of Lots)			1		N/A		N/A		N/A		N/A		N/A	
Item	Unit	Rate	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount
HEADWORKS INFRASTRUCTURE UPGRADES														
Sewage Treatment Plant Upgrade	Item													
Water Treatment Plant Upgrade	Item													
Reservoirs Upgrade	Item													
DEVELOPMENT														
Earthworks														
Site clearing and disposal of material	Ha	\$ 14,000	1.0	\$ 14,000	0.35	\$ 4,900	0.9	\$ 12,600	0.2	\$ 2,800	0.45	\$ 6,300	1.1	\$ 15,400
Erosion and sediment control	m	\$ 40	175	\$ 7,000	150	\$ 6,000	150	\$ 6,000	100	\$ 4,000	250	\$ 10,000	1000	\$ 40,000
Strip topsoil and respread	m <sup>3</sup>	\$ 30	1000	\$ 30,000	350	\$ 10,500	900	\$ 27,000	200	\$ 6,000	450	\$ 13,500	1000	\$ 30,000
Cut to fill on lots	m <sup>3</sup>	\$ 40	1000	\$ 40,000	350	\$ 14,000	900	\$ 36,000	200	\$ 8,000	450	\$ 18,000	0	\$ -
Import filling to lots (Ex Cairns)	m <sup>3</sup>	\$ 300	0	\$ -	1000	\$ 300,000	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Cut in open drains to fill on lots	m <sup>3</sup>	\$ 40	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Cut in roads and table drains to fill on lots	m <sup>3</sup>	\$ 40	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Roadworks														
Concrete Road (7.0 m)	m	\$ 3,000	150	\$ 450,000	175	\$ 525,000	170	\$ 510,000	100	\$ 300,000	225	\$ 675,000	525	\$ 1,575,000
Stormwater Drainage														
Concrete edge strips/K & C to road pavement	m	\$ 400	300	\$ 120,000	350	\$ 140,000	340	\$ 136,000	200	\$ 80,000	450	\$ 180,000	1050	\$ 420,000
Concrete invert to table drain	m	\$ 1,500	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
1200 x 450 RCBC incl conc base/invert crossing	m	\$ 3,000	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Headwalls, Wingwalls and Aprons	m <sup>3</sup>	\$ 3,600	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Bio-Basins	m <sup>2</sup>	\$ 900	250	\$ 225,000	0	\$ -	220	\$ 198,000	50	\$ 45,000	100	\$ 90,000	250	\$ 225,000
Bio basin concrete spillway	m <sup>2</sup>	\$ 700	125	\$ 87,500	0	\$ -	25	\$ 17,500	25	\$ 17,500	25	\$ 17,500	100	\$ 70,000
Water Reticulation														
100 dia, PVC pipe	m	\$ 400	150	\$ 60,000	175	\$ 70,000	100	\$ 40,000	0	\$ -	0	\$ -	0	\$ -
150 dia. PVC pipe	m	\$ 500	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
200 dia PVC pipe	m	\$ 650	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
SV's	No	\$ 3,000	2	\$ 6,000	2	\$ 6,000	1	\$ 3,000	0	\$ -	0	\$ -	0	\$ -
Hydrants	No	\$ 4,550	2	\$ 9,100	2	\$ 9,100	1	\$ 4,550	0	\$ -	0	\$ -	0	\$ -
Single house connections	No	\$ 2,000	1	\$ 2,000	1	\$ 2,000	1	\$ 2,000	0	\$ -	0	\$ -	0	\$ -
Connect to existing main	No	\$ 6,000	1	\$ 6,000	1	\$ 6,000	1	\$ 6,000	0	\$ -	0	\$ -	0	\$ -
VSD Pump Building	Item	\$ 300,000	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Variable speed drive pump set	Item	\$ 200,000	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -

# TORRES STRAIT MASTER PLANNING

## INFRASTRUCTURE COST ESTIMATES

Prepared for the Department of Aboriginal and Torres Strait Islander Partnerships

--	--

Project			CT1		CT2		OS2		OT1		OT2		OT7	
Yield (Number of Lots)			1		N/A		N/A		N/A		N/A		N/A	
Item	Unit	Rate	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount	Qty	Amount
Standby generator	Item	\$ 100,000	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
<b>Sewerage Reticulation</b>														
150 dia. PVC	m	\$ 400	175	\$ 70,000	175	\$ 70,000	50	\$ 20,000	0	\$ -	0	\$ -	0	\$ -
Manholes	No	\$ 10,000	4	\$ 40,000	5	\$ 50,000	1	\$ 10,000	0	\$ -	0	\$ -	0	\$ -
Lot connections	No	\$ 1,500	1	\$ 1,500	1	\$ 1,500	1	\$ 1,500	0	\$ -	0	\$ -	0	\$ -
FRP Pump Station	Item	\$ 950,000	0.1	\$ 95,000	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
Standby Generator	Item	\$ 100,000	0.1	\$ 10,000	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
90 OD polyethylene pressure main	m	\$ 400	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
110 OD polyethylene pressure main	m	\$ 600	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
140 OD polyethylene pressure main	m	\$ 700	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -	0	\$ -
<b>Electricity Supply</b>														
Conduits, pits and pole bases	Lots	\$ 12,000	3	\$ 36,000	3	\$ 36,000	1	\$ 12,000	0	\$ -	0	\$ -	0	\$ -
Cabling and street lights	Lots	\$ 15,000	3	\$ 45,000	3	\$ 45,000	1	\$ 15,000	0	\$ -	0	\$ -	0	\$ -
Transformer	No	\$ 200,000	0.25	\$ 50,000	0.5	\$ 100,000	0.1	\$ 20,000	0	\$ -	0	\$ -	0	\$ -
<b>Sub Totals</b>				\$ 1,404,100	\$ 1,396,000	\$ 1,077,150	\$ 463,300	\$ 1,010,300	\$ 2,375,400					
Contingencies	Item	30%		\$ 421,230		\$ 418,800		\$ 323,145		\$ 138,990		\$ 303,090		\$ 712,620
<b>Preliminaries</b>														
Establishment, insurance, As-constructed	Item	22%		\$ 308,902		\$ 307,120		\$ 236,973		\$ 101,926		\$ 222,266		\$ 522,588
<b>Project Management</b>														
Survey, design, and construction administrator	Item	15%		\$ 210,615		\$ 209,400		\$ 161,573		\$ 69,495		\$ 151,545		\$ 356,310
<b>TOTALS</b>				\$ 2,344,847	\$ 2,331,320	\$ 1,798,841	\$ 773,711	\$ 1,687,201	\$ 3,966,918					

APPENDIX

# E

PRECINCT PLANS







# WARRABER ISLAND MASTER PLAN

## CBD NORTH PRECINCT PLAN

VERSION 001  
29 June 2020



1 FORESHORE PARKLAND



2 PLAZA







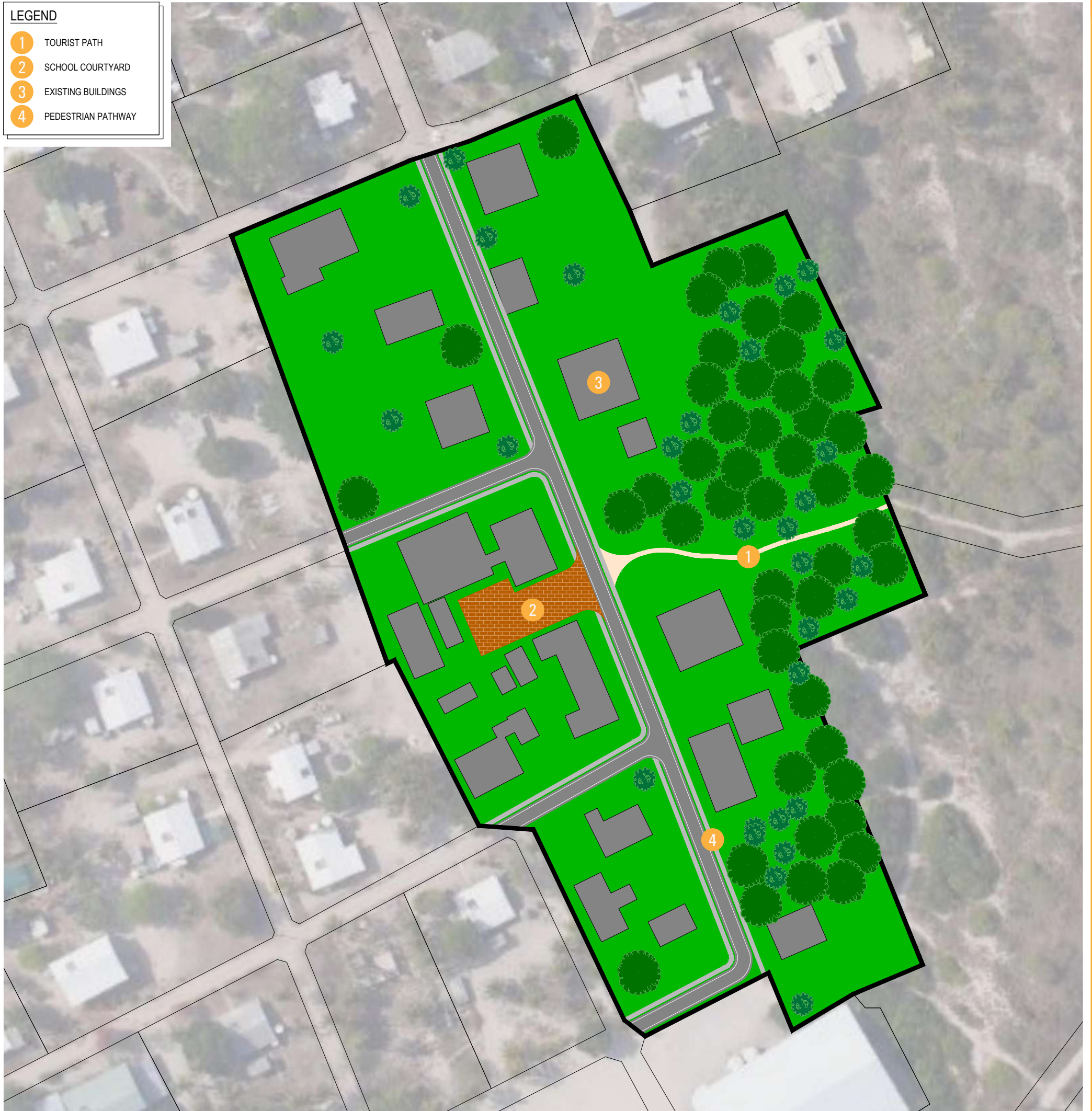
# WARRABER ISLAND MASTER PLAN

## CBD SOUTH PRECINCT PLAN

VERSION 001  
29 June 2020

### LEGEND

- 1 TOURIST PATH
- 2 SCHOOL COURTYARD
- 3 EXISTING BUILDINGS
- 4 PEDESTRIAN PATHWAY



1 TOURIST PATH



2 SCHOOL COURTYARD



APPENDIX

# F

ANALYTICAL TRANSLATION



# WARRABER ISLAND MASTER PLAN

## ANALYTICAL TRANSLATION

#	Direction	Technical Report	Master Plan Projects	Notes
1.	The Master Plan will need to cater for an increase in housing (eight additional dwellings) to reduce overcrowding and cater for population growth and changes to community needs.	4 Demographic Analysis 8.1 Aboriginal and Torres Strait Islander Housing Action Plan 2019-2023 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	RS1, RS2, RS3, RS4	
2.	The Master Plan should seek to diversify the available housing products, particularly the provision of smaller housing types such as units and townhouses. These dwelling types can be supported as infill housing, which will allow them to be well located proximate to key services and facilities.	4 Demographic Analysis 8.1 Aboriginal and Torres Strait Islander Housing Action Plan 2019-2023 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	RS1, RS2, RS3, RS4	
3.	The Master Plan should support the provision of facilities for ageing in place and accessible living including accommodation for independent living (for persons of any age who may need care).	4 Demographic Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	RS1, RS2, RS3, RS4, OT5, OT6	
4.	The Master Plan should consider the existing township expansion area identified by the planning scheme off Garnier Street for potential housing.	4 Demographic Analysis 5 Planning Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	RS1	



#	Direction	Technical Report	Master Plan Projects	Notes
5.	The Master Plan should seek to facilitate the provision of active transport infrastructure (walking / cycling paths) to connect important parts of the community and promote healthy living through physical activity.	2.5 Services and Facilities 8.5 Healthy by Design / Walkability 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	OS1, OS2	
6.	The Master Plan should seek to support the protection and embellishment (where appropriate) of key sacred and cultural sites identified by the community. This may include improving community access.	5 Planning Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	CF4	
7.	The Master Plan should seek to protect places of worship and the cemetery and facilitate the identification of additional land to support future community needs.	2.5 Services and Facilities 8.12 TSIRC Corporate Plan 2020-2025	CF5, CF6	
8.	The Master Plan should support the consolidation of landfill activities to the west of the island, with protection and expansion of these areas as appropriate. The landfill at the jetty/barge ramp should be removed and rehabilitated.	2.5 Services and Facilities 6 Infrastructure Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	CF2, OT3	
9.	The Master Plan should locate development in a manner that is reflective of the potential effects of coastal processes.	5 Planning Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.11 Torres Strait Regional Adaptation and Resilience Plan 2016-2021 8.12 TSIRC Corporate Plan 2020-2025	All projects	

#	Direction	Technical Report	Master Plan Projects	Notes
10.	The Master Plan should investigate the provision of land for potential food production, which may include community or market gardens or agricultural activities.	5 Planning Analysis 8.9 Food Security 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	CF1	
11.	The Master Plan should support the efficient use and embellishment of the jetty and boat ramp precinct. This will likely include supporting improvements to vessel access through new or improved marine infrastructure and the provision of new land-based infrastructure.	2.5 Services and Facilities 5 Planning Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025 8.13 Warpil – Fishing for Our Future	CT1, OT3, OT4	
12.	The Master Plan should support improved access to the island by air, through investigations into airport upgrades.	6 Infrastructure Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	OT8	
13.	The Master Plan should support the development of new recreational facilities, which may include sporting fields and park. Any such facility should be appropriately located on accessible land near compatible land uses.	8.9 Food Security 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029	OS2	
14.	The Master Plan should support the development of tourism opportunities that are compatible with the aspirations of the community including a tourist resort.	2.5 Services and Facilities 5 Planning Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	CT1, CT2, CT3	

#	Direction	Technical Report	Master Plan Projects	Notes
15.	The Master Plan should support the identification of land that may be suitable for fishing/crayfish export business development.	5 Planning Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025 8.13 Warpil – Fishing for Our Future	OT4, OT8, ID1, ID2	
16.	The Master Plan should seek to consolidate the existing CBD area of the township with a focus on improving accessibility for the community including provision for office space.	2.5 Services and Facilities 5 Planning Analysis 7.2 Community Consultation 8.12 TSIRC Corporate Plan 2020-2025	OT5, OT6	
17.	The Master Plan should support the provision (re-opening) of child care facilities.	2.5 Services and Facilities 5 Planning Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	CF3	
18.	The Master Plan should support the development of cultural centres and arts centres.	2.5 Services and Facilities 5 Planning Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	OT5, OT6	
19.	The Master Plan should investigate opportunities to improve community access to other areas of the island (beyond the township), particularly for recreation, economic and cultural purposes.	8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	OT11	

#	Direction	Technical Report	Master Plan Projects	Notes
20.	The Master Plan should investigate opportunities for carbon offsetting, both in land and sea areas.	8.2 Queensland Climate Transition Strategy 8.4 Carbon 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	OT13	
21.	The Master Plan should identify potential opportunities for alternative energy projects.	8.2 Queensland Climate Transition Strategy 8.4 Carbon 8.8 Renewable Energy 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	OT13	
22.	The Master Plan should investigate opportunities to improve communications infrastructure (telephone and internet).	8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	OT12	
23.	The Master Plan should support the provision of appropriate lighting in key locations in the town.	8.12 TSIRC Corporate Plan 2020-2025	CF7, OS1, OT5, OT6	
24.	The Master Plan should seek to promote increased economic activity, with particular focus on sectors including aquaculture, seafood industries (such as crayfish) and boat repairs, local art, culture and tourism.	5 Planning Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025 8.13 Wapil – Fishing for Our Future	OT4, OT5, OT6, ID1, ID2, CT1, CT2, CT3	

#	Direction	Technical Report	Master Plan Projects	Notes
25.	The Master Plan should facilitate upgrades to the water supply network in order to increase capture and storage capacity to meet demand and ensure that appropriate treatment occurs.	6 Infrastructure Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	OT9	
26.	The Master Plan should facilitate upgrades to the sewerage network, specifically with regard to detention time and operating standards at the treatment plant.	6 Infrastructure Analysis 8.10 Torres Strait and Northern Peninsula Regional Plan 2009-2029 8.12 TSIRC Corporate Plan 2020-2025	OT10	
27.	The Master Plan should be updated to reflect the outcomes of community consultation activities undertaken.	7 Consultation	RS4, ID2, CF7, OS3, OT11	