

Part 4 Local government infrastructure plan

4.1 Badu Island

4.1.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in Section 4.1.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in Section 4.1. 3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in Section 4.1. 4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in Section 4.1. 5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.1.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036

- (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.1.2.1.
- (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Badu Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.1.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use
		Place of worship
		Educational establishment
		Hospital
	Industry	Low impact industry
		High impact industry
		Medium impact industry
	Other	Animal husbandry
		Cropping
		Extractive industry
	Retail	Food and drink outlet
		Nightclub entertainment facility
Shop		
Shopping centre		
Showroom		

4.1.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.1.2.1.1.

Table 4.1.2.1.1—Population assumptions summary – Badu Island

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	844	891	932	969	1,003	1,034	1,034

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.1.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Badu Island.

4.1.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.1.4.1 Water supply network

Table 4.1.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>

Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)
Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03–2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans

4.1.4.2 Sewerage network

Table 4.1.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies

Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> Guidelines for Sewerage Systems: Reclaimed Water — February 2000 Queensland Water Recycling Guidelines—December 2005
Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> Planning Guidelines for Water Supply and Sewerage—NRW Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 Standards in planning scheme, planning scheme policies and/or Netserv Plans

4.1.4.3 Stormwater network

Table 4.1.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> Queensland Urban Drainage Manual—NRW Local government standards in planning scheme and planning scheme policies Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> Section 42 Environmental Protection [Water] Policy 1997) Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.1.4.4 Transport network

Table 4.1.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/ planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths’. • Complete Streets

4.1.4.5 Public parks and land for community facilities network

Table 4.1.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> • Parks and land for community facilities is provided at a local, district and LGA-wide level • Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> • AUSTRROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths • Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services—promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> • Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) • National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies • Australian Standards

4.1.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.1.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Badu Island
 - (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Badu Island
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Badu Island
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Badu Island
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Badu Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.1.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.1.5.2.1
 - (b) for the sewerage network, table 4.1.5.2.2
 - (c) for the stormwater network, table 4.1.5.2.3
 - (d) for the transport network, table 4.1.5.2.4
 - (e) for the parks and land for community facilities network, table 4.1.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.1.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – No water storage upgrade is required contingent on the performance of the wells, particularly during the dry season. The design yield of the three main wells is approximately 530kL/day, which is able to cater for a population of 1009 EP (assuming MDMM loading of 1.5 times AD). It is noted that community demand currently exceeds 350/EP/day and Council may need to undertake a demand management project together with leakage detection to reduce water demand.

Table 4.1.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing STP has capacity to service 2500 Equivalent Persons which is fit for purpose based on projected population change.

Table 4.1.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change.

Table 4.1.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost ¹
LGIP Transport Infrastructure	Sealed road servicing township expansion area.	Subject to development of township expansion area.	NA
Total			

1. Column 4 The establishment costs are not provided due to the need for detailed investigation in recognition of the unique development circumstances.

 **Editor's Note** – Other existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change.

Table 4.1.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.2 Boigu Island

4.2.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in Section 4.2.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in Section 4.2.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in Section 4.2.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in Section 4.2.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.2.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.2.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Boigu Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.2.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.2.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.2.2.1.1.

Table 4.2.2.1.1—Population assumptions summary – Boigu Island

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	224	210	197	189	183	180	180

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.2.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Boigu Island.

4.2.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.2.4.1 Water supply network

Table 4.2.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03—2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.2.4.2 Sewerage network

Table 4.2.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.2.4.3 Stormwater network

Table 4.2.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.2.4.4 Transport network

Table 4.2.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/ planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths¹. • Complete Streets

4.2.4.5 Public parks and land for community facilities network

Table 4.2.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> • Parks and land for community facilities is provided at a local, district and LGA-wide level • Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> • AUSTRROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths • Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services—promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> • Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) • National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies • Australian Standards

4.2.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.2.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (d) Local Government Infrastructure Plan Map LGIP – LGIP Area – Boigu Island
 - (e) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Boigu Island
 - (f) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Boigu Island
 - (g) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Boigu Island
 - (h) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Boigu Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.2.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.2.5.2.1
 - (b) for the sewerage network, table 4.2.5.2.2
 - (c) for the stormwater network, table 4.2.5.2.3
 - (d) for the transport network, table 4.2.5.2.4
 - (e) for the parks and land for community facilities network, table 4.2.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.2.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – The water reticulation network, covered and lined lagoon storage and the desalination plant intake were originally designed to cater for a design population of 711 persons and maximum possible short term population of 969 persons. Following investigations as part of the desalination plant upgrade, the capacity of the storage has been revised to approximately 660 EP based on a simple water balance and the storage at the end of the year being the same at the start of the year. If required, subject to development of urban expansion areas, further network capacity can be provided by a desalination upgrade be undertaken in lieu of additional storage. This would need to consider the capacity of the raw water intake to confirm that sufficient water could be provided to the treatment plant.

The full water storage offers approximately 318 days water storage at current population and a demand of 350 l/EP/day.

At this point in time 100kL of treated water storage is available. While this is quite minimal, it is considered adequate for emergency response purposes as an emergency generator has been provided for the freshwater treatment and the storage is augmented by the raw water supply.

Table 4.2.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing STP has capacity to service 600 Equivalent Persons which is fit for purpose given projected population change.

Table 4.2.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change. Development of township expansion areas would need to ensure that lots have an appropriate level of immunity and that the existing upstream catchments/community areas are not impacted.

Table 4.2.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – The existing concrete roads are in poor repair and will require upgrade to address structural issues.

Table 4.2.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.3 Dauan Island

4.3.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.3.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.3.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in section 4.3.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.3.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.3.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.3.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Dauan Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.3.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.3.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.3.2.1.1.

Table 4.3.2.1.1—Population assumptions summary – Dauan Island

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	139	147	154	161	166	172	172

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.3.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Dauan Island.

4.3.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.3.4.1 Water supply network

Table 4.3.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03—2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.3.4.2 Sewerage network

Table 4.3.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.3.4.3 Stormwater network

Table 4.3.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.3.4.4 Transport network

Table 4.3.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/ planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths¹. • Complete Streets

4.3.4.5 Public parks and land for community facilities network

Table 4.3.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> • Parks and land for community facilities is provided at a local, district and LGA-wide level • Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> • AUSTRROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths • Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services–promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> • Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) • National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies • Australian Standards

4.3.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.3.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Dauan Island
 - (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Dauan Island
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Dauan Island
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Dauan Island
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Dauan Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.3.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.3.5.2.1
 - (b) for the sewerage network, table 4.3.5.2.2
 - (c) for the stormwater network, table 4.3.5.2.3
 - (d) for the transport network, table 4.3.5.2.4
 - (e) for the parks and land for community facilities network, table 4.3.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.3.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Water is sourced from four wells and a covered and lined lagoon which harvests rainwater from its catchment. Based on a simple water balance model prepared using the safe yield capacities in the 2004 infrastructure planning report (31ML), it would appear that the water supply can accommodate a design population of 242EP. Recently the eastern rising main was upgraded and all wells should be operational.

Based on current population and a demand of 350l/EP/day, there is sufficient storage for 131 days.

Details regarding capacity of the treatment plant are currently unknown and will require further investigation.

Treated water storage is considered adequate for a design population of 280EP.

Water is reticulated throughout the community via an underground network consisting of 80mm and 100mm diameter pipework. The majority of households own a water tank which is fed directly via the mains supply. Based on previous studies it is evident that the water supply network was designed for 252 EP @ 250l/EP/day. Based on current demands, the design EP for the reticulation is in the order of 180. It would be necessary to construct a water model to confirm this reticulation network capacity.

Table 4.3.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – The community is currently serviced by septic tank systems which is fit for purpose given projected population change.

Table 4.3.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change.

Table 4.3.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change. A potential sewer infrastructure site has been identified on LGIP mapping however the development of this site would be subject to future population growth, further technical investigations and availability of funding.

Table 4.3.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.4 Erub (Darnley) Island

4.4.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.4.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.4.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in section 4.4.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.4.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.4.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.4.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Erub Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.4.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.4.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.4.2.1.1.

Table 4.4.2.1.1—Population assumptions summary – Erub Island

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	405	434	458	478	496	513	513

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.4.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Erub Island.

4.4.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.4.4.1 Water supply network

Table 4.4.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03—2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.4.4.2 Sewerage network

Table 4.4.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.4.4.3 Stormwater network

Table 4.4.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.4.4.4 Transport network

Table 4.4.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/ planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths¹. • Complete Streets

4.4.4.5 Public parks and land for community facilities network

Table 4.4.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> • Parks and land for community facilities is provided at a local, district and LGA-wide level • Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> • AUSTRROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths • Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services—promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> • Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) • National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies • Australian Standards

4.4.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.4.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Erub Island
 - (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Erub Island
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Erub Island
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Erub Island
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Erub Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.4.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.4.5.2.1
 - (b) for the sewerage network, table 4.4.5.2.2
 - (c) for the stormwater network, table 4.4.5.2.3
 - (d) for the transport network, table 4.4.5.2.4
 - (e) for the parks and land for community facilities network, table 4.4.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.4.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost ¹
LGIP Water Infrastructure	Upgrade water supply system beyond existing design capacity of 456 EP.	Subject to population growth – between 2016-2021	NA
Total			

1. Column 4 Establishment costs are not provided due to the need for detailed investigation in recognition of the unique development circumstances.

 **Editor's Note** – Water supply system incorporates raw water storage, water treatment and water reticulation infrastructure.

Table 4.4.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing STP has capacity to service 620 Equivalent Persons which is fit for purpose given projected population change.

Table 4.4.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change.

Table 4.4.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost ¹
LGIP Transport Infrastructure	Sealed road servicing township expansion area	Subject to timing of development within township expansion area	NA
Total			

1. Column 4 Establishment costs are not provided due to the need for detailed investigation in recognition of the unique development circumstances.

 **Editor's Note** – Other existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change.

Table 4.4.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.5 Iama (Yam) Island

4.5.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.5.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.5.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in section 4.5.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.5.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.5.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.5.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Iama Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.5.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.5.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.5.2.1.1.

Table 4.5.2.1.1—Population assumptions summary – lama Island

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	342	356	369	382	394	406	406

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.5.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area — lama Island.

4.5.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.5.4.1 Water supply network

Table 4.5.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03–2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.5.4.2 Sewerage network

Table 4.5.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.5.4.3 Stormwater network

Table 4.5.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.5.4.4 Transport network

Table 4.5.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/ planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths’. • Complete Streets

4.5.4.5 Public parks and land for community facilities network

Table 4.5.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> Parks and land for community facilities is provided at a local, district and LGA-wide level Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services–promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> Local government standards in planning scheme and planning scheme policies Australian Standards

4.5.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.5.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Iama Island
 - (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Iama Island
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Iama Island
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Iama Island
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Iama Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.5.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.5.5.2.1
 - (b) for the sewerage network, table 4.5.5.2.2
 - (c) for the stormwater network, table 4.5.5.2.3
 - (d) for the transport network, table 4.5.5.2.4
 - (e) for the parks and land for community facilities network, table 4.5.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.5.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – The township expansion areas appear to be higher than the existing reservoirs. If this area is to be developed, it will require either a new higher reservoir or installation of a pressure boosting system.

Table 4.5.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing STP has capacity to service 450 Equivalent Persons which is fit for purpose given projected population change.

Table 4.5.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – It is noted that there are currently localised flooding issues at lama and a review of the drainage will be required to determine whether the additional flows will impact on the community. The discharge point for the township expansion area, located to the west of the reservoirs the township expansion area will be into the drain that runs around the rear of the community. Any drainage upgrades to address existing flooding issues should be timed so that they occur concurrently with development of the expansion area. The township expansion area located to the east of the reservoirs will discharge to the swampy area to the east and will require construction of new drainage and culverts to its discharge point.

Table 4.5.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost ¹
LGIP Transport Infrastructure	Sealed existing access road adjacent to airstrip servicing the township expansion area.	Subject to development of township expansion area.	NA
Total			

1. Column 4 Establishment cost are not provided due to the need for detailed investigation in recognition of the unique development circumstances.

 **Editor's Note** – Other existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change.

Table 4.5.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.6 Kirriri (Hammond) Island

4.6.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.6.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.6.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036
 - (c) states in section 4.6.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.6.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.6.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.6.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Kirriri Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.6.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.6.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.6.2.1.1.

Table 4.6.2.1.1—Population assumptions summary – KIRRIRI ISLAND

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	245	261	274	286	297	306	306

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.6.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Kirriri Island.

4.6.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.6.4.1 Water supply network

Table 4.6.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03—2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.6.4.2 Sewerage network

Table 4.6.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.6.4.3 Stormwater network

Table 4.6.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.6.4.4 Transport network

Table 4.6.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/ planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths¹. • Complete Streets

4.6.4.5 Public parks and land for community facilities network

Table 4.6.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> • Parks and land for community facilities is provided at a local, district and LGA-wide level • Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> • AUSTRROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths • Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services–promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> • Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) • National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies • Australian Standards

4.6.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.6.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Kiriiri Island
 - (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Kiriiri Island
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Kiriiri Island
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Kiriiri Island
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Kiriiri Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.6.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.5.5.2.1
 - (b) for the sewerage network, table 4.5.5.2.2
 - (c) for the stormwater network, table 4.5.5.2.3
 - (d) for the transport network, table 4.5.5.2.4
 - (e) for the parks and land for community facilities network, table 4.5.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.6.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Kiriiri Island's water supply is sourced from three wells located on the island (all operational as a result of the recent water project) and a submarine pipeline. The bulk water supply is designed for 44ML while the estimated demand at 2036 is 39ML at 350l/EP/day. Water reticulation may need extension to the township expansion areas. It is likely that adequate pressures can be supplied by the existing reservoir which is located approximately 50m above the existing township level.

Table 4.6.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – The community is currently serviced by septic tank systems which is fit for purpose given projected population change.

Table 4.6.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change. Any future urban development would need to consider downstream infrastructure/ flowpaths to confirm that it is of a suitable capacity to cater for increased flows.

Table 4.6.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change.

Table 4.6.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.7 Kubin (on Moa Island)

4.7.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.7.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.7.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in section 4.7.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.7.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.7.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.7.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Moa Island (Kubin) in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.7.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.7.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.7.2.1.1.

Table 4.7.2.1.1—Population assumptions summary – Kubin (on Moa Island)

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	173	163	154	147	143	140	140

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.7.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Moa Island (Kubin).

4.7.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.7.4.1 Water supply network

Table 4.7.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03–2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.7.4.2 Sewerage network

Table 4.7.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.7.4.3 Stormwater network

Table 4.7.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.7.4.4 Transport network

Table 4.7.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/ planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths’. • Complete Streets

4.7.4.5 Public parks and land for community facilities network

Table 4.7.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> Parks and land for community facilities is provided at a local, district and LGA-wide level Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services–promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> Local government standards in planning scheme and planning scheme policies Australian Standards

4.7.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.7.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Moa Island (Kubin)
 - (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Moa Island (Kubin)
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Moa Island (Kubin)
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Moa Island (Kubin)
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Moa Island (Kubin)
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.7.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.7.5.2.1
 - (b) for the sewerage network, table 4.7.5.2.2
 - (c) for the stormwater network, table 4.7.5.2.3
 - (d) for the transport network, table 4.7.5.2.4
 - (e) for the parks and land for community facilities network, table 4.7.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.7.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Water is sourced from rainwater harvested from the catchment of the covered and lined water storage lagoons, an infiltration gallery and well system located near the lagoons and a creek source near the lagoons. Previous studies have identified the safe yield as 74ML while the demand at 350l/EP/day is 22ML. The source could support a population of 579EP.

The raw water storage is adequate for the current population, however it would be necessary to construct a water balance model to confirm the maximum population which the storage could support.

Treated water storage is provided by a 490kL elevated tank. The reservoir is suitable for a population of approximately 490EP.

Previous investigations indicated that the reticulation network should be upgraded based on 2010 demands. There is however no record of the population used in the model. Based on calculations using a 5% growth factor mentioned in the report and a 2003 base population of 280, the design population may be in the range of 390EP.

A previous investigation indicates that the annual demand used for treatment design was 39ML. It is estimated that the treatment plant can likely accommodate a population of 305.

Table 4.7.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing STP was upgraded in 2008 has capacity to service 480 Equivalent Persons which is fit for purpose given projected population change.

Table 4.7.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change.

Table 4.7.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change.

Table 4.7.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost¹
LGIP Community and Infrastructure	Future Sports Field	Subject to funding	NA
Total			

1. Column 4 Establishment cost are not provided due to the need for detailed investigation in recognition of the unique development circumstances.

4.8 Mabuyag Island

4.8.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.8.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.8.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in section 4.8.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.8.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.8.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.8.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Mabuyag Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.8.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.8.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.8.2.1.1.

Table 4.8.2.1.1—Population assumptions summary – Mabuyag Island

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	280	297	311	324	336	347	347

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.8.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Mabuyag Island.

4.8.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.8.4.1 Water supply network

Table 4.8.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03–2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.8.4.2 Sewerage network

Table 4.8.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.8.4.3 Stormwater network

Table 4.8.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.8.4.4 Transport network

Table 4.8.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths’. • Complete Streets

4.8.4.5 Public parks and land for community facilities network

Table 4.8.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> Parks and land for community facilities is provided at a local, district and LGA-wide level Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services–promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> Local government standards in planning scheme and planning scheme policies Australian Standards

4.8.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.8.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Mabuyag Island
 - (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Mabuyag Island
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Mabuyag Island
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Mabuyag Island
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Mabuyag Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.8.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.8.5.2.1
 - (b) for the sewerage network, table 4.8.5.2.2
 - (c) for the stormwater network, table 4.8.5.2.3
 - (d) for the transport network, table 4.8.5.2.4
 - (e) for the parks and land for community facilities network, table 4.8.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.8.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Mabuyag's water supply is mainly sourced from an existing weir and water is discharged to a 30.4ML storage lagoon. This lagoon was covered and lined in 2008. A 2004 planning study indicated that the storage volume is sufficient for a population of around 300 EP, however this based on a design consumption rate of 400l/EP/day.

TSIRC plans to undertake a leak detection project as part of MIP5 which may reduce demand closer to 350l/EP/day, in accordance with projected consumption across the Torres Strait.

Further investigations should be undertaken to confirm that there is suitable storage volumes to supply the anticipated population growth. A desalination unit may be the most economical solution to supplement community demand.

The existing water treatment plant was recently upgraded, however further investigation is required to determine whether pumps, filters and chlorine dosing equipment is designed to accommodate the ultimate population. Any new urban development in township expansion areas will need to provide new water reticulation infrastructure and update the water model (completed in 2010 as part of the Regional Asset Sustainability Project Group B) to determine whether there is an impact on the community.

Table 4.8.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing STP was upgraded in 2008 has capacity to service 600 Equivalent Persons which is fit for purpose given projected population change.

Table 4.8.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. A drainage masterplan was prepared in 2003 and the Infrastructure Planning Report indicates that the required infrastructure was completed as part of a project constructed by TMR in 2008/09. In general, natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change. Development within township expansion areas will need to conduct further investigations to determine drainage infrastructure requirements.

Table 4.8.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – The majority of the existing roads were sealed by TMR in 2008/09 and are expected to be fit for purpose over the LGIP timeframe given projected population change.

Table 4.8.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.9 Masig (Yorke) Island

4.9.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.9.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.9.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in section 4.9.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.9.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.9.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.9.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Masig (Yorke) Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.9.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.9.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.9.2.1.1.

Table 4.9.2.1.1—Population assumptions summary – Masig Island

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	254	236	221	211	204	200	200

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.9.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Masig (Yorke) Island.

4.9.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.9.4.1 Water supply network

Table 4.9.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03–2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.9.4.2 Sewerage network

Table 4.9.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.9.4.3 Stormwater network

Table 4.9.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.9.4.4 Transport network

Table 4.9.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths’. • Complete Streets

4.9.4.5 Public parks and land for community facilities network

Table 4.9.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> Parks and land for community facilities is provided at a local, district and LGA-wide level Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services—promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> Local government standards in planning scheme and planning scheme policies Australian Standards

4.9.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.9.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
- (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Masig (Yorke Island)

- (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Masig (Yorke Island)
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Masig (Yorke Island)
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Masig (Yorke Island)
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Masig (Yorke) Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.9.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
- (a) for the water supply network, table 4.9.5.2.1
 - (b) for the sewerage network, table 4.9.5.2.2
 - (c) for the stormwater network, table 4.9.5.2.3
 - (d) for the transport network, table 4.9.5.2.4
 - (e) for the parks and land for community facilities network, table 4.9.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.9.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost ¹
LGIP Water Infrastructure	Water Treatment Plant – additional desalination unit	Subject to population increase to 275 equivalent persons	NA
Total			

1. Column 4 Establishment cost are not provided due to the need for detailed investigation in recognition of the unique development circumstances.

 **Editor's Note** – The Water Treatment Plant was recently upgraded as part of the asset sustainability project. Masig is serviced by a covered and lined lagoon that stores 24ML of rainwater falling on its catchment and is supplemented by a desalination plant currently capable of delivering 70kl/day. Desalinated water is pumped into the lagoon which is designed to accommodate a 140kL/day desalination unit. During the project, a water balance was developed to 2020 and a desalination capacity was selected as an initial approach. This is less than what was originally in place for the community. If in the event the EP projection appears to approach or exceed 275 EP, TSIRC will need to install an additional 70kl/day unit to accommodate future demand for a population. It will also be necessary to conduct an ongoing program of leak and demand management.

Table 4.9.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
LGIP Sewer Infrastructure	Sewage Treatment Plant upgrade	Subject to population increase to 524 equivalent persons	NA
Total			

 **Editor's Note** – The Sewage Treatment Plant was constructed in 2008/09 and the design capacity was 524EP.

Table 4.9.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change.

Table 4.9.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change.

Table 4.9.5.2.3—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.10 Mer (Murray) Island

4.10.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.10.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.10.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in section 4.10.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.10.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.10.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (i) mid 2021
 - (ii) mid 2031
 - (iii) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.10.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Mer Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.10.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.10.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.10.2.1.1.

Table 4.10.2.1.1—Population assumptions summary – Masig Island

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	394	389	385	381	379	378	378

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.10.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Mer Island.

4.10.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.10.4.1 Water supply network

Table 4.10.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03—2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.10.4.2 Sewerage network

Table 4.10.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.10.4.3 Stormwater network

Table 4.10.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.10.4.4 Transport network

Table 4.10.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/ planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths¹. • Complete Streets

4.10.4.5 Public parks and land for community facilities network

Table 4.10.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> • Parks and land for community facilities is provided at a local, district and LGA-wide level • Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> • AUSTRROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths • Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services—promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> • Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) • National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies • Australian Standards

4.10.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.10.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Mer Island
 - (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Mer Island
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Mer Island
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Mer Island
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Mer Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.10.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.10.5.2.1
 - (b) for the sewerage network, table 4.10.5.2.2
 - (c) for the stormwater network, table 4.10.5.2.3
 - (d) for the transport network, table 4.10.5.2.4
 - (e) for the parks and land for community facilities network, table 4.10.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.10.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost ¹
LGIP Water infrastructure	Replace existing 80mm mains with 100mm mains.	Subject to funding availability.	NA
Total			

1. Column 4 Establishment cost are not provided due to the need for detailed investigation in recognition of the unique development circumstances.

 **Editor's Note** – Water at Mer is sourced from rainwater falling on the catchment of the covered and lined storage lagoon as well as a 210kL/day desalination plant. This plant was upgraded in 2013 and the water balance indicates the storage & desalination capacity is sufficient for a design population of around 600 EP (based on 350l/EP/day).

Treated water is stored in a break of head tank located below the raw water lagoon and a new 90kL reservoir has been constructed to service the new school and development above the lagoon. Water is pumped to this reservoir while it gravity feeds to the lower reservoir that supplies the town. Given the location of the raw water storage, the reservoir capacity is currently considered suitable, however further consideration should be given as part of any development on the island. To account for possible issues with the reservoir, lagoon and chlorine dosing equipment, a cross connection was constructed to enable permeate water from the desalination plant to be pumped into town.

A 2004 study indicates that the remaining sections of 80mm diameter water main should be replaced with 100mm diameter main. Any new development should be accompanied by a water reticulation model to indicate that sufficient water pressures will be available to the new allotment.

Table 4.10.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing STP has capacity to service 600 Equivalent Persons which is fit for purpose given projected population change.

Table 4.10.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change.

Table 4.10.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change.

Table 4.10.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.11 Poruma (Coconut) Island

4.11.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.11.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.11.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in section 4.11.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.11.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.11.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.11.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Poruma Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.11.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.11.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.11.2.1.1.

Table 4.11.2.1.1—Population assumptions summary – Poruma Island

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	160	161	161	162	163	163	163

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.11.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Poruma Island.

4.11.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.11.4.1 Water supply network

Table 4.11.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03—2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.11.4.2 Sewerage network

Table 4.11.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.11.4.3 Stormwater network

Table 4.11.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.11.4.4 Transport network

Table 4.11.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/ planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths¹. • Complete Streets

4.11.4.5 Public parks and land for community facilities network

Table 4.11.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> • Parks and land for community facilities is provided at a local, district and LGA-wide level • Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> • AUSTRROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths • Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services–promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> • Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) • National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies • Australian Standards

4.11.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.11.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Poruma Island
 - (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Poruma Island
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Poruma Island
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Poruma Island
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Poruma Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.11.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.11.5.2.1
 - (b) for the sewerage network, table 4.11.5.2.2
 - (c) for the stormwater network, table 4.11.5.2.3
 - (d) for the transport network, table 4.11.5.2.4
 - (e) for the parks and land for community facilities network, table 4.11.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.11.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Water at Poruma is currently sourced from the catchment of the covered and lined storage lagoon as well as a 70kL/day desalination plant. The desalination plant was upgraded in 2013 and the water balance model indicates that the current water supply can accommodate a design population of 190EP.

Treated water is stored in a 60kL tank and this provides for just over a day of storage. It is noted that this storage capacity is currently sufficient for current and future use based on projected population change.

A 2004 study indicates that the upgraded reticulation network is capable of supplying 37.5kL/day which is considerably less than the current population estimate. A new pump system has been installed in lieu of a high level tank, however further investigation will be required to confirm if this has impacted capacity. Any new development should conduct further assessment of the water reticulation network and the impact on the community.

Table 4.11.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost ¹
LGIP Sewer Infrastructure	Sewage Treatment Plant	Subject to population growth and funding availability	NA
Total			

1. Column 4 Establishment cost are not provided due to the need for detailed investigation in recognition of the unique development circumstances.

 **Editor's Note** – Existing STP has capacity to service 371 Equivalent Persons which is fit for purpose given projected population change.

Table 4.11.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change.

Table 4.11.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change.

Table 4.11.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.12 Saibai Island

4.12.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.12.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.12.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in section 4.12.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.12.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.12.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.12.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Saibai Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.12.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.12.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.12.2.1.1.

Table 4.12.2.1.1—Population assumptions summary – Saibai Island

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	517	564	600	630	655	678	678

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.12.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Saibai Island.

4.12.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.12.4.1 Water supply network

Table 4.12.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03–2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.12.4.2 Sewerage network

Table 4.12.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.12.4.3 Stormwater network

Table 4.12.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.12.4.4 Transport network

Table 4.12.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/ planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths¹. • Complete Streets

4.12.4.5 Public parks and land for community facilities network

Table 4.12.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> • Parks and land for community facilities is provided at a local, district and LGA-wide level • Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> • AUSTRROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths • Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services–promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> • Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) • National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies • Australian Standards

4.12.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.12.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Saibai Island
 - (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Saibai Island
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Saibai Island
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Saibai Island
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Saibai Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.12.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.12.5.2.1
 - (b) for the sewerage network, table 4.12.5.2.2
 - (c) for the stormwater network, table 4.12.5.2.3
 - (d) for the transport network, table 4.12.5.2.4
 - (e) for the parks and land for community facilities network, table 4.12.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.12.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost ¹
LGIP Water Infrastructure	Expand reservoir (treated storage) capacity	Subject to funding availability - capacity required based on existing serviced population.	NA
LGIP Water Infrastructure	Expand raw water storage or supplement with desalination plant.	Subject to funding availability - capacity required based on existing serviced population. See below editors note	NA
Total			

1. Column 4 Establishment cost are not provided due to the need for detailed investigation in recognition of the unique development circumstances.

 **Editor's Note** – Existing filtration and disinfection facilities were recently upgraded as part of the Regional Asset Sustainability Project however the capacity of the filters, pumps and chlorine dosing equipment will require further review to confirm that they can adequately service the projected population.

Previous investigations have identified that a section of reticulation main between the water treatment plant and Esplanade requires augmentation with a further 100mm diameter main. In addition to this upgrade, it will be necessary to prepare a new water model and undertake a further investigation to confirm that the water reticulation network can supply sufficient water pressures to the community and projected population.

By conducting a high level water balance, and adopting the catchment yield indicated in previous planning documents (SLUP - 63ML), the current usage of the community at 350l/EP/day exceeds the available storage. This is exacerbated in future years based on projected population change. An upgrade will be required either to the raw water storage or by supplementing the supply with a desalination plant.

The existing reservoir capacity requires upgrading now. Saibai's estimated population is anticipated to be the second highest in the Torres Strait yet the treated storage is only 120kL.

Table 4.12.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost ¹
LGIP Sewerage Infrastructure	Upgrade STP	Subject to population increase beyond 600 equivalent persons.	NA
Total			

1. Column 4 Establishment cost are not provided due to the need for detailed investigation in recognition of the unique development circumstances.

 **Editor's Note** – Existing STP has capacity to service 600 Equivalent Persons.

Table 4.12.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change.

Table 4.12.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change.

Table 4.12.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.13 St Pauls (on Moa Island)

4.13.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.13.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.13.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in section 4.13.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.13.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.13.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.13.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Moa Island (St Pauls) in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.13.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.13.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.13.2.1.1.

Table 4.13.2.1.1—Population assumptions summary – St Pauls (on Moa Island)

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	278	296	312	325	337	348	348

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.13.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Moa Island (St Pauls).

4.13.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.13.4.1 Water supply network

Table 4.13.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03—2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.13.4.2 Sewerage network

Table 4.13.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.13.4.3 Stormwater network

Table 4.13.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.13.4.4 Transport network

Table 4.13.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/ planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths¹. • Complete Streets

4.13.4.5 Public parks and land for community facilities network

Table 4.13.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> • Parks and land for community facilities is provided at a local, district and LGA-wide level • Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> • AUSTRROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths • Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services–promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> • Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) • National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies • Australian Standards

4.13.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.13.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Moa Island (St Pauls)
 - (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Moa Island (St Pauls)
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Moa Island (St Pauls)
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Moa Island (St Pauls)
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Moa Island (St Pauls)
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.13.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.13.5.2.1
 - (b) for the sewerage network, table 4.13.5.2.2
 - (c) for the stormwater network, table 4.13.5.2.3
 - (d) for the transport network, table 4.13.5.2.4
 - (e) for the parks and land for community facilities network, table 4.13.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.13.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Water is supplied via rainwater falling on the storage lagoon's catchment along with two infiltration galleries/wells. Annual water supply volumes are approximately 57ML while at 350ep/day, the estimate demand is 44ML.

The raw water storage volume is considered suitable providing adequate storage for the annual dry season.

Treated water storage is considered acceptable.

The capacity of the treatment plant is unknown and further investigations will be required to determine whether the equipment is designed to accommodate the anticipated future expansion.

Table 4.13.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing STP has capacity to service 1068 Equivalent Persons which is fit for purpose given projected population change.

Table 4.13.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change.

Table 4.13.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change.

Table 4.13.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.14 Ugar (Stephens) Island

4.14.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.14.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.14.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in section 4.14.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.14.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.14.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.14.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Ugar Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.14.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.14.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.14.2.1.1.

Table 4.14.2.1.1—Population assumptions summary – Ugar Island

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	52	51	49	48	48	47	47

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.14.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Ugar Island.

4.14.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.14.4.1 Water supply network

Table 4.14.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03–2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.14.4.2 Sewerage network

Table 4.14.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.14.4.3 Stormwater network

Table 4.14.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.14.4.4 Transport network

Table 4.14.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths¹. • Complete Streets

4.14.4.5 Public parks and land for community facilities network

Table 4.14.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> Parks and land for community facilities is provided at a local, district and LGA-wide level Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Land quality / suitability / minimum size / maximum grade / flood immunity	Public parks and land for community facilities will be provided to a standard that meets the needs of the community and supports a diverse range of recreational, sporting, health and services–promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> Local government standards in planning scheme and planning scheme policies
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> Australian Standards (AS 1428.4 – Design for access and mobility – Tactile indicators, AS 4419 – Soils for landscaping and garden use, AS 4586 – Slip resistance classification of new pedestrian surface materials, AS 4970 – Protection of trees in development sites) National Construction Code
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> Local government standards in planning scheme and planning scheme policies Australian Standards

4.14.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.14.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
 - (a) Local Government Infrastructure Plan Map LGIP – LGIP Area – Ugar Island
 - (b) Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Ugar Island
 - (c) Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Ugar Island
 - (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Ugar Island
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Ugar Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.14.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
 - (a) for the water supply network, table 4.13.5.2.1
 - (b) for the sewerage network, table 4.13.5.2.2
 - (c) for the stormwater network, table 4.13.5.2.3
 - (d) for the transport network, table 4.13.5.2.4
 - (e) for the parks and land for community facilities network, table 4.13.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.14.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Water is sourced from rainwater collected on the catchment for the covered and lined water storage lagoons and two bores. When required, a mobile desalination plant is mobilised to the community. At rates of 350l/EP/day and a population of 52, the safe yield provides in excess of a year's water storage. Simple water balance models indicate that the storage remains full for a design population of 75 EP, based on a safe yield from the bores of 25kL/day. For populations in excess of this, consideration should be given to supplementing the storage or installing a fulltime desalination unit.

The treated water storage was recently replaced as part of the Asset Sustainability Program with 2 x 50KL and 1 x 30KL tanks and a VSD. The tanks were sized as elevated storages and are suitable for a population of 79EP.

It would appear the treatment plant was constructed in 2000 for an estimated capacity of 25,000l/day. Based on consumption rates of 350l/EP/day, this will service approximately 70EP.

It is noted that the community is heavily contingent on the operation of the bores which have been known to fail in the past.

A new VSD pump was installed 2-3 years ago and provides suitable water pressures to the community. The design life of the pump was similar to the new tanks and should be upgraded when a population of 79EP is exceeded.

Table 4.14.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – The community is currently serviced by septic tank systems which is fit for purpose given projected population change.

Table 4.14.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change.

Table 4.14.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – Existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change.

Table 4.14.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

4.15 Warraber/Dhuwal Pad (Sue) Island

4.15.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the *Sustainable Planning Act 2009*.
- (2) The purpose of the local government infrastructure plan is to:
 - (a) integrate infrastructure planning with the land use planning identified in the planning scheme
 - (b) provide transparency regarding a local government's intentions for the provision of trunk infrastructure
 - (c) enable a local government to estimate the cost of infrastructure provision to assist its long term financial planning
 - (d) ensure that trunk infrastructure is planned and provided in an efficient and orderly manner.
 - (e) provide a basis for the imposition of conditions about infrastructure on development approvals.
- (3) The local government infrastructure plan:
 - (a) states in section 4.15.2 (planning assumptions) the assumptions about future growth and urban development including the assumptions of demand for each trunk infrastructure network
 - (b) identifies in section 4.15.3 (priority infrastructure area) the prioritised area to accommodate urban growth up to 2036.
 - (c) states in section 4.15.4 (desired standards of service) for each trunk infrastructure network the desired standard of performance
 - (d) identifies in section 4.15.5 (plans for trunk infrastructure) the existing and future trunk infrastructure for the following networks:
 - (i) water supply
 - (ii) sewerage
 - (iii) stormwater
 - (iv) transport
 - (v) parks and land for community facilities

4.15.2 Planning assumptions

- (1) The planning assumptions state the assumptions about:
 - (a) changes in population and employment
 - (b) the type, scale, location and timing of development including the demand for each trunk infrastructure network
- (2) The planning assumptions together with the desired standards of service form a basis for the planning of the trunk infrastructure networks and the determination of the priority infrastructure area.
- (3) The planning assumptions have been prepared for:
 - (a) the base date 2011 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016
 - (ii) mid 2021
 - (iii) mid 2031
 - (iv) mid 2036
 - (b) the LGIP development types in column 2 that include the uses in column 3 of table 4.15.2.1.
 - (c) the projection areas identified on Local Government Infrastructure Plan Map LGIP – LGIP Area – Warraber Island in Schedule 3—Local government infrastructure plan mapping and tables.

Table 4.15.2.1—Relationship between LGIP development categories, LGIP development types and uses

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Residential development	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling
	Detached dwelling	Dwelling house
Non-residential development	Commercial	Office
	Community purpose	Community use Place of worship Educational establishment Hospital
	Industry	Low impact industry High impact industry Medium impact industry
	Other	Animal husbandry Cropping Extractive industry
	Retail	Food and drink outlet Nightclub entertainment facility Shop Shopping centre Showroom

4.15.2.1 Changes in population and employment

- (1) A summary of the assumptions about changes in population and employment for the planning scheme area is stated in table 4.15.2.1.1.

Table 4.15.2.1.1—Population assumptions summary – Warraber Island

Column 1 Description	Column 2 Assumptions						
	Base Date 2011	2016	2021	2026	2031	2036	Ultimate development
Population	271	287	301	313	324	334	334

 **Editor's Note** – Customised population projections were derived from Queensland Government population projections, 2013 edition, Queensland Government. These customised projections were provided by the Queensland Government Statisticians Office.

Given the lack of reliable census and employment data for the TSIRC, employment, employment projections and non-residential floorspace projections have not been undertaken.

Given that housing in this community is largely government funded, supply of additional housing stock is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such residential floorspace projections have not been provided.

4.15.3 Priority infrastructure area

- (1) The priority infrastructure area identifies the area prioritised for the provision of trunk infrastructure to service the existing and assumed future urban development up to 2036.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Map LGIP — LGIP Area – Warraber Island.

4.15.4 Desired standards of service

- (1) This section states the key standards of performance for a trunk infrastructure network.
- (2) Details of the standard of service for a trunk infrastructure networks are identified in the extrinsic material.

4.15.4.1 Water supply network

Table 4.15.4.1.1—Water supply network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability/continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	<ul style="list-style-type: none"> • Water Service Association of Australia codes • IPWEA standards • Customer service standards • Standards in planning scheme, planning scheme policies and/or Netserv Plans
Quality of supply	Provide a uniform water quality in accordance with recognised standards that safeguards community health and is free from objectionable taste and odour.	<ul style="list-style-type: none"> • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council
Environmental impacts	The environmental impacts of the water supply network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection Policies and the <i>Water Act 2000</i>
Pressure and leakage management	The water supply network is monitored and managed to maintain the reliability and adequacy of supply and to minimise environmental impacts.	<ul style="list-style-type: none"> • System Leakage Management Plan (Chapter 3, Part 3, Division 1A <i>Water Act 2000</i>)

Infrastructure design/planning standards	Design of the water supply network will comply with established codes and standards.	<ul style="list-style-type: none"> • Water Supply Code of Australia—Water Services Association of Australia—WSA 03–2002 • The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council • Planning Guidelines for Water Supply and Sewerage—Department of Natural Resources and Water (NRW) • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.15.4.2 Sewerage network

Table 4.15.4.2.1—Sewerage network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	<ul style="list-style-type: none"> • Standards in planning scheme, planning scheme policies and/or Netserv Plans • Customer service standards • Customer service obligations
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	The environmental impacts of the sewerage network are minimised in accordance with community expectations.	<ul style="list-style-type: none"> • Compliance with the requirements of the <i>Environmental Protection Act 1994</i> and associated Environmental Protection policies
Effluent re-use	Reuse effluent wherever possible.	<ul style="list-style-type: none"> • Guidelines for Sewerage Systems: Reclaimed Water — February 2000 • Queensland Water Recycling Guidelines—December 2005

Infrastructure design /planning standards	Design of the sewerage network will comply with established codes and standards.	<ul style="list-style-type: none"> • Planning Guidelines for Water Supply and Sewerage—NRW • Sewerage Code of Australia—Water Services Association of Australia—WSA 02—2002 • Sewerage Pumping Station Code of Australia—Water Services Association of Australia—WSA 04—2005 • Standards in planning scheme, planning scheme policies and/or Netserv Plans
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4.15.4.3 Stormwater network

Table 4.15.4.3.1—Stormwater network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Quantity	Collect and convey stormwater in natural and engineered channels, a piped, drainage network and system of overland flow paths to a lawful point of discharge, in a safe manner that minimises the inundation of habitable rooms and protects life.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Transport and Main Roads - Road Drainage Design Manual
Quality	The water quality of urban catchments and waterways is managed to protect and enhance environmental values and pose no health risk to the community.	<ul style="list-style-type: none"> • Local water quality guidelines prepared in accordance with the National Water Quality Management Strategy • Queensland Water Quality Guidelines 2006—Environmental Protection Agency (EPA) (where local guidelines do not exist) • National Water Quality Guidelines—National Water Quality Management Strategy (where local or regional guidelines do not exist)
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	<ul style="list-style-type: none"> • Section 42 Environmental Protection [Water] Policy 1997) • Local Government standards in planning scheme and planning scheme policies

Infrastructure design/planning standards	Design of the stormwater network will comply with established codes and standards.	<ul style="list-style-type: none"> • Queensland Urban Drainage Manual—NRW • Local government standards in planning scheme and planning scheme policies • Natural Channel Design Guidelines • Transport and Main Roads - Road Drainage Design Manual
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4.15.4.4 Transport network

Table 4.15.4.4.1—Transport network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Road network design/planning standards	<p>The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.</p> <p>Design of the road system will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Interim Guide to Road Planning and Design Practice developed by the Department of Transport and Main Roads • Australian Standards • AUSTROADS guides
Public transport design/planning standards	<p>New urban development is designed to achieve safe and convenient walking distance to existing or potential bus stops, or existing or proposed demand-responsive public transport routes.</p>	<ul style="list-style-type: none"> • Local government design and development manual/standards/ codes in planning scheme and planning scheme policy • Design accords with the performance criteria set by Department of Transport and Main Roads • AUSTROADS guides for road-based public transport and high-occupancy vehicles
Cycleway and pathway design/ planning standards	<p>Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives.</p> <p>Design of the network will comply with established codes and standards.</p>	<ul style="list-style-type: none"> • Local government road design and development manual/ standards/codes in planning scheme and planning scheme policy • Australian Standards • AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths’. • Complete Streets

4.15.4.5 Public parks and land for community facilities network

Table 4.15.4.5.1—Public parks and land for community facilities network desired standards of service

Measure	Planning criteria (qualitative standards)	Design criteria (quantitative standards)
Functional network	A network of parks and land for community facilities is established to provide for the full range of recreational and sporting activities and provide for development of community facilities.	<ul style="list-style-type: none"> • Parks and land for community facilities is provided at a local, district and LGA-wide level • Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities.
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	<ul style="list-style-type: none"> • Parks and land for community facilities is provided at a local, district and LGA-wide level • Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities
Land quality/suitability Area/1000 persons minimum size maximum grade Flood immunity	Public parks and land for community facilities will be provided to a standard that supports a diverse range of recreational, sporting, health and services—promoting activities to meet community expectations. This includes ensuring land is of an appropriate size, configuration and slope, and has an acceptable level of flood immunity.	<ul style="list-style-type: none"> • AUSTRROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths • Australian Standards (AS 1428.1 – Design for access and mobility – General requirements for access – New building work, AS 2890 – Parking Facilities)
Facilities/embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies
Infrastructure design / performance standards	Maximise opportunities to co-locate recreational parks and community facilities in proximity to other community infrastructure, transport hubs and valued environmental and cultural assets.	<ul style="list-style-type: none"> • Local government standards in planning scheme and planning scheme policies • Australian Standards

4.15.5 Plans for trunk infrastructure

- (1) The plans for trunk infrastructure identify the trunk infrastructure networks intended to service the existing and assumed future urban development at the desired standard of service up to 2036.

4.15.5.1 Plans for trunk infrastructure maps

- (1) The existing and future trunk infrastructure networks are shown on the following maps in Schedule 3—Local government infrastructure plan mapping and tables:
- Local Government Infrastructure Plan Map LGIP – LGIP Area – Warraber Island
 - Local Government Infrastructure Plan Map LGIP – Transport Infrastructure – Warraber Island
 - Local Government Infrastructure Plan Map LGIP – Sewer Infrastructure – Warraber Island

- (d) Local Government Infrastructure Plan Map LGIP – Water Infrastructure – Warraber Island
 - (e) Local Government Infrastructure Plan Map LGIP – Community and Infrastructure – Warraber Island
- (2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.15.5.2 Schedules of works

- (1) The future trunk infrastructure is identified in the following table:
- (a) for the water supply network, table 4.15.5.2.1
 - (b) for the sewerage network, table 4.15.5.2.2
 - (c) for the stormwater network, table 4.15.5.2.3
 - (d) for the transport network, table 4.15.5.2.4
 - (e) for the parks and land for community facilities network, table 4.15.5.2.5

 **Editor's Note** – The following tables identify infrastructure capacity upgrades required to service existing urban areas based on population projection figures. Establishment costs have not been provided due to the complexities of infrastructure delivery in this remote locality.

Most housing in this community is government funded and the supply of additional housing stock within township expansion areas is directly related to government funding availability. On this basis, it is difficult to predict future projected dwellings and as such the trunk infrastructure required to service these expansion areas has not been identified or costed at this stage.

Table 4.15.5.2.1—Water supply network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost ¹
LGIP Water Infrastructure	Additional desalination unit	Subject to population growth beyond 400 EP	NA
LGIP Water Infrastructure	Upgrade treated water storage	Subject to population growth beyond 292 EP	NA
LGIP Water Infrastructure	Upgrade treatment plant capacity	Subject to population growth beyond 336 EP	NA
Total			

1. Column 4 Establishment costs are not provided due to the need for detailed investigation in recognition of the unique development circumstances.

 **Editor's Note** – An additional desalination unit (70kL/day capacity) will be required for a population of around 400EP.

No upgrades to raw water storage required as it is planned to augment the desalination capacity.

Treated water storage will require upgrading. Current capacity is 90kL and this is marginal for the current population. The water storage should be upgraded when populations exceed 292 equivalent persons.

The current capacity of the treatment plant is in excess of 200kL/day. This is suitable to accommodate the project population, however will require upgrade when population exceeds 334.

No reticulation upgrades are required. Pressures are delivered by a VSD. However, any future development should be accompanied by an investigation to confirm appropriate pressure is maintained.

Table 4.15.5.2.2—Sewerage network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost ¹
LGIP Sewerage Infrastructure	Upgrade STP	Subject to population increase beyond 300 equivalent persons.	NA
Total			

1. Column 4 Establishment costs are not provided due to the need for detailed investigation in recognition of the unique development circumstances.

 **Editor's Note** – Existing STP has capacity to service 300 Equivalent Persons.

Table 4.15.5.2.3—Stormwater network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor's Note** – There is limited formal stormwater infrastructure within the township. Natural runoff and infiltration is acceptable for the existing township and will be acceptable over the LGIP timeframe given the projected population change.

Table 4.15.5.2.4—Transport network schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			

 **Editor’s Note** – Existing roads are expected to be fit for purpose over the LGIP timeframe given projected population change. Extension to concrete paving may be required to provide access to the township expansion area.

Table 4.15.5.2.5—Parks and land for community facilities schedule of works

Column 1 Map reference	Column 2 Trunk infrastructure	Column 3 Estimated timing	Column 4 Establishment cost
	Nil		
Total			