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Part 4 Local government infrastructure plan

4.1 Preliminary

(1) This local government infrastructure plan (LGIP) has been prepared in accordance with the requirements of the *Planning Act 2016*.

(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; and

(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 (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 (Priority infrastructure area) the prioritised area to accommodate urban growth up to 2031;

(c) states in Section 4.4 (Desired standards of service) for each trunk infrastructure network the desired standard of performance;

(d) identifies in Section 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; and

(v) parks and land for community facilities.

(e) provides a list of supporting documents that assist in the interpretation of the local government infrastructure plan in the Editor's note – Extrinsic material at the end of Section 4.

4.2 Planning assumptions

(1) The planning assumptions state the assumptions about:

(a) population and employment growth; and

(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 2016 and the following projection years to accord with future Australian Bureau of Statistics census years:

(i) mid 2021;

(ii) mid 2026;

(iii) mid 2031; and

(iv) Ultimate development.

(b) the LGIP development types in column 2 that include the uses in column 3 of Table 4.2.1; and

(c) the projection areas identified on Local government infrastructure map – PAM – 01:06 (Projection area map) in Schedule 3—Local government infrastructure plan mapping and tables.

Table 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	Single dwellings	Caretaker's accommodation Community residence Dwelling house Dwelling unit Home-based business
	Multiple dwellings	Dual occupancy Multiple dwelling Relocatable home park Residential care facility Retirement facility Rooming accommodation Rural workers' accommodation Short-term accommodation
	Other dwellings	Nature-based tourism Non-resident workforce accommodation Resort complex Tourist park
Non-residential development	Retail	Adult store Agricultural supplies store Bulk landscape supplies Car wash

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
		Food and drink outlet Garden centre Hardware and trade supplies Hotel Outdoor sales Service station Shop Shopping centre
	Commercial	Bar Brothel Club Function facility Health care services Indoor sport and recreation Nightclub entertainment facility Office Sales office Showroom Theatre Tourist attraction Veterinary services
	Community purpose	Cemetery Child care centre Community care centre Community use Crematorium Detention facility Educational establishment Emergency services Funeral parlour Hospital Landing Major sport, recreation and entertainment facility Market Motor sport facility Outdoor sport and recreation Outstation Park Place of worship
	Industry	Air services Extractive industry High impact industry Low impact industry Marine industry Medium impact industry Research and technology industry Rural industry Service industry Special Industry Warehouse
	Other	Animal husbandry Animal keeping Aquaculture Cropping Environment facility Intensive animal industry

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
		Intensive horticulture Major electrical infrastructure Parking station Permanent plantation Port services Renewable energy facility Roadside stall Substation Telecommunications facility Transport depot Utility installation Wholesale nursery Winery

(4) Details of the methodology used to prepare the planning assumptions are stated in the extrinsic material.

4.2.1 Population and employment growth

(1) A summary of the assumptions about population and employment growth for the Planning Scheme area is stated in Table 4.2.1.1 Population and employment assumptions summary.

Table 4.2.1.1 Population and employment growth assumptions summary

Column 1 Description	Column 2 Assumptions				
	Base date 2016	2021	2026	2031	Ultimate development
Population	36,380	38,380	41,680	44,970	66,460
Employment	16,959	18,246	19,534	20,821	22,109

(2) Detailed assumptions about growth for each projection area and LGIP development type category are identified in the following tables in Schedule 3 Local government infrastructure plan mapping and tables:

(a) for population, Table SC3.1.1—Existing and projected population; and

(b) for employment, Table SC3.1.2—Existing and projected employees.

4.2.2 Development

(1) The developable area is represented by zones relating to urban uses excluding the Environmental zones category identified on Zone maps ZM – 01:29 and not affected by the protected areas identified on Environmental significance overlay maps ES–01:29.

(2) The planned density for future development is stated in Table SC3.1.3 in Schedule 3—Local government infrastructure plan mapping and tables.

(3) A summary of the assumptions about future residential and non-residential development for the Planning Scheme area is stated in Table 4.2.2.1 Residential dwellings and non-residential floor space assumptions summary.

Table 4.2.2.1 Residential dwellings and non-residential floor space assumptions summary

Column 1 Description	Column 2 Assumptions				
	Base date 2016	2021	2026	2031	Ultimate development
Residential dwellings	16,995	17,958	19,556	21,164	30,378
Non-residential floor space (m^2 GFA)	622,199	674,471	726,735	779,003	831,274

(4) Detailed assumptions about future development for each projection area and LGIP development type are identified in the following tables in Schedule 3 Local government infrastructure plan mapping and tables:

(a) for residential development, Table SC3.1.4; and

(b) for non-residential development, Table SC3.1.5.

4.2.3 Infrastructure demand

(1) The demand generation rate for a trunk infrastructure network is stated in Column 4 of Table SC3.1.3 in Schedule 3 Local government infrastructure plan mapping and tables.

(2) A summary of the projected infrastructure demand for each service catchment is stated in:

(a) for the water supply network, Table SC3.1.6;

(b) for the sewerage network, Table SC3.1.7;

(c) for the stormwater network, Table SC3.1.8;

(d) for the transport network Table SC3.1.9; and

(e) for the parks and land for community facilities network, Table SC3.1.10.

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 2031.

(2) The priority infrastructure area is identified on Local government infrastructure plan map – PAM – 01:06 (Projection area map).

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 each trunk infrastructure network is identified in the extrinsic material.

4.4.1 Water supply network

(1) Ensure drinking water complies with the National Health and Medical Research Council (NHMRC) Australian Drinking Water Guidelines and Whitsunday Regional Council's Drinking Water Quality Management Plan.

(2) Collect, store, treat and convey potable water from source to consumers in accordance with the *Water Act 2000*.

(3) Minimise non-revenue water loss.

(4) Design the water supply network in accordance with Council's adopted standards identified in the Planning Scheme, including the Equivalent Demands detailed in SC6.8 Whitsunday Regional Council development manual Planning Scheme policy, to provide:

  (a) average day consumption (AD) – 500 l/EP/day;

  (b) Mean Day max Month (MDMM) 1.5 x AD;

  (c) Peak Day (PD) 2.25 x AD;

  (d) Peak Hour (PH) 1/12 x PD;

  (e) minimum and maximum supply pressure of 220 kPa and 800 kPA at each property boundary; and

  (f) fire flow for residential (15 l/s for 2 hours), industrial and commercial (30 l/s for 4 hours) development.

(5) Design water systems to meet the requirements of the *Water Supply (Safety and Reliability) Act 2008* and Water Services Association of Australia (WSAA) guidelines.

4.4.2 Sewerage network

(1) Provide a reliable network that collects, stores, transports, treats and releases sewerage from premises.

(2) Design the sewerage network in accordance with:

(a) Council's adopted standards identified in the Planning Scheme;

(b) WSAA guidelines;

(c) the *Water Act 2000*;

(d) all Environmental Protection Agency (EPA) licence conditions;

(e) key design parameters identified in Table 4.4.2.1; and

(f) Equivalent Demands detailed in SC6.8 Whitsunday Regional Council development manual Planning Scheme policy.

Table 4.4.2.1 Key design parameters for the sewerage network

Column 1 Infrastructure item	Column 2 Design parameters
All (network)	**Average dry weather flow (ADWF)** 270l/EP/day **Peak wet weather flow (PWWF)** 5 x ADWF OR C_1 x ADWF (whichever is greater) $C_1 = 15 \times (EP)^{-0.1587}$ **Peak dry weather flow (PDWF)** C_2 x ADWF $C_2 = 4.7 (EP)^{-0.105}$
Pump stations	Emergency storage of 4 hours @ ADWF Installed pump capacity ≥ PWWF
Gravity sewers	Air space of at least 75% of pipe diameter at design flow Slope to achieve self-cleansing velocity
Rising mains	Minimum velocity: 0.75 m/s (Preferred 1.5 m/s) Maximum velocity: 2.5 m/s
Sewerage treatment / release	Existing and future DEHP licence conditions

4.4.3 Stormwater network[1]

(1) Collect and convey stormwater flows for both major 100 year flood events and minor low flow year flood events as per the specific land use requirements from existing and future land use in a manner that protects life and does not cause nuisance or inundation of property.

(2) Design the stormwater network to comply with Council's adopted standards identified in the Planning Scheme, which generally accord with the Queensland Urban Drainage Manual or the Transport and Main Roads Road Drainage Design Manual.

(3) Design road crossing structures to provide an appropriate level of flood immunity for a 50 and 10 year flood events for major and minor roads respectively in accordance with Council's adopted standards identified in the Planning Scheme.

(4) Meet water quality objectives for receiving waters at all times.

(5) Design the water quality system to achieve the minimum reductions in mean annual loads from unmitigated development in accordance with State Planning Policy July 2017 and WRC Stormwater Design Guideline.

[1] Drainage elements that form an inherent part of road infrastructure such as culverts and bridge structures can be included with road infrastructure planning.

4.4.4 Transport network

4.4.4.1 Roads

(1) Provide a functional urban hierarchy that supports settlement patterns, commercial and economic activities, and freight movement.

(2) Design the road network to comply with the following:

(a) adopted standards identified in the Planning Scheme;

(b) AUSTROADS guides;

(c) the Department of Transport and Main Roads Interim Guide to Road Planning and Design Practice;

(d) maximum road volume to capacity ratios identified in Table 4.4.4.1.1; and

(e) maximum degree of saturation for intersections identified in Table 4.4.4.1.2.

Table 4.4.4.1.1 Maximum volume to capacity ratios for the road network

Column 1 Infrastructure item	Column 2 Design parameters	
	Residential	Non-residential
Arterial	0.8	0.8
Sub-arterial	0.8	0.8
Major collector	0.8	0.8
Arterial (state-controlled)	0.8	0.8

Table 4.4.4.1.2 Maximum degree of saturation for road intersections

Column 1 Road network item	Column 2 Maximum degree of saturation
Traffic signals	0.9
Roundabout	0.9
Priority controlled	0.8

4.4.4.2 Footpaths and cycle ways

(1) Plan cycle ways and footpaths to provide a safe, attractive and convenient network that links residential areas to major activity nodes and public transport interchanges, thereby encouraging walking and cycling as acceptable travel alternatives.

(2) Design cycle ways (including on-road cycle ways) and footpaths to comply with council's adopted standards identified in the Planning Scheme.

4.4.4.3 Public transport

(1) Ensure development accommodates the integration of public transport services.

(2) Provide bus stops including bus bays, shelters, seating and bus information systems in accordance with adopted standards identified in the Planning Scheme

4.4.5 Public parks and land for community facilities network

(1) Provide an accessible network of parks, open space, and community facilities that meets the needs of residents and visitors in accordance with the rate of provision identified in Table 4.4.5.1 and accessibility standards outlined in Table 4.4.5.2.

(2) Ensure land for public parks and community facilities has:

(a) minimum land size as identified in Table 4.4.5.3;

(b) configuration, slope, and acceptable level of flood immunity in accordance with Table 4.4.5.3 and adopted standards identified in the Planning Scheme; and

(c) embellishments to complement the type and purpose of the public park as identified in Table 4.4.5.4.

Table 4.4.5.1 Rate of land provision for public parks and community facilities

Column 1 Infrastructure item	Column 2 Rate of provision (Ha/1000 people)	
	District	**Regional**
Recreation park	0.5	0.8
Sport park	1.2	1.0

Table 4.4.5.2 Accessibility standards for public parks and land for community facilities

Column 1 Infrastructure item	Column 2 Accessibility standard (km)[1]	
	District	**Regional**
Recreation park	2	25
Sport park	5	10
Notes: 1. 90% of population should be within this distance of a facility		

Table 4.4.5.3 Size of public parks for community facilities

Column 1 Characteristic	Column 2 Recreation park		Column 3 Sports park	
	District	**Regional**	**District**	**Regional**
Average (desired) size (Ha)	4	13	6	18
Shape of land	Preferred square to rectangular aspect ratio no greater than 2:1		Square or rectangle to maximise playing field area	
Minimum desired flood immunity (area)	20% > Q50 10% > Q100	50%> Q50 20% > Q100	Fields and courts > Q50 Built facilities > Q100	
Minimum desired grade	Max grade 1:10 for 80% of park, 1:14 where possible	Average grade 1:20, 1:50 for kick-about areas	Max grade of 1:80 for all playing surfaces	Laser levelling to a maximum gradient of 1:100 for all playing surfaces
Road frontage	30-50% of park perimeter to have direct road frontage, preferably on a collector road		25-50% of the park perimeter to have direct road frontage	

Table 4.4.5.4 Standard facilities/embellishments for public parks

Column 1 Embellishment	Column 2 Recreation park		Column 3 Sports park	
	District	Regional	District	Regional
Playground (activity node)	X	X	X	X
Other activity nodes (half court, rebound wall, skate facility, exercise equipment, etc.)	5 - 7	13	-	-
Fencing – bollards or log and rail to prohibit car access	X	X	X	X
Shade trees clustered near activity area	X	X	X	X
Turf	X	X	X	X
Landscaped garden beds	X	X	X	X
Irrigation	X	X	X	X
Internal pathways and paving	X	X	X	X
Bicycle racks	X	X	X	X
Signage	X	X	X	X
Shade structures	X	X	X[1]	X[1]
Tap / bubbler	X	X	X	X
Bench seating	X	X	X	X
Electric barbeque	X	X	-	-
Picnic shelters	X	X	-	-
Bins	X	X	X	X
Dog off leash area	X	X	-	-
Toilets	X[2]	X	X	X
Internal roads and car parking	-	X	X	X
Public recreation centre	-	-	X	X
Spectator facilities (grandstand)	-	-	X	X
Sports fields	-	-	X	X
Sports courts	-	-	X	X

1. Shade structures should be structures teams can stand under, not shade sails.

2. Only to be provided in certain district recreation parks based on popularity, location and type of use.

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 2031.

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 – PFTI WN – 01:06 (Water network plans for trunk infrastructure map);

(b) Local government infrastructure plan map – PFTI SN – 01:05 (Sewerage network plans for trunk infrastructure map);

(c) Local government infrastructure plan map – PFTI SWN – 01:05 (Stormwater network plans for trunk infrastructure map);

(d) Local government infrastructure plan map – PFTI TN – 01:05 (Transport network plans for trunk infrastructure map); and

(e) Local government infrastructure plan map – PFTI PCFN – 01:06 (Parks and land for community facilities network plans for trunk infrastructure map).

(2) The State infrastructure forming part of transport trunk infrastructure network has been identified using information provided by the relevant State infrastructure supplier.

4.5.2 Schedules of works

(1) Details of the existing and future trunk infrastructure networks are identified in the electronic Excel schedule of works model which can be viewed here: http://www.whitsunday.qld.gov.au/390/Infrastructure-Planning-and-Charges

(2) The future trunk infrastructure is identified in the following tables in Schedule 3—Local government infrastructure plan mapping and tables:

(a) for the water supply network, Table SC3.2.1;

(b) for the sewerage network, Table SC3.2.2;

(c) for the stormwater network, Table SC3.2.3;

(d) for the transport network, Table SC3.2.4; and

(e) for the parks and land for community facilities network, Table SC3.2.5.

Editor's note – Extrinsic material

The below table identifies the documents that assist in the interpretation of the Local government infrastructure plan and are extrinsic material under the *Statutory Instruments Act 1992.*

List of Extrinsic material

Column 1 Title of document	Column 2 Date	Column 3 Author
Whitsunday Region Economic Analysis: Economic and Population Study	November 2013	Norling Consulting Pty Ltd
Whitsunday Regional Council Urban Growth Study	May 2014	Whitsunday Regional Council
Whitsunday Regional Council Development Manual	28 June 2016	Whitsunday Regional Council
Trunk Infrastructure Definitions	May 2017	Whitsunday Regional Council
Local Government Infrastructure Plan (LGIP) and Schedule of Works Model (SOW) explanatory notes	October 2017	Whitsunday Regional Council
LGIP Checklist	May 2017	Whitsunday Regional Council
Department of Transport and Main Roads Consultation Letter	May 2017	Department of Transport and Main Roads
Whitsunday Regional Council Priority Infrastructure Plan Water and Sewerage Network Model Updates	May 2014	Hyder Consulting
LGIP Interim Review Checklist	October 2020	Whitsunday Regional Council
Whitsunday Regional Council Sewer and Water Network Modelling	March 2020	ARCADIS
W8 Removal Justification Report	October 2020	Whitsunday Regional Council