Part 4 Local government infrastructure plan

4.1 Preliminary

- (1) This local government infrastructure plan has been prepared in accordance with the requirements of the Act.
- (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;
 - 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:-
 - 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; and
 - (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) 2021;
 - (ii) 2026;
 - (iii) 2031;
 - (iv) 2036; and
 - (v) Ultimate Development;
 - (b) the LGIP development types in column 2 that include the uses in column 3 of Table 4.2.1;
 - (c) the projection areas identified on Local Government Infrastructure Plan Projection Area maps (LGIP-PA-1 to LGIP-PA-33) 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	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling Retirement facility Short-term accommodation
	Detached dwelling	Dwelling house Caretaker's accommodation
	Other dwelling	Community residence Home based business Relocatable home park Residential care facility Rooming accommodation Rural workers accommodation Tourist Park Outstation Workforce accommodation

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
Non-residential development	Commercial	Bar Club Function facility Hotel Indoor sport and recreation Nature-based tourism Nightclub entertainment facility Office Resort complex Theatre Tourist attraction
	Community purpose	Veterinary services Cemetery Child care centre Community care centre Crematorium Community use Detention facility Educational establishment Emergency services Funeral parlour Health care services Hospital Major sport, recreation and entertainment facility Motor sport facility Outdoor sport and recreation Park Place of Worship
	Industry	Extractive Industry High impact industry Low impact industry Marine industry Medium impact industry Research and technology industry Service industry Special industry Transport depot Warehouse
	Other	Air services Animal Husbandry Animal keeping Aquaculture Cropping Environment facility Intensive animal industry Intensive horticulture Landing Major electricity infrastructure Permanent plantation Port services Renewable energy facility Roadside stall

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
		Rural industry
		Substation
		Telecommunications facility
		Utility installation
		Winery
	Retail	Adult store
		Agricultural supplies store
		Brothel
		Bulk landscape supplies
		Car wash
		Food and drink outlet
		Garden centre
		Hardware and trade supplies
		Market
		Outdoor sales
		Parking station
		Sales office
		Service station
		Shop
		Shopping Centre
		Showroom
		Wholesale nursery

(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 assumptions summary

Column 1 Description	Column 2 Assumptions					
	Base date 2016	2021	2026	2031	2036	Ultimate development
Population	99,390	104,619	109,798	114,833	119,759	182,126
Employment	34,092	36,406	38,226	39,614	41,218	59,279

- (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; and
 - (b) for employment, Table SC3.1.2.

4.2.2 Development

- (1) The developable area is identified on Local Government Infrastructure Plan Priority Infrastructure Areas maps (LGIP-PIA-3 to LGIP-PIA-32) in Schedule 3—Local government infrastructure plan mapping and tables.
- (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	2036	Ultimate development
Residential dwellings	41,634	44,345	46,934	49,397	51,721	78,656
Non-residential floor space (m ² GFA)	2,014,062	2,150,774	2,258,330	2,340,329	2,435,067	3,502,055

- (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 Priority Infrastructure Areas maps (LGIP-PIA-3 to LGIP-PIA-32).

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 supported by the more detailed network standards included in planning scheme policies, legislation, statutory guidelines and other relevant controlled documents and design standards identified below.

4.4.1 Water supply network

Table 4.4.1.1 Water supply network desired standards of service

Measure	Planning criteria	Design criteria
Reliability/ continuity of supply	All development receives a reliable supply of potable water with minimal interruptions to their service.	BRC's standards in planning scheme and Planning Scheme Policy for Development Works BRC's Customer Service Standards for Water Supply and Sewerage Services Compliance with the Water Supply (Safety and Reliability) Act 2008
Adequacy of supply	All development is provided with a water supply that is adequate for the intended use.	 Water Service Association of Australia codes IPWEA standards BRC's standards in planning scheme and Planning Scheme Policy for Development Works BRC's Customer Service Standards for Water Supply and Sewerage Services
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.	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.	Compliance with the requirements of the Environmental Protection Act 1994 and associated Environmental Protection Policies and the Water Act 2000
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.	System Leakage Management Plan (Chapter 2, Part 4, Division 2, Water Supply (Safety and Reliability) Act 2008)
Infrastructure design /planning standards	Design of the water supply network will comply with established codes and standards.	Water Supply Code of Australia, WSA 03–2002, Water Services Association of Australia The Australian Drinking Water Guidelines developed by the National Health and Medical Research Council Planning Guidelines for Water Supply and Sewerage, Department of Environment and Resource Management, 2010 BRC's standards in planning scheme and Planning Scheme Policy for Development Works

4.4.2 Wastewater network

Table 4.4.2.1 Wastewater network desired standards of service

Measure	Planning criteria	Design criteria
Reliability	All development has access to a reliable sewerage collection, conveyance, treatment and disposal system.	BRC's standards in planning scheme and Planning Scheme Policy for Development Works BRC's Customer Service Standards for Water Supply and Sewerage Services
Quality of treatment	Ensures the health of the community and the safe and appropriate level of treatment and disposal of treated effluent.	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.	Compliance with the requirements of the Environmental Protection Act 1994 and associated Environmental Protection Policies
Effluent re-use	Reuse effluent wherever possible.	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.	Planning Guidelines for Water Supply and Sewerage, Department of Environment and Resource Management, 2010 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 BRC's standards in planning scheme and Planning Scheme Policy for Development Works

4.4.3 Stormwater network

Table 4.4.3.1 Stormwater network desired standards of service

Measure	Planning criteria	Design criteria
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.	Queensland Urban Drainage Manual—NRW Local government standards in planning scheme and planning scheme policies Department of 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.	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)

Measure	Planning criteria	Design criteria
Environmental impacts	Adopt water-sensitive urban design principles and on-site water quality management to achieve EPA water quality objectives.	 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.	 Queensland Urban Drainage Manual—NRW BRC's standards in planning scheme and Planning Scheme Policy for Development Works Natural Channel Design Guidelines Department of Transport and Main Roads - Road Drainage Design Manual

4.4.4 Transport network

Table 4.4.4.1 Transport network desired standards of service

Measure	Planning criteria	Design criteria
Efficiency	Design an integrated transport network that will improve the efficiency of all modes of transport (i.e., active, public, private and freight modes).	 BRC's road design and development manual/standards/codes in planning scheme and Planning Scheme Policy for Development Works Guide to Road Transport Planning, Austroads, 2009 Complete Streets: Guidelines for urban street design, 2010
Safety	Design an integrated transport network that will improve the safety of all modes of transport (i.e., active, public, private and freight modes).	 BRC's road design and development manual/standards/codes in planning scheme and Planning Scheme Policy for Development Works Guide to Road Transport Planning, Austroads, 2009 Complete Streets: Guidelines for urban street design, 2010
Road network design /planning standards	The road network provides a functional urban and rural hierarchy that supports settlement patterns, commercial and economic activities, and freight movement. Design of the road system will comply with established codes and standards.	 BRC's road design and development manual/standards/codes in planning scheme and Planning Scheme Policy for Development Works 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	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.	 BRC's road design and development manual/standards/codes in planning scheme and Planning Scheme Policy for Development Works 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	Cycleways and pathways provide a safe and convenient network that encourages walking and cycling as acceptable alternatives. Design of the network will comply with established codes and standards.	 BRC's road design and development manual/standards/codes in planning scheme and Planning Scheme Policy for Development Works Australian Standards AUSTROADS Guide to Road Design – Part 6A: Pedestrian and Cycle Paths'. Complete Streets: Guidelines for urban street design, 2010

4.4.5 Public parks and land for community facilities network

Table 4.4.5.1 Public parks and land for community facilities network desired standards of service

Measure	Planning criteria	Design criteria
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.	 Parks and land for community facilities are provided at a local, neighbourhood and regional level Parks and land for community facilities addresses the needs of both recreation and provides for development of community facilities.
Land quantity	Public parks and land for community facilities will be provided at a rate that matches population growth and development activity in the region.	The rate of land provision for public park and land for community facilities is identified in Table 4.4.5.2.
Accessibility	Public parks and land for community facilities will be located to ensure adequate pedestrian, cycle and vehicle access.	Accessibility standards are identified in Table 4.4.5.3.
Land characteristics	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.	Land characteristics for each type of park are identified in Table 4.4.5.4.
Facilities/ embellishments	Public parks contain a range of embellishments to complement the type and purpose of the park.	Standard embellishments for each type of park are identified in Table 4.4.5.5.
Infrastructure design/ performance standards	Design of landscaping and embellishments will comply with current policies and standards.	 BRC's standards in planning scheme and Planning Scheme Policy for Development Works Crime Prevention Through Environmental Design (CPTED) principles Australian Standards

Table 4.4.5.2 Rate of land provision for parks and land for community facilities

Area	Infrastructura tura	Rate of provision (ha/1000 people)			
Area	Infrastructure type	Local	Neighbourhood	Regional	
	Recreation park	0.5	0.5	0.6	
Urban	Sports park	-	0.6	1	
	Land for community facilities	-	0.5	-	
	Recreation park	-	0.5	0.6	
Rural residential	Sports park	-	-	-	
	Land for community facilities	-	0.5	-	
	Recreation park	-	-	0.6	
Balance of LGA	Sports park	-	-	-	
	Land for community facilities	-	0.5	-	

Table 4.4.5.3 Accessibility standard for parks

Infractructure ture	Accessibility standard (km)			
Infrastructure type	Local	Neighbourhood	Regional	
Recreation park	0.5	2	Whole Local Government Area	
Sport park	-	4	Whole Local Government Area	

Table 4.4.5.4 Land characteristics of parks and land for community facilities

Туре	Characteristics	Local	Neighbourhood	Regional		
71	Minimum size	0.5 ha	2 ha	6 ha		
	Shape of land	The preferred shape for a park is square to rectangular with the sides no greater than 2:1				
Recreation park	Minimum desired flood immunity	Park to be above the 20% AEP (Q5/5yr ARI) localised flood level with 15% of total area above Q100 and free of hazards.	Park to be above the 20% AEP (Q5/5yr ARI) localised flood level with at least 25% of total area above Q50 with main activity area/s above Q100	Park to be above the 20% AEP (Q5/5yr ARI) localised flood level with at least 50% of total area above Q50 with main activity area/s above Q100 and free of hazards		
	Maximum desired grade	Maximum grade of 1:10 for 80% of the area of the park (i.e. a maximum of 20% of the land may have a greater grade than 1:10)	Average grade of 1:10 for 80% of the area of the park. To facilitate wheelchair access to parks, areas with a grade of 1:14 will also be provided, where possible. Variable topography is satisfactory for the remaining area	Average grade of 1:20 for main use areas, 1:50 for kick about area, and variable topography for remainder		
	Road frontage	50% local road frontage where possible 50% of the park perimeter to have road frontage, preferably on a Tru Collector or Collector Street		bly on a Trunk		
Sport park	Minimum size	N/A	3ha This is sufficient to boast two fields/one oval collocating plus room for ancillary facilities (club house, toilets, car parking).	10ha This is sufficient to allow for six fields/three ovals plus room for ancillary facilities (club house, toilets, car parking).		
	Shape of land	N/A	To maximise the area available for playir fields, a square or rectangular shape is considered most efficient.			
	Minimum desired flood immunity	N/A	90% of land above Q20. Fields/courts above Q50. Facilities above Q100.	90% of land above Q20. Fields/courts above Q50. Built Facilities above Q100.		
	Maximum desired grade	N/A	1:80 for all playing surfaces.	Laser levelling to a maximum gradient of playing surface 1:100.		
	Road frontage	N/A	30 - 50% of the park perimeter to have direct road frontage, with vehicular accepreferably via a collector road.			

Table 4.4.5.5 Standard facilities/embellishments for parks

Infractructure	nfrastructure Recreation parks		Sports parks		
Infrastructure type	Local	Neighbour-	Regional	Neighbour-	Regional
Recreation activity areas – elements selected to be sensitive to the setting of the park and provide a mix of opportunities	1 unsheltered playset	hood 2 sheltered playset	3 sheltered playset	hood N/A	3
Seating and tables	2 unsheltered bench seats (sited near natural shaded areas)	3 sheltered picnic tables with seating and lighting	6 sheltered picnic tables with seating and lighting	2-3 sheltered pic seating and lighti Spectator seating of at least earth r seating stands pi	ng g should consist nounds, but
Barbecues	No	1 sheltered double barbecue	3 sheltered double barbecues located to service picnic nodes for individuals, families and large groups	N/A	
Bike racks	No	1 bike rack	2 bike racks	1 bike rack	2 bike racks
Rubbish bins	2 located near activity area, or at key access points	3 to service activity area/picnic nodes	4 or more to service activity areas, picnic nodes, key access/egress areas and pathways	3 or more to service activity area and fields	4 or more to service activity areas and fields
Landscaping	No	Moderate - trees/shade provision for informal picnic areas	Significant - trees/shade provision for informal picnic areas and play areas	Trees/shade pro- spectators, lands boundaries to bu light spill	caping of
Irrigation	No	Yes, in high us	e areas	Main field as a minimum	
Lighting	No	Yes, picnic nodes	Yes, picnic nodes and pathways	Yes and ensure lighting is possible on main field if demand emerges	Yes, main field
Paths (pedestrian/cycle)	No	No	Entrance and access paths, walking/cycling network. Minimum 2m width, but up to 3m in high use areas	No	Entrance and access paths, walking/cycling network. Minimum 2m width, but up to 3m in high use areas
Signage	Park name sign	Park name sign	Park name sign and interpretive signage and/or trail signage	Park name sign and field identification signage	
Tap/bubbler	No	Yes, one at each sheltered picnic area.	Yes, one at each sheltered picnic area.	Yes, located nea	r activity areas.

Infrastructure	Recreation parks			Sports parks	
type	Local	Neighbour- hood	Regional	Neighbour- hood	Regional
Toilets	No	1 toilet block	1 large toilet block	1 toilet block	1 large toilet block
Internal roads	No	No	As required to service car parking and access requirements	Yes	
Car parking	No	Yes, 10 to 20 spaces with additional on- road parking	Yes, minimum of 50 spaces, with additional provision available within close proximity	Yes, minimum of 100 spaces for a 2 field complex or 12 per court	Yes, minimum of 200 spaces for a 4 field complex or 12 per court
Bus pull-through parking	No	No	Yes		
Bus parking	No			Yes	
Wheelchair accessibility	Yes				
Court/fields	N/A			2 rectangular fields minimum, with capacity for additional facilities/courts as required	6 rectangular fields minimum, with capacity for additional facilities/courts as required
Goal posts/line marking	N/A			Yes	

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 the planning horizon stated for each trunk infrastructure network in Table 4.5.1—Planning horizon for a trunk infrastructure network.

Table 4.5.1—Planning horizon for a trunk infrastructure network

Column 1 Trunk infrastructure network	Column 2 Planning horizon
Water supply	50 years
Sewerage	50 years
Stormwater	20 years
Transport	30 years
Parks and land for community facilities	20 years

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) LGIP 2017 Priority Infrastructure Areas (LGIP-PIA-3, 5, 6, 8, 9, 13-21, 23-27, 31 and 32),
 - (b) LGIP 2017 Water Supply Network Trunk Infrastructure (LGIP-WSN-2, 3, 5, 6, 8-10, 13-32),
 - (c) LGIP 2017 Wastewater Network Trunk Infrastructure (LGIP-WWN-3, 5, 6, 8, 9, 14-21, 23-27, 31 and 32),
 - (d) LGIP 2017 Stormwater Network Trunk Infrastructure (LGIP-SWN-1-33),
 - (e) LGIP 2017 Transport Network (Pathways) Trunk Infrastructure (LGIP-TNP-1-33),
 - (f) LGIP 2017 Transport Network (Roads) Trunk Infrastructure (LGIP-TNR-1-33), and
 - (g) LGIP 2017 Public Parks and Land for Community Facilities Trunk Infrastructure (LGIP-PPCLF-1-33).
- (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 is available on Council's website, http://www.bundaberg.qld.gov.au.
- 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
BRC Extrinsic Material to the Local Government Infrastructure Plan	06/12/2017	Integran
BRC Population and Demand Spatial Model – Methodology and Assumptions	6/4/2016	Integran