

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 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 (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 2028;
 - (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) Wastewater;
 - (iii) Transport (roads);
 - (iv) Transport (pedestrian and cycle movement);
 - (v) Stormwater;
 - (vi) Public 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;
 - (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 2013 and the following projection years to accord with future Australian Bureau of Statistics census years:
 - (i) mid 2016;
 - (ii) mid 2021;
 - (iii) mid 2026;
 - (iv) mid 2031;
 - (v) ultimate development.
- (b) the LGIP development types in Column 2 that include the uses in Column 3 of Table 4.2.1.a.
- (c) the projection areas identified on Local Government Infrastructure Plan Priority Infrastructure Area (PIA) Maps PIA-01 - PIA-10 in Schedule 3 - Local government infrastructure plan mapping and tables.

Table 4.2.1.a - 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	Detached dwelling	Caretaker's accommodation Dwelling house
	Attached dwelling	Dual occupancy Dwelling unit Multiple dwelling Retirement facility Short-term accommodation
	Other dwelling	Community residence Home based business Non-resident workforce accommodation Relocatable home park Residential care facility Rooming accommodation Rural workers accommodation Tourist Park
Non-residential development	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

Column 1 LGIP development category	Column 2 LGIP development type	Column 3 Uses
	Commercial	Bar Club Function facility Hotel Indoor sport and recreation Nature-based tourism Nightclub entertainment facility Office Resort complex Theatre Tourist attraction Veterinary services
	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
	Community Purposes	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
	Rural and Other Uses	Air services 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 Landing Major electrical infrastructure Permanent plantation Port services Renewable energy facility Roadside stall Rural industry Substation Telecommunications facility Utility installation 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.a - Population and employment assumptions summary.

Table 4.2.1.1.a - Population and employment assumptions summary

Column 1 Description	Column 2 Assumptions					
	Base date (2013)	2016	2021	2026	2031	Ultimate development
Population	176,846	188,908	210,053	231,624	253,320	299,156
Employment	67,495	72,495	80,674	89,161	100,158	115,473

- (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 SC3.2.1.a - Existing and projected population;
 - (b) for employment, Table SC3.2.2.a - Existing and projected employees.

4.2.2 Development

- (1) The developable area is identified on Local Government Infrastructure Plan Priority Infrastructure Area (PIA) Maps PIA-01 – PIA-10 in Schedule 3 - Local government infrastructure plan mapping and tables.
- (2) The planned density for future development is stated in Table SC3.2.3.a 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.a - Residential dwellings and non-residential floor space assumptions summary.

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

Column 1 Description	Column 2 Assumptions					
	Base date (2013)	2016	2021	2026	2031	Ultimate development
Residential dwellings	70,821	76,818	86,528	96,445	106,592	127,017
Non-residential floor space (m ² GFA)	3,219,854	3,457,091	3,839,555	4,237,655	4,723,527	5,468,996

- (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 SC3.2.5.a - Existing and projected residential dwellings;
 - (b) for non-residential development, Table SC3.2.6.a - Existing and projected non-residential floor space.

4.2.3 Infrastructure demand

- (1) The demand generation rate for a trunk infrastructure network is stated in Column 3 of Table SC3.2.4 - Planned density and demand generation rate for a trunk infrastructure network 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 4.2.3.1.a – Water supply network – assumed demand summary;
 - (b) for the wastewater network, Table 4.2.3.2.a – Wastewater network – assumed demand summary;
 - (c) for the transport (roads) network, Table 4.2.3.3.a – Transport (roads) network – assumed demand summary;
 - (d) for the transport (pedestrian and cycle) network, Table 4.2.3.4.a – Transport (pedestrian and cycle movement) network – assumed demand summary;
 - (e) for the stormwater network, Table 4.2.3.5.a – Stormwater network – assumed demand summary;
 - (f) for the public parks and land for community facilities network, Table 4.2.3.6.a – Public parks and land for community facilities network – assumed demand summary.

Table 4.2.3.1.a – Water supply network – assumed demand summary

Column 1 Service Catchment ¹	Column 2 Existing and projected demand (EDU)					
	2013 (base date)	2016	2021	2026	2031	Ultimate
Palm Cove / Moore Rd (W1)	6,378	6,921	7,763	8,540	9,171	9,844
University (W2)	9,785	11,214	13,487	15,740	17,511	19,206
Brinsmead / Redlynch (W3)	7,701	8,282	9,184	10,059	10,708	11,008
City (W4)	33,604	36,208	40,816	45,594	50,526	57,558
Red Hill (W5)	7,432	8,076	9,106	10,079	10,989	12,163
Edmonton (W6)	9,528	10,732	12,805	14,939	16,632	22,326
Gordonvale (W7)	3,309	3,675	4,287	4,996	5,814	6,339
Babinda (W8)	846	871	928	1,022	1,119	1,312
Goldsborough (W10)	280	318	378	440	492	690

Table 4.2.3.2.a – Wastewater network – assumed demand summary

Column 1 Service Catchment ²	Column 2 Existing and projected demand (EDU)					
	2013 (base date)	2016	2021	2026	2031	Ultimate
Marlin Coast (WW1)	14,348	16,214	19,155	22,013	24,248	26,538
Northern (WW2)	25,755	27,894	31,521	35,211	38,804	43,974
Southern (WW3)	23,367	24,975	27,737	30,512	33,176	35,883
Edmonton (WW4)	8,736	9,810	11,659	13,560	14,937	19,225
Gordonvale (WW5)	2,347	2,614	3,061	3,595	4,217	4,679
Babinda (WW6)	660	681	725	807	891	1,061

¹ The service catchment for the water supply network is identified on Local Government Infrastructure Plan Water Supply Catchment Maps CM WS-01 - CM WS-06 in Schedule 3 (local government infrastructure mapping and tables).

² The service catchment for the wastewater network is identified on Local Government Infrastructure Plan Wastewater Catchment Map CM SEW-01 – CM SEW-05 in Schedule 3 (local government infrastructure mapping and tables).

Table 4.2.3.3.a – Transport (roads) network – assumed demand summary

Column 1 Service Catchment ³	Column 2 Existing and projected demand (EDU)					
	2013 (base date)	2016	2021	2026	2031	Ultimate
Cairns Urban (TR1)	77,904	85,244	97,626	110,124	122,239	150,323
Gordonvale / Goldsborough (TR2)	3,329	3,663	4,213	4,853	6,039	7,343
Babinda (TR3)	854	887	953	1,095	1,240	1,536
Rural Lands (TR4)	1,871	2,027	2,283	2,544	2,805	2,677

Table 4.2.3.4.a – Transport (pedestrian and cycle) network – assumed demand summary

Column 1 Service Catchment ⁴	Column 2 Existing and projected demand (EDU)					
	2013 (base date)	2016	2021	2026	2031	Ultimate
Cairns Urban (TR1)	58,920	63,895	72,165	80,460	88,165	106,032
Gordonvale / Goldsborough (TR2)	2,621	2,860	3,248	3,710	4,651	5,424
Babinda (TR3)	589	599	617	634	650	674
Rural Lands (TR4)	1,398	1,509	1,688	1,871	2,052	1,946

Table 4.2.3.5.a – Stormwater network – assumed demand summary

Column 1 Service Catchment ⁵	Column 2 Existing and projected demand (Impervious Ha)					
	2013 (base date)	2016	2021	2026	2031	Ultimate
Palm Cove (SW1)	31	32	34	36	38	41
Sweet Creek (SW2)	28	30	33	36	39	44
Delaney Creek (SW3)	31	34	38	41	45	52
Deadmans Gully/Clifton Beach (SW4)	37	39	40	42	44	47

³ The service catchment for the transport (roads) network is identified on Local Government Infrastructure Plan Transport Catchment Map CM TR-01 – CM TR-03 in Schedule 3 (local government infrastructure mapping and tables).

⁴ The service catchment for the transport (pedestrian and cycle) network is identified on Local Government Infrastructure Plan Transport Catchment Map CM TR-P-01 – CM TR-P-03 in Schedule 3 (local government infrastructure mapping and tables).

⁵ The service catchment for the stormwater network is identified on Local Government Infrastructure Plan Stormwater Catchment Map CM SW-01 – CM SW-06 in Schedule 3 (local government infrastructure mapping and tables).

Column 1 Service Catchment ⁵	Column 2 Existing and projected demand (Impervious Ha)					
	2013 (base date)	2016	2021	2026	2031	Ultimate
Deep Creek/Kewarra Beach (SW5)	109	115	123	132	140	152
Cayley Street Drain/Trinity Beach (SW6)	84	86	89	92	95	98
Moore's Gully/Trinity Park (SW7)	83	89	100	110	120	137
Smithfield/Yorkeys Knob/Moon River (SW8)	240	265	305	344	382	434
Barron River Delta (SW9)	44	48	55	61	67	76
Richters/Thomatis Creek (SW9a)	41	43	45	48	50	52
Barr Creek (SW9b)	49	51	55	58	60	62
Redden Creek (SW9c)	21	22	23	25	26	26
Stony Creek/Rainforest Estate (SW10)	8	9	9	10	10	10
Kamerunga (SW11)	13	14	16	17	19	20
Lower Freshwater (SW12)	65	68	73	78	83	88
Stratford (SW13)	44	45	47	50	52	54
Redlynch (SW14)	27	29	32	35	38	43
Marinos (SW15)	28	30	34	37	41	46
Shaws Road (SW16)	6	6	6	7	7	7
Bella Vista Main Drain (SW17)	80	82	85	89	93	95
Rices Gully (SW18)	30	31	33	35	37	38
Freshwater Creek (SW19)	78	84	93	102	111	124
Cheepi Creek (SW20)	9	9	10	10	11	11
Saltwater Creek (SW21)	403	415	435	456	478	498
Cairns Business District (SW22)	207	211	219	226	235	247

Column 1 Service Catchment ⁵	Column 2 Existing and projected demand (Impervious Ha)					
	2013 (base date)	2016	2021	2026	2031	Ultimate
Fearnley Street Drain (SW23)	191	198	211	223	237	253
Chinaman Creek (SW24)	622	644	679	716	757	798
Clarkes Creek (SW25)	78	80	84	88	93	96
Gordon Creek (SW26)	119	123	130	138	146	154
Crowleys Creek (SW27)	56	58	61	65	68	73
Sawpit Gully (SW28)	84	87	91	96	100	107
Skeleton Creek (SW30)	203	214	231	248	269	310
Blackfellows Creek (SW31)	145	164	196	229	271	371
Collinson Mckinnon Creek (SW32)	132	147	170	194	225	298
Stony Creek (SW33)	16	4	8	12	20	88
Wrights Creek (SW34)	11	8	22	40	74	384
Mackey Creek (SW35)	28	9	17	28	47	220
O'learys Creek (SW36)	103	111	125	140	155	181
Fishery Falls/Deeral (SW37)	10	11	12	14	16	15
Babinda (Sw38)	53	58	66	78	91	116
Bramston Beach (SW39)	12	13	15	17	19	19
Vico Street (SW40)	27	29	32	36	38	42
River Stone (SW41)	58	63	73	82	93	114

Table 4.2.3.6.a – Public parks and land for community facilities network – assumed demand summary

Column 1 Service Catchment ⁶	Column 2 Existing and projected demand (EDU)					
	2013 (base date)	2016	2021	2026	2031	Ultimate
Cairns Beaches (N 1)	7,671	8,401	9,542	10,644	11,524	12,470
Barron - Smithfield (N 2)	6,262	7,081	8,351	9,583	10,491	11,111
Freshwater - Stratford - Aeroglen (C 1)	1,479	1,564	1,703	1,846	1,954	1,997
Redlynch Valley (C 2)	3,086	3,401	3,875	4,329	4,635	4,698
Inner Suburbs (C 3)	22,284	23,573	25,821	28,133	30,348	32,097
CBD - North Cairns (C 4)	6,008	6,729	7,983	9,277	10,684	13,543
Portsmith - Woree Industrial (C 5)	320	367	435	480	511	522
White Rock - Edmonton (C 6)	10,942	11,877	13,307	14,670	15,661	16,262
Mt Peter (S 1)	74	91	304	620	1,444	12,365
Gordonvale – Goldsborough (S 2)	1,932	2,116	2,416	2,791	3,665	4,239
Babinda (R 1)	582	592	609	626	642	665
Rural Towns and Villages (R 2)	1,363	1,470	1,643	1,818	1,993	1,890
Northern (N 1 & N 2)	14,199	15,757	18,183	20,532	22,336	23,923
Central (C 1 to C 6)	44,644	48,049	53,683	59,316	64,397	69,745
Southern (S 1 & S 2)	2,698	2,951	3,552	4,331	6,095	17,788
Remainder (R 1 & R 2)	1,987	2,108	2,305	2,504	2,701	2,620
Cairns City (All Areas)	63,528	68,857	77,705	86,654	95,489	114,075

⁶ The service catchment for the public parks and land for community facilities network is identified on Local Government Infrastructure Plan Public Parks and Land for Community Facilities Catchment Map CM PPCLF-01 – CM PPCLF-03 in Schedule 3 (local government infrastructure mapping and tables).

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 2028.
- (2) The priority infrastructure area is identified on Local Government Infrastructure Plan Priority Infrastructure Area (PIA) Maps PIA-01 – PIA-10 in Schedule 3 - Local government infrastructure plan mapping and tables.

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.

4.4.1 Water supply network

Table 4.4.1.1.a – Desired Standards of Service – Water Supply

Planning Standard	Community Outcome
Ensure drinking water complies with the NHMRC Australian Drinking Water Guidelines.	<ul style="list-style-type: none"> • Provides uniform quality of water monitored in relation to recognised standards • Provide a safe and reliable water supply • Safeguards community health
Water infrastructure provides for system operation and monitoring in accordance with recognised standards.	<ul style="list-style-type: none"> • Ensures environmental controls are maintained • Ensures potable water is provided in a manner consistent with environmental standards
Reduce non-revenue water (water that has been produced and is 'lost' before it reaches the customer, including physical losses or leakages, commercial losses such as water meter inaccuracies, unauthorised consumption, and data handling errors, and unbilled authorised consumption such as water used for firefighting).	<ul style="list-style-type: none"> • Extend asset life • Improve environmental flows • Reduced greenhouse gas emissions • Reduce extraction of water from source
Provide infrastructure which optimises whole of life costs.	<ul style="list-style-type: none"> • Cost effective service for community • Reduced energy cost • Reduced greenhouse gas emissions • Reduced maintenance costs • Reduced overall operation costs • Reduced replacement costs • Reduction in disposal of waste • Reduced environmental effects from chemical production
Design water supply infrastructure to comply with: <ul style="list-style-type: none"> • Far North Queensland Regional Organisation of Councils (FNQROC) Development Manual, where relevant to Trunk Infrastructure • Customer Service Standards 	<ul style="list-style-type: none"> • Provides uniform quality of water monitored in relation to recognised standards • Provide a safe and reliable water supply • Safeguards community health

<ul style="list-style-type: none"> • Water Act 2000 • Plans for Trunk Infrastructure – Water Supply 	
Design Standard	Community Outcome
<p>Design water supply infrastructure to comply with:</p> <ul style="list-style-type: none"> • Far North Queensland Regional Organisation of Councils (FNQROC) Development Manual, where relevant to Trunk Infrastructure • Customer Service Standards • Water Act 2000 • Plans for Trunk Infrastructure – Water Supply 	<ul style="list-style-type: none"> • Provides uniform quality of water monitored in relation to recognised standards • Provide a safe and reliable water supply • Safeguards community health

4.4.2 Wastewater network

Table 4.4.2.1.a – Desired Standards of Service – Wastewater

Planning Standard	Community Outcome
<p>Ensure wastewater collection, transportation and treatment system remains effective and compliant with relevant legislation and licence conditions.</p>	<ul style="list-style-type: none"> • Reduced impact from blockages, overflows and spills • Reduced impact on residents • Reduced lease of Nitrogen and phosphorous to aquatic ecosystems • Improved community health • Reduced greenhouse gas emissions
<p>Provide infrastructure which optimises whole of life costs.</p>	<ul style="list-style-type: none"> • Cost effective service for community • Reduced energy cost • Reduced maintenance costs • Reduced overall operation costs • Reduced replacement costs • Reduction in disposal of waste • Reduced greenhouse gas emissions • Reduced environmental effects from chemical production
Design Standard	Community Outcome
<p>Design wastewater infrastructure to comply with:</p> <ul style="list-style-type: none"> • FNQROC Development Manual, where relevant to Trunk Infrastructure • Customer Service Standards • Water Act 2000 • Plans for Trunk Infrastructure - Wastewater 	<ul style="list-style-type: none"> • Noise control • No adverse visual effect • Control of overflows from system • Improves community health • Reduction in contaminated discharges • Reduced odour emissions
<p>Ensure infiltration and inflow in new wastewater collection and transportation systems remain within industry acceptable limits (compliance with Environmental licences, IEMS and associated EMPs) and is minimised to a practical extent in existing systems.</p>	<ul style="list-style-type: none"> • Reduced cost of energy for effluent transport, treatment and disposal • Minimise customer overflow issues • Maximise life of system • Reduced overflows to local waterways

4.4.3 Transport network

Table 4.4.3.1.a – Desired Standards of Service – Transport

Planning Standard	Community Outcome
Road Network	
The existing and future role and function of the road network is defined by a functional road hierarchy for the Region.	<ul style="list-style-type: none"> The road hierarchy supports the preferred settlement patterns as well as the expected growth and development of the Region A functional, safe and efficient transport network is established Transport infrastructure is provided in an integrated and timely manner
Pedestrian and Cycle Movement Network	
A safe, efficient and attractive pedestrian and cycle movement network is established for the Region.	<p>The pedestrian and cycle movement network:</p> <ul style="list-style-type: none"> promotes active transport opportunities Improves connectivity in the Region Active transport infrastructure is provided in an integrated and timely manner.
Design Standard	Community Outcome
Road Network	
Road network system is designed and provided in accordance with: <ul style="list-style-type: none"> Queensland Streets, Queensland Residential Design Guidelines, FNQROC Development Manual, DTMR and Australian Standards Plans for Trunk Infrastructure – Road Network 	<ul style="list-style-type: none"> A functional, safe and efficient transport network is established Transport infrastructure is provided in an integrated and timely manner Infrastructure provided meets recognised standards
Pedestrian and Cycle Movement Network	
Pedestrian and Cycle movement network is designed and provided in accordance with: <ul style="list-style-type: none"> FNQROC Development Manual Queensland Streets, Queensland Residential Design Guidelines Austroads, DTMR and Australian Standards Plans for Trunk Infrastructure – Pedestrian and Cycle Movement Network 	<ul style="list-style-type: none"> Active transport opportunities are promoted Connectivity is improved in the Region Infrastructure provided meets recognised standards

4.4.4 Stormwater network

Table 4.4.4.1.a – Desired Standards of Service – Stormwater

Planning Standard	Community Outcome
Provide a system of shared stormwater infrastructure allowing for safe drainage of urban land while maintaining or improving the quality of run-off.	<ul style="list-style-type: none"> Minimises inundation of habitable areas Minimises the damage and risk associated with flooding Minimises the impact of development on the ecological health and water quality within waterway corridor

<p>Ensure the use of Water Sensitive Urban Design and other types of on-site infrastructure to minimise impact on the natural environment</p>	<ul style="list-style-type: none"> • Provides waterways infrastructure at the lowest life cycle cost • Reduces the scale of built infrastructure by optimising on site solutions • Improves water quality at the point of discharge to benefit the natural waterway corridor's health
<p>Ensure sufficient buffers from urban development are along waterway corridors for ecological links (including the rehabilitation of degraded waterway corridor banks, where required).</p>	<ul style="list-style-type: none"> • Maintain or improve environment amenity such as scenic values and natural construction • Erosion and sedimentation run off is minimised • Negative impacts on adjoining and downstream properties are minimised • Protects environmentally sensitive areas from development
<p>Ensure natural stream processes are maintained within waterway corridors.</p>	<ul style="list-style-type: none"> • Reduces the need for costly structural treatments of waterway corridor banks • Provides for natural processes of accretion, erosion and sedimentation and reduces environmental effects from pollution • Increases regional water quality
Design Standard	Community Outcome
<p>Design stormwater infrastructure to comply with:</p> <ul style="list-style-type: none"> • Far North Queensland Regional Organisation of Councils (FNQROC) Design Manual • Queensland Urban Drainage Manual (QUDM) • EPA requirements and guidelines 	<ul style="list-style-type: none"> • Free and safe drainage of urban land • Maintain or improve water quality and ecological health
<p>Implement Water Sensitive Urban Design principles to achieve maximum on site quantity and quality treatment and minimise offsite discharge.</p>	<ul style="list-style-type: none"> • Maximise the water quality on site • Negative impacts on adjoining and downstream properties are minimised
<p>Implement regional and on-site detention facilities to minimise the impact of peak run-off for the full range of Annual Exceedance Probability (AEP) events (100% AEP to 1% AEP) from developments, taking into account safety and risk.</p> <p>Design detention basins to maintain pre-development peak flow levels from the development site for all flood events (100% AEP to 1% AEP).</p> <p>Design Detention Basins in the same catchment to ensure that the coincident peak discharge at downstream control points is not increased.</p>	<ul style="list-style-type: none"> • Reduces the cumulative impact from existing and future developments on peak flow levels • Reduces the need to increase the size of waterway corridors and underground drainage • Increases active and passive recreation opportunities • Minimises the impact on the environmental values of downstream waterway corridors by maintaining pre-development flows and velocities • Reduces downstream sedimentation by slowing flow velocities

<p>Design bridges and culverts with appropriate flood immunity and capacity to convey floodwater, taking into account the Council's road hierarchy.</p> <p>Construction of bridges and culverts must not adversely impact on the natural environment, such as through the loss of vegetation and undesirable impacts on bio-diversity.</p> <p>Design bridges and culverts to maintain fauna and recreational links.</p>	<ul style="list-style-type: none"> • Ensures road crossings operate safely in times of inundation • Reduces the risk of flooding for surrounding properties • Provides opportunities for extended pedestrian and bicycle links • Enhances ecological links
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4.4.5 Public parks and land for community facilities network

Table 4.4.5.1.a – Desired Standards of Service – Public parks and land for community facilities

Planning Standard	Community Outcome
<p>Provide a connected and accessible network of parks, open space, and community facilities that meet the needs of the City's residents and visitors.</p>	<ul style="list-style-type: none"> • Provides opportunities for access and increased usage of open space, recreational and community facilities • Provides for an appropriate balance of land uses and ensures high levels of amenity in the urban form • Provides a basis for a healthy and active community
<p>Ensure strong linkages and, where possible, co-location of existing and future parks, open space and community facilities.</p>	<ul style="list-style-type: none"> • Ensures utilisation of existing and future assets while maintaining maximum access
<p>Provide embellishments to public parks, commensurate with the range of activities envisaged.</p>	<ul style="list-style-type: none"> • Provides open space embellishments that meet the needs of the community by providing a range of facilities for social activities and/or fitness/recreational pursuits • Ensures activities are met and contained within designated areas - reducing potential off site impacts to other more sensitive areas in the Local government
<p>Ensure that existing and future parks, open space and community facilities with significant environmental, waterway or cultural heritage value are managed appropriately.</p>	<ul style="list-style-type: none"> • Protects and enhances items of cultural interest in the Local government for the benefit of current and future communities in the Local government • Provides a basis for tourism opportunities • Protection of the natural landscape ensures maintenance of quality of air, water and land resources reducing negative impacts requiring amelioration • Recreational and sporting parks promote the health and well-being of the Local government's residents
Design Standard	Community Outcome
<p>Public parks and community land areas are provided in accordance with the preferred quantity, distribution (City Wide, district, local, sporting, community), quality and level of</p>	<ul style="list-style-type: none"> • Provides a standard of service reflecting the communities' needs as identified by the local government's adopted strategies • Provides access to recreation and sporting

<p>development specified in the ‘Cairns Public Open Space Policy’ and Plans for Trunk Infrastructure – Public Parks and Land for Community Facilities.</p> <p>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 4.4.5.2, the accessibility standards outlined in Table 4.4.5.3, and quality standards outlined in Table 4.4.5.5. Ensure land for public parks and community facilities has minimum land size as identified in Table 4.4.5.4.</p>	<p>parks with a diverse range of activity opportunities and landscape settings to encourage healthy lifestyles and maximise opportunities for activity</p> <ul style="list-style-type: none"> • Recreation and open space facilities are managed in the most efficient and cost effective way • Recreation and open space facilities can be safely and conveniently accessed by all existing and potential users
<p>Land provided for parks, recreation, and sport is not constrained by physical, environmental or other hazards.</p>	<ul style="list-style-type: none"> • Ensure adequate provision of safe, accessible and usable facilities
<p>Public park embellishments are provided in accordance with the ‘Cairns Public Open Space Policy’ and the Plans for Trunk Infrastructure – Public Parks and Land for Community Facilities. Embellish public parks to complement the type and purpose of the public park as identified in Table 4.4.5.6.</p>	<ul style="list-style-type: none"> • Provides a range of park types that are suitably embellished to meeting their purpose within the park hierarchy

Table 4.4.5.2.a Rate of land provision for public parks and community facilities

Infrastructure item	Rate of provision (Ha/1000 people)		
	Local (Level 1)	District (Level 2)	City-wide (Level 3)
Recreation park (2.5 Ha/1000)	1 Ha/1000	1.3 Ha/1000	0.2 Ha/1000
Sport park (2 Ha/1000)	0	1.6 Ha/1000	0.4 Ha/1000
Land for community facilities (0.3 Ha/1000)	0	0.15 Ha/1000	0.15 Ha/1000

Table 4.4.5.3.a Accessibility standards for public parks and land for community facilities

Infrastructure item	Accessibility standard (km)		
	Local (Level 1)	District (Level 2)	City-wide (Level 3)
Recreation park	400-500m	2-5km	10-20km
Sport park	NA	5-15km	15-30km
Land for community facilities	NA	5km	15-30km

Table 4.4.5.4.a Size of public parks and land for community facilities

Infrastructure item	Minimum size (Ha)		
	Local (Level 1)	District (Level 2)	City-wide (Level 3)

Recreation park	Standalone – 1 Ha pref, 0.5 Ha min Rec node ⁷ – 0.2 Ha	Standalone – 2-5 Ha Rec Node – 2 Ha	Standalone – Not specific, depends on key features. Rec Node – 5 Ha
Sport park	NA	10 Ha	20 Ha
Land for community facilities	NA	Cultural Activity Space (CAS) 1500m ² Community Meeting & Activity Space (CMS) 2000m ² Community Service Facility (CSF) 1000m ² Formal Memorial Space (FMS) 1000m ²	CAS 1 Ha CMS 1 Ha CSF 1 Ha FMS 10 Ha

Table 4.4.5.5.a Land quality standards for public parks and land for community facilities

Park/ Community Facility Type	Road frontage minimum	Useable area for main purpose ⁸	Slope and Topography (Maximum)	Flooding ⁹ and other hazards	Other comments
Local Recreation Park	50%	0.2 Ha	1: 20 for main use area 1: 6 for remainder	Whole area free of regular flooding (i.e.: above ARI 5) with the Main Purpose Area or 10 % (whichever is the greater) of total area above ARI 50. Free of hazards	Should have good visibility from surrounding residences. Narrow linear shapes are not preferred.
District Recreation Park DP	50%	1-2 Ha	1: 20 for main use area Variable topography for remainder	Whole area free of regular flooding (i.e.: above ARI 5) with Main Purpose Area or 10 % (whichever is the greater) of total area above ARI 50. Free of hazards	Will also provide local recreation park function for immediate n'hood.
District Sport Park DSP	50%	7 Ha (allows for 3 fields and ancillary)	1: 50 for field and court areas 1: 10 elsewhere.	Main sporting use areas above ARI 50. Total area to be	Also expected to provide local or district recreation

⁷ Refers to a local park facility provided as part of a larger open space area such as a district sports field or open space corridor.

⁸ Useable area refers to the space within the park available for sport or recreation activity and facilities. This therefore excludes creeks, stands of vegetation, water bodies, wetlands, steeply sloping land and other "constrained" land.

⁹ Flooding is expressed as the Average Recurrence Interval. This means the average no of years to exceed a given rainfall total (or in this case level of inundation). However the probability of exceeding this level in any one year (AEP) is a different value. E.g. an ARI 5 means there is an 18% chance of this level being exceeded in any one year.

Park/ Community Facility Type	Road frontage minimum	Useable area for main purpose ⁸	Slope and Topography (Maximum)	Flooding ⁹ and other hazards	Other comments
				above ARI 5. Built Facilities above ARI 100. Free of hazards	nodes.
Community Facilities CF	50%	100%	1:20 max slope	Whole of site to be above ARI 100. Free of Hazards.	Integrated into community precinct- shops and services. Parking provided
City Wide Recreation Park CWP	25-50%	Design dependant	Use areas 1: 20	Free of hazards. Facilities above ARI 100 At least 50% of park to be above ARI 50	Usually master planned and located due to key feature.
City Wide Sports Park/ Precinct CSP	25%- external. Served by internal road network	15 Ha	1: 50 for all playing surfaces	Free of hazards. Fields/ courts above ARI 50. Built Facilities above ARI 100	Expected to provide local or district recreation nodes as well. Usually master planned.
All Parks and Land for Community Facilities	<p>All land free of hazards and constraints to community use. Unacceptable land includes:</p> <ul style="list-style-type: none"> Land listed on Contaminated Land Register or Environmental Management Register. Land known or suspected as being contaminated. Land under High Voltage Power lines or within 50m of the Line easement. Land constrained by Easements. Land constrained by proximity to noxious uses. <p>Minimum Widths</p> <ul style="list-style-type: none"> Land should be greater than 15m wide unless part of a linkage or minor entry point then 5m minimum applies. Land for sporting use must be 200 or greater for any dimension. <p>Safety and Design</p> <ul style="list-style-type: none"> All location choice and development of public parks and community facilities should consider CPTED principles and any urban design guidelines for public spaces and facilities adopted by Council. <p>Buffers and adjacent land use</p> <ul style="list-style-type: none"> Parks should consider adjacent land uses and be adequately buffered from incompatible uses. Solutions may include vegetation corridors, planted mounds and fencing. <p>Constructed Drains and Flooding</p>				

Park/ Community Facility Type	Road frontage minimum	Useable area for main purpose ⁸	Slope and Topography (Maximum)	Flooding ⁹ and other hazards	Other comments
	<ul style="list-style-type: none"> Constructed drains and overland flow paths are not suitable for parkland. Detention and Retention Basins are not suitable for parkland. All Parkland should be above the ARI 5 inundation line. 				

Table 4.4.5.6.a Standard facilities/embellishments for public parks¹⁰

Embellishment type	Recreation parks			Sport parks	
	Local	District	City-wide	District	City-wide
Water connection/tap	ü	ü	ü	ü	ü
Drinking Fountain	ü	ü	ü		
Lighting	ü (street lights only)	ü	ü	ü	ü
Fencing (bollard)	ü	ü	ü	ü	ü
Playground equipment (incl. soft fall)	ü	ü	ü		
Seating	ü	ü	ü	ü	ü
Picnic Shelter	ü	ü	ü		
BBQ		ü	ü		
Earthworks – Field preparation/ Kickabout	ü	ü	ü	ü	ü
Sports facilities (e.g. courts, goalposts)				ü	ü
Informal Activity Facilities (e.g. off leash areas, space for informal kickabout)	ü	ü	ü		
Informal Activity Facilities (e.g. skate bowl, half courts)		ü	ü		
Spectator seating				ü	ü
Landscaping	ü	ü	ü	ü	ü
Power		ü	ü	ü	ü
Irrigation (new parks)		ü		ü	ü
Public Toilet		ü	ü		
Path/bikeways	ü	ü	ü	ü	ü
Car parking and access works	ü (on street	ü	ü	ü	ü

¹⁰ Refer to the Cairns Public Open Space Policy, 'Table 6 - Minimum Level of Developments (Embellishments)' for further detail on minimum standards.

Embellishment type	Recreation parks			Sport parks	
	Local	District	City-wide	District	City-wide
	only)				
Bins	ü	ü	ü	ü	ü

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 2042.

Table 4.5.1.a - Planning horizon for a trunk infrastructure network

Column 1 Trunk infrastructure network	Column 2 Planning horizon
Water supply	2042 (29 years from base year)
Wastewater	2042 (29 years from base year)
Transport (roads)	2042 (29 years from base year)
Transport (pedestrian and cycle movement)	2042 (29 years from base year)
Stormwater	2042 (29 years from base year)
Public parks and land for community facilities	2042 (29 years from base year)

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 Maps WS-01 to WS-17 - Plans for trunk infrastructure - water supply;
 - (b) Local Government Infrastructure Plan Maps SEW-01 to SEW-14 - Plans for trunk infrastructure – wastewater;
 - (c) Local Government Infrastructure Plan Maps TR-R-01 to TR-R-30 - Plans for trunk infrastructure - transport (roads);
 - (d) Local Government Infrastructure Plan Maps TP-01 to TP-15 - Plans for trunk infrastructure - transport (pedestrian and cycle movement);
 - (e) Local Government Infrastructure Plan Maps SW-01 to SW-18 - Plans for trunk infrastructure – stormwater;
 - (f) Local Government Infrastructure Plan Maps EX PPLCF-01 to EX PPCLF-22 - Plans for trunk infrastructure - existing public parks and land for community facilities;
 - (g) Local Government Infrastructure Plan Maps FUT PPLCF-01 to FUT PPLCF-19 - Plans for trunk infrastructure - future public parks and land for community facilities.

- (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) The future trunk infrastructure is identified in Schedule 3 - Local government infrastructure plan mapping and tables:
 - (a) for the water supply network, Table SC3.3.1.a;
 - (b) for the wastewater network, Table SC3.3.2.a;
 - (c) for the stormwater network, Table SC3.3.3.a;
 - (d) for the transport (roads) network, Table SC3.3.4.a;
 - (e) for the transport (pedestrian and cycle) network, Table SC3.3.5.a;
 - (f) for the public parks and land for community facilities network, Table SC3.3.6.a.

- (2) Details of the existing and future trunk infrastructure networks are identified in the electronic Excel schedule of works model which can be viewed here: [Excel Schedule of Works Model](#).

4.6 Extrinsic material

- (1) Section 3.4 in Schedule 3 identifies the documents that assist in the interpretation of the local government infrastructure plan and are extrinsic material under the *Statutory Instruments Act 1992*.