

# Economic Development Queensland



## Bowen Hills Priority Development Area Infrastructure Plan Background Report



Effective 21 June 2019



**Queensland**  
Government

The Department of State Development, Manufacturing, Infrastructure and Planning improves productivity and quality of life in Queensland by leading economic strategy, industry development, infrastructure and planning, for the benefit of all.

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# 1. Background

The Bowen Hills Priority Development Area (PDA) was declared on 28 March 2008 under the *Urban Land Development Act 2007* (since repealed and replaced with the *Economic Development Act 2012*). The PDA is approximately 108 hectares bound by Bowen Bridge Road and Enoggera Creek to the west, the Mayne Rail Yards and Breakfast Creek to the north, Water Street and St Pauls Terrace to the south and Breakfast Creek, Cintra Road and Markwell Street to the east (Appendix A).

The Bowen Hills PDA Development Scheme (the development scheme) is applicable to all land within the boundaries of the PDA and PDA-associated land. The development scheme became effective on 3 July 2009. An amendment to the development scheme was approved on 1 April 2010. A further amendment to the development scheme was approved on 21 June 2019 .

The Development Charges and Offsets Plan (DCOP) addresses the delivery of trunk infrastructure to service the growth provided for in the development scheme for the water supply, sewerage, stormwater, transport, parks and community facilities networks. The DCOP includes infrastructure charges, schedule of works of trunk infrastructure and mapping which identifies trunk infrastructure upgrades or new trunk infrastructure required to be delivered in the PDA to 2031.

## 1.1 Purpose of Infrastructure Planning Background Report (IPBR)

This IPBR documents information relevant to infrastructure planning and development charging for the Bowen Hills PDA. The report will assist users of the infrastructure plan within the development scheme and the DCOP to understand how infrastructure planning was undertaken and how development charges were determined.

Additionally, Section 4 of this report outlines the Desired Standard of Service (DSS) for the Bowen Hills PDA. The DSS is a summary of the trunk and non-trunk design standards used to inform the planning of the infrastructure networks in Bowen Hills. These standards also provide guidance to applicants of the form, type and arrangement of infrastructure that is likely to be acceptable to EDQ in the Bowen Hills PDA.

## 2. Growth projections

### 2.1 Introduction

The projections of future residential and non-residential growth in the Bowen Hills PDA provide a consistent basis for the planning of infrastructure to service the PDA. The following section is a summary of the growth projections prepared for the PDA.

### 2.2 Growth projection years

The Bowen Hills growth projections were prepared for:

- the base date 2016 and the following projection years:
  - 2021
  - 2026
  - 2031
  - ultimate development

### 2.3 Potential development capacity

The ultimate potential development capacity that may be achieved on premises within the PDA was calculated based on the type and density of development allowable under the development scheme (the planned density), taking into account factors such as heritage listings, existing development and plot size to determine a likely development outcome. Following calculation of the potential development yield (in Gross Floor Area (GFA) per m<sup>2</sup>), these areas were then distributed between various land uses (commercial, retail, industrial and residential), in accordance with the GFA distribution table (Appendix B). Residential floor space was further distributed to small, medium and large dwellings on the basis of assumptions in relation to average dwelling size (Appendix B).

The plot ratios and dwelling size assumptions are averages and they recognise that development may occur in individual circumstances at higher or lower densities. Appendix B states the plot ratios and GFA distribution assumptions applied to land within each zone and precinct within the PDA unless otherwise overridden.

### 2.4 Development constraints

The projected growth for the PDA has been calculated taking into consideration known development constraints which may limit the potential yield of land. Absolute constraints (such as flooding, height, etc.) were addressed as part of the PDA development scheme. Further constraints, such as heritage buildings, and current approvals / recent developments were also taken into account to ensure the potential development yield of these sites was not over-estimated.

### 2.5 Growth rates

The assumed rate of growth for residential and non-residential development was determined based on the medium series growth scenario within the *Property Market Research – Bowen Hills and Northshore Hamilton PDAs* report prepared by Foresight Partners Pty Ltd and further refined in terms of location in the *Bowen Hills Yield Analysis Report*, prepared by Urbis in July 2016.

Existing population and non-residential GFA has since been refined through assessment of BCC's Land Use Activity Dataset (LUAD), BCC's register of existing land uses. Further detail on the methodology used to determine and allocate growth projections is provided in the *Bowen Hills Yield Analysis Technical Note 2018* prepared by Integrant (Appendix C).

## 2.6 Growth projections summary

The growth projections for the PDA are summarised in Table 2 and Table 3.

**Table 2 — Residential dwellings and non-residential floor space projections**

Column 1 Description	Column 2 Projections by year				
	2016	2021	2026	2031	Ultimate development
Residential dwellings	2,064	4,760	5,515	6,270	22,646
Non-residential floor space (m2 GFA)	315,700	343,792	356,499	369,503	1,094,259

**Table 3 — Population and employment projections**

Column 1 Description	Column 2 Projections by year				
	2016	2021	2026	2031	Ultimate development
Population	3,612	8,330	9,651	10,973	39,630
Employment	11,326	12,784	13,323	13,861	46,323

### 3. Demand projections

Growth projections are converted into demand projections to enable infrastructure planning to be undertaken.

Networks express demand using different demand units. The demand units used by each local network in the PDA are as follows:

- for the water supply network, equivalent persons (EP)
- for the sewerage network, equivalent persons (EP)
- for the stormwater quantity network, dwellings
- for the transport network, trips per day (trips)
- for the parks and community facilities network, persons

The demand generation rates used by each network to convert growth projections into demand are stated in Appendix D.

The demand projections for each network are stated in Appendix E.

## 4. Desired standard of service

### 4.1 Water supply

The Desired Standard of Service (DSS) for the water supply network is as per Queensland Urban Utilities' (QUU) DSS contained in the QUU Water Netserv Plan, as may be amended from time to time. The latest Standards can be accessed on the QUU website.

### 4.2 Sewerage

The DSS for the sewer supply network is as per QUU's DSS contained in the QUU Water Netserv Plan, as may be amended from time to time. The latest Standards can be accessed on the QUU website.

### 4.3 Stormwater

The DSS for the stormwater network is as per BCC's Local Government Infrastructure Plan, as may be amended from time to time. Refer to the *Brisbane City Plan 2014*, Part 4, section 4.5.4 for additional detail.

### 4.4 Transport

EDQ have adopted BCC's DSS, as per the Local Government Infrastructure Plan, for all transport networks, as may be amended from time to time. However, where BCC's DSS is in conflict with the following standards, the standards listed below prevail:

- the road hierarchy (Appendix F)
- the cross sections (Appendix F)
- the verge standards (Appendix F) (the verge standards also prevails over the cross sections where they are inconsistent)
- the Department of Transport and Main Roads *Technical Note 128 Selection and Design of Cycle Tracks*.

### 4.5 Parks and community facilities

EDQ have adopted BCC's DSS for the parks and land for community facilities network contained in the *Brisbane City Plan 2014*, as may be amended from time to time. The latest Standards can be accessed on the BCC website.

## 5. Infrastructure planning

### 5.1 Planning horizon

The infrastructure plans for the Bowen Hills PDA have a planning horizon of 2031. This horizon was chosen to align with the planning horizon in QUUs' Netserve Plan and BCC's Priority Infrastructure Plan. The objective of aligning the planning horizon with surrounding areas was to provide a coordinated approach to infrastructure delivery and to capitalise on infrastructure delivery efficiencies where possible.

In June 2018, BCC adopted a Local Government Infrastructure Plan which includes a 10 year planning horizon for financial modelling purposes. However, much of BCC's 2031 planning is still available and where possible integration between BCC and EDQ planning has occurred.

### 5.2 Water supply

Planning of water supply infrastructure to service development within the PDA is documented in the following report:

- Water and Wastewater Network Analysis Report, Cardno, October 2018 (Appendix G)

The key criteria which are the basis for the water network planning are outlined in the SEQ Water Supply and Sewerage Code (SEQ W&S D&C Code) and are summarised in Table 7.

**Table 6—Water supply network key DSS**

Parameter	Standard		
Average Day Demand (AD) per EP, excluding NRW (Note: EP/ET conversion rate provided in separate tables from Water Service Provider)	230 L/EP/d		
Estimated Non-Revenue Water (NRW)	30 L/EP/d		
Peaking factors:	<b>Low/med density res</b>	<b>High density res</b>	<b>Commercial/Industrial</b>
MDMM/AD	1.5	1.5	1.5
PD/AD	2	2	2
PH/PD	2	1.75	1.4
PH/AD	4	3.5	2.8

Parameter	Standard
Model parameters	Per QUU advice modelling was undertaken on a static model using the following peaking factors: Residential: Residential-Sunday pattern Peak 1.89 Non-residential: Non-residential pattern 1.49 Unit demands: HDR Green Hill (residential): 205L/EP/d MNR Green Hill (non-residential): 185L/EP/d
Pressure Normal operating conditions	22 m at the property boundary
Maximum allowable headloss (PH) (m/km)	5m/km for DN $\leq$ 150 3m/km for DN $\geq$ 200
Emergency fire operating conditions (minimum residual mains pressures)	12 m min in the main at the flowing hydrant 6 m elsewhere in mains that have customer connections Positive pressure throughout
Fire fighting (definitions as per glossary)	Medium density urban (4-6 storeys): Greenfield 45 L/s for 4 hrs Brownfield 30 L/s for 4 hrs High density urban (>6 storeys): 60 L/s for 4 hrs Commercial/industrial: Greenfield 45 L/s for 4 hrs Brownfield 30 L/s for 4 hrs
Background demand	2/3 x residential peak hour demands plus 1 x non-residential peak hour demands.
Population density	Residential: Attached dwellings (townhouses, unit apartments etc.) = 1.79EP per unit Non-Residential: Major centre = 1.5EP per 100m <sup>2</sup> Future industry area = 0.3EP per 100m <sup>2</sup>

## 5.3 Sewerage

Planning of sewerage infrastructure to service development within the PDA is documented in the:

- *Water and Wastewater Network Analysis Report, Cardno, October 2018 (Appendix G)*

The key criteria which are the basis for the sewerage network planning are outlined the SEQ Water Supply and Sewerage Code (SEQ W&S D&C Code) and are summarised in Table 7.

**Table 7—Sewerage network key DSS**

Parameter	Standard																																	
Average Dry Weather Flow (ADWF)	For existing sewers : 210L/EP/d Proposed sewers: NuSewer 180 L/EP/d																																	
Peak Dry Weather Flow (PDWF)	<div>NuSewer - d x SF + GWI Where: SF = Sanitary Flow of 150L/EP/d GWI = Groundwater Infiltration of 30L/EP/d</div> <table><tr><td>EP</td><td>30</td><td>300</td><td>600</td><td>1.2k</td><td>3k</td><td>12k</td><td>20k</td><td>50k</td><td>100k</td><td>500k</td></tr><tr><td>d”</td><td>7.8</td><td>4.2</td><td>3.7</td><td>3.2</td><td>2.7</td><td>2.2</td><td>2.0</td><td>1.9</td><td>1.8</td><td>1.7</td></tr></table>	EP	30	300	600	1.2k	3k	12k	20k	50k	100k	500k	d”	7.8	4.2	3.7	3.2	2.7	2.2	2.0	1.9	1.8	1.7											
EP	30	300	600	1.2k	3k	12k	20k	50k	100k	500k																								
d”	7.8	4.2	3.7	3.2	2.7	2.2	2.0	1.9	1.8	1.7																								
Peak Wet Weather Flow (PWWF)	Existing sewers: 5 x ADWF NuSewers: PWWF = PDWF + Rainfall Dependent Inflow(RDF) RDF = 360L/EP/d																																	
Gravity sewer requirements (conventional) - Roughness equation - Pipe friction coefficient	Manning’s All smart sewers (Nu Sewer and RIGS) - n = 0.0128																																	
Gravity sewer requirements - Minimum pipe grades (subject to minimum velocity stated below)	<table><tr><th>NuSewer (PE)</th><th>Nominal Bore (mm)</th><th>Slope</th></tr><tr><td>110</td><td>100</td><td>House connection branch, one allotment only at 1:60</td></tr><tr><td>160</td><td>150</td><td>House connection branch and/or sewers for first 10 allotments: 1:100 Sewer after first 10 allotments 1:180 (see note 1)</td></tr><tr><td>250</td><td>225</td><td>1:300</td></tr><tr><td>315</td><td>300</td><td>1:400</td></tr><tr><td>400</td><td>375</td><td>1:550</td></tr><tr><td>500</td><td>450</td><td>1:700</td></tr><tr><td></td><td>525</td><td>1:750</td></tr><tr><td>630</td><td>600</td><td>1:900</td></tr><tr><td></td><td>675</td><td>1:1050</td></tr><tr><td>800</td><td>750</td><td>1:1200</td></tr></table>	NuSewer (PE)	Nominal Bore (mm)	Slope	110	100	House connection branch, one allotment only at 1:60	160	150	House connection branch and/or sewers for first 10 allotments: 1:100 Sewer after first 10 allotments 1:180 (see note 1)	250	225	1:300	315	300	1:400	400	375	1:550	500	450	1:700		525	1:750	630	600	1:900		675	1:1050	800	750	1:1200
	NuSewer (PE)	Nominal Bore (mm)	Slope																															
	110	100	House connection branch, one allotment only at 1:60																															
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	400	375	1:550																															
	500	450	1:700																															
		525	1:750																															
	630	600	1:900																															
		675	1:1050																															
	800	750	1:1200																															
Maximum depth of flow	75% d (at PWWF)																																	

Parameter	Standard
Minimum velocity	0.7m/s at PDWF Maximum: 3.0m/s (refer CI 4.5.9.1 of the 2002 Sewer Code)
Population density	Residential: Attached dwellings (townhouses, unit apartments etc.) = 1.79EP per unit Non-residential: Major centre = 1.5EP per 100m <sup>2</sup> Future Industry Area = 0.3EP per 100m <sup>2</sup>

## 5.4 Stormwater

It has been determined, through a stormwater modelling process, that there are no opportunities to provide trunk stormwater augmentations in the PDA that would yield a proportion benefit to the cost expended. As such, no stormwater trunk infrastructure has been planned to be delivered in the PDA up to 2031.

## 5.5 Transport

Planning of transport infrastructure to service development within the PDA is documented in the Transport Master Plan, Point8, November 2018 (Appendix H)

## 5.6 Parks and community facilities

Planning of parks and community facilities infrastructure to service development within the PDA was informed by the following reports:

- Open Space Analysis, Ross Planning, April 2018 (Appendix I);
- Community Infrastructure Needs Assessment, Ethos urban, May 2018 (Appendix J); and
- Brisbane City Plan 2014 Priority Infrastructure Plan Extrinsic Material Community Purposes Network, June 2014.

The reports concluded that given the existing urban development within the area, achievement of standardised provision or accessibility requirements of the DSS is not practicable within the spatial limitations of the PDA. Therefore, EDQ have adopted a needs-based approach to determine requirements for parks and land for community facilities in the PDA.

Table 8 outlines the key recommendations for meeting the open space and community facility needs of the projected Bowen Hills community.

**Table 8—Parks network – open space requirement**

Experience	Recommendation	Space/outcome required
Open Space		
Play	There is a need for additional play spaces for young people within the PDA to meet the needs of the future Bowen Hills community.	New local recreation park to be developed on Mayne Road. Park to be focussed on the development of a major play space catering for toddlers, small children and older children. Park to be between 0.2ha-0.5ha
Nature	Due to the scale, density and highly urban nature of the proposed developments, there is a need to promote nature within the PDA. Elements of nature can be achieved through street tree plantings, edible street trees, planted nature strips, installation of green walls and entry statements to both residential and commercial buildings and precincts.	Natural elements should be included within the public realm as well as the open space network wherever possible . Incorporate natural elements within residual lands (1b) and streetscaping treatments throughout the PDA
Escape, break-out and relaxation	Existing provision within Bowen Park is to be maintained. Additional open space (park) area with relaxation and break-out elements is required. Opportunity exists to encourage the inclusion of private and communal open space for escapism within developments.	Develop Tufton Street urban plaza with elements of sensory escapism, relaxation and break-out. Also consider opportunities for public art . Embellish Hurworth Street Park with landscaping, seating and path . Develop new local recreation park on Mayne Road and include elements of escape, break-out and relaxation . Encourage the inclusion of private and communal open space for escapism within developments
Exercise	Perry Park, along with the numerous active spaces outside of the PDA, will provide for the formal, club-based sporting needs of the community. There is a need to improve conditions within the PDA for individuals to participate in personal or group training. The installation of an outdoor fitness station, provision of space for personal or group training is considered desirable.	Develop an outdoor fitness station, connected to a path network in the Perry Park recreation node
Socialisation	Incorporate elements that support socialisation within all open spaces as well as the public realm. Public plaza areas should include open areas providing both shade and sunlit spaces.	The appropriate development of urban plazas within residential precincts will provide suitable areas for socialisation
Activity and hobby	<b>Continue to maintain Jeay's Street Park as an open area with</b> community garden. Promote existing community buildings such as the YMCA at Perry Park or the Brisbane Showgrounds for the community to undertake regular activity group meetings and events. Consider the need for a part-time dog off-leash area (not fenced) within the PDA.	. Designate Mayne Road Park as an unfenced dog off-leash area

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Experience	Recommendation	Space/outcome required
Connectivity	Plan and deliver local pathways and cycle links within the PDA to provide better connections to the existing network external to the PDA, namely the Riverwalk at Newstead, Enogerra Creek bikeway, and Gregory Terrace/ICB bikeway. Develop pathways and cycle links to connect to open space parcels. Utilise plantings within transport corridors to create green links. Encourage developments to provide connectivity through their sites	Enhance the connectivity of Hurworth Street Park by developing a path. Create a green corridor by establishing a link (plaza) (0.1ha-0.2ha) linking <b>Jeay's Street with Brookes Street</b> . <b>Develop green 'streets' within the PDA to promote walking and cycling</b> and to provide amenity and sense of place <b>e.g. O'Connell Terrace, Mayne Road</b> and Tufton Street
Amenity and views	Investigate opportunities to soften the edges of key transport infrastructure (e.g. rail yards and Bowen Bridge road interchange).	Undertake landscaping to buffer unattractive infrastructure
Events, programs and community building	Markets and events will be well catered for in the public realm (e.g. civic plazas).	Ensure plazas are developed with open areas suitable for hosting markets and community events
Community Facilities		
	Library, community meeting space and arts space (recommended to be delivered as multi-purpose hub)	Branch library <ul style="list-style-type: none"> <li>- At least 1,000 sqm GFA (however could be smaller if delivered as a hub).</li> <li>- Delivery after 2031 (subject to population growth).</li> </ul>

## 6. Infrastructure costs

The cost of infrastructure has been determined as follows.

### 6.1 Cost of land

The cost of future infrastructure (land) was determined for each network as follows:

- Water supply - no land component is applicable within the asset costings for water supply infrastructure proposed for the Bowen Hills PDA.
- Sewerage - a land cost allowance of 13 per cent of construction costs has been included in the sewerage works infrastructure costings.
- Transport, park and land for community facilities – The Valuer-General's 2018/19 annual valuations (in accordance with the Land Valuation Act 2010) have been applied to determine the land values outlined in the schedule of works. It has been assumed that land contributions are vacant land, land under redevelopment or that the land contribution will not affect any existing structures. As such, the land values shown in the schedule of works are for unimproved land value only and do not account for impacts on existing buildings.

Land values are subject to annual indexation using a three year rolling average of the Consumer Price Index (CPI). The land values included in the schedule of works (Appendix K) have been deescalated from FY2018/19 dollars to FY2016/17 dollars in accordance with the three year rolling average of the CPI.

The cost of land for verge widening to meet the standard (as outlined in Appendix F) are excluded from the schedule of works as verge widenings to meet minimum standards are not considered trunk infrastructure works.

### 6.2 Cost of works

The cost of future infrastructure (works) was determined for each network as follows:

Water supply – Cost estimates were prepared by Cardno in the Water Supply Analysis report by utilising a unit rates methodology for costing. These rates are detailed in Table 9.

**Table 9—Water supply network unit rates**

Asset description	Unit rate cost (2016 dollars) / length(m)	Adjustment factor applied to unit rates to account for construction in existing urban environments
250mm Water Main	\$285	2.0
300mm Water Main	\$368	2.0
400mm Water Main	\$491	2.0

Due to the terrain within the Bowen Hills PDA, a cost factor of 2.0 was applied to all assets, with costs provided in base year dollars.

Sewerage – Cost estimates were calculated using both project costs and unit rates methodologies.

Asset S1 – was costed on a project cost basis to a total cost of \$19,520,000. The costs allocated to the Bowen Hills PDA for the funding of the Major Sewer Bypass are 46.664 per cent of the total cost (Table 10).

**Table 10—S1 Major Sewer bypass cost allocation**

Cost allocation authority	Cost apportionment share	Share of S1 – RNA bypass sewer costs (2016 dollars)
Alternative source	53.34%	\$10,411,226
EDQ – Bowen Hills PDA	46.66%	\$9,108,774

All other assets were costed by Cardno in the Wastewater Analysis report by utilising a unit rates methodology and adjustment factor methodology for costing. These rates and factors are detailed in Table 11.

**Table 11—Sewerage network unit rates**

Asset description	Unit rate cost (2016 dollars) / length(m)	Adjustment factor applied to unit rates to account for construction in existing urban environments
Asset S2 - 315mm Gravity Main	\$3,856	2.0
Asset S3 - 315mm Gravity Main	\$4,530	2.0
Asset S4 - 315mm Gravity Main	\$4,502	2.0
Asset S5 - 315mm Gravity Main	\$3,372	2.0
Asset S6 - 250mm Gravity Main	\$3,782	2.0
Asset S7 - 500mm Gravity Main	\$3,893	2.0
Asset S8 - 630mm Gravity Main	\$4,327	2.0
Asset S9 - 315mm Gravity Main	\$3,432	2.0

*All costs are provided in base year dollars.*

Stormwater – No infrastructure has been identified.

Transport – Project cost estimates prepared by Point8. Costs provided in base year dollars.

Parks and land for community facilities – Project cost estimates were provided by Ross Planning and Buckley Vann in the Open Space Analysis and Community Infrastructure Needs Assessment, respectively, with costs provided in base year dollars and exclusive of any other project owners costs or contingencies.

## 6.3 On-costs allowance

On-costs represent the owner's project costs and may include:

- survey for the work
- geotechnical investigations for the work

- strategic planning
- detailed design for the work
- project management, procurement and contract administration
- environmental investigations for the work, and
- portable long service leave payment for a construction contract for the work.

The on-costs allowances that have been applied to infrastructure costs in the PDA are stated in Table 12.

**Table 12 - On-cost allowance**

Network	On-costs allowance
Water supply	15%
Sewerage	15%
Stormwater	None applicable
Transport	On-cost allowances for the transport network were calculated for each infrastructure item, with costs ranging from 13.5% to 20%, in accordance with the Transport Master Plan, prepared by Point8. Exceptions to this exist where the Infrastructure Items costs have been further progressed through an agreement.
Parks and community facilities	On-costs for the parks and land for community facilities network are generally 10%.

## 6.4 Contingency allowance

A contingency allowance is included in the cost of future infrastructure works to deal with known risks. The contingency allowance typically reduces in accordance with the level of planning undertaken for the infrastructure item. The level of contingency allowance applied for infrastructure works in each network are stated in Table 13.

**Table 13 - Contingency allowance**

Network	Contingency allowance
Water supply and sewerage	Contingency allowances for the parks and community facilities network vary based on the modelled year of provision for each asset, as follows: <ul style="list-style-type: none"> <li>• 0-5 years: 7.5%</li> <li>• 5-10 years: 15%</li> <li>• 10-15 years: 20%</li> <li>• Beyond 15 years: 25%</li> </ul>
Stormwater	None applicable
Transport	All transport network items have been allocated a 20% contingency rate, in accordance with the Transport Master Plan, prepared by Point8. Exceptions to this exist where the Infrastructure Items costs have been further progressed through an Agreement.
Parks and land for community facilities	Contingency allowances for the parks and community facilities network vary based on the modelled year of provision for each asset, as follows:

	<ul style="list-style-type: none"><li>• 0-5 years: 7.5%</li><li>• 5-10 years: 15%</li><li>• 10-15 years: 20%</li><li>• Beyond 15 years: 25%</li></ul> <p>Exceptions to this exist where the Infrastructure Items costs have been further progressed through an agreement.</p>
--	---

## 7. Development charges

Development charges are imposed on development in the PDA to fund trunk infrastructure and other services which have been provided or are planned to be provided to service the PDA. The following charges types make up a development charge and apply to development in the PDA.

- Infrastructure charges; and
- Value uplift charge.

### 7.1 Infrastructure charges

The infrastructure charges fund the provision of trunk water supply, sewerage, stormwater, transport, parks and community facilities infrastructure. These charges have been calculated using a Schedule of Works Model to estimate future infrastructure expenditure. The model utilises a discounted cash flow (DCF) methodology to reliably model expenditure against projected revenue from infrastructure charges.

### 7.2 Value uplift charge

The value uplift charge assists in funding the provision of local infrastructure required to meet the increased impact on networks as well as programs and works which add value to the Bowen Hills community in areas such as affordable housing, community development, ecologically sustainable development, employment and innovation. This charge has been calculated using the following methodology:

Value uplift charges apply only to development yield exceeding that which would be allowable under the Brisbane City Plan 2000 determined in accordance with Map 2 of the DCOP. Value uplift charges are applied in addition to development charges.

The steps required to determine the value uplift charge for a development proposal is as follows:

**Step 1** - Determining the amount of GFA allowable (allowable GFA) by multiplying the plot ratio in Map 2) by the site area<sup>1</sup>.

**Step 2** - Determining the amount of the GFA which value uplift charges are to be applied to (uplift GFA) by taking the allowable GFA away from the total GFA proposed in the development approval (total GFA).

**Step 3** - Determining what percentage of the total GFA is to be allocated to each use type (percentage use) by dividing the GFA proposed for each land use type by the total GFA and multiplying the answer by 100.

**Step 4** – Multiply the percentage use (calculated in step 3) by the uplift GFA to determine the GFA for each land use which will be subject to value uplift charges (value uplift GFA).

---

<sup>1</sup> Where a building does not take up the full development area of a site, value uplift charges will be calculated according to the development area that the building occupies

**Step 5** – Multiplying the value uplift GFA for each land use by the relevant value uplift charge rate.  
Add the resulting value uplift charges together.

.

## **8. Infrastructure schedules of works**

Appendix K provides a schedule of future infrastructure for each network servicing the PDA.

# Appendix A – Bowen Hills PDA boundary map



# **Appendix B – Plot ratios and GFA distribution assumptions**

## Plot ratios applied to land based on zone and lot size

Zone	Average plot ratio	Probable plot ratio	Ultimate plot ratio
Community Facilities	0.0	0.0	0.0
High Density Residential	2.5	2.5	2.5
Industry	1.0	2.0	2.0
Medium Density Residential	1.0	1.0	1.0
Mixed Industry Business Area	2.0	4.0	4.0
Mixed Use	6.0	2.0	9.0
Open Space	0.0	0.0	0.0
Special Purpose (Transport)	0.0	0.0	0.0
Specialised Centre (entertainment)	0.0	0.0	0.0

## GFA Distribution assumptions by zone and precinct

Zone	Precinct <sup>1</sup>	Non-residential			Residential		
		Comm	Retail	Industrial	Small	Medium	Large
Community Facilities	all	100%					
High Density Residential	all		1%		44.55%	49.5%	4.95%
Industry	all	18%	1%	80%	1%		
Medium Density Residential	all				40%	50%	10%
Mixed Industry Business Area	all	80%	1%	18%	1%		
Mixed Use	1	20%	10%		31.5%	35%	3.5%
Mixed Use	2						
Mixed Use	3	50%	1%		22.05%	24.5%	2.45%
Mixed Use	4	4%	1%		42.75%	47.5%	4.75%
Mixed Use	5	59%	1%		18%	20%	2%
Mixed Use	8	29%	1%		31.5%	35%	3.5%
Open Space	all						
Special Purpose (Transport)	all						
Specialised Centre (entertainment)	all	100%					

<sup>1</sup> Precincts based on 2010 Bowen Hills Development Scheme.

## Dwelling Size Assumptions

Dwelling type	Area (m <sup>2</sup> )
Small (1 Bedroom Equivalent)	55
Medium (2 Bedroom Equivalent)	72
Large (3 Bedroom Equivalent)	95

# **Appendix C – Bowen Hills yield analysis technical note 2018**

## **Appendix D – Demand generation rates**

## Demand generation rates

Column 1 Development scheme zone / area	Column 2 Demand generation rate for an infrastructure network				
	Water supply network (EP)	Sewerage network (EP)	Stormwater quantity network (EDU)	Transport network (trips)	Parks and community facilities network (EP)
Multi-Unit Residential (per dwelling)	1.79	1.79	1	5.76381	1.75
Commercial (Office) (per m <sup>2</sup> GFA)	0.015	0.015	0	0.21958	0
Commercial (Retail) (per m <sup>2</sup> GFA)	0.015	0.015	0	0.54894	0
Industrial (per m <sup>2</sup> GFA)	0.003	0.003	0	0.06861	0
Source	Cardno - Bowen Hills PDA - Water Analysis - Table 4.1 - Population Density	Cardno - Bowen Hills PDA - Wastewater Analysis - Table 4.1 - Population Density	Assumed residential demand only	BCC Draft LGIP - Transport Extrinsic Material - Tables 4.3.1.1 to 4.3.1.3	BCC Draft LGIP - Parks Extrinsic Material - Tables 4.3.1.1 to 4.3.1.2 - assumes 1 EP per person

# Appendix E – Demand projections

### Existing and projected demand for the water supply network

Column 1 Service catchment <sup>1</sup>	Column 2 Existing and projected demand (EP)				
	2016 (base date)	2021	2026	2031	Ultimate development
Bowen Hills PDA	7,056	12,346	13,858	15,371	55,001

Notes:

1 – Refer to Appendix G Service Catchment Map – Catchment Boundaries

### Existing and projected demand for the sewerage network

Column 1 Service catchment <sup>1</sup>	Column 2 Existing and projected demand (EP)				
	2016 (base date)	2021	2026	2031	Ultimate development
Bowen Hills PDA	7,056	12,346	13,858	15,371	55,001

Notes:

1 – Refer to Appendix G Service Catchment Map – Catchment Boundaries

### Existing and projected demand for the transport network

Column 1 Service catchment <sup>1</sup>	Column 2 Existing and projected demand (trips)				
	2016 (base date)	2021	2026	2031	Ultimate development
Bowen Hills PDA	70,273	93,180	100,076	107,041	375,696

Notes:

1 – Refer to Appendix G Service Catchment Map – Catchment Boundaries

### Existing and projected demand for the parks and community facilities network

Column 1 Service catchment <sup>1</sup>	Column 2 Existing and projected demand (Persons)				
	2016 (base date)	2021	2026	2031	Ultimate development
Bowen Hills PDA	3,612	8,330	9,651	10,973	39,630

Notes:

1 – Refer to Appendix G Service Catchment Map – Catchment Boundaries

# **Appendix F – Transport standard of service**

## **Bowen Hills PDA road hierarchy**

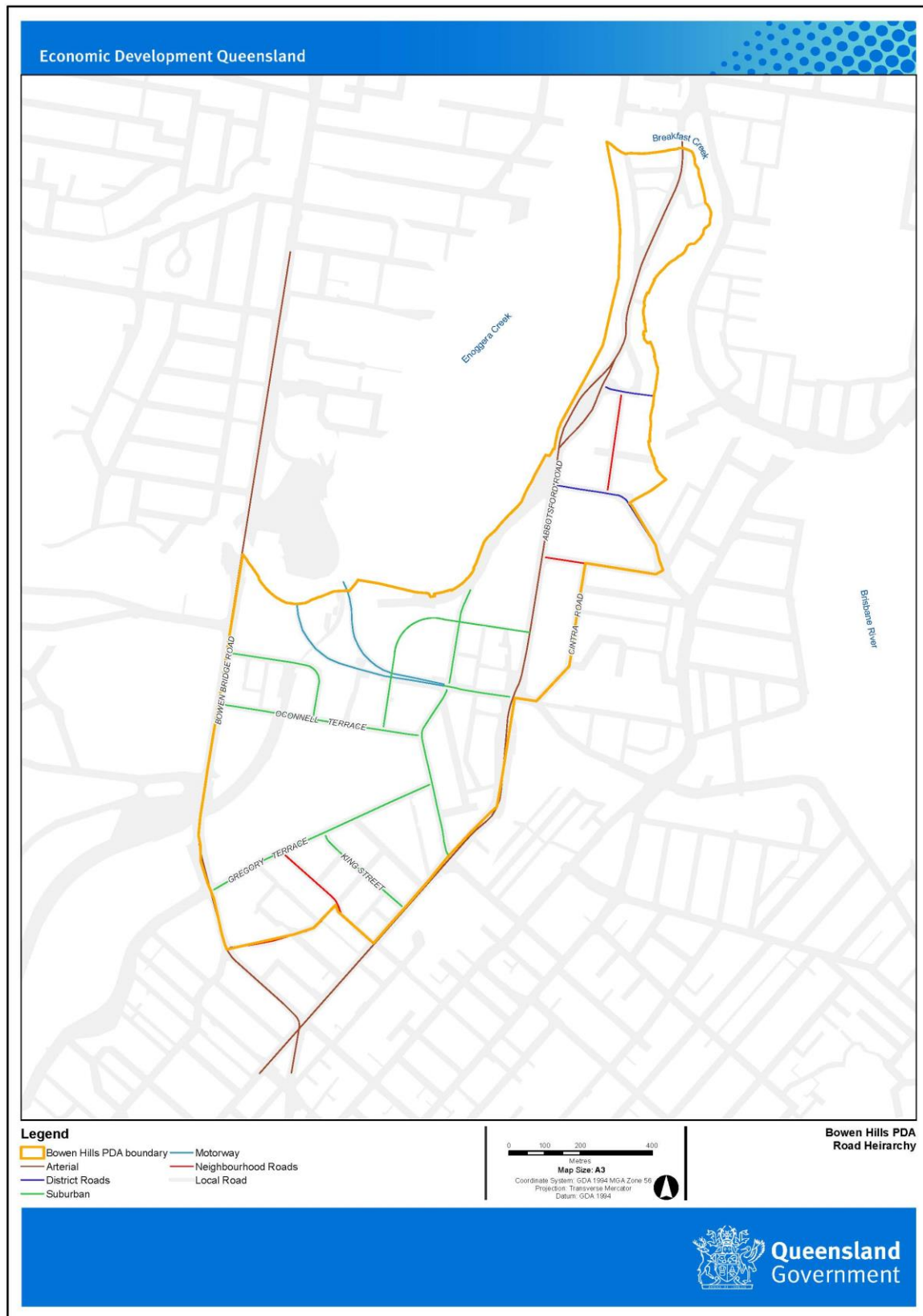
Roads in the Bowen Hills PDA have been classified into the following road hierarchy categories:

- Motorway
- Arterial road
- Suburban road
- District road
- Neighbourhood road, and
- Local road.

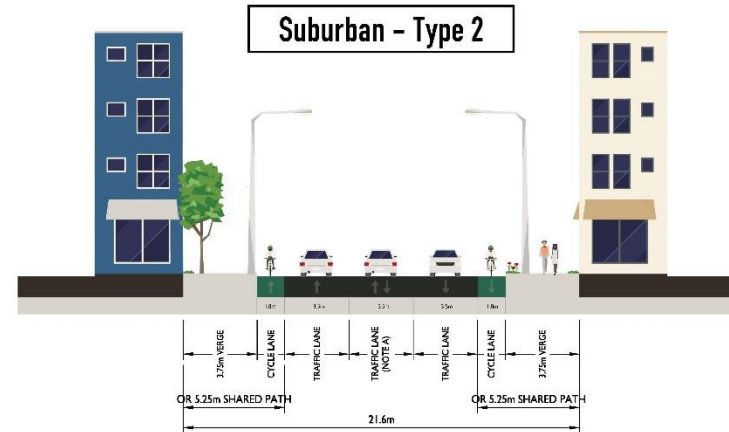
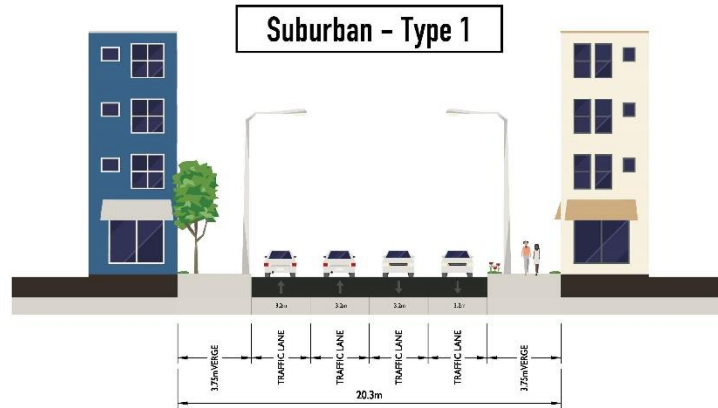
The road hierarchy map below identifies the applicable category for each road in the Bowen Hills PDA. BCC's DSS is the basis for the roads DSS in the PDA and is to be applied in accordance with the road categories shown on the road hierarchy map.

The cross sections and verge standards included in this Appendix provide detail on roads which depart from Council's standards and where a specific standard is outlined in this Appendix, it prevails over BCC's DSS.

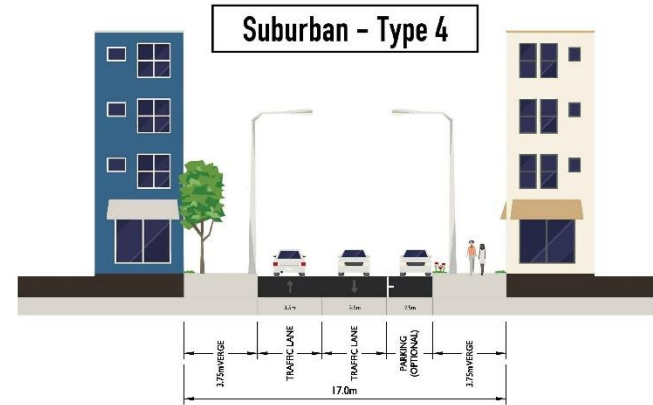
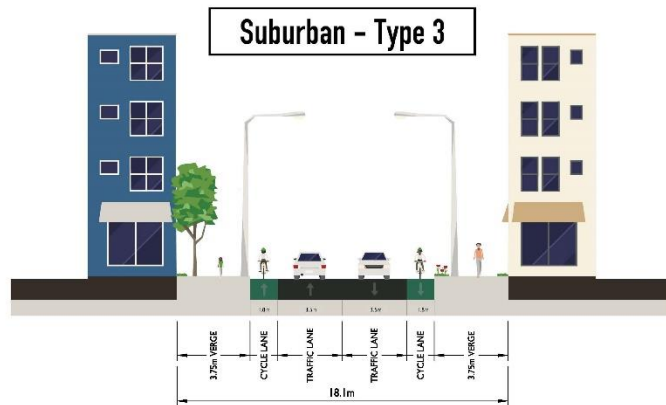
## Road Hierarchy Map

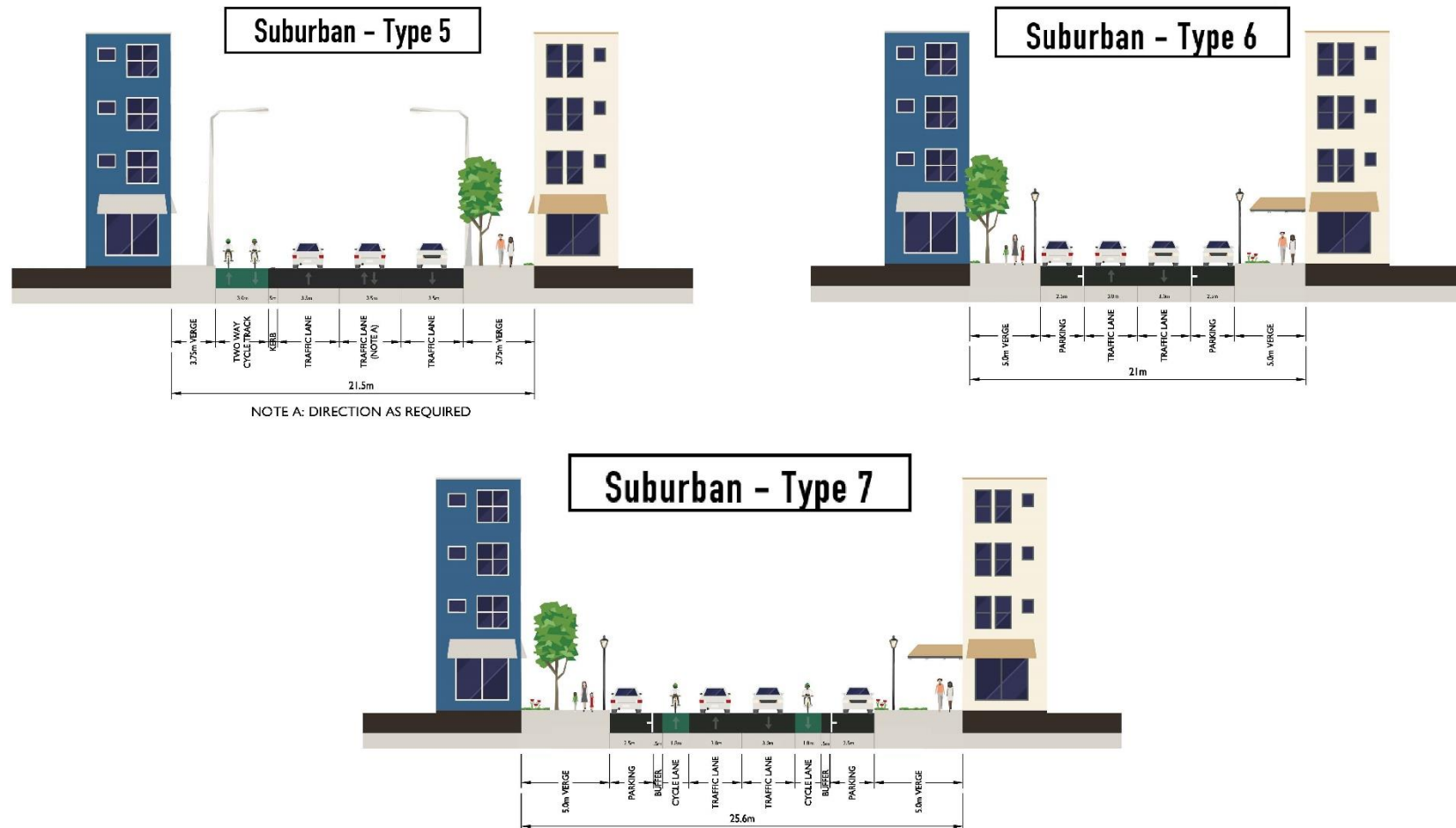


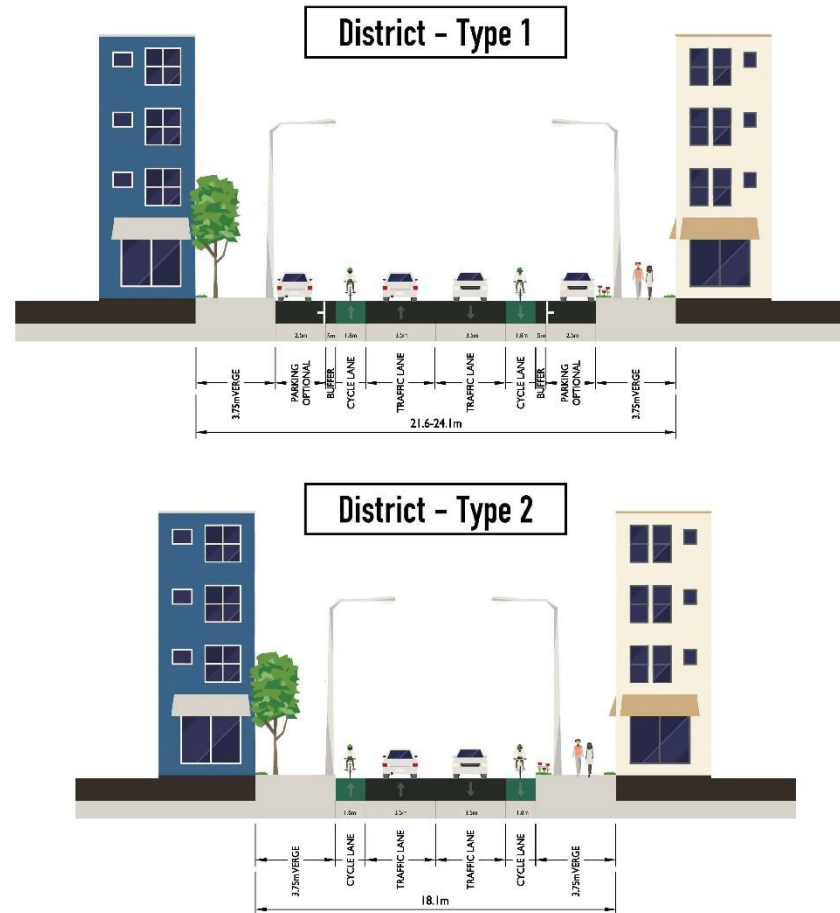
## Cross sections

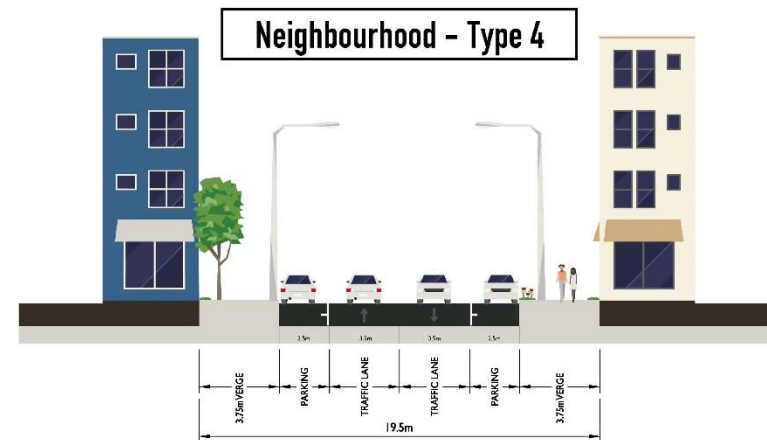
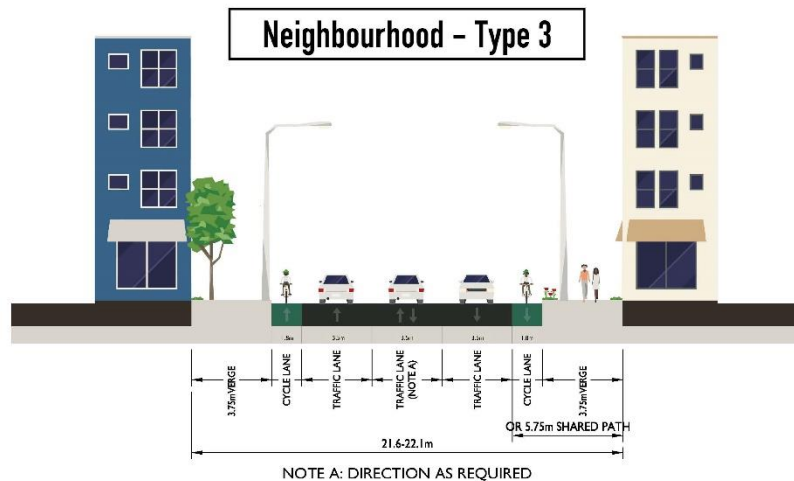
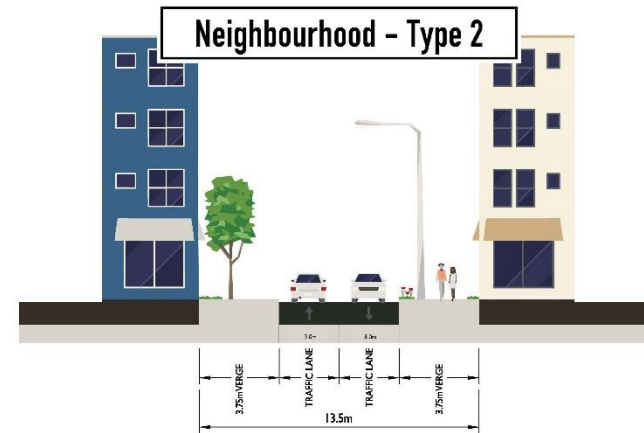
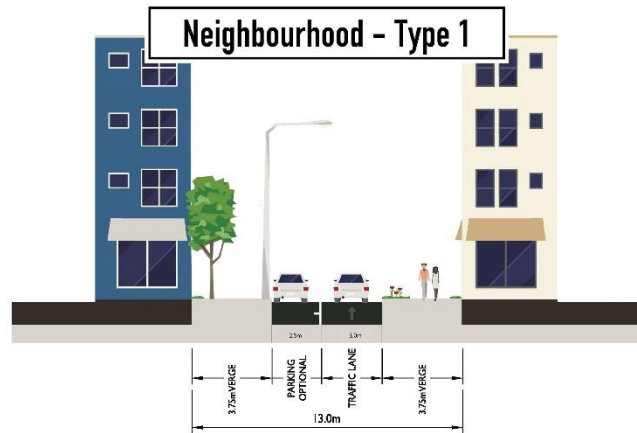


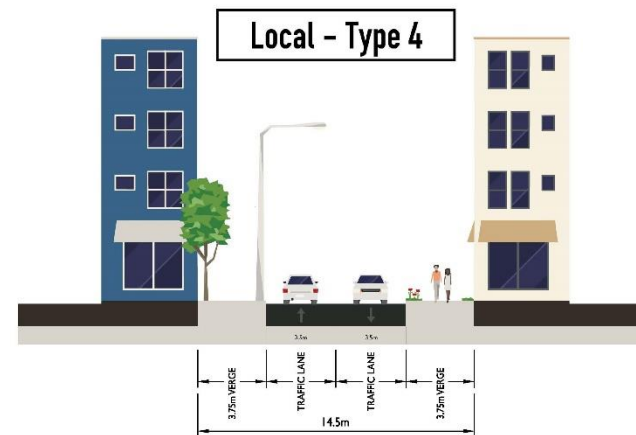
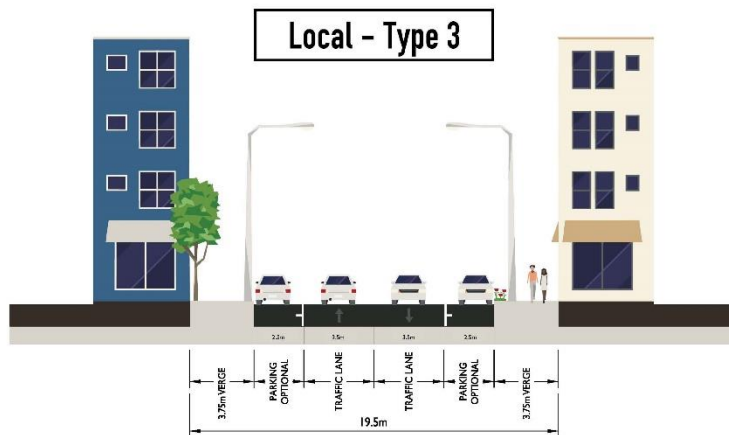
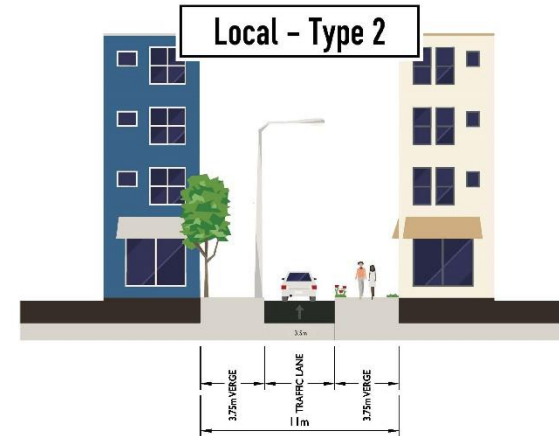
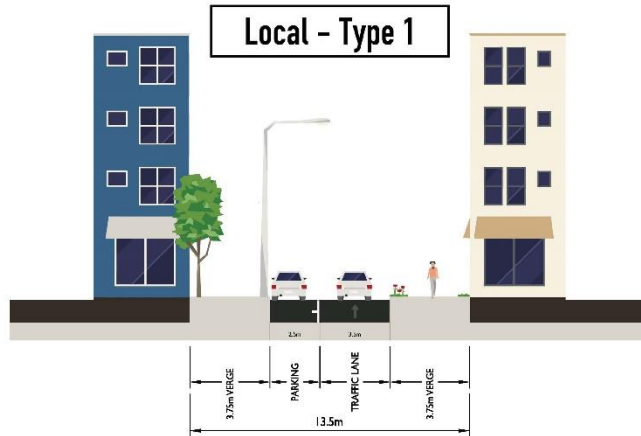
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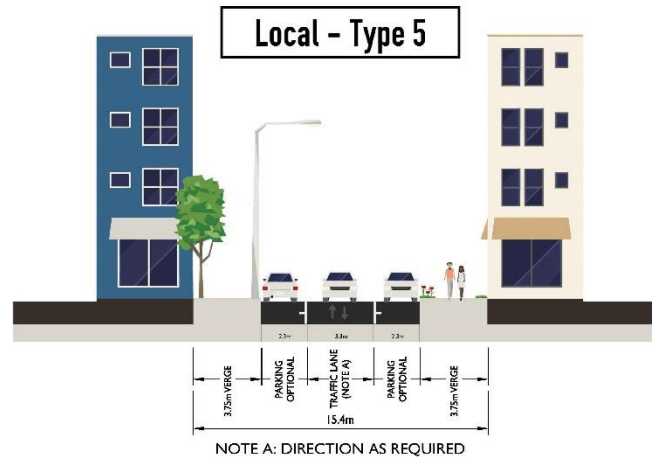






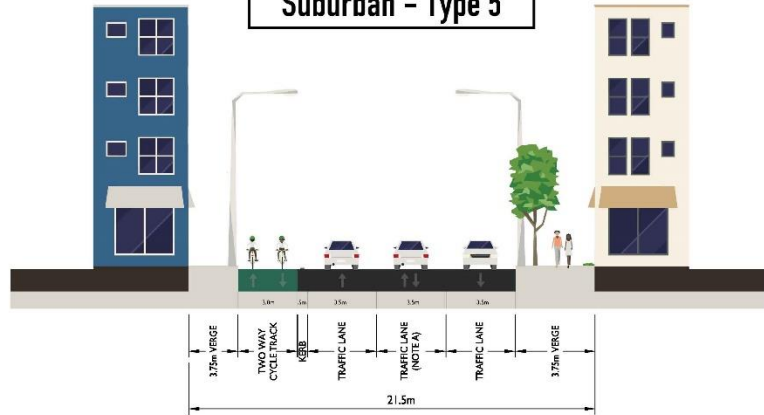






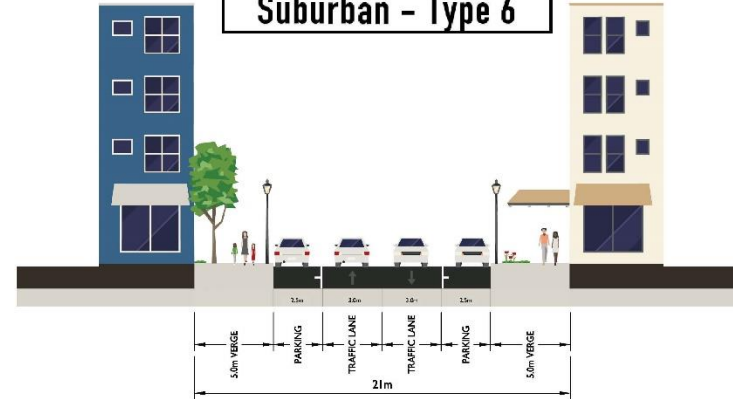
CONCEPT  
ONLY

Suburban - Type 5

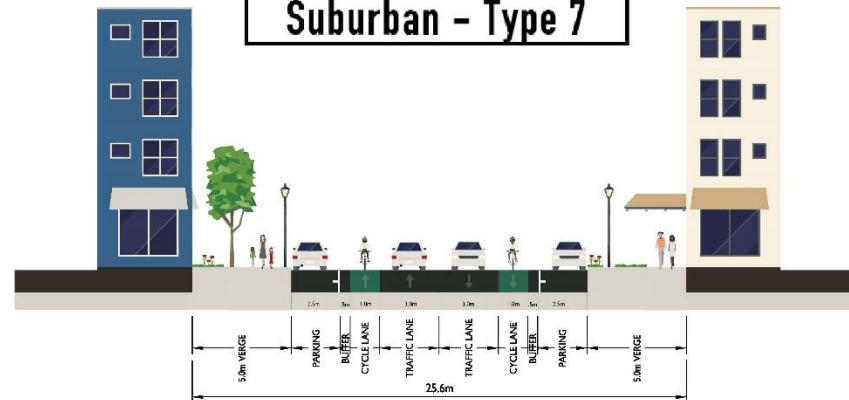


NOTE A: DIRECTION AS REQUIRED

Suburban - Type 6

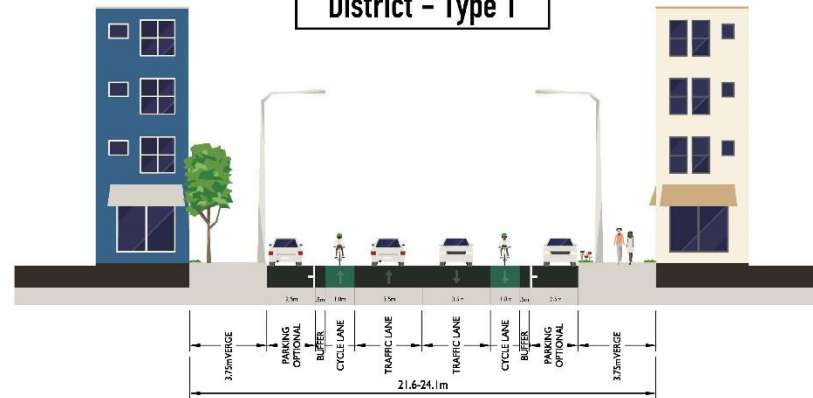


Suburban - Type 7

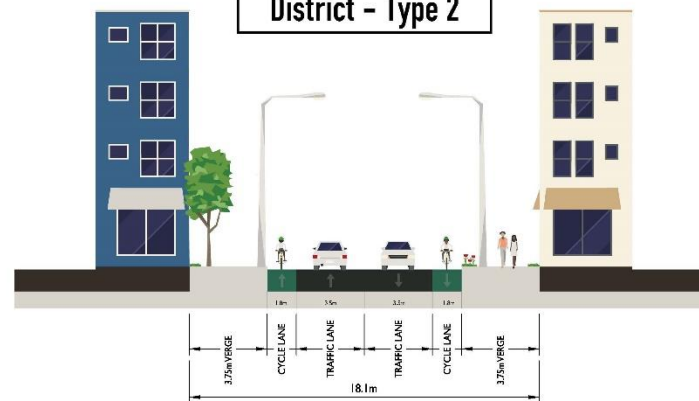


CONCEPT  
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### District - Type 1



### District - Type 2



**Queensland  
Government**

Rev.	Description
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A	ISSUE FOR COMMENT

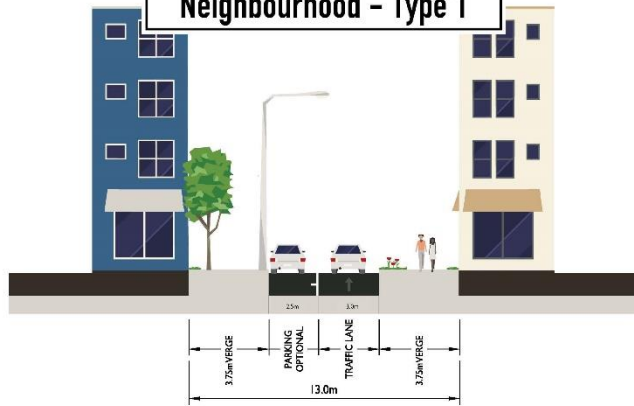
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15/05/2017	Client: <b>ECONOMIC DEVELOPMENT QLD</b>

Drawing Title
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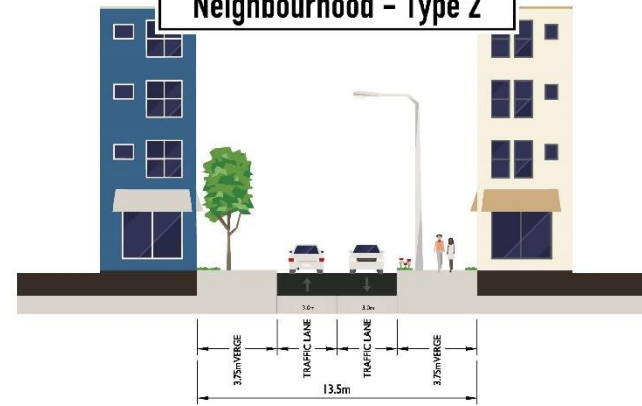
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Design Review (MUTCD/RP12)		Scale	NTS
No.		Revision	<b>B</b>

CONCEPT  
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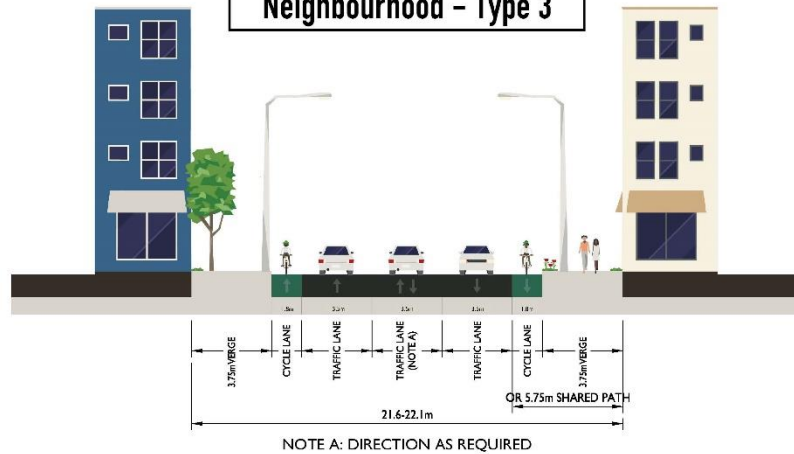
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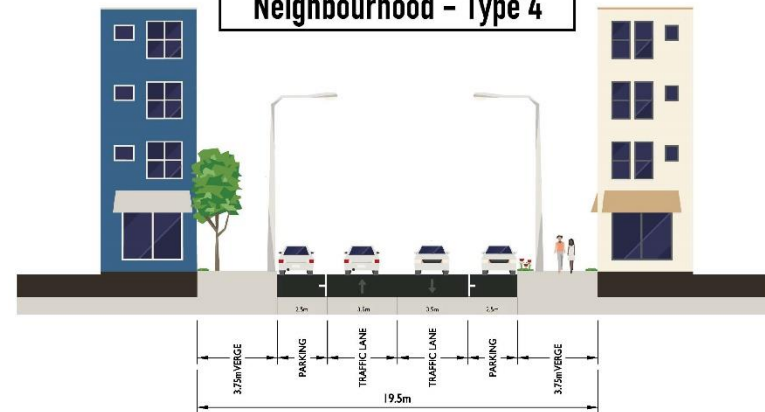
Neighbourhood - Type 2



Neighbourhood - Type 3



Neighbourhood - Type 4



Queensland  
Government

Rev.	Description
B	VERGE WIDTH AMENDMENTS
A	ISSUE FOR COMMENT

Date	Project
28/02/2018	BOWEN HILLS PRIORITY DEVELOPMENT AREA
15/05/2017	ECONOMIC DEVELOPMENT QLD

Client
BOWEN HILLS PRIORITY DEVELOPMENT AREA ECONOMIC DEVELOPMENT QLD

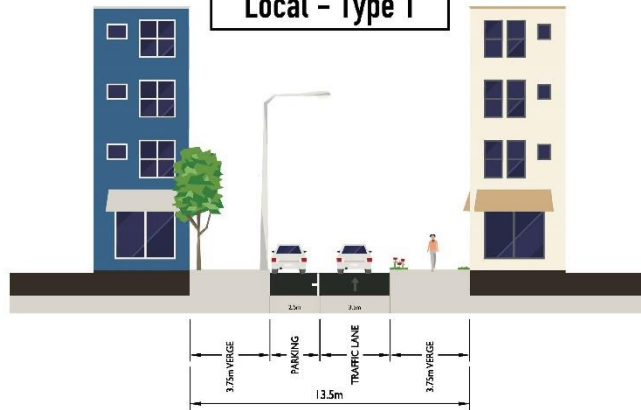
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NEIGHBOURHOOD CROSS-SECTION ROAD HIERARCHY DESIGN

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Design	JB
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Design Review (MUTCD/RPEC)	
No.	Date

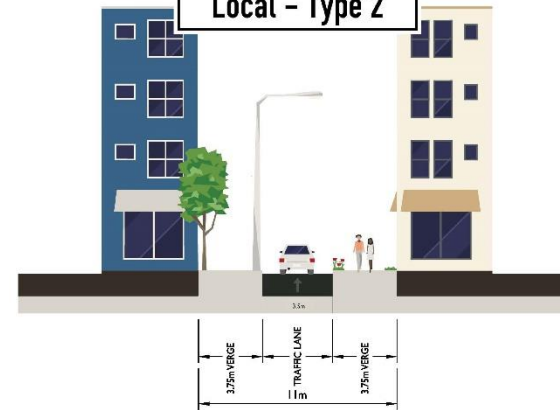
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Date	28/02/2018
Revision	B
Scale	NTS

CONCEPT  
ONLY

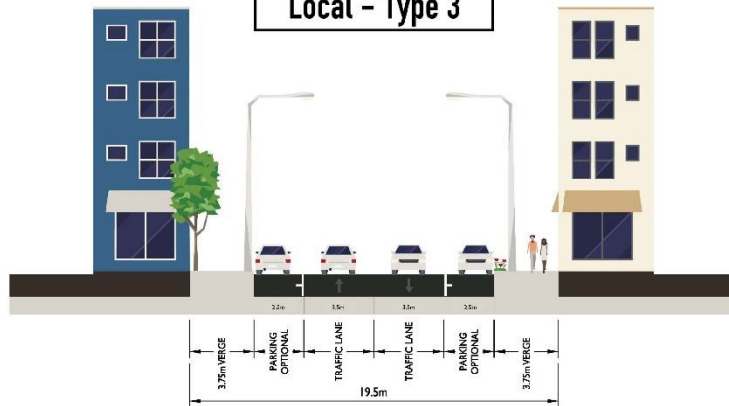
Local - Type 1



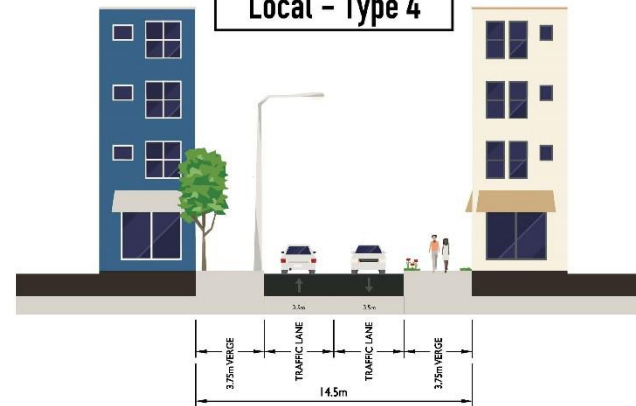
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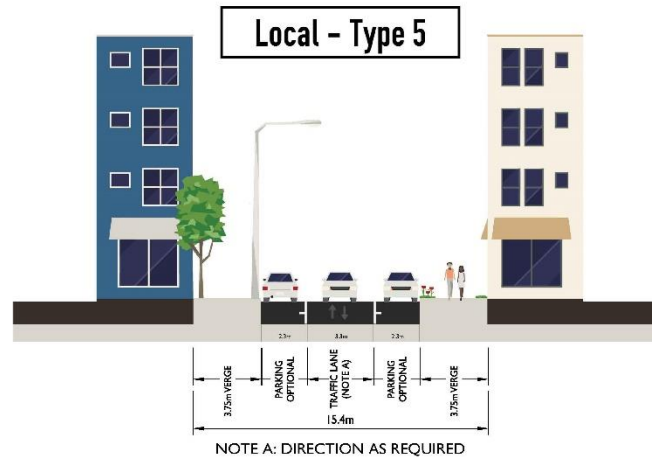
Local - Type 3



Local - Type 4



CONCEPT  
ONLY



**Verge width**

Road name	Verge side (N/S/E/W)	Street type #	Verge width
Abbotsford Road	E	Arterial	3.75m
	W	Arterial	3.75m
Allison Street	E	Local	3.75m
	W	Local	4.2m
	N	District	3.75m
	S	District	3.75m
Alexandria Street	N	Local	4.25m
	S		5.75m
Anderson Street	N	Local	2.5m
	S		2.4m
Best Street	N	Local	1.8m
	S		1.8m
Brewers Street	E	Local	2.0m
	W		3.0m
Brookes Street	E	Suburban	3.75m
	W		3.75m
Burrows Street	E	Suburban	3.75m
	W		2.2m
Campbell Street (West of ICB)	N	Suburban	3.75m or greater if existing verge is greater
	S		3.75m or greater if existing verge is greater
Campbell Street (Southside of ICB)	S	Local	2.7m

Campbell Street (East of ICB)	N	Suburban	3.75m or greater if existing verge is greater
	S		3.75m or greater if existing verge is greater
Carriage Street	E	Local	3.0m
	W		3.0m
Cintra Road	E	Neighbourhood	3.75m
	W		3.75m
Costin Street	N	Neighbourhood	3.75m
	S		3.75m
Constance Street	N	Neighbourhood	3.75m
	S		3.75m
Diggles Close	N	Local	3.75m
	S		3.75m
Edgar Street	N	Local	3.75m east of Hazelmount St
	N		Shared traffic/pedestrian laneway between Hazelmount and Mayne Rd
	S		3.75m east of Hazelmount St
	S		Shared traffic/pedestrian laneway between Hazelmount and Mayne Rd
Edmondstone Road	N	District	3.75m
	S	District	3.75m

Exhibition Street	E	Local	2.5m
	W		0m
Folkestone Street	N	Neighbourhood	3.75m
	S		3.75m
Gebbie Street	E	Local	3.75m
	W		3.75m
Gregory Terrace	N	Main Street	3.75m
	S		3.75m
Hadwen Lane	N	Local	3.75m
	S		3.75m
Hazelmount Street	E	Local	3.75m
	W		3.75m
Hudd Street	N	Suburban	3.75m
	S		3.75m
Hurworth Street	E	Local	3.75m
	W		3.75m
Jaeys Street	E	Local	3.75m
	W		3.75m
Jamieson Street	E	Suburban	3.75m
	W		3.75m
King Street	N	Main Street	4.0m
	S		6.0m
Lanham Street	E	Local	3.75m
	W		3.75m

Machinery Street	E	Local	5.0m
	W		3.0m
Mallon Street	N	Local	3.7m
	S		3.7m`
Mayne Road	E	Main Street	4.0m
	W		5.0m
Montpelier Road	N	Suburban	3.75m
	S		3.75m
Murray Street	N	Local	3.75m
	S		3.75m
O'Connell Terrace	N	Suburban	8.5-9m to provide for separated cycleway on verge
	S		8.5-9m to provide for separated cycleway on verge
St Pauls Terrace	E	Arterial	3.75m
	W		3.75m
Symes Street	N	Local	2.0m
	S		2.2m
Sneyd Street	E	Suburban	1.8m
	W		3.75m
Taylor Street	N	Local	3.75m
	S		3.75m
Thompson Street	E	Neighbourhood	3.75m
	W		3.75m
Trinity Street	N	Local	3.75m
	S		3.75m
Tufton Street	E	Suburban	3.75m

	W		3.75m
Walden Lane	E	Local	2m
	W		2m
	N		2.5m
	S		2.5m
Water Street	N	Neighbourhood	3.75m
	S		3.75m
Wren Street	E	Local	3.75m
	W		3.75m

## Verge standards

Streetscaping standards are to comply with Brisbane City Council standards for all roads except for the streets included in the below table. The BCC standard as outlined in the below table (as amended from time to time) applies to the corresponding street. Refer to BCC City Plan 2014 for further detail on the standards.

## Streetscape Specifications

Street	Standard
Abbotsford road (between Campbell St and Edmonstone Rd)	Subtropical Boulevard – in centre
Campbell St (between Mayne Rd and Abbotsford Rd)	Subtropical Boulevard – in centre
Mayne Rd (north of Tufton St/Hudd St)	Eastern verge – City Street Minor – CS2 Western verge – neighbourhood St Major – NS1
Mayne Rd (between Hudd/Tufton St and Campbell St)	City Street Major – CS1
Hamilton Pl	City Street Minor – CS2
Brookes St	City Street Minor – CS2
Hudd Street	City Street Major – CS1
Tufton St (Campbell St to O'Connell Tce)	City Street Minor – CS2
O'Connell Tce	Subtropical Boulevard – in centre

# **Appendix G – Water and Wastewater Network Analysis Report**

# Water and Wastewater Network Analysis

Bowen Hills PDA

7640-63



Prepared for  
Economic Development Queensland

October 2018



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## 1 Introduction

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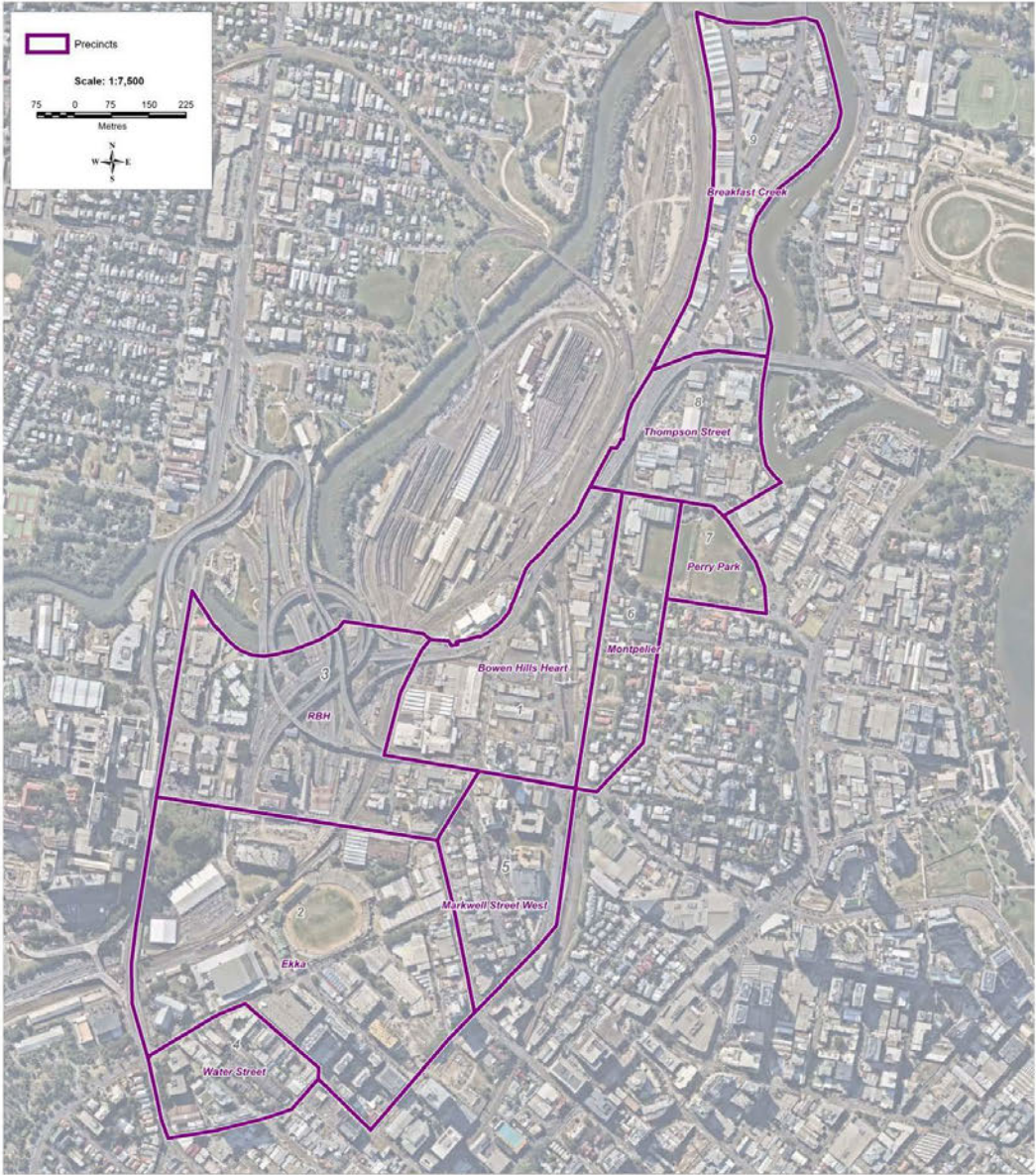
Cardno has been engaged to review the required water supply and wastewater infrastructure capital works to service the Bowen Hills Priority Development Area (PDA). This study informs the Development Charging Offset Plan (DCOP) that will support growth within the PDA.

EDQ have commissioned a number of land-use and economic studies to determine the yield projection for the Bowen Hills PDA. The new yield projections are based on land uses included in the draft Bowen Hills Development Scheme (2018).

This report identifies the trunk water supply and wastewater networks and augmentations required to support growth within the Bowen Hills PDA. For this purpose, trunk mains with diameters above 225mm have been identified, along with associated network infrastructure (water or sewage pumps, sewage rising mains, water reservoirs, water valves, etc.). The upgrade requirements are based on hydraulic models developed in association with Queensland Urban Utilities (QUU).



Figure 1-1 Bowen Hills PDA Locality



## 2 PDA Population

The current EDQ yield projections for the Bowen Hills PDA (Bowen Hills Yield Analysis Stage 2, April 2017) includes an increased yield for the PDA over previous projections, and is the most current estimate of future population within the area. The projections are to a 2031 horizon to align with EDQ's DCOP planning horizon.

### 2.1 Residential PDA Growth

Table 2-1 details the residential dwelling staged growth for the Bowen Hills PDA. Specific residential dwelling estimates for sites currently in development been included in future estimate numbers and not as existing dwellings. For this assessment, the broader scale total projections for dwellings at the precinct level have been adopted.

Table 2-1 Staged Residential Dwellings

Precinct		Residential Dwellings			
		Existing	2021	2026	2031
1	Bowen Hills Heart	310	846	945	1,118
2	Ekka	2	743	1,115	1,487
3	RBH	464	1,042	1,148	1,226
4	Water Street	734	1,381	1,500	1,588
5	Markwell Street West	385	579	614	641
6	Montpelier	169	169	193	210
7	Perry Park	0	0	0	0
8	Thompson Street	0	0	0	0
9	Breakfast Creek	0	0	0	0
<b>TOTAL</b>		<b>2,064</b>	<b>4,760</b>	<b>5,515</b>	<b>6,270</b>

### 2.2 Commercial, Industrial, and Retail

The staged growth for the commercial land use type is based on Gross Floor Area (GFA), as displayed in Table 2-2.

Table 2-2 Staged Commercial and Industrial GFA

Precinct		Commercial / Industrial GFA (m <sup>2</sup> )			
		Existing	2021	2026	2031
1	Bowen Hills Heart	25,019	22,081	22,085	22,698
2	Ekka	62,344	89,213	95,706	102,200
3	RBH	33,738	33,365	34,690	35,710
4	Water Street	29,711	28,485	28,247	28,071
5	Markwell Street West	61,640	62,146	62,428	62,655
6	Montpelier	7,442	7,442	7,399	7,366
7	Perry Park	1,500	1,500	1,500	1,500
8	Thompson Street	43,289	43,289	43,289	43,289
9	Breakfast Creek	51,017	56,271	61,158	66,015
<b>TOTAL</b>		<b>315,700</b>	<b>343,792</b>	<b>356,499</b>	<b>369,503</b>



### 2.3 Population Projections

The following table details the conversion of the residential dwellings into an Equivalent Person (EP) from 2016 through to ultimate for each precinct within the PDA. EP's are the basis of water and wastewater network planning.

Table 2-3 Population Projections

Precinct	2016 EP	2021 EP	2026 EP	2031 EP
1 Bowen Hills Heart	718	1,669	1,852	2,177
2 Ekka	858	2,388	3,064	3,949
3 RBH	1,310	2,343	2,554	2,710
4 Water Street	1,682	2,823	3,035	3,191
5 Markwell Street West	1,489	2,050	2,122	2,176
6 Montpelier	414	414	456	487
7 Perry Park	23	23	23	23
8 Thompson Street	254	254	254	254
9 Breakfast Creek	308	366	382	397
<b>TOTAL</b>	<b>7,056</b>	<b>12,330</b>	<b>13,742</b>	<b>15,364</b>

### 3 Standards of Service

The SEQ Water Supply and Sewerage Code (SEQ WS&S D&C Code) QUU's standard of service is the basis for hydraulic modelling and network planning outlined in this report.

#### 3.1 Water Supply Design Criteria

The key criteria for the water supply network is detailed in Table 3-1.

Table 3-1 Water Supply Design Criteria

Criteria	Parameters
Average Day Demand (AD) per EP, excluding NRW (Note: EP/ET conversion rate provided in separate tables from Water Service Provider)	230 L/EP/d
Estimated Non-Revenue Water (NRW)	30 L/EP/d
Peaking Factors	Low/Med Density Res      High Density Res      Commercial/Industrial
MDMM/AD	1.5      1.5      1.5
PD/AD	2      2      2
PH/PD	2      1.75      1.4
PH/AD	4      3.5      2.8
Model Parameters	Per QUU advice modelling was undertaken on a static model using the following peaking factors: Residential: Residential-Sunday pattern Peak 1.89 Non-residential: Non-residential Pattern 1.49 Unit Demands HDR Green Hill (residential): 205L/EP/d MNR Green Hill (non-residential): 185L/EP/d
Pressure	22 m at the property boundary
Normal operating conditions	
Maximum Allowable Headloss (PH) (m/km)	5m/km for DN ≤ 150 3m/km for DN ≥ 200
Emergency fire operating conditions (Minimum Residual Mains Pressures)	12 m min in the main at the flowing hydrant 6 m elsewhere in mains that have customer connections Positive pressure throughout
Fire Fighting	Medium Density Urban (4-6 storeys): Greenfield 45 L/s for 4 hrs Brownfield 30 L/s for 4 hrs High Density Urban (>6 storeys): 60 L/s for 4 hrs Commercial/Industrial: Greenfield 45 L/s for 4 hrs Brownfield 30 L/s for 4 hrs
Background Demand	2/3 x residential peak hour demands plus 1 x non-residential peak hour demands.
Population Density	Residential: Attached Dwellings (townhouses, unit apartments etc.) = 1.79EP per unit Non-Residential: Major Centre = 1.5EP per 100m <sup>2</sup> Future Industry Area = 0.3EP per 100m <sup>2</sup>



### 3.2 Wastewater Design Criteria

The key criteria for the water supply network is detailed in Table 3-2.

Table 3-2 Wastewater Design Criteria

Criteria	Parameters										
Average Dry Weather Flow (ADWF)	For existing sewers : 210L/EP/d Proposed Sewers: NuSewer 180 L/EP/d										
Peak Dry Weather Flow (PDWF)	NuSewer - $d \times SF + GWI$ Where: SF = Sanitary Flow of 150L/EP/d GWI = Groundwater Infiltration of 30L/EP/d										
	EP	30	300	600	1.2k	3k	12k	20k	50k	100k	500k
	d"	7.8	4.2	3.7	3.2	2.7	2.2	2.0	1.9	1.8	1.7
Peak Wet Weather Flow (PWWF)	Existing Sewers: 5 x ADWF NuSewers: PWWF = PDWF + Rainfall Dependent Inflow(RDF) RDF = 360L/EP/d										
Gravity Sewer Requirements (Conventional) - Roughness Equation - Pipe friction coefficient	Manning's All Smart Sewers (Nu Sewer and RIGS) - $n = 0.0128$										
Gravity Sewer Requirements - Minimum pipe grades (subject to minimum velocity stated below)	NuSewer (PE) (mm)	Nominal Bore (mm)				Slope					
	110	100				House Connection Branch, one allotment only at 1:60					
	160	150				House connection Branch and/or sewers for first 10 allotments: 1:100 Sewer after first 10 allotments 1:180 (see note 1)					
	250	225				1:300					
	315	300				1:400					
	400	375				1:550					
	500	450				1:700					
		525				1:750					
	630	600				1:900					
		675				1:1050					
	800	750				1:1200					
Maximum depth of flow	75% d (at PWWF)										
Minimum Velocity	0.7m/s at PDWF Maximum: 3.0m/s (refer CI 4.5.9.1 of the 2002 Sewer Code)										
Population Density	Residential: Attached Dwellings (townhouses, unit apartments etc.) = 1.79EP per unit Non-Residential: Major Centre = 1.5EP per 100m <sup>2</sup> Future Industry Area = 0.3EP per 100m <sup>2</sup>										

## 4 Networks Strategy

Both water and wastewater networks have been reviewed to assess the capacity to accommodate the Bowen Hills PDA growth to 2031. This review also identified augmentations to provide capacity where necessary.

Liaison with relevant statutory agencies was included to ensure a robust and fit for purpose water and wastewater network for the Bowen Hills PDA.

### 4.1 Water Supply Strategy

The Bowen Hills PDA is located within the Green Hills water supply zone. Water supply is administered by Queensland Urban Utilities (QUU).

The existing network was assessed against the proposed growth profile for the Bowen Hills PDA. The assessment ensured that at all time sufficient capacity is available during both typical potable supply and firefighting events.

### 4.2 Water Augmentation Summary

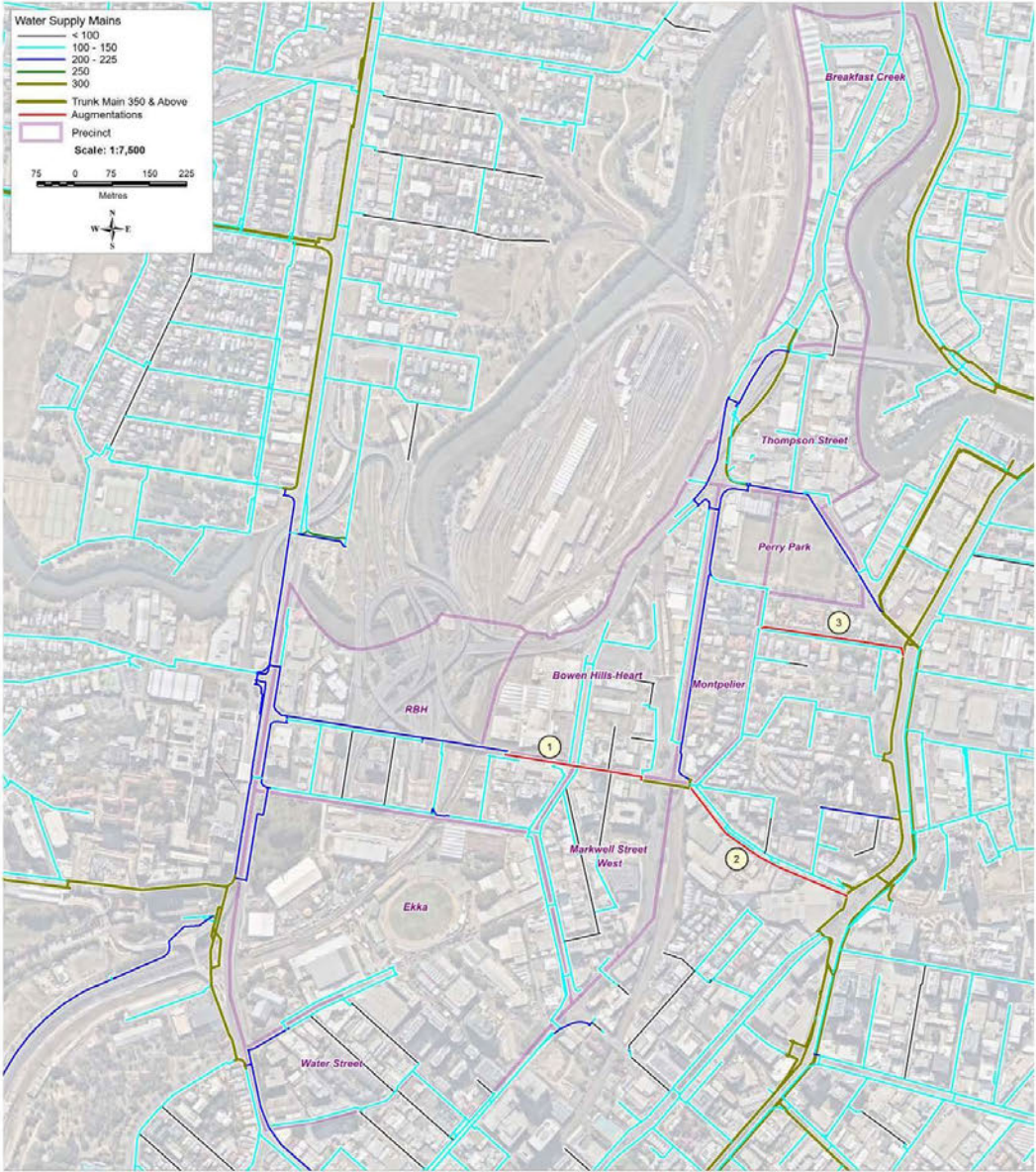
A summary of the trunk water supply augmentations proposed for the PDA is detailed in Table 4-1 and shown on Figure 4-1.

Table 4-1 Proposed DCOP Augmentations

	Item	Augmentation	Year Required
1	Existing DN130 along Campbell Street	286m of DN315	2021
2	Existing DN130 along Skyring/Montpelier Road	390m of DN250	2026
3	Existing DN130 along Jordan Terrace	280m of DN250	2026



Figure 4-1 Bowen Hills PDA Water Supply Strategy





### 4.3 Wastewater Strategy

The Bowen Hills PDA is located within the Luggage Point Wastewater Treatment Plant catchment. Wastewater conveyance and treatment is administered by Queensland Urban Utilities (QUU).

The existing network was assessed against the proposed growth profile for the Bowen Hills PDA. The assessment ensured that at all time sufficient capacity is available during a peak design flow event.

### 4.4 Wastewater Augmentation Summary

A summary of the augmentations proposed per precinct is detailed below in Table 4-2 and illustrated on Figure 4-2.

Table 4-2 Proposed Augmentations

Item		Augmentation	Year Required
-	Major Sewer Bypass	727m of DN1350	2021
1	Markwell St	96m of DN315	2021
2	Markwell St	76m of DN315	2021
3	Markwell St-Brookes St	120m of DN250	2021
	Markwell St-St. Pauls Terrace	93m of DN250	2021





## 5 Cost Summary

Cardno have adopted standard unit rates benchmarked to recent construction costs to cost the water and wastewater infrastructure required for the Bowen Hills PDA. These rates have been used to determine capital works costs for the augmentations identified within this report. The adopted rates are nominal and represent an indicative cost as at 2016.

### 5.1 Water Supply Network Augmentation Costs

All costs in Table 5-1 are calculated using total asset cost as a base value at 2016 FY rates, with the total augmentation cost including contingencies. The total augmentation costs include:

- > Bowen Hills Terrain Factor (x2).
- > Construction Contingency (% varies according to year of construction – the later the construction, the higher the percentage).
- > Project Owners Cost (Project management and designing) (15%).

The total cost of augmentations for this adopted strategy is \$857,961. This is not indicative of the actual cost, as augmentations are staged and triggered as certain developments and precincts reach the infrastructure limitations. The augmentations have been identified as being required by 2026. The first augmentation is likely to be required around 2021 (subject to development) with a projected cost of \$330,939. With the remaining \$527,022 required at 2026.

Table 5-1 details the total augmentation costs for the Bowen Hills PDA

Table 5-1 Bowen Hills PDA Total Augmentation Cost

	Item	Total Augmentation Cost	Year Required
1	Campbell Street	\$330,939	2021
2	Skyring Terrace / Montpelier Road	\$306,774	2026
3	Jordan Terrace	\$220,248	2026



## 5.2 Wastewater Network Augmentation Costs

All costs in Table 5-2 are calculated using total asset cost as a base value at 2016 FY rates, with the total augmentation cost including contingences. The total augmentation costs include:

- > Bowen Hills Terrain Factor (x2).
- > Construction Contingency (% varies according to year of construction – the later the construction, the higher the percentage).
- > Project Owners Cost (Project management and designing) (15%).

Costs for the Major Sewer Bypass have been provided by QUU.

The asset costs in Table 5-2 also consider the construction cost for drilling the pipelines as opposed to open trench construction, and include the cost for jacking thrust pits and receiving pits, diameter of carrier pipe and length. Allowances for necessary works including traffic control.

The total augmentation costs for the adopted strategy are \$24,563,089. Table 5-2 details the breakdown in for each necessary augmentations to service the Bowen Hills PDA.

Table 5-2 Bowen Hills PDA Sewer Augmentation Costs

Item		Total Augmentation Cost <sup>1</sup>	Year Required
-	Major Sewer Bypass	\$19,520,000	2021
1	Markwell St	\$1,068,539	2021
2	Markwell St (Gravity Sewer)	\$644,983	2021
2	Markwell St (Drop Structure Works)	\$1,143,983	2021
3	Markwell St-Brookes St	\$1,143,983	2021
	Markwell St-St. Pauls Terrace	\$1,041,601	2021



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## 6 Conclusion

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This study considers the current population projections for the Bowen Hills PDA (as of February 2018) and the impact of the increased density from previous master planning for the development area. In particular, the current population estimates include 22,469m<sup>2</sup> of dwelling units and 1,109,869m<sup>2</sup> of commercial, retail and industrial space.

A range of water supply and wastewater network augmentations have been identified to service growth within the PDA. These augmentations will be triggered by various stages of development, and include a total investment cost of \$2,581,696 for water supply network augmentations and \$40,711,935 for wastewater network augmentations. While staging of the water network augmentations is expected to align with growth projections for the PDA, the majority of wastewater network augmentations will be required in the near future, with significant capacity restrictions limiting growth in the PDA.

# Appendix H – Transport Master Plan



# Transport Master Plan

## Bowen Hills Priority Development Area

Department of Infrastructure, Local Government and Planning  
P18046

May 2019



## About Us

### Our Focus

**Point8** provides professional services in the field of traffic engineering and transport planning. Our objective is to provide services that add value to our client's organisations and to make a difference in the safe and efficient movement of people and goods throughout the communities we serve.

We work with a wide range of public and private clients, with specialist expertise in the areas of major infrastructure planning, construction traffic management, development services and road safety auditing.

Our team of professionals have a diverse range of experience and skills. We value excellence and innovation in everything we do. Our focus is long term relationships with our clients and stakeholders, and we aim to provide exceptional client service.

### Quality Assurance

**Point8** is committed to providing expert traffic engineering and transport planning services. We aim to exceed our clients' expectations by consistently delivering excellent outcomes. **Point8's** Quality Management System is certified to **ISO 9001:2008**.

### Document Control

D01 – P8 Report Template – version 1.1

Revision	Author	Reviewed	Date	Comments
A	Alex Zelenko	Mark Plattz	12/10/2018	Draft IBRP Transport Report for client review
B	Alex Zelenko	Mark Plattz	09/11/2018	Revised Draft following client comments
C	Alex Zelenko	Mark Plattz	16/05/2019	Updated and finalised following client comments

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## Transport Master Plan

Bowen Hills Priority Development Area

### Executive Summary

Point8 has been commissioned by Economic Development Queensland (EDQ) to prepare a multi-modal transport master plan for the Bowen Hills Priority Development Area (PDA). EDQ is revising infrastructure planning and previous transport master planning within the Bowen Hills PDA, and requires a transport master plan that incorporates a strategy for both the road network and active transport network.

This master plan has been prepared with a methodology that acknowledges prior planning undertaken, and has been agreed with EDQ. Generally, the master plan has focused on the impacts and mitigation of infrastructure within the PDA boundary only. Notwithstanding that, the network assessments undertaken include objectives to ensure wider issues are addressed.

The master plan was developed to address three key overall objectives; enhancing the walking environment throughout the PDA, improving the active transport connectivity within and through the PDA and improving the legibility of the road network throughout the PDA. Key recommendations and functional network changes have been made through consideration of these objectives, with a best-for-network approach.

The horizon year for this master plan is 2031, with the land use projections for PDA provided by others as a direct input. The land use projections were provided in five year increments leading to 2031 and split into residential, commercial and industrial for each of the nine precincts within Bowen Hills.

The transport modelling assignments and all future road network assessments were undertaken within was SATURN. Brisbane City Council's (BCC) BCASM model was adopted for use in this master plan due to its recent development and currency. The PDA's trip generation was developed in a matrix format that was used to inform the PDA SATURN model for the future network assessment. Overall it was found that the PDA generated a lower number of trips than the base model, but the distribution and intersection intensities within the PDA were altered significantly.

An assessment of Strava heat maps, EDQ Draft Cycle Network report and BCC's Active Transport Strategy was undertaken and it was identified that there were key missing links in the active transport network within the PDA. To ensure that appropriate active transport infrastructure improvements are developed, it was crucial to gain an understanding of the existing pedestrian and cycling infrastructure use, review any prior planning and conduct site observations.

As part of the assessment of the existing road network, constraints related to the locations of heritage buildings and currently approved development assessments within the PDA were taken into consideration. The outcomes of the existing active transport and road network assessments informed an investigation to determine the preferred transport network hierarchy.

The findings of the analysis are that the additional development proposed by the Bowen Hills Development Scheme (amendment 2) increases traffic volume on multiple roads within the PDA area. Additionally, the analysis shows the impact on roads outside the PDA boundary is minor, as the PDA traffic mixes and spreads into the wider road network along the multiple arterial and suburban roads.

The analysis found that the roads which are subject to the greatest traffic impacts at 2031 are:

- Abbotsford Road.
- O'Connell Terrace.
- Campbell Street.
- Gregory Terrace will be impacted by the PDA.



## Transport Master Plan

Bowen Hills Priority Development Area

In general, it was found that most significantly impacted roads are the key roads and streets servicing the areas where new development within the **PDA** is focused.

The key objective in identifying future road network upgrades is to ensure that the impacts of the **PDA** within the **PDA** boundary are mitigated with a “no worsening” approach. The master plan recommends the following upgrades:

- New road connecting **Hudd Street** to **Abbotsford Road**.
- New signalised intersection upgrades at
  - **Tufton Street/O’Connell Terrace** intersection.
  - **Mayne Road/Hudd Street** intersection.
  - **Hudd Street/Abbotsford Road** intersection.
  - **Edmondstone Road/Thompson Street** intersection.
- Existing signalised intersection upgrades:
  - **Campbell Street/Mayne Road** intersection.
  - **St Pauls Terrace/Brookes Street** intersection.
  - Addition of northbound left turn slip lane at **Markwell Street/Campbell Street** intersection.
- Road widenings on:
  - **Hazelmount Street**.
  - **Edgar Street**.
- Intersection turn bans at:
  - **Cintra Road/Montpelier Road**.
  - **Hurworth Street/Campbell Street**.
  - **Abbotsford Road/Allison Street**.

To enhance the active transport networks, the following is recommended:

- Improve connectivity to **Bowen Hills** train station.
- Create minimum **3.75m** verges where possible (consideration of existing constraints).
- Create minimum **5m** verge along **Mayne Road**.
- Enhance the footpaths on the southern verge of **O’Connell Terrace**.
- Improve the cycle network connectivity within and through the **PDA** by:
  - Providing new on-road cycling facilities along **Mayne Road**, **Tufton Street** and **Hudd Street**.
  - Separated cycle track facilities along **Abbotsford Road**, **O’Connell Terrace**, **Brookes Street** and **Hamilton Place**.
  - Provide connectivity to the existing off road cycling facilities along **Breakfast Creek**.
  - Improve cycling connections to the **Northern Bikeway**.
  - Improve cycling connection and wayfinding to the **Inner City Bypass**.
  - Facilitate future cycle route planned south along **Brookes Street** by **Brisbane City Council**.

The developed Transport Master Plan for the **Bowen Hills Priority Development Area** has been prepared based on a detailed multi-modal network approach and will deliver community and transport outcomes within the **PDA** to support the projected growth of the area.



## Transport Master Plan

Bowen Hills Priority Development Area

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Bowen Hills Priority Development Area

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## 1.0 Introduction

### 1.1 Scope

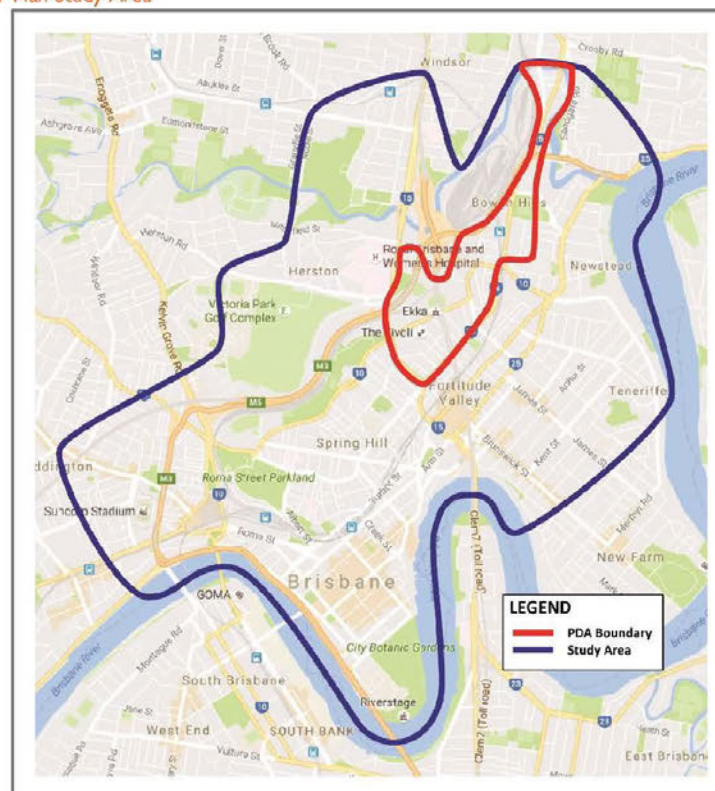
Point8 has been commissioned by Economic Development Queensland (EDQ) to prepare a multi-modal transport master plan for the Bowen Hills Priority Development Area (PDA). EDQ is revising infrastructure planning and previous transport master planning within the Bowen Hills PDA, and requires a transport master plan that incorporates a strategy for both the road network and active transport network.

The 2031 Transport Master Plan:

- Aligns with the planning Brisbane City Council has undertaken for the Bowen Hills area, and specifically for the roads on the fringes of and within the PDA.
- Assesses and identifies the future pedestrian and cycle infrastructure required to service the development allowed for in the Bowen Hills PDA development Scheme (amendment 2), which is projected to occur by 2031.
- Assesses and identifies the future road network infrastructure required.

Figure 1.1 below illustrates the Bowen Hills PDA and the master plan project study area. Drawing P18046-05-001 at Appendix A presents the locality of precincts within the PDA.

Figure 1.1: Master Plan Study Area





**Transport Master Plan**  
Bowen Hills Priority Development Area

## 1.2 Objectives and Deliverables of the Transport Master Plan

The 2031 Bowen Hills Transport Master Plan was developed to address three key overall objectives:

1. Enhance the walking environment throughout the PDA.
2. Improve the active transport connectivity within and through the PDA.
3. Improve the legibility of the road network throughout the PDA.

The overall success of these objectives relied upon the following key deliverables:

- Dynamic transport model
  - The dynamic transport model was required to quantify the vehicle demand of the PDA at 2031 and interim years, and assess, determine and quantify the additional transport infrastructure requirements of the network to create a “no worsening” impact compare to 2031 BCASM model.
- Road Hierarchy Network Plan
  - The road hierarchy network plan was required within the Master Plan to determine and document the performance outcomes sought for the road network within the PDA. Key outcomes of the road network hierarchy were the identification of the desired modal preference and uses/frontages/access requirements for the road classification.
- Road Hierarchy Design Standards
  - The design standards for each road hierarchy classification were identified.
  - Verge width assessment for all streets and roads within the PDA (except for boundary roads with verges outside of PDA area).
- Catalogue of Transport Infrastructure Requirements
  - The identification of infrastructure requirements and timing of delivery.



## 2.0 Background and Context

### 2.1 Strategic Context

The Bowen Hills PDA falls within the statutory requirements of EDQ for planning and delivery of development and infrastructure. EDQ is the planning authority for development within the PDA.

This master plan has been prepared with a methodology that acknowledges prior planning undertaken, and has been agreed with EDQ. Data informing the master plan has been obtained from public data sources or directly from key stakeholders (where public information was not available). This master plan considers the 2031 horizon, with assessment of triggers and timing of upgrades up to 2031.

Generally, the master plan has focused on the impacts on infrastructure within the PDA boundary and how to mitigate those impacts. Notwithstanding that, the network assessments undertaken include objectives to ensure wider impacts on the external network are addressed. Key recommendations and functional changes have been made through consideration of the master plan objectives, along with a best-for-network approach.

Additionally, it is acknowledged that the RNA development site has an existing masterplan approval (RNA Master Plan approval) which includes road design and internal site planning. The required road configuration and upgrades as per the RNA Master Plan approval have been included in network assessments undertaken for this master plan. No validation or refinement of those designs has occurred.

### 2.2 Relevant Transport Planning

As part of the development of this master plan, the following previous planning undertaken for the PDA has been reviewed, considered and applied appropriately in developing this master plan's recommendations:

- Bowen Hills Master Plan. Urban Land Development Authority, 2008.
- Bowen Hills Network Analysis Report. TTM Group, 2012.
- Draft Cycle Strategy Report. Cardno, 2015.
- Brisbane City Plan 2014.
- Street and Movement Network ULDA Guideline No. 6. Urban Land Development Authority, 2012.
- Bowen Hills, Urban Development Area, Development Scheme.
- Bowen Hills PDA, Yield & Land Use Analysis, Urbis 2016.



**Transport Master Plan**  
Bowen Hills Priority Development Area

### 3.0 Master Plan Approach

#### 3.1 Vision

The transport vision for the Bowen Hills PDA is to create:

- an urban environment with a number of transport options to service the future land uses mixes.
- integrated and well considered planning to deliver high quality outcomes for the Bowen Hills PDA and the wider community.
- a high quality, logical and legible road hierarchy, facilitating appropriate modal movements.
- increased mode share by providing attractive active transport solutions that provide connectivity throughout the PDA and accessibility to external active transport networks as well as existing public transport nodes.
- a connected network by addressing missing links within the existing network.

The master plan is expected to:

- provide an overarching framework to provide recommendations for the PDA.
- determine and identify new and upgraded active transport connections within the PDA.
- prepare and document the Road Network Hierarchy.
- provide recommendations of new/upgraded road network infrastructure via a schedule of transport infrastructure recruitments.
- schedule of Transport Infrastructure Requirements.

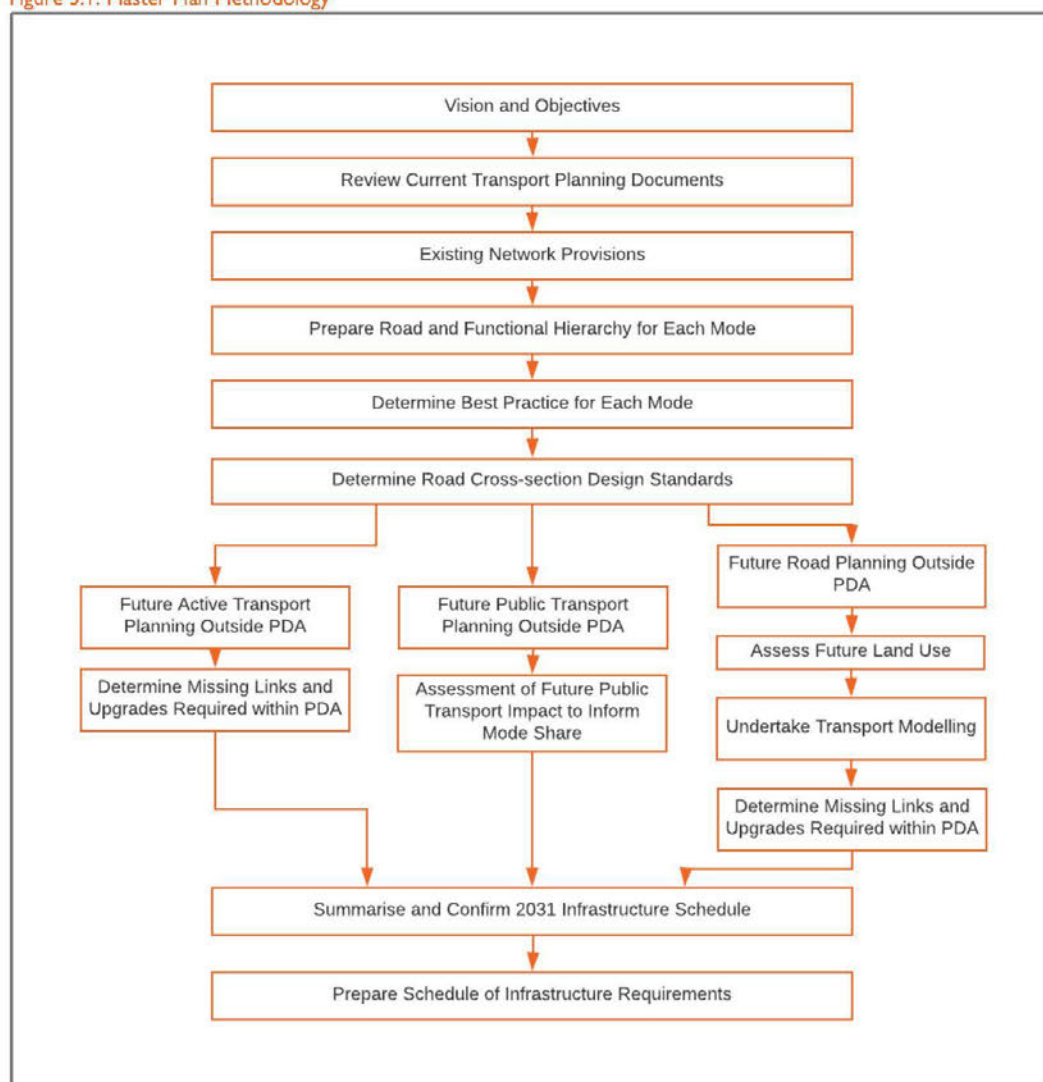
The master plan does not and is not required to:

- provide detailed design.
- account for land use changes from current assumptions and inputs.
- incorporate any alterations to tunnel and toll road patronage.

### 3.2 Methodology

Figure 3.1 below presents the methodology for this master planning study. The figure presents key high level assessments and investigations undertaken. More detailed task specific investigations are presented within the relevant chapter herein.

Figure 3.1: Master Plan Methodology





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Table 3.1 below presents the rationale in each phase of the methodology, and summarises how it has informed the master plan:

**Table 3.1: Rationale of Methodology**

METHODOLOGY PHASE	RATIONALE AND HOW IT HAS INFORMED THE MASTER PLAN
Existing Network Provisions	<p>Understand the existing pedestrian, cycle and road hierarchy plans.</p> <p>Compare those plans against observed and anecdotal evidence of the network's use.</p> <p>Identify desired outcomes of future planning.</p> <p>Undertake a gap analysis and determine missing links in the infrastructure provision.</p> <p>Determine modal priority along key corridors.</p> <p>Identify potential future connections.</p>
Functional Transport Network Hierarchy	<p>Overlay modal priorities for cycling, pedestrian and vehicles to determine the primary and secondary function of each road section.</p> <p>Prepare road network hierarchy, considering Council's planning and PDA interfaces, and a proposed active transport network.</p> <p>Determine the strategy to address best practice road sharing of road space where vehicles and cycles mix.</p> <p>Collate and use to inform the cross-section design standards for the PDA.</p>
Prepare Cross-Section Design Standards	<p>Prepare standard cross-section designs to be utilised as a basis for network design.</p> <p>Determine road types where on-street parking is appropriate.</p> <p>Determine road types where on-road cycling is appropriate.</p> <p>Determine verge requirements based on all relevant standards (EDQ, BCC, Austroads, RPDM and previous planning).</p>
Future Road Network Assessment	<p>Utilise an evidence base to determine and justify road network upgrades and infrastructure requirements.</p> <p>Incorporate and adopt BCC planning to facilitate Council support.</p> <p>Quantify the additional traffic generated by the PDA at 2031, compared to Council's planning.</p> <p>Prepare a peak hour traffic assignment model of the PDA at 2031 to determine network performance.</p> <p>Undertake detailed assessment and operation of Precinct 1 and recommend future network.</p> <p>Determine and quantify the infrastructure needs required by the PDA.</p>



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### 3.3 Assumptions

Table 3.2 below summarises the assumptions made within the master planning study. The table also identifies where data is relied upon:

**Table 3.2: Summary of Assumptions**

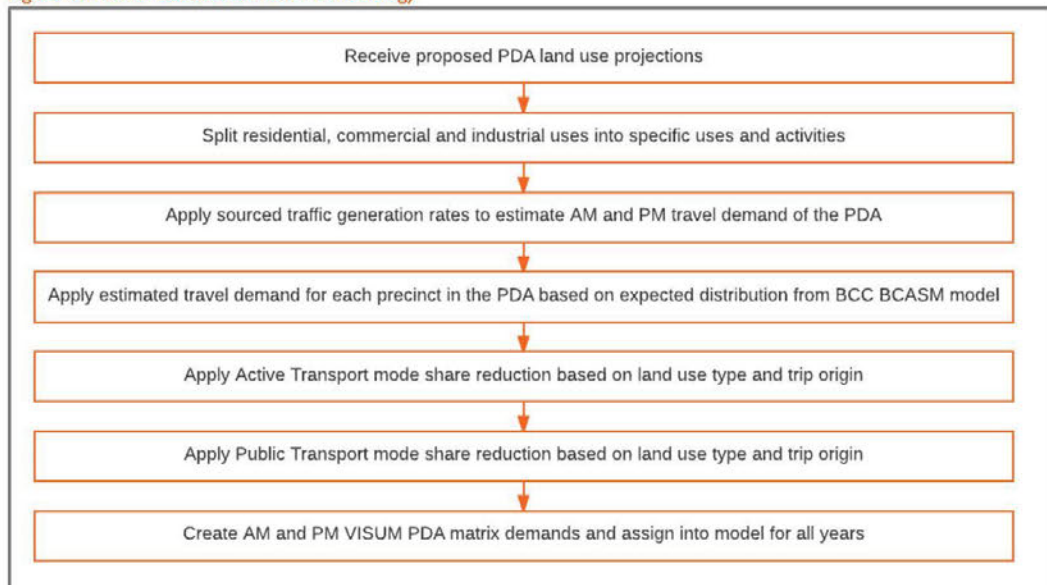
APPLICATION	ASSUMPTIONS/RELIANCE MADE
Future Transport Modelling	<p>Using provided 2031 BCC SATURN BCASM model.</p> <p>Objective is to not create a free-flowing road network, but to respect the wider transport planning undertaken by BCC, with a view that congestion plays a part in travel demand management. All upgrades outside the PDA are in the model.</p> <p>Traffic generation rates sources have been identified.</p> <p>Mode share assumptions in traffic generation have been developed and applied within the land use assessment.</p> <p>Road infrastructure planning and designs for Precinct 2 including:</p> <ul style="list-style-type: none"> <li>• Gregory Terrace road function change to a slow speed shared zone</li> <li>• Intersection upgrade at St Pauls Terrace and Constance Street</li> <li>• Intersection upgrade at St Pauls Terrace and King Street</li> <li>• Two-way operation of Costin Street and Constance Street</li> </ul> <p>Road alignment upgrades on Alexandria Street and Machinery Street.</p>
Traffic Generation	<p>Traffic Generation inputs:</p> <ul style="list-style-type: none"> <li>• Guide to Traffic Generating Developments Version 2.2</li> <li>• Guide to Traffic Generating Developments: Updated traffic surveys TDT2013/04a</li> <li>• Traffic Count Data available from TMR relating to South East Queensland</li> </ul>
Land Use Data	<p>Land use data provided by others was applied directly to the Land Use and Transport Interface Model. Assumptions were made (in consultation with EDQ) to split the provided land use into appropriate classifications.</p>
Mode Share	<p>Cross-River Rail is a high priority project, but at the time that the model was developed, Cross River Rail was unfunded and the timing was uncertain. The master plan assumes no delivery of Cross-River Rail prior to 2031. Subsequently, the project has been funded and is expected to be delivered before 2031. The impact of this will be incorporated into the Bowen Hills Transport Modelling when the next iteration of the model is undertaken.</p> <p>Self-containment reduction based on proximity of each precinct.</p> <p>Active transport reduction based on proximity of each precinct and cycle facilities connections for outside the PDA.</p> <p>Public transport reduction based on the bus and rail network connectivity.</p>
Active Transport	<p>Publicly available data, BCC future cycle network planning and Strava heat maps were used to obtain current route choices.</p>

## 4.0 Land Use Assessment

### 4.1 Approach

Figure 4.1 below presents the methodology for the land use assessment conducted as part of the master planning.

Figure 4.1: Land Use Assessment Methodology



### 4.2 Objective

The development of a Land Use and Transport Interface Model was to create a transparent, documented and repeatable approach to applying forecast land use and intensity data into traffic demands from each PDA precinct. The objectives of the Land Use and Transport Interface Model are as follows:

- Transparency of assumptions and references used within the model.
- Ensure the model is based on documented, sourced and acceptable traffic generation rates.
- Incorporate active transport, public transport, cross-utilisation into mode share assessment.
- Prepared so that any iterations or staging of land use planning horizons can be easily and efficiently adjusted to export updated transport modelling demands.



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### 4.3 Integrating Land Use Assessment into Traffic Modelling

#### 4.3.1 Land Use Data

The land use projections for PDA were provided at five year increments to 2031, and Ultimate. The land uses were split into residential, commercial and industrial, and distributed into each precinct. The land use data provided by EDQ for 2031 is presented in Table 4.1.

**Table 4.1: Received 2031 Land Use Data**

PRECINCT	RESIDENTIAL DWELLINGS	COMMERCIAL GFA (SQ.M)	INDUSTRIAL GFA (SQ.M)
Precinct 1 A/B	101	2,223	0
Precinct 1	1,017	6,707	13,768
Precinct 2	1,487	99,951+5,937 <sup>1</sup>	2,249
Precinct 3	1,226	33,960	1,749
Precinct 4	1,588	23,034	5,037
Precinct 5	641	54,551	8,104
Precinct 6	210	7,366	0
Precinct 7	0	1,500	0
Precinct 8	0	10,354	32,935
Precinct 9	0	13,643	52,372
<b>TOTAL</b>	<b>6,270</b>	<b>259,226<sup>1</sup></b>	<b>116,214</b>

<sup>1</sup>Allowance made beyond the supplied yields within Precinct 2 for the Pavilion Carpark off O'Connell Terrace, as it predominantly services land use outside the PDA area.

The development of the dynamic transport model required the provided precinct land use data to be split into zonal areas for the model. Refer to drawings P18046-005-001 through P18046-005-003 in Appendix A.

#### 4.3.2 Generation

Traffic generation for each precinct was estimated based on a number of documented traffic generation sources and existing publicly available traffic count data. The trip generation rates applied in the model Based on the table above, the total gross traffic generated by the development (before any mode share has been assessed) is presented in Table 4.2 below.

**Table 4.2: Gross Traffic Generated by Precinct**

PRECINCT	2031 AM TOTAL TRIPS (VPH)	2031 PM TOTAL TRIPS (VPH)
Precinct 1 A/B	63	113
Precinct 1	373	511
Precinct 2	2,333	2,127
Precinct 3	762	637
Precinct 4	750	1,002
Precinct 5	1,180	982
Precinct 6	323	1,022
Precinct 7	24	18
Precinct 8	346	355
Precinct 9	509	471
<b>TOTAL</b>	<b>6,663</b>	<b>7,239</b>



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### 4.3.3 Distribution

Traffic distribution for the PDA was calculated by applying the current distribution supplied within the 2031 BCC SATURN model for each precinct. By keeping the distribution consistent, the comparison between the Base Model and PDA Model can be made.

### 4.3.4 Mode Share

Traffic trip generation was reduced by the application of mode share reduction factors representing self-containment, active transport and public transport. A high-level summary of the methodology for each mode share type is as follows:

- Self-Containment (expected travel on foot):
  - 100% self-containment for people living and working within the same precinct.
  - Medium portion of self-containment to and from adjacent precincts.
  - Low portion of self-containment to and from all other precincts within the PDA.
  - No self-containment reduction applied to travel to and from outside the PDA.
- Active Transport (expected travel via cycling):
  - Medium portion of active travel to and from adjacent precincts.
  - Low portion of active travel to and from all other precincts within the PDA.
  - Minor reductions applied to active travel to and from the Northern, Southern and Eastern suburbs.
  - No reductions applied to active travel to and from the Western suburbs.
- Public Transport (expected travel via bus and rail networks):
  - Only applied to travel to and from outside the PDA.
  - Based on public transport accessibility and facilities to and from northern, southern and eastern suburbs.
  - No reductions applied to public transport travel to and from the Western suburbs.

The resulting mode share reduction was developed for each precinct for each peak and is shown in Appendix A and summarised within Table 4.3.

Table 4.3: Mode Share Reduction Summary

YEAR	AM PEAK HOUR MODE SHARE REDUCTION	PM PEAK HOUR MODE SHARE REDUCTION
2031	22%	20%

### 4.3.5 Assignment

The resulting traffic trip generation was within a matrix informing the VISUM model for the future network assessment. Overall it was found that the PDA generated a lower number of trips than the existing assumptions within the area, but the distribution and intersection intensities within the PDA were altered significantly. The summary of the traffic assignment post mode share application is shown within Table 4.4.

Table 4.4: Traffic Assignment Post Mode Share

PRECINCT	PDA AM PEAK (VPH)	PDA PM PEAK (VPH)
PDA	5,169	5,773

## 5.0 Existing Network Provisions

### 5.1 Active Transport

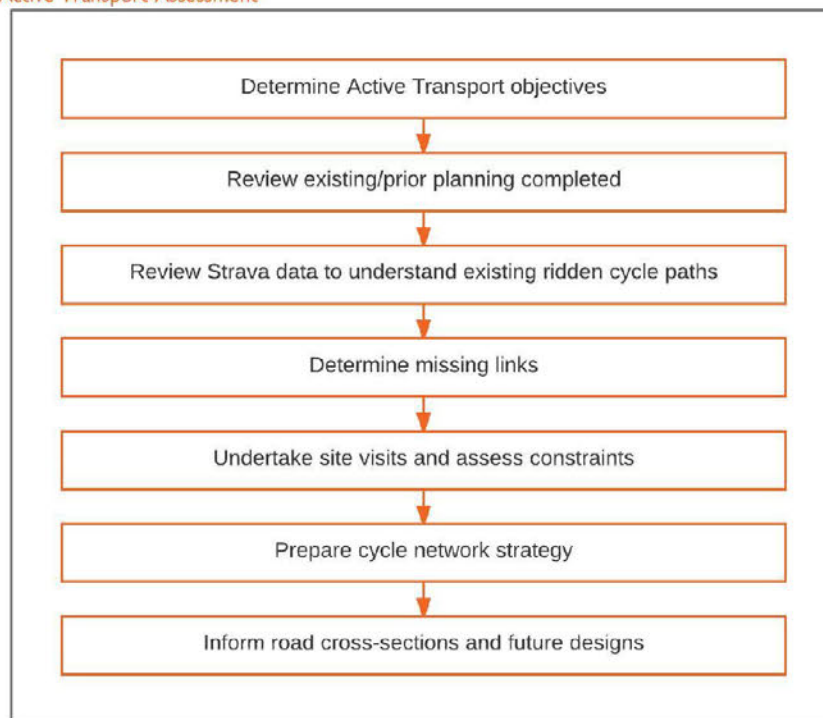
#### 5.1.1 Objective

The objective of the Master Plan is to enhance the walking environment throughout the PDA, and provide improved active transport connectivity within and through the PDA. An existing active transport network assessment has been undertaken with a view to understanding the existing network provisions and gaps in infrastructure provision to determine a walking and cycle network strategy.

#### 5.1.2 Approach

Figure 5.1 below summarises the key tasks undertaken within the active transport assessment.

Figure 5.1: Active Transport Assessment



#### 5.1.3 Existing Infrastructure and Operation

Considerations of existing pedestrian and cycling infrastructure use, prior planning and site observations have been incorporated to inform and understand the existing infrastructure and operation. The following were key tasks and inputs were undertaken in the process:

- Strava heat maps, which illustrates cycling desire lines and popularity using thermal colouring.
- Review of BCC's existing cycle maps.
- Overlay of Council's Active Transport Strategy to identify missing links.



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- Site inspection of existing pedestrian and cycle facilities.
- TTM Network Analysis report

Based on the assessments undertaken, the following existing infrastructure can be summarised as:

- The major north and south movements outside the PDA, but within the inner north, is along the Northern Bikeway, and Breakfast Creek Road to Old Sandgate Road, via Edmondstone Road. This shows that the desire for north-south cycling movements is facilitated by routes outside the PDA. Strava data shows that the ICB bikeway, Brookes Street and Abbotsford Road play a supporting function to these key routes.
- East and west movements within the PDA connect the ICB Bikeway, Northern Bikeway, Teneriffe, Newstead and Kingsford Smith Drive. The observed east and west routes within the PDA are on O'Connell Terrace, Gregory Terrace, and Montpelier Road, despite no dedicated existing cycling infrastructure.
- Travelling between Abbotsford Road and the RNA there is a dedicated bicycle bridge connecting Mayne Road (at Hudd Street) to Mayne Road (at Abbotsford Road). These movements are catered for via riding on the footpath or on-road without any dedicated cycle facilities.
- O'Connell Terrace and Gregory Terrace are the key east and west movements within the PDA. O'Connell Terrace connects directly to the Northern Bikeway and has dedicated signals for crossing the road. O'Connell Terrace is underutilised and only caters for cyclists by riding on the footpath or on-road without cycle lanes. With improvements, it could provide a key link for many trips.
- Brookes Street connects trips from the PDA to Wickham and Ann Street. It is underutilised by cyclists as it carries a large number of vehicle trips and does not have any dedicated cycle facilities. With improvements Brookes Street could provide a key link for cyclists.
- St Pauls Terrace connects trips between Spring Hill to Brookes Street and Abbotsford Road. St Pauls Terrace is an arterial road and carries a substantial number of vehicle trips. It is underutilised by cyclists without any dedicated cycle facilities.
- Pedestrian access to the Fortitude Valley station to the PDA requires crossing St Pauls Terrace. The Costin Street/St Pauls Terrace intersection is the only controlled pedestrian crossing point.
- For pedestrian access to the Bowen Hills train station from the east, Abbotsford Road creates a significant barrier. The existing crossing facilities are located approximately 200m to the north and south of the station exit. Pedestrian access from the Bowen Hills station to the south-east is facilitated by footpaths through local streets. Highly trafficked roads are crossed at signalised intersections.

### 5.1.4 Missing Links and Future Active Transport Connections

An assessment of the Strava heat maps, EDQ Draft Cycle Network and Council's Active Transport Strategy has identified the following key missing links and infrastructure requirements:

- An improved connection between the ICB Bikeway through Precinct 1 to Northern Bikeway.
- Safe east/west cycle movement along O'Connell Terrace
- An improved connection between ICB Bikeway across Abbotsford Road to Allison Street Old Sandgate Road.
- Dedicated on-road cycle lanes between Campbell Street along Brookes Street south through to the PDA boundary.
- Facilitate future cycle connections along Brookes Street and Allison Street for BCC.

Refer to Appendix A which presents the preferred cycle and pedestrian connections to be catered for by the PDA.



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### 5.2 Road Network Assessment

#### 5.2.1 Existing Road Network Constraints

The existing road network within the PDA is constrained and close to capacity during the AM and PM peaks. East-west trips are utilising intersections along Brooke Street, O'Connell Terrace, Hamilton Place, Campbell Street and Montpelier Road. This connection is indirect and relies on constrained intersections (in terms of geometry and road reserve width) to facilitate the only east-west movement across the railway line north of Fortitude Valley to Albion.

The north-south trips are carried by two major arterial roads, Abbotsford Road and Bowen Bridge Road. Both act as a major movement to and from the northern suburbs of Brisbane and as a gateway into and out of the Bowen Hills PDA.

Some areas within the PDA are currently in a development stage, with Precinct 2 under major construction as part of the RNA urban development.

As part of the assessment of the existing road network constraints related to the locations of heritage buildings and currently approved development assessments within the PDA. Road networks within Precinct 2 have been developed prior to this master plan development and thus are included within the modelling.

### 5.3 Proposed Road and Transport Network Hierarchy

The outcomes of the existing active transport and road network assessments informed an investigation to determine the preferred transport network hierarchy.

The transport hierarchy for the PDA and the surrounding road network is shown in Appendix A and has been prepared based on:

- an understanding of BCC's existing road hierarchy and ensure consistency with roads on the fringe of the PDA resulting in a legible seamless for local trips and trips that traverse through the PDA.
- facilitating and encouraging through traffic on the arterial and suburban road network.
- prioritising pedestrian and cycle priority along the local streets within Precinct 1 (proposed centre).
- providing high quality cycle connection along O'Connell Terrace as this has been identified as a key east-west cycle link.
- providing cycle connections along Brookes Street and Hamilton Place and discourage through vehicles, resulting in increased urban amenity and safer active transport movements.
- providing an alternate traffic-carrying bypass of Campbell Street to allow higher proportion of local trips Hamilton Road and Mayne Road.



## 6.0 Cross-Section Design Standards

### 6.1 Cross Section Design

The objective of identifying, assessing and preparing road cross-section design standards was to allow a pre-defined road reserve solution for a large number of road types identified in the transport hierarchy.

The scope for road cross-section design standards is to determine and quantify how the needs of all vehicular and non-vehicular modes are catered for within the road reserve. The following was considered within each design standard:

- Transport network hierarchy and modal preference.
- Estimated posted speed.
- Footpath and shared path requirements.
- Amenity and public spaces (including footpath dining).
- On-road and off-road cycle facilities.
- Higher order roads and median requirements.

### 6.2 Recommended Cross Sections

Table 6.1 below summarises all road cross-section design standards prepared for the PDA.

Table 6.1: Summary of Cross-Section Design Widths

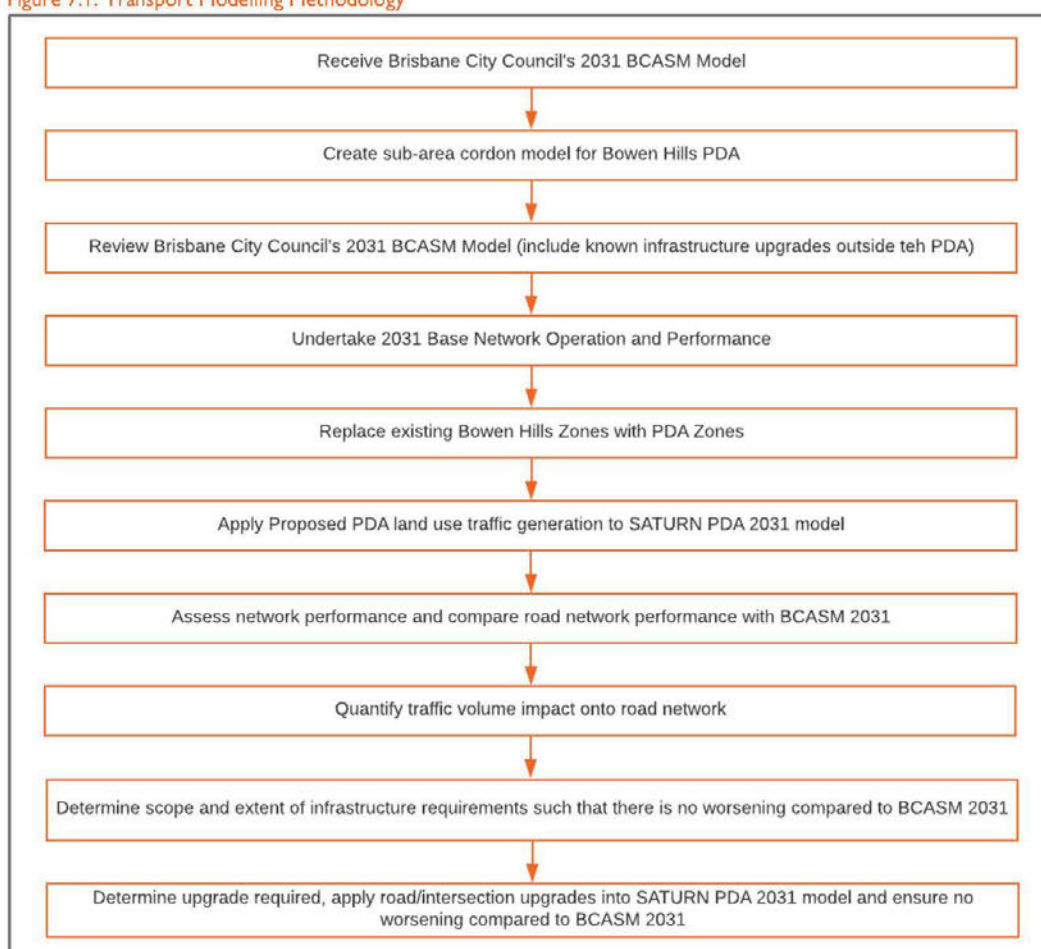
TYPE	ONE WAY TRAFFIC	TWO WAY TRAFFIC	DEDICATED CYCLE FACILITIES	ON-STREET PARKING
Suburban Type 1		X		
Suburban Type 2		X	X	
Suburban Type 3		X	X	
Suburban Type 4		X		X
Suburban Type 5		X	X	
District Type 1		X	X	OPTIONAL
District Type 2		X	X	
Neighbourhood Type 1	X			OPTIONAL
Neighbourhood Type 2		X		
Neighbourhood Type 3		X	X	
Neighbourhood Type 4		X		X
Main Street Type 1		X	X	X
Main Street Type 2		X		X
Local Street Type 1	X			X
Local Street Type 2	X			
Local Street Type 3		X		OPTIONAL
Local Street Type 4		X		
Local Street Type 5		X		OPTIONAL

## 7.0 Future Road Network Assessment

### 7.1 Approach

Figure 7.1 below presents the transport modelling approach/process undertaken to provide an assessment of the future road network at 2031, with the objective of identifying necessary road network upgrades to create a “no worsening” scenario to facilitate the PDA.

Figure 7.1: Transport Modelling Methodology





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## 7.2 Infrastructure Upgrades

The inclusion of the surrounding road network improvements was required to ensure the strategic modelling represented the expected road network. Brisbane City Council's and Department of Transport and Road's future projects were considered and added to the relevant model. A summary of projects and the model inclusion/exclusion within is presented within Table 7.1.

Table 7.1: Infrastructure Upgrades Summary of Model Inclusion

UPGRADE DESCRIPTION	SUBURB	2021	2026	2031
Inner City Bypass Upgrade Project	Herston	✓	✓	✓
Commercial Road/Skyring Terrace intersection upgrade	Teneriffe	✓	✓	✓
Gilchrist Avenue upgrade	Herston	✗	✗	✓
George Street/Ann Street upgrade	CBD	✗	✗	✓
Brunswick Street/Water Street upgrade	Fortitude Valley	✗	✗	✓
Bowen Bridge Road/Gregory Terrace upgrade	Spring Hill	✗	✗	✓

## 7.3 PDA Demands Informed by Land Use

Refer to Chapter 4.0 for a summary of the methodology and estimation of PDA traffic. The results of that assessment results in a total AM and PM trips generated by the PDA as shown in Table 7.2 below.

Table 7.2: PDA Demand Summary (including mode share)

LOCATION	AM TRIPS OUT	AM TRIPS IN	AM TOTAL TRIPS	PM TRIPS OUT	PM TRIPS IN	PM TOTAL TRIPS
Total PDA (2031)	1,760	3,409	5,169	3,703	2,070	5,773

These demands were applied into the 2031 PDA model, with the extent of impacts and mitigation required identified in Sections 7.4.

## 7.4 Impacts of the PDA Generated Traffic

Transport and Main Roads' Guide to Assessing Road Impact Developments (GARID) typically benchmarks a 5% increase as a significant impact and guides to inform a decision whether the PDA 'impacts' the external road network. The following observations are made from the table above:

- The additional development alters traffic volumes and intensities on multiple roads within the PDA area.
- The PDA impact on roads outside the PDA boundary dissipates quickly, with the PDA traffic mixing and spreading into the wider road network along the multiple arterial and suburban roads.
- Bowen Bridge Road services north-south routes and borders the PDA. There is not direct access onto Bowen Bridge Road from the PDA but intersecting streets are within the PDA. The PDA changes traffic volumes on Bowen Bridge Road due to changed access into Precincts 1, 2 and 3. The change in traffic volumes are minor considering the high background volume and therefore no further assessment was undertaken for Bowen Bridge Road.



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### 7.5 Key Deficiencies in the Road Network

An assessment of the 2031 AM and PM peak road network performance has been undertaken following the assignment of the PDA traffic demands. The resulting road network performance prior to any mitigation strategies is summarised below:

- The ICB generally services trips external to the PDA and the additional traffic generated by the PDA doesn't impact the ICB.
- Abbotsford Road will be impacted by the PDA. It has frontage and direct access to the PDA and intersection upgrades are required to facilitate the arterial north-south movement and access to the PDA precincts adjacent.
- O'Connell Terrace will be impacted by the PDA. It has frontages and direct access within the PDA and a number of intersection upgrades are required.
- Ann Street and Wickham Street couplet will not be impacted by the PDA. There is a small increase in trips on Wickham Street from the PDA, but are minor proportionally.
- Traffic volume changes on Montpelier Road are proportionally quite small, but intersection analysis was undertaken to ensure adequate performance is catered for.
- Campbell Street will be impacted by the PDA, it has frontages and direct access to the PDA and intersection changes are required.
- Gregory Terrace will be impacted by the PDA, with designs prepared by others considered within the network assessment.



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### 7.6 Identification of Key Road Network Upgrades

As noted, the key objective in identifying future road network upgrades is to ensure that the impacts of the PDA within the PDA boundary are mitigated with a “no worsening” approach. Based on the base network operations models, change in traffic volumes of the PDA and wider network route choice and travel patterns, the following network upgrades were identified:

- New road connections:
  - Tufton Street to the intersection of Hudd Street/Mayne Road, to facilitate less constrained east/west movement from O’Connell Terrace to Abbotsford Road.
  - New bridge connection from Hudd Street to Abbotsford Road, as part of the new road connection to Tufton Street.
- Give-way intersections upgraded to signalised:
  - Tufton Street/O’Connell Terrace.
  - Mayne Road/Hudd Street.
  - Hudd Street/Abbotsford Road.
  - Edmondstone Road/Thompson Street.
- Existing signalised intersection upgrades:
  - Short additional lane on the eastern approach to Campbell Street/Mayne Road to encourage access to the Airport Link Ramps.
  - Lane allocation change to allow westbound double right turn at St Pauls Terrace/Brookes Street.
  - Addition of northbound left turn slip lane at Abbotsford Road/Campbell Street intersection.
- Local Road upgrades:
  - Extend and widen Hazelmount Street to Hudd Street.
  - Extend Edgar Street to Mayne Road.
  - Remove and rededicate Jameson Street as developable land.
- Intersection right-turn bans:
  - Left in/left out at Cintra Road/Montpelier Road.
  - Left in/left out at Hurworth Street/Campbell Street.
  - Left in/left out at Abbotsford Road/Allison Street.

In conjunction with the identified road network upgrades listed above, the RNA development site has an existing masterplan approval (RNA Master Plan approval) which includes road and intersection upgrades. The following upgrades are included but not tested or validated within this master plan:

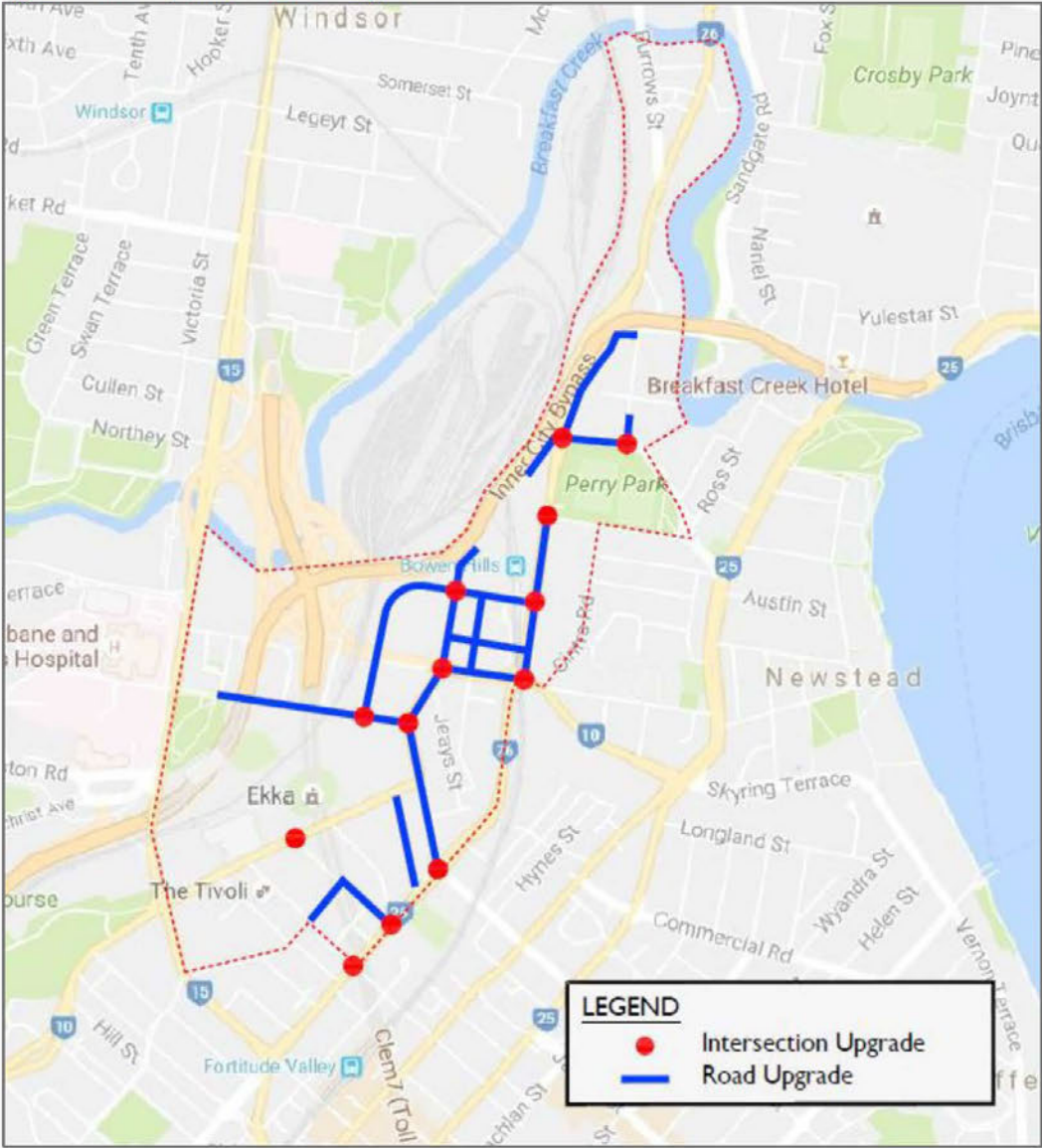
- Intersection upgrades at:
  - Gregory Terrace and King Street
  - St Pauls Terrace and King Street
  - St Pauls Terrace and Constance Street
- Road corridor changes:
  - Realignment of Alexandria Street and Machinery Drive
  - Two-way of Costin Street and Constance Street between Gregory Terrace and St Pauls Terrace.

Locations of the proposed upgrades listed above are illustrated in Figure 7.2 below.



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Figure 7.2: Summary of Road Network Upgrades





## 8.0 Transport Master Plan Recommendations

The objectives within Section 1.2 outline the master plan direction, which are to enhance the walking environment, create safer cycle routes, and ensure an adequate and legible road network. Achieving these objectives will cater for future land uses and intensities within the PDA. The following key recommendations have been defined to achieve the Master Plan's objectives:

1. Enhance the walking environment:
  - a. Improve connectivity to Bowen Hills train station with wider verges and easily accessible crossing facilities across Abbotsford Road.
  - b. Create a minimum 3.75m verges were possible, taking into account existing constraints.
  - c. Create a minimum 5m verge along Mayne Road as part of a changing road function that promotes pedestrian and retail interaction.
  - d. Promote the southern verge of O'Connell Terrace by providing a separated 2-way cycle track and pedestrian footpath. This facility requires a new pedestrian and cyclist bridge across the rail line.
2. Improve the active transport connectivity within and through the PDA:
  - e. Providing new on-road cycling facilities along Mayne Road, Tufton Street and Hudd Street.
  - f. Separated cycle track facilities along Abbotsford Road, O'Connell Terrace, Brookes Street and Hamilton Place.
  - g. Provide new 2-way separated cycle track facilities along southern verge of O'Connell Terrace.
  - h. Promote cycling from the northern suburbs and Kingsford Smith Drive into and through the PDA by providing connectivity to the existing off road cycling facilities along Breakfast Creek
  - i. Improve cycling connections to the Northern Bikeway.
  - j. Improve cycling connection and wayfinding to the currently underutilised dedicated cycle bridge adjacent to the Inner City Bypass.
  - k. Facilitate future cycle route planned south along Brookes Street by Brisbane City Council.
3. Create a legible road network, resulting in fewer vehicles within the localised sub-precincts and realising the traffic carrying potential of arterial roads;
  - a. Provide a new road connection from O'Connell Terrace to Abbotsford Road. By promoting this new road connection, northbound trips will bypass the already at capacity intersections of Brookes Street/O'Connell Terrace, Campbell Street/Hamilton Place and Abbotsford Road/Montpelier Road. The required infrastructure for this new connection is;
    - new road from Tufton Street to the intersection of Hudd Street and Mayne Road.
    - new bridge from Hudd Street to Abbotsford Road crossing Queensland Rail network at Hudd Street.
  - b. Improve connectivity through Precinct I by;
    - extending and widening Hazelmound Street to Hudd Street.
    - extending and widening Edgar Street to Mayne Road.
    - removing the requirement for Jameson Street.



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- c. Promote Markwell Street and Campbell Street as a preferred northbound route, reducing the reliance on Brookes Street through travel demand. The northbound route choice change can be achieved by;
  - increasing northbound turn capacity at St Pauls Terrace and Brookes Street.
  - upgrading Markwell Street and Campbell Street intersection northbound left turn to a slip lane.
- d. Improving the northbound traffic capacity out of the PDA by:
  - increase lane capacity for access to the Fortitude Valley Airport Link ramps.
- e. Improve intersection capacity and safety with appropriate new signal infrastructure at:
  - Tufton Street/O’Connell Terrace.
  - Mayne Road/Hudd Street.
  - Hudd Street/Abbotsford Road.
  - Edmondstone Road/Thompson Street.
- f. Reconfigure of the following intersections to allow left in and left out turns only:
  - Cintra Road/Montpelier Road.
  - Hurworth Street/Campbell Street.
  - Abbotsford Road/Allison Street.



## 9.0 Future Infrastructure Improvements

### 9.1 Schedule of Future Infrastructure Improvements

Table 9.1 below presents each new/upgraded piece of infrastructure and details the particulars of the upgrade.

Table 9.1: Summary of Infrastructure Upgrades

LOCATION	SUMMARY OF UPGRADE
O'Connell Terrace	<ul style="list-style-type: none"> <li>new signals at Tufton Street/O'Connell Terrace</li> <li>new left slip lane into Tufton Street</li> <li>new linemarking</li> <li>new bicycle facilities</li> <li>new shared footpath</li> <li>new footpath bridge section over rail line</li> </ul>
Tufton Street/ Hudd Street	<ul style="list-style-type: none"> <li>new linemarking</li> <li>new cyclist facilities</li> <li>new kerb</li> <li>new footpath</li> <li>new road</li> <li>new signals at Hudd Street/Mayne Road</li> <li>new pedestrian refuge island near Hazelmount Street</li> <li>new give way intersection at Hudd Street/Hazelmount Street</li> <li>bridge overpass of rail line</li> <li>removal of Jaimeson Street</li> </ul>
Edgar Street	<ul style="list-style-type: none"> <li>new footpath</li> <li>new linemarking</li> <li>new road</li> <li>new kerb</li> </ul>
Campbell Street	<ul style="list-style-type: none"> <li>new linemarking</li> <li>new kerb</li> <li>new arrangement at Campbell Street/Hazelmount Street and Campbell Street/Hurworth Street</li> <li>upgrade of signalised intersection of Campbell Street/Mayne Road/Hamilton Place</li> <li>upgrade of signalised intersection of Campbell Street/Abbotsford Road/Markwell Street/ Montpellier Road (excluding road corridor changes along Montpellier Road)</li> </ul>
Thompson Street	<ul style="list-style-type: none"> <li>new linemarking</li> <li>new pedestrian refuge crossing near Allison Street</li> <li>new kerb ramps</li> <li>new signals at intersection of Edmondstone Road/Thompson Street</li> </ul>
Brookes Street	<ul style="list-style-type: none"> <li>new linemarking</li> <li>new cyclist facilities</li> <li>new kerb ramps</li> </ul>
Edmondstone Road	<ul style="list-style-type: none"> <li>new kerb</li> <li>new linemarking</li> <li>new cyclist facilities</li> <li>new left slip lane from Mayne Road</li> <li>new driveway to access properties</li> </ul>



## Transport Master Plan

Bowen Hills Priority Development Area

LOCATION	SUMMARY OF UPGRADE
Mayne Road	<ul style="list-style-type: none"> <li>• new kerb</li> <li>• new linemarking</li> <li>• new footpath</li> <li>• new cyclist facilities</li> <li>• new give-way intersection at Mayne Road/Edgar Street</li> </ul>
Abbotsford Road (north of Edmondstone Street)	<ul style="list-style-type: none"> <li>• new off road cycle facilities from Edmondstone Road to Allison Street</li> </ul>
Hazelmount Street	<ul style="list-style-type: none"> <li>• new road</li> <li>• new kerb</li> <li>• new linemarking</li> <li>• new pedestrian refuge crossing near Hudd Street</li> <li>• new left in left out only arrangement at intersection with Campbell Street</li> </ul>
Abbotsford Road (south of Edmondstone Road)	<ul style="list-style-type: none"> <li>• new signals at Hudd Street/Abbotsford Road</li> <li>• new premium bus stop/interchange along Abbotsford Road north of Hudd Street</li> <li>• new left slip lane on from Markwell Street to Campbell Street</li> <li>• new left in left out only arrangement at Cintra Road/Montpelier Road intersection</li> </ul>
Hamilton Place	<ul style="list-style-type: none"> <li>• new cyclist facilities</li> <li>• new linemarking</li> <li>• new kerb ramps</li> </ul>
Exhibition Street	<ul style="list-style-type: none"> <li>• new pavement widening</li> <li>• new linemarking</li> <li>• new kerb ramps</li> </ul>



## 10.0 References and Data Informing the Study

Table 10.1 below summarises all the references and external information which informed and was relied on within the study.

**Table 10.1: References and Data Informing the Study**

SOURCE	DATA	APPLICATION IN STUDY
Austrroads	Guide to Road Design Part 3: Geometric Design	Development of Road Hierarchy
Austrroads	Guide to Road Design Part 6A: Pedestrian and Cyclist Paths	Informed the development of the Active Transport solution.
Austrroads	Cycling Aspects of Austrroads Guides	Informed the development of the Active Transport solution.
Brisbane City Council	Active Transport Plan	Informed the development of the Active Transport solution and alignment with BCC's future cycle network planning.
Brisbane City Council	Subdivision and Development Guidelines – Part B: Design Requirements	Development of Road Hierarchy
Brisbane City Council	BCASM Saturn Model	Base line model for the development of PDA Model.
Brisbane City Council	Traffic Counts	PDA Model validation.
Cardno	Bowen Hills PDA Bicycle Strategy – Draft Cycle Strategy Report	Informed the development of the Active Transport solution.
Department of Local Government, Infrastructure and Planning	Draft Cycle Network Plan	Informed the development of the Active Transport solution.
Department of Local Government, Infrastructure and Planning	UDLA Guideline No. 06 - Street and movement network	Informed the development of proposed Road Hierarchy and cross sections.
Department of Local Government, Infrastructure and Planning	RNA Development Yield	Informed Precinct 2 traffic distribution.
Department of Local Government, Infrastructure and Planning	Bowen Hills Master Plan	Informed PDA traffic distribution.
NSW Roads and Traffic Authority	Guide to Traffic Generating Developments Version 2.2	Informed the development of the traffic generation figures.
NSW Roads and Traffic Authority	Guide to Traffic Generating Developments: Updated traffic surveys TDT2013/04a	Informed the development of the traffic generation figures.
Queensland Government	Bowen Hill Development Scheme (July 2009)	Detailed precinct by precinct visions and highlighted constraints within the development.
Queensland Government	Traffic Generation Data - Site Summary	Comparing existing trip generation count data within Queensland for various land uses to validate traffic generation figures.
Strava	2015 Cycle Heat Maps	Informed the development of a “fit for purpose” Active Transport solution.
Transport and Main Roads	Road Planning and Design Manual – Supplement to Austrroads Guide to Road Design Part 6A: Pedestrian and Cyclist Paths	Informed the development of the Active Transport solution and Road Hierarchy.



## Transport Master Plan

Bowen Hills Priority Development Area

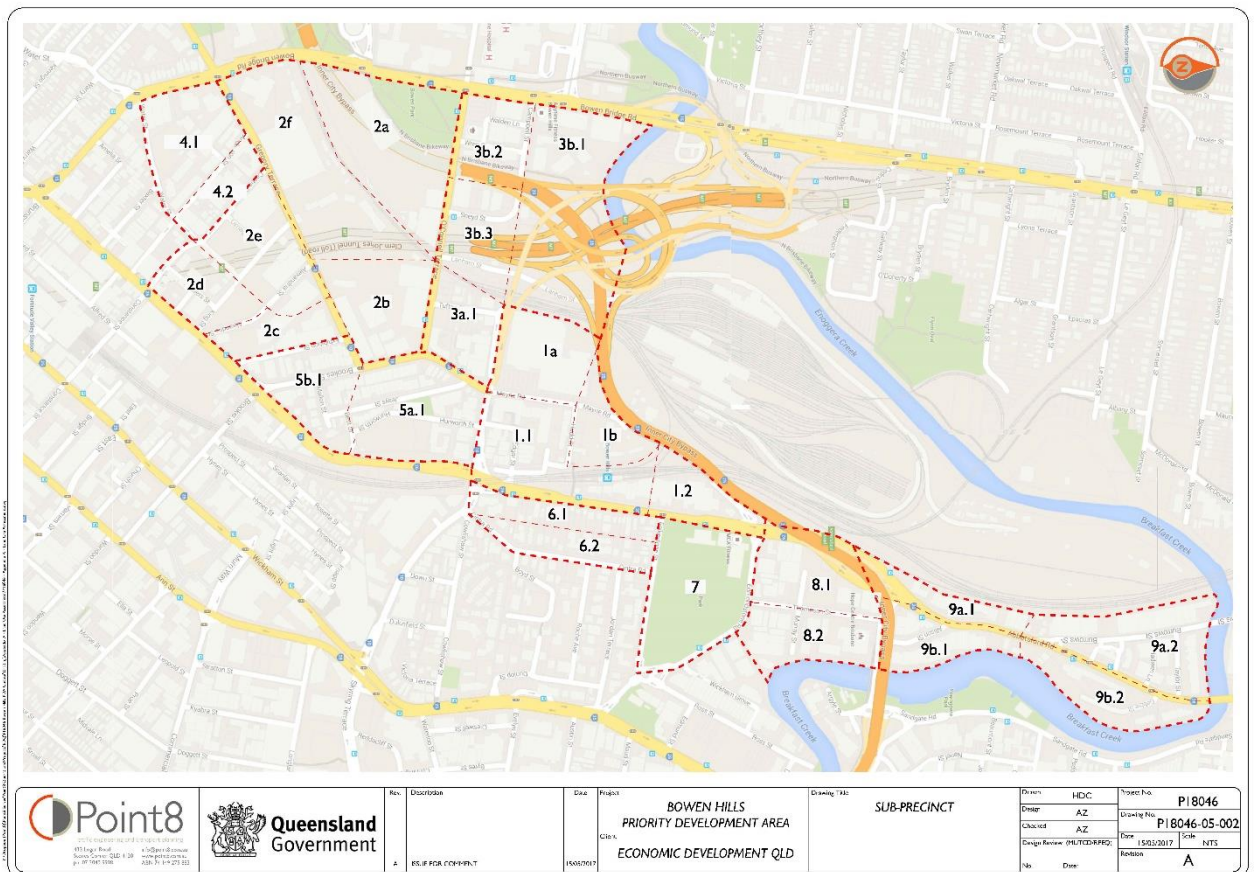
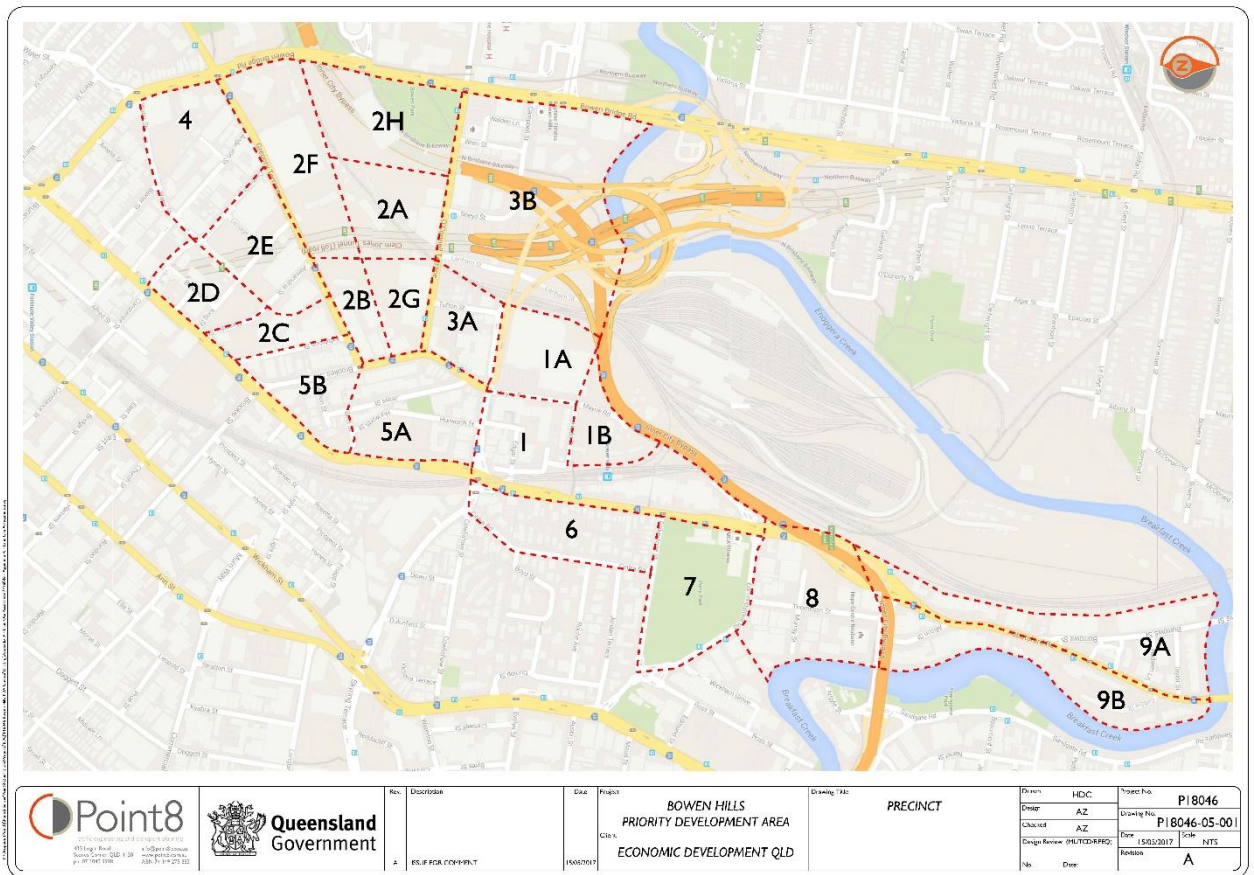
SOURCE	DATA	APPLICATION IN STUDY
Transport and Main Roads	TN128 - Selection and Design of Cycle Tracks	Informed the development of the Active Transport solution.
TTM	Bowen Hills Traffic Report	Previous planning within the PDA informed the current minimum land resumption proposed.
Urbis	Stage One - EDQ Spreadsheet Yield Analysis	Commercial, Residential and Industrial Land Use within the PDA for the Ultimate Scenario. Land Use data used to inform the development of traffic generation related to the PDA.
Urbis	Stage Two - Existing Land Use by Precinct (2031)	Commercial, Residential and Industrial Land Use within the PDA at 5 year intervals. Land Use data used to inform the development of traffic generation related to the PDA.

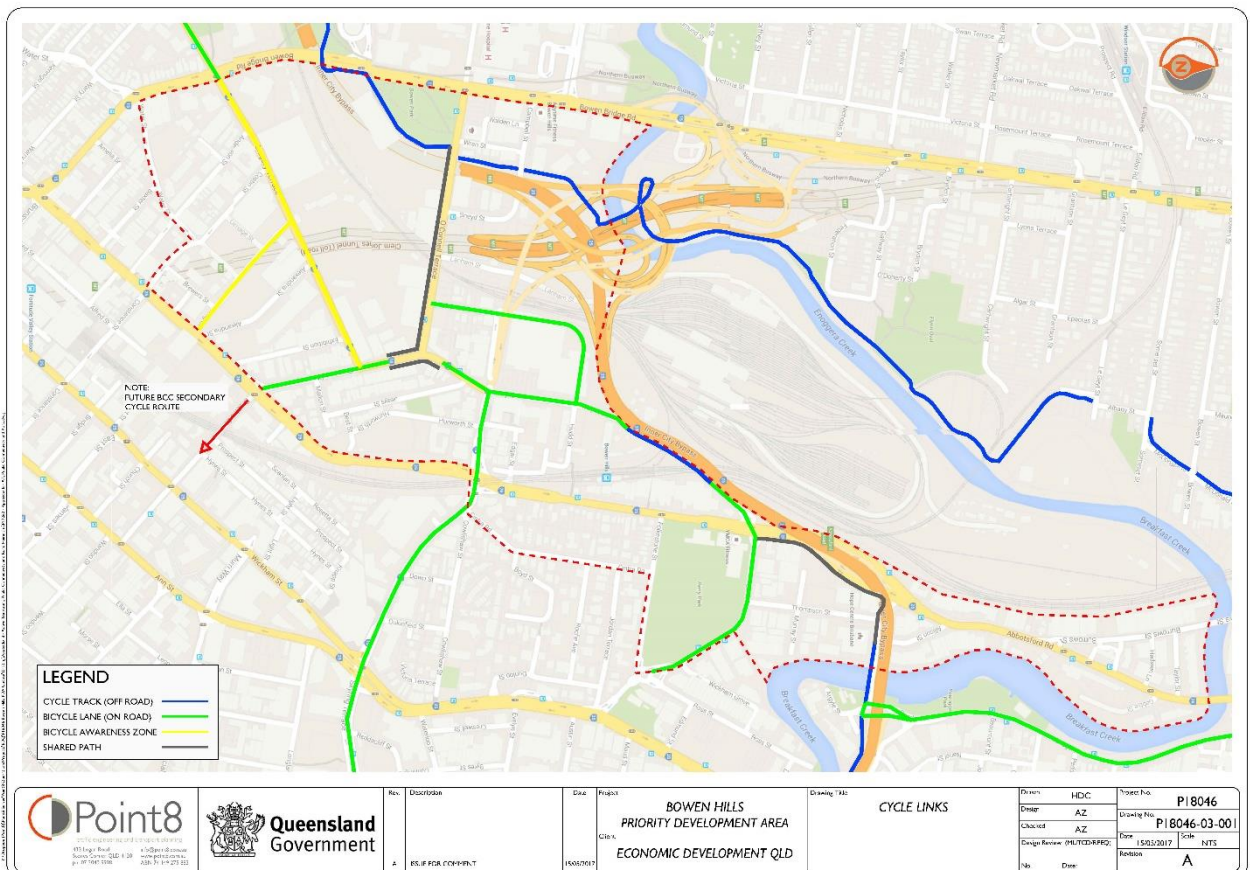
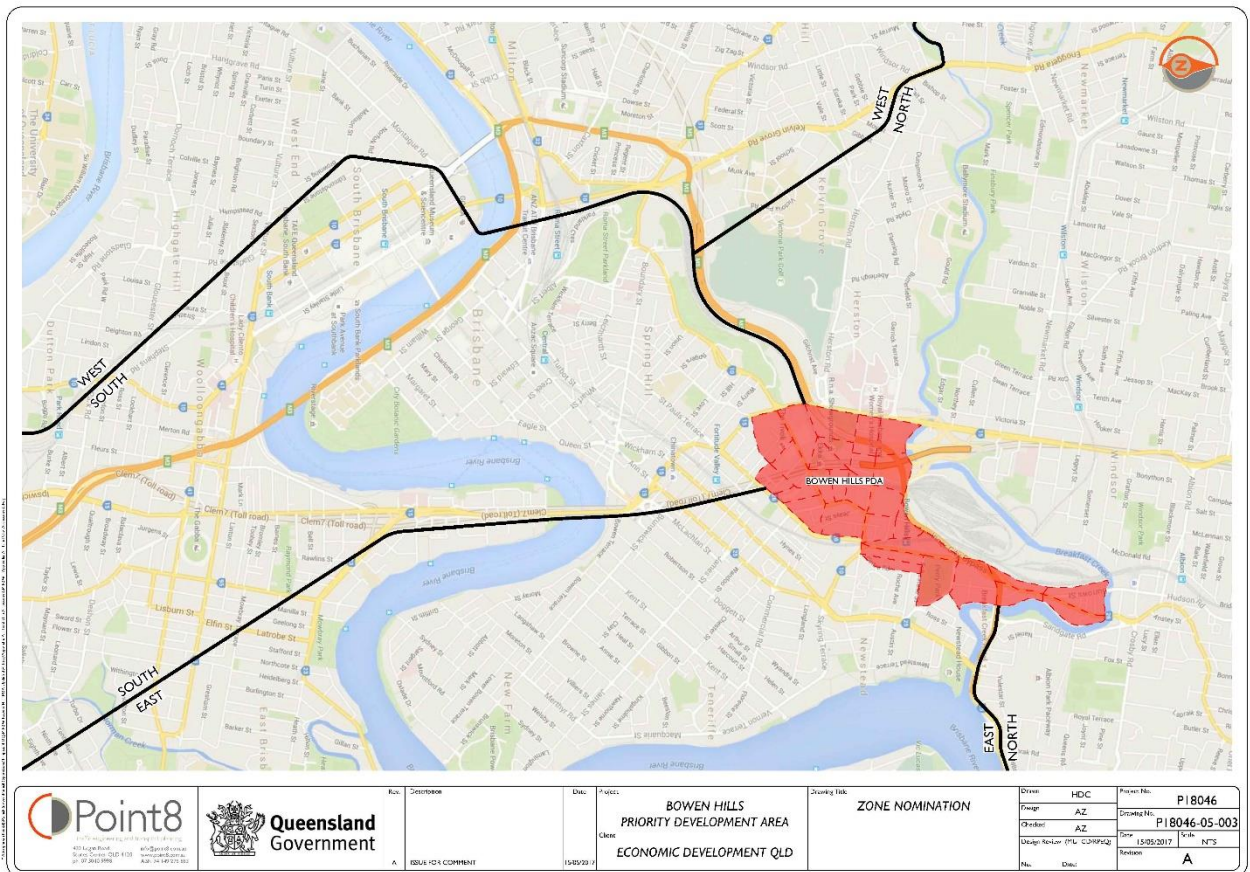


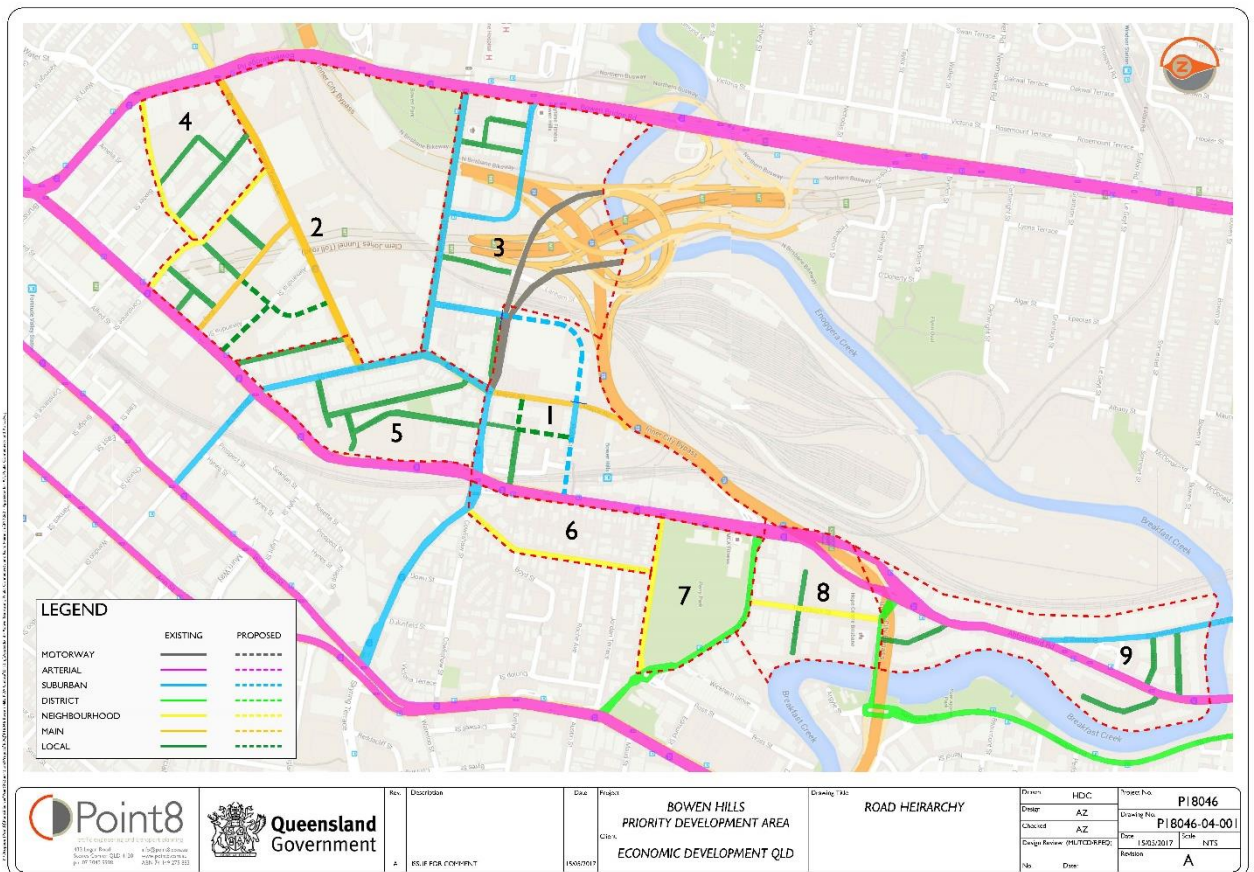
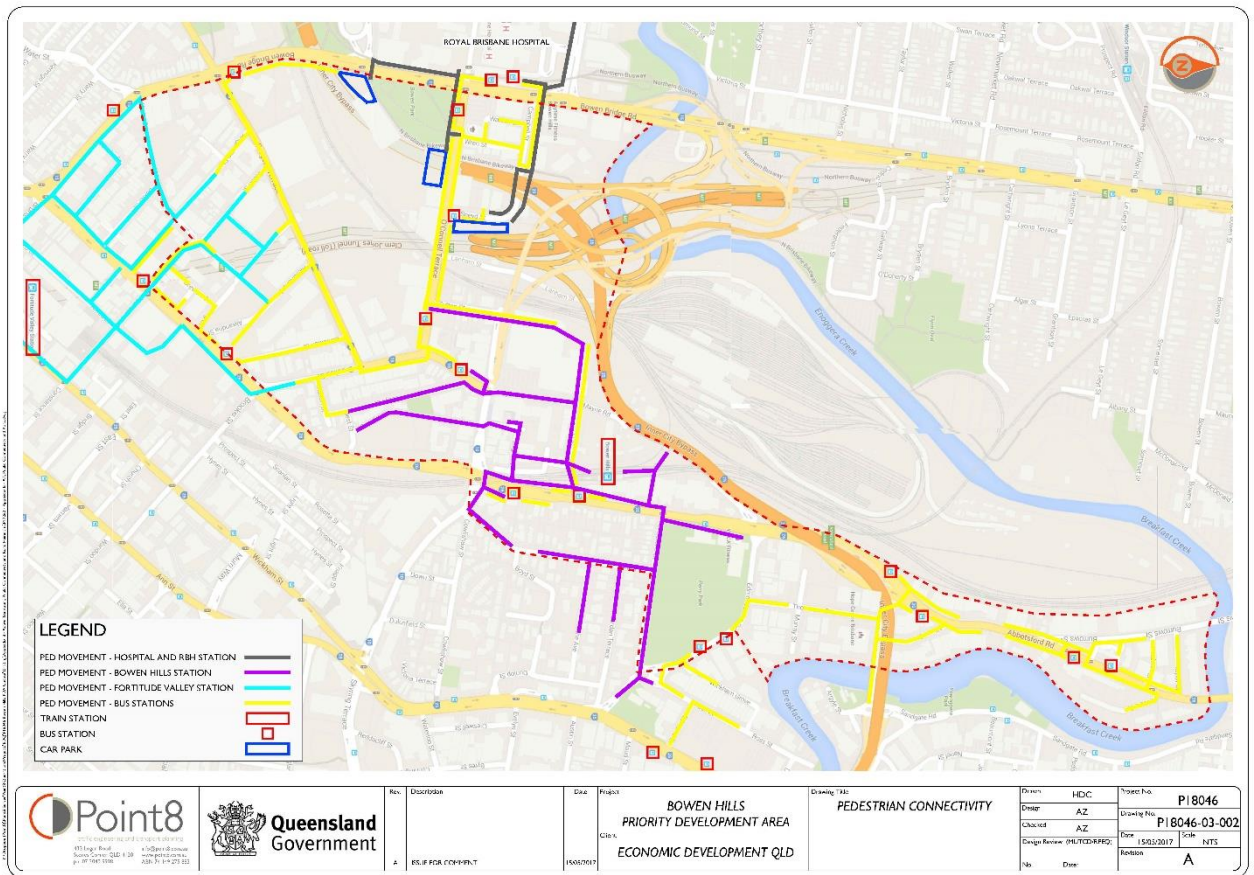
## Appendix A – AT, PT, and Road Hierarchy

Active Transport, Public Connectivity and Road Hierarchy

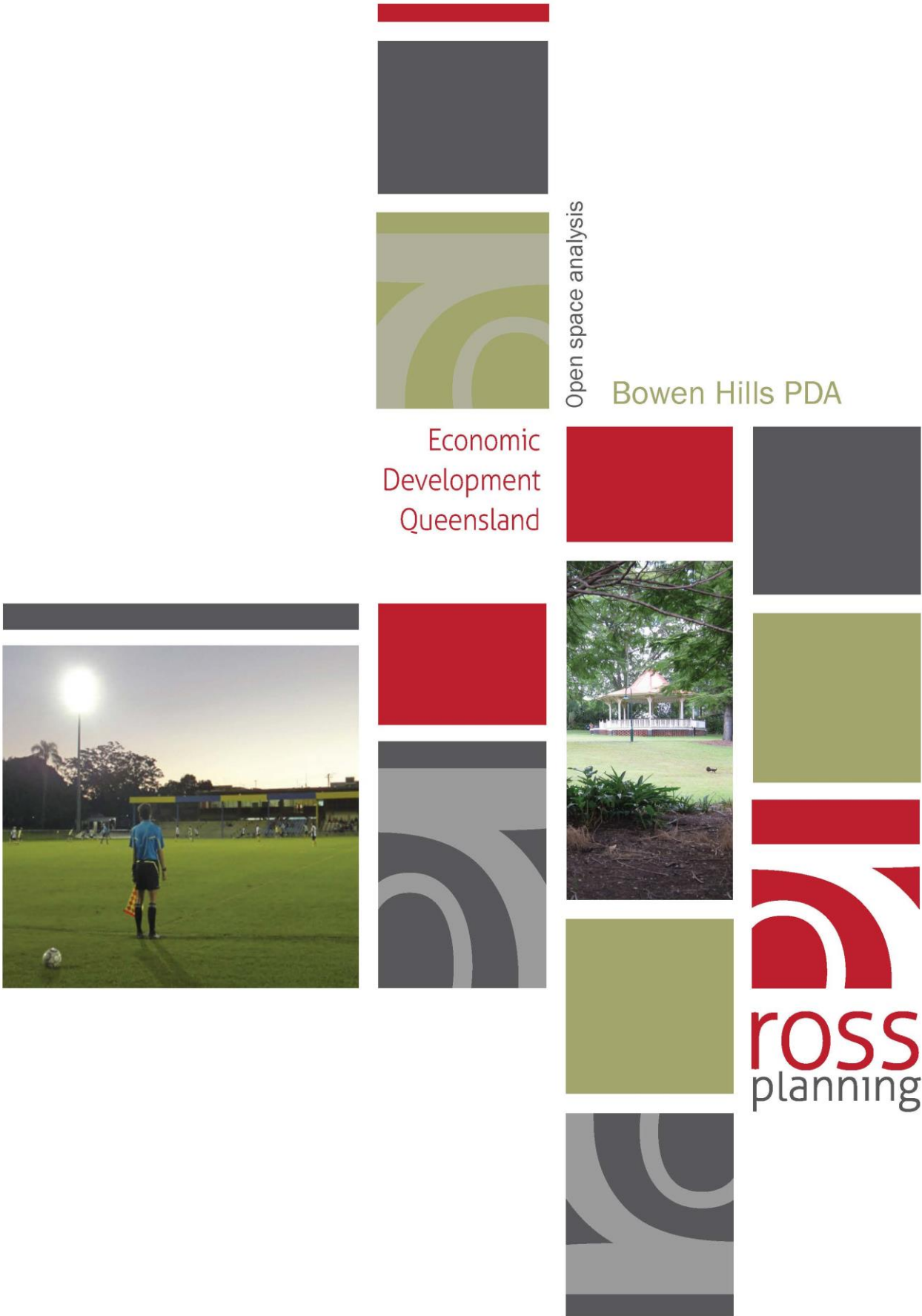
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# Appendix I – Open Space Analysis





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1	23.03.16	Draft	DC, CP		MM, SG
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5	27.04.18	Updated final	DC, CP		SG

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# Background

## 1.1 Priority Development Area

The Bowen Hills Priority Development Area (PDA) was declared by regulation by the Minister for Infrastructure and Planning on 27 March 2008. Subsequently, the Bowen Hills PDA Development Scheme came into effect on 3 July 2009 (with an amendment on 1 April 2010).

The PDA is a 108ha land area located approximately 3km north-east of the Brisbane CBD as highlighted in the map below.



## 1.2 Purpose and focus

Economic Development Queensland (EDQ) is reviewing the Bowen Hills PDA Development Scheme to ensure currency. The review includes an audit and assessment of the existing and proposed open space networks (this report).

The purpose of this open space analysis is to:

- ☐ audit the existing open space within the PDA
- ☐ review the proposed open space for the PDA
- ☐ review relevant planning instruments used to propose future open space in and surrounding the Bowen Hills PDA
- ☐ propose an alternate planning approach (if required)
- ☐ recommend an ultimate preferred open space network for the Bowen Hills PDA.

It is important to note that the focus of the report is on publicly accessible open space. However, private facilities will also be considered where they influence the overall open space network. Additionally, the impact of the public realm (plazas etc) is also of key importance. However, given it is not open space per se it is only considered as ancillary public outdoor area. Finally, the open space analysis has been undertaken at a PDA-wide level rather than at a precinct level given the small land areas involved.

## 1.3 Defining open space

Given the inter-relationships, potential overlaps and possibility of creating confusion for the reader, the glossary below defines the key terms used throughout this report.

Access	Term	Definition
Public	Open space	Open space is Council-managed land and water bodies that are broadly available for public leisure and recreation, pedestrian and cycle movement, sport or for nature conservation purposes
	Recreation park	Open space areas where one can play, relax and recreate. Generally, landscaped with shade trees
	Sport park	Open space areas for formal organised sporting activities. Sports parks include playing fields and outdoor courts
	Public realm	Outdoor areas for gathering and socialising. May consist of hard surfaces and/or turf. May have close interface with commercial and community enterprises such as cafes, theatres and museums. Public realm is not considered open space
	Plaza	Form of gathering area within the public realm. May be a covered or open environment
Private	Communal open space	Open space areas providing a mixture of outdoor uses and activities developed to meet the demand of a single residential development (or group of residential developments). While communal open space may provide many of the functions of traditional parks, as it is not generally publicly accessible, it is not considered open space
	Balconies and other open space	Residential units generally incorporate balconies or private open space, attached to major internal living areas and provide room for outdoor private activity and furnishings such as a table, chairs, planting, a BBQ and shade.  Balconies should be appropriately located and/or screened to maximise privacy between buildings and/or the public realm and to protect amenity from transport corridor impacts, without compromising CPTED principles.  Ground floor private open space should provide privacy but still allow overlooking of the street to promote casual surveillance.

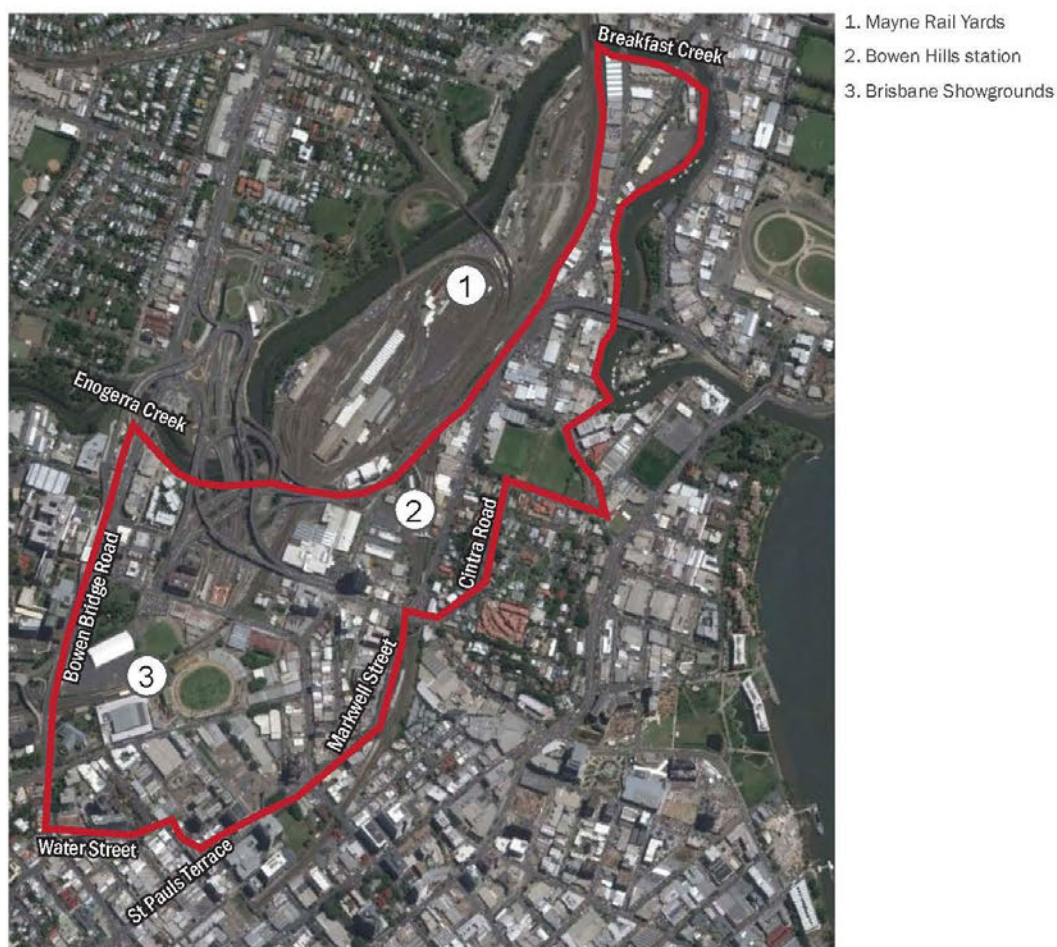
## 2 Local context

### 2.1 Location

As previously noted, the Bowen Hills PDA is located 3km north-east of the Brisbane CBD. It is bounded by the Mayne Rail Yards and Breakfast Creek to the north, Breakfast Creek, Cintra Road and Markwell Street to the east, Water Street and St Pauls Terrace to the south and Bowen Bridge Road and Enoggera Creek to the west.

The area contains a number of key landmarks including the Brisbane Showgrounds and is at the point of convergence of Brisbane's main northern arterials and railway lines. The Bowen Hills railway station is centrally located within the Bowen Hills PDA and is a key transport node given that it is one of few stations through which all of the northside's suburban passenger lines pass and to which all southside railway lines are connected.

Bowen Hills is currently a transport-focussed commercial hub with a growing residential market. However, it is planned to deliver a range of housing options to achieve medium- to high-density living and to generate an expanded array of business opportunities. While these changes will create a more people-friendly and vibrant area, they will also present challenges relating to the suitable provision of open spaces and public places that meet increasing demands.



## 2.2 Existing open space

### *Open space within the PDA*

As a developed area, the Bowen Hills PDA is currently typified by a range of low, medium and high density residential living options, extensive transport infrastructure and commercial activity. There is currently a very limited range of five public open spaces within the Bowen Hills PDA.

The map below highlights the existing open space network, with specific detail provided on the following pages. Classifications and hierarchy have been taken from the Brisbane City Council City Plan 2014.

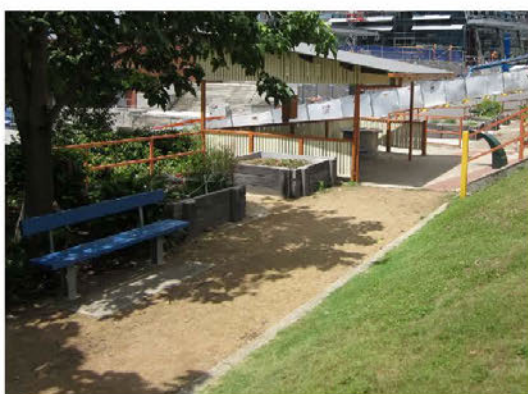


1. Perry Park
2. Bowen Bridge Road Park East
3. Jeay's Street Park
4. Hurworth Street Park
5. Bowen Park

Recreation parks - zoned open space<sup>1</sup>**Bowen Park - recreation park (metropolitan) 1.81ha**

Bowen Park is a key greenspace area for the PDA. The Park has been embellished as a quiet reflective recreation park (rather than an active park) with a large rotunda, formal gardens and seating under mature shade trees.

The Park is green and inviting and appears to be attractive for staff and patrons from nearby businesses and the hospital precinct. It is important to note that there are no play-related facilities within the Park.

**Jeay's Street Park - recreation park (local) 0.17ha**

Jeay's Street Park is a small community garden adjoining a community centre and Red Cross facility. It includes vegetable and flower beds, compost areas, modern picnic node and shaded seating. There are no play facilities within the Park.

**Bowen Bridge Road Park east - recreation park (amenity) 0.09ha**

This Park includes a gated car park and garden bed. It provides boat access to Enoggera Creek and provides open space amenity.

**Hurwoth Street Park - recreation (local) 0.19ha**

This is an undeveloped parcel of open space that is leased to a builder from an adjoining development. It will be developed as a local recreation park and provide a link to Jeay's Street Park.



<sup>1</sup> Brisbane City Council City Plan 2014

## Sport parks - zoned *sport and recreation*<sup>1</sup>

### **Perry Park - sport and recreation (metropolitan) 4.6ha**

Perry Park provides the only public sporting fields and outdoor play node in the Bowen Hills PDA. However, it is important to recognise that the two football fields are fully enclosed by locked fencing and a significant portion of the land area is taken up by large buildings (YMCA).

The recreation node includes a basketball half court, play node, gazebo and path links. This recreation area represents approximately 0.2ha of the 4.6ha site.



<sup>1</sup> Brisbane City Council City Plan 2014

## Existing open space provision

As highlighted, there is currently very limited public open space available within the Bowen Hills PDA (even including the locked playing fields and YMCA buildings at Perry Park). A breakdown of the total open space and comparison with the EDQ Park Planning and Design Guideline No. 12 and the Brisbane City Council (BCC) desired standard of service (DSS) for open space<sup>1</sup> are detailed in the table below.

Open space type	Existing provision (ha)	Population 3,612 (2016)			
		EDQ DSS Recreation park - 2.8ha/1,000 Sport park - 1.8ha/1,000		BCC DSS Recreation park - 1.12ha/1,000 Sport park - 1.0ha/1,000	
		Desired (ha)	Surplus (+) / Gap (-) (ha)	Desired (ha)	Surplus (+) / Gap (-) (ha)
Recreation park	2.27 <sup>1,2</sup>	10.11	-7.84	4.05	-1.78
Sport park	4.4 <sup>1</sup>	6.5	-2.1	3.61	0.8

1 - the 0.2ha of recreation node within Perry Park has been included as recreation park rather than sport park

2 - 0.19ha of recreation park (Hurworth Street Park) has been omitted from this analysis given that it is undeveloped (and currently does not provide public access). However, as previously noted it is expected that the site will be developed as a recreation park once the adjoining development has been completed.

This table indicates that existing provision rates of open space fall below desired levels using both EDQ and BCC standards. For recreation parks, existing gaps of between 1.78ha (BCC DSS) and 7.84ha (EDQ DSS) have been determined. This highlights a lack of immediate public open space areas for young people to play and socialise and for local residents (more widely) to enjoy outdoor green areas. Further, shortfalls of land for sport parks have been calculated as 2.1ha (EDQ DSS) with a small surplus using the BCC DSS. These figures would be even further exacerbated if the common practice of excluding land that is not readily accessible for public use or is heavily developed with built structures for alternate purposes (e.g. Perry Park) was used for analysis. There are very limited sporting opportunities in the Bowen Hills PDA, with football (soccer) the only formal outdoor sporting option currently available.

It is also important to highlight that there are existing private open space areas within the Brisbane Showgrounds that may potentially function as open space. For instance, Show Ring 2 (accessed via the car park off O'Connell Terrace) is available for casual public recreation use. However, discussions with Showground staff indicate that public use of this area is very rare as it is not easily accessed nor is it currently perceived as a 'public' area. It is also heavily used for regular events. Other areas, such as the recently completed Ekka Plaza, may also serve a function as a public space without including the traditional elements of a park. This opportunity is discussed in more detail in the following sections.

<sup>1</sup> The Bowen Hills PDA is in the area classified as Area A Centres for Community Purpose Network DSS under BCC's Priority Infrastructure Plan



## Open space provision within the 'catchment' - accessibility

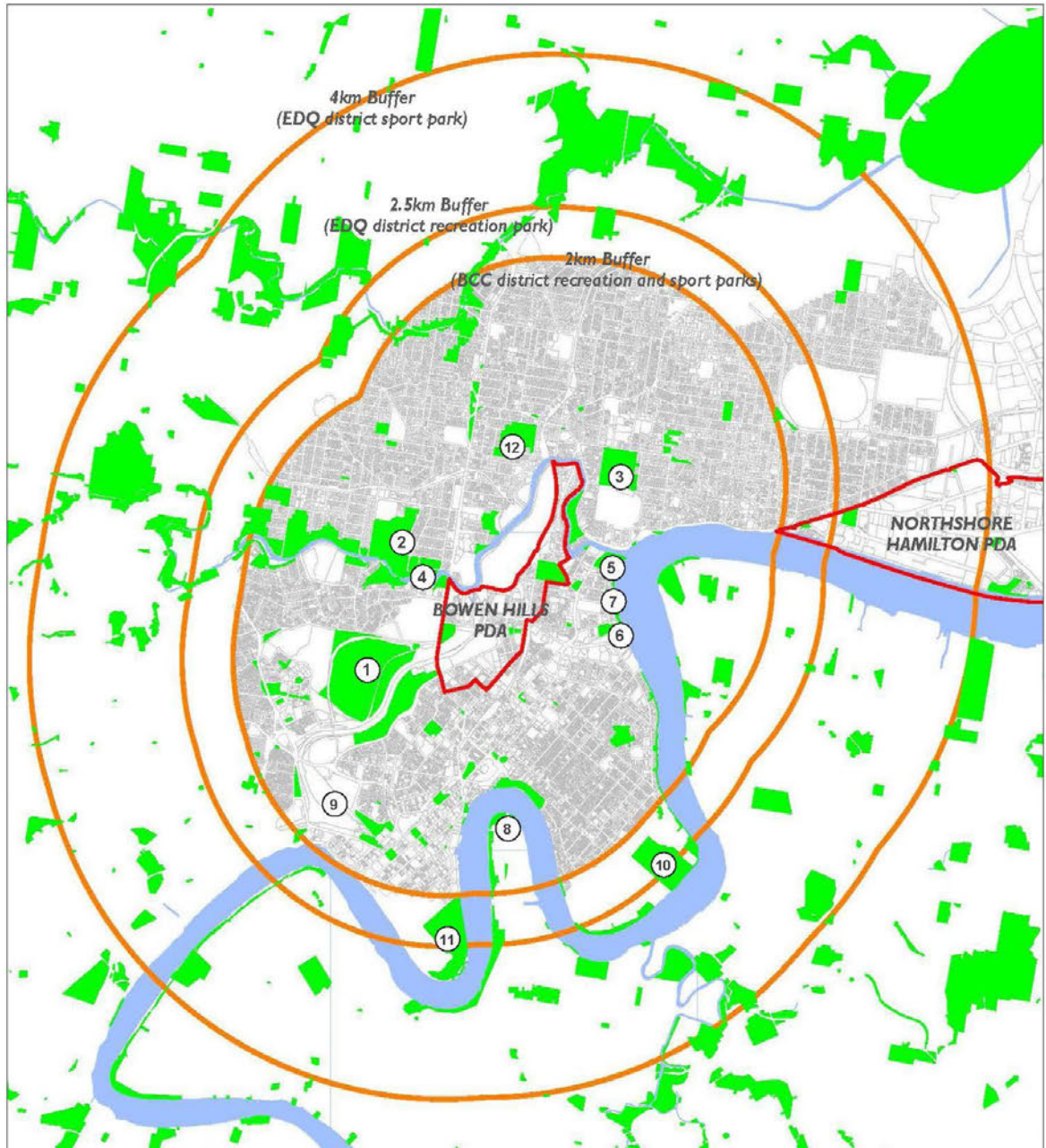
In order to create a clear picture of open space provision within the Bowen Hills PDA, it is also important to consider accessibility to higher-level (district and metropolitan) open space in surrounding areas. Importantly, there is a wide range of open space in close proximity to the boundaries of the Bowen Hills PDA.

BCC's DSS establishes accessibility standards of 2km for district-level recreation parks and sport parks, while metropolitan-level open spaces serve a citywide catchment. Comparatively, the EDQ Park Planning and Design Guideline indicates accessibility requirements of 90% of dwellings within 2.5km of a district recreation park and 4km of a district sport park.

Surrounding open spaces and relevant catchments are highlighted in the map and table below.

	Facility name	Classification	Hierarchy	Area (ha)	Approx. distance from PDA boundary
①	Victoria Park	Sport and recreation	Metropolitan	12.81	0.2km
②	Downey Park	Sport and recreation Open space	District and metropolitan Local and district	17.39	0.4km
③	Crosby Park	Sport and recreation	Local and district	12.40	0.3km
④	Northey Street Park	Open space	Metropolitan	3.30	0.3km
⑤	Newstead Park	Open space	Metropolitan	3.20	0.4km
⑥	Waterfront Park	Sport and recreation	District	2.80	0.7km
⑦	Newstead Terrace Park	Open space	Metropolitan	0.93	0.5km
⑧	Captain Burke Park	Open space	Metropolitan	1.98	1.4km
⑨	Roma Street Parklands	Sport and recreation	Metropolitan	17.03	1.3km
⑩	New Farm Park	Open space	District and metropolitan	15.50	2.4km
⑪	City Botanic Gardens	Open space	Metropolitan	18.36	2.2km
⑫	Windsor Park	Sport and recreation	District	3.90	0.5km

## Accessibility





## Planning considerations

### 3.1 Population changes

Using current and proposed settlement patterns and an assumption of 1.75 residents per dwelling, EDQ anticipates the Bowen Hills PDA has the potential to accommodate a projected population of approximately 10,973 residents by 2031. This represents an increase of more than 7,000 residents - more than 3 times the existing population. Furthermore, at ultimate development (well beyond the timeframes included in this analysis) the population is projected to be near to 40,000. These marked population increases reflect the medium- to high-density residential development targeted for the PDA.

When considering future open space requirements, it is clearly important to understand the number of expected users being catered for. However, potentially of more necessity is to appreciate the projected demographic make-up of this future population base. Children and youth seek active play nodes, sports facilities and places to 'hang'; while adults and older people prefer safe areas to walk, to gather and to relax and contemplate.

Based on an extension of the current profile of demographics, dwelling types and sizes and occupancy rates, it can be anticipated that the Bowen Hills PDA will predominantly provide for and attract smaller household types such as singles, couples without children and possibly retirees. Indeed, with an assumed 1.75 residents per dwelling there is limited expectation of families moving to the area (if the current dwelling, occupancy and demographic trends continue). From a future open space planning and development perspective, these demographic characteristics indicate a need for a move away from 'traditional' parks and sporting facilities.

### 3.2 Desired standards of service

It is commonplace for agencies controlling residential development (generally councils) to set expected provision rates for open space for new developments. The notion is that this ensures that residents have access to suitable supply of outdoor areas. However, while this practice has proven effective when planning and developing greenfield suburban communities that are attractive to growing families, such an approach has limited transference to medium- to high-density city living/infill areas such as that proposed for the Bowen Hills PDA.

As highlighted in Section 2.2, the Bowen Hills PDA is currently under-supplied for both recreation and sport parks using either the BCC or EDQ desired standards of service. Importantly, this under-supply exists despite limited population growth in recent times. To achieve these desired standards whilst undergoing the extreme population growth expected and in an area with limited land availability, is a near-to-impossible exercise. The table below indicates the open space that would be required to meet the two DSS types for the PDA at expected ultimate development.

Open space type	Existing provision (ha)	Population 10,973 (estimated 2031 population capacity)			
		EDQ DSS Recreation park - 2.8ha/1,000 Sport park - 1.8ha/1,000		BCC DSS Recreation park - 1.12ha/1,000 Sport park - 1.0ha/1,000	
		Desired (ha)	Surplus (+) / Gap (-) (ha)	Desired (ha)	Surplus (+) / Gap (-) (ha)
Recreation park	2.27 <sup>1,2</sup>	30.72	-28.45	12.29	-10.02
Sport park	4.4 <sup>1</sup>	19.75	-15.35	10.97	-6.57

1- the 0.2ha of recreation node within Perry Park has been included as recreation park rather than sport park

2 - 0.19ha of recreation park (Hurworth Street Park) has been omitted from this analysis given that it is undeveloped (and currently does not provide public access). However, as previously noted it is expected that the site will be developed as a recreation park once the adjoining development has been completed.

These DSS are not practically achievable within the spatial confines of the Bowen Hills PDA. Clearly, an alternate approach is required that recognises a change in the open space expectations of residents seeking medium- to high-density city living.

### 3.3 An alternate approach

It is important to note that the focus of the open space and public realm provision will be for recreation, play and relaxation purposes. The provision of additional sporting opportunities within the PDA is not considered a feasible directive given the limited land space in the PDA, combined with the notion that people are prepared to travel further afield than their local surrounds to access quality sporting facilities. Additionally, there are more than 50ha of quality sporting fields within the 4km catchment of the PDA.

There are a number of best practice examples within both Australia and internationally where quality open space provision has been achieved within medium- to high-density developments. Within Brisbane, the Southbank development has achieved world-class open space, entertainment and restaurant precincts, commercial and residential development. Areas such as Darling Harbour in Sydney, St Kilda and the Federation Square precinct in Melbourne have also proven successful at incorporating traditional park elements and public realm (plaza-style) outdoor areas into medium- to high-density developments. Overseas, elements such as boardwalks, riverfront plazas, pop-up parks, and green streets and boulevards have all created quality environments in cities such as London, Amsterdam, Copenhagen, Paris and Singapore.

One of the key issues with the notion that more open space is required when density is increased is that it does not rightfully consider the characteristics of the people projected to be living in higher density urban environments. As noted previously, demographics of the Bowen Hills PDA is trending toward smaller household types such as singles, couples without children and possibly retirees. These residents are likely to be seeking quality modern housing options near to shops, restaurants, entertainment venues and with ready access to public transport. From an open space perspective, (in addition to traditional recreation parks) gathering areas such as plazas, park streets and promenades will be attractive for social cohesion, while links and boulevards will provide safe opportunities for walking and exercise. With the limited land available within the PDA, careful planning will be required to create links and green connections across this open space and public plaza network.

This analysis recommends an alternate method of planning for open space other than the traditional standards-based approach. A needs-based assessment is considered a more realistic preference for greenspace forecasting given the medium- to high-density living proposed in the Bowen Hills PDA.

A needs-based approach forgoes the standard numbers-based assessment and instead takes into consideration the characteristics of the local community and the environment in which it sits. This approach is based on the experiences gained by the user, rather than fixed facilities within standard spaces for set population sizes. The Bowen Hills PDA has significant existing public infrastructure including roads, rail and Showgrounds. It is a challenging environment with multiple barriers (including creeks and major transport routes) and significant constraints on land availability.

#### *Future open space provision in the Bowen Hills PDA*

A three phase approach is suggested as an over-arching strategy to deliver on the 'needs based approach' advocated above.

##### 1. Provide additional public open space

###### **1a) 'Traditional' park provision**

As has been noted, there is currently a low rate of provision of recreation park open space in the Bowen Hills PDA. Further, it is acknowledged that both the EDQ and BCC provision rate DSS are not practical for this proposed medium- to high-density community. However, it is clear that additional open space for recreation parks will be required to cater for the growing population.

###### **1b) Opportunistic optimization of underutilised/residual land**

Given the difficulty accessing land for large 'traditional' park development, alternate options for public open space provision have been considered. Opportunity exists to create a sense of place and to provide visual breaks from the built environment by tactical improvements to residual/underutilised land parcels. In essence, these small parcels will fulfil a quasi open space function.

##### 2. Provide additional communal and private open space

Achieving appropriate supply of communal and private open space is an important aspect of development planning. However, in the absence of a comprehensive 'traditional' public open space network (such as within the Bowen Hills PDA), the importance of this provision is further exacerbated.

##### 3. Strategic public realm improvement

Much of the existing public realm in the Bowen Hills PDA has low amenity. Unattractive walk/cycle ways and gathering areas are not uncommon for the area. However, recent developments within the Showgrounds and development areas immediately to the south-east have highlighted how targeted public realm enhancement can contribute to the overall amenity (and attractiveness) of the community.

The recommendations presented in Section 4.2 reflect this three-phase approach.



# Future open space network

## 4.1 Open space requirements

In order to determine the future open space requirements for the PDA, it is essential to determine what experiences people are looking to gain from access to open space. The following experiences have been assessed both within the PDA and within the catchment in order to establish the proposed network of future open space and public realms to meet the community's needs.

Experience	Example space and elements	Current provision within PDA	Current provision within catchment (outside of PDA)
Play	Discovery, learning and adventure (e.g. playground, climbing and spinning elements, kick-about space)	A play node exists within the recreation node of Perry Park, however, accessibility to the current and future populations of the PDA is somewhat limited. Small kick-about spaces exist within Bowen Park and Jeay's Street Park.	Waterfront Park (Newstead) provides a high quality district-level playground within 500m of the boundary of the PDA. Bedford Playground Park provides a local play opportunity within 300m of the PDA. Roma Street Parklands and New Farm Park provide metropolitan-level opportunities for play through their significant formal and informal play elements all within 2.5km of the PDA. The Paddo Skate Bowl at Paddington provides an opportunity for skate, scooter and BMX within 2.5km of the PDA.
Nature	Plantings, waterways and vegetation protection (e.g. bushland, edible garden, formal garden)	Elements of 'nature' exist within Jeay's Street Park community garden as well as Bowen Park with its formal gardens and mature shade trees. An avenue of trees line Alexandria Street.	Newstead Park provides access to the Brisbane River, as well as formal gardens and mature shade trees. Newstead Terrace Park also provides access to the Brisbane River. New Farm and Roma Street Parklands as well as the City Botanic Gardens provide access to nature through their significant plantings and proximity to water. At a local level, a number of bushland sites provide access to nature including Crosby Road Park, Mikado Street Park, Bartleys Hill Outlook Reserve, Eldon Hill Reserve and Hinkler Park. Grange Forest Park, Alderley Grove Park, Halford Park and Banks Street Reserve provide additional opportunities for access to bushland within 4km of the PDA.
Escape, break-out and relaxation	A quiet space (or section of a space) (e.g. formal garden, seating, shaded area)	Bowen Park provides elements for the experience of escape/break-out and relaxation with its formal gardens, rotunda, mature shade trees and seating.	Newstead Park provides formal gardens, mature shade trees, ample seating including rotunda space as well as frontage to the Brisbane River. This provides a pleasant setting for relaxation. Roma Street Parklands, the City Botanic Gardens and New Farm Park provide significant opportunities at the metropolitan level for escape, break-out and relaxation, within 2.5km of the PDA.
Exercise	Places for personal or group trainers or individual exercising (e.g. fields and courts, linear track or pathway, exercise stations, swimming pool)	Perry Park provides a space for formal exercise through its two football fields, however, provides limited opportunities for non club-based exercise as it is a fenced facility. The public realm within the PDA currently provides opportunity for informal exercise and group/personal trainers such as the Alexandria Street plaza node under the feature fig tree.	A vast array of opportunities exist for both formal (i.e. club-based sport) and informal exercise within the catchment of the PDA. Formal exercise opportunities include the Valley Pool, Crosby Park, Downey Park, Melrose Park, Hickey Park, Lanham Park, McCook Park, Spencer Park, Finsbury Park, Bulimba Memorial Park, New Farm Park, Hawthorne Park and Gibson Park (to list just the key facilities). Informal opportunities include the existing bikeway and pathway network, the Riverwalk (from Portside Wharf to New Farm and through to Southbank and St Lucia). Exercise equipment exists at Wilson Outlook Reserve, Bedford Playground Park, Bulimba Riverside Park, Hawthorne Park, Merthyr Park and Victoria Park. The Paddo Skate Bowl at Paddington provides an opportunity for skate, scooter and BMX within 2.5km of the PDA.

Experience	Example space and elements	Current provision within PDA	Current provision within catchment (outside of PDA)
Socialisation	A space to meet with friends/family, meet new people from your community (e.g. cafe, plaza, dog off-leash area, men's shed, community garden)	Jeay's Street Park and Bowen Park provide opportunities for socialisation within the PDA  Alexandria Street is undergoing development as a cafe and retail precinct and will provide opportunities for socialisation  King Street is also proposed for a retail, cafe and dining precinct	Formal cafe and retail precincts including the Emporium, New Farm and the Gasworks at Newstead provide opportunities for socialisation  Powerhouse Park, Bulimba Riverside Park, Northey Street Park, Crosby Park, and Victoria Park provide dog off-leash areas within 2km of the PDA  Northey Street City Farm provides access to a community garden outside of the PDA
Activity and hobby	An area to undertake/enjoy a hobby (e.g. dog off-leash area, men's shed, community garden)	Jeay's Street Park provides a community garden within the PDA	Northey Street City Farm provides access to a community garden outside of the PDA  Powerhouse Park, Bulimba Riverside Park, Northey Street Park, Crosby Park, and Victoria Park provide dog off-leash areas within 2km of the PDA
Connectivity	Linking destinations (e.g. through tracks, trails, pathways, and urban plazas)	The PDA has internal connectivity through the existing street network, however, has limited internal pathways  The North Brisbane Bikeway project (O'Connell Terrace to Bowen Hills) will provide a future bikeway to connect Chermide and the CBD	The Riverwalk runs from Portside Wharf in the north to Toowong and West End in the south  Newstead Terrace Park provides a connection for residents of the PDA to the Riverwalk  The Enoggera Creek Bikeway provides a significant connection from the PDA to the western suburbs of Ashgrove and The Gap, as well as Bardon. It also provides a southern connection to the Riverwalk connecting as far south as West End
Amenity and views	Lookouts, urban break, public art, street trees and greenspace	Limited 'amenity' currently exists within the PDA. Bowen Park and Jeay's Street Park provide a level of amenity through existing plantings  Alexandria Street provides an avenue of street trees	The Brisbane River provides a significant opportunity for amenity and views just outside of the PDA  Public art exists within Powerhouse Park, Roma Street Parklands and is scattered throughout the CBD  Significant amenity exists within New Farm Park, Roma Street Parklands, the City Botanic Gardens and other major open spaces
Events, programs and community building	A space for markets, celebration and organised activities (e.g. urban plaza, amphitheatre, gazebo (or similar structure), lawn space)	The Brisbane Showgrounds offer a large and versatile range of indoor and outdoor venues  The Alexandria Street retail precinct provides a potential space for future community events such as markets  Bowen Park provides a space for small groups to celebrate on the lawns or within the gazebo  Jeay's Street Park and Perry Park provide a space for small celebrations with barbecue facilities	There are a number of key open spaces within close proximity to the PDA for events, programs and community building. Informal spaces include Newstead Park and New Farm Park  Various markets currently operate within close proximity to the PDA including New Farm Park, Kelvin Grove Urban Village and the Valley




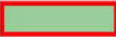




## 4.2 Open space recommendations

Based on the assessment of the open space experiences currently available both within the Bowen Hills PDA and within the catchment, the following recommendations are proposed to meet the open space needs of the proposed community. The recommendations have been presented to reflect the three-phase approach to open space provision and are supported by the adjoining map.

Experience	Approach	Recommendation	Space/outcome required
Play	1a) Traditional park provision	There is a need for additional play spaces for young people within the PDA to meet the needs of the future Bowen Hills community.	<input type="checkbox"/> New local recreation park to be developed on Mayne Road. Park to be focussed on the development of a major play space catering for toddlers, small children and older children. Park to be between 0.2ha-0.5ha
Nature	1b) Opportunistic optimization, 2) Provide additional communal and private open space and 3) Strategic public realm improvement	Due to the scale, density and highly urban nature of the proposed developments, there is a need to promote nature within the PDA. Elements of nature can be achieved through street tree plantings, edible street trees, planted nature strips, installation of green walls and entry statements to both residential and commercial buildings and precincts.	<input type="checkbox"/> Natural elements should be included within the public realm as well as the open space network wherever possible <input type="checkbox"/> Incorporate natural elements within residual lands (1b) and streetscaping treatments throughout the PDA
Escape, break-out and relaxation	1a) Traditional park provision 2) Provide additional communal and private open space and 3) Strategic public realm improvements	Existing provision within Bowen Park is to be maintained. Additional open space (park) area with relaxation and break-out elements is required.  Opportunity exists to encourage the inclusion of private and communal open space for escapism within developments.	<input type="checkbox"/> Develop Tufton Street urban plaza with elements of sensory escapism, relaxation and break-out. Also consider opportunities for public art <input type="checkbox"/> Embellish Hurworth Street Park with landscaping, seating and path <input type="checkbox"/> Develop new local recreation park on Mayne Road and include elements of escape, break-out and relaxation <input type="checkbox"/> Encourage the inclusion of private and communal open space for escapism within developments
Exercise	1a) Traditional park provision	Perry Park, along with the numerous active spaces outside of the PDA, will provide for the formal, club-based sporting needs of the community.  There is a need to improve conditions within the PDA for individuals to participate in personal or group training. The installation of an outdoor fitness station, provision of space for personal or group training is considered desirable.	<input type="checkbox"/> Develop an outdoor fitness station, connected to a path network in the Perry Park recreation node
Socialisation	3) Strategic public realm improvements	Incorporate elements that support socialisation within all open spaces as well as the public realm.  Public plaza areas should include open areas providing both shade and sunlit spaces.	<input type="checkbox"/> The appropriate development of urban plazas within residential precincts will provide suitable areas for socialisation
Activity and hobby	1a) Traditional park provision	Continue to maintain Jeay's Street Park as an open area with community garden.  Promote existing community buildings such as the YMCA at Perry Park or the Brisbane Showgrounds for the community to undertake regular activity group meetings and events.  Consider the need for a part-time dog off-leash area (not fenced) within the PDA.	<input type="checkbox"/> Designate Mayne Road Park as an unfenced dog off-leash area

Experience	Approach	Recommendation	Space/outcome required
Connectivity	3) Strategic public realm improvements and 1a) Traditional park provision	Plan and deliver local pathways and cycle links within the PDA to provide better connections to the existing network external to the PDA, namely the Riverwalk at Newstead, Enoggera Creek bikeway, and Gregory Terrace/ICB bikeway.  Develop pathways and cycle links to connect to open space parcels. Utilise plantings within transport corridors to create green links.  Encourage developments to provide connectivity through their sites	<input type="checkbox"/> Enhance the connectivity of Hurworth Street Park by developing a path. Create a green corridor by establishing a link (plaza) (0.1ha-0.2ha) linking Jeay's Street with Brookes Street <input type="checkbox"/> Develop green 'streets' within the PDA to promote walking and cycling and to provide amenity and sense of place e.g. O'Connell Terrace, Mayne Road and Tufton Street
Amenity and views	1b) Opportunistic optimization of underutilised/residual land and 3) Public realm improvement	Investigate opportunities to soften the edges of key transport infrastructure (e.g. rail yards and Bowen Bridge road interchange).	<input type="checkbox"/> Undertake landscaping to buffer unattractive infrastructure
Events, programs and community building	3) Strategic public realm improvement	Markets and events will be well catered for in the public realm (e.g. civic plazas).	<input type="checkbox"/> Ensure plazas are developed with open areas suitable for hosting markets and community events

**Legend**

-  Cadastral boundary
-  Bowen Hills PDA Boundary
-  Parks existing
-  Park proposed
-  Private open space
-  Strategic public realm improvement (node)\*
-  Strategic public realm improvement (linear) - for further investigation\*
-  Public realm in private ownership

\*Economic Development Queensland to investigate the ability to deliver with Brisbane City Council and Queensland Rail as primary land owners



Bowen Hills PDA - Open space analysis

## 4.3 General directions

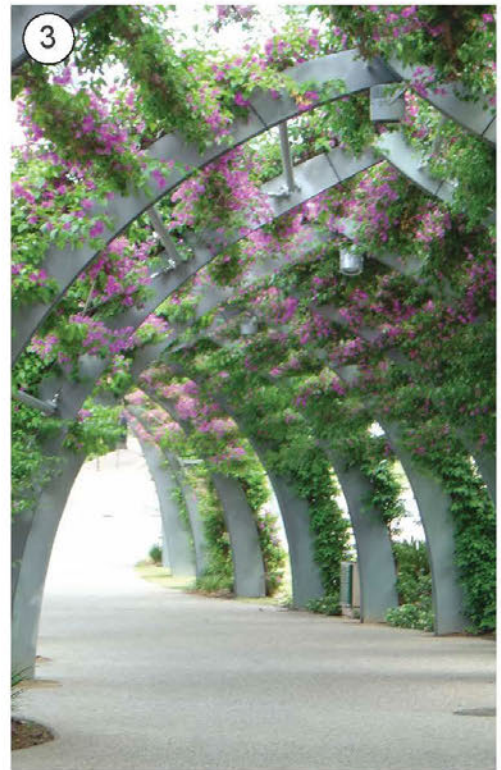
- A range of open space guiding principles should be followed for open space planned in the Bowen Hills PDA. Public open space should:
  - be flexible and provide a range of diverse opportunities and experiences
  - be attractive and provide a visual break from the built landscape
  - be safe and welcoming for people of all ages and from all walks of life
  - be accessible throughout the day and potentially at night (provided suitable lighting is achieved)
  - provide connection and permeability to enhance versatility and usability
  - be legible through appropriate marketing, promotion and signage (directional and interpretive signage)
  - be activated by formal programs and activities.
- The proposed open space network for the future Bowen Hills PDA community will include:
  - existing open spaces (including embellishing Hurworth Street Park)
  - proposed open spaces (Mayne Road local recreation park, Tufton Street Park, park linking Jeays Street and Brookes Street)
  - strengthening access and connections to existing open spaces outside the PDA through the provision of better local pathway connections to the existing network external to the PDA
  - well developed private and communal open spaces within residential developments
  - an inviting public realm that includes open plazas, areas for socializing and well embellished streetscapes.
- Seek to develop a Strategic Public Realm Improvement Plan to document an over arching EDQ and Council vision for Council and developers to work towards. The Plan should consider measures to improve the amenity of the PDA.
- The encouragement of Brisbane Showgrounds elements as public open space should be carefully considered. Previous research has identified areas such as the Show Rings, Stockman's Rest, Woodchop Arena and Sideshow Alley area as potential areas to be enhanced as public open space. While this may appear to be an 'easy' public open space gain, a range of factors impact this potential use:
  - the frequency of events hosted at the site
  - the perceived lack of public access to the site
  - the unattractive nature of a number of these areas (particularly the hardstand Sideshow Alley precinct)
  - the nature of areas such as those surrounding the Stockman's Rest remaining as working yards
  - safety and surveillance issues (particularly after hours) and the need for protecting Showgrounds assets and livestock.

Rather, than seek to promote areas within the Showgrounds as public open space, it would appear more advantageous to continue to activate the adjoining public realms (Ekka Plaza) and shared street network as outdoor public spaces. Areas such as the Show Rings will continue to provide a key role in providing a visual break from the built form. These spaces should be classified as private open space which can provide some 'public open space' function during certain times.
- Pursue opportunities to re-claim street space. Temporary and permanent street closures, pedestrian priority areas and nature strip widening can all assist in diversifying open space. Indeed, the provision of short-term pop-up parks and parklets may be attractive as alternatives to the development of traditional parks.

## 4.4 Indicative imagery

### Public realm improvements

The public realm will play a key role in ensuring quality outdoor experiences for residents and visitors to the Bowen Hills PDA. It will complement and connect the park network.



Mayne Road Park - a high quality play node for all ages



Jeay's Street Park - an activity park with simple play elements



Hurworth Street Park - an embellished open space providing connections



Perry Park - a physical activity and sport focussed area



# Appendix



Indicative costing are provided for the park elements recommended for the Bowen Hills PDA. These costs have been derived by reflecting on recent industry experience. Costs have not been established for land acquisition nor for the development of public plazas.

The future development and funding of these recommendations are subject to detailed planning in conjunction with Brisbane City Council and Queensland Rail.

Open space site	Recommendation	Indicative cost
Mayne Road Park	<input type="checkbox"/> Develop as a local recreation park with a focus on children's play elements	<input type="checkbox"/> \$585,000
Jeay's Street Park	<input type="checkbox"/> Construct a small play node	<input type="checkbox"/> \$85,000
Hurworth Street Park	<input type="checkbox"/> Embellish with landscaping, seating and path connection	<input type="checkbox"/> \$410,000
Perry Park	<input type="checkbox"/> Develop an outdoor fitness node	<input type="checkbox"/> \$94,000
Linear and nodal public realm improvements	Linear and nodal public realm improvements to include elements such as seating, landscaping and tree planting, public art and pathways	<input type="checkbox"/> \$280/m2





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# **Appendix J – Community Infrastructure Needs Assessment**

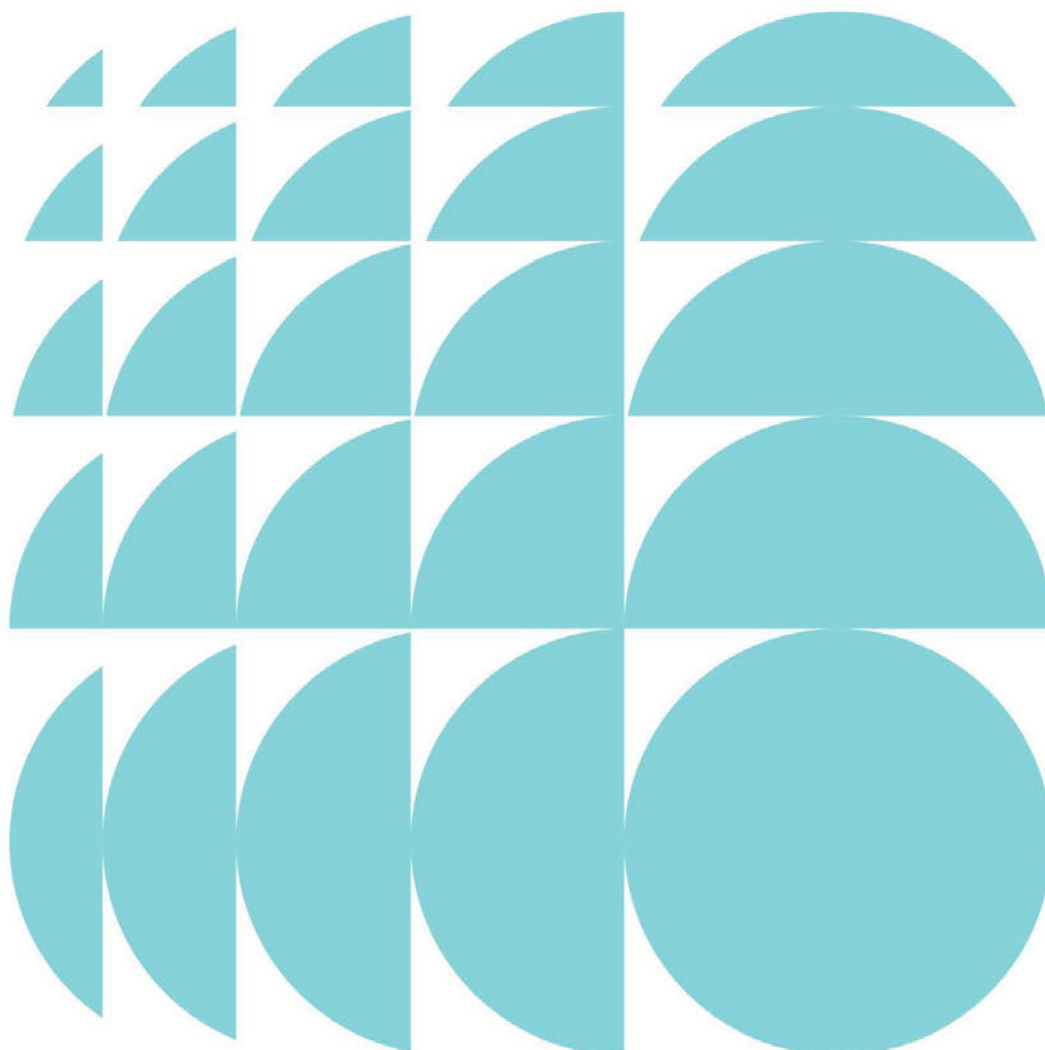
# ETHOS URBAN

## Community Infrastructure Needs Assessment

Bowen Hills Priority Development Area

Submitted to:  
Economic Development Queensland

May 2018



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VERSION NO.	DATE OF ISSUE	REVISION BY	APPROVED BY
A – Draft	19 January 2017	NA	NA
B – Final Draft	21 March 2017	NA	Liza Valks
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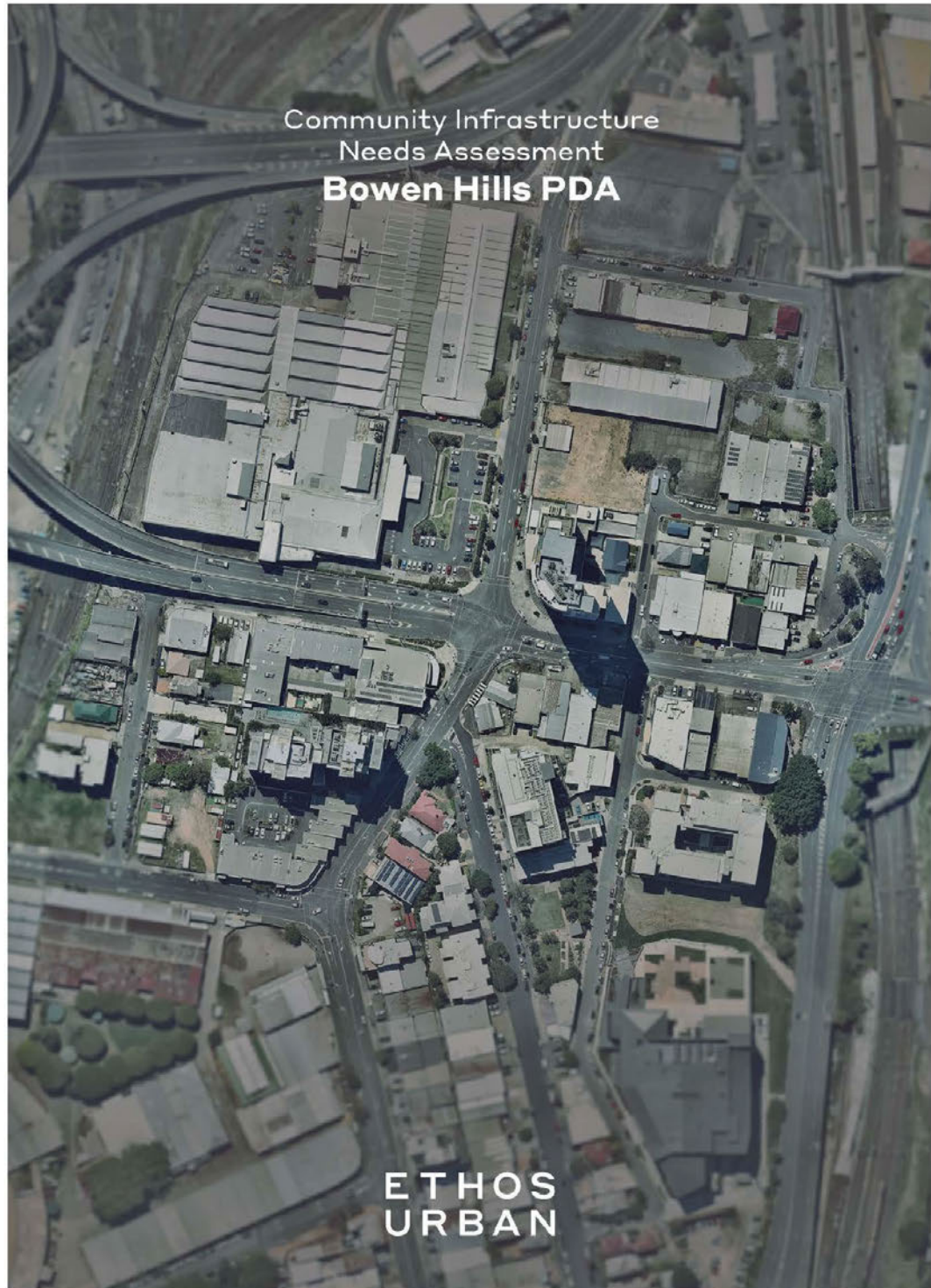
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**Communities within the Bowen Hills PDA will be diverse, safe and healthy, have access to services, jobs and learning, foster active local participation and will be pleasant places to live, work and visit.**

---

**Bowen Hills PDA**  
Development  
Scheme 2010

## 1.0 Introduction

### 1.1 Scope and structure of the study

Ethos Urban (previously Buckley Vann Planning + Development) and Pam Bourke Consulting were engaged by Economic Development Queensland (EDQ) in December 2016 to assess community infrastructure needs for the Bowen Hills Priority Development Area (PDA) to inform a review of the development scheme for the area.

The analysis relies on relevant background material, existing standards of service, and consultation with stakeholders from Brisbane City Council (BCC) and EDQ, in order to recommend community infrastructure facilities for the current and future population of the area.

Given the stage in the lifecycle of development of the Bowen Hills PDA, as well as the unique demographic and locational characteristics of the area, ideas for innovative delivery models will also be outlined. These will draw on best-practice delivery models for community infrastructure in higher density, urban renewal and/or new greenfield communities where relevant.

This report is structured simply with much of the analysis provided in appendices. The report has four sections:

- Methodology and scope: Description of the methodology used in the analysis and scope of facilities included in the assessment;
- Needs assessment: A summary of the findings of the demographic analysis, consultation, and desired standards of service benchmarking along with the results of the needs assessment;
- Recommendations for facilities provision; and
- Implementation approaches/recommendations.

#### May 2018 Update

Updated dwelling yield assumptions for the Bowen Hills PDA were made available in May 2018, and the analysis has been updated to account for this new information. However, no other information has been added or updated, for example, new 2016 census data has not been incorporated.

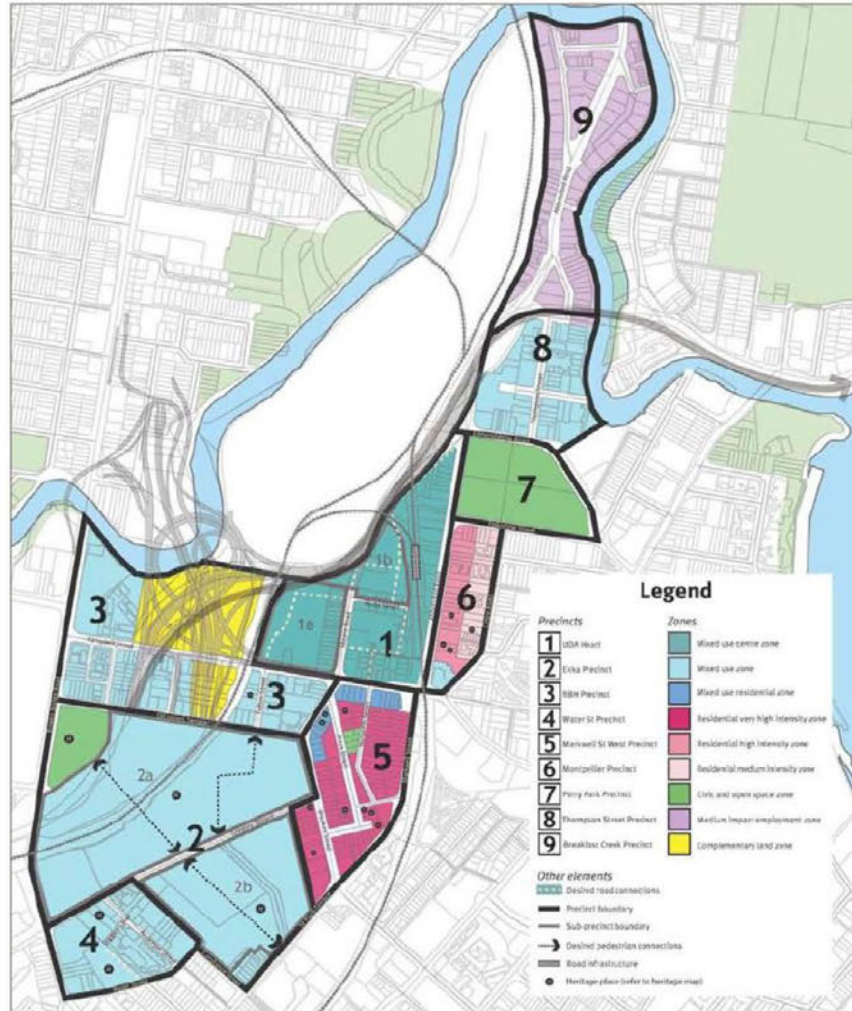
### 1.2 Bowen Hills PDA

Located in the inner city, the Bowen Hills PDA includes areas of the suburbs of Bowen Hills, Newstead and Fortitude Valley (**Figure 1**). The PDA is centred around the Bowen Hills train station, with regular trains to Fortitude Valley, the CBD, South Brisbane and the airport. While apartments are being constructed around Hamilton Place, light industrial uses continue in other areas near the train station, and extend south towards St Pauls Terrace and north along Abbotsford Rd.

The Royal Brisbane and Women's Hospital is located to the west of the PDA offering a broad range of health services and ancillary supporting facilities and services to the Brisbane, South East Queensland and Queensland population. The PDA includes the Brisbane Show Grounds (RNA Showgrounds), including grassed arenas and pavilions, and new developments such as a convention centre, four-star hotel, and mixed-use developments. There are small pockets in the southern and eastern parts of the Bowen Hills PDA with commercial and residential uses, which reflect the adjacent Fortitude Valley and Newstead precincts (respectively).

Access to community infrastructure to the north and west of the Bowen Hills PDA is constrained by the physical barriers of the rail yards and major roads. The southern parts of the PDA are close to Fortitude Valley with a number of existing amenities and community services, and are within working distance of the Fortitude Valley train station and bus stops.

Figure 1. Bowen Hills PDA



Source: Bowen Hills PDA Development Scheme 2008;

## 2.0 Methodology and scope

### 2.1 Methodology

A prioritisation methodology has been used to synthesise available data on the need for community infrastructure in the Bowen Hills PDA. A limited number of key inputs were relied on to provide advice:

- Relevant background studies and other material:
  - Dwelling and population forecasts undertaken by Urbis (2015) and Foresight Partners (2016);
  - Previous community facilities study by Andrea Young Planning Consultants, and summarised in the Master Plan Report (ULDA 2009);
  - Brisbane City Council documents – Long Term Infrastructure Plan (2012), and planning scheme.
- Application of Queensland Government, EDQ and BCC desired standards of service ratios to population projections agreed by EDQ and BCC. These have been applied to population projections for the Bowen Hills PDA only and not the catchments that the facilities may service. Instead, input provided by BCC was relied upon to identify the needs of the broader service catchments, and this input has been prioritised in the assessment, including being prioritised over the results of desired standards of service benchmarking for the PDA area.
- An audit of facilities and services was undertaken to identify services that may be accessible to the population of the Bowen Hills PDA. Services located within a range of around 500 metres of the residential areas of the PDA were also included as these were considered to be easily accessible for current and future residents. The current provision of facilities and services was then considered in conjunction with the results of the desired standards of service benchmarking, and when proposing implementation strategies.
- Analysis of projected demographic characteristics to consider the needs of particular future age groups and household types within the PDA. These demographic projections were broad in nature and based on limited data. The most recent census data from 2016, should assist in updating the projection of future age groups and household types in the Bowen Hills PDA.
- Consultation with key BCC and EDQ stakeholders providing input on community needs. Brisbane City Council is a key stakeholder in the provision of community facilities in the PDA given that it may ultimately inherit community facilities within them. Our approach included engagement with key officers at Brisbane City Council to ensure that facilities considered are aligned with strategic community infrastructure planning undertaken by Council. Other State agencies were consulted directly by EDQ, including the Department of Education and Training, Queensland Health (Metro North Hospital and Health Services), Department of

State Development (Community Hubs and Partnerships), and the Public Safety Business Agency, and their input (as passed on by EDQ) has been included.

- Community consultation undertaken by EDQ for the review of the Development Scheme at Bowen Hills in May 2016. Some of the questions and issues raised in this consultation related to community infrastructure and have therefore been considered. Consultation was not undertaken with local service providers, and no additional community consultation tailored to the needs assessment was undertaken.

The prioritisation of infrastructure needs was undertaken based on a consideration of all of these inputs to the study. Essentially, where a need has been identified by a number of data sources, the provision of that infrastructure type may be prioritised. No community consultation or consultation with service providers has been undertaken to verify the results of the prioritisation findings. The lack of tailored consultation is a limitation of this review, and further stakeholder engagement is recommended prior to the implementation of any recommendations outlined below.

## 2.2 Defining social infrastructure

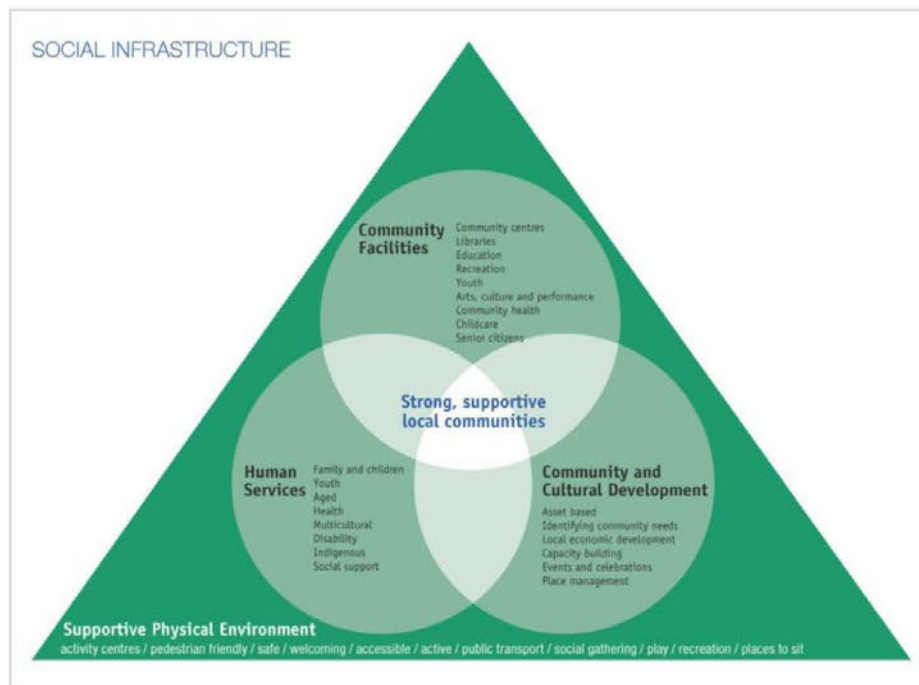
Social infrastructure includes the facility types listed below. This list of social infrastructure was adapted based on social infrastructure facilities outlined in the *South East Queensland Regional Plan 2005-2026: Implementation Guideline 5: Social Infrastructure Planning* (Queensland Government 2007), *Brisbane City Council City Plan 2014*, and *Economic Development Queensland's Priority Development Area Guideline No 11: Communities Facilities* (Queensland Government 2015b).

- Community meeting facilities
  - Community space
  - Library
- Educational facilities
  - Kindergarten
  - Primary school
  - Secondary school
  - TAFE college
- Health and safety facilities
  - Ambulance
  - Fire and rescue
  - Police
  - Community health facility
- Cultural facilities
  - Creative arts space/art gallery space
  - Museum space
  - Performing art space
- Targeted facilities
  - Child care centre
  - Youth centre/service
  - Aged care/respite service/seniors centre
- Sports facilities
  - Indoor sport and recreation
  - Aquatic facility.

Notwithstanding the list above, for this study, the scope of social infrastructure to be considered focused on facilities that are provided by local government providers (specifically Brisbane City Council), rather than those generally provided by the private or not-for-profit sector. The facilities considered also generally related to facilities serving local and district level catchments, rather than sub-regional or regional catchments.

While primarily focused on the assessment of community facilities, this community infrastructure needs assessment acknowledges the need for a holistic approach to planning for strong and supportive local communities (see **Figure 2**). The recommendations will therefore also include consideration of human services, and community and cultural development.

**Figure 2. Holistic approach to achieving strong and supportive local communities**



Source: Elton Consulting 2012;

## 3.0 Needs assessment

### 3.1 Population projections and demographics

The Bowen Hills PDA is a rapidly changing community and the ultimate population and demographics of the population may change substantially depending on the dwelling types delivered in the area. The data presented here is a forecast based on available data and recent trends including the types of dwellings being constructed and planned for in the PDA. The projections are therefore less reliable than projections carried out for areas undergoing less significant development and change. As more data becomes available on the actual configurations of dwellings being delivered, and the demographic characteristics of the populations within those dwellings (including from the 2016 census), the demographic data in this report, and the findings based on them, should be reviewed and updated.

Dwelling projections for the PDA were provided by Economic Development Queensland and population projections were developed by Ethos Urban based on household size and vacancy assumptions (as shown in **Table 1**). **Appendix A** outlines dwelling and population projections from a variety of sources, and a comparison to the accepted projections.

**Table 1. Dwelling projections by year (used in benchmarking), Bowen Hills PDA, 2016-2031/Theoretical Ultimate Capacity**

Dwelling Type	Total Dwellings	Total Population (Assumed 1.75 persons per dwelling) (4% vacancy)
2016	2,064	3,468
2021	4,760	7,997
2026	5,515	9,265
2031	6,270	10,534
<b>Theoretical Ultimate Capacity</b>	<b>22,649</b>	<b>38,050</b>

Source: EDQ 2018; Ethos Urban 2018;

The assumed age mix and household mix for the Bowen Hills PDA are outlined below (see **Table 2** and **Table 3**). The projected demographic makeup of the population (age mix and household mix) is based on an analysis of locations elsewhere in Australia with a similar breakdown of dwelling types as those being provided in the Bowen Hills PDA, as well as the demographic mix of nearby suburbs in Brisbane. **Appendix A** outlines the methods used to develop the age and household type projections.

The population projections and demographics of the population should be reviewed regularly, and the results of the 2016 census released in mid-2017 may provide useful data to amend and refine the projections outlined in this section.

**Table 2. Assumed age mix (used in benchmarking), Bowen Hills PDA, 2016-2031**

Age Group	Assumed Age Mix	Resulting Population Counts			
		2016	2021	2026	2031
Children (0-4 years)	2%	69	160	185	211
Primary School (5-12 years)	2%	69	160	185	211
High School (13-17 years)	2%	69	160	185	211
Adults (18-64 years)	89%	3,086	7,117	8,246	9,375
Retirees (65-74 years)	3%	104	240	278	316
Older adults (75+ years)	2%	69	160	185	211
<b>Total Residents</b>	<b>100%</b>	<b>3,468</b>	<b>7,997</b>	<b>9,265</b>	<b>10,534</b>

Source: Ethos Urban analysis;

**Table 3. Assumed household mix (used in benchmarking), Bowen Hills PDA, 2016-2031**

Household Type	Assumed Household Mix	Resulting Household Counts			
		2016	2021	2026	2031
Couples with children	7%	144	333	386	439
Couples without children	30%	619	1,428	1,655	1,881
One parent with children	4%	83	190	221	251
Other family	2%	41	95	110	125
Lone person household	40%	826	1,904	2,206	2,508
Group household	17%	351	809	938	1,066
<b>Total Households</b>	<b>100%</b>	<b>2,064</b>	<b>4,760</b>	<b>5,515</b>	<b>6,270</b>

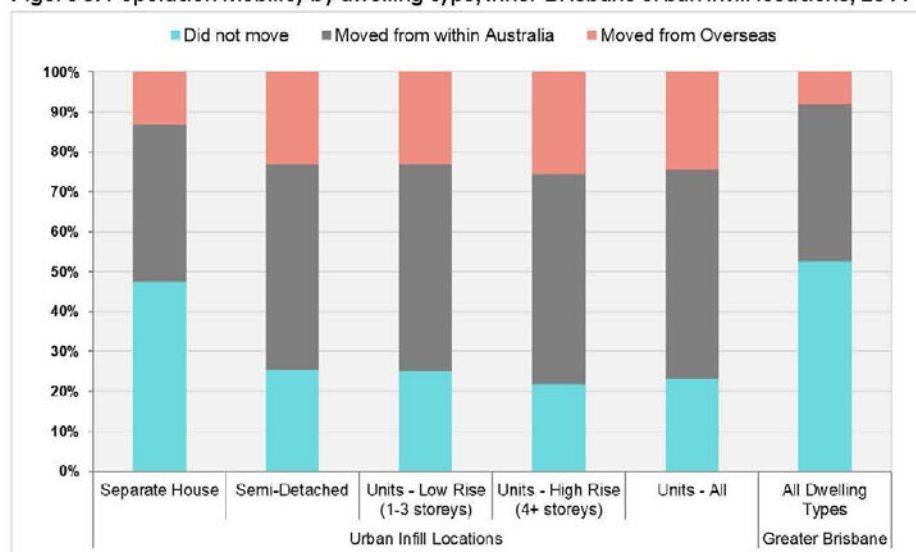
Source: Ethos Urban analysis;

### 3.2 Demographic trends

Given the lack of data available on the specific current and future demographics of the Bowen Hills PDA population, some broader demographic trends may be useful to consider. The demographic trends identified below may be relevant for the Bowen Hills PDA and are based on data for the area, surrounding areas, or apartment dwellings in inner city locations:

- High rise apartments and temporary/short-term residents.** In higher density urban infill areas of Brisbane (Fortitude Valley, Kangaroo Point, South Brisbane, West End, Newstead/Bowen Hills), households living in units are more likely to have moved in the preceding five years, than households living in houses (**Figure 3**) and are more likely to be renters rather than owners (or owners with a mortgage) (**Figure 4**). A higher turnover of the population within the community might influence the types of services needed to build connections and access services, including welcome packs, online information, and prominent accessible facilities, meeting places and community hubs.

**Figure 3. Population mobility by dwelling type, Inner Brisbane urban infill locations, 2011**

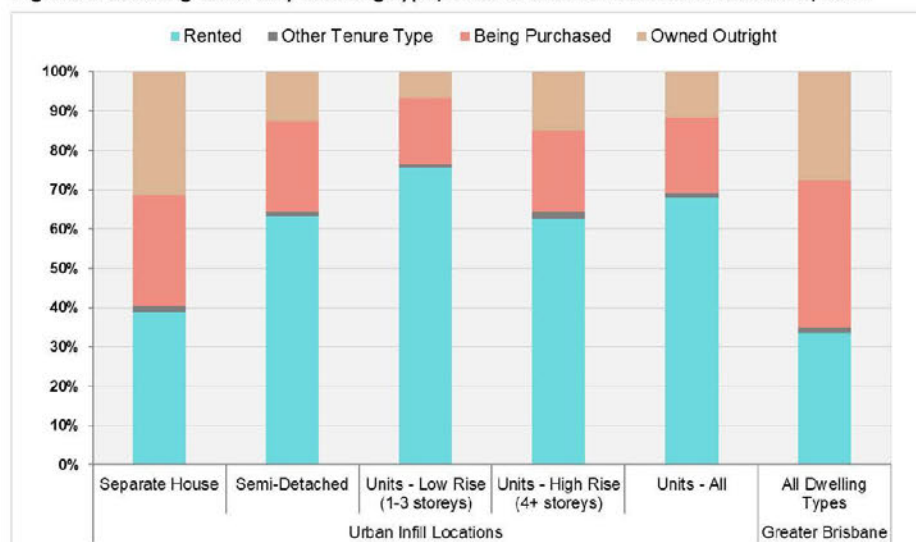


Source: ABS 2011;

Notes: Mobility is the proportion of the population that moved or did not move compared to the preceding five years to their current address.

Urban infill locations: Fortitude Valley, Kangaroo Point, South Brisbane, West End, Newstead/Bowen Hills (SA2s); Greater Brisbane (Significant Urban Area);

Figure 4. Dwelling tenure by dwelling type, Inner Brisbane urban infill locations, 2011



Source: ABS 2011;

Urban infill locations: Fortitude Valley, Kangaroo Point, South Brisbane, West End, Newstead/Bowen Hills (SA2s); Greater Brisbane (Significant Urban Area);

- Homelessness in the local area.** The Newstead-Bowen Hills, Fortitude Valley and Spring Hill areas (ABS SA2s) all recorded high rates of homelessness compared to the rate for Queensland. On census night in 2011, 106 homeless people were counted in Newstead-Bowen Hills (134 homeless people/10,000 population), 119 homeless people were counted in Fortitude Valley (198/10,000 population) and 357 homeless people were counted in Spring Hill (420/10,000 population) (Queensland Government 2016a). These equated to substantially higher rates of homelessness than for Queensland (at 45 homeless people/10,000 population).
- Aged/Disability.** Given there is no mandatory requirement to deliver accessible housing in the BCC planning scheme, and the fairly low provision of universally designed dwellings achieved through voluntary measures in Australia (Australian Network for Universal Housing Design 2016), the mandated delivery of 10% or 20% accessible dwellings in the Bowen Hills PDA (Queensland Government 2015a) may encourage a higher proportion of older people, and people with a disability to reside there. Facilities appropriate to support older people and facilities to support people with a disability may therefore be in demand in this location. It is understood from discussions with EDQ that accessible dwellings may not be being delivered at the rates indicated in the development scheme, and the review of the development scheme may change this provision. Any future changes, or lower provisions than expected, may therefore reduce the likelihood of this being a relevant trend.

### 3.3 Desired standards of service benchmarking

The desired standards of service benchmarking provides a broad indication of need. Standards of service are based on overall population and therefore do not consider the demographics of the local population or identified local needs or issues, and are generally used to ensure equitable access to facilities to populations across a region. Standards of service for some targeted facilities are based on the projected population of specific age groups, however in this study this is limited to child care facilities only.

Desired standards of services for community facilities are outlined by EDQ, BCC and in *South East Queensland Regional Plan 2005-2026 Implementation Guideline No. 5 for Social Infrastructure Planning* (Queensland Government 2007). These desired standards of service have been used to benchmark the additional need for community infrastructure that population growth in the Bowen Hills PDA may create.

Often the desired standards of service outline a population range for specific facilities. For example, EDQ suggests that a neighbourhood community space is required when the population of the community reaches 2,000-3,000 people. Where a population range was used, both the upper and lower triggers have been included in the benchmarking, and the resulting need for facilities over time has been considered in the assessment of facility needs.

The desired standards of service benchmarking has been undertaken for the Bowen Hills PDA only, rather than for the catchments that these facilities and other surrounding facilities might service. Consultation with BCC ensures the results of needs assessments for broader catchment areas will be considered, and opportunities for new or upgraded facilities in and around the Bowen Hills PDA to service the growing population of the area are considered.

The results of the benchmarking analysis are provided at 5-year intervals from 2016 to 2031 and for the ultimate population of the Bowen Hills PDA. The ultimate population of the Bowen Hills PDA is used in the benchmarking in order to ensure adequate facilities and spaces are available for community infrastructure as the population grows. These facilities will need to be identified and planned for early in the redevelopment of the area to ensure spaces are made available.

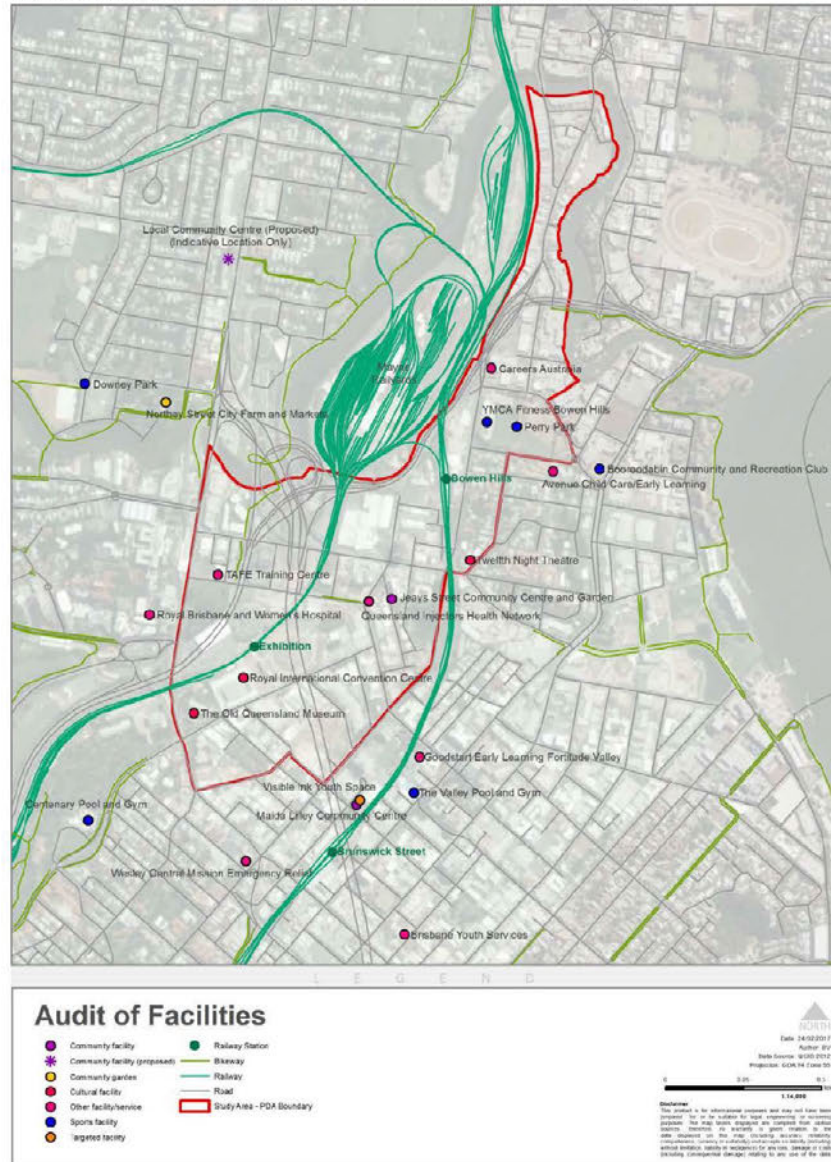
The results of the desired standards of service benchmarking are included in **Appendix B**. The results of the benchmarking are also provided in the discussion of assessment findings in section 3.6 below.

### 3.4 Audit of existing facilities

An audit of facilities and services provided in the Bowen Hills PDA was undertaken in order to consider the appropriateness of existing facilities. Facilities outside the PDA were considered to some extent, although these were limited to those within a range of around 500 metres from residential areas of the PDA. Facilities and services were identified using internet searches, and the audit may therefore contain incorrect or out-of-date information.

**Appendix C** includes the full audit of facilities and services, and **Figure 5** below is a map of the facilities and services identified.

Figure 5. Map of existing facilities identified in audit of facilities



Note: Only facilities within the PDA or within around 500m of residential areas of the PDA have been mapped. Facilities and services were identified using internet searches and may be incorrect or out of date. The Mayne Railyards includes a number of train lines however these are for maintenance requirements, and this area is not accessible to the public.

Source: Internet searches;

### 3.5 Consultation findings

Consultation with BCC was undertaken to understand the broader needs for community infrastructure in the Bowen Hills, and inner north area. The community infrastructure gaps identified by BCC during this consultation are outlined below (**Table 4**).

As part of the review of the development scheme for the Bowen Hills PDA, EDQ undertook consultation with the local community, including through a community survey. The survey included questions on community infrastructure, and the comments relating to community infrastructure are summarised below (**Table 5**).

**Table 4. Brisbane City Council (BCC) consultation notes**

Facility/Need	Comments
Library	<ul style="list-style-type: none"> <li>• Acknowledged gap for a library facility in Bowen Hills.</li> <li>• Library identified in Bowen Hills/Fortitude Valley in Long Term Infrastructure Plan, this was removed from the PIP as assumed to be provided in Bowen Hills PDA/funded by EDQ.</li> <li>• The required standard for a district library is 1,000 to 2,000 sqm GFA plus parking.</li> <li>• Indication of population projections at BH will assist with determining appropriate timing for delivery.</li> <li>• Wynnum library might be a good example of a delivery model.</li> </ul>
Playing fields – Perry Park and outdoor fields	<ul style="list-style-type: none"> <li>• Could increase usage of outdoor fields with synthetic surface, however site is flood prone and synthetic fields deteriorate more quickly with flooding.</li> <li>• Suggest investigating alternate playing space opportunities in Bowen Hills for example rooftop assets.</li> <li>• Compliance considerations. Governance and management issues where Council/EDQ not the outright owner. Costs where community use and systems for asset handover need to be examined.</li> </ul>
Other	<ul style="list-style-type: none"> <li>• Health related not for profit organisations looking for space in the area.</li> </ul>

Table 5. Community consultation notes

Facility/Need	Comments
Identified community facilities needs	<ul style="list-style-type: none"> <li>Community gardens were the most common community facility supported by respondents, followed by child care centres, community meeting places, and primary schools. High school, tertiary education and emergency services were the next most supported responses. It was noted that there were currently no community facilities in the area.</li> </ul>
Traffic, pedestrian facilities and open/green space	<ul style="list-style-type: none"> <li>Although not directly related to community facilities, the community consultation identified traffic, pedestrian linkages, and open/green space as issues for the local community.</li> </ul>

### 3.6 Assessment of facility needs

The assessment of social infrastructure needs has been undertaken based on a consideration of all of the inputs to the study. Essentially, where a need has been identified by a number of data sources, the provision of that infrastructure type may be prioritised. The results of the application of the three desired standards of service ratios are considered to be one input of the prioritisation methodology.

Although all community infrastructure types were assessed (**Appendix F**), the assessment of facilities needs summarised below focuses on those provided by local government, and facilities required to meet local and district level needs.

### 3.6.1 Community meeting facilities

#### Community space

##### Relevant Study Findings

- The Bowen Hills Urban Development Area: Master Plan Report: Liveability Strategy. (ULDA 2009) noted the need for:
  - Three meeting rooms: Three 300sqm meeting rooms suitable for community building activities such as playgroups, recreation and fitness classes and suggested these be located near the RNA, Perry Park and Fortitude Valley State School;
  - A multi-purpose community space: A 1,400sqm multi-purpose community hub, 550sqm branch library and 600sqm cultural facility. It was suggested that this is provided as part of the Market Plaza in the Bowen Hills Core.
- The Brisbane City Council Priority Infrastructure Plan part of *City Plan 2014* identifies the need for a Local community centre in Windsor for delivery in 2016-2021. Depending on the location of this facility, it may help to service part of the Bowen Hills PDA.

##### Results of Desired Standards of Service Benchmarking

- EDQ DSS: Local (2021-2031); District (Beyond 2031<sup>1</sup>-Beyond Ultimate<sup>2</sup>); Major (Beyond 2031-Beyond Ultimate)
- SEQRP DSS: Hall/Local Community Centre (2021-2031); District Community Centre (Beyond 2031-Beyond Ultimate); Civic Centre (Beyond 2031-Beyond Ultimate)
- BCC DSS: Local (2021-Beyond 2031); District (Beyond 2031)

##### Audit of Facilities/Current and Planned Facilities

- The Jeays Street Community Centre and community garden is located within the PDA area. The community centre is small, offering a single combined space of around 140sqm, and provides various activities including education and training opportunities; information and referral services; and space for meetings and

<sup>1</sup> Beyond 2031: Means that, according to benchmarks, the population threshold is reached after 2031 but before the Bowen Hills PDA is developed to its theoretical ultimate capacity. As population projections were only undertaken to 2031, there is a period after 2031 where population growth is uncertain. However, because an ultimate development capacity of the PDA has been identified, this has been used, in some instances, to identify if a facility may be required before 'ultimate development' is reached, and therefore provision should be planned. The 'ultimate development' capacity of the PDA was based on a range of assumptions, and has a high degree of uncertainty, and this has been taken into account in the assessment of facility requirements.

<sup>2</sup> Beyond Ultimate: Means that, according to benchmarks, the population threshold is reached after the Bowen Hills PDA is developed to its theoretical ultimate capacity. This means that the population in the Bowen Hills PDA may never reach the threshold required to trigger the need for the facility according to benchmarks.

### Community space

community gatherings. It is believed that the centre was part of a Brisbane Housing Company development.

- The Maida Lilley Community Centre is located outside the PDA but within close proximity to the south of the PDA near Fortitude Valley train station. The community centre has three small meeting rooms with a maximum of around 15 people able to be seated in each room. It is understood that a homelessness assessment and referral team work from the centre, offering services to people who are homeless or at risk of homelessness.
- There are a range of other corporate meeting rooms available in the PDA area, including three multi-purpose studios suitable for meetings at the Old Queensland Museum, and three large halls, seven meeting rooms and two boardrooms at the Royal International Convention Centre. Although available for hire, these are considered less suitable for meeting community needs due to the cost of hiring and the lack of associated support services that community meeting spaces and halls provide.

### Consultation Findings

- Community consultation for the review of the Bowen Hills PDA Development Scheme noted the need for additional community meeting places. Respondents also noted the need for a community garden, and the lack of community facilities in the area even though a small community centre and community garden are available in the Bowen Hills PDA.
- Community members also noted issues related to traffic, pedestrian linkages and open/green space in the Bowen Hills PDA. These appeared to be major issues for the existing local community with traffic, parking, noise, speed limits, footpaths, active transport linkages (pedestrian, cycling), green streetscaping, etc. being raised in the community survey.

### Assessment of Need

- According to desktop research, The Jeays Street Community Centre located within the PDA and the community spaces located within close proximity to the south of the PDA may be suitable to meet the community's need for local meeting rooms.
- According to desktop research, a local level community space is required by around 2026-2031 (subject to population growth) with a GFA of around 500 sqm to serve the population of the Bowen Hills PDA. The existing Jeays Street Community Centre is a small centre of around 140 sqm and contributes to meeting this need to some extent, as does the Maida Lilley Community Centre to the south of the PDA. Opportunities to expand the service offering and space available at the Jeays Street Community Centre over the next 5-15 years would help meet medium-term needs, and capitalise on the central location of the community centre with adjacent park and community garden. However if this is not possible, other opportunities to either find a new larger premises for the existing centre, or provide a second small space from which to provide community services in the northern half of the PDA

### Community space

may be required. Assuming a local level community centre is provided in Windsor during this timeframe, improved access to this facility may also help to meet the need for a local community space for northern parts of the PDA.

- According to desktop research, a district level community meeting space may be required after 2031 (subject to population growth). The timeframe for the delivery of a district level community meeting space also needs to consider the potential co-location opportunities with other community services to create a community hub (including a branch library as discussed below). Therefore, timeframes for the delivery of a multi-purpose community space and library are discussed together in section 4.2.1. This facility should have at least one meeting space in order to serve the northern part of the PDA (noting the number of meeting rooms to the south of the PDA).
- Although not specifically related to social infrastructure, the existing community of the Bowen Hills PDA has raised concerns with the amenity of the area in terms of the lack of pedestrian/bike linkages, and the dominance of vehicles/roads in the streetscape. There may be opportunities to invest in streetscape improvements and sidewalk embellishments which also create outdoor meeting 'rooms' and foster community interaction and engagement. And thus, achieve similar outcomes to other social infrastructure including community meeting spaces. These opportunities are discussed further in section 5.2.

### Library

#### Relevant Study Findings

- The Bowen Hills Urban Development Area: Master Plan Report: Liveability Strategy (ULDA 2009) noted the need for a multi-purpose community space, including a 1,400sqm multi-purpose community hub, 550sqm branch library and 600sqm cultural facility. It was suggested that this is provided as part of the Market Plaza in the Bowen Hills Core.
- The Brisbane City Council Long Term Infrastructure Plan (BCC 2012) identifies the need for a Major community centre, hall and/or library in Fortitude Valley/Bowen Hills which was later clarified by Brisbane City Council to be referring to a library. The timeframe for delivery of this facility was 2023-2032 and had an estimated cost of \$4.2 million. This was subsequently excluded from the BCC Priority Infrastructure Plan as it was assumed EDQ would provide this facility within the Bowen Hills PDA.

#### Results of Desired Standards of Service Benchmarking

- EDQ DSS: Branch (Beyond 2031); Central (Beyond 2031-Beyond Ultimate)
- SEQRP DSS: Branch (Beyond 2031); Central (Beyond 2031-Beyond Ultimate)
- BCC DSS: Branch (Beyond 2031)

## Library

### Audit of Facilities/Current and Planned Facilities

- No library facilities were identified in proximity to the Bowen Hills PDA. The most accessible library to the site is perhaps the Brisbane Square Library in the Brisbane CBD which is accessible using public transport. Other libraries near the PDA include at New Farm, Hamilton, Bulimba and Grange.

### Consultation Findings

- Consultation with Brisbane City Council noted the need for a library facility in Bowen Hills. The required standard for a district library is 1,000-2,000 sqm GFA plus parking.

### Assessment of Need

- According to desktop research, a branch library facility will be required in the Bowen Hills PDA. Benchmarks suggest that this facility may not be required until the population in the Bowen Hills PDA triggers the need for a facility after 2031, however, an analysis by Brisbane City Council for their Long Term Infrastructure Plan (BCC 2012) suggested that the facility is required by 2023-2032 as it services a broader catchment than just the Bowen Hills PDA.
- The timeframe for the delivery of a branch library also needs to consider the potential co-location opportunities with other community services to create a community hub (including a district community space discussed above). Therefore, timeframes for the delivery of a multi-purpose community space and library are discussed together in section 4.2.1.

### 3.6.2 Cultural facilities

#### Creative arts space/art gallery space

##### Relevant Study Findings

- The Bowen Hills Urban Development Area: Master Plan Report: Liveability Strategy (ULDA 2009) recommended arts/cultural spaces as part of a multi-purpose community and cultural hub, with multi-use spaces for cultural production and exchange and art and cultural activities.
- The Newstead North Renewal Strategy (BCC 2016) acknowledges the importance of protecting Low impact industry areas in certain areas to support the ongoing contribution of creative industries in inner city locations.

##### Results of Desired Standards of Service Benchmarking

- EDQ DSS: Regional (Beyond 2031-Beyond Ultimate)
- SEQRD DSS: Regional (Beyond 2031-Beyond Ultimate)
- BCC DSS: District (Beyond 2031-Beyond Ultimate)

##### Audit of Facilities/Current and Planned Facilities

- There were no creative arts spaces or art gallery spaces identified within the Bowen Hills PDA.

##### Assessment of Need

- According to desktop research, a district arts space is required in the Bowen Hills PDA beyond 2031. A higher order facility is not required until after 2031 and may not be required even at ultimate development.
- Given a dedicated district level facility may not be required for at least 15 years, opportunities to include adaptable spaces in a community centre for creative activities should be pursued, as well as the inclusion of art gallery space in public areas. These are discussed further in section 4.2.1. Similarly, outdoor meeting spaces (discussed in section 5.2) can include opportunities to display art and local stories.
- In addition, creative industries can be supported in some areas of the PDA as the area transitions from Low impact industrial uses to mixed use to assist in creating a sense of place and identity and economic vitality. These opportunities are discussed further in section 5.1.

### Museum space

#### Relevant Study Findings

- No relevant studies referenced for museum space.

#### Results of Desired Standards of Service Benchmarking

- EDQ DSS: District (Beyond 2031-Beyond Ultimate)
- SEQRP DSS: Regional (Beyond 2031-Beyond Ultimate)
- BCC DSS: Not applicable.

#### Audit of Facilities/Current and Planned Facilities

- There were no museum spaces identified within the Bowen Hills PDA.

#### Assessment of Need

- According to desktop research (desired standards of service benchmarking only), a museum space is not required in the Bowen Hills PDA until beyond 2031 and may not be required even at ultimate development. Opportunities to include local history, including stories, photos and artifacts, can however be pursued in public accessible spaces of a community centre and in outdoor meeting areas.

### Performing arts space

#### Relevant Study Findings

- No relevant studies referenced for performing arts space.

#### Results of Desired Standards of Service Benchmarking

- EDQ DSS: District (Beyond 2031-Beyond Ultimate)
- SEQRP DSS: District (Beyond 2031-Beyond Ultimate)
- BCC DSS: District (Beyond 2031-Beyond Ultimate)

### Performing arts space

#### Audit of Facilities/Current and Planned Facilities

- The Royal International Convention Centre is located in the RNA Showgrounds area in the centre of the Bowen Hills PDA. The convention centre includes three halls, seven meeting rooms and two boardrooms with a large outdoor plaza.
- The Twelfth Night Theatre is also located in the PDA. It is privately owned, and hosts a small number of performances each year.
- The Old Queensland Museum is located in the PDA, and includes a number of large rehearsal and performance spaces, including:
  - Concert Hall: Theatre style room, versatile venue provides a flexible performance space, suitable for theatre, dance, music productions, seminars, public lectures, conferences, and other events.
  - Three multi-purpose studios suitable for rehearsals, performances, meetings, seminars, workshops and private functions.
- The Visible Ink Youth Space located just to the south of the Bowen Hills PDA includes a rehearsal space of around 50 sqm with a timber floor and wall of mirrors.

#### Assessment of Need

- According to desktop research (desired standards of service benchmarking and the audit of facilities only), additional performing arts spaces in the Bowen Hills PDA are not required. The four facilities located within the PDA and within close proximity to it, provide facilities at a range of scales from small rehearsal rooms to larger performance spaces.

### 3.6.3 Targeted facilities

#### Youth centre/service

##### Relevant Study Findings

- No relevant studies referenced for youth facilities.

##### Results of Desired Standards of Service Benchmarking

- EDQ DSS: Local (2031-Beyond 2031); District (Beyond 2031-Beyond Ultimate)
- SEQRP DSS: District (Beyond 2031-Beyond Ultimate)
- BCC DSS: Not applicable.

##### Audit of Facilities/Current and Planned Facilities

- The Visible Ink Youth Space is located to the south of the Bowen Hills PDA and is open from Wednesday to Friday from 12-5pm. It offers various spaces including rehearsal space (50sqm, around 65 seats, timber floor, mirrors), meeting room (around 50 seats), arts hub, computer lab, and courtyard space. The rehearsal space and meeting room can be booked seven days from 6am-10pm.

##### Assessment of Need

- According to desktop research, additional youth centre spaces in the Bowen Hills PDA are not required. The Visible Ink Youth Space provides a high quality space, and is somewhat accessible to the whole Bowen Hills PDA given its proximity to public transport.

#### Aged care/respice service/seniors centre

##### Relevant Study Findings

- The Bowen Hills Urban Development Area: Master Plan Report: Liveability Strategy (ULDA 2009) noted the need for a 500sqm aged care/respice centre. It is suggested that the services provided will depend on the service provider and local aged care needs, however it might include services to support frail people in a day-based activity/respice service centre.

##### Results of Desired Standards of Service Benchmarking

- EDQ DSS: Local (2021-2031); District (Beyond 2031-Beyond Ultimate)
- SEQRP DSS: District (Beyond 2031-Beyond Ultimate)
- BCC DSS: Not applicable.

##### Audit of Facilities/Current and Planned Facilities

- There were no aged care/respice services/seniors centres identified within the Bowen Hills PDA.

### Aged care/respice service/seniors centre

#### Consultation Findings

- Consultation with Brisbane City Council identified a need for office space for health-related not-for-profit organisations close to the Royal Brisbane and Women's Hospital.

#### Assessment of Need

- Given the proximity to the Royal Brisbane and Women's Hospital (RBWH), complementary aged care/respice services may be appropriate in the Bowen Hills PDA. Local government would generally provide community space for senior centre, rather than be involved in offering aged care and respice services. However, the demographics so far suggest that the Bowen Hills PDA is popular with working aged people, rather than older people, and therefore a senior citizens centre may not be required.
- Opportunities to deliver office space for health-related services, and aged care/respice care services close to the RBWH precinct within the Bowen Hills PDA should continue to be supported.

### Homelessness accommodation support centres

#### Relevant Study Findings

- The Bowen Hills Urban Development Area: Master Plan Report: Liveability Strategy (ULDA 2009) noted the need for two 800sqm accommodation support centres. These would include showers, laundry, eating area, storage and kitchen, day rest, social activities and outreach facilities for homeless people (or people at risk of being homeless). The facilities were to be located along the pedestrian route from Fortitude Valley to Breakfast Creek open space, possibly under Airport Link road infrastructure.

#### Results of Desired Standards of Service Benchmarking

- EDQ DSS: Not applicable.
- SEQRP DSS: Not applicable.
- BCC DSS: Not applicable.

#### Audit of Facilities/Current and Planned Facilities

- There were no homelessness accommodation support centres identified within the Bowen Hills PDA offering the full range of services outlined in the Master Plan Liveability Strategy, however a range of homelessness services are offered in nearby Fortitude Valley including the Wesley Central Mission Emergency Relief service.
- It was noted in the audit of existing social infrastructure and services that a number of homelessness services that were previously located in Fortitude Valley were no

**Homelessness accommodation support centres**

longer operating or had moved to other areas. This could reflect the level of re-development occurring in Fortitude Valley in recent times.

**Assessment of Need**

- It is difficult to identify whether homelessness accommodation support centres continue to be needed in the Bowen Hills/Fortitude Valley area. Higher rates of homelessness continued to be an issue for the Bowen Hills in 2011, however new models for addressing homelessness are emerging which may reduce the need for support centres.
- The Housing First approach places the emphasis on securing accommodation for people experiencing homelessness, and then services are provided to help maintain that housing. This moves the focus away from supporting people who are homeless, and therefore may reduce the need for the suggested homelessness accommodation support centres. The Housing First approach to homelessness has achieved good results in addressing homelessness in Brisbane (Mason and Grimbeek 2013). This has been achieved in the Common Ground development in South Brisbane.
- Due to the changing best-practice approach to homelessness, homelessness support centres are no longer recommended for the Bowen Hills PDA. However, further consultation should be undertaken with homelessness service providers to confirm this assessment of needs in the Bowen Hills PDA and the surrounding area.

### 3.6.4 Sports facilities

<b>Indoor sport and recreation facility</b>
<b>Relevant Study Findings</b>
<ul style="list-style-type: none"> <li>No relevant studies referenced for indoor sport and recreation facilities.</li> </ul>
<b>Results of Desired Standards of Service Benchmarking</b>
<ul style="list-style-type: none"> <li>EDQ DSS: District (Beyond 2031)</li> <li>SEQRP DSS: Not applicable</li> <li>BCC DSS: District (Beyond 2031-Beyond Ultimate)</li> </ul>
<b>Audit of Facilities/Current and Planned Facilities</b>
<ul style="list-style-type: none"> <li>The YMCA Fitness Centre is located within the Bowen Hills PDA and includes an indoor court (wooden floor, basketball), gymnastics area and gym.</li> <li>The Booroodabin Community and Recreation Club includes one lawn bowls green.</li> </ul>
<b>Consultation Findings</b>
<ul style="list-style-type: none"> <li>Consultation with Brisbane City Council identified a need for outdoor playing fields. An upgrade of Perry Park to include synthetic surface may be appropriate however noted that alternative playing space opportunities in the Bowen Hills PDA could also be investigated, for example, rooftop playing areas.</li> </ul>
<b>Assessment of Need</b>
<ul style="list-style-type: none"> <li>According to desktop research, additional indoor sport and recreation facilities in the Bowen Hills PDA are not required. The YMCA Fitness Centre is a high-quality facility located within the PDA.</li> <li>Opportunities to provide indoor/outdoor sports field should be investigated on building rooftops.</li> </ul>

**Aquatic Facility****Relevant Study Findings**

- No relevant studies referenced for aquatic facilities.

**Results of Desired Standards of Service Benchmarking**

- EDQ DSS: District (Beyond 2031)
- SEQRP DSS: Not applicable
- BCC DSS: District (Beyond 2031-Beyond Ultimate).

**Audit of Facilities/Current and Planned Facilities**

- The Centenary Pool is located to the west of the Bowen Hills PDA and includes a 50m outdoor heated pool, 5m deep diving pool and wading pool.
- The Valley Pool and Gym is located to the south of the Bowen Hills PDA and includes a 50m outdoor heated pool.

**Assessment of Need**

- According to desktop research, additional aquatic facilities in the Bowen Hills PDA are not required. Two pools are located in close proximity to the Bowen Hills PDA.

## 4.0 Recommendations

### 4.1 Overview of recommended facilities and timeframes for delivery

The scope of social infrastructure to be considered focused on facilities that are provided by local government, rather than those generally provided by the State government, the private sector or the not-for-profit sector and therefore these are the focus of the recommended facilities. An overview of recommended facilities is included in **Table 6** below.

**Table 6. Recommended facilities (local government responsibility)**

Facility type	Details	Ordered by timing/priority
Expanded local community space	<ul style="list-style-type: none"> <li>Investigate opportunities to expand existing community centre in medium term and/or improve access to nearby Windsor facility (if provided within proximity to the Bowen Hills PDA).</li> </ul>	<ul style="list-style-type: none"> <li>Medium Term: 2026-2031</li> </ul>
Library, community meeting space and arts space (recommended to be delivered as multi-purpose hub)	<p><u>Branch library</u></p> <ul style="list-style-type: none"> <li>At least 1,000 sqm GFA (however could be smaller if delivered as a hub).</li> <li>Delivery after 2031 (subject to population growth).</li> </ul> <p><u>District community space</u></p> <ul style="list-style-type: none"> <li>District community space of around 1,400 sqm GFA, including at least one additional meeting room (however could be smaller if delivered as a hub).</li> <li>Delivery after 2031 (subject to population growth).</li> </ul> <p><u>Arts space</u></p> <ul style="list-style-type: none"> <li>Around 600 sqm GFA (however could be smaller if delivered as a hub).</li> <li>Delivery after 2031 (subject to population growth).</li> <li>Aligning with BCC creative economy strategies, the Bowen Hills PDA has potential to deliver arts spaces in transitional and</li> </ul>	<ul style="list-style-type: none"> <li>Long Term: Beyond 2031</li> </ul>

Facility type	Details	Ordered by timing/priority
	<p>temporary spaces. These may additionally provide opportunities for community engagement etc.</p> <ul style="list-style-type: none"> <li>• Opportunities to facilitate the delivery of arts spaces should be further investigated by EDQ in collaboration with BCC and the local community.</li> </ul>	
Health precinct (complementary uses)	<ul style="list-style-type: none"> <li>• Opportunities to facilitate the delivery of complementary health precinct uses should be further investigated.</li> <li>• As part of the RBWH health precinct at Herston, additional opportunities to offer supported accommodation, and not-for-profit health-based services in the RBWH precinct of the Bowen Hills PDA should continue to be supported.</li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable. Consider opportunities.</li> </ul>
Outdoor sports fields	<ul style="list-style-type: none"> <li>• Synthetic surface.</li> <li>• Basketball court size.</li> <li>• Further investigation required regarding management and administration of spaces on rooftops of private buildings.</li> </ul>	<ul style="list-style-type: none"> <li>• Not applicable. Further investigation necessary.</li> </ul>

## 4.2 Additional details on recommended facilities

### 4.2.1 Multi-purpose community hub

The assessment of community facilities noted the need for a:

- Branch library of at least around 1,000 sqm after 2031 (subject to population growth);
- District community meeting space of around 1,400 sqm after 2031 (subject to population growth); and
- District creative arts space/art gallery space of around 600sqm after 2031 (subject to population growth).

However, it is recommended that these facilities be co-located to provide a centrally located, multi-purpose community hub including district community space, branch library and arts spaces.

#### Size and adaptable spaces

A suggested gross floor area of 2,500 sqm for the community hub has been recommended as spaces within the hub may be used for multiple purposes. For example, art exhibition space may be included in foyer areas, and creative arts spaces and meeting rooms can be shared across the three functions of the community hub. Ultimately the purpose of the community hub is to provide a space for community and cultural engagement, and to access information, assistance and service delivery. The spaces in the community hub should be flexible to respond to the changing requirements of the future population.

Multi-purpose spaces should also be available for use at various times of the day, for example, Elton Consulting (2011) note the wide range of potential uses of spaces throughout the day, such as for morning exercise classes, playgroups, Pilates and yoga, adult day care, language and computer classes, after school care, creative and cultural activities, evening classes and meetings for community groups.

Allowing spaces to be accessed throughout the day and for multiple purposes will enable the size of the community hub to be slightly smaller than if the component facilities were separately provided.

#### Timeframe for delivery

Given the broader catchment the branch library would service, it may be needed before 2031. The other facilities provided in the hub may not be required to meet local needs of the Bowen Hills PDA population until well after 2031 (subject to population growth). However, the community hub may be incorporated into a mixed-use development in order to be located within close proximity to the centre of the Bowen Hills PDA and the train station, and therefore the actual timeframe for delivery will need to be flexible in order to integrate this facility into a development in an appropriate central location. Opportunities to deliver this space should be considered as development occurs.

### **Location and accessibility**

The current Jeays Street Community Centre may not be suitable for expansion given its small footprint, and any expansion into the adjacent park would reduce much needed green space in the Bowen Hills PDA. The most appropriate location for a community hub facility would therefore be around the Bowen Hills train station given its accessibility and the existing community spaces available close to the south of the PDA.

Ideally, the community hub can contribute to a vibrant community centre for the Bowen Hills area. Urban infill locations provide opportunities for community spaces to be located in key town centre developments so they are highly visible and accessible (Elton Consulting 2011). In addition, the types of dwellings projected to be provided in the Bowen Hills PDA may attract younger people and smaller households, and with higher proportions of renters, residents may move into and out of the area more often. In this instance, the visibility and accessibility of the community hub facility, and the community development activities that are delivered from the facility, will be vital to welcome new residents to the area and provide opportunities to learn about the facilities and services available.

A central location would also encourage pedestrian and cycle access to the facility promoting healthy active community outcomes. Investment in green pedestrian and cycle links to connect residential areas, community facilities, and recreational spaces will also assist in providing better access, while also contributing to amenity and a sense of place, and also offer opportunities for social interaction in embellished outdoor meeting spaces (see further discussion in Section 5.2 below).

The provision of a community hub including community centre, branch library and arts spaces could be integrated into a mixed-use residential tower or other mixed-use development. And therefore, the timeframes involved may need to be adjusted in order to take advantage of opportunities to integrate this facility within a development in an appropriate location. Models for integration of the community facility into a mixed-use development can be investigated further.

The community hub should be accessible from ground level with potential for integration with a public plaza or outdoor spaces for associated uses (including market stalls, small community events, creative arts such as street performances, and more informal social interaction).

Two additional childcare facilities/kindergartens are required in the Bowen Hills PDA to service its projected ultimate population, and although these can be provided by the private sector, the district community centre and branch library could be co-located with at least one of these facilities to aid accessibility.

### **Short-medium term community space needs**

Opportunities to expand the service offering and space available at the Jeays Street Community Centre over the next 15 years would help meet short- to medium-term needs. The need for additional or expanded community space in the Bowen Hills PDA should be investigated in collaboration with representatives from the Jeays Street Community Centre to identify specific short-term and long-term needs.

If a local community centre is provided in Windsor within close proximity to the Bowen Hills PDA, improved access to this facility may also assist in meeting community needs before the population reaches a point to warrant the provision of a district level community space. An additional pedestrian link across/beneath the Inner City Bypass and train lines to access Breakfast Creek and the existing bikeway may assist in providing improved access to the proposed facility (depending on its location).

While these opportunities may help to meet short-medium term needs for an expanded local community space, a larger multi-purpose and adaptable community hub facility is ultimately required.

#### **Integration of arts spaces with community hub and former light industrial areas**

Arts space may also be integrated with the community hub. Multi-purpose spaces could be designed to be appropriate for various forms of artistic engagement, and foyer areas could be appropriate for displaying artworks. For example, with new media art forms, art spaces may only require computers with specific specifications and software, a small meeting room can become a practice/recording space for artists with sound proofing and additional equipment, and a television in a foyer area can display new media art installations.

Given the area is transforming from a light industrial nature and the intention of BCC to facilitate retaining creative uses in inner urban areas (see discussion in Section 5.1 below) there may be opportunities to use existing buildings as temporary (10-15 years) arts facilities. Additional opportunities may exist in the RNA showgrounds spaces to develop an arts and cultural focus for this area.

#### **4.2.2 Health precinct**

Health related not-for-profit organisations approached Brisbane City Council expressing a need for office space close to the RBWH precinct. Property in the vicinity of Bowen Bridge Road and Campbell Street adjacent to the RBWH is considered to be potentially suitable for this use, as detailed in the existing Bowen Hills UDA Development Scheme 2009.

The RBWH is a health precinct offering a range of services, and the provision of office space for complementary services is supported for this precinct. These are likely to be spaces identified for particular services within larger developments to be assessed by EDQ, and BCC in the future.

#### **4.2.3 Outdoor sports fields**

The need for additional sports fields was also identified for the Bowen Hills PDA. This need may potentially be met by:

- Upgrading the existing sports fields at Perry Park by replacing the grassed field/s with a synthetic playing surface thereby allowing additional use of these fields. This playing surface could potentially be installed on the top of a car parking structure to assist with water runoff on the synthetic surface, and to provide additional car

parking for the train station, and surrounding areas, and an alternative funding source to repay the cost of the facility.

- Given the high density of the Bowen Hills PDA, small synthetic grassed spaces on rooftops may be suitable for recreational activities and sports practice. Further investigation is required regarding the management and administration of spaces on rooftops of private buildings.
- Shared use of sports fields in the RNA Showgrounds area also warrants additional investigation.
- Improved pedestrian and cycling connections to existing facilities in surrounding areas, such as to Downey Park. Current access to Downey Park for pedestrians is difficult; however a connection between Breakfast Creek and the Bowen Hills train station could markedly improve access to the facilities of Downey Park, as well as the bike and walking tracks along Breakfast Creek. Options for pedestrian connections are discussed further in section 5.2.

## 5.0 Strategies for implementation

### 5.1 Temporary arts and community spaces

As the central areas of the Bowen Hills PDA transition from predominantly light industrial uses to residential and mixed use, there may be opportunities to take advantage of warehouses for use as creative spaces. Providing conditions within the Bowen Hills PDA development scheme to support development of temporary arts spaces which contribute to community connection and cohesion, as well as create a sense of place and identity and economic vitality should be considered.

Additionally, provisions in the Development Scheme could support creative arts professionals to live and work on-site with associated small retail/exhibition shopfronts. These provisions would likely be around allowing a creative arts professional to live on the same site as their studio (with appropriate residential amenities), rather than allowing multiple arts and residential uses on the same site. For example, provisions could allow residential use of an arts space only when the residential area provides a studio or single bedroom, and will be used only by the primary artist that uses the space. This would provide opportunities for cultural engagement for the wider community in the absence of a dedicated art space, and support linkages with creative networks in other inner-city areas.

This suggestion builds on work being undertaken by Brisbane City Council on the creative economy and Newstead North Renewal Strategy (BCC 2016) and draft Neighbourhood Plan. We understand that the creative economy strategy is currently in the early stages of review, with consultation being undertaken currently and into next year. The Newstead North Renewal Strategy however is currently in draft form, and being made available for community comment. The Newstead North area is an area where creative industries are valued. To preserve industrial areas for ongoing and new creative purposes, the draft strategy suggests that urban renewal and new mixed-use development will be concentrated in certain areas.

It notes:

*The industrial economy's contribution to the city is an integral part of supporting the community and a New World City's make-up. The nature and form of industrial uses in the inner city is changing but there remains a need to preserve industrial land to support this evolution. As demand changes and the pressure on inner-city industrial land grows, industrial businesses require stability and certainty to invest and evolve. Newstead North's role within the strategic framework and the retention of industrial land will provide certainty to landowners and businesses to facilitate and encourage investment and growth of industry that supports the inner city.*

A key action to achieve this outcome is noted as:

*1.3 Continue to support ancillary uses and creative industries in Newstead North, that support evolution of industry. Within Low impact industrial zones, allow for ancillary creative industries and uses that support the local population and continue*

*to build on the evolution of industrial activity and do not detract from the local functioning and nature of Newstead North.*

Working within a similar strategy as that proposed by BCC, areas within the Bowen Hills PDA could be identified for temporary or ongoing creative arts uses, creating a vibrancy and sense of place for the local area, and helping to create opportunities for local residents to meet together.

## 5.2 Green space including green linkages to existing open space

Green spaces are required at a higher rate of provision in the Bowen Hills PDA given the high-density environment and prominence of roads and traffic through and around the PDA. A large number of high quality open spaces are located close to the PDA (Ross Planning report 2016), however accessing these spaces is difficult. While the provision of green linkages and open space are outside the scope of this study directly, there are opportunities to use green spaces for a dual purpose – as community meeting places themselves, and overflow areas for co-located community facilities when holding events, playgroup, etc.

Streetscaping and sidewalk embellishments which create green linkages to parks and sports fields would assist with access but also create opportunities for social interaction and community space. Street and sidewalk embellishments such as those on King St in the Bowen Hills PDA which include seats and tables, create spaces for people to gather casually. They therefore achieve multiple purposes – high quality pedestrian linkages, opportunities for deep planting and green streetscaping, and community meeting spaces. These recommendations align with recommendations provided in the Ross Planning report (2016).

Opportunities to incorporate local historical stories and artwork in outdoor meeting spaces, and along green linkages, would also achieve shared outcomes. With new media artworks and cultural engagement, this may be assisted through the installation of projection, lighting and sound technologies allowing a dynamic schedule of exhibitions, as well as the more traditional installation of sculpture, murals, etc.

A range of innovative linear parks that borrow space from road reserves (Mongard et al. 2015) could help achieve this result such as:

- **Destination boulevards:** providing furniture, pavements, garden beds and colourful sub-tropical trees from street components at ground level to building facades up to the third storey. Traffic signs are minimised, kerb and channel is removed and asphalt is replaced with high quality concrete finishes to create a shared street. Arbours, trellises and pergolas are promoted, and trees are planted regularly.
- **Green links:** providing five metre wide verges, continuous tree or awning shade, garden beds and street furniture, regular safe crossing points.
- **End of street parklets:** creating cul-de-sac or single land through-ways to allow all or most of the road reserve to be transformed into green space.

Possible strategic pedestrian/cycling connections for the Bowen Hills PDA were identified in Ross Planning's Open Space Analysis (2016), and these linear connections

(identified for public realm strategic improvements) may be suitable for embellishment as destination boulevards and green links.

Rooftop gardens, rooftop playing spaces such as basketball courts or synthetic grass spaces, and rooftop community gardens could also be investigated for use as public space. However the management of these areas requires further investigation.

While public open space and green spaces are the priority, private open space on rooftops and within buildings could also supplement this need if it is not able to be achieved as public space. For example, again rooftop spaces, gardens, playing areas and community gardens can help to meet this need for residents, but also shared balcony spaces create opportunities for meeting within private buildings (for example, the design of Common Ground in South Brisbane has shared rooftop spaces, and balcony spaces shared between every two floors of a multi-storey building<sup>9</sup>).

### 5.3 Build community along the way

It is recommended that community development work begins early to build community along the way, rather than wait for population thresholds to be reached and a community facility is provided from which these activities can be delivered. The Jeays Street Community Centre could be a useful facility to act as a base for expanded community development activities. Alternatively, the early coordination of community development approaches in the Bowen Hills PDA could be provided as a part-time outreach service of a nearby facility, for example, a local library or community centre. The capacity of the Jeays Street Community Centre should be investigated further and an appropriate collaborative strategy for service provision developed between EDQ and the management of the centre and Brisbane City Council.

Investing in community development activities and human services in the short term and delivering an expanded facility when required, may be more cost effective for EDQ and Brisbane City Council than potentially under-resourcing the current facility, and bringing forward the need for a potential community hub development. At the same time, this approach may deliver good social outcomes for the local community over the short to long term.

Online community development tools such as a local resident's online portal or social network could also contribute.

The provision of community development activities in the short term would have the added benefit of providing EDQ with more detailed information to inform future community infrastructure needs assessments as to the demographics of the local residents, and their needs.

<sup>9</sup> An evaluation of Brisbane Common Ground (including some of the ways these spaces are being used and potential areas for improvement) was undertaken by the University of Queensland (2015).

#### 5.4 Diversity of dwellings types and sizes to attract a diverse community.

It is understood that the Social Planning Report for Bowen Hills PDA (AYPC 2008, in Elton Consulting 2011) recommended that:

*Residential developments that provide 20 or more dwellings should achieve a minimum of 15% to be provided as 3 bedroom dwellings and 2.5% of the total number of dwellings are to be provided as dwellings with 4 or more bedrooms. These dwellings should consider design to suit a range of households, such as families with children, work at home occupiers, or shared 'group' accommodation households.*

These targets appear not to have been achieved in the Bowen Hills PDA thus far. A renewed focus on delivering a more diverse range of dwelling types is needed in order to encourage a diverse community profile, and ultimately, contribute to a more resilient community.

Provisions which encourage a wider range of dwelling types should be pursued in order to attract a more diverse community, including a proportion of families, professionals with space to work from home, and older people who might want space for hobbies and a spare room for their family to stay. While the Bowen Hills PDA Development Scheme (2008) includes provisions to encourage the delivery of diverse housing options/housing choice, these generally stress the importance of diversity to deliver affordability. This is appropriate, however, given the large proportion of dwellings provided or proposed which are 1-2 bedroom apartments in the PDA, this emphasis could be re-evaluated and adjusted to include additional emphasis on diversity itself. For example, the targets for affordable dwellings could be matched with targets for diverse housing types in all apartment developments. A 5-10% minimum provision of 3+ bedroom dwellings could be targeted. Or a 5-10% minimum provision of 2.5+ bedroom dwellings, to encourage two bedroom dwellings with additional adaptable space to allow residents to work from home, pursue hobbies, or provide extra storage, for example, to allow storage of the belongings needed to care for children. A large lockable storage space in a parking area (and perhaps in lieu of a car space) could also increase suitability of a two bedroom apartment for a larger range of household types. The provision could be worded to encourage developers to either meet the 5-10% target or demonstrate how the development contributes to housing diversity, for example, by providing features targeting older people and/or families.

In addition to dwelling size, diversity in housing form is also important. Opportunities to encourage adaptive re-use and extension of commercial character buildings, or of heritage residential buildings, would also contribute to additional dwelling diversity. Dwelling forms that reflect 'missing middle' typologies as outlined in the draft South East Queensland Regional Plan (Shaping SEQ) (see **Figure 6**) may also have a place in stepping down the intensity of the built form around the heritage elements of the RNA showgrounds (Precinct 2 in the Bowen Hills PDA Development Scheme) and the heritage properties in Precinct 5 for example (where a number of heritage properties are loosely grouped) which are some distance away from public transport nodes. The current Bowen Hills PDA Development Scheme does include provisions around stepping down height limits around the RNA showgrounds, however the intensity of built forms

around interfaces with heritage elements could be detailed further, for example, to encourage three storey townhouses and similar dwelling forms where directly adjoining heritage properties.

**Figure 6. Missing middle typologies**



Source: Queensland Government 2016c;

There is evidence of a significant provision of social and affordable housing in the PDA. A benchmarking study should be undertaken to determine if the current provision needs to be increased or whether the focus should be on programs to build community cohesion and sustaining the tenancies of people in social housing.

## 5.5 Utilising government land for community uses

The suitability of surplus government land and buildings for community facilities should be assessed prior to sale.

The Queensland Government's Property Principles note that the sale of surplus property should seek to maximise the return for Queensland, including job creation, community use and economic growth. And that any sale should be pursued after consultation with Queensland government departments, statutory authorities and the relevant council.

In the Bowen Hills PDA, there could be opportunities to achieve all of these priority outcomes where government land has been identified for disposal, notably delivering mixed-use development with community facilities at ground level (and/or level one and two where appropriate), and office and/or residential uses above. It is recommended that EDQ take advantage of opportunities within the Bowen Hills PDA to deliver these outcomes where excess government land is being considered for disposal.

Ethos Urban is unaware of surplus government land within the Bowen Hills PDA and further analysis would need to be undertaken in order to identify government owned land. Alternatively, investigation via the Government's own Government Land and Asset Management framework and Transition Policy could be undertaken.

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## Appendix A. Population and demographic data

### A1. Foresight Partners

Foresight Partners (2016) developed dwelling and population projections for the Bowen Hills PDA for the next 10 years to 2026.

The report notes that the investor market is playing a much larger role in residential development within the Bowen Hills PDA, and there is a more significant focus on residential development over commercial development than was originally anticipated.

Foresight Partners developed three projection scenarios:

- Low growth scenario: 3.6% average over 10 years.
- Medium growth scenario: 5.5% average over 10 years. The medium growth scenario is likely to be the more probable over the whole 10 year period according to the report.
- High growth scenario: 8.6% average over 10 years.

Projections for apartments and population for the low, medium and high growth scenarios are presented in the tables below. The medium growth scenario (noted as the most probable) suggests that the number of apartments in the Bowen Hills PDA will reach 3,640 apartments by 2026 and the population living in apartments will reach 6,290 people by 2026.

**Table 7. Apartment projections by year, Low growth scenario (Foresight Partners), Bowen Hills PDA, 2011-2026**

Dwelling Type	Apartments		Population (Assumed 1.8 persons per Dwelling)	
	New	Total	New	Total
2011 (Existing)		828		1,330
2012-2016	1,303	2,131	2,352	3,682
2017-2021	621	2,752	1,073	4,755
2022-2026	286	3,038	495	5,250

Annual growth rate = 3.6%;

Source: Foresight Partners 2016;

**Table 8. Apartment projections by year, Medium growth scenario (Foresight Partners), Bowen Hills PDA, 2011-2026**

Dwelling Type	Apartments		Population	
	New	Total	New	Total
2011		828		1,330
2012-2016	1,303	2,131	2,352	3,682
2017-2021	861	2,992	1,488	5,170
2022-2026	648	3,640	1,120	6,290

Annual growth rate = 5.5%;  
Source: Foresight Partners 2016;

**Table 9. Apartment projections by year, High growth scenario (Foresight Partners), Bowen Hills PDA, 2011-2026**

Dwelling Type	Apartments		Population	
	New	Total	New	Total
2011		828		1,330
2012-2016	1,303	2,131	2,352	3,682
2017-2021	1,120	3,251	1,935	5,617
2022-2026	1,599	4,850	2,764	8,381

Annual growth rate = 8.6%;  
Source: Foresight Partners 2016;

The Foresight Partners report also included data on the bedroom configurations of apartments in the Bowen Hills PDA future apartment pipeline. These suggested a higher proportion of 3 bedroom apartments than was assumed by Urbis (discussed further below), however bedroom configurations for a large number of apartments included in the analysis were unknown and this might have impacted the findings (**Table 10**).

**Table 10. Configuration of apartments, Bowen Hills estimated future apartment pipeline (Foresight Partners), 2016**

Bowen Hills (No. of Projects)	Total Apartments	Apartment Configuration						
		Studio	1	2	3	4	5	N/A
Under Construction (3)	665	-	97	128	3	-	-	437
Approved (7)	1048	-	61	303	93	-	-	591
Proposed (3)	721	-	16	149	52	-	-	504
<b>Total (13)</b>	<b>2434</b>	<b>-</b>	<b>174</b>	<b>580</b>	<b>148</b>	<b>3</b>	<b>-</b>	<b>1,532</b>
%	100%	-	7.1%	23.8%	6.1%	0.1%	-	62.9%
% of total with known configuration	NA	-	19.2%	64.1%	16.4%	0.3%	-	NA

Source: Foresight Partners 2016;

## A2. BCC Draft LGIP Projection

Dwelling projections for the Bowen Hills area outlined in the draft Brisbane City Council Local Government Infrastructure Plan (LGIP) are shown in **Table 11** below. These are similar to the medium growth dwelling projections provided by Foresight Partners.

**Table 11. Dwelling projections by dwelling type (BCC), Bowen Hills PIA Locality/SLA, 2011-2031**

PIA locality (Statistical local area <u>ASGC</u> 2011)	Dwelling type	Predicted existing and future private residential dwelling supply (number)				
		2011 (Predicted existing)	2016	2021	2026	2031
Bowen Hills	Dwelling house	91	90	90	90	89
	Multiple dwelling	843	1,766	3,217	3,553	3,759
	Total	934	1,856	3,307	3,643	3,848

Source: BCC LGIP Data [provided by email];

### A3. Urbis dwelling and population projections

Urbis (2015) developed dwelling and population projections for the Bowen Hills PDA (**Table 12**). The Urbis research has a number of differences to the Foresight Partners approach, including:

- Foresight Partners assumed 1.8 persons per apartment compared to 1.75 persons for Urbis;
- Foresight Partners assumed a 4% vacancy rate compared to no vacancy rate considered for Urbis.

The purpose of the Urbis report was to identify ultimate precinct yields and indicative revenue generated from infrastructure charges rather than necessarily account for market-based forecasts of delivery in the short term.

Based on Urbis data, there were 3,257 dwellings in the Bowen Hills PDA in 2015. An additional 17,175 dwellings were projected to be provided, to reach a total of 20,432 dwellings at 2040. If it is assumed that 1.75 people will reside in each dwelling, this equates to a population of around 35,756 people at 2040.

**Table 12. Dwelling projections by year (Urbis), Bowen Hills PDA, 2015-Ultimate (2040)**

Dwelling Type	Dwellings		Population (Assumed 1.75 persons per Dwelling)	
	New	Total	New	Total
2015 (Existing)	-	3,257	-	5,700
2015-2019	2,651	5,909	4,639	10,341
2020-2024	3,319	9,228	5,808	16,149
2025-2029	4,329	13,557	7,576	23,725
2030-2034	3,352	16,909	5,866	29,591
2035-2039	3,136	20,044	5,488	35,077
2040 (Ultimate)	388	20,432	679	35,756

Source: Urbis 2015;

Urbis (2015) also compiled data on new apartment product mix (**Table 13**) and estimated the proportion of dwellings by dwelling size (**Table 14**).

The analysis of active off-the-plan apartments suggested a similar breakdown of apartment sizes (bedroom numbers) to the Inner North area with around 46% of dwellings having one bedroom and 54% having two bedrooms in the Bowen Hills PDA, compared to 47% having one bedroom, 49% having two bedrooms, and 4% having three or more bedrooms in the Brisbane Inner North area. The PDA had a slightly higher proportion of dwellings having two bedrooms and one bathroom, which may suggest that the dwellings are more affordable than in other areas. There were no new apartments being offered for sale identified in the Bowen Hills PDA that had three or more bedrooms. Low proportions of families are expected given this dwelling mix if the mix of dwellings continues along current development trends.

**Table 13. New apartment product mix (Urbis), Bowen Hills PDA and Brisbane Inner North, June 2015**

Dwelling Type	Bowen Hills PDA		Brisbane Inner North (a)	
	Product Mix	Product Mix (Bedroom Size)	Product Mix	Product Mix (Bedroom Size)
1 bed 0 car	9%	46%	12%	47%
1 bed 1 car	37%		35%	
2 bed 1 bath	15%	54%	11%	49%
2 bed 2 bath	39%		38%	
3 bed +	0%	0%	4%	4%
Total	100%	100%	100%	100%

Notes: (a) Includes approximately the suburbs of New Farm, Fortitude Valley, Newstead/Teneriffe, Spring Hill, Herston, Milton and Windsor.

Source: Urbis 2015;

Dwelling sizes were projected based on existing dwellings and informed by off-the-plan apartment sales and development approvals. The definition of small, medium and large dwellings relate to the EDQ Infrastructure Funding Framework definitions (Small < 60m<sup>2</sup> GFA, Medium = 60m<sup>2</sup> GFA to 100m<sup>2</sup> GFA, and Large > 100m<sup>2</sup> GFA). It was assumed that small dwellings have 1 bedroom, medium dwellings have 2 bedrooms, and large dwellings have 3+ bedrooms. In the Bowen Hills PDA, Urbis projects around 55% of existing and future dwellings have 1 bedroom, and 45% have 2 bedrooms. Only a small proportion of large dwellings were projected.

**Table 14. Dwelling projections by size (Urbis), Bowen Hills PDA, 2015-Ultimate**

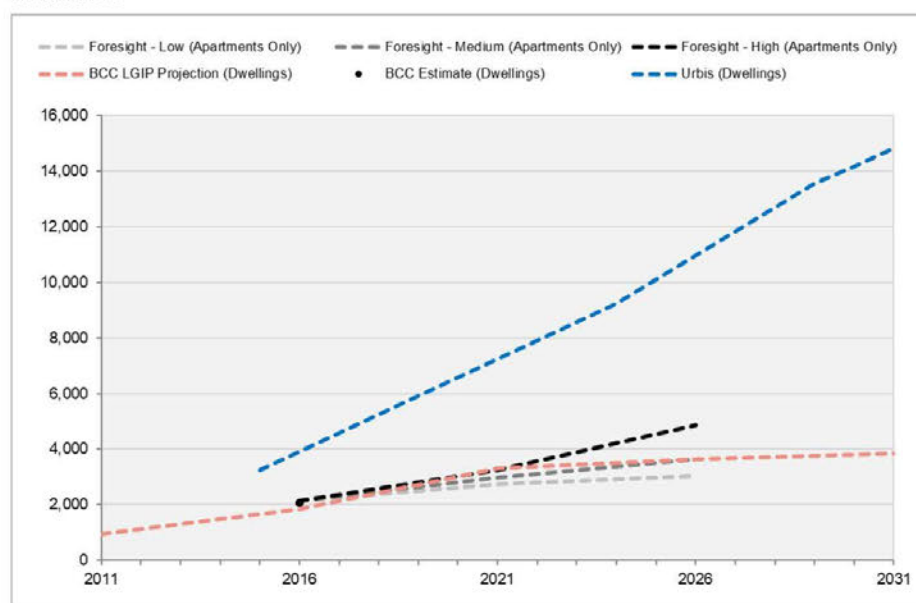
Dwelling Size	Existing Dwellings (2015)	New Dwellings (2015-Ultimate)	Total Dwellings (Ultimate)
Small Dwellings	1,757 (54%)	9,183 (53%)	10,940 (54%)
Medium Dwellings	1,457 (45%)	7,791 (45%)	9,248 (45%)
Large Dwellings	43 (1%)	201 (1%)	244 (1%)
Total	3,257	17,175	20,432

Source: Urbis 2015;

#### A4. Comparison of projections

A comparison of the Foresight Partners apartment forecasts and BCC dwelling projections show similar projected growth rates in the Bowen Hills PDA (**Figure 7**). As noted, the Urbis projections have a slightly different purpose, and this may contribute to the higher rate of growth they suggest.

**Figure 7. Comparison of Foresight Partners' apartment forecasts, Urbis dwelling projections, and BCC dwelling projections, Bowen Hills PDA/Bowen Hills PIA Locality/SLA, 2011-2050**

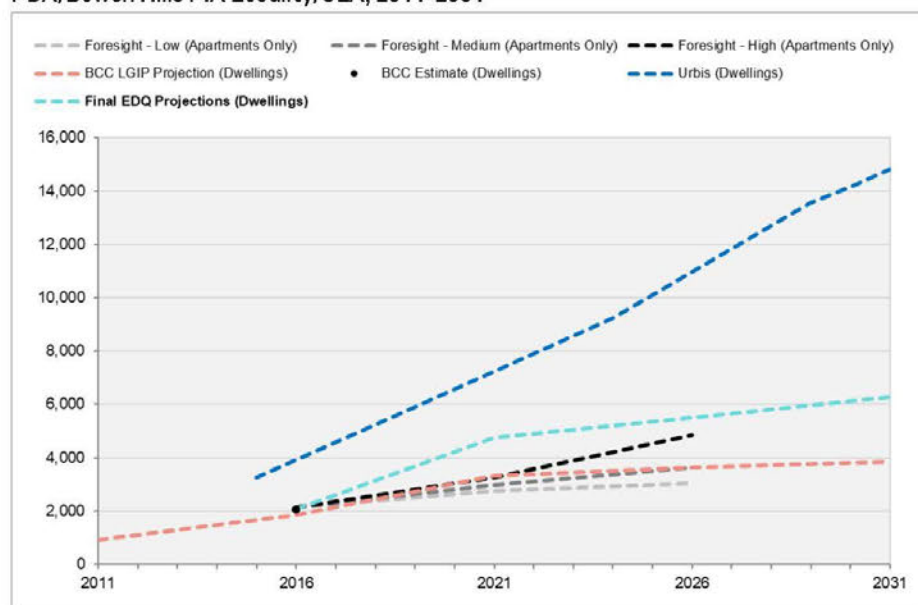


Source: BCC Dwelling Estimate and LGIP Data [provided by email]; Foresight Partners 2016; Urbis 2015;

#### A5. Projections used in analysis

Dwelling projections (provided by EDQ in May 2018) and population projections (based on 1.75 persons per dwelling and adjusted for a 4% vacancy rate) are shown in **Table 15** below. These are the projections used in the demographic analysis and desired standards of service benchmarking. A chart showing a comparison of the EDQ projections to the previously analysed projections is provided in **Figure 8**. They forecast quite strong short-term growth in dwellings to 2021 and dwelling growth similar to the high-series projections of apartments by Foresight Partners, but slower growth in dwellings than forecast by Urbis. The ultimate capacity of the Bowen Hills PDA area utilised by EDQ (at 22,649 dwellings) is very similar to the ultimate capacity outlined by Urbis (at 20,432 dwellings).

**Figure 8. Comparison of population projections with final EDQ projections, Bowen Hills PDA/Bowen Hills PIA Locality/SLA, 2011-2031**



Source: BCC Dwelling Estimate and LGIP Data [provided by email]; Foresight Partners 2016; Urbis 2015; EDQ 2018;

**Table 15. Dwelling projections by year (used in benchmarking), Bowen Hills PDA, 2016-2031/Theoretical Ultimate Capacity**

Dwelling Type	Total Dwellings	Total Population (Assumed 1.75 persons per dwelling) (4% vacancy)
2016	2,064	3,468
2021	4,760	7,997
2026	5,515	9,265
2031	6,270	10,534
<b>Theoretical Ultimate Capacity</b>	<b>22,649</b>	<b>38,050</b>

Source: EDQ 2018; Ethos Urban 2018;

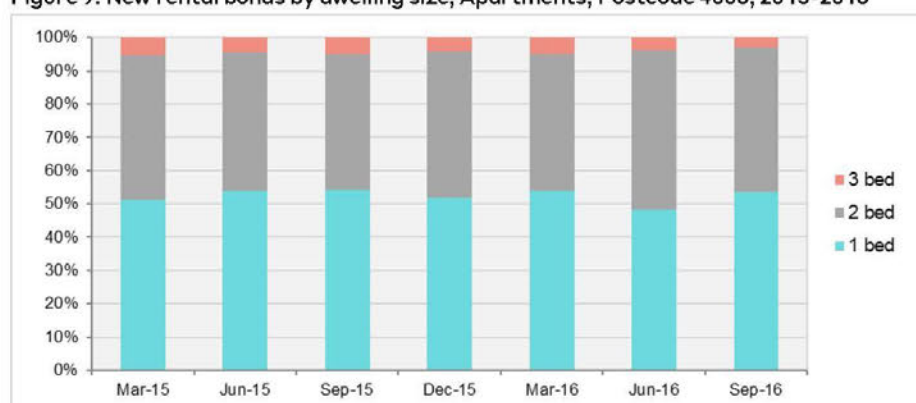
#### A4. Projected age mix

Demographic projections were developed by Ethos Urban based on the projected mix of dwelling sizes being provided in the Bowen Hills PDA.

While Foresight Partners noted a greater proportion of three-bedroom apartments in the development pipeline, the predominance of one and two dwelling apartments in the market is supported by new rental bonds data over the last 18 months for the 4006 postcode (which includes Bowen Hills, Fortitude Valley, Herston and Newstead) (**Figure 9**). Three bedroom apartments are a small proportion of the new apartments being rented each quarter, while one bedroom apartments make up generally more than 50% of all new rental bonds in this area. Therefore, assumptions about age mix and household type proportions have not been revisited from those outlined by Urbis.

As more data becomes available on the actual configurations of dwellings being delivered, and the demographic characteristics of the populations within those dwellings, the demographic data in this report, and the findings based on it should be reviewed and updated.

**Figure 9. New rental bonds by dwelling size, Apartments, Postcode 4006, 2015-2016**



Postcode: 4006 includes Bowen Hills, Fortitude Valley, Herston and Newstead.

Source: RTA 2016;

Age mix assumptions were developed for Bowen Hills PDA based on a comparison of similar areas (same mix of apartment sizes) and nearby areas. Five similar suburbs in Australia were identified with a similar dwelling mix to that shown for Bowen Hills in the Urbis and RTA data (40-55% one-bedroom dwellings, and 40-55% two bedroom dwellings) being:

- Limmen, Northern Territory
- Karratha, Western Australia
- Canberra City, ACT
- Sydney City, NSW
- Melbourne City, Victoria.

Given the context, Limmen and Karratha were excluded, and St Kilda, Victoria was added as it was only slightly outside of the criteria. Suburbs surrounding the Bowen Hills PDA were also included as a comparison. The dwelling mix of these comparison areas is shown in **Table 16** below.

**Table 16. Bowen Hills PDA comparison analysis, Bedroom size, 2011**

Suburb	0-1 bed	2 bed	3 bed	4+ bed	Total
Canberra City	44%	44%	10%	1%	100%
Sydney City	42%	46%	9%	1%	100%
Melbourne City	41%	45%	12%	1%	100%
St Kilda, Victoria	39%	45%	11%	3%	100%
Fortitude Valley (SA2)	38%	47%	12%	2%	100%
Bowen Hills and Newstead (SA2)	22%	49%	23%	6%	100%
Spring Hill (SA2)	33%	41%	19%	7%	100%
Bowen Hills PDA (Assumed Urbis 2015)	46%	54%	0%	0%	100%

Source: ABS 2011;

The age mix of the comparison areas is shown in **Table 17** below. This table also shows the assumed age mix for the Bowen Hills PDA which has been based on the comparison areas. These age mix assumptions have then been applied to the population projections developed and the outcome of this is shown in **Table 18** below.

**Table 17. Bowen Hills PDA comparison analysis, Age mix, 2011**

Suburb	0-4	5-12	13-17	18-64	65-74	75+	Total
Canberra City	1%	1%	1%	95%	1%	1%	100%
Sydney City	2%	1%	1%	90%	3%	2%	100%
Melbourne City	2%	1%	2%	89%	3%	2%	100%
St Kilda, Victoria	3%	3%	2%	85%	4%	3%	100%
Fortitude Valley (SA2)	2%	1%	1%	90%	3%	2%	100%
Bowen Hills and Newstead (SA2)	3%	2%	2%	86%	4%	2%	100%
Spring Hill (SA2)	3%	3%	4%	85%	3%	2%	100%
Bowen Hills PDA Assumed Mix	2%	2%	2%	89%	3%	2%	100%

Source: ABS 2011;

**Table 18. Assumed age mix (used in benchmarking), Bowen Hills PDA, 2016-2031/  
Theoretical Ultimate Capacity**

Age Group	Assumed Age Mix	Resulting Population Counts				
		2016	2021	2026	2031	Theoretical Ultimate Capacity
Children (0-4 years)	2%	69	160	185	211	761
Primary School (5-12 years)	2%	69	160	185	211	761
High School (13-17 years)	2%	69	160	185	211	761
Adults (18-64 years)	89%	3,086	7,117	8,246	9,375	33,865
Retirees (65-74 years)	3%	104	240	278	316	1,142
Older adults (75+ years)	2%	69	160	185	211	761
<b>Total Residents</b>	<b>100%</b>	<b>3,468</b>	<b>7,997</b>	<b>9,265</b>	<b>10,534</b>	<b>38,050</b>

Source: Ethos Urban analysis;

#### **A5. Projected household type mix**

The household type mix of the comparison areas is shown in **Table 19** below. This table also shows the assumed household mix for the Bowen Hills PDA which has been based on the comparison areas. These age mix assumptions have then been applied to the household projections developed and the outcome of this is shown in **Table 18** below.

As with age estimates, as more data becomes available on the actual configurations of dwellings being delivered, and the demographic characteristics of the populations within those dwellings, the demographic data in this report, and the findings based on it should be reviewed and updated.

**Table 19. Bowen Hills PDA comparison analysis, Household type mix, 2011**

Suburb	Couple with Children	Couple	One Parent Family	Other Family	Lone Person Household	Group Household	Total
Canberra City	5%	35%	2%	1%	45%	13%	100%
Sydney City	8%	29%	4%	5%	36%	17%	100%
Melbourne City	6%	27%	3%	6%	41%	17%	100%
St Kilda, Victoria	9%	26%	4%	2%	47%	13%	100%
Fortitude Valley (SA2)	6%	28%	3%	2%	43%	18%	100%
Bowen Hills and Newstead (SA2)	9%	34%	4%	2%	36%	15%	100%
Spring Hill (SA2)	11%	27%	4%	2%	38%	17%	100%
<b>Bowen Hills Assumed Mix</b>	<b>7%</b>	<b>30%</b>	<b>4%</b>	<b>2%</b>	<b>40%</b>	<b>17%</b>	<b>100%</b>

Source: ABS 2011;

**Table 20. Assumed household mix (used in benchmarking), Bowen Hills PDA, 2016-2050/Theoretical Ultimate Capacity**

Household Type	Assumed Household Mix	Resulting Household Counts				
		2016	2021	2026	2031	Theoretical Ultimate Capacity
Couples with children	7%	144	333	386	439	1,585
Couples without children	30%	619	1,428	1,655	1,881	6,795
One parent with children	4%	83	190	221	251	906
Other family	2%	41	95	110	125	453
Lone person household	40%	826	1,904	2,206	2,508	9,060
Group household	17%	351	809	938	1,066	3,850
<b>Total Households</b>	<b>100%</b>	<b>2,064</b>	<b>4,760</b>	<b>5,515</b>	<b>6,270</b>	<b>22,649</b>

Source: Ethos Urban analysis;

## Appendix B. Desired standards of service analysis results

The table below outlines the number of facilities required when desired standards of service benchmarks are applied to population forecasts. Where population growth triggers a facility, these cells have been highlighted in the table. This suggests that the resident population is high enough to warrant the provision of a facility given the application of the desired standards of service ratio. Often the desired standards of service outlined a population range for specific facilities. For example, EDQ suggests that a neighbourhood community space is required when the population of the community reaches 2,000-3,000 people. Both the upper and lower triggers have been used, and the resulting need for facilities over time has been considered in the assessment of facility needs.

The table does not consider existing facilities located in the Bowen Hills PDA or the surrounding catchment area. These are considered in the assessment of facility needs in **Appendix F**.

It should also be noted that where multiple lower order facilities are triggered, it may be more appropriate to provide a higher order facility to service the area, and therefore where multiple facilities have been identified in the results, these are not necessarily reflected in the assessment of facility needs.

Facility Type	BM Type	BM	2016	2021	2026	2031	Ultimate
<b>EDQ</b>							
Community Space - Neighbourhood	Lower	2,000	1.7	4.0	4.6	5.3	19.0
Community Space - Neighbourhood	Upper	3,000	1.2	2.7	3.1	3.5	12.7
Community Space - Local Community Space/Hall/Community Centre	Lower	6,000	0.6	1.3	1.5	1.8	6.3
Community Space - Local Community Space/Hall/Community Centre	Upper	10,000	0.3	0.8	0.9	1.1	3.8
Community Space - District Community Space/Multi-purpose Community Centre/Neighbourhood Centre	Lower	20,000	0.2	0.4	0.5	0.5	1.9
Community Space - District Community Space/Multi-purpose Community Centre/Neighbourhood Centre	Upper	50,000	0.1	0.2	0.2	0.2	0.8
Community Space - Major Centre/Civic Centre	Lower	30,000	0.1	0.3	0.3	0.4	1.3

Facility Type	BM Type	BM	2016	2021	2026	2031	Ultimate
Community Space - Major Centre/Civic Centre	Upper	120,000	0.0	0.1	0.1	0.1	0.3
Library - Branch	Lower	15,000	0.2	0.5	0.6	0.7	2.5
Library - Branch	Upper	30,000	0.1	0.3	0.3	0.4	1.3
Library - Central	Lower	30,000	0.1	0.3	0.3	0.4	1.3
Library - Central	Upper	150,000	0.0	0.1	0.1	0.1	0.3
Kindergarten	Lower	7,500	0.5	1.1	1.2	1.4	5.1
Kindergarten	Upper	10,000	0.3	0.8	0.9	1.1	3.8
Primary School - Public	NA	3,000	0.7	1.6	1.8	2.1	7.5
Primary School - Private	NA	11,000	0.2	0.4	0.5	0.6	2.1
Secondary School - Public	NA	8,000	0.3	0.6	0.7	0.8	2.8
Secondary School - Private	NA	17,000	0.1	0.3	0.3	0.4	1.3
TAFE College - District	Lower	50,000	0.1	0.2	0.2	0.2	0.8
TAFE College - District	Upper	150,000	0.0	0.1	0.1	0.1	0.3
TAFE College - Regional	NA	150,000	0.0	0.1	0.1	0.1	0.3
University	NA	250,000	0.0	0.0	0.0	0.0	0.2
Ambulance	NA	25,000	0.1	0.3	0.4	0.4	1.5
Fire and Rescue	NA	25,000	0.1	0.3	0.4	0.4	1.5
Police	Lower	20,000	0.2	0.4	0.5	0.5	1.9
Police	Upper	30,000	0.1	0.3	0.3	0.4	1.3
Hospital - Public	NA	100,000	0.0	0.1	0.1	0.1	0.4
Community Health - Community Health Centre	Lower	20,000	0.2	0.4	0.5	0.5	1.9
Community Health - Community Health Centre	Upper	30,000	0.1	0.3	0.3	0.4	1.3
Community Health - Community Care Hub	Lower	30,000	0.1	0.3	0.3	0.4	1.3
Community Health - Community Care Hub	Upper	100,000	0.0	0.1	0.1	0.1	0.4
Community Health - Community Care Precinct	Lower	100,000	0.0	0.1	0.1	0.1	0.4
Community Health - Community Care Precinct	Upper	300,000	0.0	0.0	0.0	0.0	0.1
Correctional Service	NA	100,000	0.0	0.1	0.1	0.1	0.4
Art Gallery Space - Regional	Lower	30,000	0.1	0.3	0.3	0.4	1.3
Art Gallery Space - Regional	Upper	150,000	0.0	0.1	0.1	0.1	0.3
Museum Space - District	Lower	30,000	0.1	0.3	0.3	0.4	1.3
Museum Space - District	Upper	120,000	0.0	0.1	0.1	0.1	0.3
Performing Arts Space	Lower	30,000	0.1	0.3	0.3	0.4	1.3
Performing Arts Space	Upper	50,000	0.1	0.2	0.2	0.2	0.8
Exhibition/Convention Centre	Lower	50,000	0.1	0.2	0.2	0.2	0.8

Facility Type	BM Type	BM	2016	2021	2026	2031	Ultimate
Exhibition/Convention Centre	Upper	100,000	0.0	0.1	0.1	0.1	0.4
Youth Centre/Service - Local	Lower	10,000	0.3	0.8	0.9	1.1	3.8
Youth Centre/Service - Local	Upper	20,000	0.2	0.4	0.5	0.5	1.9
Youth Centre/Service - District	Lower	20,000	0.2	0.4	0.5	0.5	1.9
Youth Centre/Service - District	Upper	50,000	0.1	0.2	0.2	0.2	0.8
Aged Care/Respite Service - Local	Lower	7,000	0.5	1.1	1.3	1.5	5.4
Aged Care/Respite Service - Local	Upper	10,000	0.3	0.8	0.9	1.1	3.8
Aged Care/Respite Service - District	Lower	20,000	0.2	0.4	0.5	0.5	1.9
Aged Care/Respite Service - District	Upper	100,000	0.0	0.1	0.1	0.1	0.4
Cemetery/Crematorium	Lower	50,000	0.1	0.2	0.2	0.2	0.8
Cemetery/Crematorium	Upper	200,000	0.0	0.0	0.0	0.1	0.2
Sporting Facility - Indoor Sport - District	NA	30,000	0.1	0.3	0.3	0.4	1.3
Sporting Facility - Aquatic Centre - District	NA	30,000	0.1	0.3	0.3	0.4	1.3
<b>SEQRP</b>							
Community Space - Community Meeting Room/Neighbourhood House	Lower	2,500	1.4	3.2	3.7	4.2	15.2
Community Space - Community Meeting Room/Neighbourhood House	Upper	3,000	1.2	2.7	3.1	3.5	12.7
Community Space - Multi-Purpose Hall/Local Community Centre	Lower	6,000	0.6	1.3	1.5	1.8	6.3
Community Space - Multi-Purpose Hall/Local Community Centre	Upper	10,000	0.3	0.8	0.9	1.1	3.8
Community Space - Multi-Purpose Community Centre/Neighbourhood Centre	Lower	20,000	0.2	0.4	0.5	0.5	1.9
Community Space - Multi-Purpose Community Centre/Neighbourhood Centre	Upper	50,000	0.1	0.2	0.2	0.2	0.8
Community Space - Civic Centre	Lower	30,000	0.1	0.3	0.3	0.4	1.3
Community Space - Civic Centre	Upper	120,000	0.0	0.1	0.1	0.1	0.3
Library - Branch	Lower	15,000	0.2	0.5	0.6	0.7	2.5

Facility Type	BM Type	BM	2016	2021	2026	2031	Ultimate
Library - Branch	Upper	30,000	0.1	0.3	0.3	0.4	1.3
Library - Central	Lower	30,000	0.1	0.3	0.3	0.4	1.3
Library - Central	Upper	150,000	0.0	0.1	0.1	0.1	0.3
Kindergarten	NA	16,000	0.2	0.5	0.6	0.7	2.4
Primary School - Public	NA	7,500	0.5	1.1	1.2	1.4	5.1
Secondary School - Public	NA	20,000	0.2	0.4	0.5	0.5	1.9
TAFE College - District	Lower	50,000	0.1	0.2	0.2	0.2	0.8
TAFE College - District	Upper	150,000	0.0	0.1	0.1	0.1	0.3
TAFE College - Regional	NA	150,000	0.0	0.1	0.1	0.1	0.3
University	Lower	150,000	0.0	0.1	0.1	0.1	0.3
University	Upper	200,000	0.0	0.0	0.0	0.1	0.2
Ambulance	Lower	25,000	0.1	0.3	0.4	0.4	1.5
Ambulance	Upper	30,000	0.1	0.3	0.3	0.4	1.3
Fire and Rescue	Lower	25,000	0.1	0.3	0.4	0.4	1.5
Fire and Rescue	Upper	30,000	0.1	0.3	0.3	0.4	1.3
Police	Lower	25,000	0.1	0.3	0.4	0.4	1.5
Police	Upper	30,000	0.1	0.3	0.3	0.4	1.3
Community Health - Community Health Centre	Lower	20,000	0.2	0.4	0.5	0.5	1.9
Community Health - Community Health Centre	Upper	30,000	0.1	0.3	0.3	0.4	1.3
Community Health - Regional Community Care Hub	Lower	30,000	0.1	0.3	0.3	0.4	1.3
Community Health - Regional Community Care Hub	Upper	100,000	0.0	0.1	0.1	0.1	0.4
Community Health - Regional Community Health Precinct	Lower	100,000	0.0	0.1	0.1	0.1	0.4
Community Health - Regional Community Health Precinct	Upper	300,000	0.0	0.0	0.0	0.0	0.1
Art Gallery Space - District	Lower	30,000	0.1	0.3	0.3	0.4	1.3
Art Gallery Space - District	Upper	150,000	0.0	0.1	0.1	0.1	0.3
Museum Space - District	Lower	30,000	0.1	0.3	0.3	0.4	1.3
Museum Space - District	Upper	120,000	0.0	0.1	0.1	0.1	0.3
Performing Arts Space - District	Lower	30,000	0.1	0.3	0.3	0.4	1.3
Performing Arts Space - District	Upper	50,000	0.1	0.2	0.2	0.2	0.8
Performing Arts Space - Performing Arts/Exhibition/Convention Centre (Regional)	Lower	50,000	0.1	0.2	0.2	0.2	0.8

Facility Type	BM Type	BM	2016	2021	2026	2031	Ultimate
Performing Arts Space - Performing Arts/Exhibition/Convention Centre (Regional)	Upper	200,000	0.0	0.0	0.0	0.1	0.2
Exhibition/Convention Centre - Performing Arts/Exhibition/Convention Centre (Regional)	Lower	50,000	0.1	0.2	0.2	0.2	0.8
Exhibition/Convention Centre - Performing Arts/Exhibition/Convention Centre (Regional)	Upper	200,000	0.0	0.0	0.0	0.1	0.2
Child Care Centre	NA	9,500	0.4	0.8	1.0	1.1	4.0
Child Care Centre - 0-4 Year	Lower	500	0.1	0.3	0.4	0.4	1.5
Child Care Centre - 0-4 Year	Upper	700	0.1	0.2	0.3	0.3	1.1
Youth Centre/Service - District	Lower	20,000	0.2	0.4	0.5	0.5	1.9
Youth Centre/Service - District	Upper	50,000	0.1	0.2	0.2	0.2	0.8
Aged Care/Respite Service - District	Lower	20,000	0.2	0.4	0.5	0.5	1.9
Aged Care/Respite Service - District	Upper	100,000	0.0	0.1	0.1	0.1	0.4
<b>BCC</b>							
Community Space - General Community Space (Local)	Lower	5,000	0.7	1.6	1.9	2.1	7.6
Community Space - General Community Space (Local)	Upper	20,000	0.2	0.4	0.5	0.5	1.9
Community Space - General Community Space (District)/Community Service/Group Space (District)	Lower	20,000	0.2	0.4	0.5	0.5	1.9
Community Space - General Community Space (District)/Community Service/Group Space (District)	Upper	30,000	0.1	0.3	0.3	0.4	1.3
Community Space - Community Service/Group Space (Principal)	NA	150,000	0.0	0.1	0.1	0.1	0.3
Library - District	Lower	20,000	0.2	0.4	0.5	0.5	1.9
Library - District	Upper	30,000	0.1	0.3	0.3	0.4	1.3
Library - Principal	NA	150,000	0.0	0.1	0.1	0.1	0.3
Art Gallery Space - Dedicated arts and crafts activity or display space (District)	Lower	20,000	0.2	0.4	0.5	0.5	1.9

Facility Type	BM Type	BM	2016	2021	2026	2031	Ultimate
Art Gallery Space - Dedicated arts and crafts activity or display space (District)	Upper	150,000	0.0	0.1	0.1	0.1	0.3
Art Gallery Space - Dedicated arts and crafts activity or display space (Principal)	NA	150,000	0.0	0.1	0.1	0.1	0.3
Performing Arts Space - Dedicated performance space (District)	Lower	20,000	0.2	0.4	0.5	0.5	1.9
Performing Arts Space - Dedicated performance space (District)	Upper	150,000	0.0	0.1	0.1	0.1	0.3
Performing Arts Space - Dedicated performance space (Principal)	NA	150,000	0.0	0.1	0.1	0.1	0.3
Sporting Facility - Indoor Sport - District	Lower	40,000	0.1	0.2	0.2	0.3	1.0
Sporting Facility - Indoor Sport - District	Upper	150,000	0.0	0.1	0.1	0.1	0.3
Sporting Facility - Indoor Sport - Regional	NA	150,000	0.0	0.1	0.1	0.1	0.3
Sporting Facility - Aquatic Centre - District	Lower	40,000	0.1	0.2	0.2	0.3	1.0
Sporting Facility - Aquatic Centre - District	Upper	150,000	0.0	0.1	0.1	0.1	0.3
Sporting Facility - Aquatic Centre - Regional	NA	150,000	0.0	0.1	0.1	0.1	0.3

Note: This table does not consider existing facilities located in the Bowen Hills PDA or the surrounding catchment area.

## Appendix C. Existing social infrastructure

An audit of facilities and services provided in the Bowen Hills PDA was undertaken in order to consider the appropriateness of existing facilities. Facilities outside the PDA were considered to some extent, although these were limited to those within a range of around 500 metres from residential areas of the PDA. Facilities and services were identified using internet searches, and the audit may therefore contain incorrect or out-of-date information.

Name	Location	Comment
Jeays Street Community Centre and community garden	12 Jeays Street, Bowen Hills	One combined space (approximately 140 sqm) offering – community based recreation activities; education and training opportunities; information, support and referral services; and space for meetings and community gatherings.  Includes community garden.  Part of BHC development. Managed by Community for Red Cross.
Royal International Convention Centre	600 Gregory Terrace, Bowen Hills	Three halls, seven meeting rooms and two boardrooms with 1,500 sqm outdoor plaza.
The Old Queensland Museum	480 Gregory Terrace, Bowen Hills	Large rehearsal and performance spaces.  Concert Hall: Theatre style room, versatile venue provides a flexible performance space, suitable for theatre, dance, music productions, seminars, public lectures, conferences, dinners and more.  Three multi-purpose studios suitable for rehearsals, performances, meetings, seminars, workshops and private functions.
Twelfth Night Theatre	4 Cintra Rd, Bowen Hills	No additional information found.
TAFE Queensland Brisbane, Bowen Hills (Training Centre)	4/67 O'Connell Terrace, Bowen Hills	Small training centre rather than a campus of TAFE Brisbane.  Not sure extent of classes offered.

Name	Location	Comment
Careers Australia, Bowen Hills Campus	16 Thompson St, Bowen Hills	Private vocational training organisation.  25 classrooms. Engineering workshop (CNC milling machine, NC break press and gas and arc welding bay. Courses include: Marketing; HR; Leadership and Management; Counselling; Community Services; Business Administration; Electrical; Business; Early Childhood Education; Project Management.
Queensland Injectors Health Network (QUIHN)   Australian Injecting & Illicit Drug Users League	1 Hamilton Pl, Bowen Hills	Not-for-profit, non-government health service for illicit drug users.  Bowen Hills location offers: Outpatient case management and counselling service; Hepatitis C treatment and management program; Pharmacotherapy peer based advice service; Needle and syringe service; Peer education. Also offers workforce training and development.  Open Monday to Friday, 8.30am-4.30pm.
YMCA Fitness Bowen Hills	95 Abbotsford Road Bowen Hills	Indoor court (wooden floor, basketball), gym, gymnastics area.
Line Management Institute of Training	13/15 Bowen Bridge Rd, Bowen Hills	Not relevant: In PDA, but private vocational training organisation. Online only. Limited classes.
Hope Centre Brisbane	35 Thompson St, Bowen Hills	Not relevant: In PDA, but no community space.
VIA Studio	50 Abbotsford Rd, Bowen Hills	Not relevant. In PDA, but private provider of rehearsal rooms. <i>Via Studios have 10 spacious, air-conditioned rehearsal rooms that have been designed with the musicians needs in mind.</i>

Name	Location	Comment
Maida Lilley Community Centre	Green Square Close, Fortitude Valley	<p>Outside PDA.</p> <p>Room 1 - Maximum 15 people  Room 2 - Maximum 15 people  Room 1&amp;2 (can be used as one room) Maximum 30 people  Room 3 - Maximum 15 people  Room 3 extended - Maximum 50 people</p> <p>Hart 4000 (Homelessness Assessment and Referral Team)  A service for those who are homeless, or at risk of homelessness, requiring case management and referral to related services. Telephone for an appointment.</p>
Visible Ink Youth Space	5 Green Square Close, Fortitude Valley	<p>Outside PDA.</p> <p>Open Wednesday-Friday, 12-5pm  Rehearsal space and meeting room can be booked seven days, 6am-10pm.</p> <p>Various spaces: rehearsal space (50sqm, around 65 seats, timber floor, mirrors), meeting room (around 50 seats), arts hub, computer lab, courtyard space.</p>
Brisbane Youth Services	42 McLachlan Street, Fortitude Valley	<p>Outside PDA.</p> <p>BYS provides a community hub for young people and young families to access a holistic range of services across multiple levels of immediacy and intensity, from immediate needs such as drug and intervention services through to intensive, therapeutic and planned support that respond to their needs and help them create a new future.</p> <p>Offers a free health clinic for young people 12-25 years old.</p>
Brisbane Street Level Mission via the Salvation Army	97 School Street Spring Hill Phone: 3075 412	<p>Outside PDA</p> <p>Meals; Recreational activities; Welfare support  Life skills group; Computers; Phones; Showers.</p>
Wesley Central Mission Emergency Relief	316 St Pauls Terrace Fortitude Valley	<p>Outside PDA</p> <p>Food parcels; Sandwiches, fruit, water; Help with prescriptions up to \$35/year.</p>

Name	Location	Comment
Avenue Child Care/Early Learning	30 Jordan Terrace, Bowen Hills  45 Folkestone St, Bowen Hills	Outside PDA.  Avenues Early Learning Centre: 150 places Includes Kindergarten Program Monday-Friday, 7am-6pm 0-school age?  Avenues Montessori Children's House: 80 places Includes Kindergarten Program Monday-Friday, 7am-6pm 0-School age Some permanent vacancies available.
Goodstart Early Learning Fortitude Valley	95 Brookes St, Fortitude Valley	Outside PDA.  139 places Includes Kindergarten Program Monday-Friday, 6.30am-6.30pm 0-School age Some permanent and casual vacancies available.
Royal Brisbane and Women's Hospital - RBWH	Butterfield Street, Herston	Outside PDA.
RBWH Health Precinct	Butterfield Street, Herston	Outside PDA.
Downey Park Sports Facilities	Northey St, Windsor	Outside PDA.  Netball courts, hockey and softball fields.  Includes clubhouse, however unsure if available for meeting/community use.
Centenary Pool	400 Gregory Terrace, Spring Hill	Outside PDA.  50m outdoor heated pool, 5m deep diving pool, wading pool.  Learn to swim program, group fitness classes, and swim squad training. A fitness centre is also attached to the pool.

Name	Location	Comment
The Valley Pool and Gym	432 Wickham Street, Fortitude Valley	Outside PDA.  50m outdoor heated pool, used for elite and recreational swimming, as well as for water polo and underwater hockey.  Gym (including yoga/pilates etc.)
Booroodabin Community and Recreation Club – Lawn Bowls	126 Breakfast Creek Road Newstead	Outside PDA.  One green. Small boardroom for hire.
Mental Health Homeless Health Outreach Team (HHOT)	162 Alfred Street, Fortitude Valley	Outside PDA Not relevant: No longer in Fortitude Valley.  Provides a service for people who are homeless and experiencing mental health and/or substance abuse issues within a 5km radius of the CBD. Hours of operation – Monday to Friday 6:30am – 9pm. Saturday/Sunday 8am-9pm
Hope Centre Services	Alfred Street, Fortitude Valley	Outside PDA Not relevant: No longer in Fortitude Valley

Note: Only facilities within the PDA or within around 500m of residential areas of the PDA have been mapped. Facilities and services were identified using internet searches and may be incorrect or out of date.  
Source: Internet searches;

## Appendix D. Summary of consultation outcomes

### Community consultation summary – May 2016

Community consultation was undertaken in May and June 2016 as part of the review of the Development Scheme for Bowen Hills. The findings of this consultation is summarised below as it related to community facilities.

Information sessions and an online survey were used to engage with stakeholders. Traffic; car parking; heritage, character and culture; and pedestrian and cycle network were the top four issues raised, however community facilities were raised by a number of respondents.

- **Community facilities** – Community gardens were the most common community facility supported by respondents, followed by child care centres, community meeting places, and primary schools. High school, tertiary education and emergency services were the next most supported responses. It was noted by respondents that there were currently no community facilities in the area.
- **Traffic, pedestrian facilities and open/green space** – Although not directly related to community facilities, the community consultation clearly noted traffic, pedestrian linkages, and open/green space issues.
  - **Traffic:** Traffic was the most common issue for respondents. Respondents suggested that dust and noise impacted residential areas, that the safety of footpaths is an issue with increased traffic, and that speed limits should be reduced to improve amenity.
  - **Open/green space:** Additional green space was suggested as a priority. Respondents noted a need for more parks, including upgrades and higher quality embellishments, play equipment for children and dog parks. A need for both additional communal open space within developments, and public open space was raised. This was linked to a range of other comments including:
    - There is a lack of fresh food outlets in the local area, and this may be linked with comments relating to the need for community gardens.
    - At least one respondent suggested allowing higher building heights in exchange for greater site setbacks and more green space.
    - Respondents ranked types of parks or public spaces in order of need as: streetscaping, recreational parks, civic spaces, indoor sport and recreation and sports parks.
  - **Pedestrian/active transport linkages:**
    - Footpaths – including for wheelchairs/prams – are required.
    - Better bike lanes and cycling connections are needed.
    - Pedestrian connections to green spaces need improvement – including safety of crossing across Abbotsford Road.

**Stakeholder consultation summary**

Consultation was undertaken with representatives from Brisbane City Council (BCC). As well as an initial workshop to discuss community infrastructure needs in the Bowen Hills PDA, BCC provided feedback and comments on draft findings, and on the draft report.

The notes regarding community infrastructure in the Bowen Hills PDA from the workshop are outlined below:

Topic	Details/Notes
<b>Bowen Hills community infrastructure gaps</b>	<ul style="list-style-type: none"> <li>Library:               <ul style="list-style-type: none"> <li>Acknowledged gap for a library facility in Bowen Hills.</li> <li>Library identified in Bowen Hills/Fortitude Valley in Long Term Infrastructure Plan, this was removed from the PIP as assumed to be provided in Bowen Hills PDA/funded by EDQ.</li> <li>The required standard for a district library is 1,000 to 2,000 sqm GFA plus parking.</li> <li>Indication of population projections at BH will assist with determining appropriate timing for delivery.</li> <li>Wynnum library might be a good example of a delivery model.</li> </ul> </li> <li>Perry Park and outdoor fields:               <ul style="list-style-type: none"> <li>Could increase usage of outdoor fields with synthetic surface, however site is flood prone and synthetic fields deteriorate more quickly with flooding.</li> <li>Suggest investigating alternate playing space opportunities in Bowen Hills for example rooftop assets.</li> <li>Compliance considerations. Governance and management issues where Council/EDQ not the outright owner. Costs where community use and systems for asset handover need to be examined.</li> </ul> </li> <li>Health related not for profit organisations looking for space in the area.</li> </ul>
<b>Management/transition of assets</b>	<ul style="list-style-type: none"> <li>More work needed on models for management/transition of assets where provided on rooftops/mixed use spaces.</li> <li>This is out of scope for the BV study, but will be important to resolve once requirement for facilities are decided.</li> </ul>
<b>Creative economy</b>	<ul style="list-style-type: none"> <li>BCC: Creative economy is the vision.</li> <li>BCC: Creative economy project ongoing - undertaking further engagement work over the next 12 months.</li> </ul>

Topic	Details/Notes
	<ul style="list-style-type: none"> <li>• EDQ: Staff with background in Designing for the Creative Class – Malcolm Holz – <a href="mailto:Malcolm.Holz@dilgp.qld.gov.au">Malcolm.Holz@dilgp.qld.gov.au</a>, EDQ happy to facilitate knowledge sharing session with BCC.</li> <li>• Can a creative precinct be manufactured? Versus create the conditions for a creative precinct to emerge.</li> <li>• Newstead North Neighbourhood Plan (draft) identified for reference. For example, artists live and create in the same places. The approach has been to try and free up regulation that has otherwise restricted these types of opportunities.</li> </ul>

Input from the Department of Education and Training was also requested for input to the project. A representative provided the following input (Personal Communication, 2016):

Topic	Details/Notes
<b>Requirement for school at Bowen Hills</b>	<ul style="list-style-type: none"> <li>• The DET position is that the educational needs of the Bowen Hills PDA can be met through the existing school network.</li> <li>• Key Considerations: <ul style="list-style-type: none"> <li>– Bowen Hills PDA could see as many as 20,000 dwellings once complete of which approx. 6,000 have been completed or approved for development.</li> <li>– Australian Bureau of Statistics (2011 census) data, supported by EDQ intelligence and DET student location data, show that dwellings in the Bowen Hills area, particularly small apartments in high-density developments, are predominantly occupied by singles and couples without children. The yield of primary and secondary school-aged children from these dwellings is accordingly low.</li> <li>– Future development may focus more on larger attached dwellings which could be more attractive to families with children. This would likely result in a reduced dwelling yield. Current census data shows that larger dwellings in the area do not currently attract a higher proportion of families with children.</li> <li>– The Bowen Hills PDA falls within the catchment of Brisbane Central State School and the secondary catchment of Kelvin Grove State College. Recent master planning has been undertaken for both schools with peak capacities of 550 and 2,000 respectively.</li> </ul> </li> </ul>

Topic	Details/Notes
	<ul style="list-style-type: none"> <li>- Current population projections for the Newstead – Bowen Hills Statistical Area 2 (SA2), which consider the current development scheme, show the population growing from 7790 at 2011 to 23,596 by 2031. This will see primary school-aged (5-11) population growth from 144 in 2011 to 444 in 2031, and secondary school-aged (12-17) population growth from 149 in 2011 to 410 in 2031. Based on current market share data this would amount to approximately 170 additional state primary students and 90 state secondary students. Based on the master planning exercise both schools should have sufficient capacity to accommodate future in-catchment growth.</li> <li>- Land ownership within the PDA is fragmented and land owners may claim for hardship should a school be identified over their parcel of land as it would limit the development potential of the site.</li> <li>- It will not be possible to identify a “traditional” primary school site of 6.5 – 7.0ha within the PDA. Any site would need to be highly compressed.</li> </ul>

## Appendix E. Background documents

Brisbane City Council (BCC) 2012, Brisbane Long Term Infrastructure Plan 2012-2031.

Brisbane City Council's Long Term Infrastructure Plan outlines planned infrastructure to achieve the shared vision for the future of the city, including supporting active and healthy communities, cultural vibrancy, a strong economy, and a clean and green environment.

Key districts are identified in the plan based on population and economic activity. The CBD and surrounding areas (greater CBD) are identified as a key district. The Bowen Hills PDA is just outside the area identified as the greater CBD area.

Social infrastructure identified in the plan close to the Bowen Hills PDA includes the following facilities:

- Smart State Medical Research Centre (sponsor: Queensland Health) with an estimated cost of \$173 million, and estimated delivery in 2012-2017.
- Major community centre, hall and library project in addition to community hub and integrated facilities projects, including at Lutwyche/Windsor (sponsor: Council, \$3.4 million estimated cost, 2018-2032) and Fortitude Valley/Bowen Hills (sponsor: Council, \$4.2 million estimated cost, 2023-2032).
- Major cultural and art facility project at Windsor Arts Precinct (Windsor Town Quarry Park), with an estimated cost of \$2.5 million, and estimated delivery in 2012-2022.
- New district indoor centre at Perry Park, Bowen Hills (sponsor: Council/private sector), with an estimated cost of \$10 million, and estimated delivery in 2012-2017.
- Major upgrade and expansion of existing pool at Centenary Pool, Spring Hill (upgrade to principal) (sponsor: Council), with an estimated cost of \$7.5 million, and estimated delivery in 2012-2017.
- Major community centre/hall/library at Fortitude Valley/Bowen Hills (sponsor: Council), with an estimated cost of \$4.2 million, and estimated delivery in 2023-2042.

Urban Land Development Authority (ULDA) 2009, Bowen Hills Urban Development Area: Master Plan Report: Liveability Strategy.

Based on an assumed population of 10,000 residents, and a workforce of 22,000 people in the Bowen Hills PDA, ULDA (2009) recommended the following facilities:

(A) Meeting rooms

- Three 300sqm meeting rooms suitable for community building activities such as playgroups, recreation and fitness classes.
- Suggested these be located at the RNA, Perry Park and Fortitude Valley State School.

(B) Multi-purpose community hub including community centre, branch library and cultural facilities

- A 1,400sqm multi-purpose community hub, 550sqm branch library and 600sqm cultural facility.
- It was suggested that this is provided as part of the Market Plaza in the Bowen Hills Core.
- Developed at ground level.

(C) Child care centres

- Two child care centres, each with a GFA of 800sqm.
- To be located in Stage 1 of the Core residential development in a mixed use development close to the railway station, and near Perry Park to be provided at the commencement of residential development at Precinct 4.

(D) Respite/Senior Citizens Centre

- A 500sqm aged care/respite centre. It is suggested that the services provided will depend on the service provider and local aged care needs. Might include services to support frail people in a day-based activity/respite service centre.
- To be provided when the resident population is in excess of 7,500 people.
- To be provided as a ground floor space close to the RBH precinct.

(E) Accommodation support centres

- Two 800sqm accommodation support centres be provided. These would include showers, laundry, eating area, storage and kitchen, day rest, social activities and outreach facilities for homeless people (or people at risk of being homeless).
- To be located along the pedestrian route from Fortitude Valley to Breakfast Creek open space, possibly under Airport Link road infrastructure.

Queensland Government 2015a, Economic Development Queensland, PDA Guideline No 2, Accessible Housing.

- This guideline (PDA Guideline 2: Accessible Housing) outlines standards for planning and designing accessible housing. The guideline is relevant to all residential development in PDAs, and has a variety of design standards for entry and access areas, vehicle parking, kitchen areas, bathrooms, bedrooms, and living areas.

- The planning and design standards section includes a provision that mandates the delivery of at least 10 per cent of all dwellings as accessible in multiple residential developments. Developers seeking superior design are required to provide 20 per cent of all dwellings as accessible dwellings in multiple residential developments.

Queensland Government 2015b, *Economic Development Queensland, PDA Guideline No 11, Communities Facilities*, viewed 3 November 2016, <<http://www.dilgp.qld.gov.au/resources/guideline/pda/guideline-11-community-facilities-may2015.pdf>>.

This guideline (PDA Guideline 11: Community Facilities) outlines a number of principles for the provision of community facilities in priority development areas. It notes that community facilities enable residents to participate in community life, and contribute to vibrant and inclusive communities.

The following principles are outlined:

- Sustainable – contribute to health and wellbeing of people and communities for current and future generations, and need to be operated and financed for the long term.
- Innovation and value for money – demonstrate efficient and value for money approaches to meet community needs, including partnerships and agreements between public, private and community organisations, facilitating early delivery of facilities and services, co-locating facilities and shared resources, multi-purpose and multi-functional spaces that can be used for a range of community uses, the efficient use of land and innovative design.
- Early provision – to meet the expected needs of incoming residents.
- Community hubs and precincts – co-location of facilities and open space in hubs and precincts to provide multiple services in a single location and facilitate integrated service delivery.
- Optimising accessibility – provide safe, inclusive and convenient access for all user groups and levels of ability, as well as being within walkable distances with access to public transport.
- Meets identified needs – contribute to broader network and hierarchy of facilities.

The guideline provides a range of more detailed standards for the provision of community facilities, which are generally from the South East Queensland Regional Plan Implementation Guideline No. 5 for Social Infrastructure Planning. These have been used in the benchmarking analysis as part of this report.

Urban Land Development Authority (ULDA) 2010, *Bowen Hills Urban Development Area: Development Scheme*,

<<https://www.dilgp.qld.gov.au/resources/plan/pda/bowen-hills-development-scheme.pdf>>.

Principles included in the Bowen Hills Development Scheme affecting future community facility needs might include:

- **Diversity of housing:** Residential development must deliver housing choice to suit families, singles, couples, work at home occupiers, students, retirees, group accommodation and people with special needs by offering variety in size, configuration, cost, adaptability, location and tenure of dwellings.
- **Affordable housing:** 5% of the gross floor area of all residential and mixed use developments must be affordable to rent by households earning the median income, or a contribution must be made in lieu of this provision.
- **Parking/Public transport:** Development within walking distance of the Bowen Hills Railway Station will exemplify best practice inner city transit oriented development. This vision for the area is reflected in residential car parking ratios of 1 space per dwelling on average and this includes provision of visitor parking. The Development Scheme therefore supports some dwellings being provided without a car space.

Wyeth, S and Hunter, J 2009, Coordinated Human Services Investment in Greenfield Sites

The *Coordinated Human Services Investment in Greenfield Sites* report (Wyeth and Hunter 2009) was undertaken to inform the provision of community services provided by the Queensland Government Department of Communities in greenfield sites. A framework is developed to guide investment decisions and includes the following questions and decision hierarchy:

- To invest or not to invest?
  - Size of ultimate population
  - Disadvantage context
  - Relative housing affordability
  - SLA need indicators
  - Presence of social/public housing
  - Development typology
  - Isolation/connectedness
  - Service system capacity
  - Existing/planned infrastructure
  - Disability and health services
  - Attractors.
- What to invest?
  - Facilities/services/networks
  - Universal prevention and early intervention versus targeted

- Families/youth/children/early years
- Development and capacity building
- Integrated versus stand along.
- When to invest?
  - Early and up front versus as needs emerge
- How to invest?
  - Ownership/lease
  - Outreach/outpost/local
  - Partnership opportunities.
- Where to invest?
  - In centre/co-location with services or attractors
  - Locational criteria.

While there are differences between the need for community services in greenfield areas, compared to urban infill locations, many of these questions in the decision hierarchy are relevant to urban infill locations. More detail about the most relevant criteria are summarised below.

To invest or not to invest? – Determining areas deemed to be high priorities for investment

Base criteria are population size and socio-economic disadvantage (consideration of the SEIFA index of relative socio-economic disadvantage decile for the area and surrounding areas, and the ultimate population size expected) and are strongly related to existing planning triggers.

A secondary set of filters were developed which provide additional criteria for making a decision for provision:

- Below average entry level house and land prices/dwelling prices may reflect a lower socio-economic future community and housing stress, and a higher priority for services;
- Departmental need indicators of surrounding areas (internal measure);
- Existing and future planned public and social housing suggests a higher priority for services;
- A master planned community with planned infrastructure and program may decrease priority for services;
- Isolation, in terms of travel time and public transport time to existing services and employment centres, suggest a higher priority for services;
- Surrounding service system at capacity suggests a higher priority of services;
- Existing/committed infrastructure – lack of existing or committed public transport and employment opportunities might demand a higher priority of services;
- The presence of significant health and/or disability services might attract higher needs groups and therefore increase priority of services;

- Amenity attractors such as tree change/sea change attractors like golf courses and canals, or high end employment attractors such as a technology precinct or university, might attract higher socio-economic groups and decrease priority of services.

Queensland Government 2011, *Innovating Queensland Communities*, November 2011, accessed 20 December 2016, <<http://www.chiefscientist.qld.gov.au/images/documents/chiefscientist/pubs/report-s-other/innovating-qld-communities-2014-12.pdf>>.

This report by the Office of the Queensland Chief Scientist within the Department of Science, Information Technology, Innovation and the Arts, outlines an integrated approach to delivering community facilities and human services in existing and newly developing neighbourhoods. It advocates for the provision of early childhood education and primary schools as community hubs through: making school facilities accessible to communities during non-school hours and/or the integration and co-location with schools of a range of facilities. Schools have the greatest outreach in accessing children and families and therefore provide a good place from which to provide a range of integrated human services.

Early Years Centres are 'one-stop-shops' for early childhood education, care and parenting, and family support services. They provide health, education and family support services. A similar model is suggested for schools. This would require coordinating government services across departments (schools, community facilities and human services across Education, Health and Community departments of state government).

The report suggests that the priority development areas provide an opportunity to pursue this model.

Mongard, J, Hardy, G, Kirby, A and Kirby-Brown, M 2015, *The Green Space Strategy: West End, Highgate Hill and South Brisbane*.

The Green Space Strategy for West End, Highgate Hill and the South Brisbane was developed in response to expected strong population growth in the area. It suggests given current population projections, and a conservative rate of provision, that around 15 hectares of open space will be required in the area to 2031. As well as new parks, the strategy includes a range of innovative, linear parks such as destination boulevards, green links and end of street parklets which borrow space from road reserves.

- Destination boulevards provide: furniture, pavements, garden beds and colourful sub-tropical trees from street components at ground level to building facades up to the third storey. Traffic signs are minimised, kerb and channel is removed and

asphalt is replaced with high quality concrete finishes to create a shared street. Arbours, trellises and pergolas are promoted, and trees are planted regularly.

- Green links provide: five metre wide verges, continuous tree or awning shade, garden beds and street furniture, regular safe crossing points.
- End of street parklets create cul-de-sac or single land through ways to allow all or most of the road reserve to be transformed into green space.

Elton Consulting 2011, *Planning for social infrastructure and community services for urban growth areas: Theme document*, (for City of Charles Sturt, City of Playford, City of Salisbury, City of Okaparinga and the Local Government Association of South Australia), accessed 20 December 2016, <[https://www.sa.gov.au/\\_\\_data/assets/pdf\\_file/0019/13078/Planning\\_Social\\_Infrastructure\\_and\\_Community\\_Services\\_for\\_Urban\\_Growth\\_Areas\\_Theme\\_Document\\_May\\_2011.PDF](https://www.sa.gov.au/__data/assets/pdf_file/0019/13078/Planning_Social_Infrastructure_and_Community_Services_for_Urban_Growth_Areas_Theme_Document_May_2011.PDF)>.

This document was prepared to provide a summary of relevant demographic data, case studies and literature to inform the future planning for medium and higher density infill projects in the City of Charles Sturt and wider Adelaide. The document includes case studies that reference work undertaken for the Urban Land Development Authority (now EDQ) including the Social Planning Report for Bowen Hills TOD undertaken by Andrea Young Planning Consultants. Other work led by Andrea Young Planning Consultants was the Chermide Centre Neighbourhood Plan Social Outcomes Investigations report (2008) which outlines a number of useful findings for social infrastructure provision in transit oriented development:

The following service, facilities and community engagement issues important in supporting diverse communities in TOD environments:

- The capacity to retrofit existing community facilities to address changing demographics (e.g. fewer seniors, higher proportions of small households, more young adults, more shared households)
- Amenity and compatibility of social infrastructure must be functional, people oriented, user friendly, welcoming and attractive
- Provision of well located on site space and facilities suited to the demographics of residents
- Integrated facilities which are multipurpose and provide services, opportunities and spaces for multiple activities and programs for all groups
- The provision of physical and interactive opportunities for old and new communities and representatives of diverse submarkets to meet and interact
- Transitional engagement, capacity building and planning with existing residents and groups will be key to achieving equity and other social outcomes

- Nurturing and strengthening the social networks and social capital which will sustain social infrastructure
- Recognition that intensification and transit orientation does not necessarily result in increased contact with neighbours nor a sense of community
- Development of a unique identity that makes the area special and instils a sense of community pride
- The opportunity to participate in civic life has been identified as a core human need, and essential to the psychological health of individuals and communities.

Trends in social infrastructure provision in higher density infill areas are for flexible, multipurpose, community hubs which are centrally located with good access to transport and well integrated with other activity generators such as shops and co-located with other community uses including libraries, schools and child care.

Given a current lack of good quality post occupancy information and some uncertainty regarding exactly who is going to live in these developments, social infrastructure in urban infill areas should be planned to be multipurpose, flexible and capable of adapting to changing community needs. Flexible, multipurpose spaces that can be used for a wide range of uses throughout various times of the day including morning exercise classes, playgroups, Pilates and yoga, adult day care, English language classes, after school care, afternoon sport and cultural activities, evening classes and meetings for community groups are important.

Urban infill areas provide opportunities for social infrastructure to be included as key elements of town centre type development in locations that are highly visible, accessible and central.

Mason, C and Grimbeek, D 2013, *A Housing First approach to homelessness in Brisbane: Sustaining tenancies and the cost effectiveness of support services*, accessed 12 January 2017, <[http://micahprojects.org.au/assets/docs/Publications/IR\\_127\\_A-Housing-First-Approach-to-Homelessness.pdf](http://micahprojects.org.au/assets/docs/Publications/IR_127_A-Housing-First-Approach-to-Homelessness.pdf)>.

The 'housing first' approach prioritises housing first and foremost for people experiencing homelessness. Suitable long-term housing is provided, together with services that individuals and families need to stay in this housing. This is distinct from the approach which suggests that people experiencing homelessness need to first 'get better' or prove they are worthy of housing by addressing certain issues and moving through transitional short-term housing before a permanent dwelling is organised. The underpinning philosophy is that support services are more effective when provided to people who have security, privacy and a feeling of control over their own lives that comes with permanent housing.

Can be delivered at:

- Scattered sites: Housing units located throughout the city, with units being either sub-leased from service provider, or public/social housing.

- **Single site housing:** Housing units located together with on-site support and tenancy management services. Brisbane Common Ground is an example of single site housing. It's a purpose-built apartment complex in South Brisbane offering 146 units – both affordable housing, and for people who were formerly homeless. Support services and tenancy management are located on site.

A research project examining the benefits of the 'housing first' approach in Brisbane was recently undertaken with a cohort of 12 homeless people (Mason and Grimbeek 2013). The participants in the study had all experienced abuse, neglect and dysfunction in their family with half having a history of institutional/foster care as children, with an average of eight years of homelessness. Interviews were conducted with the participants over an 18 month period.

Participants noted improvements in key factors during the life of the study including improvements in average feelings towards:

- Satisfaction with housing
- Extent of feeling safe in their housing
- Sense of control they had over their lives
- Overall sense of progress in their lives since being homeless
- Peace of mind they experienced.

The important findings of the study included:

- The Housing First approach in Brisbane is working – all of the individuals followed through the study, stayed housed (although only 12 participants).
- Support services aiming to sustain tenancies in public and community housing have shortcomings when they are not framed as part of a formal supportive housing program.
- Initial investigations indicate that housing people with supports costs less than keeping a person homeless.

Overall, it was suggested that the Housing First approach should continue to be supported and resourced as a cost-effective and sustainable approach to reducing homelessness.

## Appendix F. Social infrastructure needs assessment results

Facility Type	Relevant Studies	Demographic Analysis/ At Risk Groups	EDQ DSS (a)	SEQRP DSS (a)	BCC DSS (a)	Facilities Audit	Consultation	Assessment/ Recommendation
<b>Community Meeting Facilities</b>								
Community Space	✓ x 3 Meeting Rooms (ULDA 2009) ✓ Multi-purpose Community Space (ULDA 2009)		✓ Local (2021-2031) ✓ District (Beyond 2031-Beyond Ultimate) ✓ Major (Beyond 2031-Beyond Ultimate)	✓ Hall/Local Community Centre (2021-2031) ✓ District Community Centre (Beyond 2031-Beyond Ultimate) ✓ Civic Centre (Beyond 2031-Beyond Ultimate)	✓ Local (2021-Beyond 2031) ✓ District (Beyond 2031) ✓ BCC PIP identifies need for Local community centre at Lutwyche/Windsor (2016-2021)	✖ x 3 (3 meeting rooms @ Fortitude Valley) ✖ x 1 (Local space at Jeays Street Community Centre)		District Community Centre with at least 1 additional meeting room to be located in the northern half of the PDA.  Requirements considered in collaboration with Jeays Street Community Centre.
Library	✓ Branch (ULDA 2009)	NA	✓ Branch (Beyond 2031) ✓ Central (Beyond 2031-Beyond Ultimate)	✓ Branch (Beyond 2031) ✓ Central (Beyond 2031-Beyond Ultimate)	✓ Branch (Beyond 2031)  ✓ BCC PIP identifies need for Major Library facility at Bowen Hills/Fortitude Valley (2023-32)		✓ (BCC)	Branch Library
Community garden		NA				✖ x 1 One community garden in PDA.	✓ (Community)	No additional facilities required.

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Facility Type	Relevant Studies	Demographic Analysis/ At Risk Groups	EDQ DSS (a)	SEQRP DSS (a)	BCC DSS (a)	Facilities Audit	Consultation	Assessment/ Recommendation
<b>Educational Facilities</b>								
Kindergarten		✖? (b)	✓ x 3 1 x (2021-2031) 2 x (Beyond 2031)	✓ x 2 (Beyond 2031)	NA			Up to two additional centres may be required beyond 2050. May be provided with child care.
Primary School		✖? (b)	✓ (2021)	✓ (2021)	NA		✖ (DET)	No additional facilities required.
Secondary School		✖? (b)	✓ (Beyond 2031)	✓ (Beyond 2031)	NA		✖ (DET)	No additional facilities required.
TAFE College					NA			No additional facilities required.
<b>Health and Safety Facilities</b>								
Ambulance	✖ (ULDA 2009)	NA	✓ (Beyond 2031)	✓ (Beyond 2031)	NA			No additional facilities required.
Fire and Rescue	✖ (ULDA 2009)	NA	✓ (Beyond 2031)	✓ (Beyond 2031)	NA			No additional facilities required.
Police		NA	✓ (Beyond 2031)	✓ (Beyond 2031)	NA			No additional facilities required.
Community Health Facility			✓ Community Health Centre (District) (Beyond 2031) ✓ Community Health Hub (Regional) (Beyond 2031-Beyond Ultimate)	✓ Community Health Centre (District) (Beyond 2031) ✓ Community Health Hub (Regional) (Beyond 2031-Beyond Ultimate)	NA	✖ x 1 (RBH and RBWH, Herston Quarter)	(BCC) Health based not for profits requesting space close to RBWH.	No additional facilities required.

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Facility Type	Relevant Studies	Demographic Analysis/ At Risk Groups	EDQ DSS (a)	SEQRP DSS (a)	BCC DSS (a)	Facilities Audit	Consultation	Assessment/ Recommendation
Cultural Facilities								
Creative Arts Space/Art Gallery Space	✓ (ULDA 2009) (co-located with community space and library)	NA	✓ Regional (Beyond 2031-Beyond Ultimate)	✓ Regional (Beyond 2031-Beyond Ultimate)	✓ District (Beyond 2031-Beyond Ultimate)			District art gallery/museum space required after 2050.
Museum Space		NA	✓ District (Beyond 2031-Beyond Ultimate)	✓ Regional (Beyond 2031-Beyond Ultimate)	NA			
Performing Art Space		NA	✓ District (Beyond 2031-Beyond Ultimate)	✓ District (Beyond 2031-Beyond Ultimate)	✓ District (Beyond 2031-Beyond Ultimate)	✕ x 4 (Royal International Convention Centre, Twelfth Night Theatre, Old Queensland Museum, Visible Ink Youth Space)		
Targeted Facilities								
Child Care Centre	✓ x 2 (ULDA 2009)	✕? (b)	NA	✓ (2031-Beyond 2031)	NA			Up to two additional centres may be required beyond 2050. May be provided with kindergarten.
Youth Centre/Service		✕? (b)	✓ Local (2031-Beyond 2031) ✓ District (Beyond 2031-Beyond Ultimate)	✓ District (Beyond 2031-Beyond Ultimate)	NA	✕ x 1 (Youth space at Visible Ink @ Fortitude Valley)		No additional facilities required.

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Facility Type	Relevant Studies	Demographic Analysis/ At Risk Groups	EDQ DSS (a)	SEQRP DSS (a)	BCC DSS (a)	Facilities Audit	Consultation	Assessment/ Recommendation
Aged Care/Respite Service/Senior Centres	✓ (ULDA 2009)	✗ (b)	✓ Local (2031-2031) ✓ District (Beyond 2031-Beyond Ultimate)	✓ District (Beyond 2031-Beyond Ultimate)	NA			No additional facilities required.
Others? Homelessness Support Centres (c)	✓ x 2	✓				A range of services close by but could be at capacity?		No additional facilities required.  However, further consultation should be undertaken with homelessness service providers to confirm this assessment.
Others?								
<b>Sports Facilities</b>								
Sporting Facility – Indoor Sport and Recreation		NA	✓ District (Beyond 2031)	NA	✓ District (Beyond 2031-Beyond Ultimate)	✗ x 1 (YMCA Bowen Hills)	✓ (BCC) Outdoor sports fields required.	Small scale outdoor sports fields required potentially on rooftops.
Sporting Facility – Aquatic Facility		NA	✓ District (Beyond 2031)	NA	✓ District (Beyond 2031-Beyond Ultimate)	✗ x 2 (Centenary Pool and Fortitude Valley nearby)		No additional facilities required.

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**Notes/Comments:**

(a) Many desired standards of services benchmarks include a lower and upper population threshold. Therefore, the timeframes presented in the table often are a range of years. Where it is noted that the benchmark is reached 'Beyond Ultimate', the benchmark is not triggered even when the Bowen Hills PDA reaches 'ultimate' or 'total' development.

(b) The demographic analysis/projections suggest a lower than average proportion of children and therefore facilities targeting children and young adults may be required at rates slightly lower than the DSS might otherwise suggest.

(c) Accommodation support centres are centres providing services to homeless people or those at risk of homelessness including showers, laundry, eating, storage, kitchen, day rest, social activities and outreach facilities.

# **Appendix K – Schedules of works (detailed)**

### Schedule of future trunk infrastructure works – Water supply

DCOP ID	Map ref	Infrastructure Type	Infrastructure Description	Pipe diameter (mm)	Pipe length (m)	Estimated timing	Land Cost	Works Base Cost	Works On-Costs	Works Contingency	Total Works Cost <sup>1</sup>	Estimated Cost <sup>2</sup>
W1	3	Water Main	Campbell Street Augmentation	250	286	2018 - 2021	\$ 0	\$163,020	\$24,453	\$14,060	\$201,533	\$201,533
W2	3	Water Main	Skyring Terrace / Montpellier Road Augmentation	250	390	2026 - 2031	\$ 0	\$222,300	\$33,345	\$51,129	\$306,774	\$306,774
W3	3	Water Main	Jordan Terrace Augmentation	250	280	2026 - 2031	\$ 0	\$159,600	\$23,940	\$36,708	\$220,248	\$220,248

Notes:

1 – The total works cost is the sum of the following: construction cost, construction on costs and construction contingency.

2 – The estimated cost is the sum of the following: land cost and total works cost. This is expressed in current cost terms as at the base date (FY 2016/17).

### Schedule of future trunk infrastructure works – Sewerage

DCOP ID	Map ref	Infrastructure Type	Infrastructure Description	Pipe diameter (mm)	Pipe length (m)	Estimated timing	Land Cost	Works Base Cost	Works On-Costs	Works Contingency	Total Works Cost <sup>1</sup>	Estimated Cost <sup>2</sup>
S1	4	Gravity Main	Major Sewer By-Pass	1350	727	2018 - 2021	\$ 0	\$9,108,774	\$0	\$0	\$9,108,774	\$9,108,774
S2	4	Gravity Main	Brookes Street	315	120	2018 - 2021	\$ 0	\$925,366	\$138,805	\$79,813	\$1,143,983	\$1,143,983
S3	4	Gravity Main	St. Pauls Terrace	315	93	2018 - 2021	\$ 0	\$842,549	\$126,382	\$72,670	\$1,041,601	\$1,041,601
S4	4	Gravity Main	Markwell Street (a)	315	96	2018 - 2021	\$ 0	\$864,339	\$129,651	\$74,549	\$1,068,539	\$1,068,539

Notes:

1 – The total works cost is the sum of the following: construction cost, construction on costs and construction contingency.

2 – The estimated cost is the sum of the following: land cost and total works cost. This is expressed in current cost terms as at the base date (FY 2016/17).

3 – Project S1 – Major Sewer Bypass – The total works cost above is only that proportion to be levied on the Bowen Hills PDA through the DCOP.

**Schedule of future trunk infrastructure works - Transport**

DCOP ID	Map ref	Infrastructure Type	Infrastructure Description	Estimated timing	Land Cost <sup>1</sup>	Works Base Cost	Works On-Costs	Works Contingency	Total Works Cost <sup>2</sup>	Estimated Cost <sup>3</sup>
RD01	5	Arterial – widening, active transport improvements and street improvements and including - upgrades to Abbotsford Rd/Edmondstone Rd intersection (I01)	Abbotsford Road (North)	2018 - 2021	\$946,297	\$645,726	\$125,917	\$154,329	\$925,972	\$1,872,269
RD02	5	Suburban - street improvements including: - upgrades to Mayne Road/Hamilton Place/Campbell Street intersection (I02) - alterations to Campbell Street/Abbotsford Road intersection (I03)	Campbell Street (East)	2018 - 2021	\$943,497	\$2,248,679	\$348,545	\$519,445	\$3,116,669	\$4,064,729
RD03	5	District - active transport improvements and street improvements including: - upgrades to the Thompson Street/Edmondstone Road intersection (I04)	Edmondstone Road	2018 - 2021	\$236,223	\$732,186	\$98,845	\$166,206	\$997,237	\$1,233,460
RD04	5	Arterial – widening for new intersection	King St/St Pauls Tce & St Pauls/Constance St	2018 - 2021	\$0	\$11,103,364	\$0	\$0	\$11,103,364	\$11,103,364
RD05	5	Arterial – new intersection	King Street/St Pauls Terrace	2018 - 2021	\$0	\$657,503	\$0	\$0	\$657,503	\$657,503
RD06	5	Suburban – street improvements	Gregory Terrace	2018 - 2021	\$0	\$826,012	\$123,902	\$189,983	\$1,139,896	\$1,139,896
RD07	5	Arterial – street improvements	St Pauls Terrace	2018 - 2021	\$0	\$114,407	\$17,161	\$26,314	\$157,882	\$157,882

Department of Infrastructure, Local Government and Planning

DCOP ID	Map ref	Infrastructure Type	Infrastructure Description	Estimate d timing	Land Cost <sup>1</sup>	Works Base Cost	Works On-Costs	Works Contingen cy	Total Works Cost <sup>2</sup>	Estimated Cost <sup>3</sup>
RD08	5	Suburban - active transport improvements	O'Connell Terrace (West)	2026 - 2031	\$0	\$262,500	\$52,500	\$63,000	\$378,000	\$378,000
RD09	5	Arterial - widening and street improvements including: - a new intersection at Hudd Street/Abbotsford Road (I05)	Abbotsford Road (South)	2026 - 2031	\$1,220,674	\$2,143,152	\$289,325	\$486,495	\$2,918,972	\$4,139,646
RD10	5	Suburban – widening, active transport improvements and street improvements including: - alterations to Gregory Terrace/Brookes Street intersection (I06)	Brookes Street	2026 - 2031	\$411,823	\$511,335	\$98,432	\$121,953	\$731,720	\$1,143,543
RD11	5	Suburban - street improvements	Brookes Street	2026 - 2031	\$0	\$471,851	\$0	\$94,370	\$566,221	\$566,221
RD12	5	Suburban – active transport improvements and street improvements	Hamilton Place	2026 - 2031	\$48,957	\$513,492	\$79,591	\$118,617	\$711,700	\$760,657
RD13	5	Suburban - widening, active transport improvements and street improvements including: - a vehicle and pedestrian bridge spanning the railway corridor; - intersection upgrade at Mayne Road/Hudd Street and Tufton Street. (I07)	Hudd Street	2026 - 2031	\$2,109,499	\$6,916,150	\$1,037,423	\$3,181,429	\$11,135,002	\$13,244,501
RD14	5	Suburban – widening, active transport improvements and street improvements	Mayne Road	2026 - 2031	\$346,930	\$1,014,447	\$157,239	\$234,337	\$1,406,023	\$1,752,953
RD15	5	Suburban – extension of street, active transport improvements and street improvements	Tufton Street	2026 - 2031	\$7,668,790	\$2,190,633	\$427,174	\$523,561	\$3,141,368	\$10,810,158
RD16	5	Suburban – widening, active transport improvements and street improvements including:	O'Connell Terrace	2026 - 2031	\$782,426	\$2,616,992	\$523,398	\$628,078	\$3,768,468	\$4,550,894

DCOP ID	Map ref	Infrastructure Type	Infrastructure Description	Estimated timing	Land Cost <sup>1</sup>	Works Base Cost	Works On-Costs	Works Contingency	Total Works Cost <sup>2</sup>	Estimated Cost <sup>3</sup>
		<ul style="list-style-type: none"> <li>- upgrades to O'Connell Street/Brookes Street/Hamilton Place intersection (I08);</li> <li>- Upgrades to Tufton Street/O'Connell Terrace intersection (I09);</li> <li>- Signal alterations at Lanham Street/O'Connell Terrace (I10);</li> <li>- New bridge over rail for active transport connection on the southern side of the road.</li> </ul>								

Notes:

1 – Land for verge widenings has been excluded as verge widenings to meet minimum standards are not trunk infrastructure works. The total works cost is the sum of the following: construction cost, construction on costs and construction contingency.

2 – The estimated cost is the sum of the following: land cost and total works cost. This is expressed in current cost terms as at the base date (FY 2016/17).

### Schedule of future trunk infrastructure works – Parks and Community Facilities

DCOP ID	Map ref	Infrastructure Type	Infrastructure Description	Estimated timing	Land Cost	Works Base Cost	Works On-Costs	Works Contingency	Total Works Cost <sup>1</sup>	Estimated Cost <sup>2</sup>
P1	6	Park (Local) - embellishments	Alexandria Park	2018 - 2021	\$0	\$2,469,143	\$246,914	\$271,606	\$2,987,663	\$2,987,663
P2	6	Park (Local) – embellishments – playground	Jeays Street Park	2021 - 2026	\$0	\$85,000	\$8,500	\$14,025	\$107,525	\$107,525
P3	6	Park (Local) – embellishment - Outdoor fitness node	Perry Park	2021 - 2026	\$0	\$94,000	\$9,400	\$15,510	\$118,910	\$118,910
P4	6	Park (Local) – embellishment - Landscaping, seating and path connection	Hurworth Street Park	2021 - 2026	\$0	\$410,000	\$41,000	\$67,650	\$518,650	\$518,650
P5	6	Park (Local) - new park and embellishments	Mayne Road Park	2026 - 2031	\$2,660,000	\$585,000	\$87,750	\$67,275	\$740,025	\$3,400,025

Department of Infrastructure, Local Government and Planning

DCOP ID	Map ref	Infrastructure Type	Infrastructure Description	Estimated timing	Land Cost	Works Base Cost	Works On-Costs	Works Contingency	Total Works Cost <sup>1</sup>	Estimated Cost <sup>2</sup>
C1	N/A	Community Facility - library	200m from Bowen Hills rail station - Branch Library (1000m <sup>2</sup> of GFA)	2026 - 2031	\$0	\$2,675,000	\$267,500	\$441,375	\$3,383,875	\$3,383,875

Notes:

1 – The total works cost is the sum of the following: construction cost, construction on costs and construction contingency.

2 – The estimated cost is the sum of the following: land cost and total works cost. This is expressed in current cost terms as at the base date (FY 2016/17).





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