Yeerongpilly Transit Oriented Development

Concept Plan of Development

October 2010
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Figure 1: Yeerongpilly site aerial view
1.1 Project background

During 2007–2008 the Queensland Government conducted a competitive process to select a preferred developer for the entire Yeerongpilly Animal Research Institute (ARI) site and the now demolished Tennyson Powerhouse site. The project was undertaken in two stages, the first encompassed the area which now includes the Queensland Tennis Centre and Tennyson Reach development. The second stage included the remainder of the site and was referred to as Tennyson Landing. The process was discontinued when the preferred developer advised they were no longer in a position to proceed in light of prevailing economic circumstances. As a result, the proposed plans for this area, comprising the ARI site, were never finalised or published.

The activities of the ARI are being relocated to new state-of-the-art premises and the site is expected to be progressively vacated by mid-2011.

On 18 November 2009, the Premier and Minister for the Arts, the Honourable Anna Bligh, announced that the state government would fast track redevelopment of the Yeerongpilly ARI site to deliver Transit Oriented Development (TOD) outcomes in the form of high-quality residential accommodation, affordable housing, retail, commercial, entertainment facilities and green space. Working in partnership with the Brisbane City Council and expediting the planning process, the state has committed to delivering land parcels to market by 2011.

The current Yeerongpilly TOD planning process aims to guide future development of the site. It takes into account the unique opportunities and constraints, while accommodating growth demand, addressing local needs and delivering a high-quality urban environment that is economically viable.

One of the first steps in planning for the Yeerongpilly TOD is to prepare a Concept Plan of Development for the site that will enable the nature and form of development to be determined. It will also determine the extent of land release and infrastructure provision to be programmed.

1.2 Transit oriented development

Transit oriented development is a planning concept that promotes the creation of a network of well-designed, higher density urban communities focused around transit stations. While there are various definitions used around the world, there is common agreement that transit oriented development is characterised by:

- a rapid and frequent transit service
- high accessibility to the transit station
- a mix of residential, retail, commercial and community uses
- high-quality public spaces and streets, which are pedestrian and cyclist friendly
- medium- to high-density development within 800 metres of the transit station
- reduced private car parking.

The term transit oriented development is often used incorrectly to describe a single development adjacent to, or above a transit station. TOD refers to the planning principles applying to the broader precinct surrounding the station, rather than any individual development within it.

TOD precincts generally include the neighbourhood within a comfortable so-minute walk of the transit station (a radius of about 800 metres depending on local circumstances and topography).

The concept of TOD is in some ways a return to traditional walkable neighbourhoods and village communities of the pre-war years.

Unlike residential suburbs and car-reliant developments, TOD provides a mix of different land uses and community services and facilities so people can live, work, shop and socialise within a short walk, cycle or public transport trip of their homes.

1.3 Project objectives

The project partners, the Queensland Government through Growth Management Queensland and Brisbane City Council, have identified the following objectives to be achieved in this project:

- implement an example of high-quality TOD outcomes
- expedite development of the TOD and test new development codes
- implement best practice climate responsive and sustainable urban design
- promote benefits of well-designed and well-located higher density, mixed use development
- provide a range of housing options including affordable housing
- promote active and public transport
- pilot a shared car parking scheme
- ensure tangible community benefits are achieved
- pilot a clean and renewable energy community.

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1.4 Purpose of this report

The Concept Plan of Development for the Yeerongpilly TOD will be delivered in three phases:

1. Preparation of a Concept Plan of Development—following consultation and analysis of constraints, opportunities, and options.
2. Preparation of a Final Plan of Development following feedback on the concept plan.
3. Preparation of a sequencing plan to inform the appropriate timing, order and method of releasing land for development.

This report represents the finalisation of the Concept Plan of Development phase and is made available for feedback from the community, government and other stakeholders.

The Concept Plan of Development forms part of the process of an overall plan of development for the site. The concept plan, and this report, does not have any statutory force or effect.

It is intended that the Final Plan of Development and the sequencing plan phases of work will be complete by mid-December 2010, and that the combined set of documents will be published as the Final Plan of Development.

The Final Plan of Development will inform the preparation of a State Planning Regulatory Provision (SPRP) that will provide the statutory framework for assessing development in the Yeerongpilly TOD.
1.5 Context

Located adjoining the Queensland Tennis Centre, the Brisbane River and the Yeerongpilly Railway Station, the Yeerongpilly TOD site is located close to transport networks, recreation opportunities and employment areas.

Significant business and industry uses line either side of the rail corridor immediately south of the Yeerongpilly rail station, extending to the Moorooka rail station.

Low-medium density residential (LMR) areas surround the railway corridor north of the Yeerongpilly rail station and extend through the suburbs of Yeronga and Fairfield. Fairfield Road offers connectivity for Tennyson, Yeerongpilly, Yeronga and Fairfield before connecting with Annerley Road and the Brisbane CBD.
1.6 Yeerongpilly site

The Yeerongpilly TOD site is located on Lot 566 on SP 214202, Parish of Yeerongpilly in the County of Stanley. The site has an area of approximately 14.6 hectares.

The site is characterised by a topography of a cleared, low-lying river flood plain and green pastures supporting a range of scientific research buildings. The current and former ARI buildings are formally arranged with two key buildings and their supporting curtilage (the area around the buildings) identified as having heritage significance. These buildings occupy higher ground in the centre of the site.

The site is strongly bounded to the south and east by power easements, road and rail infrastructure. The west is bound by the Queensland Tennis Centre and the apartments of the Mirvac Tennyson Reach development. The north is bound by the Brisbane River and character housing amidst well designed streets. The site is traversed by a looping King Arthur Terrace, leaving small sites to the north and disconnecting the precinct from the river. The site has some significant trees and riparian vegetation. There are two pieces of co-located infrastructure that define the site—the state’s major tennis complex and Yeerongpilly rail station. The cycle of major tennis events impacts the function of the local traffic system. Management and coordination of tennis events must be considered in any future development of the site. The existing railway provides excellent public transport to the site.

Site history

The first land sales in the area began in the 1850s when arrowroot and cotton were initially grown. This was replaced by sugar cane before the industry moved north following a series of cold winters.

Development of the railway line in the 1880s encouraged residential development, however this slowed in the late nineteenth century following the 1893 floods which submerged much of Yeerongpilly and the financial depression of the 1890s. In the early 20th century, development increased and the majority of the area was connected to electricity by the 1920s.

Hayslope was the name of a beautiful two-storey mansion built by Thomas Martin in 1889 which proudly sat, until 1939, on the land to one day be occupied by the Tennyson Power Station.

The old Hayslope site was acquired by the Brisbane City Council in 1947 where it built the Tennyson Power Station, which operated from 1953–1986. Located directly on the riverfront with easy access to Ipswich coal via rail, the site was identified as an ideal place to produce energy for the growing city of Brisbane.

The Animal Research Institute at Yeerongpilly was established in 1909 as a stock experiment station. It was the first facility of its kind in Australia and its work was primarily to research and control diseases in livestock, develop vaccines and improve animal health and production.

When the station first opened, the offices and laboratories were housed in a timber building with four rooms and surrounding verandahs along with support structures and animal yards. This building is identified as block D on the Queensland Heritage Register. Additional buildings have been developed over the years to allow expansion of the research facilities.

In the 1930s the station carried out the first husbandry research studies in Queensland with nutritional experiments on pigs and poultry. In 1936 the faculty of Veterinary Science was established within the University of Queensland to provide local training for veterinarians and used the existing facilities at Yeerongpilly. The main brick building in which the university activities were housed is known as block A. This building is listed on the Queensland Heritage Register along with block D and a large curtilage area for their significance in association with the animal research activities.

The Veterinary School suspended its activities during the Second World War and in 1941 the United States Army took over block A which was used to prepare the bodies of deceased servicemen for return to the United States.

Work carried out by the Animal Research Institute over the years includes testing to diagnose diseases of cattle, sheep, goats, horses, deer, pigs and poultry. It is famous for its research into cattle tick fever and development of vaccines for stock diseases. Many diseases of livestock were first diagnosed and described at Yeerongpilly, leading to the development of effective control measures. The research undertaken by the Institute has been a major factor in the development of primary industry in Queensland.

Since 2008, the activities of the Animal Research Institute have been progressively relocated to new facilities at Boggo Road, Coopers Plains, St Lucia and Gatton. Relocation is expected to be complete in mid-2011.
2. Site photos

The Yeerongpilly site and its surrounds are a varied landscape of new and old buildings, pastures and transport infrastructure.
3. Community input

The Queensland Government and Brisbane City Council are giving the community the opportunity to provide feedback and put forward their ideas and concerns to ensure the development plans reflect community values and desires.

3.1 Community planning representatives

Community planning representatives (CPR) are a group established through self-nomination to be representatives providing local knowledge and input into plans for the future development of the Yeerongpilly TOD. The CPR comprises 26 individuals including employees of the Animal Research Institute and people who live and work locally including business representatives, landowners and community organisation representatives that have direct links or knowledge of the local area.

To date, two onsite facilitated workshops have been held with the CPR:

1. The first CPR meeting was held on Wednesday, 28 July 2010 at the Queensland Tennis Centre. During this meeting, participants were provided with an overview of the background of the project and the role of the CPR. CPR members were asked to identify ideas and concerns for the future development of the site and the implications on the community. These ideas formed the basis of the vision and principles for the Yeerongpilly TOD.

2. The second CPR meeting was held on Wednesday 1 September 2010 at the Queensland Tennis Centre. During this meeting participants discussed options for future development of the site and provided feedback on how they thought the Yeerongpilly TOD should be developed.

Feedback from the CPR workshops included:

**Building height and form**
- provide a mix of building heights and dwelling types to suit a range of people and lifestyles
- restrict building heights (ideally no higher than the Tennyson Reach development of 12 storeys)
- locate taller buildings in the southern part of the site with buildings reducing in height towards the north. This would maximise northerly orientation of buildings and limit overshadowing of open space
- ensure attractive, high-quality buildings and public realm
- provide ample green space between buildings, including tree-lined streets
- take advantage of views towards the river, the city, mountain ranges and golf courses.

**Road layout**
- support for an east-west pedestrian boulevard to connect the Yeerongpilly railway station and the Queensland Tennis Centre
- mixed opinions about options to close part of King Arthur Terrace
- general support for open space links to the river but concern about loss of function of King Arthur Terrace and increased traffic through the new centre
- mixed opinions about moving Mooney Street to align with the unnamed street between Orlive and Paragon Street (incorrectly referred to as Stevens Street)
- desire for public open space and recreation
- support for community gardens
- desire for high-quality open space
- desire for a CityCat terminal
- concern about providing an extended area for possible future expansion of the Queensland Tennis Centre.

**Community and heritage**
- strong desire for additional pedestrian connections between the TOD site and the surrounding community
- mixed opinions about the need to preserve heritage buildings as these are not yet seen as community assets.

3.2 Queensland Government and Brisbane City Council input

Planning for the Yeerongpilly TOD has involved input from a wide range of Queensland Government agencies and Brisbane City Council divisions. Involvement from relevant areas was sought early in the process to assist with identifying technical issues and opportunities to be considered.

A workshop was held with various state agencies and branches of Brisbane City Council on 22 July 2010 to help identify and confirm the constraints and opportunities present on the site.

Key points and items from the workshop include:

- identification of wetland, waterways and flooding as issues on the site. Innovative solutions are required to address these site characteristics
- Energex power assets as highly valuable and costly to alter. Existing easements are to be retained as per current arrangements
- a need for additional community facilities in the local area which may include a district arts centre with artists’ studios, meeting places and indoor sports facilities. The Yeerongpilly TOD site may present opportunities to accommodate some of these facilities
- appropriate consideration of the two Queensland heritage-listed buildings and their curtilage
- major roads and railway services (both passenger and freight) are a barrier to connections to the east and south of the site. Noise impacts from this infrastructure need to be addressed in the new development
- a need to accommodate for possible future expansion of the Queensland Tennis Centre
- Further investigations regarding listing on the Environmental Management Register and an environmental management plan to deal with issues such as land contamination
- opportunities to demonstrate climate responsive building design and to create a clean energy community

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**Issues and aspirations**

Between June–September 2010 the community were encouraged to provide feedback, including their ideas and concerns through a newsletter and online survey.

The key issues raised during this time included:

- additional retail and dining opportunities
- additional parkland and associated facilities
- high-quality, frequent public transport—rail, bus and CityCat or ferry
- improved connections and facilities for pedestrians and cyclists
- initiatives to strengthen the community including the provision of community facilities, a mix of housing types and demographic diversity
- concerns about impacts on traffic, particularly along King Arthur Terrace.
4. Analysis and design response

4.1 Summary of key issues

King Arthur Terrace

King Arthur Terrace extends through the Yeerongpilly TOD site from Chelmer in the west to Fairfield Road in the east. It provides access to the Queensland Tennis Centre and Tennyson Reach.

Local access to a small pocket of housing to the north is provided via a curving Mooney Street which connects to Orville and Paragon Streets and through to Fairfield Road.

King Arthur Terrace is a local access route and attracts traffic in both the morning and evening peak periods. At times during the morning peak period, traffic congestion from the left-hand turn into Fairfield Road encourages rat-running (taking shortcuts through local streets) though the residential areas to the north.

The curved layout of King Arthur Terrace from Fairfield Road does not provide a direct and clear entry into the site from the Yeerongpilly railway station. The curve creates irregular-shaped sites adjacent to the road with dimensions that create difficulties for achieving efficient and cost effective development.

King Arthur Terrace also creates a visual and physical barrier between much of the TOD site and the Brisbane River.

Possible future Queensland Tennis Centre expansion

The Queensland Tennis Centre is a significant sporting venue and has aspirations to expand its facilities to host larger tournaments. The expansion could include additional show courts, practice courts and playing courts. Ideally the area allowed for expansion should be located close to the existing facilities and in a regular shape.

No commitment has been given to funding future expansion of the tennis centre, but planning for the Yeerongpilly TOD needs to accommodate this possible expansion.

Heritage buildings

The ARI site is significant for animal research in Queensland and has recently celebrated its centenary. Two of the buildings in particular, known as blocks A and D are identified as historically significant buildings. These buildings face Fairfield Road as this was the original entrance to the site. The buildings and their curtilage (the area around the buildings) are listed on the Queensland Heritage Register. The curtilage contains additional buildings, which are not identified on the Heritage Register. Further investigations are being undertaken to determine how to appropriately integrate the historical aspects of the site in its new role as a vibrant mixed-use hub.

Waterways, wetland and flooding

The Yeerongpilly TOD site is located beside the Brisbane River and includes some relatively low-lying areas. Due to the elevated nature of King Arthur Terrace, areas to the south of this road have reduced likelihood of potential flooding. Land to the north of King Arthur Terrace, adjacent to Orville Street, is the lowest lying part of the site and presents opportunities for stormwater management and treatment as well as possible open space.

Waterway and wetland areas are also identified on the site, however the biodiversity values of these areas have been significantly impacted by the development and use of the site. Hydrological functions (movement and distribution of water) will be addressed with innovative water management solutions that capture and reuse water on the site.

Easements

To the south of the Queensland Tennis Centre is a large electricity substation. There are easements across the site for the underground power lines. Other easements provide access to a sewerage pumping station and provide pedestrian access from the station to the Queensland Tennis Centre. Electricity easements cannot have structures built over them such as buildings or tennis courts, but may be able to accommodate car parking.

Access from the Yeerongpilly railway station to the Queensland Tennis Centre

A primary issue for the development of the Yeerongpilly TOD is the need to provide a direct pedestrian connection from the Yeerongpilly railway station and the overpass currently under construction to the Queensland Tennis Centre. The most direct route runs through the centre of the site and past both heritage buildings. The establishment of this key pedestrian route will create a highly trafficked pathway through the site providing opportunities for retail and community uses.

Noise impacts on the site

The south and east of the site is bounded by significant roads and railway infrastructure. The rail and freight line causes significant noise and vibration impacts up to approximately 130 metres away. The location and design of buildings can reduce noise impacts on the site. New buildings will need to incorporate design features to manage the impacts of noise.

Surrounding neighbourhoods

The areas surrounding the Yeerongpilly TOD site have a range of development forms and scales. To the north, the suburb of Yeronga includes a mix of houses and low-rise apartments in a low-medium density residential zoning. Along the river, the recent Mirvac Tennyson Reach development comprises apartment buildings of up to 12 storeys.

The scale and form of the Yeerongpilly TOD development will seek to integrate with surrounding areas, providing a transition between a compact urban core around the railway station and Tennyson Reach, to lower intensity residential neighbourhoods surrounding the site.

Views

The area of the site along the river offers extensive views down two reaches of the river and to the Indooroopilly Golf Course on the northern bank. From the existing four-storey laboratory building on the site, the views to the north and south are extensive. To the south, the views include distant mountain ranges.

There are opportunities to take advantage of these views from higher levels of new development.

Responding to challenges:

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>The site is bounded by busy roads and railway infrastructure which result in potential noise and pollution impacts.</td>
<td>Locate dense, tall buildings to the south-east of the site to provide a buffer against impacts.</td>
</tr>
<tr>
<td>Perceived impacts on surrounding residential neighbourhoods.</td>
<td>Establish a precinct of low-rise residential uses as a transition between established neighbourhoods and the compact centre of the TOD.</td>
</tr>
<tr>
<td>The Queensland Tennis Centre is a significant sporting venue and may need to expand over time.</td>
<td>Allow for the possible future growth of the Queensland Tennis Centre.</td>
</tr>
<tr>
<td>The Queensland Tennis Centre is located a significant distance from public transport infrastructure.</td>
<td>Provide a well-made, direct pedestrian connection from the Queensland Tennis Centre to the railway station as a major element with the concept plan.</td>
</tr>
<tr>
<td>The site is physically and visually disconnected from surrounding residential areas.</td>
<td>Provide connections within the layout of new streets. Allow for future connections south and east. New retail and community uses will draw people into the Yeerongpilly TOD.</td>
</tr>
<tr>
<td>The indirect layout of King Arthur Terrace is not conducive to good urban form.</td>
<td>Realign King Arthur Terrace to straighten its layout, align with the street pattern of surrounding areas and provide new intersections to improve traffic flow.</td>
</tr>
<tr>
<td>The site is disconnected from the river frontage and has limited interface opportunities at most boundaries.</td>
<td>Explore extensive views from elevated vantage points and provide pedestrian connection to river and surrounding neighbourhoods.</td>
</tr>
<tr>
<td>Much of the site is identified as flood-prone.</td>
<td>Co-locate open space and water management systems to provide integrated solution.</td>
</tr>
<tr>
<td>Existing ARI buildings and curtilage are of heritage significance.</td>
<td>Investigate opportunities to retain existing buildings as part of community precinct and integrate with the central pedestrian connection.</td>
</tr>
</tbody>
</table>
Figure 3: Constraints and opportunities analysis
4.2 Design workshop and review of options

Following the combined state agency and Brisbane City Council workshop and the first Community Planning Representatives meeting, the project team facilitated a two-day design workshop. The purpose of this workshop was to take into consideration technical input and community feedback to explore various ways in which the site could be developed to deliver optimal outcomes, particularly in terms of:

- efficient local road network
- appropriate location for commercial activities
- distribution of building heights
- distribution and types of housing
- location of open space
- accommodation of potential Queensland Tennis Centre expansion
- improved pedestrian and cycle connectivity with surrounding neighbourhoods
- optimisation of infrastructure and land use integration based on the location of the Yeerongpilly railway station within walking distance of the entire site.

The outcome of the consultation process was the creation of three concept scenarios, each expressing different options for delivery of the Yeerongpilly TOD.
### 4.3 Concept scenarios analysis table

<table>
<thead>
<tr>
<th>Scenario one</th>
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<th>Scenario three</th>
</tr>
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<tbody>
<tr>
<td>• direct pedestrian corridor from rail station to Queensland Tennis Centre that creates a community focal point</td>
<td>• pedestrian corridor from rail station to Queensland Tennis Centre alongside new east-west road. Local pedestrian and cycling pattern is dominated by a key street corridor</td>
<td>• direct pedestrian corridor from rail station to the Queensland Tennis Centre although increased local traffic movements would detract from the pedestrian amenity</td>
</tr>
<tr>
<td>• local street pattern reflects existing grid in surrounding areas</td>
<td>• realigned King Arthur Terrace intersection and relocated south. May be undesirable due to restricted sight lines for northbound traffic on Fairfield Road</td>
<td>• King Arthur Terrace straightens from existing intersection enabling greater redevelopment opportunities south of King Arthur Terrace</td>
</tr>
<tr>
<td>• road connection within commercial precinct connects back to relocated Mooney Street to prevent u-turn on the King Arthur Terrace intersection (undesirable for service vehicles)</td>
<td>• road connection around the commercial and mixed use precinct connects back to a relocated Mooney Street to prevent the need for a u-turn on the King Arthur Terrace intersection (undesirable for service vehicles).</td>
<td>• partial closure and re-development of King Arthur Terrace to restrict set-down or turning for buses during major events. Tennyson Reach residents would have less direct access</td>
</tr>
<tr>
<td>• roundabout configuration on the main east-west road allows tennis centre parking to be accessed from this new road.</td>
<td>• new east-west road provides direct route and may require significant traffic treatments to deter rat-running</td>
<td>• concern that partial closure of King Arthur Terrace would force traffic through the heart of the TOD civic centre, compromising the enjoyment of the public space</td>
</tr>
</tbody>
</table>

【Diagram】

**Legend:**
- Retail / mixed-use
- Commercial / mixed-use
- 6-9 Storey residential / mixed-use
- 4-6 Storey residential / mixed-use
- Low-medium residential
- Low-medium residential (early release site)
- Community facilities and heritage listed buildings
- Plaza / public space
- Open space / parkland
### Urban quality and open space

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<td>- central pedestrian spine separated from vehicle movement, creating a relaxed and safe atmosphere</td>
<td>- co-location of the central pedestrian spine alongside the main east-west road creates a more active space with improved CPTED as a result of passing traffic</td>
<td>- co-location of the central pedestrian spine alongside the main east-west road creates a more active space with improved crime prevention through environmental design (CPTED) as a result of passing traffic</td>
</tr>
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<td>- development intensity spread across the site, with taller buildings to south and south-west corner and predominantly low-rise development in the centre of the site</td>
<td>- Greatest development intensity in the centre of the site</td>
<td>- extensive open space surrounding heritage buildings likely to result in a largely unused and unactivated space</td>
</tr>
<tr>
<td>- six to nine storey development along Fairfield Road requires high-quality architectural excellence to present well to surrounding areas</td>
<td>- area for possible future Queensland Tennis Centre expansion located adjacent to the rail corridor. Has little cohesion with the rest of the tennis centre facilities</td>
<td>- six to nine storey development along Fairfield Road requires high-quality architectural excellence to present well to surrounding areas</td>
</tr>
<tr>
<td>- area for possible future tennis centre expansion split into two sections. The facilities encroach into the central open space as a result of the predominantly low-scale of development in this scenario</td>
<td>- the location for the Queensland Tennis Centre expansion does not take advantage of the views offered on this elevated land and also limits potential for buffering of noise that would be provided by taller buildings</td>
<td>- the size of the civic square at the entry to the new pedestrian overpass is expansive and likely to result in a largely unused space.</td>
</tr>
<tr>
<td>- the recreational function of the central open space will be dominated by stormwater and drainage elements and infrastructure</td>
<td>- the size of the civic square at the entry to the new pedestrian overpass is expansive, and likely to result in a largely unused space.</td>
<td></td>
</tr>
<tr>
<td>- the civic square at the entry to the new pedestrian overpass is framed by commercial uses on either side.</td>
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Scenario one

- Large quantum of low-rise residential development including a greater area of low-rise residential to the north of King Arthur Terrace. Limited offering of medium- to high-rise residential sites
- Decreased open space area compared to other scenarios as a result of the overall lower intensity of development
- Commercial activities are grouped around the intersection of King Arthur Terrace and the new north-south main street with some additional activities along the eastern boundary
- The realignment of King Arthur Terrace in this scenario offers fewer commercial development opportunities
- No opportunity for indoor sports centre
- Area for possible future Queensland Tennis Centre expansion spread into two sections, thereby exposing a greater number of residences to noise from tennis activities.

Scenario two

- Higher proportion of medium- to high-rise residential uses, particularly focused towards the centre of the site
- Opportunity for additional community uses around heritage building A if retained
- Opportunity for indoor sports near the Queensland Tennis Centre, subject to funding opportunities
- The tennis courts to southern alignment occupy land that has greater development potential
- Commercial activities are grouped around the King Arthur Terrace intersection with the new main street.

Scenario three

- Realignment of King Arthur Terrace offers greater opportunities for commercial development
- Greatest intensity of development along southern boundary provides a buffer to noise and takes advantage of views towards the south and north
- Provides space for a range of community uses
- Opportunity for housing development, possibly aged care or affordable housing, associated with heritage building block A if retained
- Opportunity for indoor sports located near the Queensland Tennis Centre, subject to funding
- Consolidated grouping of tennis courts is more efficient and better suited to tennis centre functions
- Low-lying land to north of King Arthur Terrace used for park and stormwater management
- Opportunity for up to 15 storeys in strategic locations
- The location of possible future tennis courts in this scenario minimises the number of dwellings affected by noise from these activities.
### Scenario one
- Heritage-listed buildings retained where possible and reused to accommodate community facilities. The size of spaces around these buildings encourages a greater level of activity and vibrancy than a larger space.

### Scenario two
- Heritage-listed buildings retained where possible and reused to accommodate community facilities. The size of spaces around these buildings create more active and vibrant spaces. The location of the key east-west road through this precinct will increase traffic movements which will influence the feel of these spaces.

### Scenario three
- Heritage-listed buildings retained where possible and reused to accommodate community facilities. The size of spaces around these buildings create more active and vibrant spaces. The location of the key east-west road through this precinct will increase traffic movements which will influence the feel of these spaces.

### Stormwater
- Stormwater infrastructure and civil and roadworks are considerable overhead costs regardless of site layouts.
- Stormwater solutions are not likely to vary significantly between the scenarios.

### Cross River Rail
- Lower density residential forms and a limited amount of commercial floor space implied in this option fails to capitalise on opportunities delivered by the proposed Cross River Rail project and increased trip times and frequency to the CBD.
- The potential Cross River Rail station located within close proximity to the development will improve public transport options.
- The potential Cross River Rail station located within close proximity to the development will improve public transport options.
5. Concept plan of development

The vision and principles for the Yeerongpilly TOD outline what the TOD needs to achieve to make it a great place for people to live, work and play.

5.1 Vision
The Yeerongpilly TOD will deliver on the intent of the South East Queensland Regional Plan to:

- achieve a more compact urban form
- reduce car dependency
- create successful and desirable new places
- demonstrate TOD principles for urban renewal in other areas.

5.2 Principles
The Yeerongpilly TOD will demonstrate how a place can:

- encourage walking and cycling through improved infrastructure and connections to the surrounding community
- be well connected to public transport to encourage its use
- give priority to pedestrians and cyclists while accommodating vehicles
- be a safe and welcoming place to call home for a variety of lifestyles, ages and backgrounds
- provide a wide range of high-quality, sustainable housing options
- integrate with its setting, including the surrounding community, Brisbane River and the Queensland Tennis Centre
- respect its history while embracing its future
- encourage sustainable living (environmental, social and economic)
- incorporate a vibrant hub with a mix of uses including well-designed retail, commercial, community, residential and recreational facilities
- provide high-quality public places including parks and plazas for the community to enjoy
- incorporate high-quality and sustainable development that takes advantage of views, responds to the sub-tropical climate and minimises noise impacts
- have a strong sense of community while integrating with surrounding communities
- be an attractive development and investment proposition.
5.3 Key design principles

An integrated place
An east-west open space and civic spine forms a central focus for community activities in the Yeerongpilly TOD. It creates a strong link of activity and high amenity with a pedestrian rather than vehicle focus from Fairfield Road near the station to the Queensland Tennis Centre and the river. Where the pedestrian corridor crosses King Arthur Terrace, a broad pedestrian crossing point is provided to connect to the river at a small riverside park and acts as a slowing device to deter through-traffic.

The spine incorporates the pedestrian overbridge, the identified heritage buildings and their curtilage and allows the integration of community facilities. The open space acts as stormwater management and treatment before entering the Brisbane River.

There is opportunity to provide for future expansion of the Queensland Tennis Centre in the south-east corner of the site.

A heart for the community
The commercial active heart of the Yeerongpilly TOD is located on a north-south ‘Main Street’. This axis crosses between the heritage buildings and helps integrate them into the centre of the TOD precinct.

King Arthur Terrace is straightened from the current intersection with Fairfield Road in order to create a more direct route to the ‘Main Street’ and creates more appropriate shaped parcels for development. This design feature enables the centre to serve the local and broader community.

There are two small green spaces at either end of the ‘Main Street’. The northern space is on low ground, assisting with stormwater detention and treatment. The space to the south could be used as a community garden and provides an outlook for the buildings in the southern precinct of the TOD.

Local streets allow direct access to the centre, and strong east-west and north-south pedestrian movements connect to Tennyson Reach, land east of the Yeerongpilly railway station and Stevens Street precinct north of Cook Street.

Intensity of development
A number of housing types are proposed in a range of development forms and densities from 2 to 12 storeys to encourage a diverse community. Dwelling types include row houses and low-rise apartments as well as higher density apartments.

Low-rise development is proposed north of King Arthur Terrace as a transition to the existing development to the north and adjacent to the central green spaces to create a more human scaled interface. A zone of medium intensity development from four to nine storeys is located along the north-south ‘Main Street’, south of King Arthur Terrace and extending towards Fairfield Road and the Queensland Tennis Centre.

The highest buildings (up to 12 storeys) are located at the southern boundary of the site taking advantage of excellent north-facing views across the development to the river, Indooroopilly golf course, University of Queensland and city.

Sustainable design
The street network of the Yeerongpilly TOD is aligned, where possible, on east-west axes. This allows a significant number of building forms to be oriented to the north for optimal passive solar and subtropical design, with shorter sides of the building exposed to the east and west.

Buildings that have less ideal orientation to define north-south streets, deal with sun-shading in their facade design.
Yeerongpilly railway station

Brisbane River

Artist impression—aerial perspective

Artist impression—showing possible streetscape treatment along pedestrian corridor
### 5.4 Summary of Concept Plan of Development

1. The shopping precinct is convenient to Fairfield Road and has pedestrian access linking the Yeerongpilly railway station and the Queensland Tennis Centre, making it accessible to the local community. The shopping precinct incorporates a mix of uses including offices, shops and apartments.

2. The new “Main Street”, a lively shopping and dining precinct, extends from King Arthur Terrace through the centre of the site and connects to the Queensland Tennis Centre.

3. Realignment of King Arthur Terrace improves access to the Yeerongpilly TOD site. Traffic lights to be considered for King Arthur Terrace to improve pedestrian crossings and manage traffic flow.

4. Low-rise (2 to 3 storey) apartments and townhouses provide a mix of housing options overlooking open spaces and providing a transition to established residential suburbs.

5. Relocation of Mooney Street accommodates local traffic and improves access for residents. The park between Stevens and Paragon Streets will remain with the existing path providing connectivity for pedestrians and cyclists.

6. Evaluation of heritage-listed buildings for potential community facilities and other uses.

7. Direct, safe and clear pedestrian pathways connect the Yeerongpilly railway station and Queensland Tennis Centre as well as public plazas, community facilities and open spaces.

8. Commercial and retail development located in close proximity to the railway station providing activity around the public plaza.

9. Extensive parkland accommodates a range of recreational activities, stormwater retention and treatment areas to manage local flooding.

10. A pedestrian pathway connects the open space with the river, through a shared zone on King Arthur Terrace.

11. Attractive and safe local streets provide access to new development for pedestrians, cyclists and vehicles.

12. Medium-rise (4 to 9 storey) mixed-use residential developments provide a gradual transition between the high-rise development in the south of the site and the low-rise development to the north. Building heights step down towards the north, maximising views of the parkland and river and limiting potential overshadowing.

13. High-rise (9 to 12 storey) mixed-use residential development located in the south of the site facing north away from the railway corridor and taking advantage of parkland and river views. Buildings designed to minimise impacts of noise, dust and vibration from nearby transport routes.

14. Opportunity for possible future pedestrian connections to the area south of Tennyson Memorial Avenue.

15. Opportunity for possible future expansion of the Queensland Tennis Centre.

16. The proposed Cross River Rail Station.

17. Fairfield Road pedestrian overpass currently under construction.
5.5 Land use
The Yeerongpilly TOD will incorporate a mix of uses, creating a vibrant community in which people can live, work and play.

Commercial uses such as offices, shops and cafes are located close to Fairfield Road and King Arthur Terrace. This location ensures they will receive maximum exposure for their business and will help mitigate the impact of vehicle trips on residents of the Yeerongpilly TOD.

These uses will line the new north-south main street creating a central business precinct for the community, enlivening and activating the street. Commercial activities will also occupy the civic square at the entry to the pedestrian overpass activating this important public space and providing a sense of entry to the precinct.

A range of residential dwelling types, sizes and price points will be offered in the Yeerongpilly TOD, delivering a wide range of housing options to suit a variety of lifestyles. An extensive area of low-medium density residential in the north of the site and adjacent to the central open space will offer a mix of townhouse style and low-rise apartments. These building forms provide a transition from surrounding established residential neighbourhoods to more intensively developed parts of the TOD.

The southern part of the site offers opportunities for medium to high-rise residential apartments that transition in height from 4 to 12 storeys. Taller buildings along the southern boundary of the TOD site will provide a buffer to rail noise and will take advantage of the higher elevation with extensive views towards the north, over the central open space and towards the river, as well as to the south over the Indooroopilly Golf Course.

The residential and mixed-use area in the southern parts of the site will provide flexibility to offer opportunities for either residential living or commercial uses such as offices, depending upon market-demand in the medium-term.

Community uses are generally located in the heart of the Yeerongpilly TOD. This ensures they are conveniently accessible and elevated, providing a legible focal point on the central pedestrian corridor. The retention and reuse of heritage-listed buildings for community facilities is being investigated. A mix of community uses and commercial activities will help activate the central spine between the Yeerongpilly railway station and the Queensland Tennis Centre.

The central open space is a key feature of the Yeerongpilly TOD and provides a pleasant outlook for both Tennyson Reach and Yeerongpilly TOD residents. While providing a range of informal recreation activities, it also plays a role in integrated water cycle management. The open space is accessible and bounded on all sides by pedestrian and cycle routes. The central open space also forms a transition to the Queensland Tennis Centre to the west.

5.6 Getting around
The Yeerongpilly TOD will be easily accessible through a range of transport modes, particularly public transport, walking and cycling. The local road network will provide attractive and safe paths for pedestrians and cyclists as well as accommodating cars.

Public transport
The Yeerongpilly TOD is well connected to public transport. The Yeerongpilly railway station is located within 500 metres walking distance of the entire site. The proposed Cross River Rail project will provide significantly improved public transport services.

Local buses run along Fairfield Road.

Extension of the CityCat service past the University of Queensland has been investigated previously and is not considered viable for a number of reasons. In particular the travel times and capacity of the CityCat would not offer a level of service that would be comparable with existing bus and rail options.

Additionally this area is environmentally sensitive and is used for numerous recreational water sports including rowing, waterskiing, sailing and kayaking.

Pedestrian and cycle network
New streets will be designed to give pedestrians and cyclists ample space and facilities to encourage walking and cycling throughout the TOD. Connections to the surrounding communities will be improved and enhanced over time.

The pedestrian and cycle paths through the precinct from east to west will provide excellent connectivity from the Yeerongpilly railway station to the Queensland Tennis Centre.

A strong and efficient network encourages active transport and assists in creating a safe environment for users.

Vehicular network
King Arthur Terrace is proposed to be realigned to create a clearer street network in the precinct and to provide a higher level of performance in the morning peak flow period, with measures to control speed and safety. Overall there is a need to maintain this road as part of the traffic network in the area and to allow suitable access to and from the Queensland Tennis Centre from both the east and west. It is expected that as new development generates its own traffic, the route will become less attractive to external users as a short cut.

Measures proposed to control speed and reduce attractiveness to rat-runners including:
- signalised intersections within the TOD precinct
- raised platforms
- narrowing of the existing carriageway
- increased landscaping to present a more boulevard feel
- pedestrian crossing to link open space with the river.

The intersection of King Arthur Terrace and Fairfield Road will be maintained in its current location. Opportunities to relocate the intersection further to the south were investigated but are restricted by the sightlines associated with the elevation of Fairfield Road further south.

Mooney Street is proposed to be relocated to alleviate existing queuing due to the close proximity of this street to the Fairfield Road and King Arthur Terrace intersection. It could be relocated to align with the existing unnamed road between Ortlive and Paragon Streets to:
- achieve a sufficient distance from the Fairfield Road intersection
- create practical development parcels with a secondary road access, appropriately distanced to encourage safe traffic flow
- avoid offset intersections which are unsafe and undesirable
- improve access for local residents of these two streets.

There are no plans to extend Stevens Street south from the north as the existing cycleway provides appropriate access for pedestrians and cyclists and does not allow vehicular access.
Tallest buildings located to south enables barrier to rail and road noise.

Graduation of building height enables views to north and sun.

Access to mid-block open space.

Medium density buildings around ‘Main Street’.

Low rise buildings to open space.

Casual surveillance to central pedestrian corridor.

East–west street maximise opportunity for buildings oriented for passive solar exposure.

Views to North.
5.7 Built form

In all urban centres, built form not only helps define the sense of place, it also establishes the quality of the public space and the experience for residents and visitors. Built form is determined by a combination of building height, building setbacks and building composition. Greater detail on built form will be included in the Final Plan of Development, however at this stage, the principles of built form aim to deliver the following:

- taller buildings to the south and east (6 to 12 storeys) to mitigate noise from outside and within the site. Design of buildings will incorporate acoustic treatments to provide amenity for residents
- a graduation of building heights, from 2 to 12 storeys to provide an appropriate transition from existing residential areas to a more intense form
- a range of building heights and residential types (apartments, terraces, small lot houses) to ensure a mix of population intensity and a range of housing options within a five minute walk to the station to suit people from all lifestyles
- a mix of taller and shorter buildings to facilitate maximum access to views, breezes and sunlight
- landmark buildings of exceptional architectural design to mark the importance of the site as a destination within the local community
- taller buildings to reinforce the importance of the Yeerongpilly railway station and highlight the pedestrian path to the Queensland Tennis Centre and provide a complementary scale to the Tennyson Reach development
- building design to provide a sense of energy and activity in the main streets and the central formal public open space
- building setbacks to reinforce key views within the site to assist with navigating the area.

An analysis of the shadow profiles of the proposed building heights to the south and east of the site is demonstrated here. This analysis indicates that the tall buildings on the south-east boundaries won't cast shadows during prime daylight hours over residential properties on the south-east side of the rail corridor.
5.8 Open space and public realm

The Concept Plan of Development identifies approximately 80,000 square metres or 56 per cent of the available land at the Yeerongpilly TOD for public space, including parkland.

The Concept Plan of Development provides a variety of public spaces (open green space, formal public space and informal semi-public space), with good Crime Prevention Through Environmental Design (CPTED) outcomes by providing view corridors, opportunities for casual surveillance and activities that have extended hours around public open space.

The opportunity for a community garden has been put forward by the community as a way for residents to connect with nature and one another. The existing topography has been well considered, locating community facilities and formal open space on elevated land at the centre of the site with open space in low level areas serving a dual water management function.

An easy to navigate street network has been introduced to give a clear structure and legibility to the public realm and clear connection to the surrounding neighbourhoods.

The key focus for the public realm is the pedestrian corridor that connects the Yeerongpilly railway station to the Queensland Tennis Centre through a series of public spaces.

The landing point of the new pedestrian overpass to the Yeerongpilly railway station is treated as a paved civic square surrounded by commercial office buildings to the north and south.

The heritage-listed building block A offers opportunities for a new community facilities precinct that will serve the Yeerongpilly TOD and surrounding community. The open space in front of this building has the potential to become a town square as a focus for the community.

The largest parkland areas are the central open space area in the low-lying part of the site which will be approximately 15,000 square metres and the open space fronting the river of approximately 5,000 square metres. King Arthur Terrace will be improved to facilitate pedestrian movement between these two spaces.

A new open space is proposed on Ortive Street. This area is low-lying and will provide a water management function. A dog off-leash park may also be considered in this location.

Green corridors provide pedestrian and cycle links between residential towers in the southern part of the site.

5.9 Acoustics

Development of the Yeerongpilly TOD will manage the following acoustical impacts:

- train traffic noise from the adjacent rail line
- road traffic noise from Fairfield Road
- train traffic noise from the rail line on the far side of Fairfield Road
- operation of the adjacent tennis facilities
- operation of future commercial premises onsite.

The Concept Plan of Development provides an overall structure and design capacity to manage these issues. The placement of taller buildings (up to 12 storeys) along the southern boundary facing away from the rail line will provide noise reduction from rail traffic further into the site, as the buildings act as acoustic barriers. The orientation of buildings is conducive to locating balconies and openings to face north, thereby reducing required acoustic treatments and taking advantage of solar access and views.

With some detailed design, this plan makes it possible to avoid the need for mechanical ventilation if the eastern and western ends of the buildings extended out further than the balcony edges, thereby creating wing walls that cut the line of sight to end apartments. This will allow occupants to leave doors or windows open to facilitate natural ventilation.

A similar built form treatment can also be used with non-residential uses to manage the traffic and train noise from Fairfield Road to the east.

The Concept Plan of Development provides a consolidated area for the possible future expansion of the Queensland Tennis Centre. This reduces the potential number of apartments adjacent to tennis facilities. Similarly, the commercial uses are also generally grouped together in the north-eastern portion of the site adjacent to Fairfield Road. This layout helps reduce the interface between commercial and residential uses, managing the operational impacts on residences.

5.10 Waterways and hydraulics

Integrated water cycle management is incorporated into the Concept Plan of Development.

Within the context of the site, stormwater comprises two main components:

1. rainfall-runoff generated within the site or upstream catchments following a storm
2. Brisbane River floodwater.

Stormwater management of rainfall runoff for the Yeerongpilly TOD will require safe conveyance of stormwater through the development and appropriate discharge to Brisbane River, manage site runoff to meet the Department of Environment and Resource Management water quality objectives for the Brisbane River and minimise disruption of public use of open space during and following stormwater runoff events.

Site stormwater management will be undertaken following Integrated Water Cycle Management principles. By implementing these principles, stormwater runoff quality will be managed by a series of complementary management actions in a sequential treatment train. These fall into the following three broad categories:

1. Urban design elements—layouts are designed to take into account the topography of the land, soil types and aspect to enhance visual and recreational amenity. It aims to retain and, where possible, rehabilitate natural flow paths and wetlands, minimise directly connected impermeable areas and provide opportunities for runoff storage and infiltration to preserve surface and ground water conditions.

2. Source controls—involve management of runoff at the individual allotment level. Appropriate measures for the TOD include grassed filter strips, grassed swales (grassed stormwater channels), bio-retention basins and bio-infiltration trenches.

3. Conveyance and end-of-line controls—purposefully constructed measures that may be used to manage the quantity and quality of runoff as it flows towards the point of discharge (north-east adjacent to King Arthur Terrace). These will be built into the design of parks and open spaces such as grassed and vegetated filter strips, grassed swales, bio-retention basins and trenches, wetlands, extended water management basins, gross pollutant traps and litter baskets.

Stormwater management of river flooding will:

1. ensure that development does not result in an increase in flood level on upstream, downstream or adjacent properties
2. provide acceptable flood immunity for all development areas
3. ensure road access is provided at an acceptable level of flood immunity.

The location and configuration of the Yeerongpilly site means there are no significant constraints on potential flood level impacts. Changes in flood storage capacity as a result of the development will have a negligible impact on flooding for nearby properties as a result of the relatively small direct catchment area and lack of immediate downstream properties.
6. Sustainability approach

The Queensland Government and Brisbane City Council have been working with the local community and sustainability experts to ensure that all development will meet the highest standards for environmentally sustainable design.

6.1 General approach

A key focus of the Yeerongpilly TOD is to facilitate access by residents, workers and visitors and maximise use of sustainable transport options. Accessing a transit-rich environment has the potential to reduce personal energy demand and minimise the overall environmental impact for new and existing local residents.

Emphasis is placed on a holistic approach for sustainability implementation strategies. The design strategies of the Yeerongpilly TOD have three aims:

1. Achieve sustainability goals at the precinct scale, for example community connectivity, focus on public transport and good Crime Prevention Through Environmental Design (CPTED).
2. Provide a framework where individual developments can achieve sustainability goals, for example developing optimal block shape, size and orientation to facilitate good passive design in buildings that will exist on the blocks.
3. Enable individuals to adopt a range of environmentally sustainable lifestyle options.

Within the Yeerongpilly TOD, individual buildings will be required to comply with the SPRP which will facilitate a graduated increase in delivery levels of sustainability over time. Building performance will be benchmarked to improve on a national compliance level such as the Building Code of Australia.

6.2 Sustainability initiatives

The following initiatives are suggested for the Yeerongpilly TOD in order to achieve sustainability outcomes for the site:

- Energy targets for all buildings will be specified. Targets will be developed according to greenhouse gas emissions; providing flexibility with how targets are achieved through energy efficiency and renewable energy strategies.
- Provision of a site-wide stormwater retention and re-use system, which all developments will be required to integrate with by providing a specified amount of storage capacity. Proposed re-use of water for uses that do not require potable water. This would be supplied through a dual-plumbing scheme throughout the development.
- Re-vegetation and re-creation of a wetland area that would integrate with the proposed stormwater retention basin. This would also contribute to the primary public open space, provide outlooks to green space for a large number of dwellings on site and could be used by existing residents of the Tennyson Reach development.
- Provision of shared parking facilities and facilities for recharging electric vehicles within each development, or as shared facilities.
- Stringent water efficiency measures combined with water re-use strategies, will create world-leading development water efficiency strategies.
- It is proposed that all buildings would be required to contain an element of shared garden within their lot. It is further proposed that all buildings would be required to facilitate green waste recycling which could be used on the community gardens.

The following initiatives are under consideration and may be implemented dependant on practicability and cost-effectiveness:

- On-site sewage treatment is considered. However this is considered difficult to manage and expensive to install and maintain, as a result of the relatively high densities of residential development. Load equalisation on sewer mains will be managed to avoid unnecessary pipe sizing.
- On-site renewable energy production could be encouraged through mandatory energy targets. Alternatively it could be left up to the market to determine whether on-site energy production will be pursued.
- On-site generation and co-generation of heat, cool and power—potential will be explored at a precinct-wide level and encouraged at the individual building level. A wind turbine on site will be pursued and rationalised for inclusion.
7. Next steps

The Queensland Government and Brisbane City Council have been working with the local community to prepare the Yeerongpilly TOD Concept Plan of Development. Community feedback is being sought on the Concept Plan of Development. This feedback will play a vital role in shaping the Yeerongpilly TOD Final Plan of Development. For further information on community feedback visit www.dip.qld.gov.au/tod-yeerongpilly.