This Structure Plan has been prepared by the City of Stirling, with the assistance of the Department of Planning, Department of Transport, Department of Housing and Landcorp.

The diverse and passionate Mirrabooka community has also helped us shape the design of this Structure Plan through workshops, detailed interviews and surveys.
Legal

Certified that this Structure Plan was adopted by resolution of the Western Australian Planning Commission on

____________________  ← Western Australian Planning Commission resolution date

Signed for and on behalf of the Western Australian Planning Commission

____________________  ← Western Australian Planning Commission signature

An officer of the Commission duly authorised by the Commission pursuant to Clause 16 of the Planning and Development Act 2005, for that purpose, in the presence of:

____________________  ← Witness  __________________  ← Date

and by resolution of the Council of the City of Stirling on

____________________  ← City of Stirling resolution date

and pursuant to the Council’s resolution hereunto affixed in the presence of:

____________________  ← Mayor of the City of Stirling  __________________  ← Chief Executive Officer of the City of Stirling  ___________  ← Date

This Structure Plan is prepared under the provisions of the City of Stirling Local Planning Scheme
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Figure 01 — Regional context aerial of Mirrabooka Town Centre
Executive Summary

The Mirrabooka Town Centre provides a substantial opportunity for redevelopment. This structure plan will foster the centre to grow in a co-ordinated manner, responding to the unique attributes of the place in a way that respects the aspirations of the local community.

Mirrabooka Town Centre and its surrounds are characterised by typical suburban development of the 1960’s and 70’s and are representative of many of metropolitan Perth’s middle-ring suburbs. Mirrabooka has been an important service centre for the rapidly developing and changing central northern corridor, however, changes in public policy and community expectations mean that it is no longer appropriate to proceed in the same way. Low intensity, poor street presence and car dependence are characteristics of Mirrabooka Town Centre and many other similarly aged suburban centres, throughout the metropolitan area. The Western Australian Planning Commission’s State Planning Policy 4.2 Activity Centres for Perth and Peel seeks to change this, however, the delivery of such change within this existing suburban setting presents a significant challenge for the government agencies and the private sector.

State Planning Policy 4.2 seeks to develop integrated centres with a diversity of uses which facilitate the provision of local employment and sustainable transport.

The Structure Plan will guide the assessment of land use and development of all private and public land within the Structure Plan area shown on Figure 02.

Mirrabooka Town Centre Structure Plan vision:

“To create a centre with a diverse range of uses, which is attractive, safe and is a focus for the region’s shopping and service needs.”

The Structure Plan will facilitate the redevelopment of the Mirrabooka Town Centre as a Mixed Use precinct, incorporating higher density residential dwellings and additional office and commercial facilities. The redevelopment of the Mirrabooka Town Centre will be characterised by the introduction of rapid public transport, which will act as a catalyst for land use change and built form transformation. The Mirrabooka Town Centre represents one of the major infill development areas within the City of Stirling and redevelopment will have a strong focus on maintaining and strengthening the employment offering within the area.

What is a Structure Plan and why prepare one for Mirrabooka?

A Structure Plan is a legal town plan, which sets out land uses, street networks and building design regulations for an area. It will sit inside the City of Stirling’s Local Planning Scheme. This Structure Plan relates to Mirrabooka Town Centre (the area which includes the shopping centre and the bus station).

We’ve prepared a new Structure Plan for Mirrabooka because the area needs it. The current plan is out of date, and does not reflect the development or public infrastructure needs for the area into the future.
## Item

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Executive Summary (continued)

The Planning Process

The Mirrabooka Town Centre Structure Plan is to be adopted by the City of Stirling under Part 6A of Local Planning Scheme No. 3 and is the primary statutory document regulating land use permissibility applicable to the subject area.

Any development proposed within the Mirrabooka Town Centre Structure Plan area is to be compliant with the built form standards and development requirements outlined within the Mirrabooka Town Centre Detailed Area Plan.

Local Planning Policies adopted under the Local Planning Scheme No. 3 may be applicable to the subject area where they do not conflict with the provisions contained within this Detailed Area Plan. In the event of an inconsistency between this Detailed Area Plan and the provisions of a Local Planning Policy, the provisions of this Detailed Area Plan will prevail to the extent of the inconsistency. The planning process is illustrated in Figure 03.

Structure Plan Development

The Mirrabooka Town Centre Structure Plan has come into fruition as a result of a number of work packages which were undertaken by various consultants. The work packages (illustrated in Figure 04) provided vital information to develop a structure plan which has an understanding of the current environment, while allowing the opportunity to plan for future development as a result of economic and social growth.

Figure 03 — Statutory Planning Process Diagram
Community Infrastructure Plan
Purpose: To ensure the timley provision of community facilities to meet the needs of the community.

Employment Strategy
Purpose: Determines the future employment numbers by industry type for Mirrabooka Town Centre.

Retail Needs Assessment
Purpose: Considers the retail needs of the surrounding population as well as the potential economic impacts of the Structure Plan.

Utility Infrastructure Plan
Purpose: Analyses of the current infrastructure (Drainage, sewerage, power and gas) that is available to the Town Centre and determines the necessary requirements to accommodate future development.

Town Centre Urban Design Strategy
Purpose: Provides an economically sustainable vision for the centre which informs the Structure Plan, Detailed Area Plan and new and existing park designs.

Movement Network and Parking Management Urban Design Strategy
Purpose: Provides a design solution which integrates the movement network with the land use and built form outcomes required for the centre.

Local Water Management Strategy
Purpose: Assesses the current water infrastructure of the Town Centre and determines the future needs to accommodate future development and design of new roads and parks.
Part 1
Statutory section
The Structure Plan

1.1 Structure Plan Area

The Mirrabooka Town Centre is generally bound by Mirrabooka Avenue, Yirrigan Drive, Northwood Drive and Reid Highway. Boundaries for the structure plan have been cognisant of the major physical and land use characteristics with and surrounding the centre, as illustrated in Figure 05.

1.2 Structure of this Report

The Mirrabooka Town Centre Structure Plan has been prepared in accordance with the relevant Scheme, State Planning Policy 4.2 Activity Centres for Perth and Peel and the Western Australian Planning Commission’s Structure Plan Preparation Guidelines (August 2012), and comprises two parts, as follows:

Part 1 Statutory section

This section outlines all provisions and standards which have statutory effect, including the structure plan map

Part 2 Non-statutory (explanatory) section

Contains relevant, contextual information to support the preparation, interpretation and implementation of the structure plan

Technical appendices

Contains the movement network assessment, infrastructure and service assessment and local water management strategy.

1.3 Interpretation and Scheme Relationship

The terms used in the structure plan have the respective meanings given to them in the City of Stirling Local Planning Scheme No. 3, or where not defined in the local planning scheme, as set out below.

A provision or requirement of the structure plan shall be given the same force and effect as a provision or requirements of the City of Stirling Local Planning Scheme No.3.

Pursuant to clause 6A.12.2 of the Scheme:

1. The provisions, standards and requirements specified under Part 1 of this Structure Plan shall have the same force and effect as if they were a provision, standard or requirement of the Scheme.
2. Any other provisions, standards or requirements of Part 1 of the Structure Plan that are not otherwise contained in the Scheme shall apply to the subject area as though they are incorporated into the Scheme, and shall be binding and enforceable to the same extent as if part of the Scheme.
3. Part 2 of this Structure Plan and the Appendices – Technical Reports are to be used as a reference only to clarify and guide interpretation and implementation of Part 1.

1.4 Relationship to Residential Design Codes

In accordance with Section 5 of the City of Stirling Local Planning Scheme No.3, the Residential Design Codes apply to all existing developed residential areas within the Structure Plan area.

The Mirrabooka Town Centre Detailed Area Plan identifies which clauses of the Residential Design Codes apply to individual areas.

The residential density code for residential development in the non-residential sectors shall be RAC0.
Figure 05 — Mirrabooka Town Centre Structure Plan boundary.
The Structure Plan (continued)

1.5 Operation

This Structure Plan comes into effect on the date adopted by the Western Australian Planning Commission pursuant to Clause 6A.12.1 of the Scheme and the requirements of State Planning Policy 4.2 – Activity Centres for Perth and Peel.

1.6 Development Requirements

1.6.1 Mirrabooka Town Centre Detailed Area Plan

Any development proposed within the Structure Plan area is to be compliant with the built form standards and development requirements outlined within the Mirrabooka Town Centre Detailed Area Plan, approved for the subject area under Clause 6A.16 of Local Planning Scheme No. 3.

1.7 Land Use Sectors

The Structure Plan area is classified into the sectors shown on the Structure Plan map (Figure 06).

The objectives of each of the sectors are as follows, and are intended to provide the context for development within the respective sectors.

1.7.1 Business

- To provide for a limited range of small-scale commercial development which is compatible with residential development.
- To provide for a range of housing types compatible with a mixed use environment.

1.7.2 Mixed Business

- To facilitate a development mix of showrooms, office and service industry of a higher aesthetic quality located on major traffic routes.
- To provide for a range of housing types compatible with a mixed use environment.
- To ensure that traffic management, road safety, site access, onsite parking, building design and streetscape appearance are not compromised.

1.7.3 Mixed Use

- To provide for a wide variety of active commercial uses on the street level that contribute to a vibrant and active street which are compatible with residential and other non active uses on upper levels.

1.7.4 Regional Centre

- To provide for a full range of shopping, office, administrative, social, recreation, entertainment and community services, consistent with the region-serving role of the centre.
- To facilitate the creation of employment within the centre so as to reduce the demand for travel, and enhance the level of self-sufficiency within the sub-region.
- To promote a high degree of accessibility to and within the centre, for users of all modes of transport (bus, rail, private car, cycle and pedestrian) and to avoid fragmentation of commercial development.
- To enhance pedestrian connectivity within the centre, so as to facilitate movement between sites and from public and private transport nodes.

1.7.5 Residential

- To provide for residential development at a range of densities with a variety of housing type and size, to meet the current and future needs of the community.
- To provide for a range of non-residential uses, which are compatible with and complementary to residential development.
1.7.6 Civic

- To provide for a limited range of community facilities which are compatible with surrounding development.
- To ensure that the design of development is in keeping with the scale and form of surrounding development.

LEGEND

- Residential
- Business
- Civic
- Mixed Business
- Mixed Use
- Parks and Recreation
- Regional Centre
- Public use (Transport)
- Primary Regional Road Reservation
- Local Road Reserve
- Proposed Local Road Reserve
- Existing roads

Figure 06 — Mirrabooka Structure Plan
The Structure Plan (continued)

1.8 Land Use Permissibility Table

The permissibility of individual land use classifications within the sectors delineated on Figure 06 are outlined within the Permissibility Table below. The symbols used in the cross reference in Figure 07 are defined under clause 4.3.2 of Local Planning Scheme No. 3, and the uses referenced are defined within 1.7 of Local Planning Scheme No. 3.

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<th>Civic</th>
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<td>Motor Vehicle, Boat or Caravan Sales</td>
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<td>D</td>
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<td>Night Club</td>
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<td>P</td>
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Note: 1. Multiple dwellings are not permitted in areas coded R35 or below
2. Not permitted on the ground floor fronting the street greater than 10m in width

Figure 07 — Land use permissibility table
2.1 Mandatory Residential

Where new buildings over 3 storeys are proposed, as identified in Figure 8, 20% of the gross floor area shall be for residential uses on the subject lot;

Where any new buildings are proposed, as indicated in Figure 8, 50% of gross floor area shall be for residential uses on the subject lot.

The residential development shall generally be located in the area as shown in Figure 8 to achieve surveillance of public roads.

Any development approval granted within these mandatory residential areas will be subject to a condition requiring the delivery of the mandatory residential component as identified in this clause prior to the occupation of the remaining parts of the building.
2.2 Expansion of Existing Shopping Centre

For Lots 500 Yirrigan Drive and 507 Sudbury Road, Mirrabooka the following shall apply.

a) For every 2500m² of additional shop (NLA) above the 47,100m² (existing NLA in 2014) the following additional development must already exist or be undertaken together with the additional shop development:

i) 0.2m² of floor space (NLA) other than shop use that is not fronting a public street.

ii) the first 1,000m² of floor space (NLA) required under clause 2.2a1 being provided on land that fronts Sudbury Road and the Town Square with a nil setback to the street.

iii) Other future floor space required under clause 2.2 a) i) being provided on land that fronts Sudbury Road, the Town Square, Chesterfiled Road, Farrier Road or Yirrigan Drive with a nil setback to the street.

b) A minimum of 1,411m² of open space will be sought for purchase by the City on lot 507 adjacent to the existing Town Square for expansion of the Town Square.

2.3 Public Open Space

Any new Parks and Recreation areas shall be ceded free of cost to the City of Stirling for the purpose of public open space as indicated in Figure 6.

2.4 Public Road Connections

Local Road Reserve
Land for Local Road Reserves shall be ceded to the City free of cost and constructed to a standard to the satisfaction of the City free of cost as identified in Figure 52.

Proposed Local road reserve
Land for Proposed Local Road Reserves shall be ceded to the City free of cost and constructed to a standard to the satisfaction of the City free of cost as identified in Figure 52. Notwithstanding this the exact location of the proposed Local Road Reserve may be altered subject to approval from the City.

2.5 Dwelling Diversity

Within the ‘Mixed Use’, ‘Regional Centre’, ‘Mixed Business’ and ‘Residential’ sectors, any new development with a residential component of more than 10 Multiple Dwellings is required to incorporate a minimum of 10% of single bedroom dwellings constructed on site.
2.6 Vehicle parking

2.6.1 Parking for Non-residential development

Parking is to be in accordance with the relevant Local Planning Parking Policy and part 6.8 of Local Planning Scheme No. 3.

2.6.2 Parking for Residential development

Parking shall be in accordance with the Residential Design Codes

2.7 Noise Mitigation

The development of mixed land uses within the Structure Plan area may be subject to a requirement for a noise assessment prior to planning approval being granted. The consideration of existing noise generating activities within proximity to a proposed development may necessitate conditions of planning approval being imposed, including but not limited to:

- Requirements for noise attenuation measures to be incorporated in construction; and
- Notifications being placed on the certificate of title to ensure future landowners are informed.
2.8 ‘Shop’ Use Limitations

In the “Mixed Use” sector, where a “shop” use is discretionary, the Net Leasable Area of a shop shall be limited to 150m² per tenancy, except on those sites highlighted in the “shopping core area” as identified in Figure 9.
Part 2
Explanatory section
1.1 Introduction and purpose

This non-statutory (explanatory) section constitutes Part 2 of the proposed Structure Plan for the Mirrabooka Town Centre. The Structure Plan has been prepared for the centre to fulfil requirements of State Planning Policy 4.2 and the City of Stirling Local Planning Scheme Number 3. The Structure Plan provides a framework for future Detailed Area Plans and development applications.

The Structure Plan will be used by the Western Australian Planning Commission, the Department of Planning, City of Stirling, State Government agencies, landowners and the local community to inform further detailed planning and provide certainty about future development in Mirrabooka Town Centre.

1.2 Mirrabooka Town Centre vision

To create a centre with a diverse range of uses, which is attractive, safe and is a focus for the region’s shopping and service needs.

1.3 Purpose and objectives of the Structure Plan

1. To facilitate development of a safe, vibrant, mixed use town centre based on sustainable design principles, integrated with public transport.
2. Greater use of the Mirrabooka public transport facilities through increased density of both residential and non residential uses.
3. The development of a diverse range of housing types.
4. The development of a variety of public open space areas.
5. The development of a range of non residential uses that contribute to economic development, local employment, and viability of the Town Centre and wider City of Stirling, including better integration of education facilities with the public transport network.
6. Enhance and better articulate the range of facilities that relate to the needs of the community.
7. The development of a permeable transport network through the provision of additional road connections and making best use of planned and existing transport infrastructure.
8. Introduce a developer contributions regime to fund key infrastructure.
9. The development of a main street.
10. High quality private and public spaces and buildings that contribute towards a sense of place.
11. Guide the redevelopment opportunities of Mirrabooka Square Shopping Centre area to interact with the Town Centre main streets.
12. Reassess parking requirements for the Mirrabooka Town Centre area, as a transit supportive activity centre.
1.4 Background

Planning for Mirrabooka Town Centre has an extensive history. First developed in the 1960’s and 1970’s primarily by the State Housing Commission (currently the Department of Housing), a number of planning initiatives have been undertaken over the last decade to address ongoing issues associated with:

• The underutilisation of land;
• Poor urban design outcomes;
• Perceived and actual safety issues; and,
• Under-performance of the centre against activity centre key performance indicators, such as housing and employment diversity, access and connectivity.

1.4.1 Mirrabooka Town Centre timeline

- 1960’s - 1980’s — Development of land primarily by the Department of Housing
- 2001 — Mirrabooka Enquiry by Design
- 2002 — Mirrabooka Regional Centre Improvement Strategy
- 2004 — Mirrabooka Regional Centre Design Theme and Guidelines
- 2006 — Draft Outline Development Plan
- 2007 — Draft Parking Management Plan
- 2008–10 — Draft structure plan (not completed)
- 2010 — City of Stirling completes Local Area Plan for Mirrabooka; and City of Stirling / State Government Memorandum of Understanding established to facilitate the following key works:
  • Mirrabooka Bus Station upgrade (completed)
  • Construction of the Sudbury Place/Ikeston Place ‘Main Street’ connection (completed)
  • Construction of a new town square (completed)
  • Subdivision of the Northwood Precinct for residential development (completed)
  • Construction of the Milldale Way ‘Main Street’ connection between Sudbury Place and Chesterfield Way (estimated construction FY2014/15)
  • Creation of new mixed use development sites adjacent to the new ‘Main Street’ connections (estimated construction FY2014/15)
- 2012 — State Government announces intention to develop a light rail line to connect to Mirrabooka (estimated construction commencement 2022)
- 2013 — Current — City of Stirling / State Government agencies commence Structure Planning for the centre
1.5 Community consultation

The preparation of the Mirrabooka Town Centre Structure Plan has been facilitated as a collaborative process involving relevant stakeholders from the initial stages including the City of Stirling, LandCorp and the Departments of Planning, Transport and Housing.

Community consultation has occurred with a wide range of stakeholders during the course of the Structure Plan's development, including:

1.5.1 Visioning workshop (July 2013)

The Visioning Workshop successfully integrated the comments and feedback of landowners, residents, business owners and key government authorities to establish an overall vision and objectives for the development of the Mirrabooka Town Centre Structure Plan area. The Workshop promoted a shared understanding of the context and ‘drivers’ for development, the community and stakeholder aspirations/challenges and opportunities for mutual assistance in achieving development outcomes.

The outcomes of the visioning workshop were considered by the project working group and assisted in detailed design.

1.5.2 Community infrastructure needs workshop (February 2014)

This workshop was designed to seek feedback on current provision and conceptual placement of future community infrastructure for the Mirrabooka Activity Centre Structure Plan area.

Furthermore, it was important to understand what the community groups and organisations would like to see in Mirrabooka, and how these various groups can assist in the implementation phase of the Structure Plan.

1.5.3 Precinct design workshop (March 2014)

The precinct design workshop provided an opportunity to canvass the community on three design options for the Mirrabooka town centre and obtain feedback from community stakeholders on their acceptance and/or concerns.

The outcomes of this workshop were considered by the project working group and assisted in refining a consolidated design which best represented the views of the community.

1.5.4 Community leaders interviews

The project working group undertook interviews with various community leaders, including:

• WA Police – Sergeant Don Emanuel Smith;
• Ishar Women’s Health Centre – Andrea Creado;
• North Metropolitan Migrant Resource Centre – Eric Imani;
• Department of Sport and Recreation - Melissa Rudez (Inclusion Officer for Culturally and Linguistically Diverse groups);
• The Smith Family - Linda Parsons; and,
• Edmund Rice Centre – Stephen Bowman.

These interviews were organised with the intention of gaining a greater understanding of the needs and issues of the various cultural and community groups within the centre.

1.5.5 Community Open Day (May 2004)

The preferred land use option was displayed along with relevant detail of public open space, town square and detailed streetscapes. This provided an opportunity to offer the community more information regarding the structure plan in order to receive their feedback and comments. The feedback resulted in some changes being made to the plan.
Figure 10 — Artist impression of possible redevelopment outcome of Mirrabooka Town Centre - view along Sudbury Road
Local and regional context

2.1 Land description and location

The Mirrabooka Town Centre study area measures approximately 83.0 hectares in area. The area is bound by Reid Highway to the north, Mirrabooka Avenue to the west, Yirrigan Drive to the south, and Northwood Drive to the east.

Boundaries for the Structure Plan have been cognisant of the major physical and land use characteristics with and surrounding the centre.

The Structure Plan area is located approximately 10km north of the Perth Central Business District and 7km east of the coast.

Polytechnic West Balga, Bushforever site 385 and John Septimus Roe High School are all located to the north of the centre and Reid Highway.
Figure 12 — Regional context map
Current condition

3.1 Site context

3.1.1 Area and land use

The current land use plan is illustrated in Figure 13. The current mixture of land uses are represented as:

- Recreation and public open space;
- Leisure and entertainment;
- Civic, government, health and education;
- Retail, commercial and hospitality;
- Public transport;
- Residential; and
- Vacant Land.

3.1.2 Public realm and open space

Two major recreation and leisure facilities which are located within the study area are the Herb Graham Recreation Centre and the WA State Softball Headquarters. Existing public open space provision is located between the Library, Bus Station and Mirrabooka Shopping Centre. Existing public open space and recreation provisions has been illustrated in Figure 13.

The public open space connecting the Bus station and library is to be removed to allow for the construction of the new ‘Main Street’ by extending Milldale Way, east to Sudbury Road.

3.1.3 Residential

Low density residential with an R20 coding is located to the north east corner of the study area. A mixture of R40 – R80 is being implemented adjacent to the Herb Graham Recreational Centre and to the east of the Mirrabooka Shopping Centre. Provision for additional R60 – R80 has been made within the City of Stirling Local Planning Scheme No. 3. (Local Planning Scheme Map No. 7).

Mirrabooka Town Centre is largely characterised by recently constructed unit and town house style development providing affordable housing options and additional community housing options for singles. Residential development in the areas abutting the Structure Plan area are largely single detached dwellings on small to medium sized lots. The average block size is 600m², though lots of up to 890m² can be found. Much of the area has been developed, however there are still a small number of vacant lots remaining in the eastern sector of the suburb. Houses are predominantly of brick and tile construction and are generally single storey.

3.1.4 Retail and commercial

The Mirrabooka Town Centre contains a relatively diverse mix surrounding the main Mirrabooka Square Shopping Centre, including a large tavern, medical and professional suites (i.e. physiotherapists, financial services etc.). Each of these businesses are located in separate buildings or in smaller tenancies separated from the Shopping Centre with no clear pedestrian connection between them. The diversity target for the centre is already at 65%.

3.1.3 Residential
Recreation, leisure and entertainment
Retail, commercial and hospitality
Public transport
Residential
Vacant land
Civic, government, health and education

Figure 13 — Current land use map
3.1.5 Ownership

The Centre represents a mix of private and government (both state and local) agency ownership.

The Department of Housing remain a major government stakeholder retaining several undeveloped landholdings within the Centre. Other key landowners include the City of Stirling, and the Public Transport Authority who own the land on which the bus transfer station and associated bus way are located.

Another significant land owner is the Crown which owns a number of existing reserves within the Centre, in particular the central parkland. The Government owned landholdings have strategic importance in implementing the recommendations of the Centre's Improvement Strategy. Additionally, there are a number of other private landowners, who are considered to have strategic importance in revitalising the Centre such as the Perron Group as owners of the Mirrabooka Square Shopping Centre.
Current condition (continued)

3.2 Movement network

3.2.1 Strategic road hierarchy

Reid Highway

- Reserved as a Primary Regional Road under the Metropolitan Development Scheme;
- Primary Distributor and designated freight route;
- Carries approximately 40,000 vehicles per day east of Mirrabooka Avenue;
- Is a four-lane divided road with controlled access only and no frontage activity.

Mirrabooka Avenue

- District Distributor A;
- Carries approximately 24,300 vehicles per day north of Yirrigan Drive;
- Is a four-lane divided road with turning lanes at intersections and a 60 kph speed limit;
- Has residential frontage access on western kerb, and restricted commercial frontage access on eastern kerb.

Yirrigan Drive

- District Distributor B;
- Carries approximately 21,000 vehicles per day east of Mirrabooka Avenue;
- Is a four-lane divided road with turning lanes at main intersections;
- Provides access to the shopping centre, fast food and service station to the north, but no direct access to the residential area to the south.

Northwood Drive

- District Distributor B;
- Carries approximately 11,000 vehicles per day north of Chesterfield Road;
- Is a two-lane divided road that narrows to a single carriageway as it bridges over Reid Highway;
- Has give-way controlled intersections at Yirrigan Drive and Chesterfield Road.
- With the exception of commercial development at the intersection of Yirrigan Drive, development turns its back on the road.

Chesterfield Road

- Local Distributor that provides access to the various land uses within the Mirrabooka Town Centre;
- Carries approximately 10,000 vehicles per day north of Yirrigan Drive;
- Has access to commercial land use parking areas along its entire length.

Farrier Road

- Approximately 10m wide local road;
- Carries approximately 6,000 vehicles per day;
- Services the shopping centre and the commercial area between Farrier Road and Northwood Drive;
- Has a give-way intersection at Yirrigan Drive and a roundabout at the intersection of Chesterfield Road.
- There is a significant level difference between Farrier Road and the Mirrabooka Shopping Centre land to the west.

Northwood Drive

- District Distributor B;
- Carries approximately 11,000 vehicles per day north of Chesterfield Road;
- Is a two-lane divided road that narrows to a single carriageway as it bridges over Reid Highway;
- Has give-way controlled intersections at Yirrigan Drive and Chesterfield Road.
- With the exception of commercial development at the intersection of Yirrigan Drive, development turns its back on the road.

Milldale Way

- Two-lane divided road, with two 5m lanes and a 3m median;
- Carries approximately 5,000 vehicles per day;
- The proposed Milldale Way extension will connect Chesterfield Way with Sudbury Road by creating a new ‘Main Street’ environment.

Sudbury Road

- Connects Yirrigan Drive to Chesterfield Road in a local slow speed environment;
- Provides access to commercial premises, offices and the Mirrabooka Bus Station
- On-street parking accommodated along Sudbury Road, to the north of the Town Square.

1 City of Stirling Traffic Surveys (2010-2012)
Primary distributor and designated freight route
District distributor A
District distributor B
Local distributor road
Local road
Proposed new road
Left-in left-out intersection
Signalised intersection
Give way intersection
Roundabout

Figure 15 — Current strategic road hierarchy network
3.2.2 Bus

Mirrabooka Bus Station is located in the town centre — one of the busiest bus stations in the metropolitan area, catering for most bus routes connecting with the corridor. The bus facility was upgraded (works finished in 2011) and includes 12 bus stands that accommodate service numbers: 67, 68, 354, 365, 370, 371, 372, 375, 376, 377, 378, 379, 415, 870, and 888.

The majority of the routes operate at a peak hour frequency of lower than 20 minutes in the AM and PM peak hours. The weekend frequencies are lower with the majority operating with a 60 minute frequency.
3.2.3 Walking

The pedestrian environment is considered harsh on and around Reid Highway, Mirrabooka Avenue and Yirrigan Drive. These roads do however accommodate pedestrian footpaths on both sides. Walking within the centre is easier, although safety, poor levels of activation and comfort are well known issues within the community.

3.2.4 Cycling

The current cycle network is shown in Figure 15 illustrates that there are shared cycle paths on Mirrabooka Avenue, Yirrigan Drive and Northwood Drive and bicycle lanes on Reid Highway. There is a lack of formal cycle facilities in Mirrabooka Town Centre.
3.2.5 Car parking

There are approximately 4,200 car parking spaces in the town centre (not including residential parking). Of these, almost 50% are attached to the Mirrabooka Square Shopping Centre. All off-street parking is nominally allocated to a particular land use / building, rather than being designated public parking.

The locations of the retail, commercial and recreational car parking areas are shown in Figure 18. This illustrates that there is a significant amount of car parking located in and around the central core of the town centre.

Requirements for parking in the Mirrabooka Town Centre are outlined in the City of Stirling Policy Manual, Section 6.7 Parking and Access. This policy nominates the required ratio of parking spaces that must be provided for a particular size and type of development. The nominated ratios are generally similar to those adopted by other local government authorities. However, the City of Stirling also offers the following potential discounts (only those relevant to the study area are provided here), up to a total 65% maximum variation:

- 20% reduction if the proposed development is within 400m walking distance of a rail station (10% reduction if within 800m)
- 15% reduction if the proposed development is within 200m walking distance of a high frequency bus stop or bus station (10% reduction if within 400m)
- 20% reduction if the proposed development is within 50m walking distance of an existing public car parking area (currently none provided in the study area) (10% reduction if within 400m)
- 5% reduction if the proposed development is to provide 5 bicycle parking bays greater than required. 10% reduction where the additional 5 bays are provided and end of trip facilities are provided
- 10% reduction if the proposed development is in a Local Centre, District Centre, Regional Centre, Mixed Use or Business Zone (Mirrabooka is a Regional Centre)

On this basis, any development within 400m of the Mirrabooka Bus Station (with includes most of the study area except those precincts adjacent to Northwood Drive) may be entitled to a reduction of at least 20% (for proximity to bus station, and location within a Regional Centre), with a further reduction if enhanced bicycle parking provision is made. It is expected that the MAX light rail station would trigger the same reduction as a ‘rail station’, therefore most development in Mirrabooka would be entitled to the full 35% allowable reduction.

The Parking Policy also allows for consideration of the use of reciprocal parking arrangements, beyond the 65% maximum variation otherwise allowed. Parking spaces can be shared by various uses, where the demand for parking associated with each use will not overlap so that the capacity of the available parking is not reduced.
Figure 18 — Current car parking within Mirrabooka Town Centre
Community infrastructure

4.1 Current infrastructure

Mirrabooka and its surrounding suburbs have historically been a desirable place for new migrants to settle. Also, there are many indigenous people who live in the area and have contributed to its growth over time.

As a result there are now a number of well-established non profit organisations and government agencies running support services for these groups from buildings in the Centre. Their activities attract migrant and indigenous people with an interest to connect with others in their community, as well as providing much needed services to settle into the common aspect to living in a modern Perth.

As with most culturally diverse areas within large cities there are many opportunities and challenges to be explored if Mirrabooka is to become a vibrant and healthy centre that reflects its people.

There are a range of public and private community service providers currently located within the Mirrabooka Town Centre, including:

- Herb Graham Recreation Complex
- Childcare facilities
- Western Australia Softball Centre
- Medical consultancies;
- Mirrabooka Library
- Squash courts
- Police Station
- Health club / gymnasium
- Various job search agencies
- Christian Church

- State Government Health, Family and Community Service outlets
- Various culturally and linguistically diverse assistance centres such as but not limited to Edmund Rice Centre, North Metro Migrant Resource Centre and Ishar Women's Centre

The Mirrabooka Square Shopping Centre is a major retail component of the centre with additional large format retail/ commercial and hospitality land uses being concentrated in the south west and south east corner of the study area. These areas are predominantly accessible by car and gain exposure through strong visibility from Yirrigan Drive and Mirrabooka Avenue.

Other retail/commercial offerings include a large tavern, medical and professional suites (i.e. physiotherapists, financial services etc.). These businesses are located in separate buildings or in smaller tenancies however, separated from the Shopping Centre with no clear pedestrian connection between them.

The Mirrabooka Town Centre is also well serviced by road and road based public transportation infrastructure. The configuration of the Centre however, and its location in proximity to major highways has resulted in a high dependence on motor vehicles to access uses across the site, further contributing to the lack of integration and connection within the Centre.

The bus transfer station itself is another key piece of community infrastructure, being one of the major bus stations in Perth.
Figure 19 — Current community infrastructure
Opportunities and constraints

5.1 Key challenges

- Poor pedestrian and cycle network;
- Lack of diverse and accessible public open space;
- Poor connectivity into the centre across major roads;
- Underutilised land;
- Lack of diverse retail, social and commercial offerings;
- Poor image and perceived social problems;
- Poor commercial performance;
- Safety and security concerns by the local community;
- Lack of passive surveillance over the centre;
- The centre is currently dominated by at grade car parking provisions; and,
- The existing pedestrian network is of varying quality and fragmented by physical barriers.
5.2 Key Aspirations

- To meet the activity centre’s level of community need and enable employment, goods and services to be accessed efficiently and equitably by the community;
- To create a wide range of retail and commercial uses that promote a competitive retail and commercial market;
- To create a vibrant well activated ‘Main Street’ precinct;
- To increase the density and diversity of housing within the town centre to improve land efficiency, and housing variety;
- To maximise access to and through the town centre with an emphasis on walkability and integrated public transport initiatives;
- To create a fine grained network of high quality public open space that is safe, well lit and with enhanced passive surveillance; and,
- To reinforce the character and sense of place for Mirrabooka and create a sense of community pride.
Strategic planning framework

State Planning Strategy
The State Planning Strategy provides the broad strategic direction for Western Australia.

Statement of Planning Policy
Includes the State Planning Framework (SPP No.1) and key sectoral policies (SPP No.2 - 6) which further articulate the broad themes set out in the State Planning policy.

Directions 2031
The highest level metropolitan spatial framework and strategic plan, it guides planning policy to accommodate and manage population growth within Perth and Peel to 2031 and beyond.

Metropolitan Sub-regional Strategies
Provides guidance at sub-regional level for delivering the objectives of Directions 2031 and how to achieve the housing and employment targets.

Sub-regional Structure Plans
Typically informed by the sub-regional strategies and provide comprehensive planning guidance on a sub-regional level for the short, medium and long term.

Figure 28 — Strategic planning context

City of Stirling
Local Planning Strategy

Local Planning Scheme No.3

Mirrabooka Town Centre Structure Plan
Northern view of Mirrabooka Shopping Centre
6.1 Strategic planning

6.1.1 Directions 2031

Directions 2031 and Beyond - Metropolitan Planning Strategy for Perth and Peel is the State’s primary strategic blueprint for the future growth of the capital city and surrounds. Directions 2031 sets the course for Perth to become a more sustainable, liveable and prosperous city over the next two decades, by encouraging:

- Intensified and infill residential development to support the additional 750,000 people expected to call the metropolitan area home by 2031;
- Growth and diversification of activity centres to adequately meet the population, employment, and service needs;
- More efficient use and investment in transport and services infrastructure;
- Protection of its significant environmental assets; and
- Social capital and enterprise.

A key platform of Directions 2031 is the encouragement of alternative forms of development than that typically found in Perth. For many decades, accommodating the growing population has largely been fostered in low density housing on the urban fringe. The strategy recognises that continuation of this sprawl is not a sustainable model for development, and contains a key target that 47 per cent of new dwellings be accommodated within the existing urban environment\(^1\). Activity centres will play a critical role in achieving this target.

For more information on Directions 2031 and Beyond, download a copy at www.planning.wa.gov.au

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\(^1\) Department of Planning (2010), Directions 2031 and Beyond-Metropolitan Strategy for Perth and Peel
6.1.2 State Planning Policy 4.2 – Activity Centres for Perth and Peel

In 2010, the Western Australian Planning Commission adopted State Planning Policy 4.2 – Activity Centres for Perth and Peel, (SPP4.2) to guide the future development of activity centres in the metropolitan area. SPP4.2 identifies the hierarchy of activity centres as well as detailing their desirable form and function, and requirements for the preparation of structure plans.

Under the policy, Mirrabooka is defined as a secondary centre which is to perform the following functions:

Secondary centres share similar characteristics with strategic metropolitan centres but serve smaller catchments and offer a more limited range of services, facilities and employment opportunities. They perform an important role in the city’s economy, and provide essential services for their catchment.

Importantly, SPP4.2 supports the evolution of centres away from a typical homogenous retail base, to better serve the needs of existing and future communities through a more diverse mix of commercial, employment and residential activities. This structure plan has been prepared to be consistent with the intent and requirements for secondary activity centres under the State Planning Policy.

For more information on SPP 4.2, download a copy at www.planning.wa.gov.au

1 Department of Planning (2010), State Planning Policy 4.2 – Activity Centre Planning for Perth and Peel
On behalf of the Western Australian Planning Commission, the Department of Planning is currently preparing the Spatial Plan for Urban Consolidation to set out the next level of detail to Directions 2031 for future infill development. The Plan identifies boundaries for infill growth areas, whilst balancing these outcomes with the need to maintain the character of existing inner urban areas. Growth areas have been nominated based on the following criteria:

- Activity centres
- Activity corridors
- Urban corridors
- Transit precincts
- Potential redevelopment areas
- Green corridors

The draft Spatial Plan is expected to be released for public comment during 2015. Mirrabooka Town Centre is identified within the plan as a future growth area, given its activity centre status and its role as a major transit interchange.
6.1.4 Draft Public Transport Plan for Perth in 2031

Released in 2011, the draft Public Transport Plan for Perth in 2031 outlined a vision and program for public transport investment and infrastructure to align with the growth expected as a result of Directions 2031 initiatives. The strategy identified a range of heavy rail and bus network improvements to cater for the rapid rise in public transport demand and provide a sound alternative to car travel. The Plan found that between 2001 and 2011, public transport usage in Perth increased by 67 per cent - three times the rate of population growth over the same period.1

A key initiative of the strategy is the introduction of a new tier of public transport to Perth in the form of light rail. In the first stage, light rail will connect Mirrabooka with the Perth central business district, before continuing on to the QEII Medical Centre and the Victoria Park transfer station. Implementation of light rail will contribute to a fundamental shift in the way people access (and move within) Perth in the coming years.

It offers a high-capacity, high-frequency and prioritised public transport option for those living and working in the central northern corridor and the CBD. The Strategy identifies longer term extensions to the system to connect with Subiaco, Glendalough, Stirling City Centre, the University of Western Australia and Curtin University.

Unlike some other forms of transport, light rail also has the capacity to significantly influence the urban environment. Its ability to integrate into the existing urban area, permanence and contribution to improving access and connectivity can be a catalyst for both regeneration and new development.

For more information on the draft Public Transport for Perth in 2031 plan, download a copy at www.transport.wa.gov.au

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1 Department of Transport (2011), Draft Public Transport for Perth in 2031
6.1.5 Metro Area Express (MAX) light rail

Stage one of the light rail, known as MAX, is scheduled to commence construction in 2019 and be operational in 2022 and will include both the central northern corridor and east-west Central Business District legs (refer Figure 29).

6.1.6 Planning for MAX light rail

The draft MAX Planning Framework has been prepared to outline a consolidated vision for achieving integrated transport and land use outcomes across the 22km stage one route.

The Framework has been prepared in conjunction with the seven statutory authorities through which the light rail passes to:

- Establish a consistent and cohesive planning approach across the network;
- Set corridor-wide principles, objectives and approaches for land use, urban design and transport integration;
- Benchmark the social, economic and development position of land adjacent to the MAX system;
- Test and make recommendations on feasible future land use scenarios to achieve intensification and diversity within activity centres and links along the route;
- Identify and define stop area types to guide more detailed design exercises for light rail infrastructure and the adjacent urban area;
- Understand the current context and future opportunities or improvements required for the proposed light rail stop areas and guide more detailed planning where necessary; and
- Establish steps for implementation.

The Framework focusses on the 800m catchment of each future light rail stop and proposes areas for development intensification, as well as strategic transport connections requiring further consideration to improve the relationship between light rail and the surrounding community.

The release of the MAX Planning Framework for public advertisement has been deferred in accordance with the deferral of the MAX project.
6.1.7 Planning for MAX in Mirrabooka

With the implementation of MAX, Mirrabooka will be served by a light rail stop co-located with the Mirrabooka Bus Station on Sudbury Place. MAX will provide the primary public transport option between Mirrabooka and the Perth Central Business District, with bus services in the surrounding areas oriented towards and/or terminating at Mirrabooka Bus Station to allow for the interchange with light rail services.

The Draft MAX Planning Framework has grouped light rail stops based on aspirational characteristics for land use mix and levels of intensity expected within the 800m catchment of the stops over time. Mirrabooka has been identified as a Suburban Centre stop type, as is illustrated in Figure 32.

Opportunities for land use change over time have been classified in three ways:

Opportunity sites – areas with short to medium term development potential, which are generally less constrained. These sites are predominantly located within close proximity to stops.

Investigation areas – intensified development may occur over time but constraints are likely to make these areas longer term proposals. Further planning consideration is required to address the specific issues affecting their redevelopment potential. These cells are largely situated a short distance from the stop.

Peripheral growth – acknowledges the existing urban conditions, but recognises that latent development potential may already exist under current R-Codes or that minor development may occur over time up to an R30 coding. These areas are largely located in the balance of the light rail catchment.

Opportunity sites and investigation areas are allocated a level of intensity (low, medium or high) which directly relates to the relevant stop area type. This is illustrated in Figure 33.

A range of filters to determine the suitability and likelihood of areas for change have been used including the age of building stock; heritage and character areas; lot size; land tenure and locational factors. Local knowledge and input from local government has been an essential component of this assessment.

This methodology was applied to forecast the dwelling, population and job numbers for the Mirrabooka locality, and is outlined in Figure 31.

<table>
<thead>
<tr>
<th>Stop area</th>
<th>SUB-Urban Centre</th>
</tr>
</thead>
<tbody>
<tr>
<td>D2031 activity centre match</td>
<td>Secondary centre</td>
</tr>
<tr>
<td>D2031 activity centre typology matches</td>
<td>Shopping Centre</td>
</tr>
<tr>
<td>Max Station location</td>
<td>Mirrabooka</td>
</tr>
<tr>
<td>Additional land uses</td>
<td></td>
</tr>
<tr>
<td>Major component</td>
<td></td>
</tr>
<tr>
<td>Moderate component</td>
<td></td>
</tr>
<tr>
<td>Minor component</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stop area</th>
<th>Indicative building intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>High intensity</td>
<td></td>
</tr>
<tr>
<td>Medium intensity</td>
<td></td>
</tr>
<tr>
<td>Low intensity</td>
<td></td>
</tr>
</tbody>
</table>

Figure 31 — High level development capacity for Mirrabooka Source: MacroPlan Dimasi

Figure 32 — Mirrabooka station type characteristics
Opportunity Area
- Low intensity
- Medium intensity
- High intensity

Investigation Site
- Low intensity
- Medium intensity
- High intensity

Figure 33 — Proposed land intensity around MAX route in Mirrabooka
6.1.8 City of Stirling – Draft Local Planning Strategy

The City of Stirling has submitted a draft Local Planning Strategy to the Western Australian Planning Commission for consent to advertise, which sets out the future vision for the local government area and key issues and growth patterns to be addressed over time.

Although most aspects of the draft strategy apply to guiding future planning and development of the Mirrabooka Town Centre, there are a few key objectives and issues responses that are considered particularly pertinent, which are outlined in Figure 34.

Within the draft strategy, Mirrabooka is identified as a Growth Area, with the potential to yield an additional 1,300 dwellings (assuming 85% take up rate) to meet Directions 2031 local government dwelling targets. These yields pre-date the additional dwelling yield analysis undertaken as part of the development of the MAX Planning Framework (as outlined in Section 6.1.7).

The following key recommendations are made specifically in relation to Mirrabooka Secondary Centre:

- A shift from a development pattern currently characterised by clusters of similar land use types to a more diverse and intense mix of uses.
- Enabling a significant increase in housing opportunities within the Centre (providing more housing diversity than is currently provided by the predominantly single residential dwelling component).
- Providing appropriate locations for a wider range of businesses.
- Better integrating an upgraded bus station with the Centre to actualise effective transport/land use integration.
- Effective permeability through the Centre.
- Enabling greater employment within the Centre through an increased range of employment sectors.
- Supporting local and sub-regional economic self-sufficiency.

6.1.9 City of Stirling – Draft Local Commercial Strategy

A Local Commercial Strategy was prepared by the City of Stirling in August 2007, to assist in the implementation of the Metropolitan Centres Policy (2000), which has now been superseded by the Activity Centres Policy for Perth and Peel.

The Strategy recommended a hierarchy of centres for the council area as follows:

- Strategic Regional Centre — One such centres located at Stirling/Innaloo.
- Regional Centre — Two such centres, located at Karrinyup and Mirrabooka.
- District Centre — Seven designated centres, at Stirling Central, Scarborough, Northlands, Dianella, Dog Swamp, Beaufort Street and Mount Lawley.

Although recommended floorspace caps were provided for each for the centres, these caps no longer apply given the new State Planning Policy 4.23. For instance, the Mirrabooka Regional Centre was recommended for a maximum retail floorspace of 50,000 m², though additional ‘shop’ floorspace were permitted on a ‘Main Street’ above that limit.

6.1.10 City of Stirling – Draft Economic and Tourism Development Strategy

The 2013 Draft Economic and Tourism Development Strategy developed by the AEG Group, identifies Mirrabooka as a high priority focus for:

“retail product revitalisation and diversification”;
and,

“fresh food and retail street-side markets”.

The Strategy also identifies that Mirrabooka:

“...should be expanded to incorporate other activities so the retail centres become a destination in and of themselves. This could include for example, expanding areas to include food, beverage, cinema, arcade and/or bowling activities will create a location that promotes community engagement and interaction”.

Strategic planning framework (continued)
<table>
<thead>
<tr>
<th>Strategic objective</th>
<th>Key issue response</th>
</tr>
</thead>
</table>
| Living in or visiting our City should be a safe, comfortable and enjoyable experience | • Encourage development to adopt a main street style design approach to all scales of activity centres.  
• Ensure the future vitality of existing centres and provide for diversification of land uses within them.  
• Identify existing centres and their walkable catchments within the City and allow for the creation and growth of centres in under-represented areas.  
• Require development within activity centres to promote pedestrian accessibility, and support the need for public transport.  
• The City should address the needs of community members for high quality community facilities. |
7.1 Statutory Planning

7.1.1 Metropolitan Region Scheme

The Mirrabooka Town Centre is zoned ‘Urban’ under the Metropolitan Region Scheme (MRS), allowing for a range of residential, commercial, office and service industry based uses. The northern boundary of the town centre is bordered by the Reid Highway Primary Regional Roads reserve.

7.1.2 City of Stirling Local Planning Scheme No.3

Mirrabooka Town Centre currently comprises a mix of zones (refer to Figure 35), allowing for the following forms of development:

- Residential
- Regional centre
- Mixed business
- Development
- Mixed use
- Civic
- Business
- Local Reserve

7.1.3 Amendment 29

In 2013, the City of Stirling initiated Amendment 29 to the local planning scheme to expand the Development zone over the Mirrabooka Town Centre and include it as a Development Area under Schedule 10 of the Scheme. On 16 September 2014, the amendment was gazetted, giving statutory authority for the City’s adoption of a structure plan for the town centre, requiring development to be consistent with the provisions of that structure plan. The objectives for the Development Area are as below:

1. To facilitate development of a safe, vibrant, mixed use town centre based on sustainable design principles, integrated with public transport.
2. Greater use of the Mirrabooka public transport facilities through increased density of both residential and non-residential uses.
3. The development of a diverse range of housing types.
4. The development of a variety of public open space areas.
5. The development of a range of non-residential uses that contribute to economic development, local employment and viability of the Centre.
6. The development of a range of community facilities.
7. The development of a permeable transport network through the provision of additional road network connections.
8. Introduce a developer contributions regime to fund key infrastructure.
9. The development of a ‘Main Street’.
10. High quality private and public spaces and buildings that contribute towards a sense of place.

As the land use mix will be determined within the structure plan, future changes to zoning, height or density will take effect through modifications to the approved structure plan.

7.1.4 Mirrabooka Regional Centre Special Control Area

Clause 6.8 of the City of Stirling’s Local Planning Scheme 3, provides for the City of Stirling to adopt a structure plan for Mirrabooka Town Centre. The Scheme requires development and subdivision to be generally consistent with an approved structure plan for the centre, whilst also detailing parking requirements for reciprocal parking and reduction of required ratios.

7.1.5 Local Planning Policy 5.4 - Mirrabooka Regional Centre Design Guidelines

The policy controls density, height, setbacks and other design guidance relevant to manage the interface of new development with adjacent land uses and the streetscape. The policy has been effective for some years and was recently amended as an interim measure prior to the full provisions of the activity centre structure plan and associated detailed area plan being completed. It is envisaged that the policy will be replaced by the proposed detailed area plan.
Figure 35 — City of Stirling Local Planning Scheme No.3 existing zoning map
Existing site conditions

8.1 Natural environment

8.1.2 Landform and soils

As the site has already been considerably developed, there is little of the natural landform remaining. There are two man-made lakes located within the existing Pedestrian Access Way slightly west of the centre of the site. The north-west portion of the site has been cleared in the past and contains a small amount of regrowth. The site is predominantly underlain by pale and olive sands of the Tamala Limestone Formation.

The Mirrabooka Town Centre contains two topographic features of note, being an incline on the eastern portion of the site and a depression leading down to the lake. The incline begins at Yirrigan Drive and continues to Chesterfield Road where the land declines to approximately the same level as the remainder of the site. Although not natural, the second topographic feature is the water body adjacent to the bus station. The land was previously excavated to create a steep slope down to this feature. Other than these two features the site is mostly flat.

8.1.3 Groundwater and surface water

A review of the existing site characteristics and possible development impacts has confirmed that the site is not heavily constrained from a water perspective. The key existing groundwater and surface water characteristics are:

- It is estimated that there would be an increase in runoff of approximately 15 per cent within the development area due to a proportionate increase in impervious area.
- The Perth groundwater level within the structure plan area ranges between 23 and 24.5 AHD, or approximately 40 metres below ground level.
- The Structure Plan area is characterised by moderate to high soil permeability with limited groundwater influence, providing lots the opportunity to use soakwells with limited need for direct connection to the drainage system.
- There are currently four existing licences to extract groundwater at nine different draw points in the Structure Plan area.
- Groundwater salinity in the structure plan area is typically in the range of 0 to 500mg/L and is considered to be sufficiently good quality for irrigation of public and private open space without treatment.

8.1.4 Environmental constraints and site contamination

There is an existing fuel service station located on the corner of Farrier Road and Yirrigan Drive. This site will need to be remediated in accordance with DEC requirements if future redevelopment was to occur.

8.2 Heritage

8.2.1 European heritage

A search of The Heritage Council of Western Australia's database yielded no places of heritage significance.

The City of Stirling has identified three Heritage Protection Areas within its local government area being the Inglewood, Mount Lawley and Menora Heritage Protect Areas, none of which apply to the Mirrabooka Regional Centre.

In addition, the City of Stirling maintains a Municipal Inventory. There are no places of significance within the Mirrabooka Town Centre that appear on that register.

8.2.2 Indigenous heritage

A search of the Department of Indigenous Affairs Aboriginal Heritage Sites Register showed that sites of significance exist within a short distance of the Centre but nothing had been entered relating to the Centre itself.

To the best of the City’s knowledge however, the revitalisation of the Mirrabooka Regional Centre does not involve any heritage implications.
8.3 Services

This information is referenced from the Utility Infrastructure Plan which was undertaken by Jacobs SKM for the Mirrabooka Town Centre.

8.3.1 Communications

Existing Telstra telecommunications services are available within the vicinity of the site in the following locations:

- Along the northern side of Chesterfield Road;
- To every lot in the residential area between Livery Circle and Northwood Drive, and Northwood Drive and Farmer Road;
- Along the northern side of Yirrigan Drive; and,
- Along the western side of Mirrabooka Avenue.

Amcom telecommunications have optic fibre serving the shopping centre and other businesses with a requirement for a high speed broadband connection.

8.3.2 Electrical power

Western Power is the service authority responsible for providing electricity within the Structure Plan area. Electrical power services are currently available as follows:

- Existing 132KV high voltage overhead transmission lines run along the northern boundary of the area along Reid Highway; and,
- Existing high voltage single phase and 3 phase high voltage distribution lines lie within the study area.

There are currently Western Power substations located at Arkana and Malaga, approximately 1.4 and 2.9 kilometres from the Structure Plan area.

8.3.3 Gas

ACTO gas is the service authority for gas within the structure plan area. Existing gas infrastructure is available within the area and services every proposed block, except for those along Milldale Way and the proposed extension through to Ilkeston Place.

8.3.4 Water

The Structure Plan area is well serviced by water mains. The major trunk line is a 225mm diameter pipe, however it should be noted that some of the water reticulation pipes in the area are asbestos cement and are fragile and should not be exposed unnecessarily.

8.3.5 Sewage

Water Corporation is responsible for all sewer reticulation in Western Australia. The sewer main servicing the area is a D225 main running west to a pumping station approximately 200 metres west of Mirrabooka Avenue. This pumping station lifts the waste to a low gradient D300 main that continues west through the back of adjacent residential lots.

8.3.6 Drainage

Currently, each property is responsible for its own stormwater drainage, and this is primarily by soakwells.

A large drain carries all the stormwater collected in the Structure Plan area under Reid Highway and into a basin in the open space reserve to the north. Another smaller basin is located south of the area on the corner of Yirrigan Drive and Dianella Drive.
Demographic profile

9.1 Mirrabooka local community

The Structure Plan area for the Mirrabooka Town Centre is geographically small and has a residential population of approximately 1,900 persons living within the existing 661 dwellings.

Although future users of Mirrabooka will extend further afield than the immediate area, community profiles have been obtained for the most likely users of the centre – being those that fall within the 800 metre walkable catchment.

There are a number of conclusions that can be drawn from recent 2011 Census data which highlight the importance of serving these communities with suitable amenity and intensity.

9.1.1 Ageing population

- Large concentrations of elderly residents (80 years and older) significantly exceeding the metropolitan average of 3.4 per cent in Dianella (7.5 per cent) and Westminster (5.3 per cent).
- High concentrations of people aged 60 and above feature in the suburbs of Westminster (19.9 per cent), Dianella (25.4 per cent) compared to the metropolitan average (17.8 per cent).

9.1.2 Mobility issues

- On average nearly 9.56 per cent of households in the surrounding suburbs do not own motor vehicles, which is significantly higher than the metropolitan average of 6.2 per cent. While to some extent this may be by choice, it is likely that for some of the suburbs this correlates with the ageing population or the affordability issues of car ownership.
- Compared to the metropolitan average, the wider Mirrabooka locality already features a strong propensity for public transport as the preferred mode of transport for journeys to work. Public transport currently has an average mode share across the five surrounding suburbs of 8.64 per cent using a combination of bus and train services, compared to 6.4 per cent across the metropolitan area.
- All suburbs have a high level of bus use for journey to work (8.42 per cent) compared to the metropolitan average of 3.6 per cent. Particularly high levels of bus use are evident in Westminster (11.3 per cent) and Nollamara (9.9 per cent).
- This data suggests a strong level of community acceptance to use public transport as a preferred mode choice to work, which may continue to grow as public transport service levels become more competitive to private vehicle travel.

9.1.3 A transient community

- Mirrabooka and its surrounding suburbs exhibit a high degree of rental accommodation. This may indicate a number of factors, such as revealing potential hotspots of housing stress, areas of high student populations (i.e. Crawley) and demonstrating where some residents are choosing to rent in areas with high levels of amenity (land uses and accessibility) that may otherwise not be affordable to purchase.
- Significantly higher proportion of rental being Balga (44.5 per cent), Westminster (47.3 per cent), Nollamara (41.2 per cent) and Mirrabooka (34.2 per cent), are consistently higher than the metropolitan average of 27.6 per cent, with the exception of Dianella (20.5 per cent).

1 Australian Bureau of Statistics (2013), 2011 Census Community Profiles (various sources)
## 9.2 Mirrabooka wider community

As a secondary centre, Mirrabooka Town Centre has a broader regional catchment. To understand the needs of the catchment community and those most likely to visit the centre for their retail, recreational and service needs and to use the transport interchange, the locality considered has been extended to include the nearby suburbs of Mirrabooka, Balga, Dianella, Nollamara and Westminster.

With this in mind, Figure 36 compares the suburb profiles of Mirrabooka, Balga, Dianella, Nollamara and Westminster to provide a further understanding of the demographics of the entire Mirrabooka catchment area.

<table>
<thead>
<tr>
<th></th>
<th>Dianella</th>
<th>Nollamara</th>
<th>Balga</th>
<th>Westminster</th>
<th>Mirrabooka</th>
<th>Perth Metro</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>22,521</td>
<td>9,888</td>
<td>10,701</td>
<td>5,175</td>
<td>7,933</td>
<td>1,728,867</td>
</tr>
<tr>
<td></td>
<td>51.8% females</td>
<td>50.6% females</td>
<td>49.3% females</td>
<td>49.8% females</td>
<td>50.6% females</td>
<td>50.4 females</td>
</tr>
<tr>
<td></td>
<td>48.2 males</td>
<td>49.4% males</td>
<td>50.7% males</td>
<td>50.2% males</td>
<td>49.4% males</td>
<td>49.6 males</td>
</tr>
<tr>
<td>Median/average age</td>
<td>37 years of age</td>
<td>40 years of age</td>
<td>32 years of age</td>
<td>31 years of age</td>
<td>30 years of age</td>
<td>36 years of age</td>
</tr>
<tr>
<td>Ethnicity (top responses but not limited to)</td>
<td>56.3% - Australia</td>
<td>48.7% - Australia</td>
<td>49.1% - Australia</td>
<td>48.4% - Australia</td>
<td>43.5% - Australia</td>
<td>59.6% - Australia</td>
</tr>
<tr>
<td></td>
<td>0.6% - Aboriginal</td>
<td>2.6% - aboriginal</td>
<td>3.7% - Aboriginal</td>
<td>2.4% - Aboriginal</td>
<td>4.4% - Aboriginal</td>
<td>1.5% - Aboriginal</td>
</tr>
<tr>
<td></td>
<td>4.6% - England</td>
<td>3.9% - England</td>
<td>2.7% - Burma</td>
<td>3.3% - India</td>
<td>8% - Vietnam</td>
<td>11.4% - England</td>
</tr>
<tr>
<td></td>
<td>3.9% - South Africa</td>
<td>3.2% - India</td>
<td>2.6% - Sudan</td>
<td>2.8 - New Zealand</td>
<td>3.6% - Burma</td>
<td>1.7% - South Africa</td>
</tr>
<tr>
<td>Employment</td>
<td>59% employed full time, 26.5% part time, 4% unemployed</td>
<td>62.6% employed full time, 25.2% part time, 5.7% unemployed</td>
<td>58.7% employed full time, 26.5 part time, 8.5% unemployed</td>
<td>61.45% employed full time, 24.2% part time, 7.7% unemployed</td>
<td>54% employed full time, 29.6% part time, 8.3 unemployed</td>
<td>60.2% - employed fully time, 28.9% part time, 4.8% unemployed</td>
</tr>
<tr>
<td>Median income</td>
<td>Individual income - $618 per week</td>
<td>Individual income - $615 per week</td>
<td>Individual income - $490 per week</td>
<td>Individual income - $555 per week</td>
<td>Individual income - $399 per week</td>
<td>Individual income - $669</td>
</tr>
<tr>
<td>Home ownership</td>
<td>40.2% fully owned, 31.9% mortgaged, 24.1% rented</td>
<td>22.2% fully owned, 30.6% mortgaged, 44.4% rented</td>
<td>19.2% fully owned, 30.4% mortgaged, 46.2% rented</td>
<td>20% fully owned, 32.2% mortgaged, 43.4% rented</td>
<td>22% fully owned, 42.3% mortgaged, 30.3% rented</td>
<td>29.3% fully owned, 39.8% mortgaged, 27.6% rented</td>
</tr>
<tr>
<td>Median rent</td>
<td>$300 per week</td>
<td>$325 per week</td>
<td>$299 per week</td>
<td>$300 per week</td>
<td>$250 per week</td>
<td>$320 per week</td>
</tr>
</tbody>
</table>

Figure 36 — Suburb profile comparative table
Mirrabooka town centre structure plan

10.1 The Structure Plan

The Mirrabooka Town Centre area will grow and improve the opportunities it offers to local and regional populations. The area will embrace its secondary centre classification by:

• Introducing new public transport and road connections;
• Modernising the zonings on vacant and underutilised land;
• Introducing high quality public open space areas that fit the diverse urban setting;
• Referencing quality built form guidelines to complement zonings in the study area; and,
• Working with the City of Stirling Economic Development Area to facilitate high quality building, public space and place making opportunities.

Improving Mirrabooka Town Centre will take time and effort. The following principles should be supported by landowners, and the State and Local government in order to reach this vision:

• The current and proposed public transport infrastructure should support new development on vacant and underutilised. It must operate seamlessly with the land use intentions of the centre.
• High quality urban buildings and public spaces must meet the current and future needs in Mirrabooka, and reflect the diverse community that visits the place everyday
• Local businesses and non-profit organisations should be supported as the place transitions, by providing new opportunities to operate in the centre.
• Improve the relationship between the Mirrabooka Square Shopping Centre and the emerging ‘Lifestyle Street’ and transit interchange to the west.
• Encourage more people to live in Mirrabooka Town Centre, which would create better housing options for locals and a stronger sense of community within the centre.

The key elements of the proposed Mirrabooka Structure Plan are:

• Consolidation of lots into larger land use blocks which have the potential to be developed with an overall vision and into a finer grain fabric within.
• Additional road corridors to allow greater pedestrian and vehicular permeability through the site.
• Introduction of areas of Mixed Use and Mixed Business zoning to encourage higher density living in the Town Centre to activate business areas outside of work hours.
• Restructuring of public open space to create parks and civic space with defined functions and purpose within the town centre.
• Retention of existing established residential areas to the north east of the structure plan area.
• Retention of the Herb Graham facility and associated district park.
• Wrapping of Mirrabooka Square Shopping Centre with Mixed Use development to activate edges of mall and surrounding streets.
• Aged care facility in the north west corner of the structure plan area.
• The long term development of the existing WA Softball Centre site with high quality, medium to high density residential development.
Figure 37 — Proposed Mirrabooka Town Centre Structure Plan with indicative building footprints shown
10.2 Land Use

A key component of the Mirrabooka Town Centre Structure Plan involves modernising the land use sectors that currently exist in the area. This Structure Plan proposes:

- The introduction of mixed use sectors that allow for greater flexibility in building uses, while providing greater guidance through a Detailed Area Plan. These mixed use areas relate to existing urban streets and the proposed light rail route in Mirrabooka Town Centre.
- The introduction of additional residential uses in existing Mixed Business areas to improve opportunities to increase the number of residents in Mirrabooka Town Centre whilst providing opportunities to maintain mixed business uses (albeit in a form that is more sympathetic to a town centre environment).
- Long term rezoning of the WA State Softball Centre to encourage residential urban development and new public spaces that will complement the proposed light rail/bus interchange. Any change to current Softball operation would require continued discussions with Softball WA and the Department of Sport and Recreation.
- Modification of sectors around the Mirrabooka Square Shopping Centre to improve its long term interface with surrounding public roads and the Mirrabooka Town Square. Rezoning will include an adjustment of the current civic zoning of the Mirrabooka Town Centre and would introduce more mixed use opportunities around the periphery of the Shopping Centre.

Figure 39 reflects the proposed land uses for the Mirrabooka Town Centre Structure Plan.

10.2.1 Points of Activity

The area between the proposed light rail station and Mirrabooka Town Square is expected to be the main point of activity within Mirrabooka Town Centre. This space will be the most popular arrival point for local and regional visitors and offers a generous civic area for community activities to take place. The Milldale Way ‘lifestyle street’ offers a secondary point of activity, with a focus on shop based mixed use development interacting with the pedestrian focussed street at ground level.

10.2.2 Dwelling Diversity

A minimum of 10% of new dwellings shall be provided as Single Bedroom Dwellings.

10.2.3 Potential Redevelopment Yields

A detailed analysis, to support and inform the preparation of the Structure Plan, has been undertaken to assess the potential floorspace areas and population for the subject area, as shown within Figure 38.

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2021</th>
<th>2031</th>
</tr>
</thead>
<tbody>
<tr>
<td>Floor space</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Retail</td>
<td>51,320m²</td>
<td>58,010m²</td>
<td>88,380m²</td>
</tr>
<tr>
<td>Commercial</td>
<td>14,600m²</td>
<td>16,400m²</td>
<td>33,280m²</td>
</tr>
<tr>
<td>Other</td>
<td>32,120m²</td>
<td>36,920m²</td>
<td>74,560m²</td>
</tr>
<tr>
<td>Total</td>
<td>98,040m²</td>
<td>111,330m²</td>
<td>196,220m²</td>
</tr>
<tr>
<td>Population</td>
<td>1,942</td>
<td>2,416</td>
<td>4,550</td>
</tr>
</tbody>
</table>

Figure 38 — Floorspace and population forecasts to 2031
Figure 39 — Proposed Structure Plan land use map
10.2.4 Mandatory Residential

The Structure Plan identifies several areas that require the mandatory provision of residential dwellings. These areas are identified in Figure 40. A minimum of 50% of the Gross Floor Area of the development shall be provided as residential dwellings. The mandatory residential component for developments above 3 storeys will be 20% of the Gross Floor Area.

The intention of this requirement is to ensure that a residential population is provided in the vicinity of the future transit stops, in order to support the viability of a rapid transit system. This is in accordance with the City of Stirling’s anticipated population targets which comply with State Planning Policy 4.2 dwelling targets. The mandatory development of residential facilities within the Structure Plan area will also ensure that a resident population lives within close proximity to the activity corridor. This will in turn support the vibrancy of the area with resident activity throughout the course of the day and not just during working hours.

Suitable built form and/or management measures may be necessitated to mitigate potential noise, odour or dust nuisance impacts on residential facilities. These measures will be discussed in more detail in the Mirrabooka Detailed Area Plan.

Figure 40 — Proposed mandatory residential
10.2.5 Expansion of Existing Shopping Centre

State Planning Policy 4.2 - Activity Centres for Perth and Peel require land use targets to be achieved in Activity Centres. Mandatory commercial provisions are also included at ground level where the activation of the street is critical.

For Lots 500 Yirrigan Drive and 507 Sudbury Road, Mirrabooka the following shall apply.

a) For every 2500m² of additional shop (NLA) above the 47,100m² (existing NLA in 2014) the following additional development must already exist or be undertaken together with the additional shop development:

i) 0.2m² of floor space (NLA) other than shop use that is not fronting a public street.

ii) the first 1,000m² of floor space (NLA) required under clause 2.2a1 being provided on land that fronts Sudbury Road and the Town Square with a nil setback to the street.

iii) Other future floor space required under clause 2.2 a) i) being provided on land that fronts Sudbury Road, the Town Square, Chesterfield Road, Farrier Road or Yirrigan Drive with a nil setback to the street.

b) A minimum of 1,411m² of open space will be sought for purchase by the City on lot 507 adjacent to the existing Town Square for expansion of the Town Square.

Figure 40A illustrates where new sleevimg development should be located.
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10.2.5 Department of Health Land

MYVISTA are seeking to establish a high quality Aged Person’s development on Lot 601 (No. 54) Mirrabooka Avenue, incorporating a mixture of residential apartments and care facilities, associated amenities, ancillary uses, administration offices, and health support facilities. MYVISTA currently are in an agreement with the Department of Health to allow for the development of Lot 601 Mirrabooka Avenue.

The MYVISTA landholding is envisaged to comprise three major components being:

- Residential care facility — incorporating high care and dementia care services;
- Assisted Living — retirement Village incorporating aged care and ageing in place home care services; and
- Mixed use — Medical/Retail, primary health care and allied health care available for MYVISTA residents as well as the general public
- Village hub — central open space area, incorporating high quality landscaping facilitating passive recreational opportunities, BBQ areas, and community events.

It is envisaged that the height of development will generally be consistent with the Structure Plan (2-5 storeys), with the potential to incorporate higher ‘tower’ elements up to 8 storeys in height situated on podiums within the mixed use portion.
10.2.6 WA Softball Centre Redevelopment

The Mirrabooka Town Centre Structure Plan proposes the long term redevelopment of the WA Softball Centre. The area is currently fully fenced and not accessible to the general public. Given the specific use of the site, this area is only activated during certain times, outside of which, the area is very inactive.

The land presents a potential residential redevelopment site that would provide increased housing stock, diversity, population and additional public open space to the Mirrabooka Town Centre.

The Structure Plan proposes to permit residential uses on approximately 75 per cent of the site with approximately 25 per cent being ceded for the purpose of public open space. The intention is to relocate the WA Softball Centre to an alternative location in the long term.

As a function of the Mirrabooka Town Centre Structure Plan Working Group, Landcorp was requested to consider a potential relocation strategy for the WA Softball Centre.

Landcorp analysis produced the following considerations:

• The current Softball WA site provides the opportunity to develop a large infill medium density development site within the Mirrabooka Town Centre.
• Development of this site will provide greater density and critical mass of population to assist in activating Mirrabooka Town Centre.
• Development would also stimulate economic drivers within the broader Mirrabooka catchment through the resulting development outcomes.
• Preliminary estimates for both a new facility and redevelopment of the existing site will need to be undertaken.
• The current Softball WA site is owned freehold by the City of Stirling, zoned ‘Development’ under the Local Planning Scheme and ‘Urban’ under the Metropolitan Region Scheme reduces zoning and tenure risk.
• There is a lease until 2021 on the site with an option for a further extension. No redevelopment of the site will be anticipated before this date.

Any change to current Softball operation will require the City of Stirling to engage with key stakeholders such as Softball WA, Department of Sport and Recreation and the Western Australian Planning Commission. The redevelopment of the WA Softball Centre will only proceed if a suitable alternative location is found and deemed appropriate for WA Softball.
Figure 42 — Indicative residential development on the existing WA Softball Centre
10.3 Built Form

The built form within the Mirrabooka Town Centre will be controlled by a Detailed Area Plan. This sets building heights, setbacks, ground floor design elements, car parking location, and suggests preferred land uses at various building levels.

These standards control the built interface between the private and public realms, ensuring an appropriate urban design outcome while allowing considerable flexibility to cater to a range of uses and development configurations within each site.

The general approach is to allow taller buildings along larger streets to match the scale, and also in certain locations of prominence. Smaller buildings are suggested along more intimate community oriented streets.

Figures 42,43,44,45 are indicative only, attempting to roughly illustrate the relative height and scale of development in each precinct that is envisioned for the town centre. In general, however, the development control framework is underpinned by a set of design parameters:

- Building height should be related to the width of the adjacent street to ensure appropriate scale and spatial enclosure (facade types control minimum/maximum heights for each site).
- Taller buildings are allowed on larger parcels that can accommodate sufficient parking to support more intensive development.
- An appropriate ground floor interface is critical to ensure activation along retail streets and sufficient privacy protection in residential areas.
- Buildings can be taller near public open space as this provides amenity and ‘breathing space’.
- Development control framework should be as flexible as possible – while still achieving crucial interfaces to allow the town centre to grow organically over time.
- Upper levels of buildings should be well-articulated and generously fenestrated to ensure the development of an attractive town centre.
Figure 45 — Indicative built form of Mirrabooka Town Centre
10.3.1 Street Activation

The street interface varies in the town centre depending on the particular site conditions and opportunities. In some areas, a high level of activation and interaction at ground level is expected. The development standards in these areas require a high level of glazing, frequent entries, weather cover for pedestrians and on-street parking nearby. Likely land uses for these locations include retail, dining, commercial and entertainment.

In other areas, a lower level of street activation is envisaged. In these areas, requirements for glazing, entries, weather cover and on-street parking are reduced accordingly to fit with the intended ground floor uses. Land uses would tend to be commercial, showroom and office.

In areas where residential is envisioned as the primary use, street activation is not the target. In these cases, the standards are focused on preserving privacy and promoting passive surveillance.

Figure 46 illustrates the intended activation levels for Mirrabooka Town Centre.

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**Figure 46 — Proposed street level activation**

- High priority for street activation
- Lower priority for street activation
10.3.2 Indicative Building Heights

Building heights have been considered across the Structure Plan area, with the maximum permissible building heights outlined on Figure 47. The realisation of these maximum building heights requires compliance with the Detailed Area Plan.

Eight storey development has been proposed in strategic locations providing flexibility for, and to facilitate, the achievement of residential and employment targets for the precinct. These areas are typically abutting major roads such as Mirrabooka Avenue and Yirrigan Drive.

In conjunction with the mandatory residential section of the structure plan, some areas require a residential component for developments over 3 storeys (see Section 10.2.4).
10.4 Public Realm and Open Space

Quality public realm and open space will form a strong part of the future Mirrabooka Town Centre, complementing the increased densities expected. There are a number of established spaces that already exist in the area, some well-appointed with the ability to serve future populations, others in need of enhancement or redevelopment. Public open spaces play a number of different roles in how they serve the surrounding community, they can be places to:

- Meet others;
- Hold public or semi-public events;
- Recreate casually (i.e. walking a pet, playing unorganised games);
- Recreate formally (i.e. organised sports);
- Socialise, dine and relax;
- Can provide important habitat for local plant and animal species, and connect habitat with existing bushland areas (like the Mirrabooka Bushland, Cottonwood Reserve and Yokine Reservoir); and,
- Can help to regulate the temperature where the ‘heat island effect’ is known to increase heat in built urban areas.

These spaces take many different physical forms, including specifically designated areas, and passive ‘in-between’ spaces along streetscapes, or swales, detention basins and rain gardens. Public open spaces are zoned into the following categories as shown on the plan:

- Civic space (a district urban space);
- Public open space (district, village, local, neighbourhood spaces); and,
- Private open space (a local park or square on private land that serves the public realm).

Figure 48 illustrates the proposed open space for the Mirrabooka Town Centre Structure Plan.

10.4.1 Placemaking and Management

The landscape experience in Mirrabooka, however well designed, must consider placemaking as a central focus to encourage community pride and engagement, in order to make the centre more vibrant, safe and sustainable. Without appropriate placemaking and management the vision and initiatives set up for Mirrabooka Town Centre would not be able to be implemented effectively.

A place management strategy will need to be developed as part of the implementation strategy for the Mirrabooka Town Centre. As part of place management, programmable places need to be identified within the town centre to attract and facilitate events within the heart of Mirrabooka.

10.4.2 Recreational Spaces

Herb Graham Recreation Centre (and adjacent playing fields) and the WA Softball Centre provide regional active recreation opportunities within Mirrabooka Town Centre. The WA Softball Centre is a closed facility that requires membership to use the space, so its relationship to the surrounding community varies from the Herb Graham Recreation Centre. The Structure Plan proposes the enhancement of Herb Graham Recreation Centre to reflect the needs of the growing community. Options for the future WA Softball Centre include a rationalisation of public open space on the site in the event of a longer term relocation of softball facilities.
Figure 48 — Proposed public open space plan

- Civic space
- Public open space
- Private open space
- Existing buildings
- Indicative built form
10.4.3 Urban/ Civic Space (Town Square)

A traditional town square is usually located at the convergence of commerce and transport facilities. It is a place where business can occur, and community ideas can be shared. The role of the town square is now less commercial than it was, but these places still play a very important role in connecting the community — defining the ‘heart’ of the place. The future Mirrabooka Town Centre will provide more opportunities for people to live and work in the area, so the town square must provide places for people to meet, relax, play and trade. The expanded Mirrabooka Town Centre has dimensions appropriate for markets and events, which is crucial to provide activity.

It is recommended that the existing office building to the south of the civic square be re-developed to front the street and the square, providing out of hours activation and opportunities for diversifying its function.

Figure 49 — Indicative concept - Civic town square
Source: GHD, 2014

A multi-use space in Northbridge, Perth

Superkilen, Denmark - community gathering space
10.4.4 Local Spaces

The local parks within Mirrabooka may include the following elements:

- Small children's playground
- Seating and park furniture
- Community spaces (communal gardens)
- BBQ/picnic nodes

These areas will provide for predominantly passive, with some informal active recreation. BBQ nodes will be provided to encourage community interaction. These public open spaces not only form a recreational function, but also provide permeability through the site by allowing links between built up areas. They provide spaces for surrounding high density development to utilise.

10.4.5 Privately Owned Public Open Space

The provision of privately owned, publically accessible open space areas are encouraged to be provided as open space areas that are privately owned as a component of a subject landholding, but will be available for use by the wider public for all but a single day of any calendar year.

The creation of such areas within an individual development shall be available to any applicant with respect to a land parcel that is partially or wholly zoned 'Mixed Use', or 'Mixed Business', provided that the proposed space meets all of the following criteria:

a. The privately owned public open space area is both highly visible and directly accessible from an adjacent Local Road Reserve;
b. The privately owned, publically accessible open space area has an effective total minimum area no less than 400m²;
c. The privately owned, publically accessible open space area is to be drained, developed and landscaped to a high quality to the satisfaction of the City of Stirling, and maintained to this standard at the cost of the subject landowner for the life of the subject development.
10.4.6 Neighbourhood Park

The neighbourhood park aims to replace the function of the existing central lake public open spaces to provide a recreational space for surrounding residents and the broader community alike. It is proposed to have a mix of informal active areas, passive recreation/picnic nodes, a large playspace and a central water feature retaining existing storm water on site.

The space is surrounded on all sides by roads to ensure good surveillance and frontage of surrounding residential properties. The neighbourhood park has strong connections to the town centre and to the district open space.

Corimbia Neighbourhood park - variety of functions

East Perth - Drainage integrated into public space

Figure 51 — Indicative concept - Neighbourhood Park

Source: GHD, 2014
10.4.7 Swales, Detention Basins and Rain Gardens.

Water Sensitive Urban Design principles can be integrated into the future Mirrabooka town centre in a number of ways:

- The widespread use of local native species with lower water requirements.
- Soil amendments will be incorporated at planting to help plants use available water most efficiently.
- Stormwater treated onsite through swales and detention basins. Minor grading and earth shaping will concentrate stormwater into landscaped areas.
- Landscaped areas will be mulched to help manage soil temperature and moisture levels.
- Hydro zoning of planted areas.
- Utilisation of new public open space with integrated water sensitive urban design areas for neighbourhood catchment treatment.

10.4.8 Streetscapes

Quality streetscapes are an integral part of the public realm, which provide unity and connection within the urban fabric. The street verge not only functions to provide pedestrian and cycle connection, in many cases also provides alfresco areas, seating opportunities, bus stops and public art. These high quality streetscapes are as important as the public open space within a development in that they can provide amenity value, recreational value, provide linkage, and provide a sanctuary. The way that built form relates to these streets is critical.

Guidelines for the design of quality streetscapes needs to consider;

- Road reserve width
- Street planting
- Verge Planting
- Setbacks
- Parking within the street and lot boundaries
- Vehicular Access and Crossovers
- Corner requirements
- Articulation and fenestration
- Lighting
- Awnings and Canopies
- Signage
- Landscape design within the front setback
- Integration of water sensitive urban design principles
- Integration of public art into the street
- Cycle paths and parking facilities

10.4.9 Connection to Mirrabooka Bushland

Approximately 45ha of high quality bushland is located to the north of the Structure Plan area. This area, known as Mirrabooka Bushland, is a complex native bushland area, home to a number of local flora and fauna populations. Given its size and health there is conservation and recreation interest in the site. While access to the site is impeded by Reid Highway, current and future residents of the Mirrabooka Structure Plan area can access the site from Farrier or Mirrabooka Avenue. In time it would be beneficial for park entry points from these roads to provide clear information on access and appropriate use of the bushland environment.

10.4.10 Public Art and Possible Themes

With the expected growth in Mirrabooka Town Centre the incorporation of public art within public spaces and streetscapes will play an important role in reflecting the diverse community that it serves. Public art has the ability to add colour and vibrancy to urban areas, tell individual and collective stories of the place and its people, and offer a function that the community can use on a daily basis.

The Mirrabooka area is full of incredible stories of the diverse community that live in and around it. While it is not the role of a Structure Plan to resolve a public art scheme for Mirrabooka Town Centre, some themes that should be explored in detail include:

- The Indigenous history of the land and the first people who have lived on it. Their stories and connection to the place.
- The development of Perth and then Housing Commission’s expansion of the central northern corridor to the Mirrabooka ‘satellite city’.
- The indigenous flora and fauna of the area, particularly in neighbouring Mirrabooka Bushland.
- The role of the new migrants moving to the Mirrabooka area and its surrounds. Their cultures and stories.
10.5 Movement network

A movement and parking management urban design strategy was developed by GHD. The street network strategy has been influenced by the following key principles and objectives with regards to improving the movement network within Mirrabooka Town Centre:

- Support the short and long term optimisation of public transport use, with the provision of light rail through Mirrabooka Town Centre;
- Improve the connectivity of vehicle, pedestrian and cycle movement through the Town Centre;
- Provide a pedestrian network that is safe, enjoyable and linked to key destinations;
- Provide a cycle network that adopts world best standard;
- Ensure the key distributor roads combine traffic functionality with high attractiveness for pedestrian and cyclists; and,
- Ensure traffic movement is distributed rather than concentrated; slow-speed and legible.

10.5.1 Proposed Road Network

Improving the vehicle, pedestrian and cycle movement is a key objective of the Structure Plan. Various road connections have been proposed through the existing large street block creating a more efficient transport distribution network whilst providing the potential for more efficient development parcels.

Generally, all proposed road connections have been strategically located to primarily improve connectivity through Mirrabooka Town Centre.

One of the major new road connections within the Structure Plan is the extension of Milldale Way, to create the ‘lifestyle street’. This will carry the proposed light rail and vehicle traffic in a shared lane with on street parking and planted outstands, a central planted median and generous footpaths to allow retail and food outlets to spill out onto the street. The road is proposed to be flush with the pavement level to allow ease of movement for pedestrians. On Sudbury Road, the vehicular traffic is separated from the light rail which runs adjacent to the bus exchange where the main stop will be located. Due to a limited road corridor, the pedestrian path on the East side of the street is proposed to be within the adjacent lot.

While the Structure Plan proposes the creation of several new roads, there is a number of existing roads which are considered to be paramount to the success of the Town Centre’s movement network. These roads are classified as ‘Existing Local Road Reserves’. Existing roads such as Chesterfield Road, Farrier Road and Sudbury Road all play an important function as the primary distributor roads within the Town Centre.

The location of ‘Local Road Reserves’ identified on the Structure Plan is fixed, as these particular linkages (i.e. extension of Milldale Way) are key to the overall improvement of the movement system within the Structure Plan area.

The ‘Proposed Local Road Reserves’ identified on the Structure Plan are road connections that shall be provided to improve network connectivity. However the exact locations, alignments and width are subject to confirmation and agreement at the subdivision and detailed design stage. The specifics of these roads may alter, however a link must be implemented. These roads are typically located on land which has a single land owner and therefore allows flexibility at the point of development.

The proposed Structure Plan road network is illustrated in Figure 52.
Figure 52 — Proposed Structure Plan road network
10.5.2 Strategic road hierarchy

The major roads within the study area have been assessed against their equivalent sections in Liveable Neighbourhoods to determine their adequacy in carrying the forecast traffic volumes in 2016, 2021 and 2031.

Neighbourhood Connector

The provision of two traffic lanes with on-street parking and cycle lanes along Chesterfield Road and Farrier Road is considered the equivalent to an Integrator B under Liveable Neighbourhoods, which states an indicative threshold volume of 15,000 vehicles per day. The 2031 forecast estimates traffic volumes along Chesterfield Road to be approximately 17,600 vehicles per day. This is slightly higher than the Liveable Neighbourhoods' anticipated daily volume of the road; however there are opportunities for traffic to redistribute along Yirrigan Drive via Mirrabooka Avenue and Northwood Drive, all of which have available capacity to absorb the extra traffic.

Transit/ Main Street

Milldale Way, the ‘lifestyle street’ will carry the proposed light rail and vehicle traffic in a shared lane with on street parking and planted outstands, a central planted median and generous footpaths to allow retail and food outlets to spill out onto the street. The road is proposed to be flush with the pavement level to allow ease of movement for pedestrians. On Sudbury Road, the vehicular traffic is separated from the light rail which runs adjacent to the bus exchange where the main stop will be located. Due to a limited road corridor, the pedestrian path on the East side of the street is proposed to be within the adjacent lot.

Residential Street

The road reserve of the Standard Residential Street is approximately 15m wide, allowing for on street parking and planted kerb out stands, two way traffic and generous pedestrian paths on either side of the road.

Residential roads which abut the existing district open space will be slightly narrower, however still consisting of two way traffic, on street parking to one side of the street with planted kerb out stands and generous footpaths to both sides of the road.

Community Street

The community streets are intended to provide an intimate residential streetscape with a road corridor of 12m.

On-street parking has been allowed for on one side of the road with street trees located in kerb outstands to further create a sense of intimacy and give shade to the street. A footpath is provided on both sides of the street.

The community street is intended to provide predominantly local access to properties and is not designed to take large volumes of traffic.

Access Laneway

6m wide access lane ways provide secondary vehicular/ service access to the rear of buildings, allowing for driveway free streets and creating a more pedestrian orientated streetscape. Lane ways are not intended for through traffic.

Laneways require passive surveillance in order to prevent them becoming unsafe spaces, so buildings should address them to a certain extent, with appropriate lighting.

Pedestrian Laneway

6m wide pedestrian only lane ways allow permeability and connection through the site for pedestrians and cyclists. They are located at key desire line locations within the site to provide ease of movement of pedestrian and cyclists.

Passive surveillance from adjacent properties is required along with good lighting to create safe transition spaces. These linkages may also be activated through shop frontage, alfresco dining and street art.
Neighbourhood Connector
Transit/Main Street
Residential Street
Community Street
Access Laneway
Pedestrian Laneway
Existing Buildings
Indicative Built Form

Figure 53 — Proposed road character plan and forecasted 2031 traffic volumes

Source: GHD, 2014
Mirrabooka Town Centre Structure Plan (continued)

10.5.3 Indicative cross sections

These cross-sections provide an indication of the scale of the future street environment within the Mirrabooka Structure Plan. This also indicates how the proposed MAX light rail will be incorporated within the area and how it responds to the street environment. They are for illustrative purposes only.
Figure 57 — Neighbourhood connector

Figure 58 — Farrier Road (Neighbourhood connector)
Mirrabooka Town Centre Structure Plan (continued)

Figure 59 — Standard residential

Figure 60 — Public open space residential
Figure 61 — Community street

Figure 62 — Access laneway

Figure 63 — Pedestrian laneway
10.5.4 Priority public transport infrastructure

MAX Light Rail

As discussed in Section 6.1.5, the Department of Transport is currently defining the alignment for the proposed MAX light rail system and locations of stations. An indicative alignment is illustrated, which shows that a stop would be provided in the town centre.

Bus

It is understood that the Department of Transport has planned for bus routes to enter/exit Mirrabooka Bus Station from Mirrabooka Avenue northwards via Milldale Way once the MAX light rail system is operational.
10.5.5 Cycling and pedestrian network

Within the town centre, only Chesterfield and Milldale Roads are proposed to have designated cycle lanes.

On the periphery of the town centre, the City has planned for two primary cycling routes to be provided – one running east-west along Reid Highway in the form of a Principle Shared Path and another running north-south on or close to the alignment of Alexander Drive. The existing north-south secondary cycling route on Northwood Drive (route NE4 of the Perth Bicycle Network) would be retained along with paths along Mirrabooka Avenue and Yirrigan Drive.

End of trip facilities are proposed at the bus station including cycle parking, showers and changing facilities as per City of Stirling policy.

It is proposed that all of the main streets within the Mirrabooka Town Centre will have footpaths on both sides.
10.5.6 Parking strategy and management

Parking for non residential development will be in accordance with the relevant City of Stirling Car Parking Policy.

Parking Surveys are being undertaken that may require a specific Parking Policy for the Mirrabooka Town Centre. The parking surveys will determine the current number of parking spaces in the Town Centre, together with their usage at different times of the day.

This information will help to determine the future need of car parking in the centre. It is envisaged that over time car parking ratios for the Mirrabooka Town Centre can be reduced due to the close proximity of public transport and the future delivery of light rail.

Part 6.8 of Local Planning Scheme No. 3 outlines specific parking provisions applicable to the Mirrabooka Town Centre. These provisions deal with the issue of reciprocal parking and enable the City to extinguish any existing parking agreements between landowners and allows Council to consider reducing the provision of parking to allow reciprocal parking.

These provisions will likely need amending to limit the amount of reciprocal parking that can be permitted on any lot. Furthermore the area subject to reciprocal parking may need to be increased to include all non-residential sectors in the town centre. This will require a further Scheme Amendment.
10.6 Employment and retail needs

A retail needs assessment and an employment strategy was developed for Mirrabooka Town Centre by MacroPlan Dimasi. The purpose of these two studies is to provide guidance regarding the extent of retail floor space that may be accommodated within the Structure Plan area as redevelopment occurs. This demand has been determined with due regard to the potential and long term viability of competing activity centres both within the City of Stirling and surrounding Local Government Areas.

The following studies have been produced on the assumption that a light rail is constructed to Mirrabooka. This assumes that the commitment to develop a light rail would trigger changes in the planning system to accelerate unlocking the development potential of the Mirrabooka Town Centre and then encouraging additional private and public investment in the area.

10.6.1 Retail Needs Assessment

The defined trade area for Mirrabooka Activity Centre extends approximately 5-6 kilometres around the centre in each direction other than west, as depicted in Figure 67. The extent of the trade area is limited primarily by alternative competitive centres in the broader region, including Kingsway City and Warwick Grove to the north-west; Galleria Secondary Centre to the south-east and Karrinyup and Stirling centres to the west and south-west. The main trade area is a combination of the primary and secondary sectors.

The current Mirrabooka Town Centre trade area population is estimated at 165,400 residents including over 62,500 in the primary sector. Population growth within the trade area has been strong between census years 2006 and 2011, averaging 2.2 per cent per annum. The region is fairly established in nature, with future population growth to occur primarily through infill development.

In summary the Retail Needs Assessment explored and established that:

- The main trade area population is expected to grow at around 1 per cent annually to 2031, to reach some 196,700 residents.
- The total available retail expenditure within the main trade area is forecast to grow from the current levels of $2.16 billion to a projected total of $4.42 billion in 2031, reflecting 4.3 per cent growth rate.
- Mirrabooka Town Centre study trade area requires a total retail floorspace provision in excess of 240,000m², in order to meet the current generated demand. The floorspace demand by the study area population is expected to grow, to 277,000m² by 2021 and 324,000m² by 2031.
- There is an estimated under supply of retail floorspace within the Mirrabooka Town Centre in the order of 39,000m². If no addition is made to the retail floorspace in the future, the estimated under supply is expected to increase rapidly to reach in excess of 70,000m² by 2021 and around 120,000m² by 2031.
- At present, the Mirrabooka Activity Centre, in totality, is estimated to contain around 47,200m² of retail floorspace, representing around 77% of the estimated supportable level of retail floorspace at the secondary activity centre level. There is therefore, significant scope for additional retail facilities to be added to the Mirrabooka Activity Centre, as envisaged by the Structure Plan. As a consequence, the Mirrabooka Activity Centre can reasonably be extended without impacting on the surrounding network of activity centres.
Capital City
Strategic Centre
Secondary Centre
District Centre
Myer
David Jones
Big W
Target
Kmart
Woolworths
Coles
Super IGA/IGA
Other Supermarkets
Potential Supermarkets
10.6.2 Employment Strategy

Mirrabooka Town Centre as a Secondary Centre means that its main role and function is to provide essential services to its catchment and provide local employment opportunities.

Future employment outcomes in Mirrabooka will be shaped by a combination of:

- Structural economic factors creating changes in the nature of employment within and between different industry sectors;
- Cyclical changes in the economy; and,
- Locational factors as influenced by the planning framework as well as public and private investment.

Employment redistribution changes become more likely when accompanied by significant public investment in infrastructure and the public realm. The City of Stirling has commenced this investment with the Mirrabooka Regional Centre Improvement Strategy. The State Government’s investment in the MAX Light Rail project is expected to be an important catalyst for private and public investment within the Centre.

Figure 68 illustrates the projected employment by industry sector given a scenario where light rail is constructed. This assumes that the development of light rail would trigger changes in the planning system to unlock the development potential of the Town Centre and encourage additional private and public investment in the area.

<table>
<thead>
<tr>
<th>Employment type</th>
<th>2011</th>
<th>2021</th>
<th>2031</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Mining</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>10</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Utilities</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Construction</td>
<td>37</td>
<td>44</td>
<td>182</td>
</tr>
<tr>
<td>Retail</td>
<td>1,091</td>
<td>1,543</td>
<td>2,914</td>
</tr>
<tr>
<td>Wholesale</td>
<td>44</td>
<td>46</td>
<td>51</td>
</tr>
<tr>
<td>Transport and storage</td>
<td>13</td>
<td>21</td>
<td>43</td>
</tr>
<tr>
<td>Communication</td>
<td>38</td>
<td>64</td>
<td>141</td>
</tr>
<tr>
<td>Finance, insurance, property and business services</td>
<td>164</td>
<td>283</td>
<td>640</td>
</tr>
<tr>
<td>Public admin and defence</td>
<td>143</td>
<td>281</td>
<td>602</td>
</tr>
<tr>
<td>Education</td>
<td>67</td>
<td>94</td>
<td>135</td>
</tr>
<tr>
<td>Health</td>
<td>24</td>
<td>76</td>
<td>108</td>
</tr>
<tr>
<td>Other community services</td>
<td>301</td>
<td>500</td>
<td>656</td>
</tr>
<tr>
<td>Entertainment, recreation and personal services</td>
<td>151</td>
<td>177</td>
<td>251</td>
</tr>
<tr>
<td>Total</td>
<td>2,086</td>
<td>3,145</td>
<td>5,743</td>
</tr>
</tbody>
</table>

Source: MacroPlan Dimasi

Figure 68 — Mirrabooka employment projections – MAX LRT scenario
Additional employment is expected to be generated from the following two factors:

- The additional employment land developed in the area including the potential for additional office space given the Centre would become more accessible; and,
- The additional dwelling development and associated increased population would demand more consumer and retail services.

Figure 69 indicates specific strategies targeted at the Mirrabooka Town Centre in order of the priority given in the City’s draft Economic and Tourism Development Strategy. The employment impact of each of those strategies is identified to provide an indication of their contribution to generating additional employment in Mirrabooka.

<table>
<thead>
<tr>
<th>Priority</th>
<th>Theme</th>
<th>Description</th>
<th>Employment outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>Retail</td>
<td>Retail product revitalisation and expansion</td>
<td>Significant</td>
</tr>
<tr>
<td>Medium</td>
<td>Community aesthetics</td>
<td>Community safety and crime reduction</td>
<td>Minimal</td>
</tr>
<tr>
<td>Low</td>
<td>Retail</td>
<td>Fresh food and retail street-side markets</td>
<td>Significant</td>
</tr>
<tr>
<td>Low</td>
<td>Residential</td>
<td>Affordable apartment-style accommodation development</td>
<td>Minimal</td>
</tr>
<tr>
<td>Low</td>
<td>Residential</td>
<td>Contemporary age and retirement village development</td>
<td>None</td>
</tr>
<tr>
<td>Low</td>
<td>Residential</td>
<td>Student accommodation development</td>
<td>Some</td>
</tr>
</tbody>
</table>

Source: City of Stirling draft Economic & Tourism Development Strategy; MacroPlan Dimasi

Figure 69 — Mirrabooka strategies for economic and tourism development
10.7 Water management

A comprehensive Local Water Management Strategy has been prepared by Jacobs SKM to provide guidance to achieve sustainable management of all aspects of the water cycle of the Mirrabooka Town Centre area. The Local Water Management Strategy undertakes this by considering integrated water cycle management providing design and management objectives on water conservation, water quality and water quantity.

The Local Water Management Strategy proposes that the redevelopment of the area will achieve the following objectives:

- Improve water quality within the stormwater system, especially that discharging north of Reid Highway;
- Maintaining peak stormwater flows to their current level;
- Optimise water use efficiencies for commercial, domestic and irrigation; and,
- Achieve water sensitive landscapes (both public and private) which incorporates water quality management appropriate for the Western Australian climate.

These objectives are to be achieved through the implementation of the following strategies and design criteria for stormwater and groundwater management; water resource and landscaping.

10.7.1 Local stormwater and groundwater management

The following actions are proposed to achieve improvements in the water quality of the stormwater system while maintaining the flood protection and conveyance capacity of the drainage system:

- Make use of stormwater management systems within the area to achieve improved water quality and peak attenuation.
- Where practical create vegetated buffer zones/verges and implement water sensitive urban design principles to help prevent herbicides, fertilizers and grass clippings entering the stormwater system;
- Identify low traffic areas including pathways and medians in parking areas and incorporate permeable pavements where practicable, to reduce runoff;
- Ensure developers, builders and landscapes are implementing best management practices to control erosion and sedimentation, preventing unnecessary sediments from entering into the stormwater system; and,
- Maintain street sweeping programs and develop a monitoring plan to assess the efficiency of current schedules and future procedures to reduce sediments being washed into the drainage system.

10.7.2 Design criteria

Any development within the Mirrabooka Town Centre area should aim to meet the following specified design criteria using appropriate best management practices:

- The post-development ARI peak flow shall be equal to or less than pre-development flows at the discharge points of all plan and/or development areas;
- All flows from constructed impervious surfaces are to receive treatment prior to infiltration or discharge;
- Roads and public open spaces should be designed to cater for the surface overflow for more severe storm events;
- Habitable floors should be at least 300mm above the 100 year average recurrence interval flood or storage level at any level;
- Water quality treatment systems and stormwater management facilities should be designed in accordance with the Stormwater Management Manual for Western Australia (Department of Water, 2004-2007) and Australian Runoff Quality: A guide to water sensitive urban design (Engineers Australia, 2005); and,
- Maintain regular cleaning of gullies and stormwater pollutant traps to prevent pollution from being conveyed by the drainage system.
10.7.3 Water use

Future development will likely be in multi residential developments, inherently reducing per capita water demands. Following the hierarchy of reduce, reuse, recycle: design guidelines for developments should be developed to maximise efficiency, recommending efficient fittings and appliances. Groundwater systems should be studied in more detail with plans prepared to maximise the efficiency by using smart irrigation systems.

10.7.4 Landscaping

Reducing water use in landscaping should be given a priority. Water sensitive design also provides the opportunity to improve water quality treatment measures as part of landscaping. Accordingly, designs should make use of water wise, local, native plants in all landscaped areas. Making use of enhanced tree pits in the (re)design hard stand areas, will reduce water demand, improve water quality and achieve a reduction in peak flows.
10.8 Infrastructure co-ordination

Jacobs SKM has undertaken a comprehensive assessment of the existing servicing infrastructure within the Mirrabooka Town Centre area and outlined a strategy for the provision of future services to support redevelopment, with the key items summarised below.

10.8.1 Water supply

The proposed development is well serviced by water mains. Water demands were calculated using the forecast population figures to 2031 and are presented in Figure 70. The daily demand at 2031 is estimated at 550kl/day.

Given this, it is expected that the projected demand will allow the Water Corporation to cater for the growth in Mirrabooka.

<table>
<thead>
<tr>
<th>Year</th>
<th>Single Residential</th>
<th>Multi Residential</th>
<th>Retail</th>
<th>Commercial</th>
<th>Other</th>
<th>Hospital</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>620</td>
<td>0</td>
<td>1,359</td>
<td>369</td>
<td>723</td>
<td>N/A</td>
<td>3071</td>
</tr>
<tr>
<td></td>
<td>Water demand (KL/yr)</td>
<td>65,720</td>
<td>0</td>
<td>19,716</td>
<td>7,138</td>
<td>13,985</td>
<td>15,257</td>
</tr>
<tr>
<td></td>
<td>Water demand (KL/day)</td>
<td>180</td>
<td>0</td>
<td>54</td>
<td>20</td>
<td>38</td>
<td>42</td>
</tr>
<tr>
<td>2021</td>
<td>620</td>
<td>580</td>
<td>1,647</td>
<td>466</td>
<td>995</td>
<td>N/A</td>
<td>4,308</td>
</tr>
<tr>
<td></td>
<td>Water demand (KL/yr)</td>
<td>65,720</td>
<td>40,577</td>
<td>23,894</td>
<td>9,014</td>
<td>19,247</td>
<td>15,257</td>
</tr>
<tr>
<td></td>
<td>Water demand (KL/day)</td>
<td>180</td>
<td>111</td>
<td>65</td>
<td>25</td>
<td>53</td>
<td>42</td>
</tr>
<tr>
<td>2031</td>
<td>620</td>
<td>2,779</td>
<td>2,991</td>
<td>745</td>
<td>1,805</td>
<td>N/A</td>
<td>9,041</td>
</tr>
<tr>
<td></td>
<td>Water demand (KL/yr)</td>
<td>65,720</td>
<td>194,419</td>
<td>43,392</td>
<td>16,365</td>
<td>34,915</td>
<td>15,257</td>
</tr>
<tr>
<td></td>
<td>Water demand (KL/day)</td>
<td>94</td>
<td>279</td>
<td>62</td>
<td>23</td>
<td>50</td>
<td>42</td>
</tr>
</tbody>
</table>

Source: Jacobs SKM, 2014

Figure 70 — Projected water demand by land use and year
10.8.2 Drainage

Each property will continue to be responsible for its own stormwater drainage, which is primarily achieved by soak wells.

A large drain carries all the stormwater collected in the study area under Reid Highway and into a basin in the open space reserve to the north of the Reid Highway reserve. Another smaller basin is located south of the site on the corner of Yirrigan Drive and Dianella Drive.

Changes to catchment dynamics have identified a likely 12% increase in stormwater flow by 2031. This relatively small increase may, with further detailed assessment, be manageable with minor engineering intervention only.

10.8.3 Sewer

There are no plans to upgrade or change the sewer main servicing the structure plan area at the pumping station located west of Mirrabooka Avenue.

The daily wastewater flow is estimated to be 1,060KL/day in 2031, making the peak daily flow 12.26 L/second. This projected demand will allow the Water Corporation to cater for the growth in Mirrabooka.

10.8.5 Power supply

Western Power indicates there is insufficient supply for the expected growth of the Structure Plan area and the immediate surrounding area. Works to upgrade the electricity infrastructure in the area are currently not part of the Western Power's works program.

An extra transformer is likely to be required to supply additional power. However, the location of high voltage overhead lines in close proximity to the area potentially makes this possible for a lower cost than would otherwise be expected.

Additional power infrastructure may be required as part of the MAX light rail transit project, but all light rail related infrastructure will be developed and funded by the Department of Transport.

10.8.6 Telecommunications

Fibre-optic telecommunications infrastructure in the area is limited to a connection to the shopping centre. This existing fibre network could be extended to feed other critical facilities in the area.

Given the change in the communications landscape driven by the roll out of the National Broadband Network, communications infrastructure is likely to be upgraded regardless of growth, effectively catering for any new demand.

10.8.7 Gas supply

Gas is considered a non-essential service and ATCO Gas usually keeps up with areas being developed within the Perth metropolitan area, including centres marked for redevelopment. The redevelopment area appears to be well reticulated with gas services, and this will be confirmed when looking at the growth strategy with ATCO Gas once the future demand has been determined.
10.9 Community Infrastructure

A community infrastructure plan has been prepared by Bohdi Alliance to assess existing and determine future community infrastructure demands within the locality as redevelopment of the Structure Plan area proceeds.

The need to plan residential developments and urban centres in a way that supports socially sustainable communities is fundamentally important. The provision of community infrastructure is essential for the health and well-being of communities, and plays an important role in building social capital and developing both the capacities and resilience of people.

Community infrastructure is generally provided under a hierarchy of provision with different scales of facilities servicing varying sized catchments. The understanding of locally relevant community infrastructure hierarchy, and inter-related standards of provision per head of population is important to the development of the Mirrabooka Community Infrastructure Plan.

Local Government Guidelines (draft) have been prepared to supplement the State Planning Policy 3.6 — Development Contribution for Infrastructure and provide practical guidance for applying development contributions for community infrastructure. Under this hierarchy:

- District facilities are generally regarded as those provided for the whole Local Government Area.
- Sub district facilities relate to those which cater for a suburb or number of suburbs.
- Neighbourhood facilities are generally those that are within walking distance of a household.

The impact of development within the Structure Plan area on community facilities is assessed with consideration given to external demand. The cost of facilities generated through demand external to the development within structure plan, current under provision or upgrading requirements all need to be identified to enable the fair apportionment of costs.

Given increasing community demands for facilities, in combination with the increasing demands on land uses within urban areas, the pressure is for Local Government to achieve better economies of scale. To ensure the creation of vibrant community spaces as hubs of social interaction, the development of multi-purpose community facilities is important for the future delivery of infrastructure. On this basis, it is considered necessary that key infrastructure included within the City’s Community Infrastructure Plan has a multi-purpose focus with specific-purpose facilities only provided where there is strong justification.

Community feedback and the infrastructure needs audit has identified that the Mirrabooka Town Centre is currently well serviced by the existing community infrastructure and by the many government and non-government service providers located in the centre, as illustrated in Figure 71. The audit of infrastructure provision would suggest that there is capacity to meet the needs of the growing community.

The Structure Plan proposes the removal of two key elements of community infrastructure; the State softball facility and the pond and parkland adjacent to the busport and library. The removal of the park and pond enables the extension of Milldale Way and improved bus/light rail access to the bus station. The relocation of the state softball centre is identified as a longer term option to allow a change in land use to high density residential that optimises the close proximity to the town centre and transit hub.

In response to the identified need for local meeting places, market spaces and improved landscape and local amenity and to compensate for the removal of the park and playfields the draft Mirrabooka Town Centre Structure Plan provides for four additional parks and the enlargement of the existing town square. These spaces are shown in Section 10.4.
<table>
<thead>
<tr>
<th>Facility Type</th>
<th>Level</th>
<th>Ratio</th>
<th>Existing</th>
<th>Additional Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sporting fields</td>
<td>General</td>
<td>1.7–2.0 hectares:1,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Aquatic Centre</td>
<td>District</td>
<td>1:120,000 people</td>
<td>Yes — Balga Leisureplex</td>
<td>Not required</td>
</tr>
<tr>
<td>District Playing fields/ sports reserves (4–6 ovals)</td>
<td>District</td>
<td>1:15,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Active Public Open Space/Ovals</td>
<td>Local</td>
<td>1:3,500 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Sports changerooms</td>
<td>Local</td>
<td>1:5,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Public toilets</td>
<td>Local</td>
<td>1 per local centre/park</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>District indoor recreation centre</td>
<td>District</td>
<td>1:30,000 – 60,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Golf course</td>
<td>District</td>
<td>1:30,000 people</td>
<td>Yes 3 clubs nearby</td>
<td>Not required</td>
</tr>
<tr>
<td>Wheeled sports facilities</td>
<td>Sub District</td>
<td>1:8,500 people</td>
<td>City of Stirling Skate Policy identifies 3 facilities nearby.</td>
<td>Not required</td>
</tr>
<tr>
<td>Tennis courts</td>
<td>Local</td>
<td>1:1,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Netball courts</td>
<td>Local</td>
<td>1:1,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Basketball courts</td>
<td>Local</td>
<td>1:1,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Soccer field</td>
<td>Local</td>
<td>1:1,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Cricket wicket</td>
<td>Local</td>
<td>1:3,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>District community centre</td>
<td>District</td>
<td>1:20,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Local community centre</td>
<td>Local/Sub District</td>
<td>1:10,000 – 15,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Library</td>
<td>District/Sub District</td>
<td>1:15,000 – 20,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Youth centre</td>
<td>Local/Sub District</td>
<td>1:10,000 – 15,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Seniors centre</td>
<td>Local/Sub District</td>
<td>1:10,000 – 15,000 people</td>
<td>Yes – near</td>
<td>Not required</td>
</tr>
<tr>
<td>Childcare centre</td>
<td>Local</td>
<td>1:4,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>After school care</td>
<td>Local/ Sub District</td>
<td>1:6,000 people</td>
<td>Yes</td>
<td>Not required</td>
</tr>
<tr>
<td>Community health clinic</td>
<td>Local/ Sub District</td>
<td>1:10,000 – 12,000 people</td>
<td>Yes – nearby</td>
<td>Not required</td>
</tr>
</tbody>
</table>

Figure 71 — Community infrastructure provisions table as per SPP 3.6
Implementation

11.1 Market acceptability

In 2013, the Department of Housing undertook a commercial feasibility analysis of a hypothetical four storey mixed-use development with basement parking at Lot 502 Sudbury Place in the Mirrabooka Town Centre. The concept was found to be commercially unviable as the projected revenue was less than the estimated cost of construction. In the current market therefore, it is unlikely that developments incorporating underground or undercroft parking, in excess of three stories will be profitable. Therefore development control provisions must not preclude the ability to provide at grade car parking and must not mandate minimum building heights in excess of three stories. The statutory planning controls incorporated into the Mirrabooka Town Centre Structure Plan and Detailed Area Plan will not inadvertently prevent development of the centre.

However it is possible that in future years land values may continue to increase further. One can also envisage that continuing advances in building construction technologies – such as modular designs and pre-fabricated materials – will reduce the cost of constructing multi storey developments in Perth. Rising land values and decreased construction costs may in future enable higher density developments in suburban activity centres to become commercially viable in the Perth and Peel Region, including the Mirrabooka Town Centre. As such, periodic reviews and updates to the statutory planning framework may be appropriate. Aside from such formal reviews, the City will continue to be in regular discussion with development proponents exploring investment opportunities in the Mirrabooka Town Centre. A recent feasibility analysis undertaken by one such proponent suggests higher density residential development up to nine stories in height may already have become commercially viable. Issues relating to the high cost of basement or undercroft car parking remain a concern. However the feasibility assessment suggests the Perth market may be reaching a point where some residential apartments can be sold without provision of a car parking bay. Provision of reduced parking ratios will help to reduce development costs and this in turn will be reflected in a lower sales price, assisting the objective of provision of low cost and diverse housing discussed in Section 2.5 above.

11.2 Land assembly

Amendment No 29 to the Local Planning Scheme was gazetted on the 16th September 2014. The effect has been to introduce a Development Zone over the Mirrabooka Town Centre Structure Plan area. The purpose of a Development Zone is to prevent development until such time as a Structure Plan has been adopted. The draft Mirrabooka Town Centre Structure Plan and Detailed Area Plan was submitted to the Planning and Development Committee on the 4th November 2014 for the initiation of formal advertising.

Clause 6.8.4 of Local Planning Scheme No 3 states that the subdivision and development of land within the Mirrabooka Town Centre Special Control Area is to generally be in accordance with the adopted Structure Plan and Detailed Area Plan that applies to that land. The draft Structure Plan identifies the areas in which the Residential Design Codes (R codes) are proposed to remain in force. The rationale for removing the R codes from the remainder of the Structure Plan area is the recognition that the current form of urban consolidation enabled by the Codes has culminated in a significant loss of amenity, substandard development and loss of open space. The draft Detailed Area Plan is a Form Based Code that is designed to address these key concerns.

11.3 Action plan

Given the fragmented nature of land ownership within the Structure Plan, it is difficult to spatially and temporally define how the redevelopment of the Structure Plan area will proceed. The Structure Plan and Detailed Area Plan establish a land use and built form control framework. It will be the prerogative of each individual land owner as to whether they opt to redevelop their land to capitalise on the benefit provided to them as part of the planning framework. If public and private landowners do choose to redevelop, then the timing of when they do so is also at their discretion.

11.4 Developer contributions

Developer contributions will be required to fund the construction of new local roads to enable the proposed development intensification to be supported. The upgrade of existing local roads will be financed by abutting developments. The preparation of detailed infrastructure studies undertaken as part of the Mirrabooka Structure Plan has confirmed the projected increase in the residential and workforce population will not exceed the capacity of existing transport infrastructure.

The regional road network will not require major upgrades as a consequence of the increase in local and regional trips generated by the intensification
of Mirrabooka Town Centre. Mirrabooka is well served by existing community facilities including the Mirrabooka Library, a number of primary and secondary schools, and an extensive public open space network. As such, developer contributions will not be required to help fund an expansion of these services. Provision of new local roads on Government owned land will be funded and approved through the normal subdivision approvals process (i.e. relevant contributions will need to “cleared” by the landowner prior to land subdivision approval).

A development contribution plan will be developed to enable the expansion of the town square.
Metropolitan Region Scheme

Study boundary
Suburbs
Cadastre
Bush forever area
Parks and recreation
Urban
Industrial
Public purpose
Primary regional road
Other regional road
Directions 2031 and Beyond

Metropolitan Region Scheme
- Reserved lands
- Parks and Recreation
- Railways
- Port Installations
- Civic - cultural
- Waterways
- Public Purposes
- Primary regional road
- Regional road
- Zones
  - Urban
  - Urban deferred
  - Central city area
  - Industrial
  - Rural
  - Rural - water protection
  - Private recreation
- Activity centres hierarchy
  - Capital city
  - Strategic Metropolitan Centre
  - Specialised centre
  - Secondary centre
  - Metropolitan attractor
Land ownership
Topography
Geology

Swan Coastal Plain - Aeolian deposits

Study boundary
Suburbs
Cadastre
S7: SAND
Nollamara
Mirrabooka Avenue
Mirrabooka
Westminster
Northwood Drive
Reid Highway
Dianella
Yirrigan Drive
Northwood Drive
Mirrabooka Avenue

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