



draft **Stirling**citycentre structure plan

As adopted by Council
9 December 2014

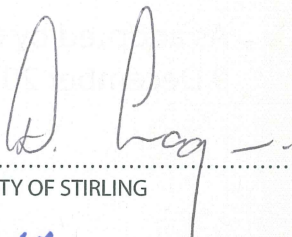



CERTIFIED THAT THIS AGREED STIRLING CITY CENTRE STRUCTURE PLAN
WAS ADOPTED BY RESOLUTION OF THE COUNCIL OF THE CITY OF STIRLING ON

9 December 2014

AND THE SEAL OF THE MUNICIPALITY WAS PURSUANT TO THE COUNCIL'S
RESOLUTION HEREUNTO AFFIXED IN THE PRESENCE OF:



A/ 
MAYOR CITY OF STIRLING

A/ 
CHIEF EXECUTIVE OFFICER, CITY OF STIRLING

AND BY

RESOLUTION OF THE WESTERN AUSTRALIAN PLANNING COMMISSION
ON

.....
CHAIRPERSON, WESTERN AUSTRALIAN
PLANNING COMMISSION

Acknowledgement

The Stirling Alliance would like to acknowledge the contribution of its members:

City of Stirling
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The City of Stirling and the Stirling Alliance own all the photography in this document unless otherwise stated.

Contents

Part 1

1 Structure Plan

Pg.1

- 1 1 Structure Plan
- 1.1 Structure Plan Area
- 1.2 Structure Plan Content
- 1.3 Interpretation and Relationship with the Scheme
- 1.4 Relationship to Residential Design Codes
- 1.4 Operations
- 1.6 Development Requirements
- 1.7 Detailed Area Plans

Pg.1
Pg.1
Pg.1
Pg.3
Pg.3
Pg.5
Pg.5
Pg.7

2 Land Use Provisions

Pg.9

- 2.1 Land Use Sectors
- 2.2 Land Use Categories
- 2.3 Use Class Table
- 2.4 Active Frontages
- 2.5 Residential Requirements
- 2.6 Public Open Space

Pg.9
Pg.10
Pg.12
Pg.16
Pg.16
Pg.17

3 Transport Provisions

Pg.18

- 3.1 Road Reserves
- 3.2 Parking

Pg.18
Pg.21

4 Urban Design Provisions

Pg.23

- 4.1 Urban Typologies
- 4.2 Street Block Dimensions
- 4.3 Finished Floor Levels
- 4.4 Signage

Pg.23
Pg.23
Pg.23
Pg.27

5 Precinct

- 5.1 Southern Precinct
- 5.2 Station Precinct
- 5.3 Northern Precinct
- 5.4 Innaloo Precinct
- 5.5 Osborne Park Precinct
- 5.6 Woodlands Precinct

Pg.28

- Pg.29
- Pg.32
- Pg.36
- Pg.39
- Pg.43
- Pg.47

PART 2

1 Introduction and Purpose

- 1.1 Purpose
- 1.2 Background
- 1.3 Vision Statement
- 1.4 Performance Framework
- 1.5 Objectives
- 1.6 Consultation

Pg.53

- Pg.53
- Pg.53
- Pg.55
- Pg.55
- Pg.57
- Pg.59

2 Local and Regional Context

- 2.1 Location
- 2.2 Land Ownership
- 2.3 Planning Framework

Pg.61

- Pg.62
- Pg.62
- Pg.63

3 Current Conditions

- 3.1 Natural and Cultural Legacy
- 3.2 Aboriginal Heritage
- 3.3 European Heritage
- 3.4 Topography
- 3.5 Soils
- 3.6 Contaminated Sites
- 3.7 Hertha Road Landfill Site
- 3.8 Flora and Fauna
- 3.9 Water
- 3.10 Place Context
- 3.11 Housing and Population
- 3.12 Economy and Employment

Pg.64

- Pg.65
- Pg.65
- Pg.67
- Pg.69
- Pg.69
- Pg.70
- Pg.70
- Pg.71
- Pg.73
- Pg.76
- Pg.76
- Pg.79

3.13 Movement	Pg.80
3.14 Public Utilities	Pg.82
3.15 Public Open Space	Pg.83
3.16 Social Infrastructure	Pg.84
3.17 Education	Pg.84
3.17 Health	Pg.84
3.17 Cultural Facilities	Pg.84
3.17 Police, Fire and Emergency Services	Pg.84

4 Structure Plan Pg.85

4.1 Elements of the Plan	Pg.85
4.2 Land Use and Activity	Pg.87
4.3 Built Form	Pg.94
4.4 Movement	Pg.98
4.5 Parking	Pg.121
4.6 Open Space Network	Pg.124
4.7 Environmental Management	Pg.127
4.8 Infrastructure and Services	Pg.132

5 The Process Pg.140

5.1 Planning Process	Pg.140
5.2 Staging and Implementation	Pg.141
5.3 Governance	Pg.141

References Pg.143

Appendix A - The Stirling City Centre Alliance - Performance Framework.

List of Figures

Figure 1: Stirling City Centre Area	Pg.2
Figure 2: Development Zones and Reserves	Pg.4
Figure 3: Precinct Plan	Pg.6
Figure 4: Structure Plan	Pg.8
Figure 5: Road Plan	Pg.20
Figure 6: Parking Boundaries – Stirling City Centre	Pg.22
Figure 7: Character Zones	Pg.24
Figure 8: Southern Precinct Plan	Pg.30
Figure 9: Station Precinct Plan	Pg.33
Figure 10: Northern Precinct Plan	Pg.37
Figure 11: Innaloo Precinct Plan	Pg.40
Figure 12: Minimum Dwellings by street block in the Innaloo Precinct	Pg.42
Figure 13: Innaloo Precinct Plan	Pg.44
Figure 14: Woodlands Precinct Plan	Pg.48
Figure 15: Minimum Dwellings by street block in the Innaloo Precinct	Pg.50
Figure 16: Performance Framework	Pg.56
Figure 17: Land Ownership Map	Pg.62
Figure 18 Aboriginal Sites on the DIA Site Register	Pg.66
Figure 19: Contaminated Sites and Soils	Pg.72
Figure 20: Wetlands and Native Vegetation	Pg.74
Figure 21: Locational Context	Pg.77
Figure 22: Existing Movement Network	Pg.81
Figure 23: Long Term Transport Plan	Pg.97
Figure 24: Staging of Long Term Transport Plan	Pg.97
Figure 25: Proposed Stirling Station Interchange	Pg.101
Figure 26: Proposed Pedestrian Infrastructure	Pg.106
Figure 28: Proposed Cycle Network	Pg.108
Figure 28: Stephenson Avenue (Karrinyup Road to Cedric Street)	Pg.109
Figure 29: Stephenson Avenue Cross Section (Cedric Street to North side of Freeway)	Pg.110
Figure 30: Stephenson Avenue Cross Section – Stephenson Bridge	Pg.110
Figure 31: Stephenson Avenue Cross Section (Freeway to Howe Street)	Pg.111
Figure 32: Stephenson Avenue Cross Section (Howe Street to Scarborough Beach Road)	Pg.111
Figure 33: Stephenson Avenue Cross Section (Scarborough Bch Rd to Jon Sanders Drive)	Pg.112
Figure 34: Scarborough Beach Road Cross Section (Odin Rd to King Edward Rd)	Pg.112
Figure 35: Ellen Stirling Boulevard Cross Section (Scarborough Beach Road to Howe Street)	Pg.113
Figure 36: Ellen Stirling Boulevard Cross Section (between Cedric Street and Howe Street)	Pg.113

Figure 37: Oswald Street Cross Section (East of Stephenson Avenue)	Pg.114
Figure 38: Oswald Street Cross Section (West of Stephenson Avenue)	Pg.114
Figure 39: Howe Street Cross Section (between King Edward Road and Stephenson Avenue)	Pg.115
Figure 40: Howe Street Cross Section (between Stephenson Avenue and Ellen Stirling Boulevard)	Pg.115
Figure 41: Guthrie St Cross Section	Pg.116
Figure 42: Sarich Court Cross Section	Pg.116
Figure 43: Cedric Street (Odin Road to Freeway)	Pg.117
Figure 44: Cedric Street (Freeway to Stephenson Avenue)	Pg.117
Figure 45: Cedric Street (Stephenson Avenue to Karrinyup Road)	Pg.118
Figure 46: Karrinyup Road (Freeway to Cedric Street)	Pg.118
Figure 47: Hertha Road Cross Section (without Hertha Road Freeway Ramps)	Pg.119
Figure 48: King Edward Road and Selby Street Cross Sections	Pg.119
Figure 49: Figure 49: Proposed Tunnel Designs	
Figure 50: Proposed Open Space Network	Pg.127
Figure 51: Proposed infrastructure Servicing Concept Incorporating Trigeneration	Pg.135
Figure 52: Proposed Infrastructure Servicing Concept Incorporating Geothermal	Pg.136
Figure 53 Trigeneration Network	Pg.137
Figure 54 Structure Planning Process	Pg.140

List of Tables

Table 1: Use Class Table	Pg.12
Table 2: Maximum Parking Arrangements by Zone	Pg.21
Table 3: Urban Typology Framework Summarised	Pg.25
Table 4: Sign Type by Land Use Sectors	Pg.27
Table 5: Southern Precinct Land Use Targets	Pg.29
Table 6: Station Precinct Land Use Targets	Pg.34
Table 7: Northern Precinct Land Use Targets	Pg.36
Table 8: Innaloo Precinct Land Use Targets	Pg.39
Table 9: Osborne Park Precinct Land Use Targets	Pg.43
Table 10: Woodlands Precinct Land Use Targets	Pg.47
Table 11: Aboriginal Sites on the DIA Site Register Structure Plan Area	Pg.67
Table 12: Structure Plan Area Overview	Pg.78
Table 13: Stirling City Centre Housing Targets	Pg.87
Table 14: Commercial Land Use Targets	Pg.90
Table 15: Stirling City Centre Employment Composition	Pg.91
Table 16: Stirling City Centre - Projected Travel Mode Split (Total Trips)	Pg.96
Table 17: Number of Parking Bays (Range) and Estimated Daily Traffic	Pg.122
Table 18: Stirling City Centre Parking Ratios for Non-Residential	Pg.122

A place of plenty

A place of celebration

A place of trade

Executive Summary

Stirling City Centre and the adjoining Herdsman Glendalough Area will form Perth's largest Activity Centre outside of the CBD in land area and employment. Specifically, Stirling City Centre will become an intensely developed City focused around Stirling Station.

Stirling City Centre is currently characterised by a series of buildings located in the middle of car parks with large tracts of vacant land. It is poorly connected, suffers high levels of vehicle congestion and is hostile to pedestrians, cyclists and public transport users. To add to the issues faced by the centre there are a number of issues that have been unresolved for a long period of time including an unused freeway reserve cutting the centre into two and a disused landfill site directly abutting Stirling Station.

Extensive consultation with the community over a number of years has highlighted that these issues are stopping the area from revitalising and are having a significant negative impact on the image of the area.

Through years of collaborative planning with the community, business and government a new vision has been inspired to create a 'city for people' which will ensure that there is a transformation of the transport system from a vehicle dominated experience to one that is pleasant for pedestrians, cyclists and public transport users.

To realise this transformation new transit lanes (ultimately light rail), separated cycling lanes and wide tree-lined footpaths will be delivered. New roads will construct a traditional city grid that will release large parcels of new land for the development of multi-storey mixed use buildings that contribute and activate the new improved streets. New parks, plazas and squares will be constructed over time adding to the vibrancy of the area. New sites for schools, utilities and light rail depots will be set aside for the new community. Ultimately the landfill site will be remediated and turned into new areas for mixed use development.

The Stirling City Centre Structure Plan will help facilitate the delivery of key parts of this vision. This Structure Plan is a regional level Structure Plan that provides the high level guidance on the future direction of the City, however the Structure Plan alone will not ensure the vision is delivered. Future Detailed Area Plans are required to be prepared for each precinct, including developer contribution plans (where required) to apportion costs equitably for key local infrastructure requirements.

In addition to these developer contribution plans additional funding is required for significant regional infrastructure that cannot be borne by local landowners alone. Future business cases and funding submission to the State and Federal Government will be required to realise the full vision of the Stirling City Centre.





Part 1

The Structure Plan

1.1 Structure Plan Area

This Structure Plan shall apply to the land contained within the inner edge of the line denoting the Structure Plan boundary shown on Figure 1.

1.2 Structure Plan Content

This Structure Plan comprises:

a) Part 1 – Statutory Section

This section contains the Structure Plan Map and statutory planning provisions and requirements.

b) Part 2 – Non-Statutory (explanatory) Section

This section identifies the objectives of the statutory provisions of Part 1. It is to be used as a reference guide to interpret and justify the Structure Plan's implementation.

c) Appendices – Technical reports and supporting plans and maps

Appendix A - The Stirling City Centre Alliance - Performance Framework

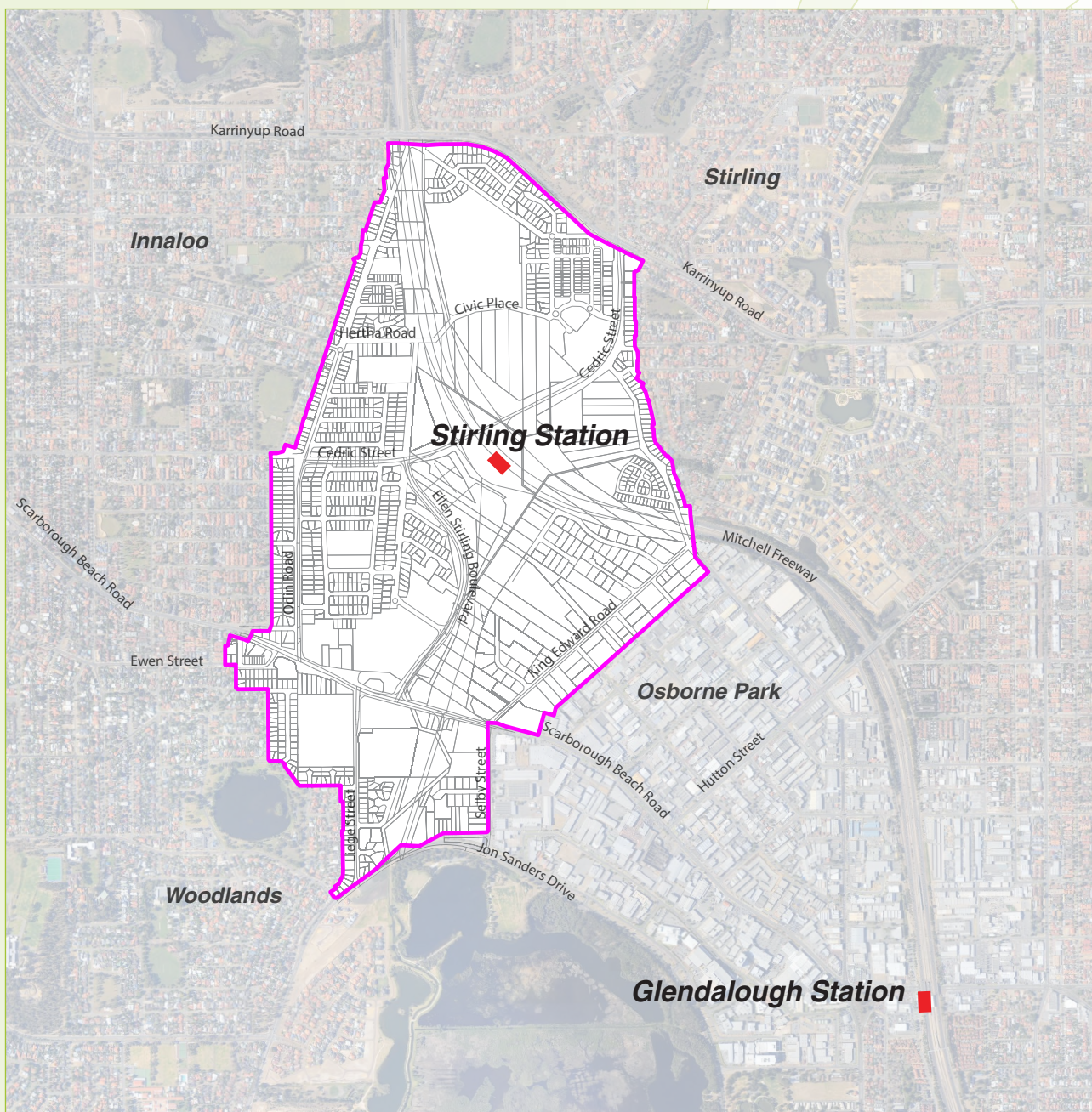
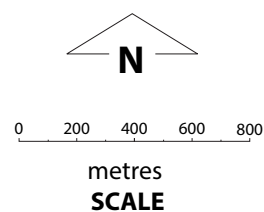


Figure 1: Stirling City Centre Structure Plan Area

Legend

- Structure Plan Area
- Train Station



Revised 11 Sept 2014

1.3 Interpretation and Relationship with the Scheme

An amendment to the City's Local Planning Scheme No.3 has been gazetted which has zoned much of the Stirling City Centre Structure Plan Area to 'Development Zone' (refer to Figure 2) and established a Development Area over the precinct. The creation of a Development Zone and Area now enables the adoption of this Structure Plan in accordance with Clause 6A.8.3 of the City's Local Planning Scheme No.3. Unless otherwise specified in this part, the words and expressions used in this Structure Plan shall have the respective meanings given to them in the City of Stirling Local Planning Scheme No. 3 (the Scheme) including any amendments gazetted thereto.

Pursuant to Clause 6A of the Scheme:

- a) If a provision of the Structure Plan is inconsistent with a provision of the Scheme, then the provision of the Scheme prevails to the extent of the inconsistency;
- b) Any other provision, standard or requirement of Part One of the Structure Plan that is not otherwise contained in the Scheme, shall apply to the structure plan area as though it is incorporated into the Scheme, and shall be binding and enforceable to the same extent as if part of the Scheme; and
- c) Part Two of this Structure Plan and all appendices are to be used as a reference only to clarify and guide interpretation and implementation of Part One.

1.4 Relationship to Residential Design Codes

In accordance with Section 6.11.5 of the City of Stirling Local Planning Scheme No.3;

- a) The Residential Design Codes apply only to residential development on land within the Stirling City Centre Special Control Area which has been designated with a residential density code by a Structure Plan made under Part 6A of the Scheme.
- b) The development of land referred to in paragraph (a) for any of the residential purposes dealt with by the Residential Design Codes is to have due regard to the provisions of those Codes.
- c) Residential development of land within the Stirling City Centre Special Control Area which has not been designated with a Residential Density Code shall be subject to the development requirements specified in any local planning policy adopted under Part 2 of the Scheme for the purpose of guiding the Council in determining applications for approval of such residential development.
- d) Clause 5.3.2 shall not apply to residential development in the Stirling City Centre Special Control Area.

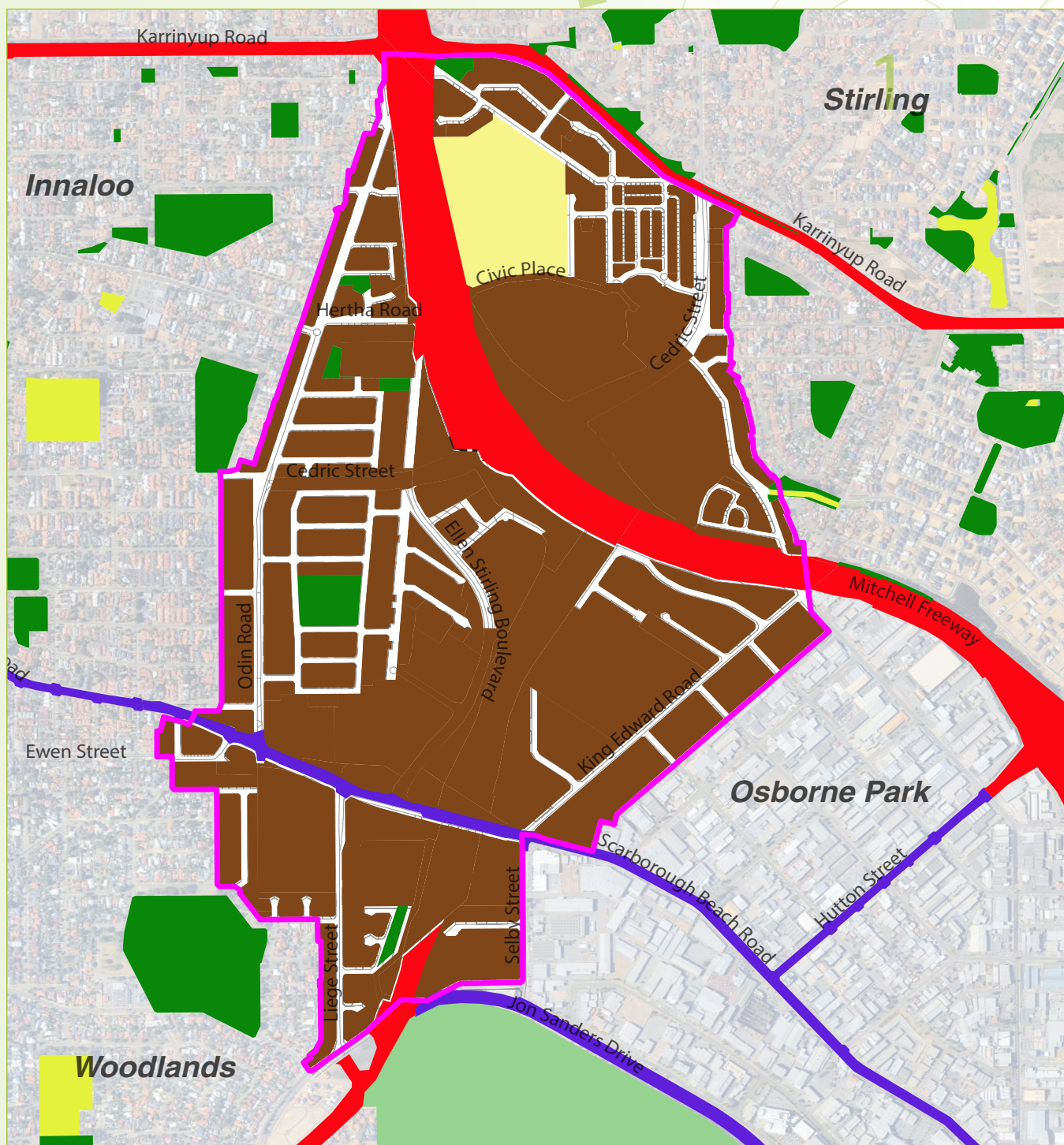
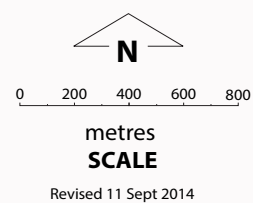


Figure 2: Development Zone and Reserves

Legend

	Structure Plan Area		Regional Open Space
	Development Zone		Local Public Open Space Reserve
	Primary Regional Road Reserve		Public Use Reserve
	Other Regional Road Reserve		Hospital



1

1.5 Operation

In accordance with Clause 6A.12 of the Scheme, this Structure Plan shall come into operation when it is either certified by the Western Australian Planning Commission (WAPC) pursuant to Clause 6A.10 of the Scheme or adopted, signed and sealed by the Council pursuant to Clause 6A.9 of the Scheme, whichever is the latter.

1.6 Development Requirements

The Council is not to:

- a) Consider recommending subdivision; or
- b) Approve development of land;

within the Stirling City Centre Structure Plan Area unless there is a Detailed Area Plan for the relevant part of the Development Area.

Notwithstanding the above, development with a Net Lettable Area greater than 2000m² shall not be approved within the Stirling City Centre Special Control Area until a Detailed Area Plan for the lot or lots on which the development is proposed has been adopted under the provisions of Clause 6A.16 of the City's Local Planning Scheme No.3.

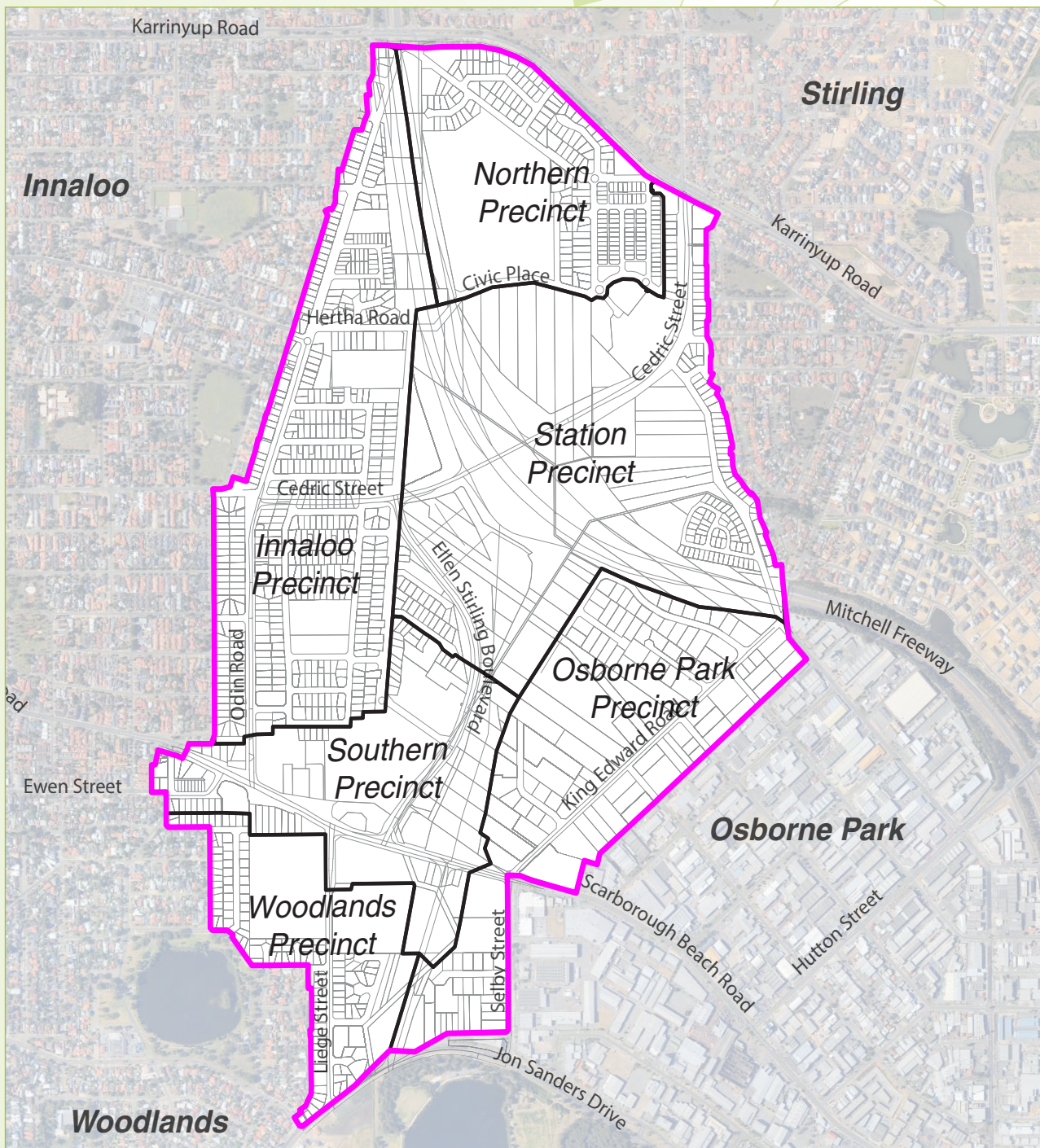
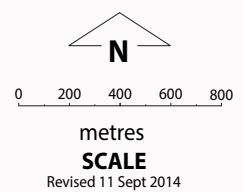


Figure 3: Precinct Plan

Legend

- Structure Plan Area
- Precinct Boundary



1.7 Detailed Area Plans

The Council shall require the preparation of a Detailed Area Plan for each precinct within the Stirling City Centre Special Control Area in accordance with the provisions of clause 6A.16 of the Scheme, Part 1 Clause 5 of the Stirling City Centre Structure Plan, the relevant clauses for each precinct as outlined in Clause 6.11.7 of the City's Local Planning Scheme No.3 and the Stirling City Centre Performance Framework (Appendix A).

Notwithstanding the above the City may consider individually prepared Detailed Area Plans for street blocks. The City will not consider Detailed Area Plans in these areas for individual sites in accordance with the Structure Plan.

Individual Detailed Area Plans for each precinct identified in Figure 3 will be prepared in accordance with Clause 6A.16 and include the following:

- How it relates to the Structure Plan
- How land uses are spatially distributed in 3 dimensions
- Targets for housing and employment
- Existing land uses, environmental and other values
- Pattern of surrounding development, and existing transport network
- Proposed road layout and subdivision pattern
- Proposed urban typologies
- Building heights
- Proposed movement network
- Public open space
- Drainage
- Implementation staging
- Servicing requirements
- Statutory mechanisms
- Developer contributions

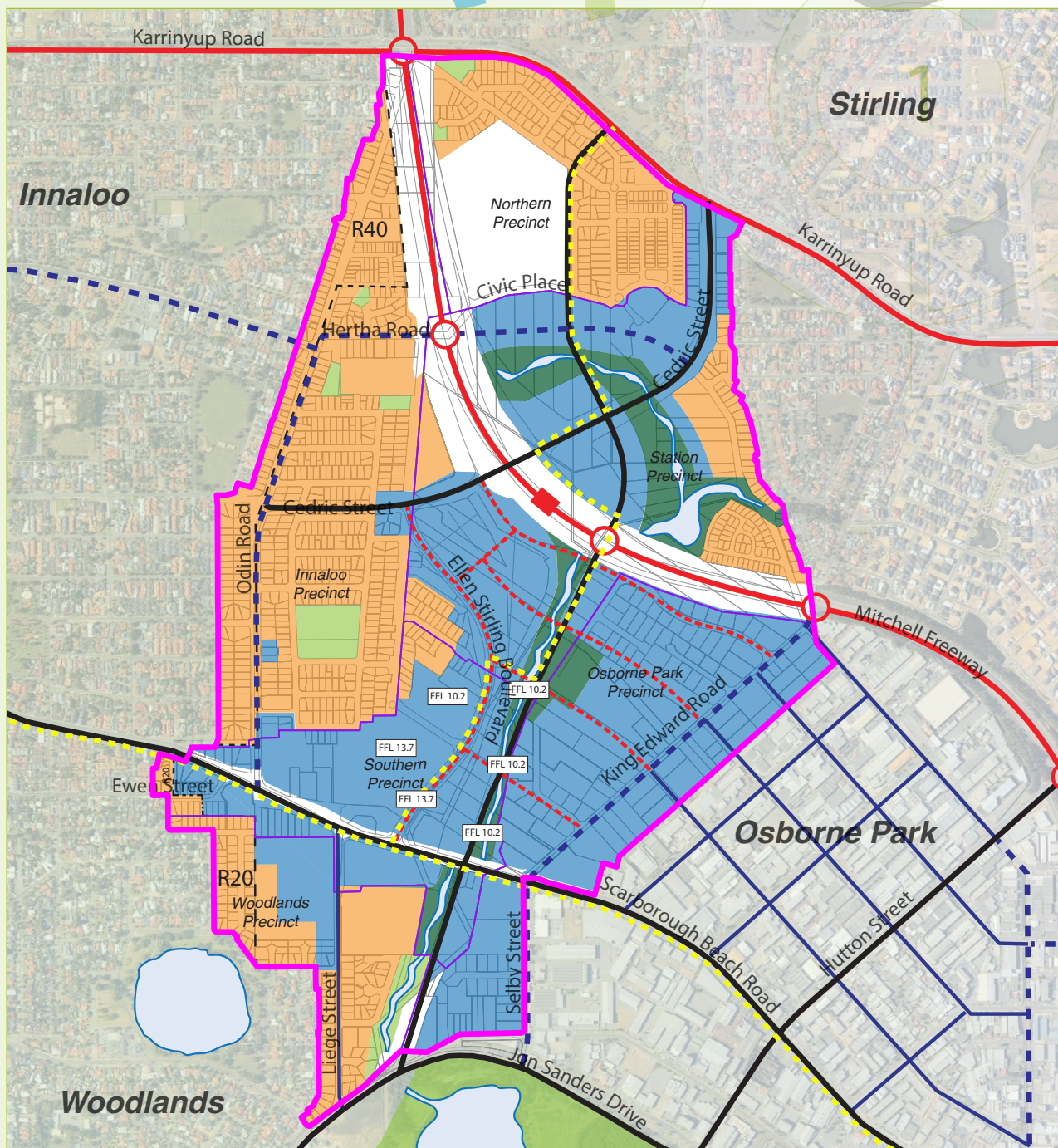
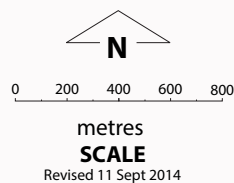


Figure 4: Stirling City Centre Structure Plan

Legend

- Structure Plan Area
 Precinct Boundary
 City Centre Sector
 Residential Sector
 FFL 13.7
 Density Coding
 District Open Space
 District Drainage
 Existing Open Space
 Primary Distributor
 District Distributor A
 Light Rail Route
 District Distributor B
 Neighbourhood Connector
 City Centre Connector
 Rail/Bus Interchange Facility
 Freeway Access Point

Note: Indicative land use boundaries
subject to change in DAP's



Land Use Provisions

2.1 Land Use Sectors

The Structure Plan area is classified into the following Land Use Sectors as identified in Figure 4.

2.1.1 City Centre Land Use Sector

The objectives of the City Centre Land Use Sector are –

- a) To provide for a variety of land uses and activities which contribute to a vibrant and active street front;
- b) To provide a high-density, multi-storey built form outcome with vertical integration of land uses;
- c) To facilitate the creation of employment within the area so as to reduce the demand for travel and enhance the level of self sufficiency; and
- d) To ensure a high standard of design that negates issues such as noise, smell and vibration that are related to mixed use developments.

2.1.2 Residential Land Use Sector

The objectives of the Residential Land Use Sector are –

- a) To provide for residential development at a range of densities with a variety of housing types, sizes and tenures to meet the current and future needs of the community; and
- b) To provide for a range of non-residential uses which are compatible with and complementary to residential development.

2.2 Land Use Categories

There are seven Land Use Categories identified in the Structure Plan. The Land Use Categories and the permissibility of uses for each category are described in Table 1: Use Class Table. The objectives of each Land Use Category are set out below and shall be applied in Detailed Area Plans to provide the type of uses that are intended.

The approved Detailed Area Plans shall assign a Land Use Category or Categories to every lot located within the Detailed Area Plan's boundaries. Land Use Categories may be applied to a portion of land within the same lot or vertically to each level within a multi-storey building.

All Land Use Categories are permitted in both the City Centre and Residential Land Use Sectors.

2.2.1 Mixed Use

- a) To provide a variety of commercial and non-commercial uses, including residential.
- b) To facilitate smaller retail establishments and entertainment uses on the street level outside of the Active Streets identified in Figure 26 of Part 2 of the Structure Plan, that are compatible with residential and other non-active uses on upper levels.
- c) To allow for residential and non-active commercial uses on upper floors.

2.2.2 Business

- a) To facilitate uses that create employment.
- b) To facilitate a mix of non-residential uses, including retail and office.
- c) To facilitate active non-residential land uses to all street frontages identified as Active Streets in Figure 26 of Part 2 of the Structure Plan.

2.2.3 Restricted Business

- a) To provide for a limited range of small-scale office and commercial development which is compatible with residential development.

2.2.4 City Residential

- a) To provide for residential development including a range of dwelling types and sizes to meet current and future needs at high densities.
- b) To provide for a range of non-residential uses which are compatible with and complementary to residential development.

2.2.5 Urban Residential

- a) To provide for residential development that includes a range of dwelling types and sizes to meet current and future needs at medium densities.

2.2.6 Civic

- a) To provide for a range of community facilities that are compatible with surrounding development.

2.2.7 Deferred Development Area

- a) A Detailed Area Plan may classify land 'Deferred Development Area' where unresolved planning, environmental, infrastructure servicing and/or other impediments to coordinated development apply.

2.3 Land Use Table

Land Use Category Use Class	Mixed Use	Business	Restricted Business	City Residential	Urban Residential	Civic	Deferred Development Area
Aged or Dependent Persons Dwelling	P	X	X	P	D	D	As Per Adopted Detailed Area Plan
Amusement Parlour	P	P	X	X	X	D	
Bed and Breakfast	P	X	X	P	D	X	
Betting Agency	P	P	X	X	X	X	
Boarding House	P	X	X	P	X	X	
Car Park	D	D	D	X	X	P	
Caravan Park	X	X	X	X	X	X	
Caretaker's Dwelling	P	D	D	P	D	D	
Child Care Premises	D	D	D	P	D	P	
Cinema/Theatre	D	P	X	X	X	P	
Civic Use	P	P	P	P	X	P	
Club Premises	P	P	D	X	X	P	
Community Purposes	P	P	D	P	X	P	
Consulting Rooms	P	P	D	X	X	X	
Convenience Store	P	P	D	X	X	P	
Corrective Institution	X	X	X	X	X	X	
Drive Through Fast Food Outlet	X	X	X	X	X	X	
Educational Establishment	P	P	D	X	X	X	
Exhibition Centre	P	P	X	X	X	P	
Family Day Care	P	P	D	D	X	X	
Fast Food Outlet	P	P	D	X	X	X	
Fuel Depot	X	X	X	X	X	X	

Land Use Category Use Class	Mixed Use	Business	Restricted Business	City Residential	Urban Residential	Civic	Deferred Development Area
Funeral Parlor	X	P	D	X	X	X	As Per Adopted Detailed Area Plan
Garden Centre	P	P	X	X	X	X	
Grouped Dwelling	X	X	X	X	P	X	
Hardware Showroom	X	D***	X	X	X	X	
Home Business	P	X	X	P	P	X	
Home Occupation	P	X	X	P	D	X	
Home Office	P	X	X	P	P	X	
Home Store	P	X	X	P	D	X	
Hospital	P	P	X	X	X	X	
Hostel	P	X	X	P	X	X	
Hotel	P	P	X	X	X	X	
Industry - Cottage	D	D	X	X	X	X	
Industry - Extractive	X	X	X	X	X	X	
Industry - General	X	X	X	X	X	X	
Industry - Light	X	X	X	X	X	X	
Industry - Mining	X	X	X	X	X	X	
Industry - Noxious	X	X	X	X	X	X	
Industry - Rural	X	X	X	X	X	X	
Industry - Service	X	P	X	X	X	X	
Institutional Building	D	P	X	X	X	X	
Institutional Home	D	P	X	X	X	X	
Market	P	P	D	D	X	P	
Media Establishment	P	P	P	X	X	X	
Medical Centre	P	P	X	X	X	X	
Motel	P	P	X	X	X	X	

Land Use Category Use Class	Mixed Use	Business	Restricted Business	City Residential	Urban Residential	Civic	Deferred Development Area
Motor Vehicle Repair	X	D	X	X	X	X	As Per Adopted Detailed Area Plan
Motor Vehicle Wash	X	D	X	X	X	X	
Motor Vehicle, Boat or Caravan Sales	X	X	X	X	X	X	
Multiple Dwelling	P	X	X	P	P	X	
Night Club	X	D	X	X	X	X	
Nursing Home	P	X	X	D	X	X	
Office	P	P	P**	X	X	D	
Park Home Park	X	X	X	X	X	X	
Personal Services	P	P	D	X	X	X	
Place of Worship	P	P	X	P	P	D	
Reception Centre	P	P	X	X	X	X	
Recreation - Private	P	P	X	X	X	D	
Residential Building	P	X	X	P	X	X	
Restaurant	P	P	P	X	X	D	
Restricted Premises	P	P	X	X	X	X	
Retirement Complex	D	X	X	P	X	X	
Rural Pursuit	D	D	D	D	D	D	
Salvage Yard	X	X	X	X	X	X	
Service Station	X	D	X	X	X	X	
Shop	P*	P	P**	X	X	X	
Short Stay Accommodation	P	P	P	P	X	X	
Showroom	X	D***	X	X	X	X	
Single Bedroom Dwelling	P	X	X	P	P	X	

Land Use Category Use Class	Mixed Use	Business	Restricted Business	City Residential	Urban Residential	Civic	Deferred Development Area
Single House	X	X	X	P	P	X	As Per Adopted Detailed Area Plan
Storage (Outdoor)	X	X	X	X	X	X	
Tavern	P	P	X	X	X	X	
Telecommunications Infrastructure	D	D	D	A	X	D	
Trade Display	X	X	X	X	X	X	
Transport Depot	X	X	X	X	X	X	
Veterinary Centre	D	P	X	X	X	X	
Warehouse	X	X	X	X	X	X	
Wrecking	X	X	X	X	X	X	

Table 1: Use Class Table

* Maximum net lettable areas of 1000m² per tenancy.

** Maximum net lettable areas of 300m² per tenancy.

*** Permitted only on lots abutting King Edward Road.

2.3.1 Interpretation of Table 1 – Land Use Permissibility

Table 1 assigns the 'P', 'D', 'A' and 'X' classification for each use class as it applies to a land use category. The symbols used in the cross reference in Table 1: Use Class Table have the same meaning as identified in Clause 4.3.2 of the City's Local Planning Scheme No.3.

2.3.2 Use Not Listed

If a person proposes to carry out on land any use that is not specifically mentioned in Table 1 and cannot reasonably be determined as falling within the type, class or genus of activity of any other use category, the Council should consider this use in accordance with the provisions of Clause 4.4.2 of the City's Local Planning Scheme No.3.

2.3.3 Non-Conforming Use

For Non-Conforming uses the provisions of Clause 4.8 - 4.12 of the City's Local Planning Scheme No.3 shall apply.

2.4 Active Frontages

Active street fronts that encourage pedestrian activity and vitality in the Stirling City Centre shall be on those streets identified in Figure 26 by;

- a) Locating retail and other active commercial uses on the ground floor level;
- b) Locating office and other non-active uses (residential) on upper levels ; and
- c) Including impervious, opaque awnings with a minimum width of 2.5m.

2.5 Residential Requirements

2.5.1 Distribution of Minimum Dwelling Targets

For the purpose of determining the distribution of minimum dwelling yields each precinct's Detailed Area Plan will need to identify an appropriate layout of street blocks based on the road configurations identified in the Structure Plan Map. Once street blocks have been determined the minimum housing targets will be distributed among the street blocks to enable suitable residential densities. Minimum Residential Dwelling targets for each precinct are outlined in Section 5 and should be equally distributed between street blocks within each precinct.

To achieve the dwelling targets for each precinct as outlined in the Stirling City Structure Plan;

- The minimum number of dwellings required for each lot shall be calculated using the formula below.
- Note: Minimum number of dwellings does not apply to a single dwelling development.

$$\text{No. Dwellings} = \left(\frac{\text{Minimum No. of Dwellings per Street Block (Identified in Detailed Area Plans)}}{\text{Street Block Land Area m}^2 \text{ (Identified in Detailed Area Plans)}} \right) \times \text{Lot Area m}^2$$

2.5.2 Transfer Minimum Dwelling Targets

For development within the mixed use land use area the City will consider the transfer of one lot's minimum residential development requirement to another lot providing;

- a) The lots are within the same street block as identified in the Detailed Area Plan; and
- b) A legal agreement has been entered into between the affected land owners and the City to ensure that the transfer is agreed.

2.4.3 Aspirational Dwelling Targets

The precinct-specific Detailed Area Plans shall identify options for incentivising residential development in the mixed use land use category areas beyond the minimum requirements through plot ratio bonuses or other similar mechanisms for the purpose of achieving the aspirational dwelling targets identified in the Structure Plan.

2.5 Public Open Space

The area identified in Figure 4 as District Open Space shall be ceded free of cost to the City as a component of adjacent subdivision and/or development approval for the complete redevelopment of a property (e.g. demolish existing building and replace with a new building) except within the Osborne Park Precinct.

2.5.1 The Osborne Park Precinct Developer Contributions

A Developer Contribution Plan is to be prepared for the Osborne Park Precinct at the same time as the Osborne Park Precinct Detailed Area Plan. The Contribution Plan will include the establishment of a funding mechanism for the provision of open space in this precinct.

Transport Provisions

3.1 Road Reserves

Figure 5 indicates the location of key road connections which provide for regional traffic and local circulation. Cross sections for all of these roads have been developed and are illustrated in Part 2. All roads shall be upgraded/constructed in accordance with the cross sections in Part 2 Clause 4.4.4.

Figure 5 identifies proposed new roads and those existing roads that require upgrades and classifies them as follows;

3.1.1 Fixed Location of Proposed Ceded Roads

These roads shall be constructed and ceded to the City free of cost as a component of subdivision and /or development approval. The location of these roads is fixed.

3.1.2 Fixed Location of Proposed Developer Contribution Plan Roads

These roads shall be funded in accordance with a developer contribution plan prepared as part of the relevant Detailed Area Plan. The location of these roads is fixed.

3.1.3 Indicative Location of Proposed Ceded Roads

These roads shall be constructed and ceded to the City free of cost as a component of adjacent subdivision and/or development approval for the complete redevelopment of a property (e.g. demolish existing building and replace with a new building).

3.1.4 Indicative Location of Proposed Developer Contribution Plan Roads

These roads shall be funded in accordance with a developer contribution plan prepared as part of the precinct specific Detailed Area Plan. Their exact location will be explored as part of the precinct specific Detailed Area Plan.

3.1.5 Existing Roads to be Upgraded

The following existing roads within the Stirling City Centre require upgrades. Their location will be fixed and upgrades will be funded as follows.

- a) Carbon Court - The upgrade of this road shall be funded in accordance with a developer contribution plan prepared as part of the Osborne Park Precinct Detailed Area Plan.
- b) Cedric Street - The upgrade of this road shall be funded in accordance with a developer contribution plan prepared as part of the Station Precinct Detailed Area Plan.
- c) Ellen Stirling Boulevard - To be upgraded as a component of adjacent subdivision and/or development approvals. Funding details to be explored in the Detailed Area Plans for the Southern Precinct .
- d) Hertha Road - The upgrade of this road shall be funded by the City if and when the new Hertha Road bridge is constructed over the freeway.
- e) King Edward Road - The upgrade of this road shall be funded in accordance with a developer contribution plan prepared as part of the Osborne Park Precinct Detailed Area Plan.
- f) Odin Road - To be upgraded by the City of Stirling.
- g) Sarich Court - The upgrade of this road shall be funded in accordance with a developer contribution plan prepared as part of the Osborne Precinct Detailed Area Plan.
- h) Selby Street - The upgrade of this road shall be funded in accordance with a developer contribution plan prepared as part of the Osborne Park Precinct Detailed Area Plan.
- i) Stephenson Avenue - Upgrade to be joint funded by the City of Stirling and the State Government.
- j) Scarborough Beach Road - Upgrade to be joint funded by the City of Stirling and the State Government.
- k) Karrinyup Road - Upgrade to be funded by the State Government.

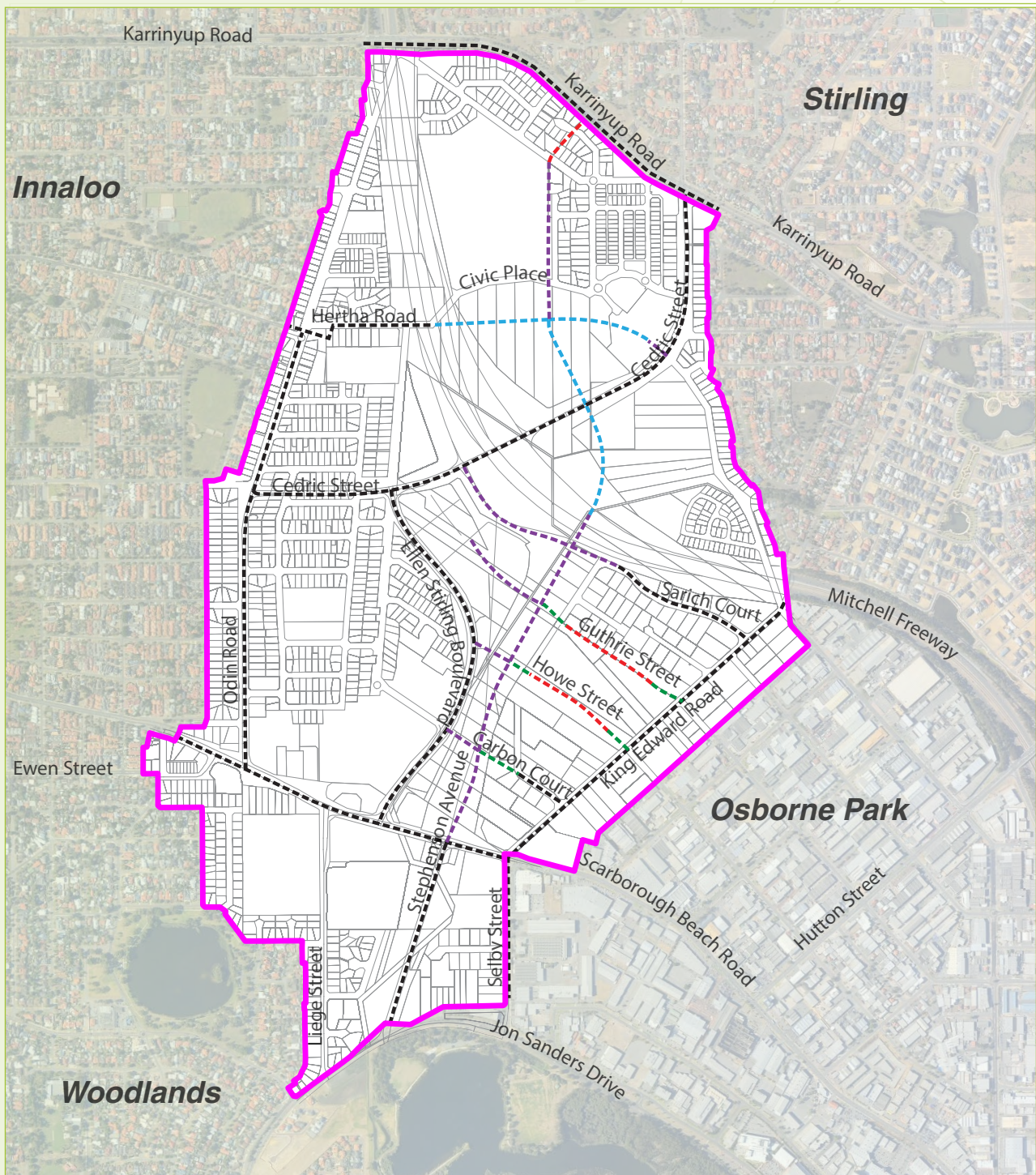
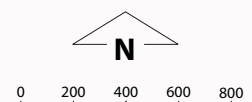


Figure 5: Road Plan

Legend

- Structure Plan Area
- - - - Existing Roads to be Upgraded
- - - - Fixed Location of Proposed Ceded Roads
- - - - Fixed Location of Proposed Developer Contribution Plan Roads
- - - - Indicative Location of Proposed Ceded Roads
- - - - Indicative Location of Proposed Developer Contribution Plan Roads



metres
SCALE

Revised 11 Sept 2014

3.2 Parking

3.2.1 Parking Ratios

Parking ratios for non-residential uses in the Stirling City Centre shall be as per Table 2 and Figure 6. Parking Boundaries - Stirling City Centre. Parking for Residential uses are as follows.

- Parking for residential development shall be in accordance with the Residential Design Codes.
- Parking for short stay accommodation shall be 1 bay per 2 short stay accommodation units.

All other parking provisions shall be in accordance with the relevant parking policy.

	Maximum Parking Allowed Non Residential Uses	Minimum amount of Public Parking	Minimum amount of Short Stay Parking
Stirling City Centre	300 Bays Per Hectare*	50%	60% of public parking
Retail Core Area	400 Bays per Hectare **	350 Bays per Hectare	60% of public parking

Table 2: Maximum Parking Arrangement by Zones

* Reverts to 250 bays per hectare by 31 December 2016.

** Needs reviewing after 3 years from the adoption of this policy.

3.2.1.1 Public Parking

Public Parking means parking that is provided or offered to members of the public whether or not upon payment of a fee or subject to other condition, but does not include parking that involves the use of a reserved or dedicated parking bay.

3.2.1.2 Short Stay Parking

Short Stay Public Parking Bays means bays that are available to the public where at least 50% of vehicles stay less than 4 hours and at least 90% stay less than 6 hours.

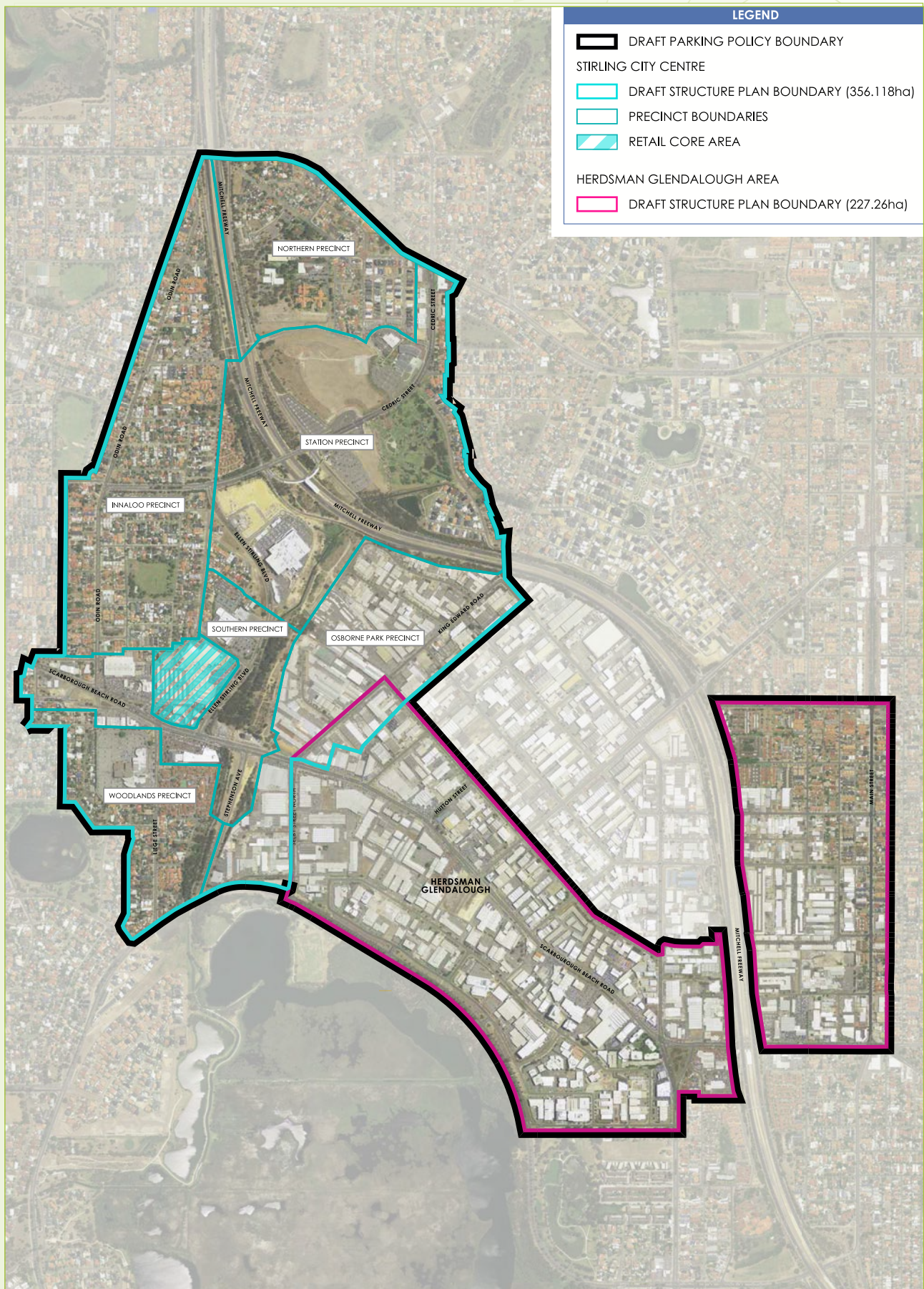


Figure 6: Parking Boundaries - Stirling City Centre.

Urban Design Provisions

4.1 Urban Typologies

4.1.2 Character Zones

Character zones engender the principles contained within the Structure Plan and are defined according to their incremental proximity to the City Centre 'heart'. The naming protocol of the character zones identified in Figure 7 has been selected to best describe a common understanding of the places.

- a) Residential Gardens
- b) Residential Communal
- c) Mixed-Use Lifestyle
- d) City Centre Heart
- e) Civic Identity

4.1.3 Typologies by Character Zones

Table 3 identifies the details of each individual Urban Typology and the Character Zones which are considered appropriate. This table shall inform the preparation of the individual precinct specific Detailed Area Plans by utilising a combination of the Character Zones in appropriate locations within a Detailed Area Plan.

4.2 Street Block Dimensions

No individual street block shall have a length greater than 150m along any boundary without an intersecting street.

4.3 Finished Floor Levels

Unless otherwise identified in Figure 4 finished floor levels of street blocks and roads shall be no greater than 0.5m above natural ground level.

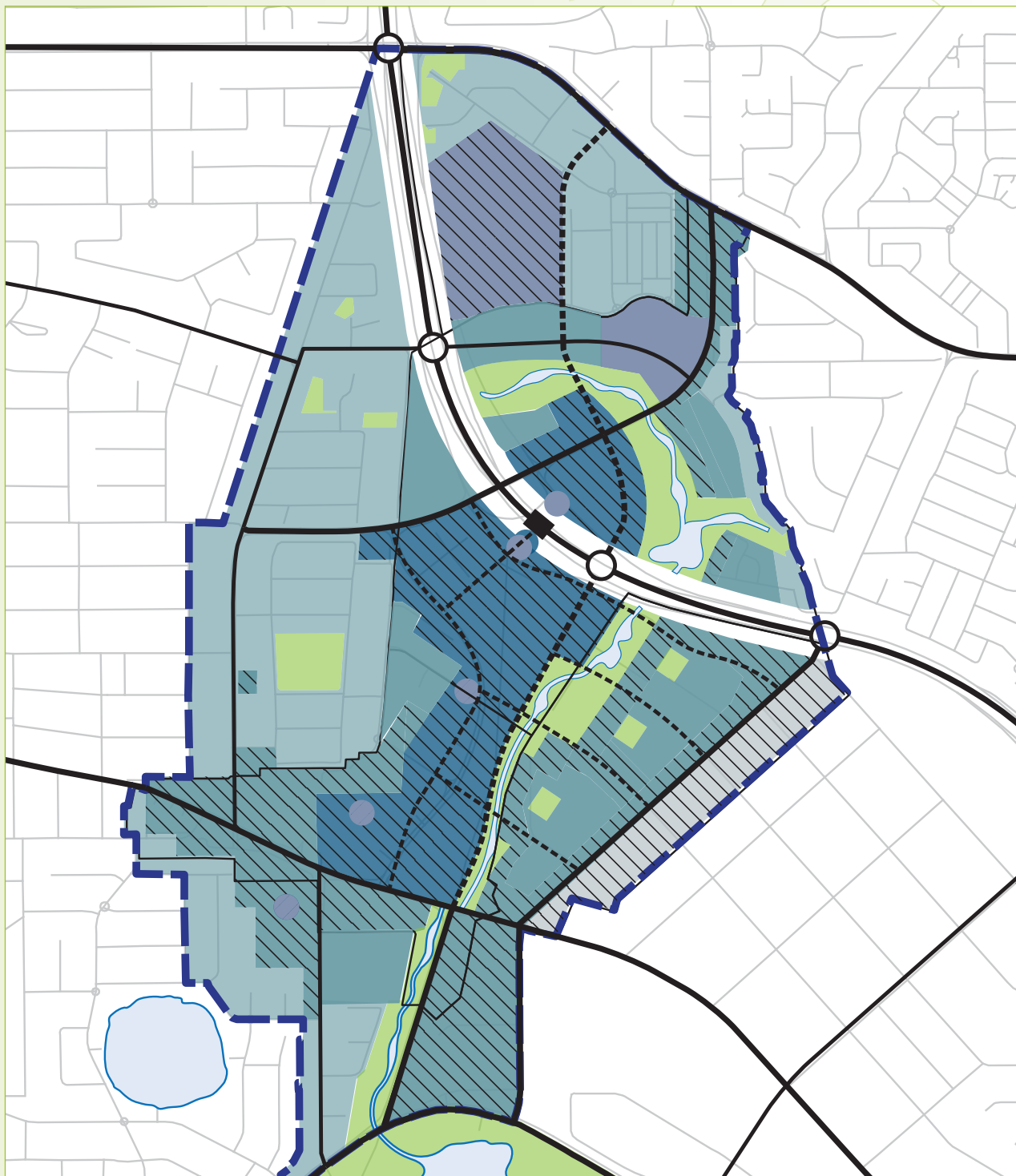


Figure 7: Character Zones







- | | |
|---|---|
|  1. RESIDENTIAL GARDENS |  PUBLIC (HOSPITAL) |
|  2. RESIDENTIAL COMMUNAL |  COMMERCIAL |
|  3. MIXED-USE LIFESTYLE | |
|  4. CITY CENTRE HEART | |
|  5. CIVIC IDENTITY | |

Table 3: Urban Typology Framework Summarised

	TYPE	MIN LOT SIZE	OPTIMUM LOT ORIENTATION	CARPARK OPTION	USE	LOCATION DETAIL (x)=max storey	PRECINCT
1	3 storey GROUP HOUSE	500 m ² -1500m ²	E-W	UNDER MAIN BUILDING SEMI-BASEMENT	RES	Tip site – edge Sth hospital All Innaloo Woodlands – edge Cinema edge	STATION NORTHERN INNALOO WOODLANDS
2	3 storey PAVILION CLUSTER	700 m ²	DESIGN SPECIFIC	UNDER MAIN BUILDING ON GRADE REAR SEMI-BASEMENT	RES	Tip site – edge Sth hospital All innaloo Woodlands - edge	STATION NORTHERN INNALOO WOODLANDS
3	3-4 storey CENTRAL BLOCK	800 m ²	E-W	UNDER MAIN BUILDING ON GRADE REAR SEMI-BASEMENT	RES	Around La Dongara (4) All innaloo (3) Sth hospital(3) Liege st (3) Woodlands–edge(3)	INNALOO NORTHERN WOODLANDS
4	3-5 storey DOUBLE BLOCK	800 m ²	N-S	UNDER MAIN BUILDING ON GRADE REAR SEMI-BASEMENT	MIX RES	Oswald, Twyford Stavely, Betw Step + Ellen Stirling mid-blk. Cinema edge	STATION SOUTHERN WOODLANDS
5	3-4 storey COURTYARD	1600 m ²	E-W	UNDER MAIN BUILDING ON GRADE REAR SEMI-BASEMENT	RES	Liege. Cinema edge. Woodlands–edge Innaloo (3) Parkland Villas	WOODLANDS INNALOO
6	3-4 storey PARTIAL COURTYARD	700 m ²	ANY	UNDER MAIN BUILDING ON GRADE REAR SEMI-BASEMENT	RES	Around La Dongara (4) All innaloo (3) Sth hospital(3) Woodlands–edge(3) Liege st (3) Parkland Villas	INNALOO NORTHERN WOODLANDS
7	3-5 storey PERIMETER	1600 m ²	E-W	UNDER MAIN BUILDING ON GRADE REAR SEMI-BASEMENT DECK	MIX RES	Oswald/Twy/Stav Tip site, Cedric Ellen Stirling Stephenson Cin nth(4) Parkland Sch Bch King Edw	STATION SOUTHERN WOODLANDS OSBORNE PARK
8	5-8 storey T BLOCK	1200 m ²	-	BASEMENT DECK	MIX RES	Stephenson Sch Bch (5) Cedric (5) Oswd/Twy/Stav(5) King Edw (5) Cinema –inner (7)	SOUTHERN STATION OSBORNE PARK WOODLAND
9	5-8 storey PODIUM	2000 m ²	-	BASEMENT SEMI-BASEMENT DECK	MIX RES	Tip site Station area Sand patch Stephenson Sch Bch (5) Cnr(7) King Edw (5)	SOUTHERN STATION OSBORNE PARK WOODLAND
10	4-8 storey CLUSTER	4000 m ²	DESIGN SPECIFIC	BASEMENT SEMI-BASEMENT DECK	RES	Tip site – inner Cinema – inner (7) Parkland villa (5) Inner area	STATION WOODLANDS OSBORNE PARK
11	8-15 storey PODIUM/TOWER	2000 m ²	-	BASEMENT DECK	MIX RES	Station area Sand patch	STATION
12	3-4 storey LINER BUILDING	500 m ²	N-S	ON GRADE REAR OFF SITE	COMM	Ellen Stirling Boulevard Scarborough Beach Road Sand Patch(IKEA)	STATION SOUTHERN

Table 3: Urban Typology Framework summarized

CHARACTER ZONE	MASSING MODEL	BUILDING FOOTPRINT	SECTION: ON-GRADE	SECTION: BASEMENT	SECTION: UMB/DECK PARKING
RESIDENTIAL GARDENS					
RESIDENTIAL GARDENS					
RESIDENTIAL GARDENS					
RESIDENTIAL GARDENS MIXED-USE LIFESTYLE					
RESIDENTIAL GARDENS					
RESIDENTIAL GARDENS					
RESIDENTIAL COMMUNAL MIXED-USE LIFESTYLE CITY CENTRE CIVIC IDENTITY					
RESIDENTIAL COMMUNAL MIXED-USE LIFESTYLE CITY CENTRE HEART CIVIC IDENTITY					
RESIDENTIAL COMMUNAL MIXED-USE LIFESTYLE CITY CENTRE HEART CIVIC IDENTITY					
RESIDENTIAL COMMUNAL					
CITY CENTRE HEART					
CITY CENTRE HEART					

4.4 Signage

Unless otherwise identified in the precinct specific Detailed Area Plans, signage in the Stirling City Centre is to comply with;

- The City's Local Planning Policy 6.1 – Advertising Signs
- Schedule 8 of the City's Local Planning Scheme No.3; and
- The City of Stirling Local Law relating to signs.

Subject to the provisions of the City's Local Planning Scheme No.3, Table 4 prescribes the advertising sign types which may be permitted (P) in each Land Use Sector. The applicability is determined by cross reference between the list of 'Sign Types' on the left hand side of Table 5 and the list of 'Land Use Sector' on the top of the Table 4.

Land Use Sector Sign Type	City Centre	Residential
Community Service	P	P
Construction Site/Development/Real Estate	P	P
Created Roof	P	X
Display Home	P	P
Ground Based	P	P
Hoarding	P	X
Monolith	X	X
Panel	P	P
Product Display	X	X
Projecting	P	X
Pylon	X	X
Roof	X	X
Tethered	X	X
Wall	P	P
Window	P	X

Table 4: Sign Type by Land Use Sector.

Precincts

Six precincts have been identified, as illustrated in Figure 3, and include the Southern, Station, Northern, Osborne Park, Innaloo, and Woodlands Precincts. Identifying precincts makes it possible to describe in more detail the qualities and characteristics that will give them their distinctiveness within the whole Centre, and allows for staged implementation and design development.

Planning of the precincts will evolve and be updated as issues are resolved over time. The design detail of the precincts will be 'locked down' gradually, in the most appropriate manner at the time, whilst staying true to the key structural elements and vision for Stirling City Centre. In some cases, the boundaries of precincts may alter slightly in response to detailed planning and design.

This structure plan establishes the general intent and vision for the precincts.

5

5.1 Southern Precinct

5.1.1 Character Statement

The precinct will be characterised by:

- a) Mixed use residential development with an emphasis on shopping which serves the local population and the surrounding region.
- b) A street-based shopping environment with future light rail along Ellen Stirling Boulevard which will include the redevelopment of the existing shopping centre.
- c) New housing will be in the form of high density apartments.
- e) Scarborough Beach Road to allow for light rail with a high-quality pedestrian environment lined with active ground floor uses within mid-rise, mixed use developments.

5.1.2 Land Use Targets

Aspirational Dwellings	Minimum Dwelling Targets to be Single Bedroom Dwellings	Minimum Dwellings	Minimum Commercial Floor space (NLA)
2,100	20%	1360	173,497 m ²

Table 5: Southern Precinct Land Use Targets

5.1.2.1 Minimum Commercial Floor Space

The minimum commercial land use floor spaces shall only be provided on lots within the Mixed Use Land Use Sectors.

5.1.2.2 Minimum Dwellings

The minimum dwelling targets shall be delivered on all development in accordance with the requirements identified in Clause 2.5 of Part 1 of the Structure Plan.

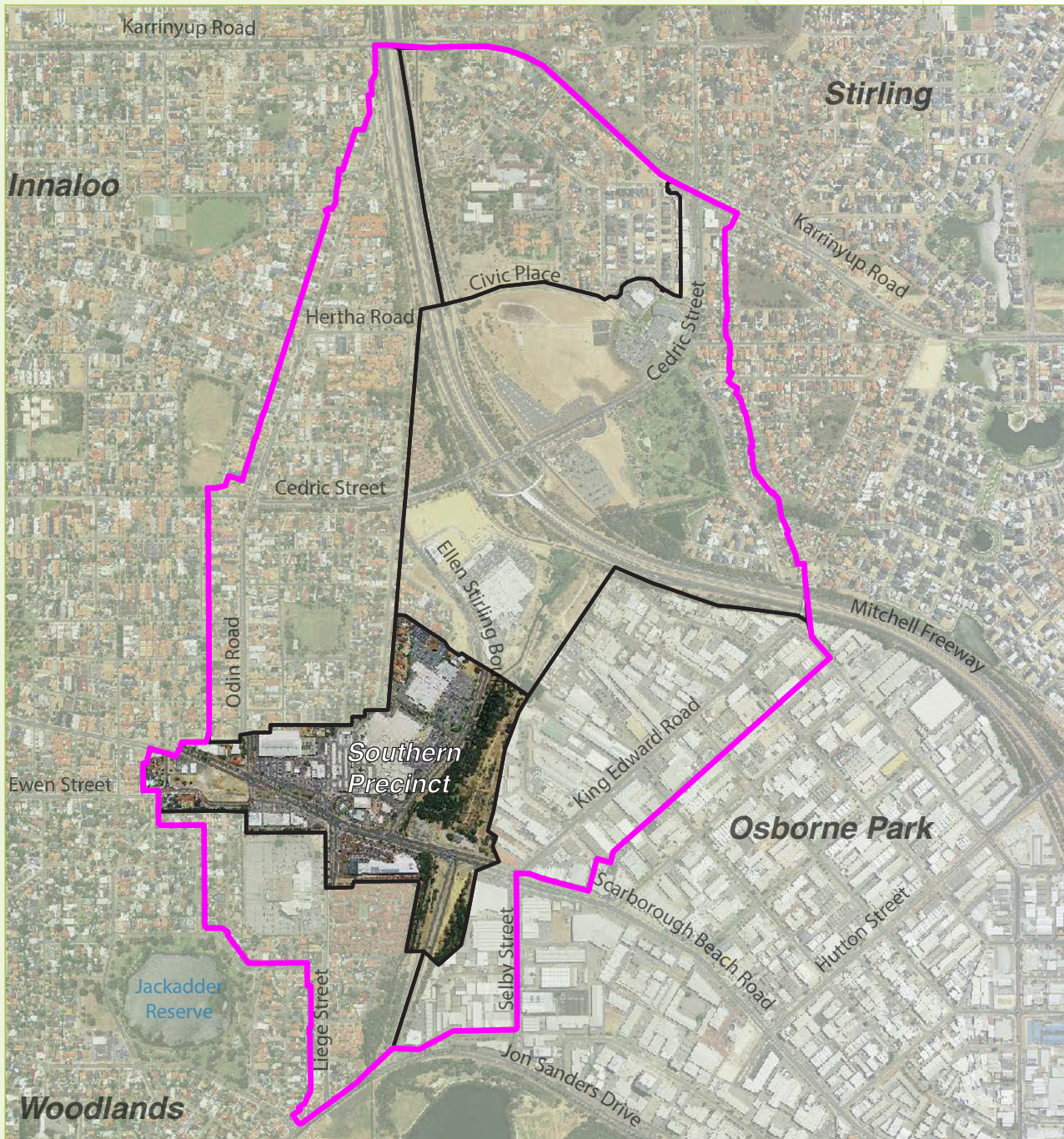


Table 8: Southern Precinct Plan.

5.1.3 Precinct Specific Provisions

The following points shall be addressed in the Detailed Area Plan for this precinct:

5.1.3.1 Land Use

- a) Redevelopment of the existing shopping centre to include active retail uses fronting an elevated Ellen Stirling Boulevard at approximately 13.7 Australian Height Datum.
- b) Reservation of suitable land for a public car parking facility.
- c) Activation of Stephenson Avenue with commercial ground floor uses.

5.1.3.2 Open Space

- a) Incorporation of 7,000m² of linear open space/surface stream running in a north/south direction.
- b) Provision of two urban spaces in public ownership; approximately 850m² Town Square and approximately 3,000m² Market Square in accordance with figure 50 in Part 2 of the Structure Plan.

5.1.3.3 Movement Network

All roads are to be designed in accordance with figure 5 and the cross sections identified in Clause 4.4.4 of Part 2 of the Structure Plan.

- a) Ellen Stirling Boulevard is to be designed as a two lane, low traffic street dominated by pedestrian traffic with provision for light rail within a 22m wide cross section.
- b) Stephenson Avenue and Scarborough Beach Road are to be designed as four lane streets with on-street parking, separated cycling lanes and provision for priority public transport.
- c) Extension of Oswald Street to Stephenson Avenue.
- d) Creation of a new Howe Street link between Ellen Stirling Boulevard and Stephenson Avenue.

3.1.3.4 Built Form

- a) Building heights on Ellen Stirling Boulevard are to generally range from 3-5 storeys.
- b) Building heights on Stephenson Avenue are to generally be between 5 storeys and 10 storeys.

5.2 Station Precinct

5.2.1 Character Statement

The precinct will be characterised by:

- a) Mixed use residential development with an emphasis on office uses which serve as a major regional business centre around the train station.
- b) Excellent accessibility to the train station/public transport hub.
- c) High-quality, pedestrian-friendly links to the city core, main retail area and associated activities.
- d) A car free zone on the developed landfill site.
- e) Mixed use civic, cultural and community buildings with residential creating the civic hub of Stirling around the existing civic centre.
- f) Being the focal point and interchange for local and regional public transport (buses, trains and light rail system).
- h) Seamless connection and integration of land uses across the freeway on 'land bridges' will provide a safe and appealing pedestrian environment.
- i) Built form reducing in height as development moves away from the train station to existing areas.
- j) The opportunity to incorporate a shopping district within the precinct.
- k) A linear park/surface stream that links Herdsman Lake to the City's Central Park.
- l) The current amount of developed active open space being maintained although reconfigured.

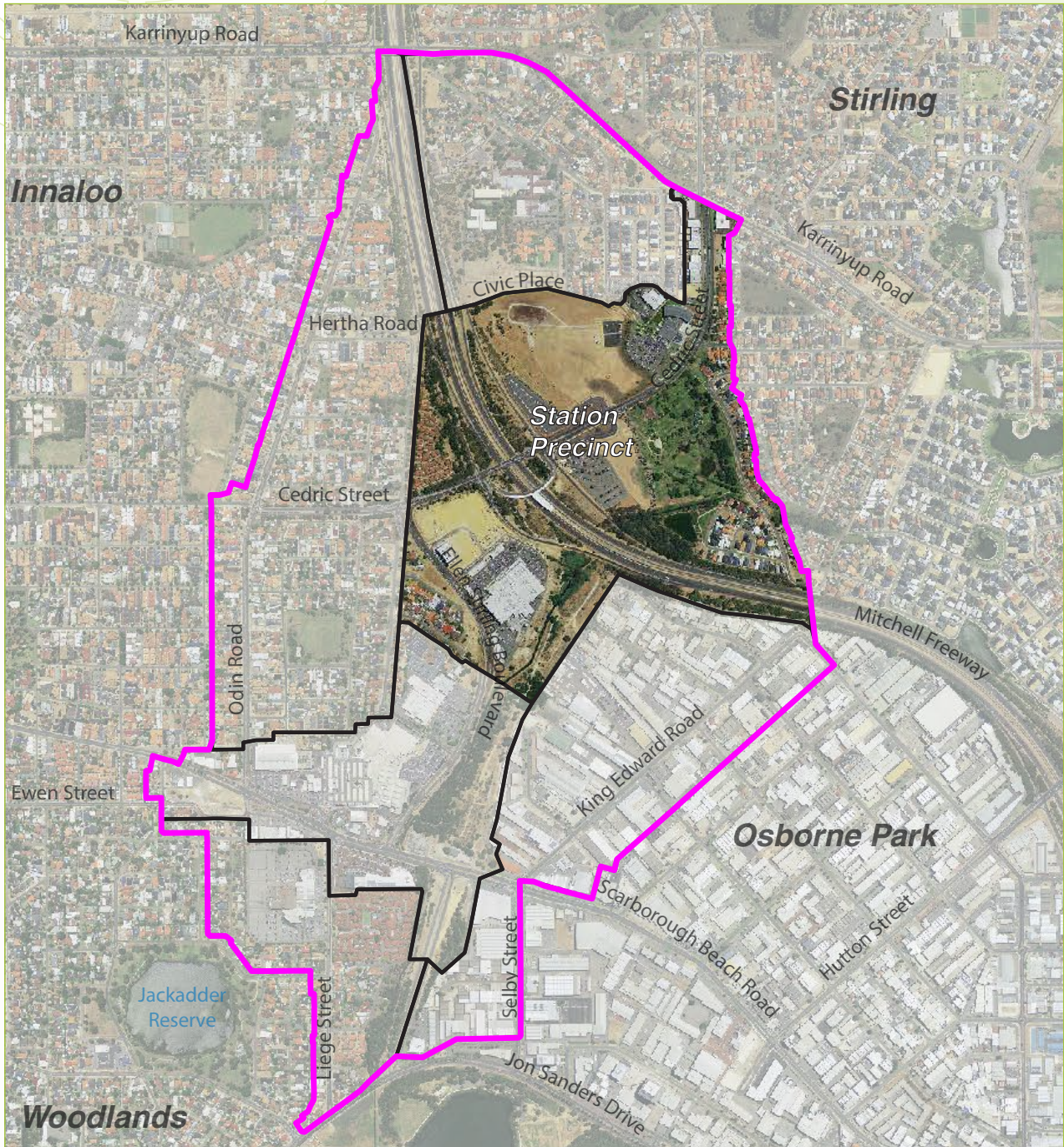


Figure 9: Station Precinct Plan

5.2.2 Land Use Targets

Aspirational Dwellings	Minimum Dwelling Targets to be Single Bedroom Dwellings	Minimum Dwellings	Minimum Commercial Floor space (NLA)
4,500	20%	2,914	244,110 m ²

Table 6: Station Precinct Land Use Targets

5.2.2.1 Minimum Commercial Floor Space

The minimum commercial land use floor spaces shall only be provided on lots within the Mixed Use Land Use category areas.

5.2.2.2 Minimum Dwellings

The minimum dwelling targets shall be delivered on all development in accordance with the requirements identified in Clause 2.5 of Part 1 of the Structure Plan.

5.2.3 Precinct Specific Provisions:

The following points shall be addressed in the Detailed Area Plan for this precinct:

5.2.3.1 Land Use

- Location of suitable sites to accommodate one secondary school and up to two primary schools.
- Allocation of land for civic, cultural, educational and community uses.
- Identify appropriate sites for short stay accommodation.
- Identify a suitable location for environmental remediation infrastructure.
- Explore the full details of technical requirements for the remediation of the former land fill and main drain.

5.2.3.2 Open Space

- a) Incorporation of 86,000m² of linear open space/surface stream.
- b) Improvements required to the main drain/urban stream to address alignment, environmental quality, flow and landscape quality.
- c) Provision of new district and community open space north of the freeway.
- d) Provision of new natural conservation areas north and south of the freeway.
- e) Existing developed active open space to be maintained although reconfigured.
- f) Provision of four urban spaces – three north of the freeway and one south of the freeway in accordance with figure 50 in Part 2 of the Structure Plan.

5.2.3.3 Movement Network

All roads are to be designed in accordance with figure 5 and the cross sections identified in Clause 4.4.4 of Part 2 of the Structure Plan.

- a) Determination of land requirements for and design of public transport interchange facility adjacent to the Stirling Train Station.
- b) Cedric Street is to be designed as a four lane street with on-street parking, separated cycling lanes and possible provision for priority public transport lanes.
- c) Extension of Guthrie Street across Stephenson Avenue.
- d) Extension of Sarich Court under Stephenson Avenue.
- e) Stephenson Avenue north of Cedric Street is to be designed as a two lane street with on-street parking, separated cycling lanes and provision of priority public transport lanes.
- f) Land allocation on Stephenson Avenue north of Cedric Street for a light rail route.
- g) Allow for the provision of new freeway access points at Hertha Road, Stephenson Avenue and King Edward Road.

5.2.3.4 Built Form

- a) A minimum of two land bridges across the Mitchell Freeway, which connect to and integrate with land uses on both sides of the freeway in accordance with Figure 26 in Part 2 of the Structure Plan;
- b) Building heights surrounding the station are to be generally mid to high rise (5-20 storeys); and
- c) Building heights approximately 400m away from the station are to be generally mid rise (5-10 storeys) transitioning to low rise (3-5 storeys) close to adjacent residential areas.

5.3 Northern Precinct

5.3.1 Character Statement

The precinct will be characterised by:

- a) Redevelopment of the Osborne Park Hospital addressing the new Stephenson Avenue extension.
- b) More intense inner city residential development than the current residential development.
- c) Stephenson Avenue, with light rail, shall continue through the precinct to Karrinyup Road, providing much improved access to the city core and station for the hospital and local residents.

5.3.2 Land Use Targets

Aspirational Dwellings	Minimum Dwelling Targets to be Single Bedroom Dwellings	Minimum Dwellings	Minimum Commercial Floor space (NLA)
1,100	20%	712	29,752 m ²

Table 7: Northern Precinct Land Use Targets

5.3.2.1 Minimum Commercial Floor Space

The minimum commercial land use floor spaces shall only be provided on lots within the Mixed Use Land Use category areas.

5.3.2.2 Minimum Dwellings

The minimum dwelling targets shall be delivered on all development in accordance with the requirements identified in Clause 2.5 of Part 1 of the Structure Plan.

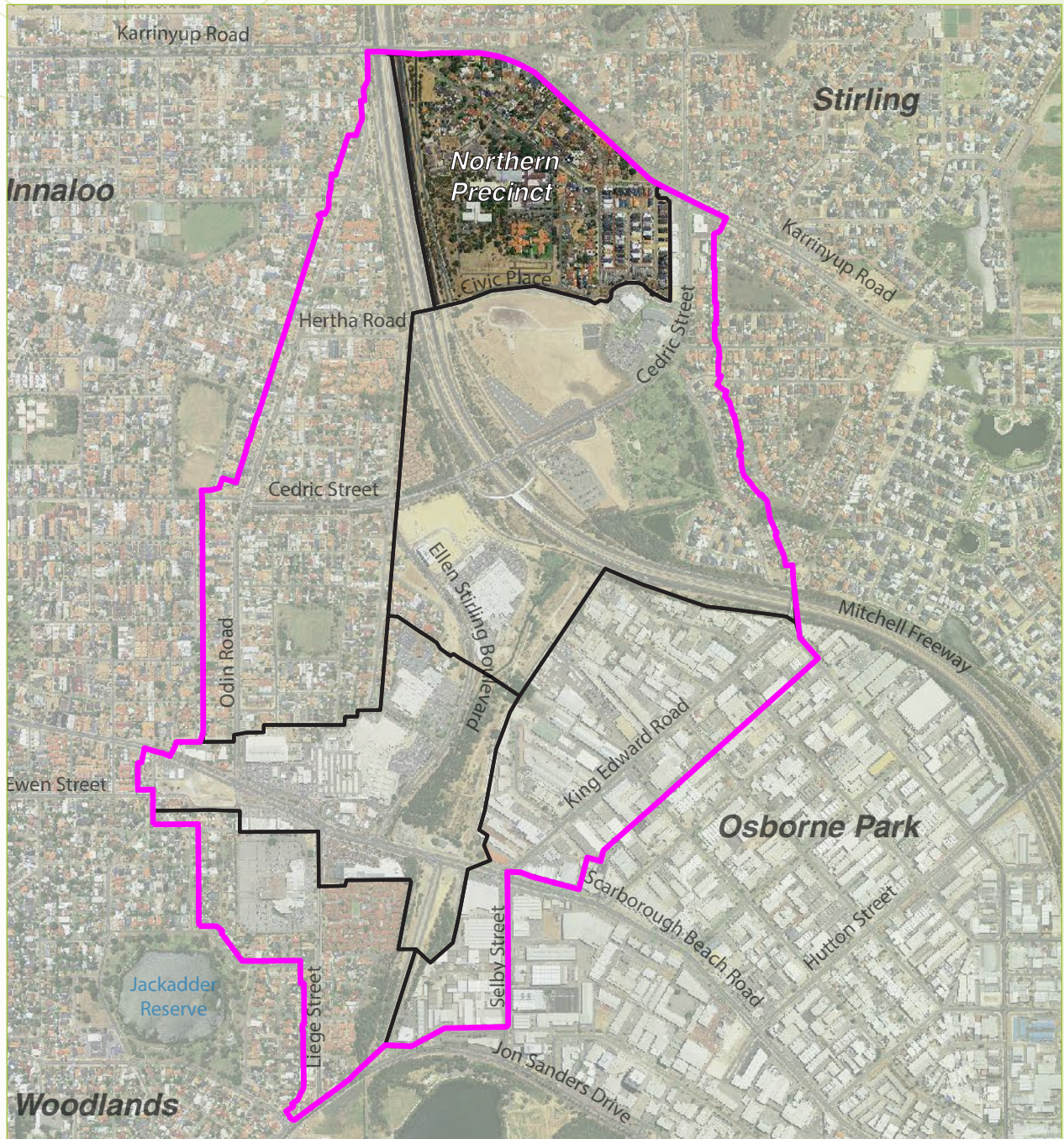


Figure 10: Northern Precinct Plan

5.3.3 Precinct-Specific Provisions

The following points shall be addressed in the Detailed Area Plan for this precinct:

5.3.3.1 Land Use

- a) Appropriate land deal to achieve the proposed Stephenson Avenue connection to Karrinyup Rd.

5.3.3.2 Movement Network

All roads are to be designed in accordance with figure 5 and the cross sections identified in Clause 4.4.4 of Part 2 of the Structure Plan.

- a) Karrinyup Road is to be designed as a four lane street with separate cycling ways and provision of priority public transport lanes, subject to further investigations in accordance with the cross sections identified in Part 2.
- b) Stephenson Avenue is to be designed as a one lane street each way with on-street parking, separated cycling ways and provision of priority public transport lanes continuing to Karrinyup Road.

5.3.3.3 Built Form

- a) Re-orientation of Osborne Park Hospital entry to new road.
- b) The Osborne Park Hospital is to be designed to address the Stephenson Avenue extension.
- c) Building heights are to be generally mid rise (5-10 storeys) transitioning to low rise (3-5 storeys) close to adjacent existing residential areas.

5.4 Innaloo Precinct

5.4.1 Character Statement

This precinct will be characterised by:

- a) Predominantly residential development of a medium to high density that takes advantage of the excellent amenity offered by the existing La Grange Dongara Reserve.
- b) Excellent accessibility to the city core, retail and associated activities via high-quality, pedestrian friendly streets designed to discourage through traffic.

5.4.2 Land Use Targets

Aspirational Dwellings	Minimum Dwelling Targets to be Single Bedroom Dwellings	Minimum Dwellings	Minimum Commercial Floor space (NLA)
2,500	10%	1,619	3,076 m ²

Table 8: Innaloo Precinct Land Use Targets

5.4.2.1 Minimum Commercial Floor Space

The minimum commercial land use floor spaces shall only be provided on lots within the Mixed Use Land Use category areas.

5.4.2.2 Minimum Dwellings Objective:

To achieve the dwelling targets outlined in the Stirling City Structure Plan;

- The minimum number of dwellings required in a development shall be calculated using the formula in Clause 2.5.1 and the numbers outlined in Figure 12.
- Note: Minimum number of dwellings does not apply to single dwelling development.

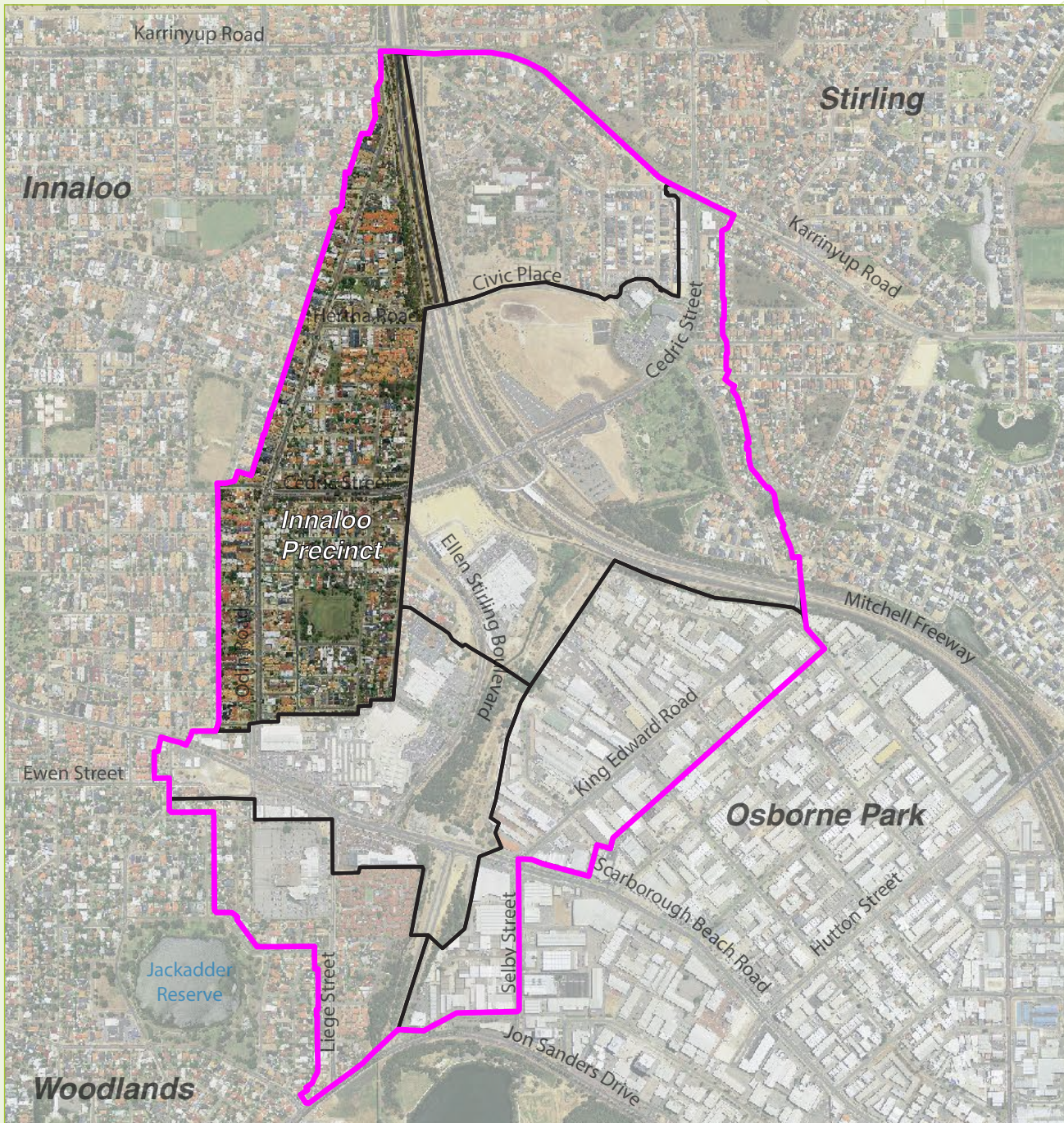


Figure 11: Innaloo Precinct Plan

5.4.3 Precinct Specific Provisions:

The following points shall be addressed in the Detailed Area Plan for this precinct:

5.4.3.1 Land Use

- a) Need to ensure no adverse impacts on adjoining established housing.
- b) Manage interface between mixed use areas and residential areas.

5.4.3.2 Open Space

- a) The existing district open space shall be maintained and enhanced.

5.4.3.3 Movement Network

All roads are to be designed in accordance with figure 5 and the cross sections identified in Clause 4.4.4 of Part 2 of the Structure Plan.

- a) Manage through traffic from shopping centre on local residential streets.
- b) Odin Road is to be designed as a four lane street with separated cycling lanes.
- c) Internal roads shall be calmed for local traffic by incorporating the self-explaining roads principles.

5.4.3.4 Built Form

- a) Building heights are to be generally low rise (3-5 storeys).

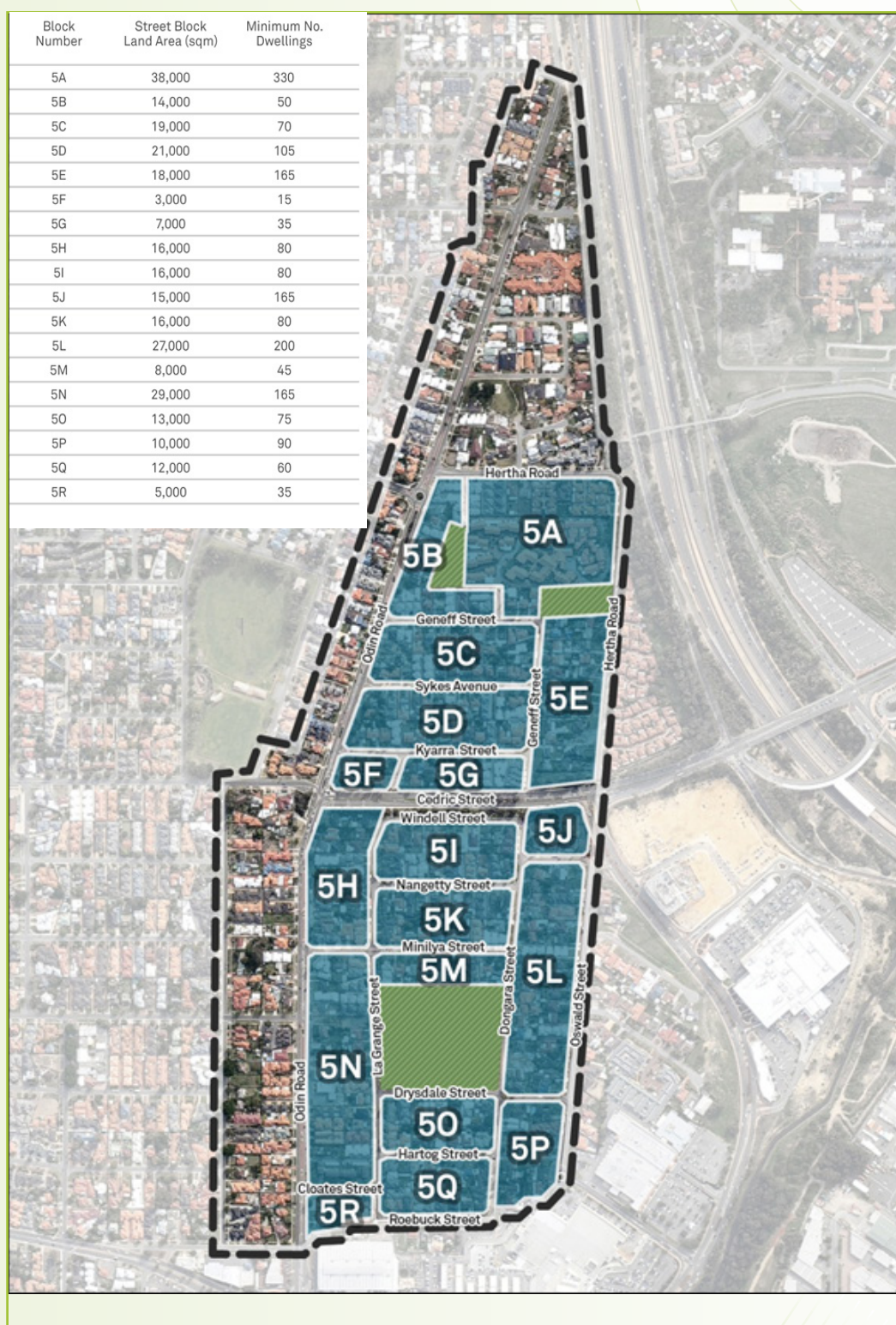


Figure 12: Minimum Dwellings by street block in the Innaloo Precinct

5.5 Osborne Park Precinct

5.5.1 Character Statement

This precinct will be characterised by:

- a) High-density residential/mixed use development focussed around high quality local parks, transitioning to primarily commercial development in the eastern portion of the precinct, with an emphasis on showroom type development along the north-western side of King Edward Road.
- b) High-quality architecture overlooking and capitalising on the amenity provided by Stephenson Avenue and the green corridor link.
- c) A mixed use primary school, with shared public open space facilities.
- d) A new fine grained road structure to facilitate development.

5.5.2 Land Use Targets

Aspirational Dwellings	Minimum Dwelling Targets to be Single Bedroom Dwellings	Minimum Dwellings	Minimum Commercial Floor space (NLA)
2,500	20%	1,619	177,961 m ²

Table 9: Osborne Park Precinct Land Use Targets

5.5.2.1 Minimum Commercial Floor Space

The minimum commercial land use floor spaces shall only be provided on lots within the Mixed Use Land Use category areas.

5.5.2.2 Minimum Dwellings

The minimum dwelling targets shall be delivered on all development in accordance with the requirements identified in Clause 2.5 of Part 1 of the Structure Plan.

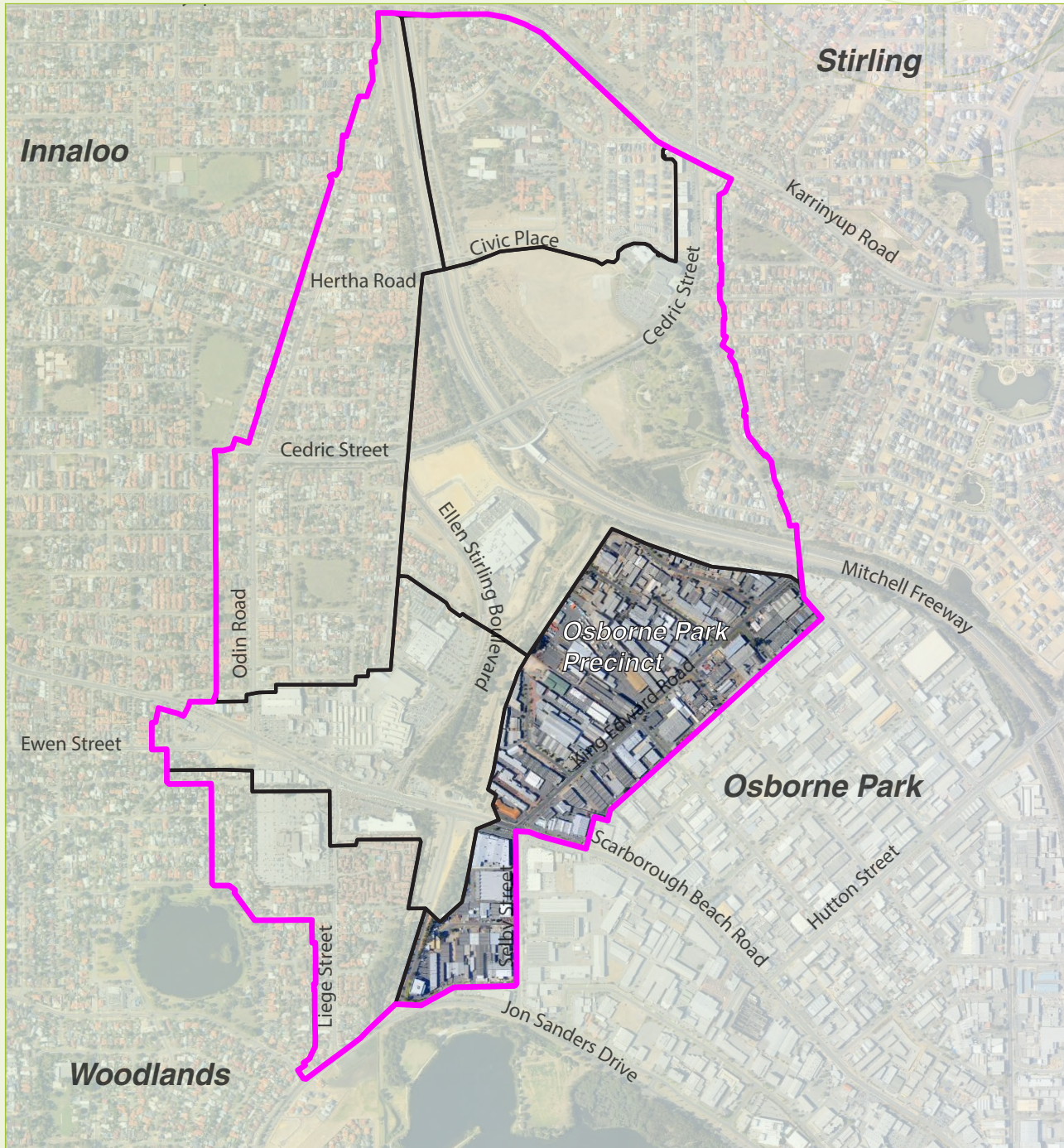


Figure 13: Osborne Park Precinct

5.5.3 Precinct Specific Provisions:

The following points shall be addressed in the Detailed Area Plan for this precinct:

5.5.3.1 Land Use

- a) The extent of existing industrial land uses should still be encouraged in the area.
- b) Assembly of private land necessary to achieve connections between this precinct and the city centre, across the urban stream and Stephenson Avenue.
- c) Identification of suitable school site co-located with district open space.

5.5.3.2 Open Space

- a) Identification of future public open space in order to create amenity.
- b) A proportion of new public open space located adjacent to the linear park/stream in the Southern and Station precincts.
- c) Provision of new local parks.

5.5.3.3 Movement Network

All roads are to be designed in accordance with figure 5 and the cross sections identified in Clause 4.4.4 of Part 2 of the Structure Plan.

- a) Scarborough Beach Road is to be designed as a four lane road with on-street parking, separated cycling lanes and a dedicated light rail corridor.
- b) King Edward Road is to be designed as a divided two lane road with separated cycling lanes and on-street parking.
- c) New district distributor road connections linking to Stephenson Avenue including Howe Street, Guthrie Street and Carbon Court.
- d) New local road connections shall be provided in the form of a grid road pattern.

5.5.3.4 Built Form

- a) Building heights are to be generally mid rise (5-10 storeys).

5.5.3.5 Infrastructure

- a) Sewering of the precinct with potential for a local distributed water recycling plant.
- b) Identification of appropriate sites for utility infrastructure facilities in accordance with figure 52.
- c) Resolving possible site contamination and land use conflicts.

5.5.3.6 Funding

- a) Due to the considerable infrastructure required to facilitate the type of growth the Structure Plan enables in this precinct, a Developer Contribution Plan is to be prepared at the same time as a Detailed Area Plan to the Osborne Park Precinct. The Contribution Plan will include the establishment of a funding mechanism for the provision of open space and road infrastructure and will consider other necessary services including, water, sewerage, telecommunications, power and gas.

Woodlands Precinct

5.6.1 Character Statement

This precinct will be characterised by:

- a) New development scaled to integrate with the existing low density, low scale residential neighbourhoods to the west and south.
- b) Quality mixed use development fronting the northern part of Liege Street.
- c) A new medium to high density residential neighbourhood with mixed use development facing Liege Street, with possible new local main street within the cinema site.
- d) New development well connected to the surrounding urban fabric and taking advantage of its location adjacent to the green corridor/urban stream and Herdsman Regional Park.

5.6.2 Land Use Targets

Aspirational Dwellings	Minimum Dwelling Targets to be Single Bedroom Dwellings	Minimum Dwellings	Minimum Commercial Floor space (NLA)
1,200	10%	777	18,813 m ²

Table 10: Woodlands Precinct Land Use Targets

5.6.2.1 Minimum Commercial Floor Space

The minimum commercial land use floor spaces shall only be provided on lots within the Mixed Use Land Use category areas.

5.6.2.2 Minimum Dwellings

To achieve the dwelling targets outlined in the Stirling City Structure Plan;

- a) The minimum number of dwellings required in a development shall be calculated using the formula Clause 2.5.1 and the numbers outlined in Figure 15.
- b) Note: Minimum number of dwellings does not apply to single dwelling development.

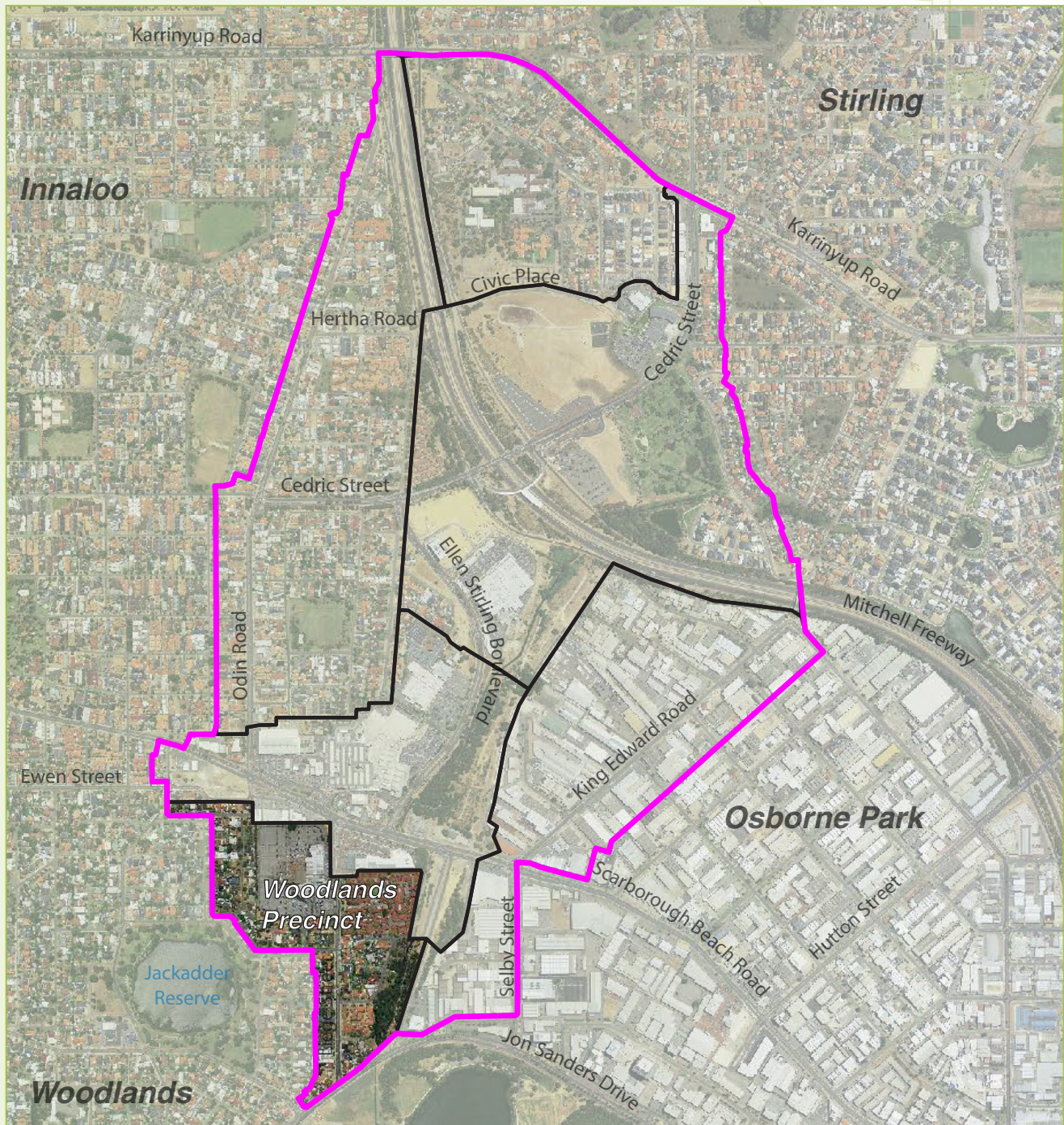


Table 14: Woodlands Precinct Plan

5.6.3 Precinct Specific Provisions:

The following points shall be addressed in the Detailed Area Plan for this precinct:

5.6.3.1 Land Use

- a) Need to minimise adverse impacts on adjoining established housing.

5.6.3.2 Open Space

- a) A new local public open space on the cinema site.

5.6.3.3 Movement Network

All roads are to be designed in accordance with figure 5 and the cross sections identified in Clause 4.4.4 of Part 2 of the Structure Plan.

- a) A new two lane, low speed local street through the cinema site linking Scarborough Beach Road with Liege Street.
- b) Liege Street is to be designed as a two lane divided low speed road with separated cycling lanes.
- c) Manage through traffic on Liege Street.

5.6.3.4 Built Form

- a) Building heights are to be generally low to mid rise (3-7 storeys) transitioning to low rise (3-4 storeys) adjacent to existing residential areas.



Figure 15: Minimum Dwellings by street block in the Woodlands Precinct



Part 2

Introduction and Purpose

1.1 Purpose

This Structure Plan has been prepared to fulfil the requirements of Clause 6A of the City of Stirling Local Planning Scheme No.3 and assist in facilitating the growth of the Stirling City Centre Area and one of Perth's and Australia's key high-density, mixed use employment centres.

The Structure Plan will guide the assessment of land use and development of all private and public land within the Structure Plan area as shown in Figure 1.

1.2 Background

Stirling City Centre is identified as a Strategic Metropolitan Centre in the Perth and Peel metropolitan regional planning context. The potential of the largely underdeveloped area surrounding the Stirling Railway Station to become a vibrant transit oriented mixed use centre providing employment and living opportunities for a diverse community has been recognised since at least 1992, when the northern suburbs railway was first opened. There have been various attempts to realise this transformation. However, due to the extremely complex nature of the area, these attempts, using traditional planning and governance arrangements, have been only partially successful.

Strategic Metropolitan Centres should provide a diverse range of economic and community services that are necessary to service the local community and broader catchment. In its current form the centre does not perform this function. The community has also expressed concern over a range of pressing environmental, social and economic issues. There is therefore a clear imperative to progress planning for the centre that realises the area's potential as a Strategic Metropolitan Centre and addresses the community's concerns. Previous 'business as usual' approaches have been unsuccessful in resolving the complex issues facing the Stirling City Centre. It was widely recognised that a new approach, based on innovation and collaboration, would be required to meet the challenge.

Currently the Stirling City Centre is characterised by a range of negative elements such as:

- Movement congestion
- Poor visual amenity
- Poor pedestrian amenity
- Segregated land uses
- Environmental degradation
- Safety issues

Stirling is constrained economically by its spatial organisation. Both inter and intra centre accessibility is poor and this limits the centre's ability to provide the high level of amenity required to attract a wide user mix. The spatial organisation of the centre also impairs its ability to achieve intense agglomerations of activity. Successful places performing a strategic function benefit from intense, well-connected concentrations, rather than dispersed activity¹.

The City of Stirling and the Western Australian Planning Commission recognised that a strong collaboration between all stakeholders offered the best approach to resolving the complex issues facing the Stirling City Centre. Collaboration between Local and State Government agencies (to streamline the effectiveness of Government decision making), the private sector (to provide strong innovation and market knowledge) and the local community (to provide community input) were seen as critical in ensuring the long-term viability of the project and achieving the vision for the Stirling City Centre. The Stirling Alliance was formed as an innovative response to this challenge and as a way to realise the vision of City of Stirling's residents, its leaders and its future population.

¹ *Pracsys, April 2010, Stirling City Centre Economic Development Strategy: Scoping Paper, for Stirling Alliance*

1

1.3 Vision Statement

While much growth and development of the Stirling City Centre has occurred over the years, guided in part by previous structure plans, planning schemes and policies, the outcome on the ground leaves much to be desired. It is widely recognised that Stirling does not have a 'centre' or 'heart'. It is an amalgam of uses developed incrementally and with little regard to the public realm and the civic qualities needed if this place is to become a significant city centre within the greater Perth metropolitan area. It is within this context that an overarching vision has been prepared to guide the future redevelopment of the Stirling City Centre. This vision is:

Stirling City Centre strives to become a sustainable 21st century city – a place for everyone. It will be a hub for a diverse and prosperous community, offering wellbeing for all.

This relatively simple but powerful statement provides the basis for much of what follows in the way of presenting an approach that seeks to move significantly beyond a 'business as usual' approach.

1.4 Performance Framework

The Stirling Alliance has developed a 'performance framework' to clarify the key elements of the vision and to guide decision making (Appendix A). As summarised in Figure 16 the performance framework identifies five areas of strategic focus including Governance, Accessibility and Built Form, Environmental Restoration, Community Wellbeing Forever, and Economic Health. Each area of strategic focus consists of a number of key result areas. These key result areas are informed by a range of key performance indicators

The performance framework will be reviewed annually and will guide the preparation of policies and plans as well as physical development within the project area. The performance framework is a tool to ensure that the objectives and vision of the Stirling Alliance are adhered to when a range of tasks (e.g. preparation of Detailed Area Plans, road design, etc.) are undertaken. Different key performance indicators will be used depending on the nature of the project.



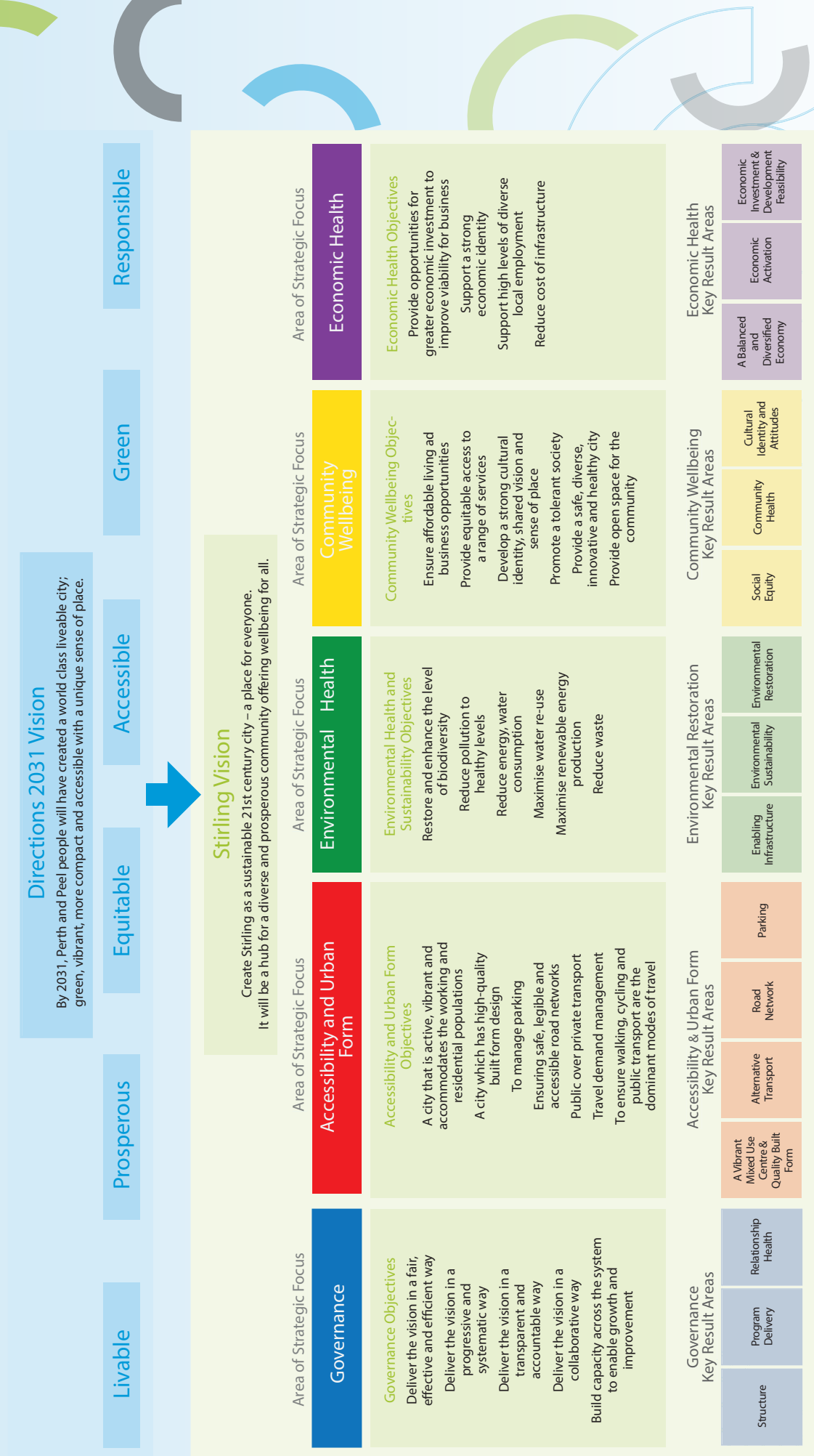


Figure 16: Performance Framework

1.5 Objectives

The Stirling City Centre Structure Plan has been prepared to guide planning and decision making in order to realise the Stirling City Centre vision. The plan will see the area transformed from a dispersed, disjointed, suburban-scaled shopping area dominated by car parks and traffic, into an intense and well connected mixed use activity centre characterised by very high amenity for pedestrians, residents and workers.

This document represents a new generation of structure plan that is both a statutory planning and guidance document. It is essentially a district level structure plan that addresses the unique issues applicable to a Strategic Metropolitan Centre, recognising the area's importance as a major population, employment and activity centre in the Perth Metropolitan Region. The structure plan will provide the certainty required to allow preparation of Detailed Area Plans (DAP) and sufficient flexibility to accommodate changed circumstances. The Structure Plan allows for innovative solutions to complex problems that achieve the vision and intent for the area. The plan also deals with a range of sub-regional transport and environmental issues that have to be resolved to ensure the Stirling City Centre can realise its potential.

The plan sets out key structural elements that will be essential in realising the opportunities within and around the Stirling City Centre area. It articulates a vision and intent for the city centre and the principles that underpin these. Whilst some elements of the plan have a significant degree of resolution, others will require further detailed investigation. It is expected that as this progresses over time, the principles and vision, as outlined in this document, will remain constant.

The approach to creating a new city centre incorporates the following principles

- A move away from traditional restriction-based planning to opportunity/vision based planning.
- Not being limited by legal and physical boundaries and existing land uses.
- Delivery of an integrated transport and land use solution.
- Designing for interdependence and provision of locally produced power, water, food, community gardens, etc.
- Establishment of incentives to deliver the desired outcomes.
- Developing the appropriate tools to achieve high quality outcomes.
- Minimising the demand for private motorised travel for people who live, work and visit.
- Prioritising walking, cycling and public transport use over private motor vehicle use.
- Seeking enhanced net social, environmental and economic outcomes.
- Enhancing the natural environment, resource efficiency and adopting ecological restoration methods.
- Creation of an activity centre that is more than just a retail centre by planning for a diverse employment, residential, civic, social and cultural centre.
- Collaborative planning, adoption and appropriately resourcing the project to ensure successful implementation.
- Resourcing and driving implementation through a robust and timely implementation plan.

1.6 Consultation

This Structure Plan was prepared by the Stirling City Centre Alliance. The Alliance was a collaborative urban planning and delivery project co-funded by the City of Stirling and WAPC. The Alliance was described as a Public Private Community Collaboration. This summarised the commitment to an inclusive model of urban governance, drawing contributions from across Government agencies, private companies and the local residential community.

The preparation of the Structure Plan was informed by the contributions of the local community. The Alliance applied a deliberative democracy model to land use planning. Community participants were empowered to understand pertinent town planning issues. Comments were sought from local residents and feedback was reflected in the content of plans prepared that inform this Structure Plan.

The community was afforded the opportunity to be provided with regular project updates and contribute to discussions at a special forum organised by the Stirling Alliance known as the Community Leadership Group. All residents in the city centre were invited to join the Community Leadership Group.

Members of the Community Leadership Group were also invited to participate in a number of other forums facilitated by the Stirling Alliance. These included several technical working groups, precinct-based groups, the Alliance Leadership Group and the Stirling Alliance Board.

In addition to comprising a nominated community representative, the technical working groups were populated by project officers, consultants and members of government agencies choosing to participate in the Stirling Alliance. The working groups actively explored solutions to diverse elements of the project including car parking provisions, utility infrastructure options, local and regional transport infrastructure, and design responses for water management (including the proposed urban stream). The design of the Stirling Alliance Performance Framework, a key governance document that informed the Structure Plan, was also informed by a designated working group with several community members.

Precinct-based groups were heavily involved in the preparation of draft Detailed Area Plans that will provide specific planning guidance applicable to the Structure Plan precincts. The preparation of these Detailed Area Plans reflected the intent of this Structure Plan, which is a higher level spatial plan. Community Leadership Group members who elected to join the respective precinct groups were informed of key issues, helped develop optional responses, contributed to the preparation of criteria by which to assess these options, and agreed to assign 'weightings' for the respective criteria. This approach helped set a new standard in the democratisation of precinct planning in Western Australia.

Two community members were elected by the Community Leadership Group to represent the community interests at the Stirling Alliance Leadership Group. The Leadership Group was a high-level reference committee comprising representatives of participating Government agencies, local community and the private sector. The role of the Leadership Group was to provide strategic advice to the Stirling Alliance Board. The community was also represented at the Stirling Alliance Board by a designated community representative. The Board was required to endorse key decisions of the Stirling Alliance project office, including the main elements of this Structure Plan (such as the long-term regional transport plan). The Board included the heads of participating Government agencies and representatives of community, private sector and sustainability interests.

In addition to the Community Leadership Group, the Stirling Alliance also sought comment from across the whole community via a number of community open days and a seven day design charette known as the Festival of Ideas. The Festival of Ideas invited participation from hundreds of community residents who were able to provide real time responses to emerging design concepts prepared by an internationally acclaimed multi-disciplinary team of consultants with expertise in architecture and urban design, transport planning, environmental science and land use economics.

The figure below helps to illustrate the innovative governance structure of the Stirling Alliance described above as it pertains to community collaboration.



Local and Regional Context

2.1 Location

The Stirling City Centre is approximately 3.28 sq km area and located approximately 6.5 km north-west of the Perth CBD. The area is generally bound by Karrinyup Road to the north, Telford Crescent, King Edward Road and Selby Street to the east, John Sanders Drive to the south and Clematis Street and Odin Road to the west. This is illustrated in Figure 1 Stirling City Centre Structure Plan Area and its Area of Influence, which also identifies an 'area of influence' which both affects and is affected by activity within the defined City Centre.

2.2 Land Ownership

As identified in Figure 17, the Stirling City Centre represented a mix of private and Government (both state and local) agency ownership.

State Government agencies have large land holdings on former road reserve sites in the Station and Southern Precincts. The State also owns the large Osborne Park Hospital site in the Northern Precinct. In the Woodlands, Southern and Station Precincts there are a number of private land owners with large commercial holdings. In the predominantly residential Woodlands, Innaloo and Northern Precincts there are numerous individual residential land owners particularly in the Innaloo Precinct where many sites have been strata titled. The City of Stirling has significant land holdings in the Station Precinct.

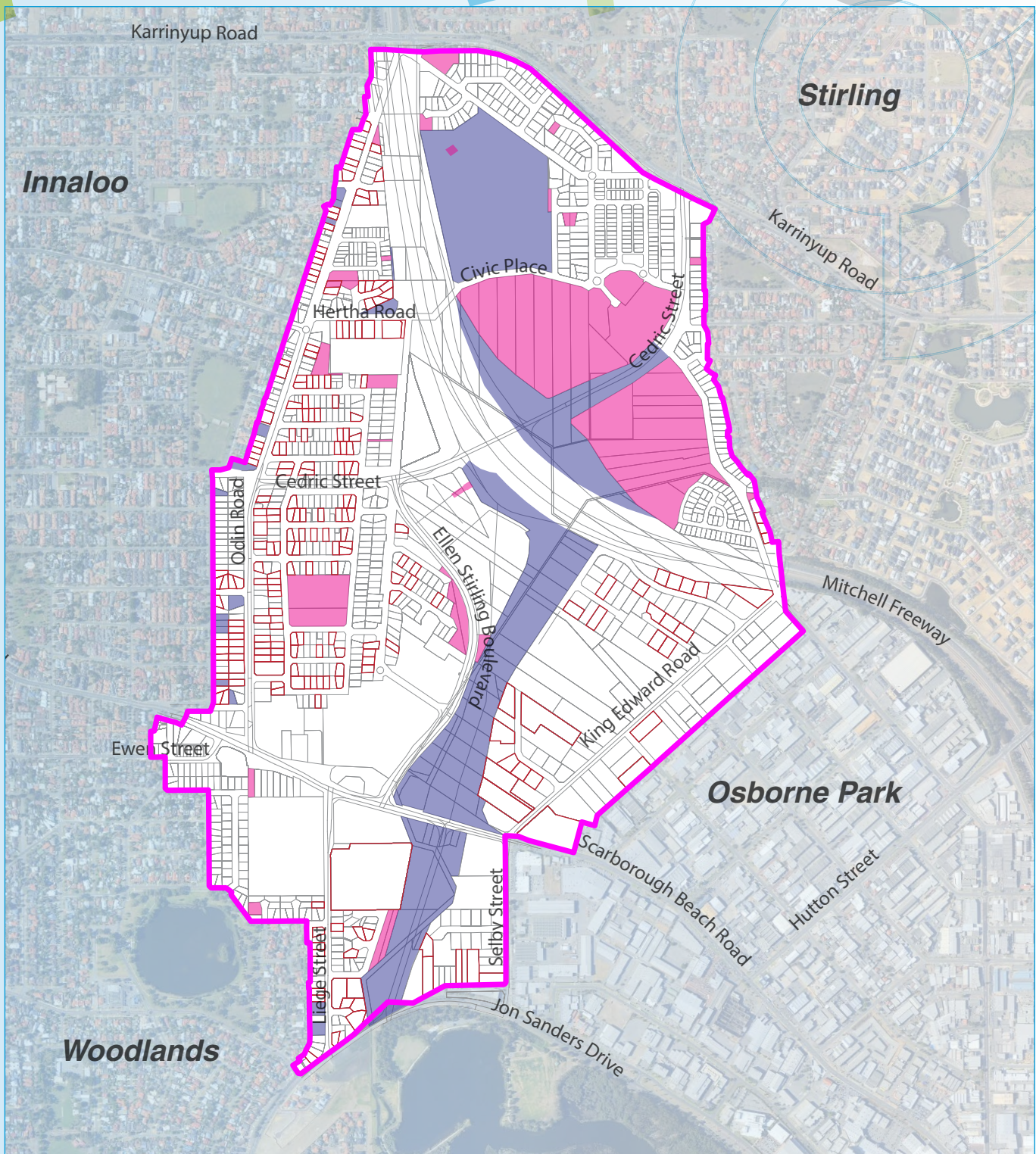
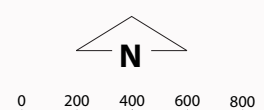


Figure 17: Land Ownership Map

Legend

- Structure Plan Area
- Strata Titled Lots
- City of Stirling
- State Government



metres
SCALE

Revised 11 Sept 2014

2.3 Planning Framework

2.3.1 Strategic Planning Framework

2.3.1.1 Directions 2031 and Activity Centres Statement of Planning Policy

The highest strategic land use planning document for Perth and Peel is Directions 2031 and beyond: Metropolitan planning beyond the horizon. It provides a framework for the detailed planning and delivery of housing, infrastructure and services necessary to accommodate population growth until 2031.

An important element of the spatial framework is the identification of a network and hierarchy of activity centres that provides a more equitable distribution of jobs, services and amenities. Stirling City Centre is identified as a 'Strategic Metropolitan Centre' which is a high-order centre intended to be a multi purpose centre providing a mix of retail, office, community, entertainment, residential and employment activities.

2.3.1.2 Draft Public Transport Plan for Perth 2031

The Draft Public Transport Plan highlights light rail between Stirling Station and Glendalough Station by 2031 as well as bus rapid transit lanes on Scarborough Beach Road to Scarborough Beach.

2.3.1.3 City of Stirling - Draft Local Planning Strategy

The City of Stirling Draft Local Planning Strategy identifies Stirling City Centre as the City's only Strategic Metropolitan Centre that requires additional diversity in its economic base. The employment and population targets highlighted in the Strategy are consistent with this Structure Plan.

2.3.1.4 City of Stirling - Transport Strategy

The City of Stirling Transport Strategy highlights light rail on Scarborough Beach Road between Glendalough Station and Scarborough Beach with a connection to Stirling Station.

2.3.2 Statutory Planning Framework

2.3.2.1 State Planning Policy 4.2 – Activity Centres for the Perth and Peel

Complementing Directions 2031 is the State Planning Policy (SPP) relating to metropolitan centres. State Planning Policy 4.2 – Activity Centres for Perth and Peel is the overarching State policy utilised by the Western Australian Planning Commission and other decision makers to implement the recommendations of Directions 2031 as they relate to activity centres. The SPP 4.2 places a high priority on establishing a coherent and complementary urban form and design outcome for places. The aim is to create diverse mixed use centres which attract investment, employment and people. The principles that underpin these strategic documents (relating to sustainable urban form and communities) form the basis of the proposals included in this Structure Plan for the Stirling City Centre.

2.3.2.2 Metropolitan Region Scheme

The Metropolitan Region Scheme (MRS) provides the statutory mechanism to assist strategic planning and the coordination of major infrastructure in the Perth Metropolitan Region. The MRS sets out broad land use zones and areas reserved for regional purposes (including regional open space and community purposes). The Stirling City Centre is presently covered by a number of zones and reserves, including 'Urban', 'City Centre', 'Primary Regional Road', 'Other Regional Road' and 'Public Purposes – Hospital'.

An amendment to the MRS (Amendment 1173/57) as gazetted on 7 October 2011 was initiated to:

- replace the Primary Regional Roads reservation within the Stirling City Centre from just north of Jon Sanders Drive to the Mitchell Freeway with City Centre zone
- replace the Primary Regional Roads and Other Regional Roads from Cedric Street to City Centre zone in the north and to City Centre zone in the south to Ellen Stirling Boulevard with the remainder as Urban
- rationalise the Other Regional Roads reservation on Scarborough Beach Road to 42 metres from Odin Road to King Edward Road.

2.3.3.3 City of Stirling Local Planning Scheme No.3

Development in the Stirling City Centre is currently controlled by the City of Stirling Local Planning Scheme No.3 (LPS No.3).

On 10 July 2012 the City of Stirling adopted an amendment to Local Planning Scheme No 3, referred to as Amendment 1 (refer to Figure 3). The purpose of this amendment is to introduce a Special Control Area for the Stirling City Centre into the Scheme and Scheme Map. As part of this amendment a Development Area, Development Zone as well as Development Contribution Area for the Stirling City Centre were adopted. The amendment will facilitate the development of the area as a vibrant, diverse mixed use zone and also provide the mechanism for the funding of key infrastructure. On 2 September 2014 Amendment 1 was gazetted. The creation of a Development Zone now enables the adoption of this Structure Plan (refer to Figure 2 for extent of development zone).

2.3.3.4 Improvement Scheme

In order to advance the planning for the area, the Western Australian Planning Commission on 11 October 2011 declared the City Centre area be subject to an Improvement Plan, known as Improvement Plan 36. The purpose of the improvement plan declaration is to facilitate further development within the structure plan area and provide for the adoption of an Improvement Scheme for the area. A draft Improvement Scheme has been developed by the Western Australian Planning Commission, however this has yet to be initiated for advertising. Once the Improvement Scheme is gazetted, this Structure Plan will become operational under the new Improvement Scheme.

Current Conditions

3.1 Natural and Cultural Legacy

The present and future of any place is informed by its past. The history of the area helps us to understand how it has been shaped, what issues – environmental and cultural – may be relevant, and provides cues and inspiration for the further evolution of the place so that it remains socially relevant, economically viable and environmentally healthy.

Similarly, the bio-physical characteristics of the area are important to designing an ecologically sustainable future whilst accommodating the future needs of the community.

3.2 Aboriginal Heritage

Stirling City Centre is in the traditional land of the Noongar Aboriginal people. Historically, Aboriginal people travelled along the wetland chain on the Swan Coastal Plain and used the abundant fresh water and wildlife associated with these places. The Stirling City Centre and surrounding areas encompassing Herdsman Lake were reportedly considered to be “a place of plenty, a place of celebration and a place of trade” where Aboriginal people from far and wide gathered². These sentiments provide the basis of a place story that can run through the whole physical, social and economic planning for the area. Aboriginal people believe that the Waugul, a rainbow serpent from the dreaming, created the wetlands and the water ways which form a major part of the Swan Coastal Plain. A recognised dreaming track or ‘cultural complex’ includes Herdsman Lake, Lake Gwelup, Lake Karrinyup, Lake Carine and all the swamps, creeks and wetlands in between³.

The City Centre area is subject to two Native Title claims: the Whadjuk People (registered Native Title claim number WC2011/009) and the Swan River People (lodged Native Title claim number WC 2011/002)⁴.

A search of the Department of Aboriginal Affairs (DAA) Aboriginal Heritage Inquiry System (AHIS) was undertaken to identify previously recorded Aboriginal sites within and around the survey area that are listed on the DAA Aboriginal Sites Register. Known Aboriginal Heritage sites affecting Stirling City Centre are shown in Figure 18.

² Ether-Dollan and Walter Eats, July 2009, *Welcome to Country at the Festival of Ideas Workshop*

³ Australian Interaction Consultants, 2004, as quoted in Dr Edward McDonald et al (2005), *Study of Groundwater-Related Aboriginal Cultural Values on the Gnangara Mound, Western Australia for Department of Environment*. Page 17

⁴ *Archaeological and Heritage Management Solution, August 2013, Aboriginal Archaeological and Ethnographic Site Identification Survey, Structure Plan Area, Page 21*

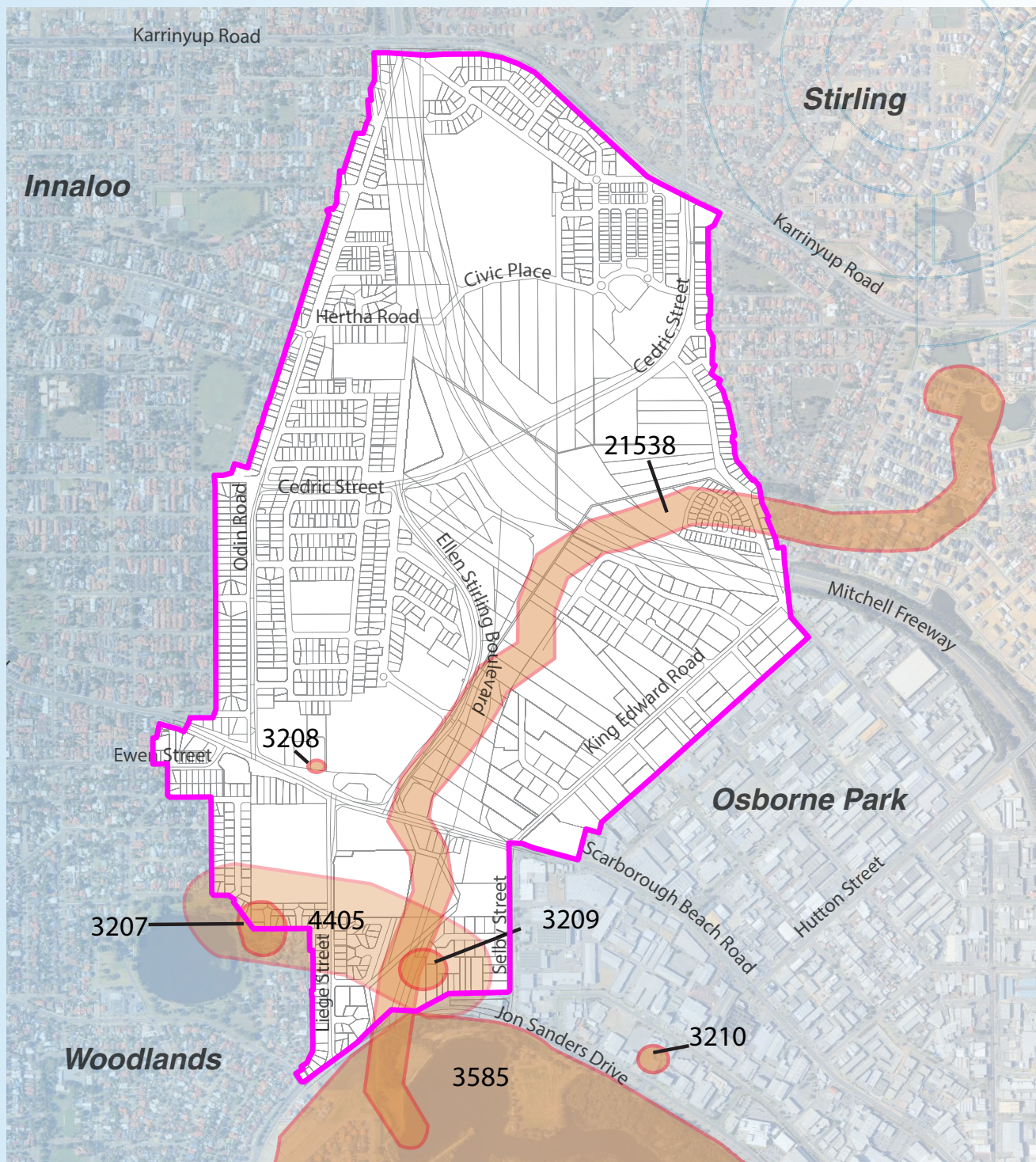
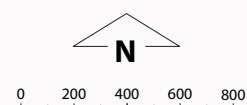


Figure 18: Aboriginal Sites on the DAA Site Register

Legend

- Structure Plan Area
- Aboriginal sites on the DAA Site Register in the City of Stirling Structure Plan Area



metres
SCALE

Revised 11 Sept 2014

There is one registered site located within the vicinity of the survey area, one other heritage place and five sites that are stored data, i.e. they were not considered to be sites by the Aboriginal Cultural Material Committee (ACMC). A summary of the sites is provided in Table 11

AA Site ID 3585, Herdsman Lake, is located at the southern end of the survey area and will not be impacted upon during the proposed works. The drain that flows through the survey area does not enter into the lake system but is redirected into a main drain that flows west and discharges into the ocean. DAA Site ID 4405, Jackadder Lake, is listed as 'Lodged' and is still awaiting assessment. It is located to the west of the survey area, and separated from the proposed works by one major and two minor streets and will not be impacted by the proposed works⁵.

Although there is no requirement under Section 18 of the Aboriginal Heritage Act 1972 (WA) to seek permission to proceed with development in the Structure Plan area, it is recommended that Noongar representation be sought as part of future detailed planning and design. This will assist in managing and interpreting Aboriginal cultural heritage throughout the development of the City Centre⁶.

ID	DAA Site Name	DAA Site Type	DAA Site Status
3207	Jackadder Lake West	Artefact Scatter	Stored
3208	Scarborough Beach Road	Artefact Scatter	Stored
3209	Herdsman Lake N	Artefact Scatter	Stored
3210	Herdsman Lake NE	Artefact Scatter	Stored
3585	Herdsmand Lake	Burial	Permanent
4405	Jackadder Lake	Artefact Scatter	Insufficient Information
21538	Stirling Wetlands	Mythological	Stored

Table 11: Aboriginal sites on DIA Site Register in the City of Stirling Structure Plan Area

3.3 European Heritage

Following the establishment of the Swan River Colony, land in the Stirling area was granted to settlers. These early European settlers continued to draw on the resources provided by the wetlands, converting many of them into market gardens. One of these, located around where Oswald Street is today, was offered for sale as market gardens around 1898. Over the following years channels were dug and it was drained into Herdsman Lake, becoming a productive market gardening area.

The Nookanburra Drainage District was formalised in 1921 when a drainage system in the area now known as Osborne Park was established. The area was drained into Herdsman Lake which was, and still is, drained via a pipe to the sea at Floreat Beach. From that period until the late 1940s, land uses in the area were predominately related

⁵ *Archaeological and Heritage Management Solution, August 2013, Aboriginal Archaeological and Ethnographic Site Identification Survey, Structure Plan Area,*

⁶ *Big Island Research, July 2013, Ethnographic Heritage Survey Report, page 19*

to market gardening with gradual development of land for residential purposes in the Osborne Park area.

Residential subdivision and development in the area began in earnest from the late 1940s. At first predominantly single residential, Innaloo has experienced redevelopment with a significant number of lots now accommodating grouped housing of two or more dwellings. After the Stephenson and Hepburn Plan for Perth and Fremantle was published in 1955, Osborne Park was gradually transformed into an industrial area.

From 1958 to 1980, low lying and damp land off Hertha Road was used as a landfill site. In addition to domestic and industrial waste, septic tank effluent is reported to have been disposed of at the site between 1962 and 1970. Part of the landfill has been landscaped and developed as the Stirling Civic Gardens. The car park for the Stirling Station is located south of these gardens, also on former land fill.

Construction of the Mitchell Freeway commenced in 1967 and was extended through the area in the early 1980s. This was a significant intervention, severely limiting access between the north and south parts of Stirling and impacting on the flow of ground and surface water. In the early 1990s, the freeway median was widened to accommodate the railway line and Stirling Station was built.

The present day Westfield Innaloo shopping centre started life in 1967 as Innaloo Shopping Centre and was one of the first suburban shopping centres in Perth. Over the years the centre has expanded considerably, at one stage involving the partial closure and realignment of Oswald Street. Other retail development has taken place around this major shopping centre, including a significant amount of large-format retail and showroom development along Scarborough Beach Road in particular, which has had a significant impact on traffic movement and congestion in the area.

When Oswald Street was closed at its intersection with Scarborough Beach Road, Ellen Stirling Boulevard replaced it as the major connection to the freeway. At the northern end of Ellen Stirling Boulevard, near Cedric Street, peaty former swamp land has been remediated and a subdivision created. The large format IKEA store has been constructed on the largest part of the site and the remaining lots are awaiting development.

In 1966, the City of Stirling opened its administration centre in Hertha Road (now Civic Place). In 2005 a new civic centre was opened on the adjacent site, facing Cedric Street, and the old centre was converted to private offices.

Osborne Park Hospital is a major land use in the north-west sector of the city centre. It was opened in 1962 and has since expanded from 58 beds to over 200 beds. A master plan has been prepared to guide the future evolution of the hospital. The hospital expansion plans are to grow capacity by around 50%. Access between the hospital and major public transport located at Stirling Station is presently difficult. South of Scarborough Beach Road on Liege Street, the large cinema and entertainment complex is built on the site of the former Metro Drive-in, which opened in 1957.

There are no identified places of European cultural heritage within the structure plan area.

3.4 Topography

The Stirling City area lies within a valley east of the major ridge line of the Spearwood Dune System referred to in this area as Doubleview, and west of the Nollamara ridge line. Much of the lower portion of the structure plan area was originally wetlands or seasonally wet areas. Significant modification to the landform has occurred around the centre of the area, with the freeway interchange and Stirling Train Station positioned above a filled wetland, part of which is landfill (former Hertha Road rubbish tip – refer to Figure 19 Contaminated Sites and Soils).

Elevations within the structure plan area range from 20m Australian Height Datum (AHD) in the northeast, adjacent to the intersection of Cedric and Karrinyup Roads and 15m AHD at the landfill site, to a low of 10m AHD along Ellen Stirling Boulevard. Elevations gradually increase from 10m to 20m AHD heading west to Thor Street, where they continue to increase west of the structure plan area to a high of 70m AHD at Ewen Street.

3.5 Soils

Soils comprise Bassendean sands, some limestone and significant areas of peat. Stirling is generally located within the Bassendean Dune System with portions of the structure plan area located within an interdunal depression in the Spearwood Dune System. Swamp areas in the Spearwood Dune System are located within the Herdsman unit consisting of black organic sands, peaty loams, black clays and true peats.



Image 1: The Nookanburra Drainage District was established in 1921 and continues to drain into the ocean at Floreat Beach to the present day.

Much of the site is considered to have high to moderate risk of acid sulphate soils occurring at a depth of 0 to 3m (refer to Figure 19: Contaminated Sites and Soils). This area coincides mostly with the likely areas of peat.

3.6 Contaminated Sites

A search of the Department of Environment and Conservation (DEC) Contaminated Sites Register was conducted on 28 August 2009. Two registered sites were identified within the Stirling City Centre area (refer to Figure 19: Contaminated Sites and Soils)

- Hertha Road landfill site. The site is currently used for car parking, public open space, including the Stirling Civic Gardens. Previously this site was an uncontrolled landfill.
- 480 Scarborough Beach Road, Osborne Park. The site is currently used as showrooms but previously was used as a service station.
- 365 Scarborough Beach Road, Innaloo. The site is currently used as a service station.

Other sites might exist that have not yet been registered. Contaminated sites will need to be appropriately managed and remediated prior to any redevelopment.

3.7 Hertha Road Landfill Site

The Hertha Road landfill site (refer to Figure 19: Contaminated Sites and Soils) is registered as a contaminated site with DEC. The site will require remediation in the future as a result of an existing unlined landfill which has resulted in contamination of both the site and the groundwater table. Further investigations are required to establish the extent and physical location of the contamination and to identify appropriate remediation options.

It is anticipated that significant resources will be required to facilitate remediation of the site to achieve the vision of the Stirling City Centre. The remediation method chosen could showcase innovative on-site remediation methods and provide opportunities for positive spin-offs, including research and education. Given that the landfill is located on top of potential acid sulphate soils, excavation of the contaminated material may not be the preferred option.

A major issue required to be addressed in any potential remediation of this site is the management of the landfill gases. Any significant uncontrolled surface release may result in public health issues. A gas collection and control system would need to be carefully designed for any enclosed building in the landfill area.

3.8 Flora and Fauna

As the area has been urbanised since the 1940s, there are limited areas with ecological significance remaining. A desktop study⁷ was undertaken which identified that there are four native vegetation types potentially located within the City Centre (Figure 20 Wetlands and Native Vegetation in the Structure Plan Area). These are:

- Medium woodland - Tuart (*Eucalyptus gomphocephala*) and Jarrah (*Eucalyptus marginata*)
- Shrub lands - tea tree thicket
- Stands of flooded gums (*Eucalyptus rudis*) in association with drainage corridors
- Bare areas - freshwater lakes.

In October 2009 a qualified botanist from visited the site and conducted a Spring Flora Survey⁸. The report identified that the subject site had been highly modified with few endemic plant species remaining and almost complete loss of the original vegetation structure. The report noted that some revegetation of native taxa (*Calothamnus quadrifidus* and *Melaleuca cardiophylla*) had occurred in the area between Scarborough Beach Road and Jon Sanders Drive. However, on the whole, few botanical values remain.

No declared rare flora or Priority Flora was found during the survey.

No fauna surveys have been undertaken, however due to the highly modified nature of the area no significant areas of habitat for fauna are likely. Nevertheless there are significant fauna listed under Commonwealth Wetlands and State Legislation that have the potential to occur within the area. These are:

- Baudin's Black Cockatoo
- Carnaby's Black Cockatoo
- Graceful Sun Moth
- Australian Painted Snipe
- Peregrine Falcon
- Black-striped Snake

As the redevelopment of Stirling City Centre proceeds, detailed surveys should be undertaken to identify the presence of fauna. In addition opportunities to enhance natural systems (including the reintroduction of endemic species) and increase biodiversity should be explored in the detailed design of parks, open spaces and private gardens.

⁷ SMEC, 2009, Phase 1 Scoping Study: Summary Report

⁸ Cardno, 2009, Stirling City Centre Declared Rare Flora Search, for Department of Planning

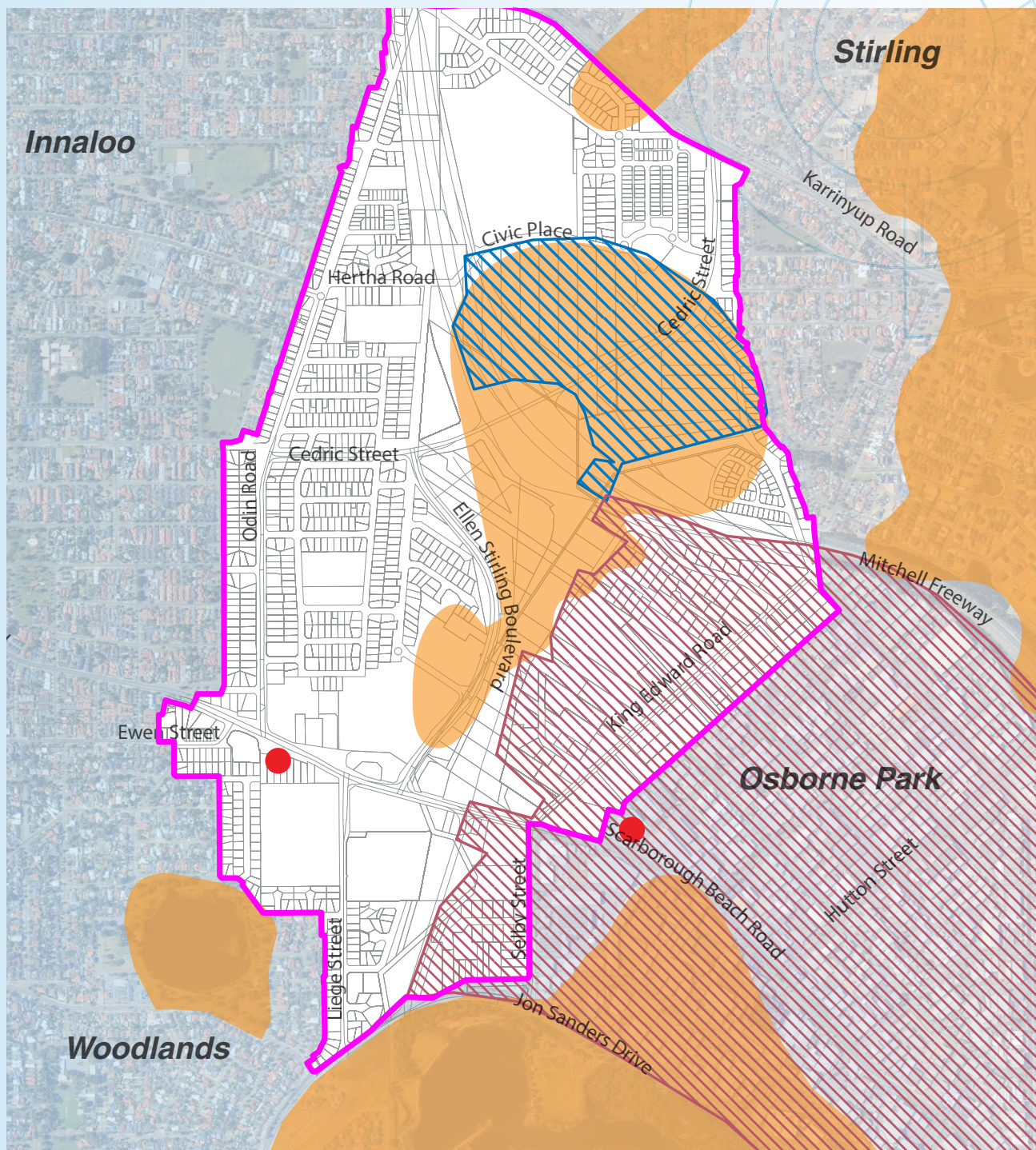
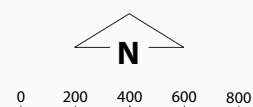


Figure 19: Contaminated Sites and Soils

Legend

- Structure Plan Area
- Former Hertha Road Tip Site
- Osborne Park Industrial Area
- Soils with High to Moderate Risk of Acid Sulphate Soils
- Sites on the Register of Contaminated Sites



metres
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3.9 Water

The Stirling City Centre has a strong historical and cultural connection with water and the wetlands of the area. The Osborne Park main drain runs through the area and is one of the few perennially flowing waterways on the coastal plain. The present poor water quality of this drain and the wider implications of the receding groundwater levels are cause for concern.

The Noongar people believe the spirit of the Waugul is still present in the flowing and ground water. The genuine concern of the Noongar people is expressed in the following quote:

*"The health and wellbeing of the Waugul is directly connected to the vitality of the groundwater features, and both are intertwined with the health of Nyungar cultural identity. If the Waugul is killed or leaves, then the springs and other features with which it is associated will dry up and the processes of renewal with which it is associated will be brought to an end. Many Nyungars would argue that with the decline in groundwater levels, which is becoming increasingly visible, that this is in fact happening."*⁹

This insight provides a powerful reminder of the relationship between the environmental assets of the groundwater, surface water and the general health of the community as well as the special significance of the waters of this area to the Noongar people. Further, it is a reminder that without healthy ground and surface water systems, the vision for the regeneration of Stirling will be difficult to achieve.

3.9.1 Surface Water

The Stirling City Centre contains a number of wetlands including the Osborne Park main drain and the Hertha Road wetland (Figure 4 Wetlands and Native Vegetation in the Structure Plan Area). Other wetlands adjacent and downstream include Jackadder and Herdsman Lakes. Herdsman Lake is the largest wetland in the metropolitan area with high nature conservation value for bird breeding and summer refuge for waterfowl, bush birds and birds of prey.

To the north up gradient of Stirling City Centre, wetlands include Lake Gwelup, Huntress Road dampland, Lake Karrinyup, Careniup Swamp and Spoonbill Lakes. Although highly modified, these wetlands provide important ecological reference points and are significant restoration opportunities within the Stirling region.

⁹ Dr Edward McDonald et al (2005), *Study of Groundwater-Related Aboriginal Cultural Values on the Gnangara Mound, Western Australia* for Department of Environment. Page 2

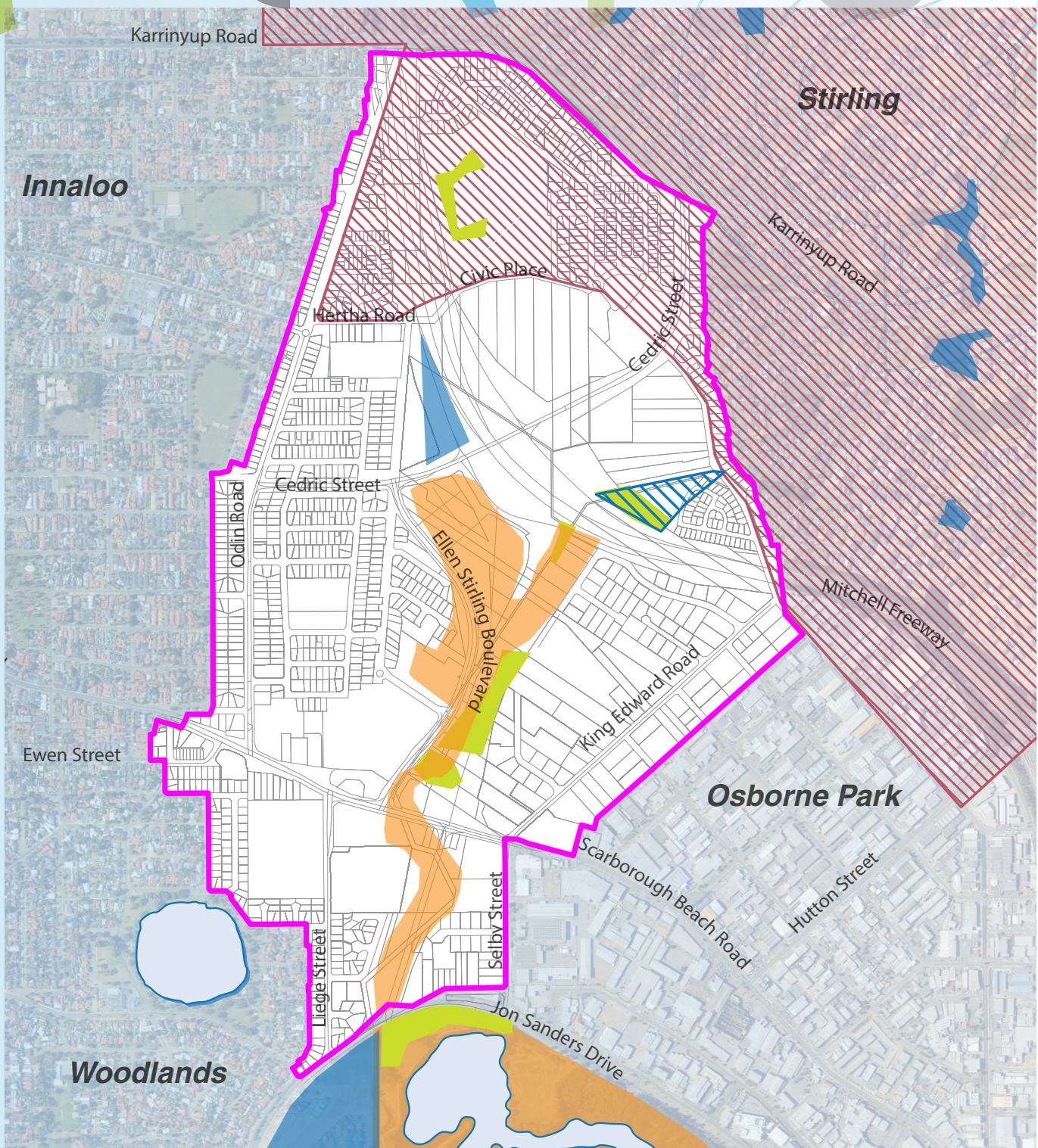
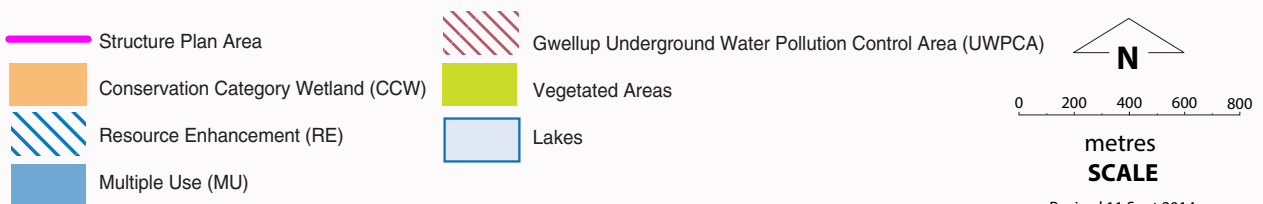


Figure 20: Wetland and Native Vegetation

Legend



3.9.2 Groundwater

Underlying the whole of the coastal plain is a series of superficial and confined aquifers. The unconfined ground water resources have been utilised for domestic and open space irrigation, with the deeper aquifers utilised in certain locations for mains water supply. The shallow groundwater system is interconnected with the wetlands.

Stirling City Centre is located within the boundaries of the Gngangara underground water mound. The regional depth to groundwater varies from 9m to 11m AHD, with the flows generally to the west south west. Information from local bores suggests that groundwater levels in the unconfined aquifer are declining regionally (by approximately 2m), predominately due to lower winter rainfall (reducing recharge) and increase utilisation.

Part of the site is proclaimed under the Metropolitan Water Supply, Sewerage and Drainage Act 1909 for the supply of public drinking water. The Gwelup Underground Water Pollution Control Area (GUWPCA) is shown on Figure 20 Wetlands and Native Vegetation in the Structure Plan Area. The area is classified as a Priority 3 (P3) Protection area under SPP 2.7 – Public Drinking Water Policy. Priority 3 Protection areas are declared where water supply needs to co-exist with other land uses such as residential, commercial and light industrial developments. Wastewater reuse is currently not supported in P3 areas; however it is understood that this policy is currently being reconsidered in light of new technologies and trials.

Existing residential, hospital and civic uses are located within the P3 Area. Management of the leachate from the Hertha Road landfill and careful management of acid sulphate soils are priority measures that need to be undertaken within the GUWPCA.



Image 2: Herdsman Lake, adjacent to Stirling City Centre, is an important flora and fauna habitat and recreational area.



3.10 Place Context

3.10.1 Location

Stirling City Centre is located in the established urban core of the Perth Metropolitan Region. It is 6.5 km from Perth city and only 4 km from the coast. Stirling is highly accessible from the region by rail and road. The shared corridor of the Mitchell Freeway and the Northern Suburbs Railway bisects the area. Stirling Station is located almost centrally in the structure plan area; Glendalough Station lies 3 km south-east and Warwick Station 5 km north.

The surrounding area is largely residential with the notable exception of the Osborne Park industrial area and Herdsman Business Park to the east. This area, including Stirling, is the second largest employment area in metropolitan Perth. Within the established surrounding area there are a number of retail-based centres apart from the Westfield Innaloo Shopping Centre that are located within Stirling City itself. The largest of these is Karrinyup Shopping Centre, approximately 2.7 km north-west. The Balcatta industrial area is about 3 km north of Stirling Station. Figure 21 Locational Context, illustrates the location of Stirling City Centre in the context of the surrounding district and highlights major land uses in the area.

3.11 Housing and Population

The Stirling City centre 2010 population was estimated at 3,800 (up from 2,570 at the 2006 census¹⁰). The population in the City of Stirling as a whole has grown 2% annually since 2006, which is significantly faster than the metropolitan area growth over the same period. Growth has been driven in part by the prominence of the area as a major employment centre and its close proximity to the Perth CBD.¹¹ The majority of this growth has been accommodated through infill development and new development north of the railway line.

The Stirling City Centre is under represented in terms of primary school age (4-12 years) and high school age (13-18 years) children compared to the Greater Perth Area. The 40-54 years cohort is also underrepresented with a higher than average percentage of persons aged 25-39 and 70+ years¹².

In 2010 there were 1,625 dwellings located within the Stirling City Centre area mainly comprised of large, single detached houses and grouped housing (with an average of 2.37 people per household). There are also some specialist aged persons' villa and unit developments providing approximately 300 homes. In 2006 approximately 52% of the then 1,169 dwellings in Stirling City Centre were detached houses 19% semi-detached, and 29% apartments¹³. This equates to a density of only six dwellings per hectare. The current supply of housing does not provide a diversity of housing choice for different demographic groups and income brackets.

¹⁰ Syme Marmion and Co, January 2010, Scarborough Beach Road Population and Land Use Study, for Department of Planning

¹¹ Macropian Australia Pty Ltd, July 2010, Retail Sustainability Assessment – Draft Report, for Stirling Alliance

¹² Hames Sharley, June 2013, Stirling City Centre Community Needs Assessment, for the Stirling Alliance

¹³ Syme Marmion and Co, January 2010, Scarborough Beach Road Population and Land Use Study, for Department of Planning

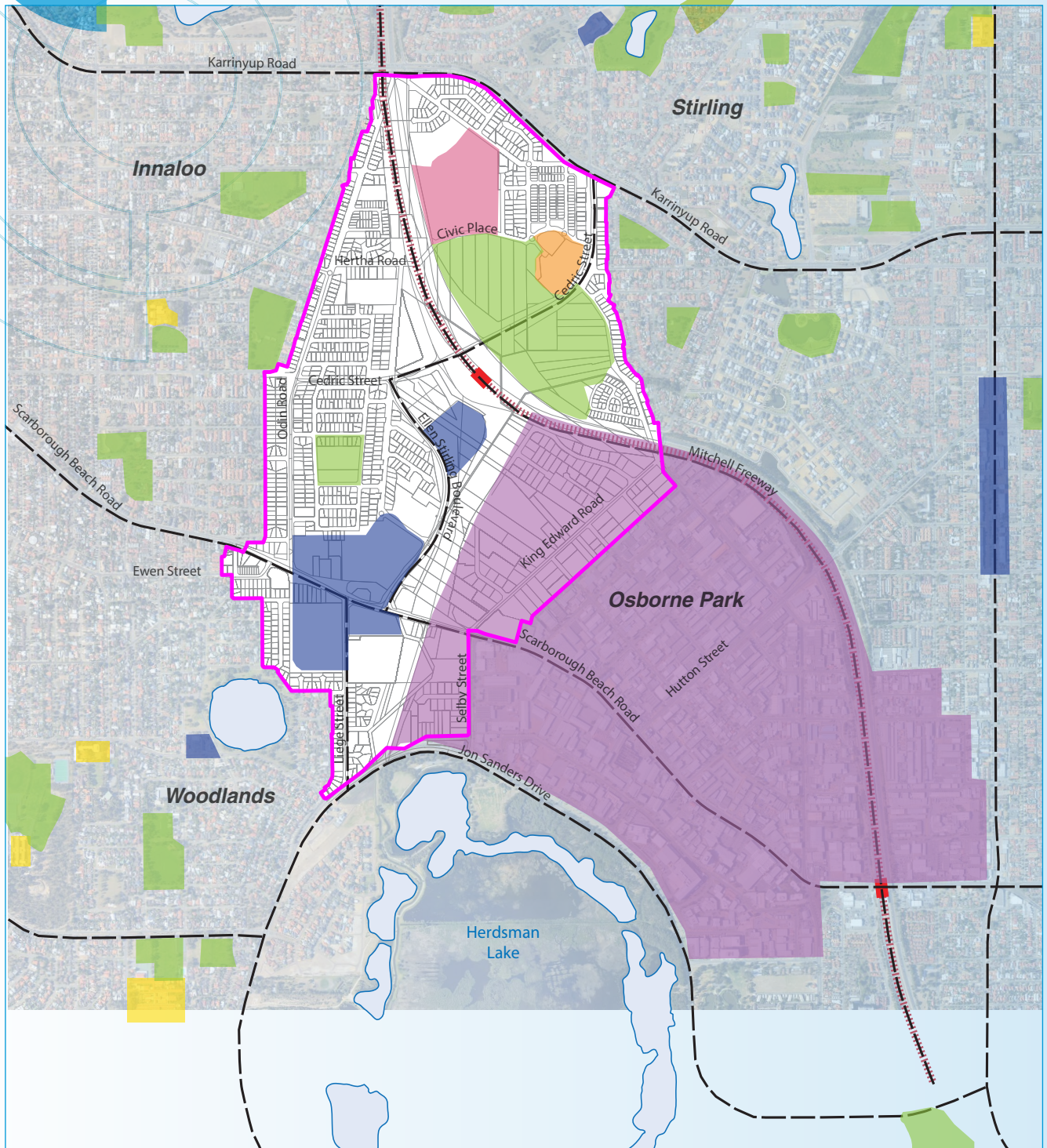










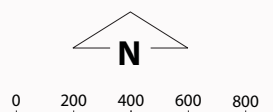


Figure 21: Locational Context

Legend

 Structure Plan Area	 Hospital	 Main Roads
 Water Bodies	 Major Retail	 Railway Lines/ Stations
 Industrial Areas	 Schools	
 Parks and Recreation	 Government Office	



metres
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Demographic profiling and forecasting¹⁴ suggests that the population of the City of Stirling will increase strongly in the future, in line with the trend across metropolitan Perth. Low growth (0.7% annual growth) and high growth (2.0%) scenarios identify that there could be between 35,000 and 108,000 additional residents in the City of Stirling local government area by 2031, translating to a need of between 15,100 and 47,000 additional dwellings. The Stirling City Centre will be required to accommodate a significant proportion of this growth, and a target of 13,900 dwellings has been identified.

Current Population:	3,800 residents
Current Dwellings:	1,625 dwellings (comprised of large, single detached houses and grouped housing)
Current Average Occupancy:	2.37 people per household
Current Density:	6 dwellings per hectare
Future Population:	25,000
Future Dwelling:	19,900
Future Average Occupancy:	1.8
Future Density:	45 dwellings per hectare

Table 12: Structure Plan Area Overview

Providing 13,900 dwellings will require a very different approach to housing from that taken in the past. The makeup of households in Australia is undergoing rapid change. Research undertaken shows that lone person households are the fastest growing household type in Australia, increasing from 25% of the total in 2001 to 34% of all households in 2026. In 2006,¹⁵ 32.4% of all households in the City of Stirling were already lone person households, and this is expected to increase significantly overtime. To accommodate this demographic shift, a more diverse range of housing options will be required.

The City of Stirling has adopted a Local Housing Strategy as a response to the changing demand for housing. The main themes of the strategy relate to the importance of fostering housing diversity and affordability. A City Housing Policy will be developed in future that, among other things will, identify targets for the provision of affordable housing, universal access requirements, ecological design of dwellings and dwelling typologies that will minimise the loss of tree cover and the consequential detrimental impacts on microclimate and urban temperatures. Increased dwelling densities and more apartments and mixed use developments will be a key requirement under the new policy.

¹⁴ Macroplan Australia Pty Ltd, July 2010, Retail Sustainability Assessment – Draft Report, for Stirling Alliance

¹⁵ Australian Bureau of Statistics accessed at <http://www.abs.gov.au/ausstats/abs@.nsf/0/6C0F2180158809B9CA2573D20011048E?opendocument> on the 9.8.2010

3.12 Economy and Employment

To perform its designated role as a Strategic Metropolitan Centre, Stirling must diversify its economic base and mature into a major employment centre for the Central sub-region of the Perth Metropolitan Region¹⁶.

Employment that involves the local delivery of goods, services and amenities to the population of an area is known as 'population-driven' employment. As the population of Stirling City Centre increases, this type of employment is also expected to increase. Estimates are that the number of population-driven jobs in the Stirling City Centre in 2006 (2006 Census) was 4,724, or 91% of total jobs¹⁷.

In contrast, the estimated number of 'strategic' jobs in the Stirling City Centre in 2006 was only 475, or 9%¹⁸. Strategic employment is not linked to population growth but to economic development. This type of employment is important because it generates net new income for the economy by establishing markets outside the sub-regional and regional catchments. For Stirling to provide its share of required employment to meet the needs of forecast population growth in Perth and Peel, a massive increase in the proportion of this type of employment to 22% (4,124 jobs) will be required by 2031.

Analysis indicates that the area in and around Stirling City Centre has evolved from general retail and light industry to become a major convenience and comparison retail centre, with bulky goods, specialised construction and home making retail outlets in Osborne Park having a metropolitan-wide catchment.

Areas around the Centre (in particular Herdsman Business Park) have begun to develop a significant commercial office function, catering for larger format commercial office buildings that play a vital metropolitan role but, for a number of reasons such as cost and lack of available space, would not locate in the CBD.

¹⁶ *Pracsys, April 2010, Stirling City Centre Economic Development Strategy: Scoping Paper, for Stirling Alliance*

¹⁷ *Pracsys, April 2010, Stirling City Centre Economic Development Strategy: Scoping Paper, for Stirling Alliance*

¹⁸ *Pracsys, April 2010, Stirling City Centre Economic Development Strategy: Scoping Paper, for Stirling Alliance*



3.13 Movement

Over fifty years ago, a road reservation was set aside for Stephenson Highway in the first statutory plan for Perth, (1956 Interim Development Order) which has carried through to the current day. To date, the highway has only been partially constructed. It was widely recognised that if the construction of Stephenson Highway through the Stirling City Centre project area proceeded as originally intended, it would impact significantly on the ability to deliver a city centre that is integrated with the commercial and light industrial precinct in Osborne Park to the east, and would encourage the continuation of 'big box' development in the city centre. A key issue that has plagued the area's development is the conflict between regional and local transport needs. A substantial proportion of traffic congestion is created by flow travelling to the Osborne Park Area. Approximately 90% of work-related trips are undertaken by private motor vehicles in Stirling City Centre. The high level of private car use coupled with the limited capacity of the existing road network results in severe congestion within the Stirling City Centre area. Congestion not only impacts on travel time but serves as a limiting factor for future development within the area. Reliance on the private car (over other modes of travel) is unsustainable for numerous reasons including the contribution of carbon emissions from vehicles to climate change and the social and economic impacts of rising oil prices. Less than one third of the traffic predicted to use Stephenson Avenue in this location would be regional (travelling through, rather than to the centre) and 5% or less of that traffic would be freight.

The road network of the Mitchell Freeway and Scarborough Beach Road is presently close to capacity in peak periods, as too is rail capacity at Stirling Station during peak periods. The northern suburbs railway can grow to 150,000 passengers per day based on a 6 car set with a 3 minute frequency. This highlights the need to focus on a high level of employment around Stirling Station to encourage people to alight and create more capacity between Stirling Station and the City. Stirling is currently the fifth busiest non-CBD station in the network. The bus feeder patronage grew by approximately 20% between 2007 and 2009. Bus access to Stirling Station is over 50% of the mode share. Residential development within the walkable catchment of this station may exacerbate the existing problem and promote increased commuter trips to Perth. Therefore it is important to develop strategies to encourage local employment opportunities when detailed precinct planning is undertaken. In 2009, the City of Stirling adopted an Integrated Transport Strategy that seeks to tie land use with transport. In respect to Stirling City Centre, the Strategy proposed the following transport elements.

The existing movement network is illustrated in Figure 22 Existing Movement Network.

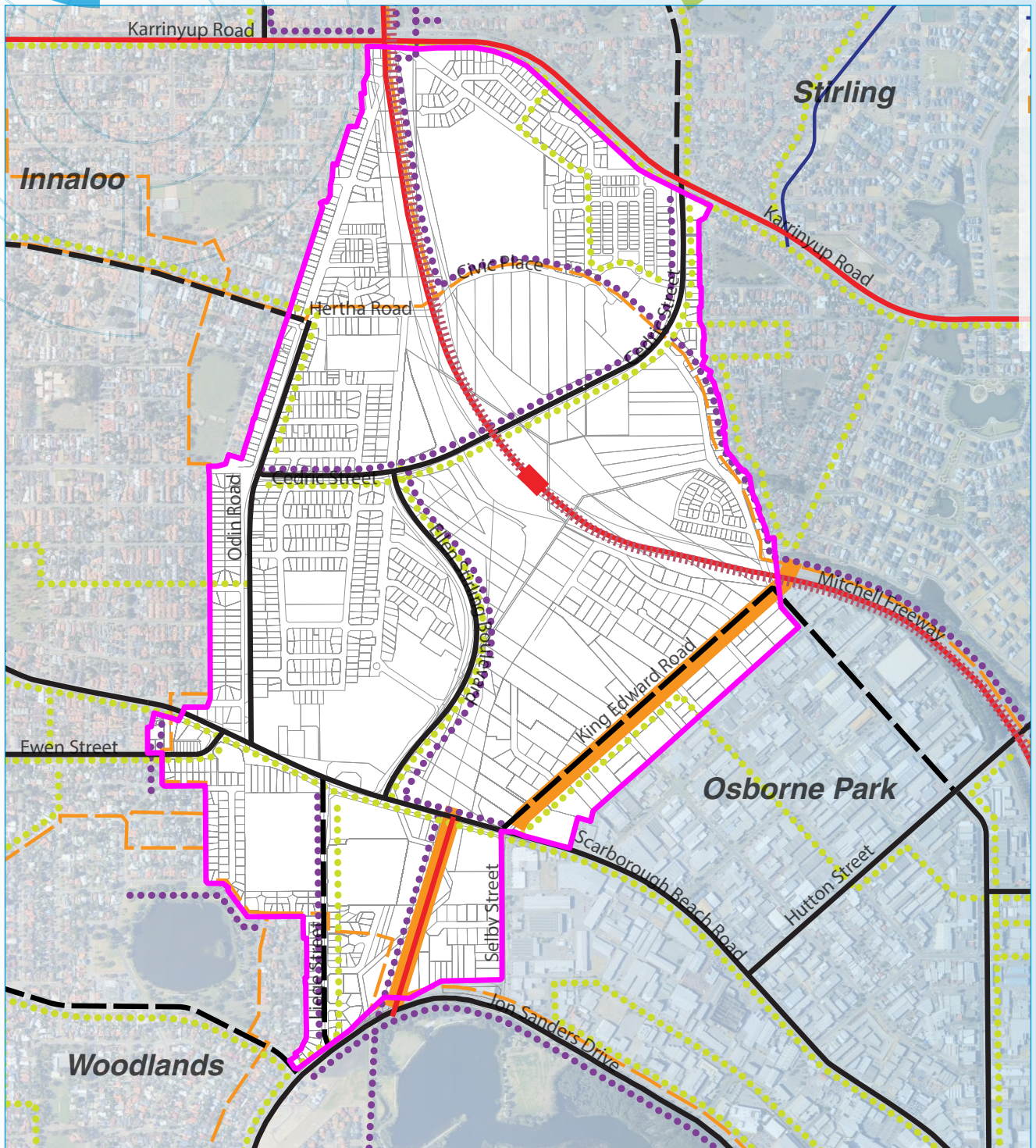










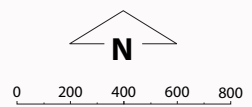


Figure 22: Existing Movement Network

Legend

	Structure Plan Area		Neighbourhood Connector		Existing Bus Routes
	Primary Distributor		Major Cycle Routes		Railway Lines/ Stations
	Distributor A		Shared Path		
	Distributor B		Bicycle Lanes/Sealed Shoulder		



metres
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3.14 Public Utilities

Consultation with the appropriate utilities (in particular the Water Corporation and Western Power) reveals that the average Perth house uses around 276 kL of water, 6,500 kWh of power and generates around 1 tonne of municipal solid waste (MSW) each year. At these rates it is anticipated that the Stirling City Centre district will require an additional 4 GL of water and 97.5 GWh of power to enable the residential population growth targets set within the growth strategy to 2031. The projected increases in commercial office and retail space will require an additional:

- 90 GWh of power for the projected increase in retail floor space (300,000 sqm)
- 40 GWh of power for the projected increase in office floor space (400,000 sqm)

This challenge is further compounded by known infrastructure capacity constraints, including:

- a local 'black hole' of distribution and reticulation infrastructure for electricity, gas, water and sewerage due to the area's history as a landfill site and the Stephenson Highway reservation, particularly in the Osborne Park, Station and Southern Precincts.
- upstream electrical infrastructure upgrades required (predominantly substation upgrades and/or delivery)
- a downstream sewerage system and treatment plant nearing capacity
- a relatively weak telecommunications network

These estimates can be significantly reduced with planning for energy-efficient buildings, a local water recycling plant and third pipe system, together with possible best available technologies for energy minimisation.

These challenges present significant funding, planning and construction challenges for sustainable provision of energy, water and wastewater services. The consideration of non 'business as usual' infrastructure provision is required, with an opportunity for the implementation of a blend of 'best available technologies' and 'business as usual' solutions.

3.15 Public Open Space

Public open space makes a major contribution to local character, amenity and community vibrancy. At present, the main open space within Stirling City comprises:

- Herdsman Regional Park (regional open space)
- Stirling Civic Gardens (district open space)
- La Grange Dongara Reserve (community open space)

In addition there are some 11 local reserves with the total local and community open spaces calculated at 34.4ha¹⁹.

The City of Stirling Public Open Space Strategy seeks to create a network of resource efficient, quality public open spaces that will satisfy current and future recreational needs in an equitable and sustainable manner.

The strategy classifies open space into a number of categories as follows:

- Local Open Space - small parklands that service the regular small-scale recreation needs of the immediate residential population within five to ten minutes walking distance.
- Community Open Space - areas large enough to provide for both passive and informal active uses to occur simultaneously, while managing potential conflict.
- District Open Space - principally provides for organised sport and passive and informal active recreation for surrounding neighbourhoods, large enough to accommodate a variety of concurrent activities.
- Regional Open Space - These spaces serve broad-based sport and recreational needs providing numerous quality facilities for residents and visitors. Regional open spaces may also serve conservation and environmental management goals and include sizeable areas of undeveloped land with natural/native vegetation and water bodies.
- Natural Conservation Areas - these are intact or rehabilitated areas for wetlands remediation.
- Special Purpose Open Space - unique or single purpose spaces provided in addition to the local, community, district and regional open space hierarchy. These spaces include urban spaces such as plazas and squares, landfill sites, historical and cultural spaces.
- Residual Land - this is existing public open space that does not provide a useful function to a significant portion of the community, due to poor location, incompatible adjacent land uses, poor access, and limited size, lack of infrastructure or oversupply.

The Stirling City Centre will require open space in each of these categories except regional open space, as Herdsman Lake provides enough open space in this category.

¹⁹ James Sharley, June 2013, *Stirling City Centre Community Needs Assessment, for the Stirling Alliance*

3.16 Social Infrastructure

The Stirling City Alliance²⁰ commissioned an audit of existing infrastructure within the Stirling City Project area. The audit investigated education, health, cultural and civic, police and emergency facilities. This work was supplemented and in some areas updated with information captured as part of a Community Needs Assessment²¹.

3.17 Education

There are currently no schools situated within the Stirling City Centre area. The existing residential population is adequately catered for by public and private schools within the catchment area however it has been flagged that population growth within the Stirling City Centre will require additional primary and secondary schools. Since the relocation of Edith Cowan University Churchlands Campus in 2007 there are no universities located within or close to the City Centre.

3.18 Health

The Osborne Park Hospital is situated within the Stirling City Centre. Osborne Park Hospital provides 209 general hospital beds, 50 mental health beds and eight (8) rehabilitation beds. There are no emergency facilities located at the hospital.

3.19 Cultural Facilities

The City of Stirling Council Chambers and Civic Reception Centre is located within the area north of the freeway. This area has been identified as a possible location for future cultural and civic purposes. There is presently no library within the city centre area.

3.20 Police, Fire and Emergency Services

There are currently no police, fire or emergency service facilities within the designated Stirling City Centre area. Consultation with service providers suggests that additional facilities will not be required at this stage, however a shared hub could accommodate shop front services and support city centre policing by foot or bicycle as required.

²⁰ Estill and Associates, 2008, Community Needs Assessment, for the Stirling Alliance

²¹ Hames Sharley, June 2013, Stirling City Centre Community Needs Assessment, for the Stirling Alliance

4

Structure Plan

4.1 Elements of the Plan

Three key structural elements will shape the future of the Stirling City Centre. These are:

- The Green, or open space system
- The Blue, or waterway system
- The Red, or transport linkages

4.1.1 Green - Connecting City Park to Herdsman Lake

The core structure of the Stirling City Centre is to be defined by a green corridor that will run from the northern end of the centre travelling south through the centre of the study area and arriving at Herdsman Lake. The key objectives of the green corridor is to:

- Provide visual relief within the City by introducing green and urban spaces that ameliorate the predominance of the built form;
- Provide land for planting of significant trees to help offset the loss of trees along the existing stream;
- Provide sufficient land to accommodate the stream at ground level;
- Provide publicly owned amenity through the central part of the City Centre;
- Provide continuous, unbroken, pedestrian and cycling links along the green corridor between Herdsman Lake and the northern part of the centre;
- Provide land for various sized public open spaces that meet the requirements of the City.

4.1.2 Blue - The Urban Stream

The blue corridor will connect in the north to the existing Osborne Park Main Drain and then generally follow the existing route to Herdsman Lake. Realignment of the stream between Howe Street and Scarborough Beach Road is required. The key objectives of the blue corridor are to:

- Provide land for the continuous presence of the stream at ground level;
- Provide amenity to surrounding land uses;
- Provide a cooling influence on adjoining properties and parks;

- Provide sufficient land to enable the remediation of both surface and ground water;
- Provide ability for storm water to enter the aquifer to keep the ground water levels above the peat lense; and
- Ensure that the peat is kept wet to alleviate acid sulphate soils.

4.1.3 Red - Transport

A third structural element is the 'red' or transport network. There are a number of red corridors in the Structure Plan area, the main ones being:

- Mitchell Freeway and Northern Suburbs Railway;
- Scarborough Beach Road; and
- Stephenson Avenue.

The key objectives of the Mitchell Freeway and Northern Suburbs Railway are to:

- Facilitate the movement of regional freight and passenger traffic;
- Enable sufficient land for the continued growth of the heavy rail; and
- Provide regional cycling links.

The key objectives of Scarborough Beach Road are to:

- Prioritise walking, cycling and public transport over vehicles;
- Provide space for pedestrians and alfresco areas to encourage walking;
- Provide space for dedicated transit and cycling lanes;
- Facilitate the movement of local and regional traffic to and through Stirling City Centre;
- Provide space for on-street parking to ensure active uses front the road; and
- Provide space for trees to create a continuous green canopy along the road.

The key objectives of Stephenson Avenue are to:

- Prioritise walking, cycling and public transport over vehicles;
- Provide space for pedestrians and alfresco areas to encourage walking;
- Provide space for dedicated transit and cycling lanes;
- Facilitate the movement of local traffic to and from the Stirling City Centre;
- Provide space for on-street parking to ensure active uses front the road; and
- Provide space for trees to create a continuous green canopy along the road.

4

4.2 Land Use and Activity

4.2.1 Precincts

Although conceived of as a single, cohesive mixed use centre, Stirling City will nevertheless be defined by a variety of 'neighbourhoods' or precincts, each having qualities or emphasis that differentiate it from the others. No city centre is completely homogenous – the different characteristics of the precincts combine to make the city centre an interesting, dynamic and legible whole.

The following six precincts have been identified, as illustrated in Figure 3 Precincts.

The precincts are:

- Southern Precinct
- Station Precinct
- Northern Precinct
- Osborne Park Precinct
- Innaloo Precinct
- Woodlands Precinct

Identifying precincts makes it possible to describe in more detail the qualities and characteristics that will give them their distinctiveness within the whole centre, and allows for staged implementation and design development.

Planning of the precincts will evolve and be updated as issues are resolved over time. The design detail of the precincts will be 'locked down' gradually, in the most appropriate manner at the time, whilst staying true to the key structural elements and vision for Stirling City Centre. In some cases, the boundaries of precincts may alter slightly in response to detailed planning and design.

This plan establishes the general intent and vision for the precincts as set out in Part One of the Structure Plan. Detailed Area Plans will be prepared progressively for each precinct.

4.2.2 Housing

An integral part of achieving the vision for Stirling City Centre is ensuring that a variety of housing types are provided to suit a range of households and incomes. Provision of diverse housing types will assist in ensuring the vitality and sustainability of the Stirling City Centre. It is envisaged that Stirling City Centre will accommodate an agreed population of 25,000 people and approximately 13,900 dwellings. In order to achieve this, each precinct will need to provide a significant residential component.

The housing strategy for the Stirling City Centre²² identified the following targets:

Precinct	Dwellings 2012	Aspirational Dwellings	Estimated Population Aspirational	Single Bedroom Dwellings	Minimum Dwellings	Estimated Population Minimum	% of Total Dwellings
Southern	49	2,100	3,780	20%	1,360	2,447	15.1%
Station	169	4,500	8,100	20%	2,914	5,245	32.4%
Northern	280	1,100	1,980	20%	712	1,282	7.9%
Oseborne Park	0	2,500	4,500	20%	1,619	2,194	18%
Innaloo	727	2,500	4,500	10%	1,619	2,194	18%
Woodlands	400	1,200	2,160	10%	777	1,399	8.6%
TOTAL	1,625	13,900	25,020	20%	9,000	16,200	100%

Table 13: Stirling City Centre Housing Targets

4.2.2.1 Affordable Housing

Rising house prices in Australia have led to significant problems of housing affordability, particularly for those on low or moderate incomes. Housing that costs more than 30% of a household's income is generally considered to be 'unaffordable', but because housing costs vary between different geographic areas (and from site to site), what constitutes 'affordable' will vary both by income and location.

The issue of location is important, for although there may be a relatively high supply of 'affordable' housing in fringe areas, workers may not be able to afford (time and price wise) to get to work if that housing is too far away. As a consequence, employers may have difficulty attracting staff to fill jobs, and this has potentially wider impacts on the economy and on social outcomes. For example, if teachers, police or healthcare workers can't afford to live near their workplace, standards of community service and security can suffer. This problem has seen the issue of 'key worker housing' emerge, alongside discussions of social and public housing. Hence income alone is not a good measure of 'affordability'. 'Affordable housing' is required that covers all dwelling types to suit the needs of the population, that is – single bedroom dwellings, family housing and aged and dependent persons accommodation.

²² Hassell, August 2010, Draft Stirling City Centre Housing Strategy for City of Stirling, for the Stirling Alliance

In terms of location, the distribution of affordable housing will have to meet the requirements of its intended residents and hence is likely to be broadly distributed. However, locations highly accessible to public transport and employment will be particularly suitable due to the lower levels of vehicle ownership of low income households. This can be interpreted as being within a five minute walk of high frequency public transport routes (approximately 400 metres). On this basis almost all of the Stirling City Centre is highly desirable for affordable housing.

In order to meet the objectives for affordability, minimum dwelling targets for single bedroom dwellings have been set. These include a minimum target of 10% for single bedroom dwellings in Innaloo and Woodlands Precincts and 20% for all other precinct areas. These targets would also inform the precinct planning for all the areas.

4.2.2.2 Short Stay Accommodation

The Perth region is currently served by range of accommodation options including hotels, serviced apartments and backpackers, most of which centre around the CBD and Northbridge areas. Despite a range of accommodation stock, there is seen to be a chronic under supply of accommodation in the region. This under supply in accommodation has been driven mainly by significant increases in demand, particularly amongst business travellers. These increases in demand have resulted in Perth having some of the highest occupancy rates of any city in the world which has reduced both the availability and affordability of accommodation for leisure travellers to the region²³.

The Stirling City Centre project area is ideally located to accommodate short stay accommodation (along with a full range of supporting tourism attractions and accommodation). Priority sites within the Station and Southern Precincts for short stay accommodation will need to be identified as part of Detailed Area Plans for these precincts.

²³ *Experience Perth - Tourism Development Priorities 2010 - 2015 (Dept of Transport) 2010 accessed from http://tourism.wa.gov.au/Policies_Plans_Strategies/tourism_policy_planning/Documents/TDP_Experience_Perth.pdf on the 12 April 2010.*

4.2.3 Commercial

The provision of a range of commercial uses within the project is essential in ensuring the vision is achieved. Provision of diverse commercial uses will assist in ensuring the vitality and sustainability of the Stirling City Centre. It is envisaged that Stirling City Centre will accommodate:

- 1,235,000m² residential floorspace
- 968,978m² commercial floorspace

In order to achieve these targets, each precinct will need to provide a significant commercial land use component. The following precinct targets for commercial land uses have been identified for the Stirling City Centre²⁴:

Precinct	Office Floor Space (NLAm ²)	Health/ Welfare/ Community Floorspace (NLAm ²)	Shop/ Reatail & Other Retail Floorspace (NLAm ²)	Entertainment/ Recreation/ Culture Floorspace (NLAm ²)	Min Commercial Floorspace (NLAm ²)	Total Commercial Floorspace (NLAm ²)
Southern	40,896	6,956	196,901	16,762	173,497	262,875
Station	290,994	4,091	67,814	4,051	244,110	369,864
Northern	16,351	27,516	500	0	29,752	45,079
Osborne Park	77,231	5,455	182,775	2,559	177,961	269,639
Innaloo	0	2,660	369	0	3,067	4,648
Woodlands	12,652	2,012	13,065	0	18,813	28,506
TOTALS	438,124	48,690	461,451	23,372	639,525	968,978

Table 14: Commercial Land Use Targets

Mechanisms to achieve the minimum commercial targets will be developed through the detailed area planning process.

²⁴ Hassell, 2012, *Stirling City Centre Yield Analysis*, prepared for the Stirling Alliance, for the Stirling Alliance

4.2.4 Employment

The Stirling City Centre Alliance has set an aspirational target of 30,000 jobs. The Structure Plan proposes a spatial plan that will facilitate excellent accessibility and high amenity in an intensive, mixed-use activity centre. As a result the area will become a highly desirable location for businesses, including knowledge intensive export oriented businesses and their employees. The intent of the Structure Plan is to encourage and support existing business agglomerations located within the area as well as encouraging and creating new opportunities. A key tool in achieving the employment targets will be a well considered economic development strategy that focuses upon on-the-ground implementation of initiatives that deliver tangible results. Economic development within the Stirling City Centre will be a key driver of employment growth. Employment will expand along two trajectories:

- Increases in retail and consumer services employment generated by growth in the Stirling City Centre catchment
- Increases in strategic employment generated by growth in existing and future industry agglomerations (such as the existing information/media/communication and construction agglomerations already located in the area).

A matrix has been developed²⁵ (Table 15 Stirling City Centre Employment Compositions) indicating the estimated generation of employment (including employment type) in 5 year intervals up to 2031. Beyond 2031 employment numbers have not been modelled, however the Structure Plan is flexible to enable the aspirational goal of 30,000 jobs to be met. Achieving these targets (in particular the strategic job category) will require significant strategic planning and intervention.

	2006		2011		2016		2021		2026		2031	
EMPLOYMENT TYPE	Jobs	%	Jobs	%	Jobs	%	Jobs	%	Jobs	%	Jobs	%
Export	147	3%	283	4%	465	4%	691	5%	960	6%	1,273	7%
Consumer Services	2,519	48%	3,639	46%	4,633	44%	5,506	41%	6,263	39%	6,910	37%
Producer Services	1,568	30%	2,338	30%	3,061	29%	3,743	28%	4,383	27%	4,982	27%
KICS*	637	12%	1,014	13%	1,417	13%	1,840	14%	2,280	14%	2,732	15%
KIPS**	328	6%	634	8%	1,043	10%	1,548	12%	2,151	13%	2,852	15%
Total	5,199	100%	7,909	100%	10,618	100%	13,328	100%	16,038	100%	18,748	100%
Population driven	4,724	91%	6,991	88%	9,111	86%	11,089	83%	12,927	81%	14,623	78%
Strategic***	475	9%	917	12%	1,508	14%	2,239	17%	3,111	19%	4,124	22%

Table 15 Stirling City Centre Employment Composition

(Source: ABS Census of Population and Housing, Directions 2031 Spatial Framework for Perth and Peel and Pracsys modelling 2009)

* KICS – Knowledge Intensive Consumer Services

** KIPS – Knowledge Intensive Producer Services (strategic employment)

*** Export plus KIPS

²⁵ Pracsys, April 2012, Stirling City Centre Economic Development Strategy: Scoping Paper, for Stirling Alliance

4.2.5 Social Infrastructure

The provision of social infrastructure that meets the needs of the future population is critical to achieving the Stirling City Centre vision.

4.2.5.1 Education

The Western Australian Department of Education has identified that a secondary school and 1 or 2 primary schools will be needed within the area to accommodate children from the city centre and surrounding catchments. A location in the northern part of the Station Precinct has been identified for a combined primary and secondary school site. A second primary school will be required within the Osborne Park Precinct. Traditional style free-standing schools on large sites will not be appropriate in the Stirling of the future. Alternative models will have to be explored during the detailed area planning of the precincts, so that school facilities integrate well spatially and functionally with the surrounding area. Shared use of playing fields and facilities, and the provision of learning areas within mixed use residential developments are essential. A regional library has also been identified as a valuable community asset. The library could be a shared resource with the secondary school and could be linked with other facilities and services such as visual arts, writers or poetry centre.

4.2.5.2 Health

The Osborne Park Hospital is currently preparing a master plan to guide future development of the site. The expansion includes provision of an additional 50 mental health beds. A 24 hour super clinic with day surgery, consulting rooms and allied health would be appropriate within the city centre. The super clinic would complement services provided by the existing Osborne Park Hospital.

4.2.5.3 Cultural Facilities

A key to developing a heart to the centre is to provide opportunities to encourage activity that goes beyond daily working life, to activate the city centre, making it a safe and fun destination for the community. Ideally these activities would be located close to public transport and safe walking and cycling routes.

The Urban Design and Landscape Strategy²⁶ undertaken in 2013 identified the symbolic heart of the centre as being located between Ellen Stirling Boulevard and the urban stream, on the southern side of the extended Oswald Street. The strategy refers to this space as Celebration Place and describes it as a flexible space capable of staging both community and district events such as festivals, concerts, kids holiday programs and charity events.

A market has been identified by the community and other stakeholders as a key requirement in the structure plan. Markets (artisans and fresh produce) would support and complement local economic development and offer a social meeting point for residents and visitors. A market site has been identified in the southern precinct.

²⁶ Syrinx, November 2013, Urban Design and Landscape Strategy, for Stirling Alliance

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A multi-service government facility has been proposed, potentially located adjacent to the existing City of Stirling administration centre (in the northern part of the Station Precinct). Activities that could be located in this area include:

- Cultural centre incorporating a performing arts theatre, conference rooms, a library, exhibition spaces and activity rooms for education in dance, music, acting
- Family and Children's Services, Centrelink, Disability Services, Seniors etc
- Business incubator and business support centre

The provision of a cultural interpretation and heritage centre that could promote and support indigenous cultural heritage and reconciliation is also desirable. The centre could encourage activity after normal hours and provide opportunities to celebrate the unique nature of the area.

4.2.5.4 Police, Fire and Emergency Services

Agencies responsible for Police, Fire and Emergency Services have indicated that additional facilities are not required within the city centre at this stage. Future additional facilities, if required, would be best located in the Osborne Park precinct with good access and egress to the freeway.

4.3 Built Form

Built form within the Stirling City Centre will promote diversity through architectural expression, use of materials and innovative design responses. A specific Urban Typology Framework has been developed to guide the preparation of Detailed Area Plans.

To summarise, the purpose of the Urban Typology Framework is to communicate a range of contextually appropriate built form and urban realm standards that would enable successful development within the Stirling City Centre. It does this by providing a thorough analysis of the existing environmental, architectural and cultural framework of the City, the precedents that could inform new development as well as presenting a range of visual and written examples for potential development.²⁷

4.3.1 Character Zones

Each Stirling City Centre precinct is identified by a unique composition of uses and infrastructure elements. The Urban Typology Framework has been organised according to distinctive 'character zones' – zones that have a unique influence on the sensation of being in that place. Given this, the Urban Typology Framework has focused on building types, architectural elements, their potential relationship to landscape and the urban realm²⁸. The character zones as identified in Figure 7 engender the principles contained within the Structure plan and are defined according to their incremental proximity to the City Centre 'heart'.

4.3.1.1 Residential Gardens

The Residential Garden Zone will integrate the proposed higher density residential and commercial development with the surrounding lower density residential housing. Residential Garden Zones are located on the periphery of the Stirling City Centre, along the boundary between the existing residential areas Innaloo, Woodlands and the Northern Precinct.

Re-development will occur within a framework that is constrained physically through existing lot subdivisions and a well established street network. It's essential that new developments integrate visually with existing houses and streetscape, despite the increase in scale.

The greening of this Zone will occur through the upgrading of existing parkland and the incorporation of public space into all new development proposals.

²⁷ Coda, January 2013, *Urban Design Typology Framework, for the Stirling Alliance*

²⁸ Coda, January 2013, *Urban Design Typology Framework, for the Stirling Alliance*

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4.3.1.2 Residential Communal

A Residential Communal Zone is located in almost all precincts throughout the Stirling City Centre. These developments will be located on larger parcels of land and predominantly residential (2000m² minimum). In two areas re-development will occur amongst the existing low density housing; all other development will occur within a purposed design subdivision or within an existing lot of a suitable size e.g. Parkland Villa.

Public open space amenity will need to be created to support development across all areas. Specific development lots will be required to incorporate a defined public open space whilst other sites will be encouraged through an incentive scheme to incorporate smaller pockets of open space. The appointment of an independent design panel to review development proposals would be of particular benefit to this zone.

4.3.1.3 Mixed-Use Lifestyle

The mixed-use zone links residential areas with the city centre; it provides high-level activation whilst continuing to respond to the scale of the adjacent residential areas.

This zone accommodates a range of medium density mixed-use types. For example, lower density shop top housing that is suitable for the non-amalgamated lots that run along the edges of the residential areas.

4.3.1.4 City Centre Heart

This is the 'destination point' of Stirling City Centre and central to defining its overall identity. The 'living stream' provides it with a unique and identifiable heart. High-quality commercial and retail developments need to incorporate pedestrian links to the stream's many public spaces. Given the significance of the 'living stream' on the city's over-arching identity, it is essential that these public realm areas are of equal quality as the surrounding built form.

The central city centre is located in areas that preclude basement development due to prevalence of acid sulphate in the soil. Possible soil rehabilitation could enable basement construction, however in the short term, on-grade and decked car parking are the only parking solutions for the area. This constraint strongly informs the types of buildings possible, with increased site coverage required on medium density, medium rise buildings to accommodate parking. Access to public transport and the provision of quality streetscapes and pathways would encourage the use of alternate modes of transport.

4.3.1.5 Civic Identity

The civic identity zone takes the form of multiple civic squares located throughout the city centre core zone and the current administration and chambers site.

Currently, the Council Chambers and City Administration Building is located towards the northern edge of the city centre. A long-term goal should be to relocate these key urban spaces to be adjacent to the 'living stream' and closer to the retail and commercial hub of the city. Consolidating the existing community infrastructure such as the library, community centre, chambers and offices will create a definite civic heart and will activate the city core.

Each city core area should contain a raft of public and civic space. These shared spaces should run in parallel to the 'living stream' and provide an alternative route for moving through the city core.

4.3.2 Building Heights

Building heights will be distributed throughout the City Centre in a way that provides definition to the city, supports way finding and provides an appropriate interface to the existing adjacent urban fabric.

As a general rule, taller buildings will be encouraged around the train station and along Stephenson Avenue to assist with way finding and support a higher intensity of uses. Buildings will generally reduce in height from the centre to provide an appropriate interface with the existing residential suburbs located adjacent to the centre.

Podium structures will be incorporated within taller development in order to provide a human scale address to the street and public realm. The built form interface with the public realm is an important design element to assist in promoting a safe and activated environment.

Height specifics will be identified in the individual precinct's Detailed Area Plans.

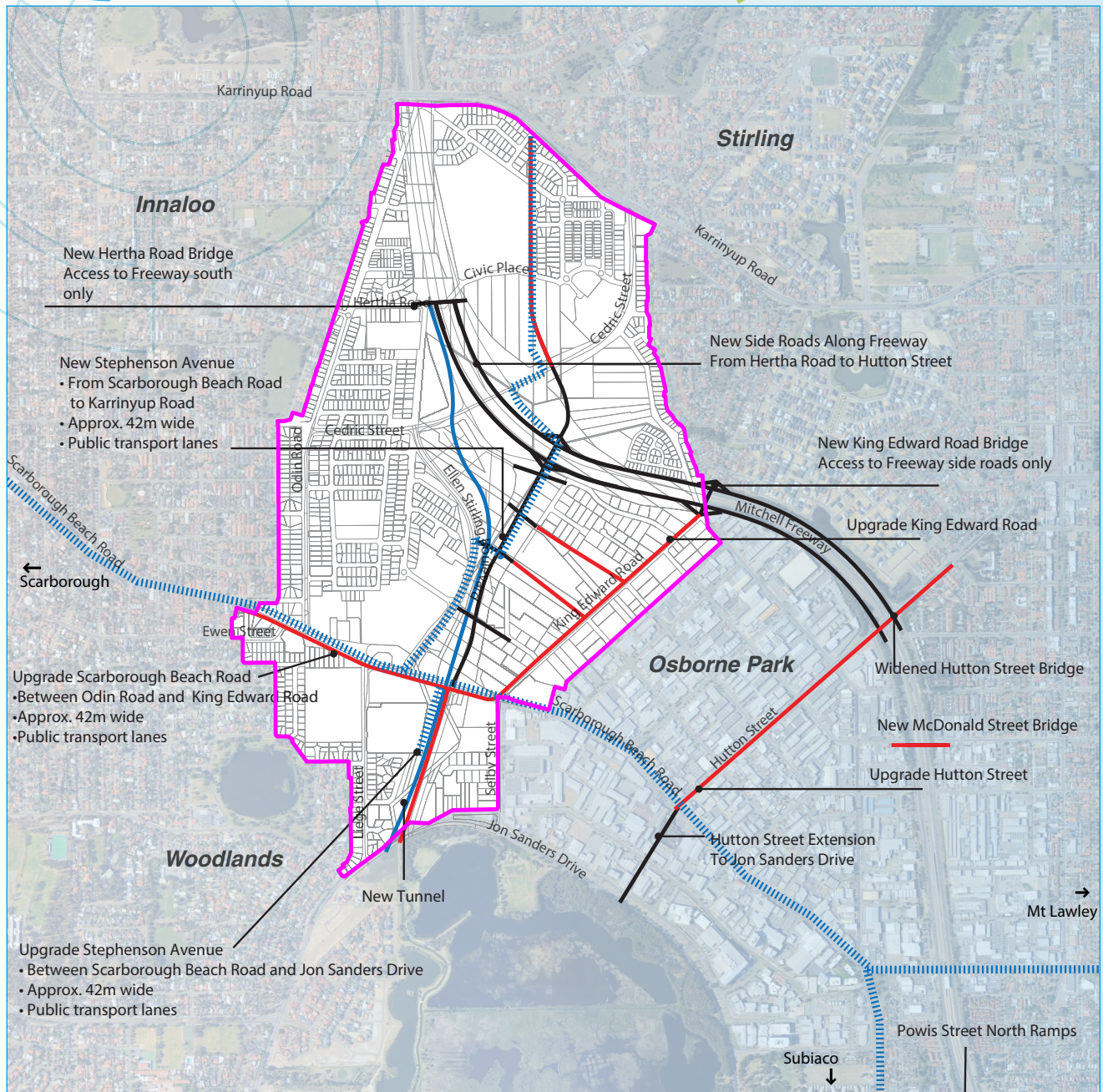
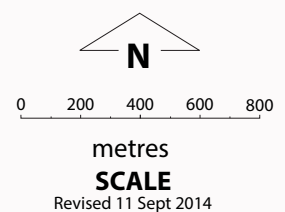


Figure 23: Long Term Transport Plan

Legend

- Structure Plan Area
- Proposed New Roads
- Upgraded Roads
- New Tunnel
- ⋯ Light Rail/Mass Transit



4.4 Movement

4.4.1 Long Term Transport Plan

In order to enable the population and employment targets to be achieved a significant increase in the use of alternative transport modes is required. The aspiration is to achieve approximately 60% of all trips in and around Stirling City Centre by means other than the private motor vehicle by 2041. Specifically the following targets are proposed to be achieved by 2021 and beyond²⁹.

Mode	2021	2031	2041
Car Driver	50%	42.5%	35%
Car Passenger	20%	17.5%	15%
Public Transport	10%	14%	18%
Walking	4.5%	7.5%	10%
Cycling	15.5%	18.5%	22%

Table 16 Stirling City Centre - Projected Travel Mode Split (Total Trips)

There is a need to prioritise access within and to the centre by pedestrians, cyclists and public transport. In order for this to occur, the centre must be legible, permeable and well connected. A Dispersed Transport Network has been agreed by all parties, including Main Roads Western Australia, Department of Planning, Public Transport Authority, City of Stirling and the local community.

Extensive workshops were held with all stakeholders from early 2008 until late 2008 at which multiple options were assessed and analysed (approximately 28). These options were further refined down to 15 options and scored through a value management workshop held over 3 days from 17 – 19 February 2009.

The value management workshop culminated in an agreed Long Term Transport Plan³⁰ (Figure 23) by all stakeholders. No objections were raised at this meeting by any stakeholder, except that the plan had to be tested through a 15% design scenario and macroscopic modelling and SIDRA analysis.

The Long Term Transport Plan was founded on the basis that a second freeway reservation through the City Centre (Stephenson Highway) would eliminate the possibility to develop a viable Strategic Metropolitan Centre due to the dislocation of the centre into 4 separate areas divided by freeways. This was counter balanced by the need to provide a route for traffic to get from the north of the City Centre to the south. The Long Term Transport Plan agreement involved the creation of a dispersed network to ensure that the future traffic load is spread across numerous roads rather than concentrated on one particular road.

²⁹ SKM, August 2010, *Stirling City Centre Parking and Access Strategy prepared for the Stirling Alliance*

³⁰ GHD, December 2013, *Integrated Transport Strategy - Strategy Report, for the Stirling Alliance*

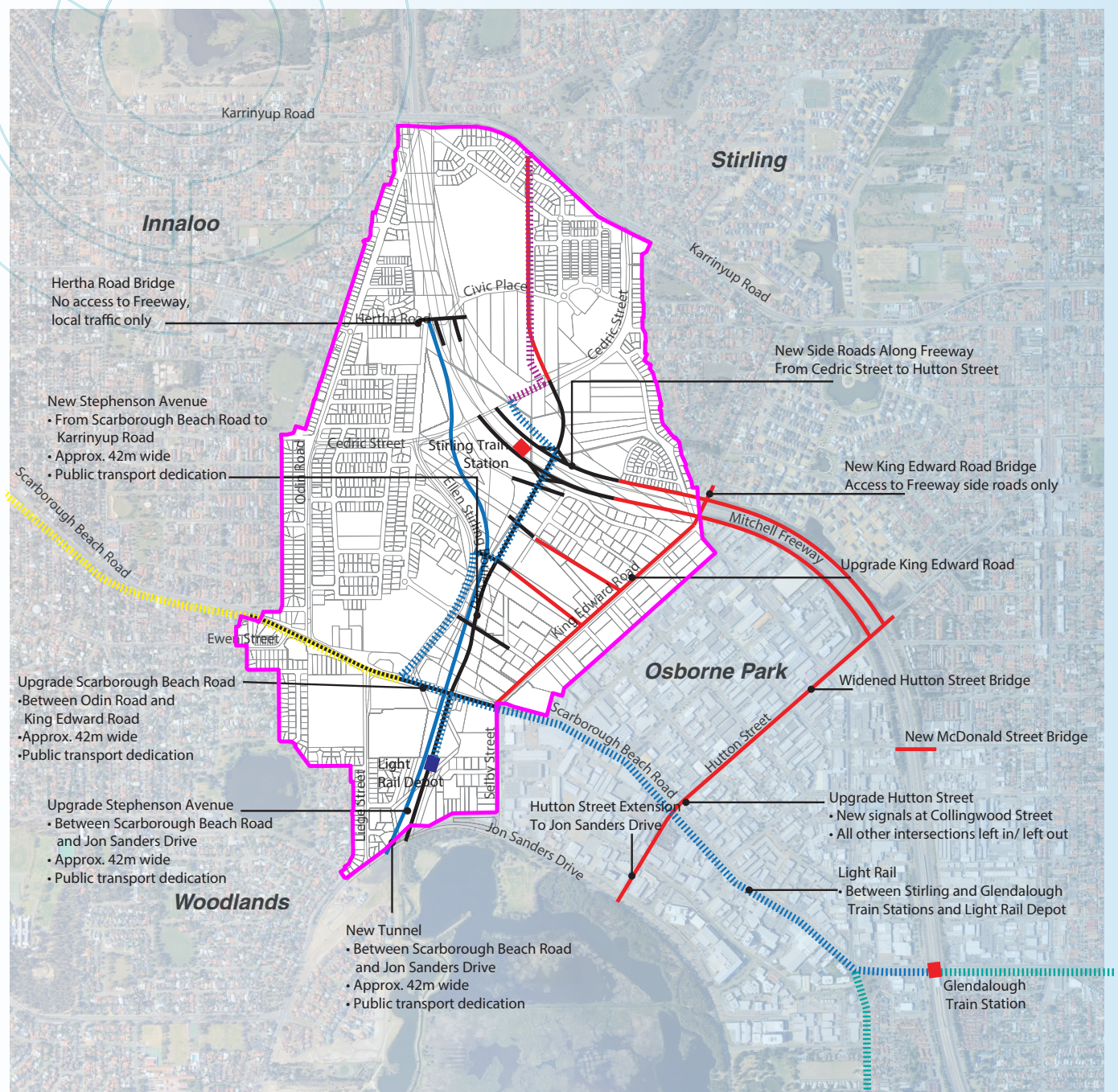






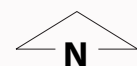


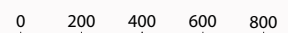
Figure 24: Staging of Long Term Transport Plan

Legend

- | | | | |
|---|---------------------|---|---------------------------------|
|  | Structure Plan Area |  | Stage 1 Mass transit/Light rail |
|  | Stage 1 |  | Stage 2 Mass Transit/Light rail |
|  | Stage 2 |  | Stage 3 Mass Transit/Light Rail |
| | Stage 3 | | |



metres
SCALE



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Following this, Main Roads Western Australia and the Stirling Alliance appointed consultants to complete a 15% design of the long term transport plan. This work was presented to the Stirling Alliance Board for consideration, where the Alliance Board unanimously endorsed the work undertaken given that Main Roads Western Australia advised the Board that there were no fatal flaws to the plan.

This endorsed plan then formed the basis of the Metropolitan Region Scheme Amendment to delete Stephenson Highway Reserve and reduce the Mitchell Freeway Reserve to enable the creation of a viable City Centre. The Metropolitan Region Scheme Amendment was endorsed by the Western Australian Planning Commission without any objections and was subsequently approved by the Minister of Planning and gazetted.

The following sections outline in more detail the specifics of each transport element and the staging.

4.4.1.1 Staging of Long Term Transport Plan

Short – Medium Term

To achieve this aspiration, the following six short – medium term strategies (refer to Figure 24 Dispersed Transport Network) are proposed, that together will achieve a functional transport network:

- Initially provide new bus shuttles and improve frequency of existing routes;
- By 2031 provide a light rail system from Stirling Station to Glendalough Station and beyond.
- Manage the demand for parking by encouraging short-term parking and minimising long-term parking and placing a maximum amount of parking per hectare.
- Provide high quality and safe walking and cycling infrastructure and facilities for short journeys.
- Provide improved access to, from and across the Mitchell Freeway by constructing Stephenson Avenue.
- Provide new local roads to improve accessibility and permeability including Howe Street and Oswald Street Extensions.
- Provide a bypass route for regional traffic and freight between the Mitchell Freeway and the Herdsman business area and beyond, via Hutton Street including extending Hutton Street to Jon Sanders Drive.

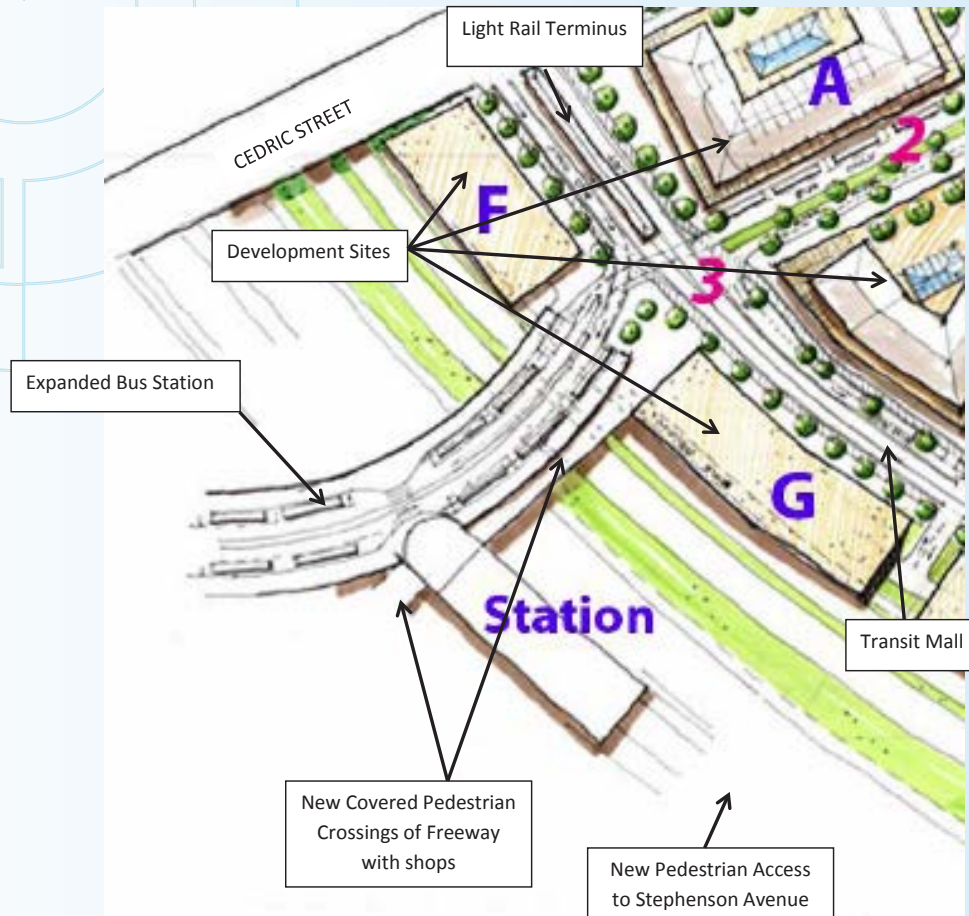


Figure 25: Proposed Stirling Station Interchange

Long Term

Further longer term stages to the dispersed model which include:

- Modifications to Hutton Street to provide increased traffic capacity and extension through to Jon Sanders Drive.
- Provision of collector distributor roads alongside the Mitchell Freeway between Hutton and Cedric Streets.
- New access points and bridges over Mitchell Freeway at McDonald, King Edward and Hertha Roads.
- Construction of Stephenson Avenue between Scarborough Beach Road and Cedric Street with on/off ramps onto the Mitchell Freeway.
- Northern ramps onto the Mitchell Freeway from Powis Street.
- Preservation of a long term option for a tunnel between Jon Sanders Drive and Mitchell Freeway.
- Extension of light rail to Scarborough Beach.
- Extension of light rail to Subiaco.

4.4.2 Public Transport

The public transport mode share is expected to grow from 6% in 2011 to 18% by 2041³¹. In order to achieve this level of public transport use the following improvements are planned.

4.4.2.1 Public Transport Interchange

A new public transport interchange is planned at Stirling Station to accommodate heavy rail expansion, bus expansion, light rail and pedestrian crossings of the freeway. An indicative plan has been prepared as illustrated in Figure 25.

This plan highlights the need to balance available land for development and sufficient space for public transport vehicles and patrons to ensure that a mixture of uses is located as close as possible to the heavy rail station entrance.

4.4.2.2 Light Rail

The greater Osborne Park and Stirling City Centre areas stretch nearly 3 km north to south and 3 km east to west. As a result large parts of the greater Stirling City Centre are beyond walking distance from the Stirling Station. This area has the second largest number of employees in the Metropolitan Area and would benefit immensely from greater access to mass transit. A high frequency light rail link through the centre of these areas linking Stirling Station to Glendalough Station will provide the backbone of the public transport distribution system within and around the City Centre.

The first stage of the proposed system would run from Glendalough Station to Stirling Station via Scarborough Beach Road as indicated in Figure 24.

Future stages could see light rail extended:

- North past the Osborne Park Hospital to Karrinyup Rd (possible future extension to Karrinyup Shopping Centre);
- West along Scarborough Beach Road to Scarborough Beach;
- South along Harbourn Street to Subiaco; and
- East along Scarborough Beach Road to connect to the Metro Area Express (MAX) system.

Stage 1 aligns with the proposed Public Transport Master Plan for Perth.

³¹ SKM, August 2010, Stirling City Centre Parking and Access Strategy prepared for the Stirling Alliance

4.4.2.3 Light Rail Services

It is proposed to run light rail services that coordinate with the frequency of heavy rail services. At present this would involve services running at 5 minute intervals in peak periods. It is anticipated that light rail would be constructed around 2031 in this area.

4.4.2.4 Light Rail Infrastructure

The following facilities should be provided at the outset, including:

- Dedicated public transport lanes on Scarborough Beach Road to provide priority access and to ensure user safety by separating light rail vehicles from traffic.
- Light rail depot with storage for up to six vehicles and maintenance facilities located adjacent to Stephenson Avenue, south of Scarborough Beach Road.
- Light rail vehicles.

4.4.2.5 Heavy Rail

It is anticipated that over time the majority of trips by residents, workers and visitors from outside the Stirling City Centre will be undertaken on the heavy rail network. Unlike the freeway, the railway has spare capacity and efficient access to Stirling Station can be provided by rail into the future.

4.4.2.6 Heavy Rail Services

There will be a need to increase heavy rail services along the northern Suburbs line to 6 car sets and with a headway of approximately 3 minutes.

4.4.2.7 Heavy Rail Infrastructure

The following additional infrastructure would be required at Stirling Station to accommodate the proposed growth:

- New pedestrian access at the southern end of station platform linking to Stephenson Avenue.
- New pedestrian bridges linking directly to Station concourse level from new developments on the east and west side of the Freeway.
- Re-design of entry gates at the station concourse level.

4.4.2.8 Buses

Buses will provide an important public transport service in Stirling City Centre given that there are currently 18 bus services running through the area.

In order to meet the mode split targets set out in table 16 it is imperative that the frequency of services continues to increase over time to not only meet demand but to increase the mode share of public transport in the area. In addition the movement toward 7 day unrestricted trading has seen a spreading of retail activity over 7 days focussing primarily on Saturday and Sunday.

Service frequencies over these two days need immediate attention to deal with the demand.

4.4.2.9 Bus Services

Bus services on the following major routes should aim for a 15 min service frequency during the day up to 9pm (weekdays and weekends)

- 99 and 98
- 415
- 990
- 423 (shuttle to Karrinyup)
- 407 (shuttle to Glendalough Station)

4.4.2.10 Bus Infrastructure

The capacity of the Stirling bus station interchange needs to be increased to allow expansion of services. A duplication of the current bus bridge at Stirling Station is required in order to allow for continuing expansion of the network as indicated in Figure 25.

A bus turnaround is also required between Ellen Stirling Boulevard and Stephenson Avenue to allow for buses from the north to continue running past Stirling Station down to the retail core and turn around.

4.4.2.11 Public Transport Funding

In order to deliver the proposed level of public transport infrastructure and additional services additional funding is required above the normal State Government level of funding for public transport. Two sources of additional funding are being investigated by the City of Stirling.

- One source is utilising developer contributions to help pay for a proportion of the capital cost of new public transport infrastructure in return for the increase in development potential.
- The second source is an annual funding mechanism to pay for the operational and possibly capital costs this may be partially offset by the significant reduction in parking that is being proposed within the Stirling City Centre.

4.4.3 Pedestrian Movement and Cycling Movement

The walking mode share is expected to grow from 12% in 2011 to 22% by 2031³². In order to achieve this level of walking the following improvements are planned.

An excellent pedestrian network is critical to reverse the current car-dominated environment and encourage walking within the centre. All streets within Stirling City Centre will have a high level of pedestrian amenity, with footpaths on both sides and widths to suit projected volumes of pedestrians, weather protection on active streets, good lighting and 100% shade cover through the use of street trees.

Figure 26 Proposed Pedestrian Infrastructure identifies key aspects of the proposed pedestrian environment.

4.4.3.1 Freeway Land Bridges

Two land bridges have been identified within the Station Precinct of Stirling City Centre. The objectives of these land bridges are to ensure safe, sheltered and active pedestrian connectivity over the freeway

The minimum width of a pedestrian land bridge shall be 7m wide to accommodate space for kiosks (2.5m) and pedestrians (4.5m). The inclusion of kiosks is critical to ensure a continuation of land uses to limit the dislocation of the Centre either side of the large Freeway trench. These kiosk will provide convenience retail uses for pedestrians and transit passengers. Awnings covering the pedestrian land bridges are critical to provide shade and weather protection.

³² SKM, August 2010, Stirling City Centre Parking and Access Strategy prepared for the Stirling Alliance

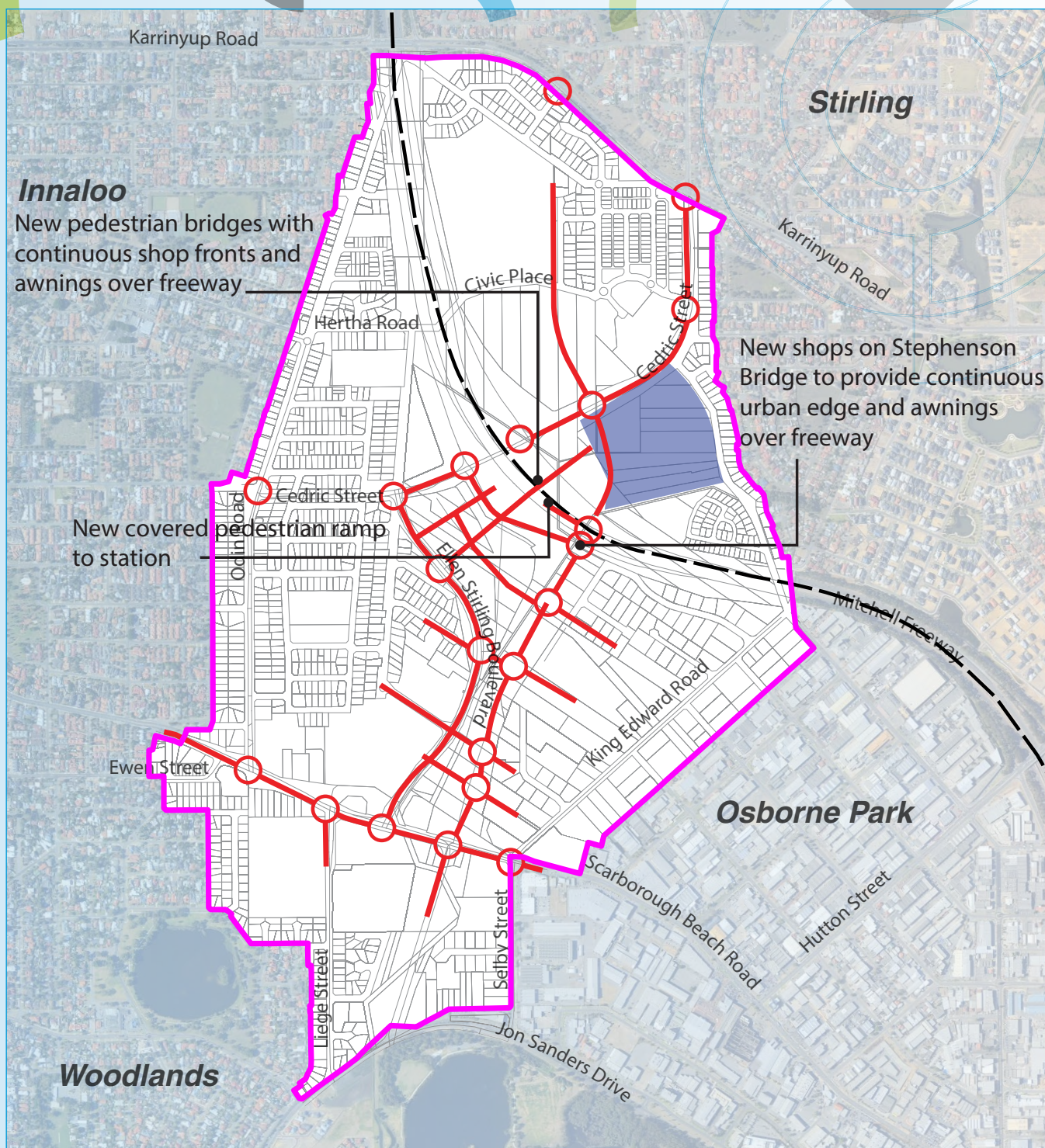
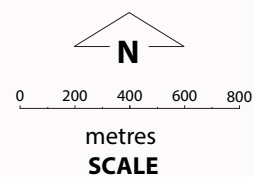


Figure 26: Proposed Pedestrian Infrastructure

Legend

- Structure Plan Area
- Active Streets with Continuous Awnings
- Full Pedestrian Phase at Traffic Signals
- - - Principle Shared Path
- Possible Car Free Zone



Revised 11 Sept 2014

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4.4.3.2 Car Free Zone

The plan includes the provision of a car free zone located in the station precinct. (Refer to Figure 26). The area will contain high density residential development abutting very high amenity public open space. Car parks to service the development will be located adjacent to the pedestrianised zone.

4.4.3.2 Cycle Plan

The cycling mode share is expected to grow from 2% in 2011 to 10% by 2031³³. In order to achieve this level of cycling the following improvements are planned as identified in (Figure 27):

- Creation of separated cycling lanes on major roads.
- Creation of a permeable and legible infrastructure network providing cyclists with a choice of safe routes.
- Intersection treatments responding to context/user needs.
- External links including links to transit and provision of entry statements to signal transition into the Stirling City Centre.
- End of trip facilities (EOTF) and cycle hire facilities at key trip attractors and on key routes.
- Delineation of shared and car-free precincts.

A specific cycling plan has been prepared outlining in more detail the necessary cycling improvements.³⁴

³³ SKM, August 2010, *Stirling City Centre Parking and Access Strategy* prepared for the Stirling Alliance

³⁴ SKM, June 2010, *Stirling City Centre Cycling Plan* prepared for the Stirling Alliance

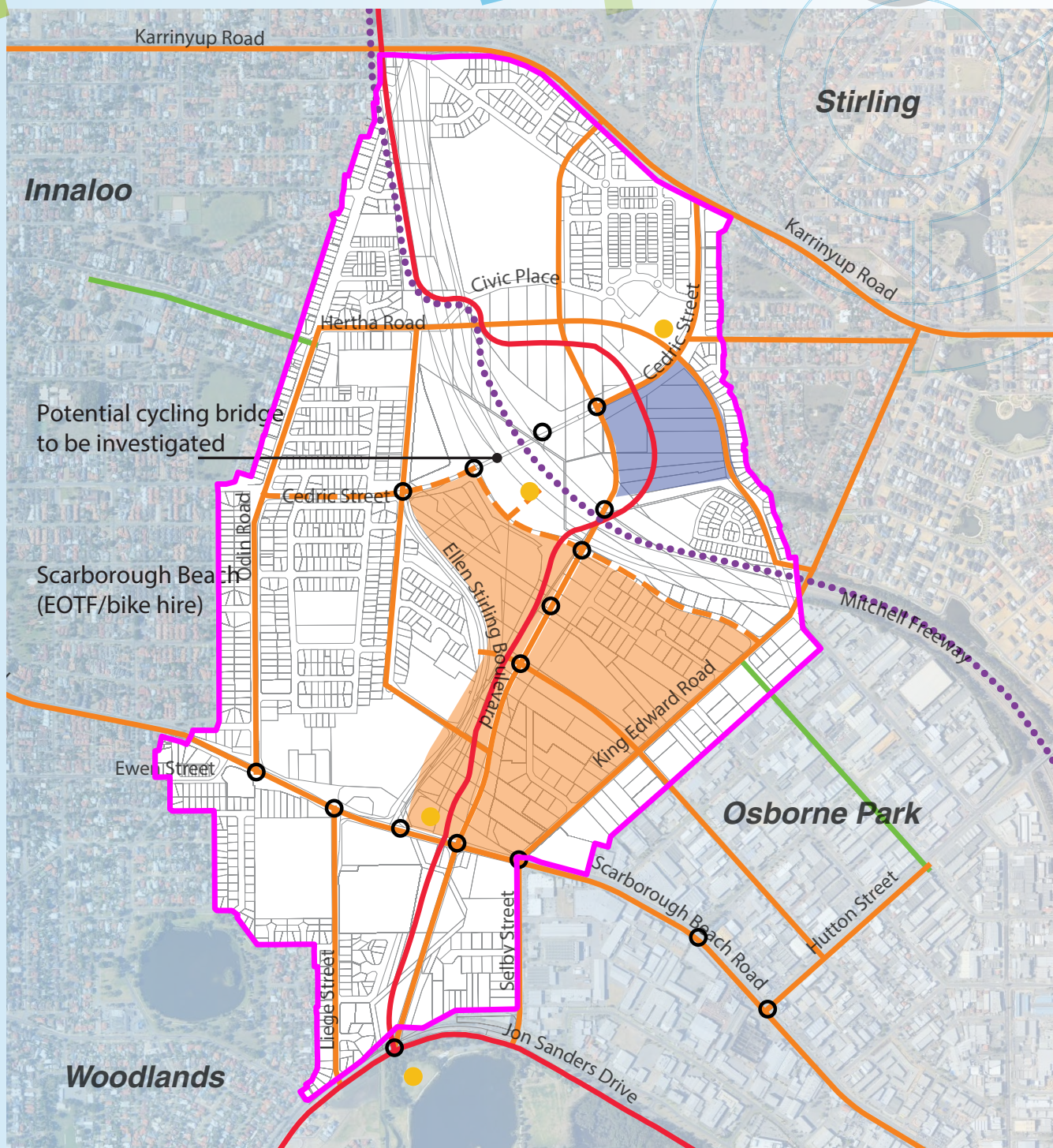
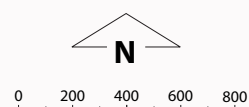


Figure 27: Proposed Cycle Network

Legend

- Structure Plan Area
- ⋯ Principle Shared Path
- Bicycle Path - Single Direction Either Side of the Road
- On-Street Cycle Lanes
- Recreation Bicycle Path

- Specific Intersection Priority Treatment for Pedestrian and Cyclists
- Public EOFT and Bike Hire
- Proposed Car Free Zone
- Shared Street Zone



metres
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4.4.4 Regional and Local Roads

The car driver and car passenger mode share is expected to decline from 57.5% in 2011 to 35% by 2031 and from 22.5% in 2011 to 15% by 2031 respectively³⁵. In order to achieve this decline in car usage the following improvements and new roads are planned that prioritise walking, cycling and public transport usage as well as limiting the maximum amount of car parking available in the City Centre.

The new roads and road upgrades identified in the Long Term Transport Plan have been incorporated into the Structure Plan (refer to Figure 4). Key objectives of each road section are to:

- Prioritise public transport (where required)
- Provide specific cycling infrastructure
- Wide footpaths on both sides of the street
- Achieve 100% shade cover of all footpaths
- Create green corridors through the intensive planting of medians (where present);
- Reduce lane widths to show the speed of traffic
- Provide on street parking on most streets to ensure activation of the street in accordance with Figure 26

The following road's cross sections³⁶ shall be constructed as outlined below:

Stephenson Avenue (Karrinyup Road to Cedric Street)

This section of Stephenson Avenue will be a 30km/h local access road providing a pedestrian link between the Northern Precinct and the Stirling Station. Provision for transit lanes has been included as well as on street parking to activate the street.

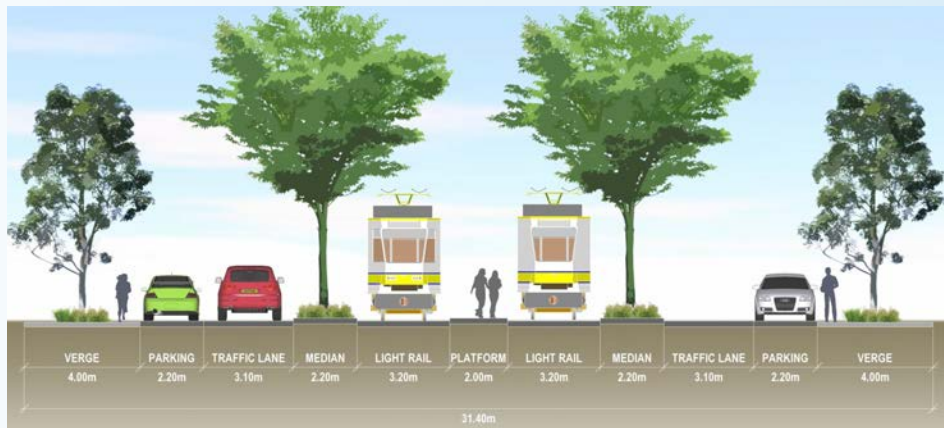


Figure 28: Stephenson Avenue (Karrinyup Road to Cedric Street)

³⁵ SKM, August 2010, *Stirling City Centre Parking and Access Strategy* prepared for the Stirling Alliance

³⁶ GHD May 2013, *Integrated Transport Strategy - Road Strategy* prepared for the Stirling Alliance

Stephenson Avenue (Cedric Street to the North Side of the Freeway)

This section of Stephenson Avenue will be a 40km/h road that provides a local access link to the freeway as well as a crossing point for cyclists and pedestrians to access the southern part of the City Centre. On-street parking has been provided to ensure activation of the street.

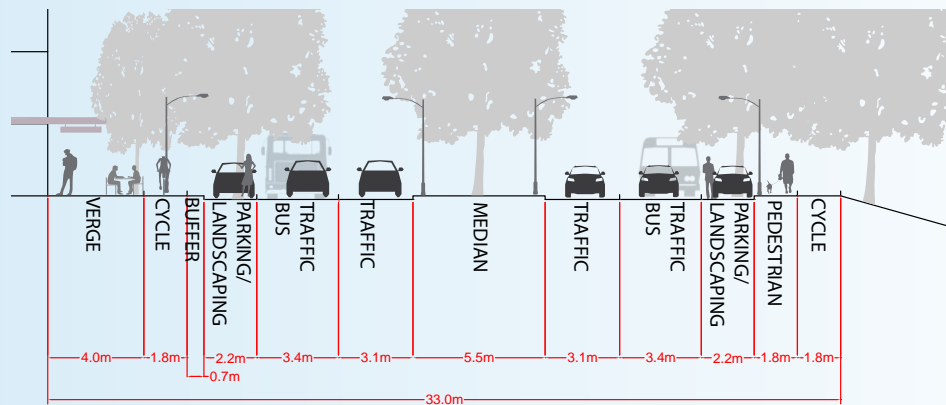


Figure 29: Stephenson Avenue Cross Section (Cedric Street to North side of Freeway)

Stephenson Avenue (Bridge)

This section of Stephenson Avenue will be a 40km/h road that provides access to the freeway for local traffic as well as a key crossing point for pedestrians and cyclists. Provision has been made for transit lanes to cross the freeway at this point. Provision has been made for shops on the northern side of the bridge to provide a land bridge and activation for pedestrians to eliminate the barrier effect of the Freeway.



Figure 30: Stephenson Avenue Cross Section – Stephenson Bridge

Stephenson Avenue (Freeway to Howe Street)

This section of Stephenson Avenue will be a 40km/h City Centre road that provides local access to the surrounding sites and a key cycling and pedestrian link back to Stirling Station. Easy pedestrian crossing from one side of the road to the other is a critical function that allows the connection of the two halves of the City Centre. Provision has been made for transit lanes to connect to Stirling Station as well as on street parking to ensure activation of the street.



Figure 31: Stephenson Avenue Cross Section (Freeway to Howe Street)

Stephenson Avenue (Howe to Scarborough Beach Road)

This section of Stephenson Avenue will be a 40km/h City Centre road that provides local access to the main retail area and a key cycling and pedestrian link back to Stirling Station. Easy pedestrian crossing from one side of the road to the other is a critical function that allows for the connection of the two halves of the City Centre. Provision has been made on-street parking to ensure activation of the street.

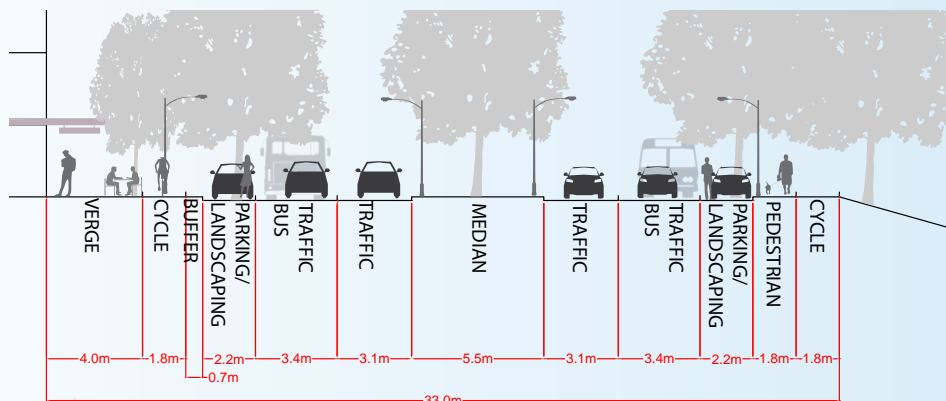


Figure 32: Stephenson Avenue Cross Section (Howe Street to Scarborough Beach Road)

Stephenson Avenue (Scarborough Beach Road to Jon Sanders Drive)

This section of Stephenson Avenue will be a 40km/h City Centre road that provides local access to new development sites along this section of the road and a key cycling and pedestrian link back to Stirling Station. Easy pedestrian crossing from one side of the road to the other is a critical function that allows the connection of the two halves of the City Centre. Provision has been made for transit lanes and on-street parking to ensure activation of the street.



Figure 33: Stephenson Avenue Cross Section (Scarborough Bch Rd to Jon Sanders Drive)

Scarborough Beach Road (Odin Road to King Edward Road)

This road will be a 40km/h City Centre road that provides access to development sites along this section of the road and a key cycling and pedestrian link to Scarborough Beach and the Herdsman Glendalough Area. Easy pedestrian crossing from one side of the road to the other is a critical function that allows the connection of the two sides of the City Centre. Provision has been made for transit lanes and on-street parking to ensure activation of the street.



Figure 34: Scarborough Beach Road Cross Section (Odin Rd to King Edward Rd)

Ellen Stirling Boulevard (Scarborough Beach Road to Howe Street)

This section of Ellen Stirling Boulevard will be a 30km/h main street that provides a slow speed environment through the main shopping area. Provision has been made for shared transit lanes and on-street parking to ensure activation of the street. Wider footpaths are provided to allow for alfresco dining. A transit stop will be located in this section of the road to access the retail core area.



Figure 35: Ellen Stirling Blv Cross Section (Scarborough Beach Road to Howe Street)

Ellen Stirling Boulevard (Howe Street to Cedric Street)

This section of Ellen Stirling Boulevard will be a 30km/h street that provides local access to shopping areas. This road will provide a direct pedestrian access to the Stirling Station from the shopping area via Sunray Drive. Provision has been made for on-street parking to ensure activation of the street to improve the pedestrian environment.



Figure 36: Ellen Stirling Blv Cross Section (between Cedric Street and Howe Street)

Oswald Street (East of Stephenson Avenue)

This section of Oswald Street will be a 30km/h street that provides local access to businesses in the area. This road will also provide a direct pedestrian access to the shopping area from the east. Provision has been made for on-street parking to ensure activation of the street and improve the pedestrian environment.



Figure 37: Oswald Street Cross Section (East of Stephenson Avenue)

Oswald Street (West of Stephenson Avenue)

This section of Oswald Street will be a 30km/h street that provides local access to businesses in the area. This road will also provide a direct pedestrian access to the shopping area. Provision has been made for on-street parking to ensure activation of the street and separated cycling lanes.



Figure 38: Oswald Street Cross Section (West of Stephenson Avenue)

4

Howe Street (East of Stephenson Avenue)

This section of Howe Street will be a 40km/h street that provides local access to businesses in the area. This road will also provide a direct pedestrian access to the shopping area and station from the east. Provision has been made for peak hour bus lanes and off peak on-street parking to ensure activation of the street and improve the pedestrian environment.



Figure 39: Howe Street Cross Section (between King Edward Road and Stephenson Avenue)

Howe Street (West of Stephenson Avenue)

This section of Howe Street will be a 30km/h street that provides local access to the shopping area. This road will also provide a direct pedestrian access to the shopping area and station from the east. Provision has been made for transit lanes and separated cycling lanes. One of the main transit stops for the retail core area will be located in this section of the road.



Figure 40: Howe Street Cross Section (between Stephenson Avenue and Ellen Stirling Boulevard)

Guthrie Street

Guthrie Street will be a 40km/h street that provides local access to businesses in the area. This road will also provide a direct pedestrian access to the station from the east. Provision has been made for on-street parking to activate the street.



Figure 41: Guthrie Street Cross Section

Sarich Court

Sarich Court will be a 30km/h street that provides local access to businesses in the area. This road will also provide a direct pedestrian access to the station from the east and through to Cedric Street. Provision has been made for on street parking to activate the street as well as separated cycling lanes. A new access point to the Stirling Station will be located at the corner of Sarich Court and Sunray Drive.



Figure 42: Sarich Court Cross Section

Cedric Street (Odin Road to the Freeway)

This section of Cedric Street will be a 40km/h street that provides local access to residents and businesses in the area. This road will also provide a direct pedestrian access to the station from the west. Provision has been made for transit lanes and separated cycling lanes.

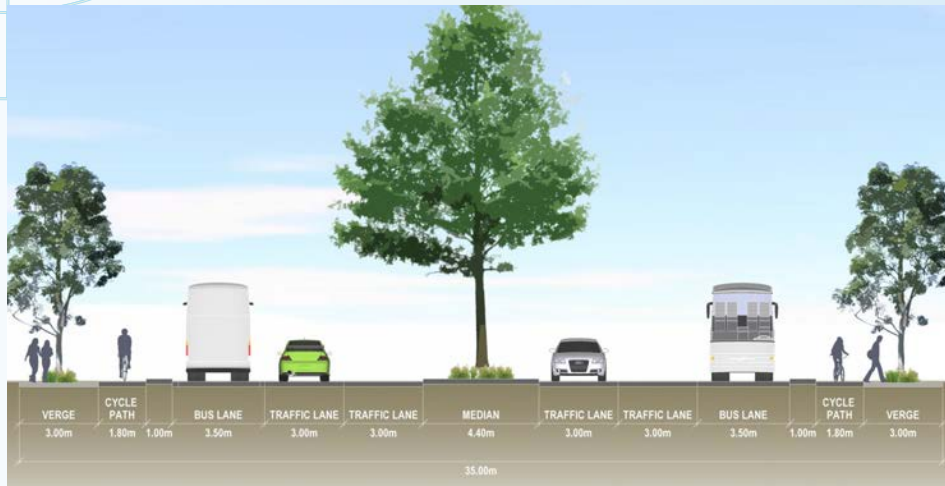


Figure 43: Cedric Street (Odin Road to Freeway)

Cedric Street (Freeway to Stephenson Avenue)

This section of Cedric Street will be a 40km/h street that provides local access to residents and businesses in the area. This road will also provide a direct pedestrian access to the station from the north. Provision has been made for transit lanes and separated cycling lanes.



Figure 44: Cedric Street (Freeway to Stephenson Avenue)

Cedric Street (Stephenson Avenue to Karrinyup Road)

This section of Cedric Street will be a 40km/h street that provides local access to residents and businesses in the area. This road will also provide a direct pedestrian access to the station from the west. Provision has been made for transit lanes and separated cycling lanes.

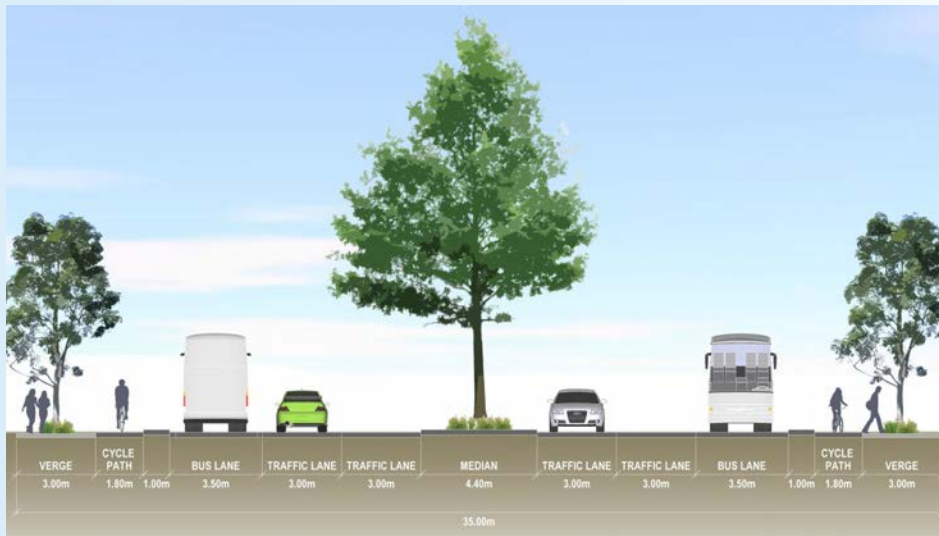


Figure 45: Cedric Street (Stephenson Avenue to Karrinyup Road)

Karrinyup Road

Karrinyup Road will be a 60km/h street that provides access to residents and businesses in the area. This road will also provide future transit links to Karrinyup Shopping Centre and to areas in the east of the City. Separated cycling lanes will also provide links to the beach and Morley City Centre.



Figure 46: Karrinyup Road (Freeway to Cedric Street)

Hertha Road

Hertha Road will be a 40km/h street that will ultimately provide access across the freeway and potentially to the City via possible new freeway on and off ramps. Separated cycling lanes are also provided to enable a link across the freeway.



Figure 47: Hertha Road Cross Section (without Hertha Road Freeway Ramps)

King Edward Road and Selby Street

King Edward Road and Selby Street will be 40km/h streets that will ultimately provide access to the freeway with future on and off ramps. These would only be built if the traffic on Stephenson Avenue warranted an additional freeway interchange. Separated cycling lanes are also provided to enable a link from Herdsman Lake across the freeway to the northern areas.

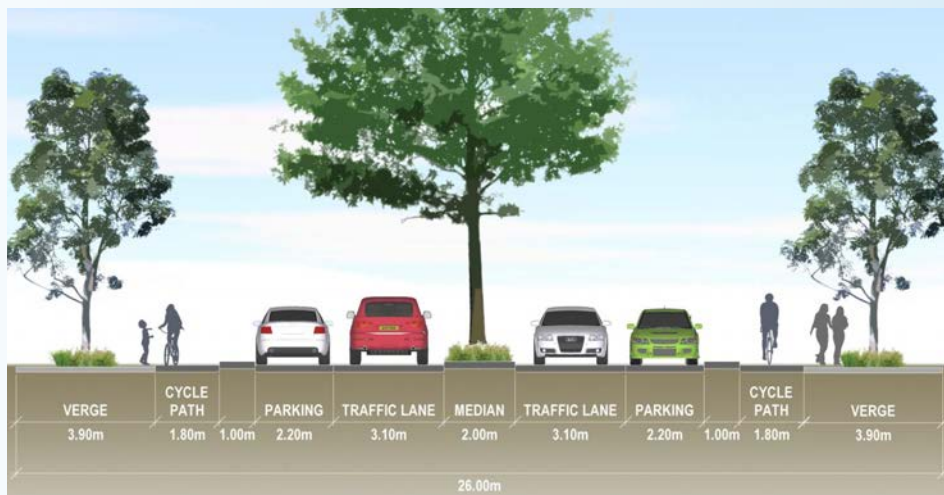


Figure 48: King Edward Road and Selby Street Cross Sections

4.4.4.1 Self Explaining Roads

The 'self explaining' roads concept is proposed to be trialled in the Innaloo Precinct, with the view to implementation over a wider area as part of future local area enhancements.

The principle of self explaining roads is to reduce vehicle speeds by changing the priority in the street. Road are defined as roads that are 'going places' and 'are places'.³⁷ and the concept aims to instigate improvements of the quality of the pedestrian realm which include:

- Defining road speeds in accordance with 'towards zero' and reducing vehicle speeds to 30km/h
- Supporting the 'think 20' concept to manage the difference in conflict speeds to 20km/h
- Reducing road lane widths to reduce vehicle speeds and allow reconfiguration of the street to provide additional space to pedestrians and cyclists

4.4.5 Mitchell Freeway

The Long Term Transport Plan (illustrated in Figure 23), which includes the dispersed movement network, included a number of changes to the Mitchell Freeway, including:

- New Collector District Roads running parallel to the freeway which enable a number of new interchanges to be built over time, including:
 - o Hertha Road (south Ramps);
 - o Stephenson Avenue;
 - o King Edward Road;
 - o McDonald Street; and
 - o Powis Street (north ramps)
- New Tunnel linking the Mitchell Freeway (north) with Stephenson Avenue (south of Jon Sanders Drive in accordance with (figure 49).

Staging of the various components of the freeway improvements is being modelled currently and the Structure Plan will be updated once this modelling work has been undertaken.

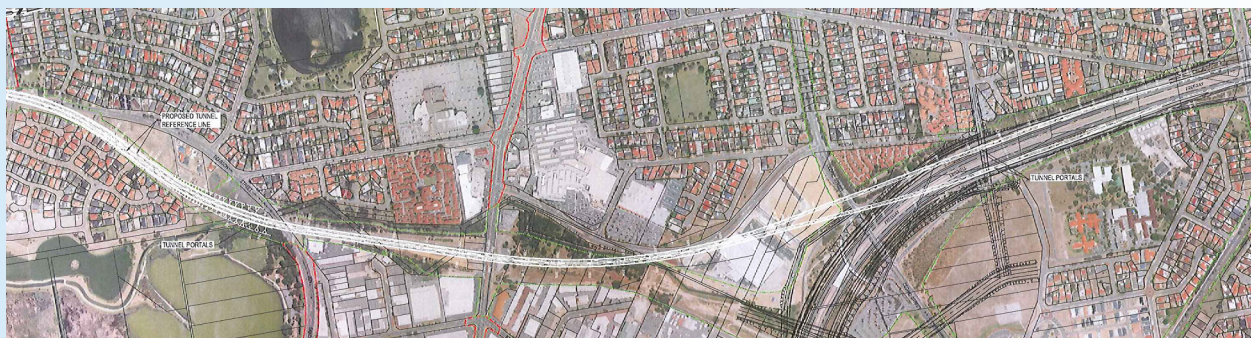


Figure 49: Proposed Tunnel Designs³⁸

³⁷ GHD, December 2013, Integrated Transport Strategy - Strategy Report prepared for the Stirling Alliance

³⁸ BG&E, September 2010, Preliminary Assessment of Building Foundations Over Stirling Link Tunnel Study Report prepared for the Stirling Alliance

4

4.5 Parking

4.5.1 Parking Principles

It is critical that car usage be limited in the Stirling City Centre to ensure that the road capacity of the city is not exceeded. In order to achieve this, a reduction in parking rates is proposed. This will assist in reducing car trips within the Stirling City Centre and result in decreased construction costs to developers. It is essential that there is a balance between parking rates within the Stirling City Centre and ensuring the economic viability of development.

A number of factors impact on an individual's decision to drive, including:

- The cost of parking
- The available supply of parking
- The availability and efficiency of alternative transport modes such as walking, cycling and public transport

A parking and access strategy³⁹ has been developed for Stirling City Centre in consultation with a number of key stakeholders representing government, community and business.

Supporting the strategy are the following high level access principles:

- High proportion of access to the city centre by public transport, walking and cycling
- Convenient safe cycle parking throughout the city centre
- Convenient, safe and secure cycling, pedestrian and access routes to the city centre
- Fine-grained street network for access by walking, cycling and cars
- Direct and legible walking routes to Stirling Train Station
- Multiple access options for motorists to car parking
- Good pedestrian, cycling and vehicle way finding signage system
- Legible system of public transport routes to, from and between Stirling Train Station and the city centre

The role of parking in the Stirling City Centre can be summarised as follows:

- Provide prioritised parking for short term
- Ensure the commercial viability of the centre
- Manage congestion and travel demand, especially by commuters
- Encourage modal shift to public transport, walking and cycling
- Provide a potential source of funding for transport infrastructure, facilities and services, particularly public transport

³⁹ SKM, August 2010, *Stirling City Centre Parking and Access Strategy prepared for the Stirling Alliance*

4.5.2 Total Number of Parking Bays

Table 16 identifies the number of parking bays that should be permitted within the Stirling City Centre to limit congestion to acceptable levels. The range has been based on the Stirling Alliance target population and employment numbers.

Land Use	Number of Parking Bays (Range)	Estimated Daily Traffic Trips
Office	3,800-5,600	27,000
Retail	5,000 - 7,000	48,000
Total Non-Residential	8,800 – 12,600	75,000
Residential	12,500 – 17,000	35,000
Total	21,300 – 29,600	110,000

Table 17 - Number of Parking Bays (Range) and Estimated Daily Traffic

In addition to the daily traffic trips identified in Table 5 there is likely to be approximately 30,000 to 35,000 vehicles per day travelling through the city centre. As a result there will be approximately 140,000 traffic trips per day going to, from or through the city centre. This will result in about 12,000 to 13,000 trips per hour during peak periods, which is considered to be close to the capacity of the city centre street network.

4.5.2.1 Park and Ride Facility

Currently Stirling Train Station has approximately 100 park and ride bays. Approximately 500 of these are in a temporary parking station on the northern side of Cedric Street. Over time it is planned that a minimum of 500 park and ride bays will be available within the redeveloped Stirling City Centre. It is proposed to house about half of these on the western side of the Freeway in a new multi storey parking station combined with mixed use development adjacent to the Freeway. The other half would be located in the approximate position of the original park and ride facility, although in a new multi storey parking station combined with mixed use development, on the eastern side of the Freeway.

4.5.3 Parking Policy for Stirling City Centre

A draft parking policy for Stirling City Centre has been prepared which includes the key findings from the Parking Strategy completed for the centre as well as taking into account the submissions made on the level of parking permitted. The Parking Policy will investigate models and mechanisms for funding and financing required infrastructure from developer contributions. The draft policy contains the following key provisions.

4.5.3.1 Non Residential Parking Provisions

Table 18 identifies the parking ratios for new non-residential development within Stirling City Centre and the amount of public and short stay parking that has to be provided.

	Maximum Parking Allowed Non Residential Uses	Minimum amount of Public Parking	Minimum amount of Short Stay Parking
Stirling City Centre	300 Bays Per Hectare*	50%	60% of public parking
Retail Core Area	400 Bays per Hectare **	350 bays per hectare	60% of public parking

Table 18: Stirling City Centre Parking Ratios for Non Residential

* Reverts to 250 bays per hectare by 31 December 2016.

** Needs reviewing after 3 years form the adoption of this policy.

4.5.3.2 Residential Parking Ratios

- Parking for residential development shall be in accordance with the Residential Design Codes.
- Parking for short stay accommodation shall be 1 bay per 2 short stay accommodation units.

4.5.3.3 Bicycle Parking

In order to have higher rates of bicycle use within Stirling City Centre, the Stirling City Centre will have to have higher levels of bike parking bays than other areas within the City. A new Parking Policy dealing with this issue has been drafted.

4.5.3.4 Public Parking Contribution and Public Transport Contributions

Public Parking and Public Transport Contributions are proposed in the draft Parking Policy for Stirling City Centre and include:

- A mandatory public parking contribution for a percentage of the public parking required;
- A mandatory Public Transport Contribution based on a percentage of the total development cost.

Both of these contributions would be hypothecated to the relevant purpose of the contribution and would have to be used within the Structure Plan area for that purpose.

These contributions will ultimately form part of a Developer Contribution Scheme in Local Planning Scheme No. 3 or in the Improvement Scheme.

4.6 Open Space Network

The open space network in the Stirling City Centre will be well connected and provide a variety of experiences and recreational opportunities for residents, workers and visitors. Figure 50 identifies the location of the new parks, pazas and interchanges for the Stirling City Centre.

The key defining public open space feature for the centre will be a new greenway or linear open space relating to the present main drain. The drain will be redesigned to create an urban stream within a landscaped setting which will relate to adjacent development. The nature of the linear open space will vary in character according to the nature of the precinct through which it traverses – from parkland to urban. This will offer a diverse range of experiences for residents, workers and visitors alike. This linear park will accommodate walk trails and cycleways and become a highly valued community asset. It will be an important landscape feature that will provide a high level of amenity for properties that overlook it, and has potential to provide habitat and a movement corridor for native fauna, particularly birds.

In addition to the linear park, a full range of public open spaces will be required. While some of these already exist, others will be required to be identified as detailed planning for each precinct progresses.

Consultation with the City of Stirling has determined that the Stirling City Centre area will need at least three or four community open space reserves and one or two district open space reserves, including one which may be associated with educational facilities. The existing Stirling Civic Gardens has high value to the community and is used for civic gatherings such as ANZAC Day and other events. These functions and amenity will need to be accommodated in any reconfiguration or relocation of this park as some development of this space is anticipated.

Different types of public open space will be required in the following locations:

4.6.1 Local Open Space

- New Parks within Osborne Park Precinct
- New Parks within Woodlands Precinct
- New Park within Station Precinct

4.6.2 Community Open Space

- Existing La Grange Dongara Reserve (Innaloo Precinct)
- New park within Station Precinct

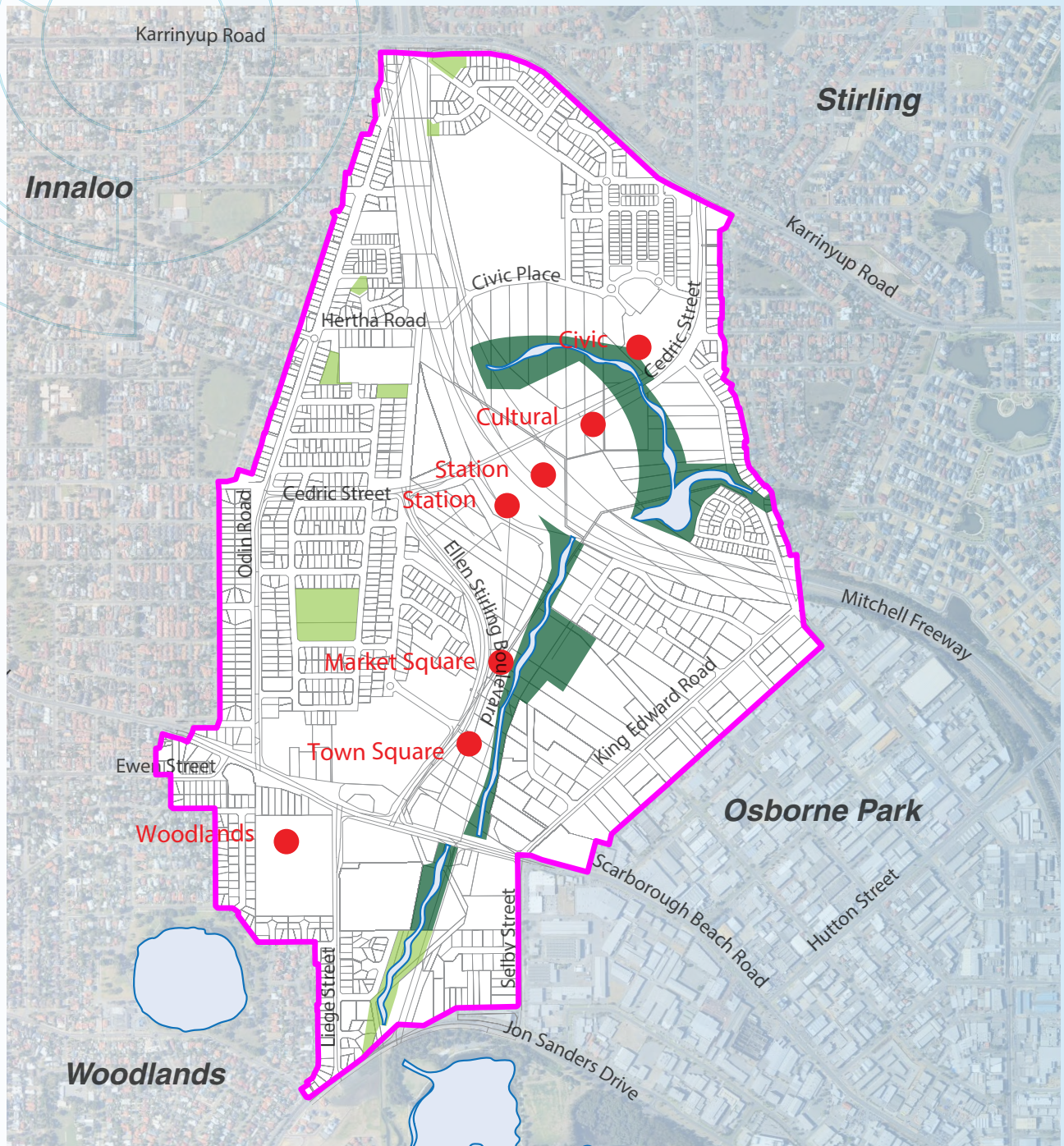
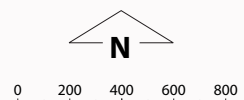


Figure 50: Proposed Open Space Network

Legend

- Structure Plan Area
- Existing Parks to be Retained
- Proposed Major Parks (Indicative)
- Proposed Public Plazas
- Possible Waterways



metres
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4.6.3 District Open Space

- New Park within Station Precinct
- New Park within Osborne Park Precinct

4.6.4 Regional Open Space

- Herdsman Regional Park (existing – adjacent to Stirling City Centre)

4.6.5 Natural Conservation Areas

- New remediation wetland within Station Precinct

4.6.6 Special Purpose Open Space

- New park in Station Precinct to replace existing Civic Park – civic purposes, concerts, ANZAC Day etc
- New linear park traversing the Station and Southern Precincts, which will provide for environmental remediation and passive recreation

4.6.7 New Urban Spaces

- Station Precinct (two spaces north and south of the station, and Civic Square)
- Southern Precinct (Market Square, Town Square and Cultural Square (Celebration Place))
- Woodlands Precinct (public plaza)

The future public open space network is represented diagrammatically in Figure 49: Proposed Open Space Network.

An Urban Design and Landscape Strategy⁴⁰ was undertaken in 2013 to provide a vision and framework for the public realm (ie all exterior spaces, public open space, linkages and built form interfaces that are accessible to the public) and recommends strategies to further guide the provision, use and design of public spaces.

Exact locations and sizes for new open spaces will be determined as part of detailed precinct planning, with reference made to the Urban Design and Landscape Strategy.



⁴⁰ Syrinx, November 2013, Urban Design and Landscape Strategy, for Stirling Alliance

4.7 Environmental Management

4.7.1 District Water Management Strategy

The District Water Management Strategy (DWMS)⁴¹ aims to establish a new relationship between water users and the States precious water resources by developing an enduring, natural water management system. The DWMS (prepared in conjunction with this structure plan and approved by the Department of Water) aims to achieve better water management through innovative urban design and development, thereby ensuring wellbeing for all.

The Stirling City Centre District Water Management Strategy proposes that the renewal and revitalisation of the area will:

- Restore and enhance ecosystems in an urban context
- Maximise water harvesting, capture and reuse to provide fit-for-purpose water for all uses within the Stirling City Centre area
- Conserve all forms of water through improved water demand management and gains in efficiency of use
- Deliver an urban stream environment which provides aquatic habitat and biodiversity that is valued by the community and provides water quality benefits to the catchment and provides protection to life and property from flooding
- Achieve water sensitive landscapes (both public and private realm) which reflect the Western Australian climate.

The key water management issues to be considered and addressed through the progressive redevelopment of the Stirling City Centre are:

- Potential for groundwater contamination from numerous sources including the Hertha Road landfill and the unsewered Osborne Park industrial area. Key issues which need to be addressed as part of any planned remediation of the tip site include differential settlement, landfill gases, groundwater mounding in the area around the tip site, groundwater quality, and groundwater pollution plume movements.

Local scale investigations are required to define the nature and extent of any contamination, and to inform development of appropriate strategies to address the contamination at the local level.

Planning for remediation strategies must address the Department of Environmental Regulation (DER) and the Department of Health (DOH) requirements for public health and environmental impacts.

⁴¹ Essential Environmental, November 2013, SCC District Water Management Strategy, for the Stirling Alliance

- Management of the peat and acid sulphate soils. Detailed investigations are required to determine and address geotechnical issues associated with possible differential settlement in areas of peat, the relationship between the groundwater and surface waters including the influence of the local geology, and the need to manage potentially acidic discharges to groundwater. Although the development of buildings on areas of peat poses some construction challenges, the benefits of retaining the peat, including its role as a potential carbon store and the ability of the peat to moderate heat and groundwater, should not be underestimated.

Management of the Osborne Park branch drain. Upgrades are required to the drain to address the current risk of flooding and to manage contamination. There is potential for limited improvements to the water quality and to enhance the environment around the drain by landscaping and integrating it with the linear open space and the design of adjacent development to create an urban stream and provide high amenity for the community.

- Service capacity. Due to the substantial projected increase in resident population and workforce, it is anticipated that significant upgrades will be required to all major utility services including water, wastewater, drainage, electricity, gas and telecommunications. Investigations have been undertaken to examine 'business as usual' and 'best available' technologies with a preferred option recommended. However further detailed planning will be required to determine the best outcome.
- Water and decentralised management of wastewater. A detailed water modelling investigation, and the development of a detailed water balance for the area have been undertaken along with investigations into the management of waste water. One option being considered is the provision of a local distributed water recycling facility and third pipe system for the distribution of recycled water for non-potable water re-use. Detailed investigations are required to further clarify spatial requirements, economic feasibility, and statutory and governance requirements of this type of facility.
- Increased groundwater recharge. A key strategy beyond the study area is to modify the stormwater systems in the upper parts of the catchment to encourage more onsite infiltration with the aim of enhancing ground water recharge.
- To further assist in the maintenance of stream and groundwater levels, a proposal to re-inject recycled water into the aquifer is currently being undertaken in conjunction with the investigations into the provision of a water recycling plant. This would also have the advantage of keeping the peat wet to avoid possible acidification in the acid sulphate soils.
- Water quality. It is important to address water quality and management issues on a catchment wide scale, as the water quality within the Structure Plan area is not impacted on by local activities only.

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The strategies contained in current investigations and studies of water quality and management issues are to be implemented by their inclusion in future detailed precinct planning.

Key opportunities for improvements in water management outcomes in the Stirling City Centre include:

- Westfield and surrounding commercial area redevelopment
- Rezoning and development of part of the Osborne Park industrial area to medium density mixed use
- Upgrade of the Osborne Park branch drain to create a living stream and public open space network (green corridor)
- Creation of new medium and high density mixed use within the area surrounding the urban stream
- Infill development in existing residential areas
- Upgrades to all utility infrastructure
- Remediation of the former Hertha Road landfill site

Implementing new approaches and technology is often more challenging than delivering 'business as usual' development. It is therefore vitally important that a strong supporting policy framework for sustainable development is developed along with a whole of government approach to move towards integrating "best available technology" into the development of the Stirling City Centre. The opportunities for improved urban water management outcomes presented by this project are substantial and if achieved, will deliver a 'Water Sensitive City'.

4.7.2 Local Water Management Strategy

Local Water Management Strategies (LWMS) need to be prepared for the Stirling, Southern and Osborne Park precincts prior to any new subdivision or development in conjunction with Detailed Area Plans. These local water management strategies will be consistent with and implement the objectives outlined in the District Water Management Strategy⁴².

The following objectives will guide the preparation of the Local Water Management strategies:

- Innovative urban design and development that ensures an enduring, natural water management system and environment, and encourages a new relationship with water that achieves wellbeing for all
- Restore and enhance ecosystems in an urban context
- Maximise water harvesting, capture and reuse to provide fit-for-purpose water for all uses within the Stirling structure plan area
- Conserve all forms of water through improved water demand management and gains in efficiency of use
- Deliver an urban stream environment which provides aquatic habitat and biodiversity that is valued by the community and provides water quality benefits to the catchment and protection to life and property from flooding
- Recognise and learn from natural processes and systems to optimise design solutions and resultant outcome
- Achieve water sensitive landscapes (both public and private realm) which reflect the Western Australian climate

⁴² Essential Environmental, November 2013, SCC District Water Management Strategy, for the Stirling Alliance

4.7.3 Environmental Remediation

Preliminary assessment of remediation options for the old Hertha land fill site identified a number of options for the site, including the use of phytotechnologies. This approach differs from conventional remediation options (where contaminated soil is removed, treated and returned to site) as it treats the contamination in situ.

Detailed investigations are required to identify a feasible method of remediating this site. It is essential that sustainable and innovative techniques and technologies are used, in line with the best practice aspirations of the project.

Site investigations will need to include:

- Geotechnical assessment
- Stability analysis
- Monitoring and sampling of gases and vapours
- Development of technologies which will handle gases and vapours and prevent them from becoming a public health concern
- Risk assessment
- Groundwater mounding management in the vicinity of the tip
- Groundwater pollution plume quantification (extent and water quality issues)
- Extent of transfer of pollutants to the urban stream from landfill site

When the Detailed Area Plan is prepared for the Station Precinct the remediation Plan will have to be finalised and approved.

4.8 Infrastructure and Services

The infrastructure and services strategy proposed for Stirling City Centre aims to deliver services to the future population that will achieve energy, water and waste targets set by the performance framework. A significant amount of feasibility analysis and investigations have been undertaken to date. These studies demonstrate that the provision of alternative (best available technology) infrastructure and services over 'business as usual' supply, is economically, regulatory and technically feasible. Full details of the proposed strategy as well as cost comparisons to 'business as usual' servicing requirements are presented in the Stirling City Centre Utilities Infrastructure Strategy⁴³.

It is also important to note that during development of the strategy, the potential for a 'business as usual' approach was considered in some detail to provide a baseline for cost comparison purposes. Due to the particular circumstances associated with service provision in the area and anticipated increases in resident and worker populations, connections to existing services and infrastructure will require substantial upgrades to existing systems at a substantial initial cost, particularly sewerage services in Osborne Park.

The proposed strategy applies a 'best available technology' approach, blended with a 'business as usual' approach, to the delivery of utilities infrastructure for the Stirling City Centre Structure Plan area. This approach seeks to deliver a strategy that recognises the existing constraints of the site as an opportunity to deliver a more holistic servicing solution. There are substantial benefits which can be realised by both developers and the future community, from integrating decentralised energy, water and waste services into the development of the Stirling City Centre.

During the identification of the most appropriate technology solution for the Stirling City Centre, a number of key issues were identified as having a significant influence on the decision and included:

- Improving the thermal efficiency of buildings will substantially reduce peak electrical demands on the regional grid;
- As Osborne Park is currently unsewered, substantial upgrades would be necessary for connection to the existing network and to manage the anticipated increase in density through the city centre;
- Considerable upgrades are also required for provision of sufficient scheme water to meet all future water (drinking and non-drinking) demands. This creates an opportunity to integrate water and wastewater services within a decentralised recycling system to deliver the required non-drinking water supply and thereby minimise the future demand for scheme water;
- Delivery of a 'third-pipe' system that provides recycled water for irrigation and other non-drinking water uses will enable the city centre to be somewhat protected from future water shortages and the resulting price escalations that are expected with a continued drying climate;

⁴³ GHD, 2013, *Utilities and Infrastructure Strategy, for the Stirling Alliance*

- Greenhouse gas emissions and peak oil issues can be minimised by utilising solar photovoltaics (PV) and geothermal energy;
- A thermal pipe network will minimise electrical requirements by reducing reliability on the grid for heating and cooling purposes; and
- Biosolids from the recycled water plant can be co-processed with domestic and commercial organics to contribute to the municipal waste treatment plant.

The Stirling City Centre Utilities Infrastructure Strategy presents the outcomes of substantial technical investigations undertaken to date which have demonstrated that the proposed integrated infrastructure and services strategy is both technologically feasible and financially viable. However, it is recognised that the most significant difficulties in implementing alternative servicing strategies are the identification of appropriate service provider(s) and funding mechanisms. These critical issues are discussed in more detail in the strategy.

4.8.2 Principles

Each element of the utilities infrastructure strategy, including; energy, water, waste and telecommunications has been selected and developed to satisfy the following core principles:

- Proven sustainable technologies: Selection of technologies that are both capable of meeting the Performance Framework objectives and targets, and proven in the field;
- Network compatible: Servicing solutions that are compatible with existing regional infrastructure networks. The successful solution will be integrated into existing (and planned) networks to ensure the solution works at all scales;
- An integrated solution: The project must identify the best overall servicing strategy. Accordingly, energy, water, waste and telecommunication solutions must be integrated and synergistic. For example water solutions that incorporate renewable energy, and energy solutions that incorporate waste;
- Economically efficient scale: Deployment of technologies at the appropriate scale on the continuum of regional-district-local-lot. For example solar PV technology can be applied at the grid, district, precinct or lot scale. The servicing strategy must identify the optimum scale for each technology;
- Robust and adaptable: An overarching servicing concept that is capable of adapting to changing circumstances over the life of the development. The feasibility of technologies and approaches will change over time due to technology, costs, local capacity and the rate of development; and
- Financially viable: Servicing solutions that are financially viable for the investor and provider. In order to progress the best solution there must be a business case for the supply of each service. This is the case whether the potential provider is an existing government business enterprise or a private corporation.

The following description is provided to summarise the proposed strategy. Further detail should be sought from the Stirling City Centre Utilities Infrastructure Strategy (GHD 2013).

4.8.3 Energy

4.8.3.1 Energy Efficiency

Energy efficient building design is a core requirement of the Strategy⁴⁴, and will be complemented by best practice measures such as the use of smart grid/meter technology to provide feedback on energy consumption and comparisons with other consumers at local and metropolitan wide scales. The Detailed Area Plans should include provisions to ensure energy efficient building design is encouraged.

4.8.3.2 Electricity

The strategy considers two alternative approaches to energy provision; solar/trigeneration using natural gas (refer to Figure 51) and solar/geothermal (refer to Figure 51).

4.8.3.3 Thermal Energy

Provision of thermal energy to the Stirling City Centre is a core element of the Strategy⁴⁵ as it decreases individual building costs by reducing requirements for space heating and cooling, and water heating (Refer Figure 53).

Delivery of thermal energy can be achieved with either electricity strategy but the methodology will differ with each. The trigeneration system will provide a heat source itself for space and water heating and could be co-located with absorption and electric chillers to feed a cold water loop. Alternatively, geothermal energy could be utilised to provide the thermal heat source without trigeneration. Chillers could also be used to provide cold water.

⁴⁴ GHD, 2013, *Utilities and Infrastructure Strategy, for the Stirling Alliance*

⁴⁵ GHD 2013, *Utilities and Infrastructure Strategy, for the Stirling Alliance*

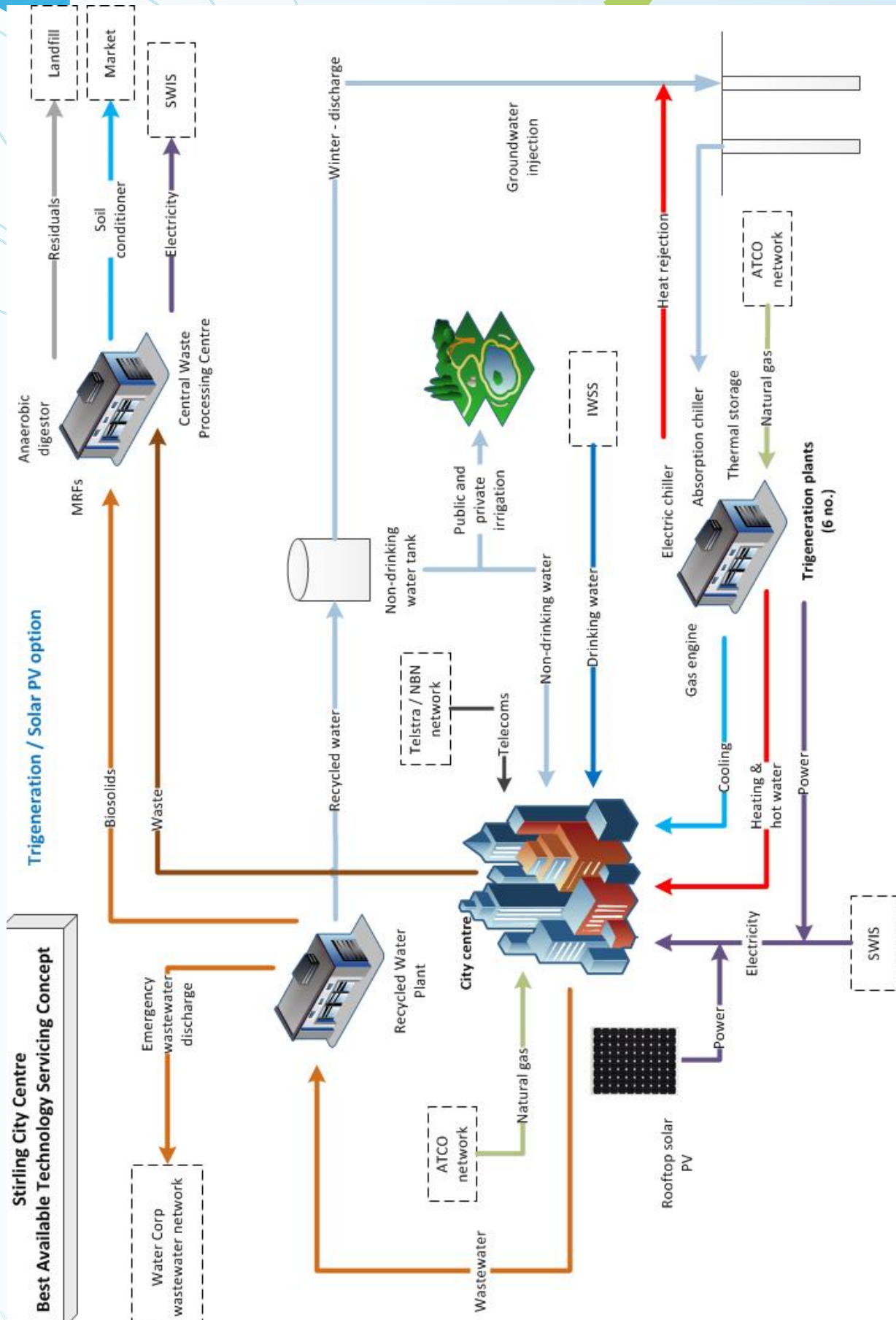


Figure 51: Proposed infrastructure servicing concept incorporating Trigeneration

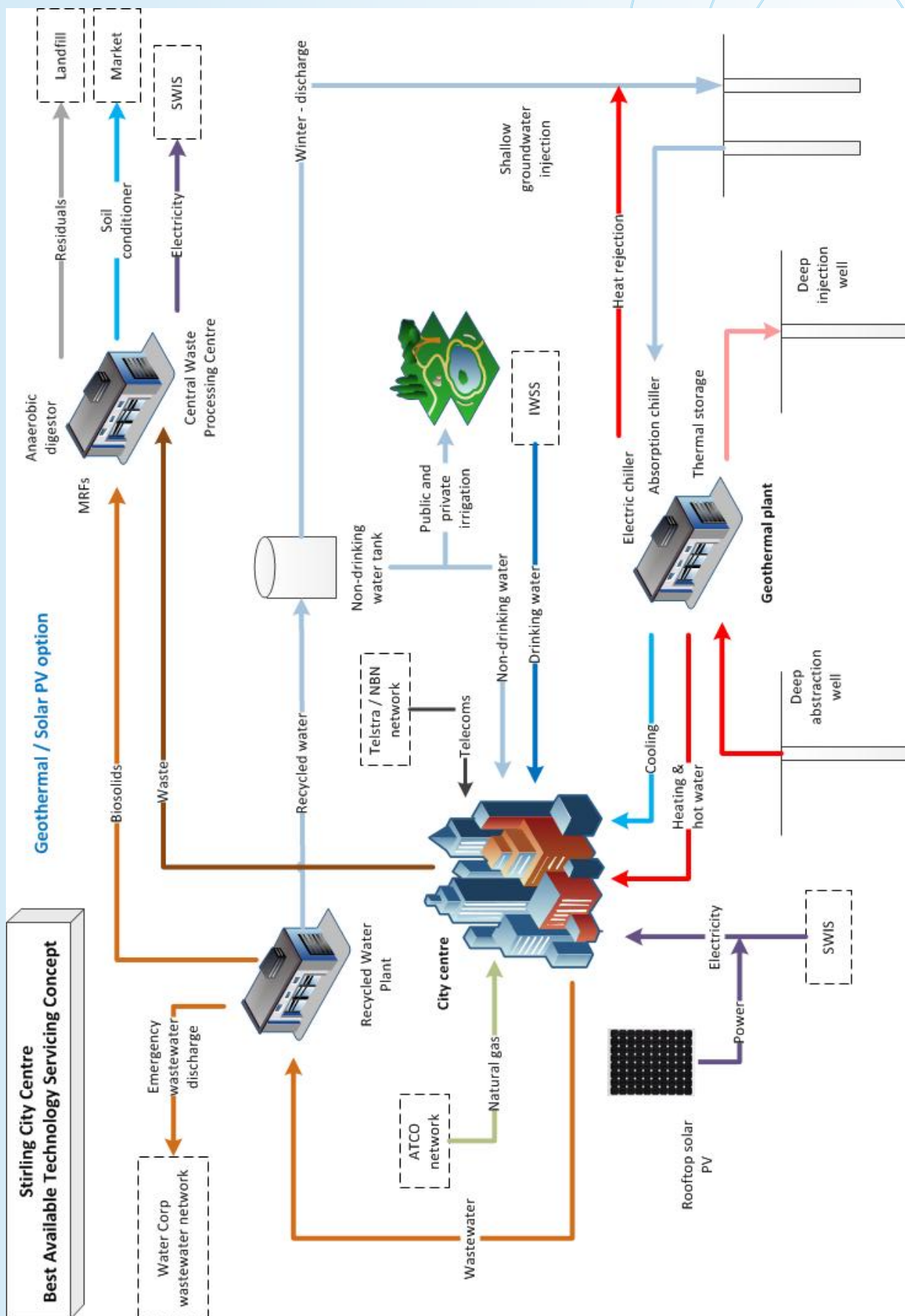


Figure 52: Proposed infrastructure servicing concept incorporating Geothermal



4.8.4 Water

4.8.4.1 Water Efficiency

The Strategy⁴⁶ recommends best practice measures for water efficiency to be used in development, such as appliances meeting the highest available Water Efficiency Labelling Standards (WELS), and irrigation. This will be complemented with the use of smart water meter technology to provide feedback on water consumption and comparisons with other consumers at local and metropolitan levels.

4.8.4.2 Water and Wastewater

It is proposed that scheme water provided by the Water Corporation through the Integrated Water Supply Scheme (IWSS) will be used for all uses that require drinking water quality.

The Strategy⁴⁷ proposes to recycle all wastewater in a new local wastewater recycling facility and return it to the Stirling City Centre as a non-drinking water source for irrigation, toilet flushing and clothes washing (refer Figure 51 and 52). This water source is anticipated to provide sufficient water to meet the total non-drinking water demand. During winter when irrigation demand is low, there will be an excess of high quality recycled water which will be locally discharged to the superficial aquifer. This will contribute to offsetting the use of groundwater for irrigation of public open space, and assist in maintaining groundwater and stream levels.

The Osborne Park precinct is not currently connected to the sewerage system. In order to develop the precinct for residential use, sewerage can be provided in conjunction with the local water recycling facility. These requirements will be determined with future detailed planning for the precinct. The local water recycling facility shall be located in the Osborne Park Precinct.

4.8.4.3 Drainage

The Stirling City Centre District Water Management Strategy⁴⁸ requires best practice water sensitive urban design principles to be applied.

Where possible, all stormwater from frequent events will be collected and treated on individual lots, and street drainage will incorporate rain gardens, swales and other management devices to maximise infiltration where the rain falls. Surface and groundwater flows will not exceed predevelopment levels.

Street drainage networks will be designed to manage less frequent, larger rainfall events and will discharge to the existing drainage system including the urban stream (Osborne Park Branch Drain).

⁴⁶ GHD 2013, *Utilities and Infrastructure Strategy, for the Stirling Alliance*

⁴⁷ GHD 2013, *Utilities and Infrastructure Strategy, for the Stirling Alliance*

⁴⁸ *Essential Environmental*, November 2013, *SCC District Water Management Strategy, for the Stirling Alliance*

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4.8.5 Waste

Provision of an integrated vacuum waste system for the more densely populated areas and commercial premises is proposed. The cost benefits of this system will need to be further evaluated by City of Stirling.

Waste from this system will be transported to a central terminal for collection and then transferred by road to a Central Waste Processing Facility (CWPF) (refer Figure 51 and 52). At the CWPF, materials recovery facilities will separate recyclables, organics and high calorific value materials (plastics etc.) from other wastes.

Recyclables will be processed through existing markets. The organic fraction will be feedstock to an anaerobic digester which will produce biogas to power Council vehicles, and a solid digestate suitable for use as a soil conditioner.

4.8.6 Telecommunications

The Stirling City Centre Utilities Infrastructure Strategy⁴⁹ also considers infrastructure requirements for telecommunications in the Stirling City Centre including, Fibre Optics, Wireless, Mobile Cellular and VOIP technologies.

The NBN rollout at Stirling offers the opportunity to utilise smart meter enabled technology. This will facilitate the use of smart meters for electricity and water, which will provide feedback to building occupants on energy and water use.

Smart meters will be essential in establishing a smart grid network within Stirling. Smart grids involve the installation of smart distribution networks, smart infrastructure such as car charging stations and software for sophisticated control of energy management, network shut downs, network stability and network reliability.

4.8.7 Costing

Estimates of capital and operational costs for these technologies are set out in the Utilities Infrastructure Strategy.⁵⁰

⁴⁹ GHD 2013, *Utilities and Infrastructure Strategy prepared for the Stirling Alliance*

⁵⁰ GHD, 2013, *Utilities and Infrastructure Strategy, for the Stirling Alliance*

The Process

5.1 Planning Process

The adoption and finalisation of the Stirling City Centre Structure Plan and associated Amendments, Policies and Detailed Area Plans will generally follow the process outlined below in Figure 54 . Structure Plan Planning Process:

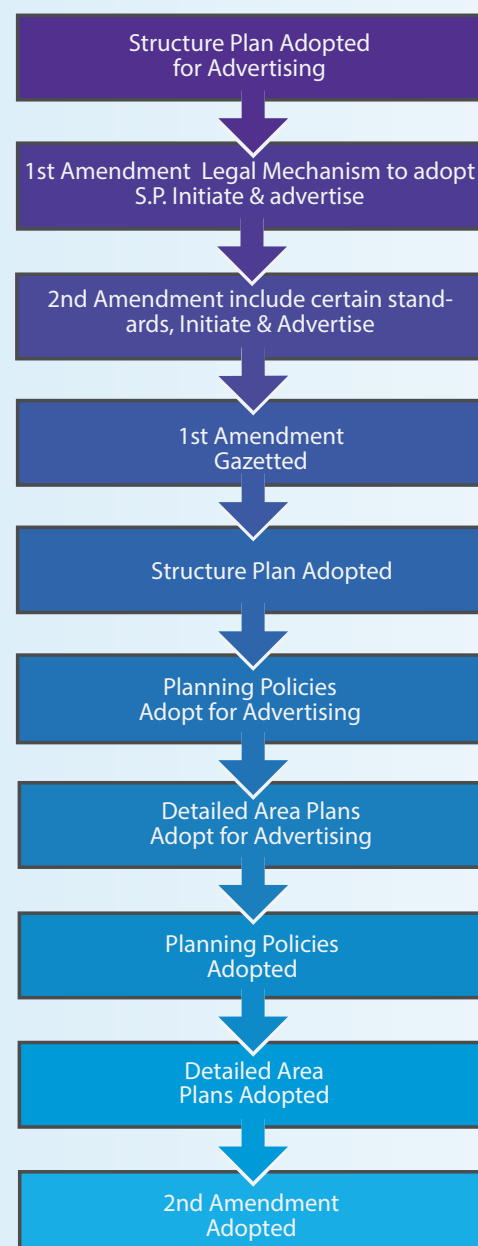


Figure 54: Structure Planning Process

5.2 Staging and Implementation

Development of the Stirling City Centre will occur over time to facilitate development in the way envisaged by the Structure Plan, the following elements are required at significant up-front costs:

- Stephenson Avenue;
- Mitchel Freeway improvements;
- Relocation of the Osborne Park branch drain;
- Remediation of the Hertha Road landfill site;
- Detailed investigation of the Stirling station to determine land requirements and address access issues to enable it to operate as a major interchange to accommodate the anticipated volumes of people and all modes of public transport including heavy rail, bus and potentially light rail; and
- The MAX system to be developed to Scarborough Beach Road.

However, there is potential for Stephenson Avenue to be developed incrementally in association with land development and the construction of east west connectors. This option could be further investigated when detailed precinct planning is undertaken for the Station and Southern precincts. Additionally, a light rail system could be developed without the MAX system, but would require infrastructure such as a depot. All stages will require detailed analysis and precinct planning, business cases and funding models.

5.3 Governance

Once adopted under the planning scheme, the Structure Plan will be used in the preparation of precinct plans which then provide more detailed guidance for future development.



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- 3) BG&E, September 2010, Preliminary Assessment of Building Foundations Over Stirling Link Tunnel Study Report prepared for the Stirling Alliance
- 4) Big Island Research, July 2013, Ethnographic Heritage Survey Report, page 19
- 5) Cardno, 2009, Stirling City Centre Declared Rare Flora Search, for Department of Planning
- 6) Coda, January 2013, Urban Design Typology Framework, for the Stirling Alliance
- 7) Essential Environmental, November 2013, SCC District Water Management Strategy, for the Stirling Alliance
- 8) Estill and Associates, 2008, Community Needs Assessment, for the Stirling Alliance
- 9) Ether-Dollan and Walter Eats, July 2009, Welcome to Country at the Festival of Ideas Workshop
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- 13) GHD, December 2013, Integrated Transport Strategy - Strategy Report, for the Stirling Alliance
- 14) Hames Sharley, June 2013, Stirling City Centre Community Needs Assessment, for the Stirling Alliance
- 15) Hassell, August 2010, Draft Stirling City Centre Housing Strategy for City of Stirling, for the Stirling Alliance
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 - 18) Dr Edward McDonald et al (2005), Study of Groundwater-Related Aboriginal Cultural Values on the Gnangara Mound, Western Australia for Department of Environment. Page 17
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 - 21) SKM, August 2010, Stirling City Centre Parking and Access Strategy prepared for the Stirling Alliance
 - 22) SMEC, 2009, Phase 1 Scoping Study: Summary Report
 - 23) Syme Marmion and Co, January 2010, Scarborough Beach Road Population and Land Use Study, for Department of Planning
 - 24) Syrinx, November 2013, Urban Design and Landscape Strategy, for Stirling Alliance





Appendix A



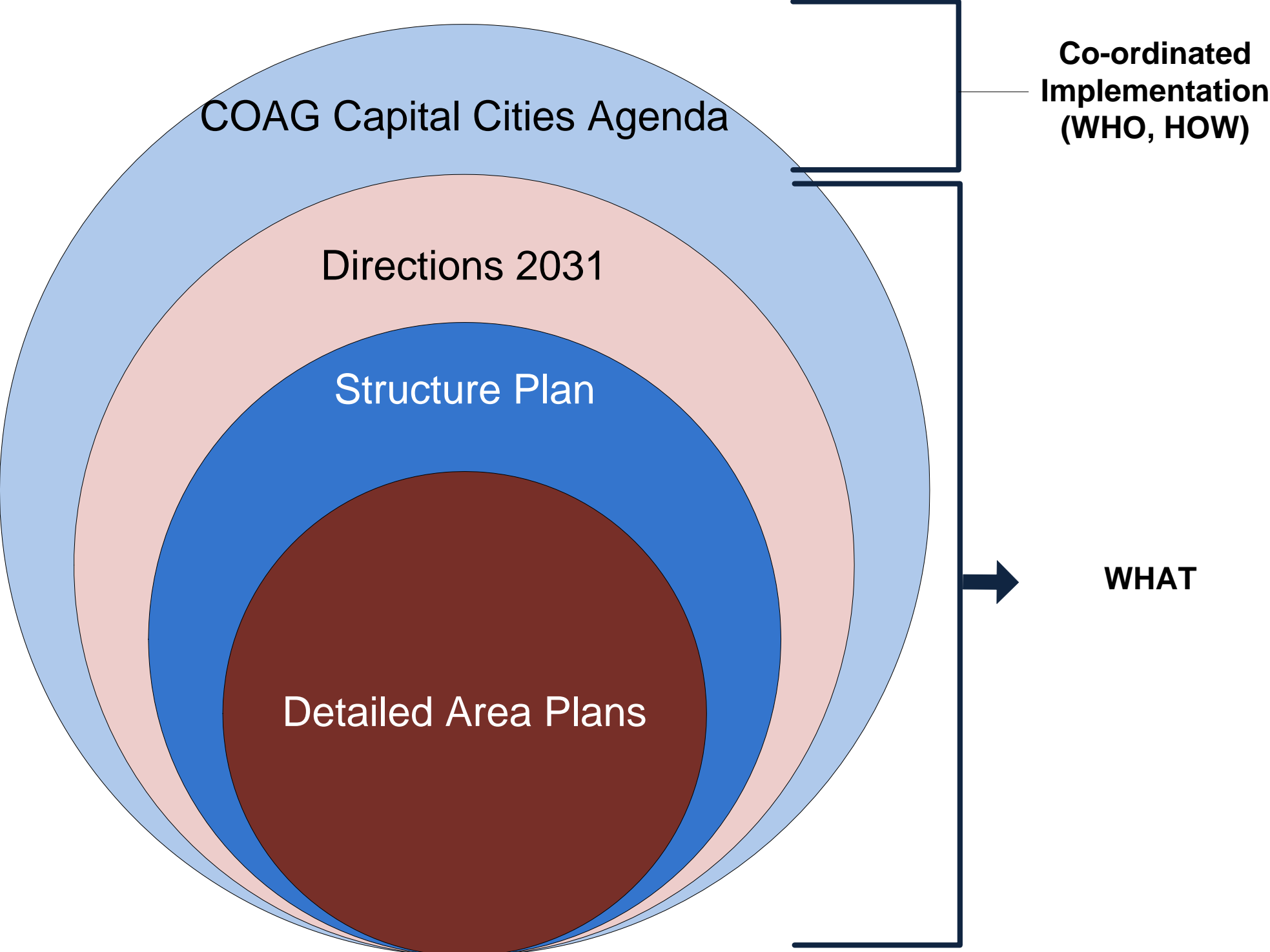


Stirling City Centre Alliance

Performance Framework

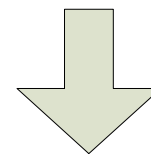
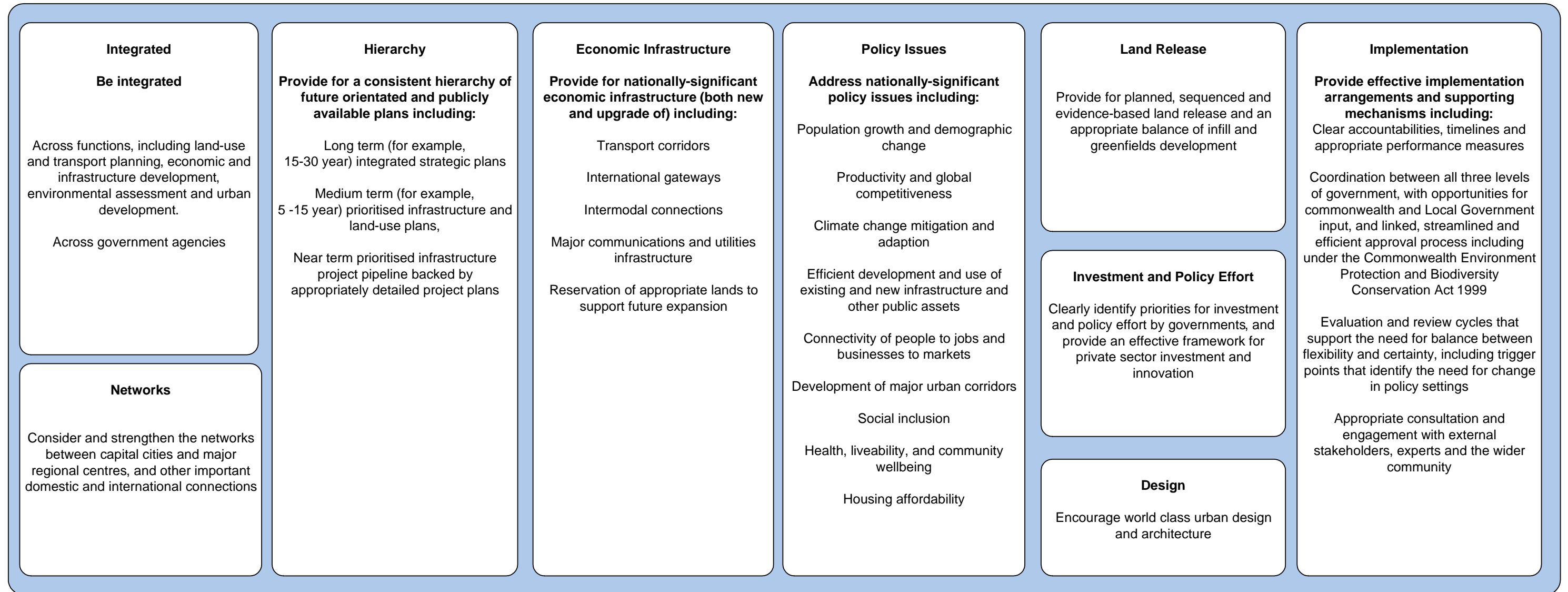
Key Performance Areas and Key Performance Indicators

Policy Framework



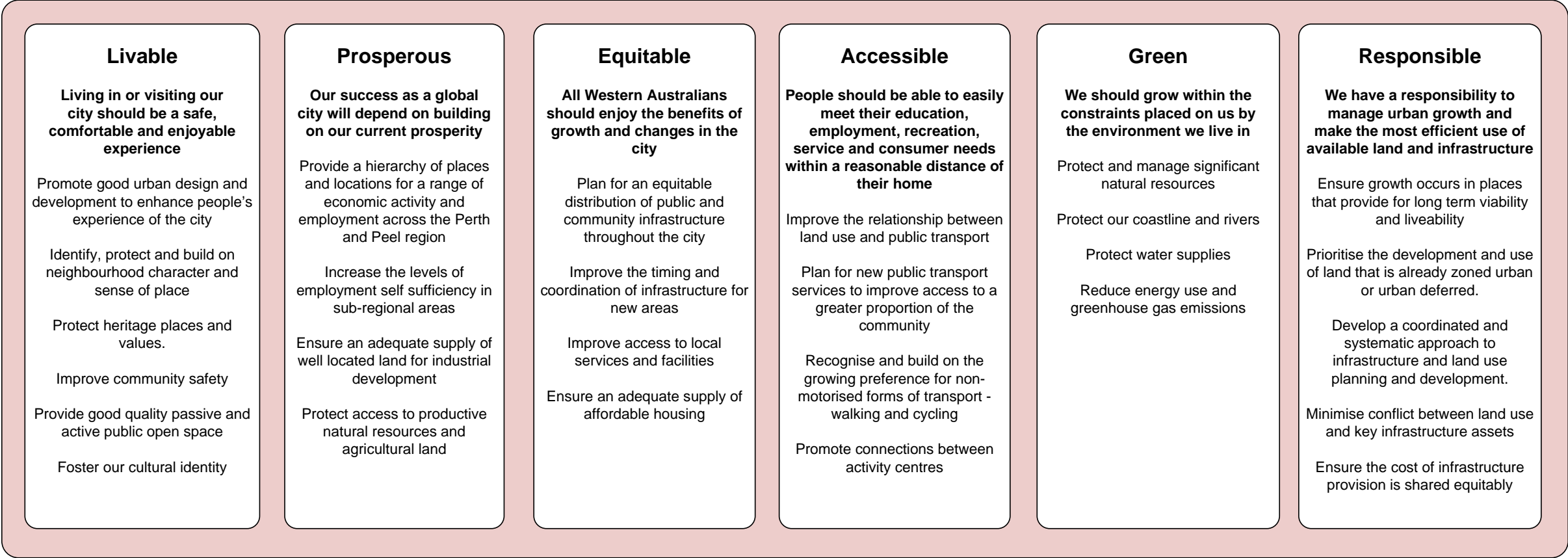
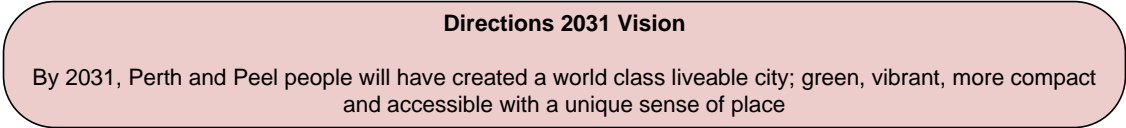
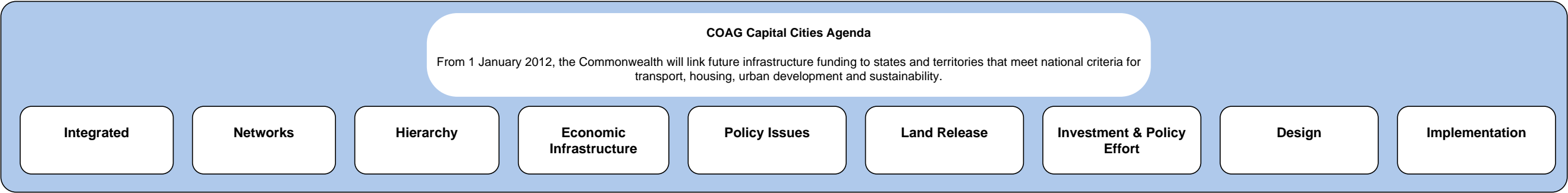
COAG Capital Cities Agenda

From 1 January 2012, the Commonwealth will link future infrastructure funding to states and territories that meet national criteria for transport, housing, urban development and sustainability.

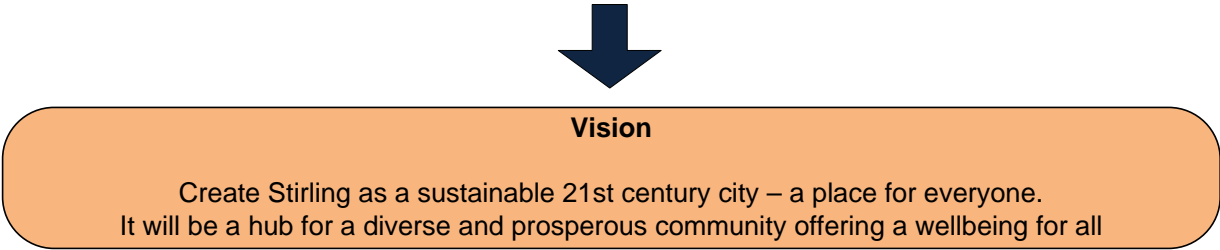


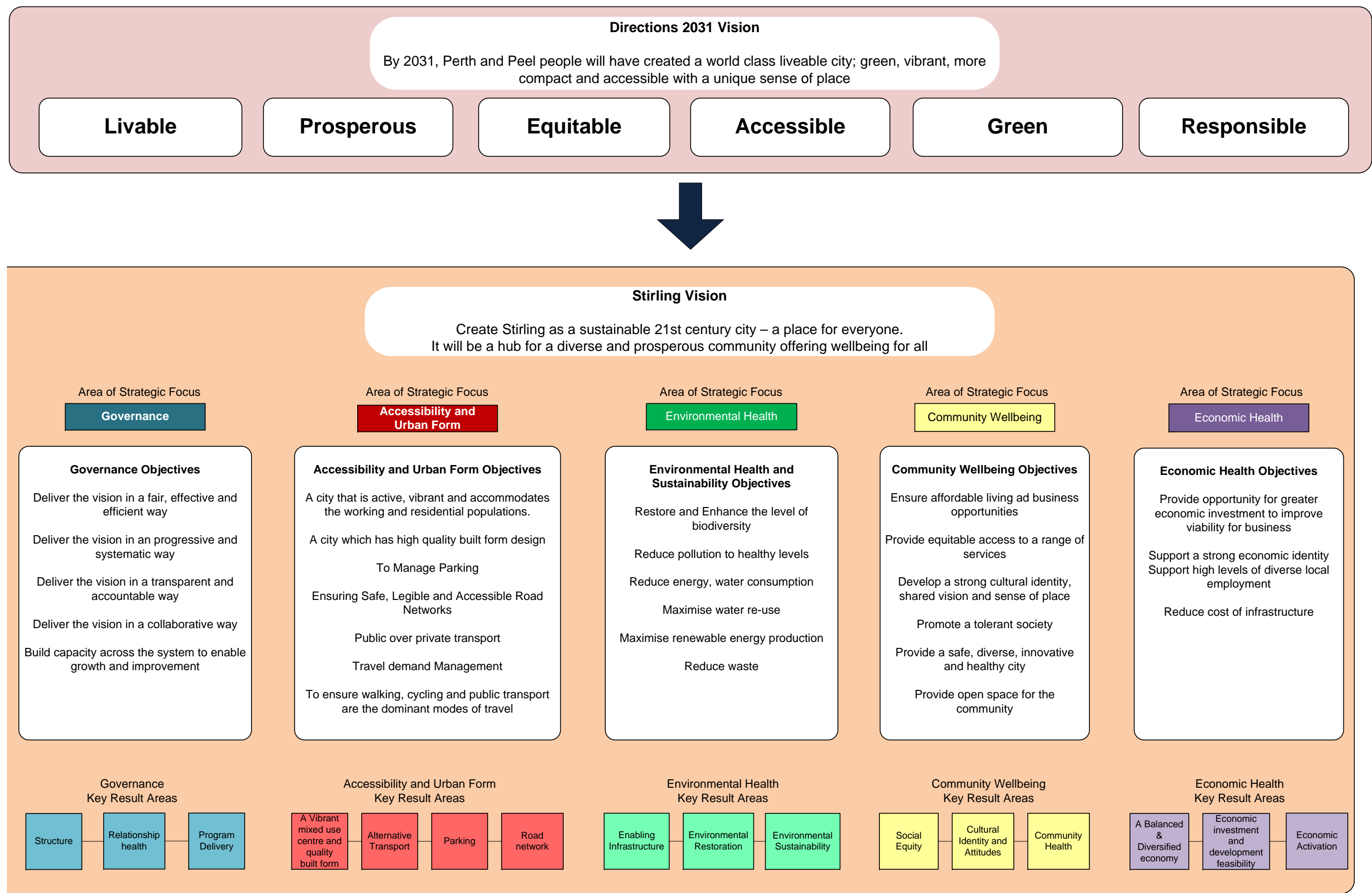
Directions 2031 Vision

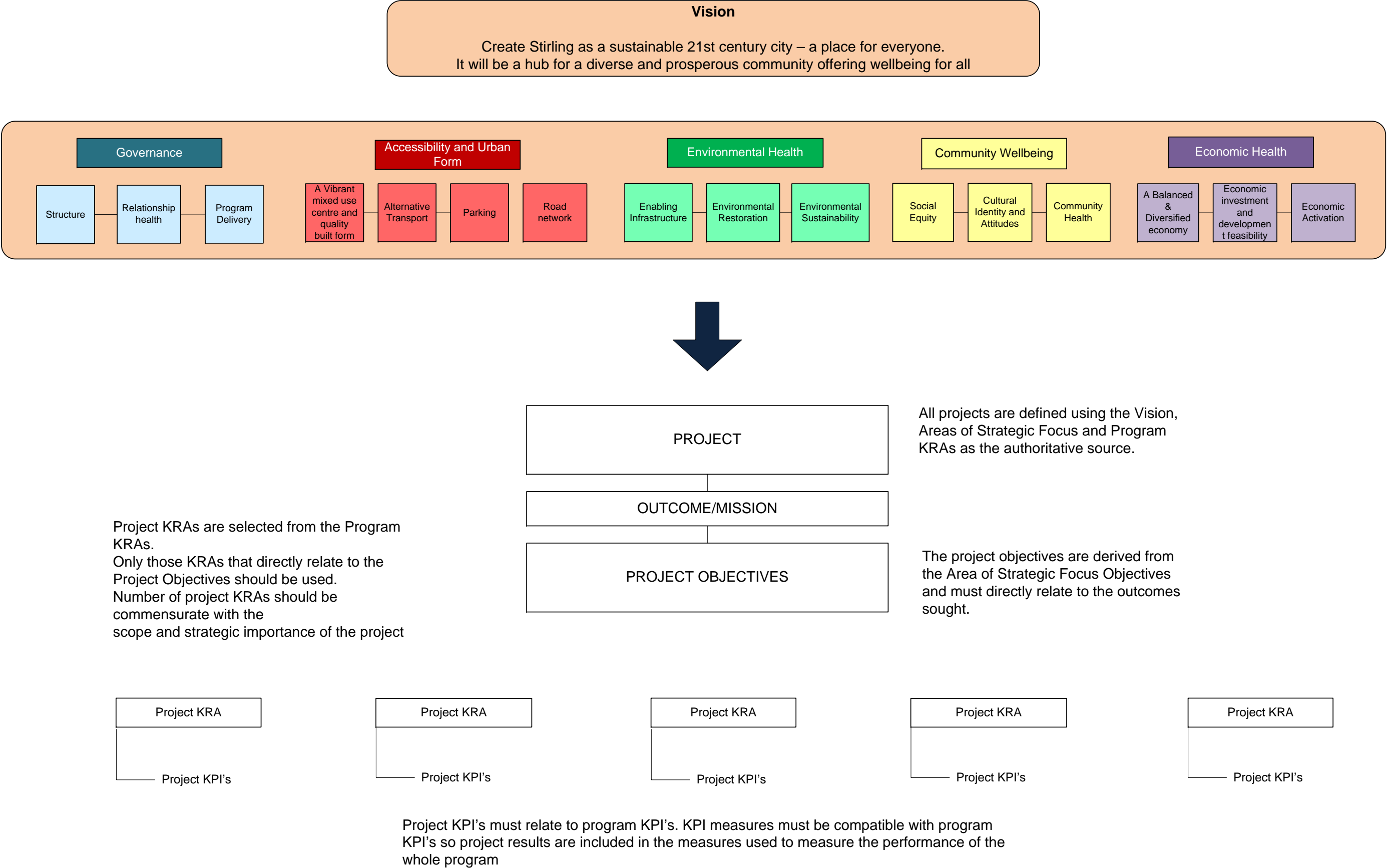
By 2031, Perth and Peel people will have created a world class liveable city; green, vibrant, more compact and accessible with a unique sense of place

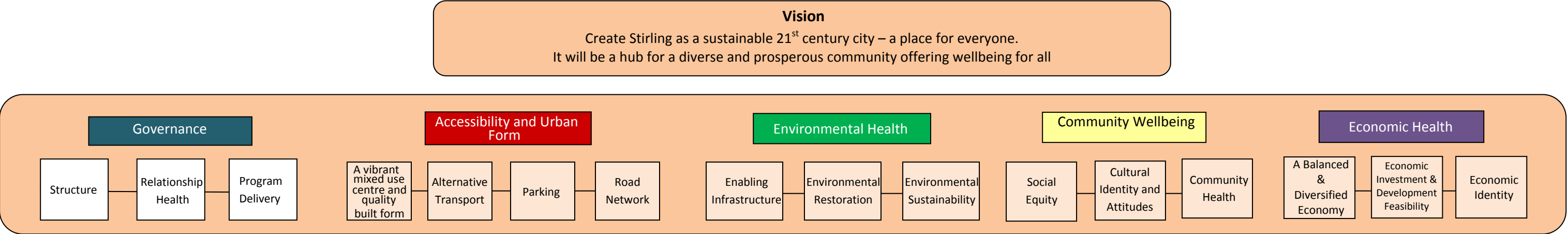


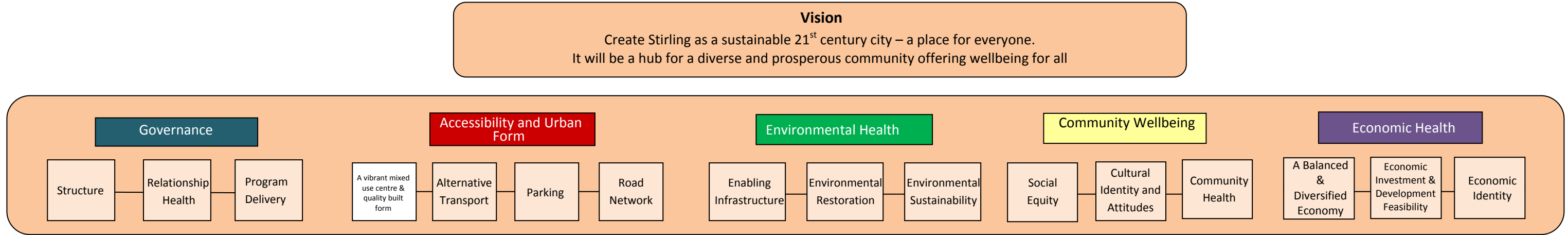
“Stirling city centre was historically developed as a general and light industrial area, and has evolved over time to become a major regional destination for bulky goods retailing and, more recently, commercial and office development. The Stirling Alliance has been formed by key stakeholders to re-plan the centre, improve its integration with the passenger rail network, and reduce the current level of car dependency. It is anticipated that Stirling will ultimately develop to complement Perth central area as a major employment centre, and will become more diverse with the progressive introduction of housing and associated social infrastructure”











ACCESSIBILITY AND URBAN FORM						
KRA	KRA Objectives	KPI	Targets			
			Aspire	Agreed	Minimum	Current
A Vibrant mixed use centre and quality built form	To provide an active vibrant and safe city with a mix of uses	% of frontage of active streets with active uses (commercial/retail)	90%	80%	70%	3%
		% of streets (mixed use precincts) with residential development every 300m	100%	90%	80%	0%
		% of precincts that meet residential dwelling targets as per housing strategy	100%	90%	80%	10%
		% of active streets with zero setback	100%	95%	90%	3%
		% walls on active streets that have openings (windows and doors)	80%	70%	60%	10%
		No of dwellings	15000	13900	9000	1625
		% of Structure Plan Area that enables a broad range of uses	50%	45%	10%	N/A
	To provide high quality built form	% walls, above ground, over 10m in length, with balconies, openings, extrusions and indentations	90%	80%	70%	10%
		% building facade on the first 3 levels with masonry	20%	30%	40%	50%
		% of dwellings that have private open space	100m²	80m²	70m²	nil
		No of pedestrian links with active frontages over the freeway	3	2	2	0
		Green star building rating	6star	5star	4star	NA
		Urban elements, structures and natural features incorporated into development	Yes	Yes	Yes	NA

Vision

Create Stirling as a sustainable 21st century city – a place for everyone.
It will be a hub for a diverse and prosperous community offering wellbeing for all

Governance

Structure

Relationship
HealthProgram
Delivery

Accessibility and Urban Form

A vibrant mixed
use centre &
quality built
formAlternative
Transport

Parking

Road
Network

Environmental Health

Enabling
InfrastructureEnvironmental
RestorationEnvironmental
Sustainability

Community Wellbeing

Social
EquityCultural
Identity and
AttitudesCommunity
Health

Economic Health

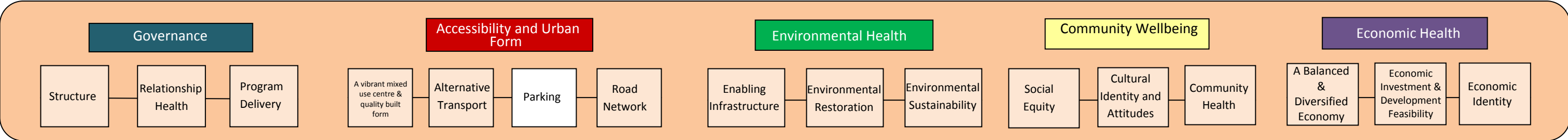
A Balanced
&
Diversified
EconomyEconomic
Investment &
Development
FeasibilityEconomic
Identity

ACCESSIBILITY AND URBAN FORM

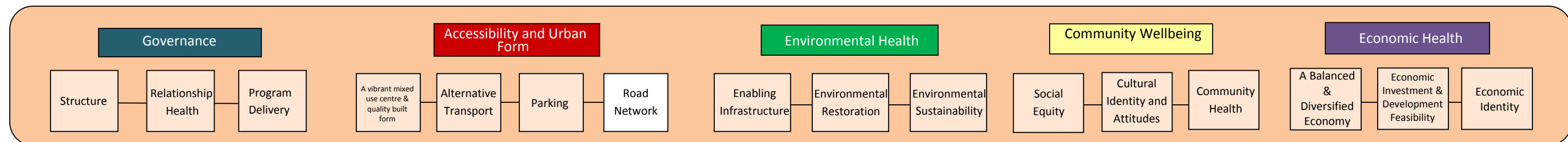
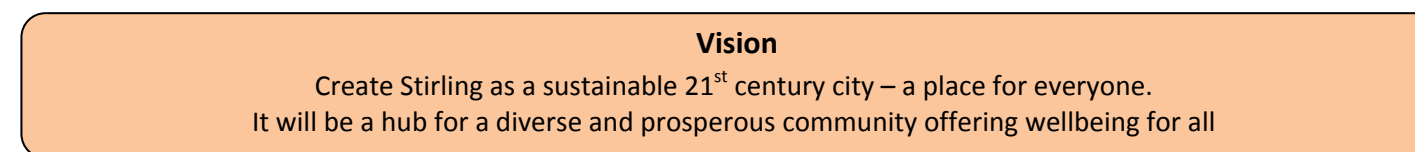
KRA	KRA Objectives	KPI	Targets			
			Aspire	Agreed	Minimum	Current
Alternative Transport	To provide infrastructure and facilities that ensure high levels of cycling, walking and public transport usage and funding models to achieve this	% of streets designed for pedestrian priority with vehicle speeds of less than (40kph) controlled through street design	100%	90%	80%	N/A
		% Roads(<5000vpd) with separated Cycling paths	100%	80%	70%	0%
		% of developments with EOTF	100%	100%	100%	1%
		Travel Smart programs in place	Yes	Yes	Yes	No
		% Cycling Mode Share	15%	10%	5%	1%
		% Walking Mode Share	20%	15%	10%	6%
		% of shade areas on footpaths	100%	70%	60%	10%
		% of footpaths with continuous weather protection on active streets	100%	80%	70%	5%
		% of signalised Intersections with a full pedestrian phase on roads over 10,000vpd	100%	80%	70%	0%
		% of streets with footpaths	100%	90%	80%	70%
		% Public Transport Mode Share	20%	15%	10%	8%
		% of streets (<20,000vpd) with separated PT lanes	100%	90%	80%	0%
		% of services with <7 min frequency (off peak)	80%	70%	50%	0%
		% of lots within 200m of high frequency PT service	100%	80%	70%	60%
		% of high frequency services that cannot be moved without major capital costs	100%	80%	70%	60%
		% of capital and operating costs covered by city centre funding model	100%	80%	70%	0%

Vision

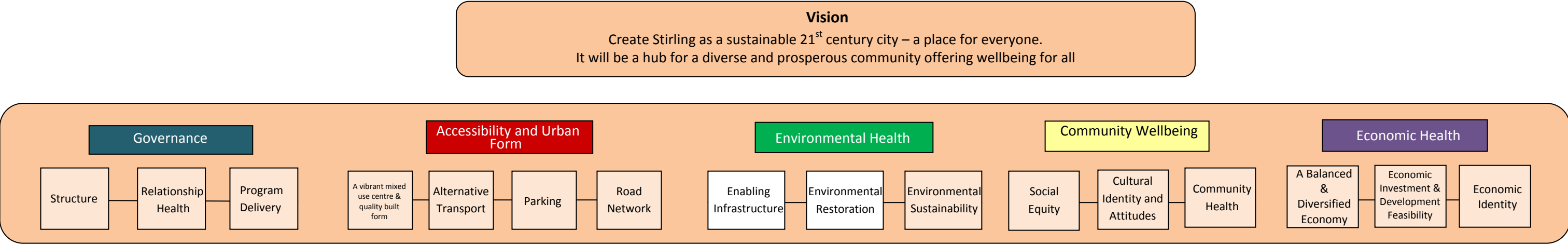
Create Stirling as a sustainable 21st century city – a place for everyone.
It will be a hub for a diverse and prosperous community offering wellbeing for all



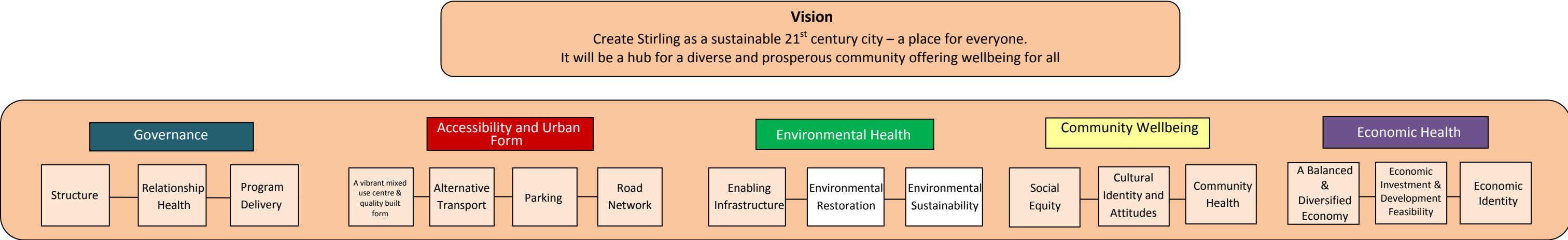
ACCESSIBILT Y AND URBAN FORM						
KRA	KRA Objectives	KPI	Targets			
			Aspire	Agreed	Minimum	Current
Parking	Minimising parking construction costs and managing access to alternative transport modes to encourage use ensuring the road capacity is not exceeded.	Width of crossovers	6m	6m	6m	10m
		Maximum number of crossovers per street block	1	2	3	NA
		Number of bays per hectare – core area	200	250	280	NA
		Number of bays per hectare – non core area	250	280	300	NA
		Reduce number of parking bays per land use from current standards	Yes	Yes	Yes	No
		Ratio of on street parking relative to length of active streets	66%	50%	40%	0%
		% of parking bays allocated for short stay parking	70%	60%	50%	10%
		% of public parking to total provision of non-residential parking	100%	80%	50%	0%
		% of special purpose bays	10%	8%	5%	5%
		% of residential parking that is unbundled from the sale of units	100%	80%	50%	0%
	Providing a funding source for alternative transport	% of total public bays that are paid parking	100%	80%	70%	0%
		% of commercial parking bays required to pay levy	90%	80%	80%	0%
		% of commercial and residential bays in new developments that are subject to a cash-in-lieu payment	100%	100%	100%	0%



ACCESSIBILITY AND URBAN FORM						
KRA	KRA Objectives	KPI	Targets			
			Aspire	Agreed	Minimum	Current
Road Network	To ensure safety and ensure the size and design of roads encourages alternative transport over private whilst maintaining good access	% of land for roads	25%	27%	28%	30%
		% of block sizes of 150m x 150m for DAP areas	70%	60%	50%	10%
		No of access points to the freeway	4	4	3	2
		% of intersections on roads >20,000 vpd have maximum 3 lanes in one direction	100%	90%	80%	28%
		% of reduced lane widths that meet the intent of standards and approved by regulatory agency (TBC)	100%	90%	80%	0%
		% of roads that meet WSUD principles	100%	90%	80%	0%
		Number of way finders installed at signalised intersections	100%	80%	80%	0%
		Number of fatalities per annum	0	0	0	NA
		% Serious Injuries	0%	NA	NA	10%
		Road safety awareness programs	Yes	Yes	Yes	Yes
		Frequency and severity of accidents at intersections	15%	10%	5%	0%
		Speed limit of 30km/h on distributor roads <20,000 vpd	100%	90%	80%	0%
		Speed limit of 40km/h on major roads >20,000 vpd	100%	90%	80%	0%
	To ensure that there is a north south freight route linking to the Mitchell Fwy	Dedicated freight route around / under the City Centre	100%	100%	100%	0%



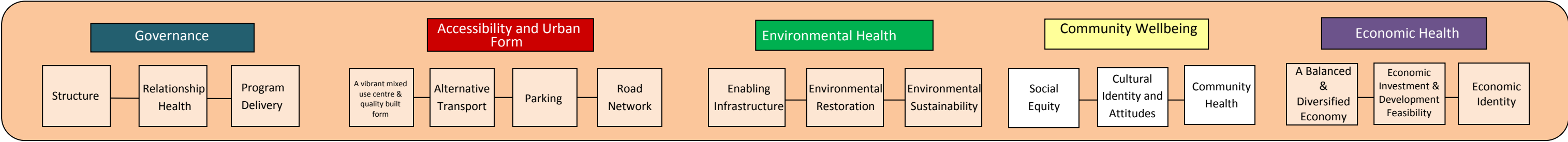
ENVIRONMENTAL HEALTH						
KRA	KRA Objectives	KPI	Targets			
			Aspire	Agreed	Minimum	Current
Enabling Infrastructure	To maximise the reuse of water	% of all water recycled	100%	80%	50%	0%
		% of nutrients from wastewater that are reused	100%	80%	50%	0%
		% stormwater captured and reused	100%	80%	50%	0%
		Water table level (above highest peat lens)	>50cm	>30cm	>15cm	N/A
		Rate (Kilo Litres) of potable water consumption per person (household)	40kl/p	50kl/p	60kl/p	80kl/p
		Rate (Kilolitres) of potable water consumption m2	40kl/p	50kl/p	60kl/p	80kl/p
		Rate (Kilolitres) of potable water consumption m2 office commercial per annum	0.5 kL/m ²	1 Kl/m ²	1.100 kL/m ²	1.125 kL/m ²
	To maximise renewable energy production and reduce energy demand	% of renewable energy production	100%	50%	20%	1%
		Rate of power consumption per dwelling (in kWh)	4kWh	10kWh	11kWh	12kWh
		Rate of power consumption per m2 retail (kWh)	Yet to be confirmed	Yet to be confirmed	Yet to be confirmed	Yet to be confirmed
		Rate of power consumption per m2 office commercial annual	50 kwh/m2	59.7 kwh/m2	70 kwh/m ²	250 kwh/m ²
		% reduction in peak power demand	50%	30%	10%	0%
	To reduce waste	% of reduction in all waste collection	50%	30%	20%	0%
		% of building materials recycled	100%	70%	50%	NA



ENVIRONMENTAL HEALTH						
KRA	KRA Objectives	KPI	Targets			
			Aspire	Agreed	Minimum	Current
Environmental Restoration	Water and Solis are remediated to ensure high quality which minimises environmental and infrastructure impacts	Surface and groundwater quality meeting Dept of Health standards	Yes	Yes	Yes	No
		Stormwater meets relevant standards	Yes	Yes	Yes	No
		% of contaminated sites that are ecologically remediated	100%	90%	90%	0%
		No increase in groundwater acidity (compared to 2010 levels) within the City	0%	0%	10%	n/a
	To increase the level of native biodiversity within the city centre	Number of declared rare native flora/fauna species compared to previous 5 years	Flora			
			31	20	10	0
			Fauna			
Environmental Sustainability	Ground water levels are restored to natural levels and flows	Groundwater levels are restored to optimum levels	Yes	Yes	Yes	No
		Min flow rate of stream water	15Kl/h	10Kl/h	5Kl/h	1Kl/h
	To increase vegetation cover in parks; private property, road reserves	% vegetation cover in parks	30%	25%	25%	15%
		% vegetation cover on private property	20%	20%	20%	10%
		% vegetation cover in road reserves	80%	70%	60%	10%
	A City where local, organic food is grown and sold	% roof space available for food gardens	50%	40%	30%	0%
		Number of viable growers markets within the city	1	1	1	0
		% POS covered by food gardens	30%	20%	10%	0%
	Improve air, noise and light quality and reduce impacts	Air quality meets relevant standards	Yes	Yes	Yes	No
		Noise level meets relevant standard	Yes	Yes	Yes	No
		Lumens per m2 over city centre	30%	20%	10%	NA

Vision

Create Stirling as a sustainable 21st century city – a place for everyone.
It will be a hub for a diverse and prosperous community offering wellbeing for all

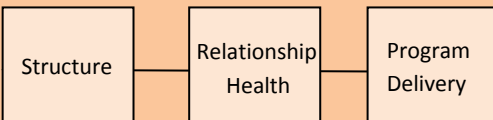


COMMUNITY WELLBEING						
KRA	KRA Objectives	KPI	Targets			
			Aspire	Agreed	Minimum	Current
Social Equity	To provide a variety of affordable diverse housing types and opportunities for small business	% of affordable housing	30%	20%	10%	0%
		% of single bed housing available	20%	15%	10%	1%
		% of family housing available	25%	20%	15%	90%
		Number of affordable sites zoned and reserved for markets	2	1	1	0
		Number of lots zoned for home business	300 lots	200 lots	100 lots	0
	Provide a diverse range of community, health and educational services and facilities	Min No of school sites reserved	2	2	1	0
		Min No of type of health facilities available (GP's, Allied Health, General Hospital, dentists etc)	4	4	3	3
		Min No of youth facilities/services available	5	3	2	0
		Min No of seniors facilitates /services available	5	3	2	0
		Min No of community facilities / services available (museum, library, performing arts etc)	5	3	2	0
Cultural Identity & attitudes	To provide a range of special purpose urban spaces	No of urban spaces available (town, market, station, civic square etc)	6	5	4	0
	To preserve and create a strong cultural and community identity	Level of social capital (membership of clubs, associations etc)	50%	40%	30%	20%
		Number of cultural events per month	7	5	3	0
		% of development in accordance with CEPTED principles	100%	80%	70%	20%
Community Health	To create a safe community with high levels of social capital	Capacity of licensed venues	120	120	120	unlimited
		% of people supporting development	80%	70%	60%	n/a

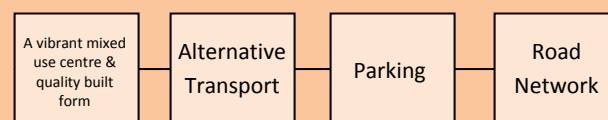
Vision

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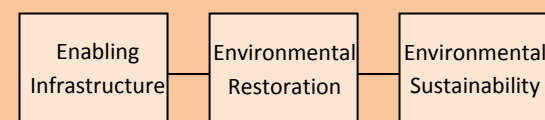
Governance



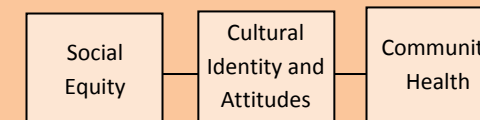
Accessibility and Urban Form



Environmental Health



Community Wellbeing



Economic Health



Economic Health

Economic Health						
KRA	KRA Objectives	KPI	Targets			
			Aspire	Agreed	Minimum	Current
Economic Investment and Development Feasibility	To maximise economic investment and feasibility of projects	No of investment mechanisms implemented (e.g. subsidies, legislative changes etc)	3	2	1	0
		% of projects / policies where economic viability/business cases / economic impact assessments are prepared	100%	80%	70%	20%
	To reduce the cost of capital and headwork infrastructure and maximise use of existing infrastructure	% Reduction in capital and headwork cost compared to Rawlinson's 2010 cost index	50%	20%	10%	0%
		% of existing infrastructure re-used / recycled	20%	15%	10%	0%
	Provide a high capacity communications network	% residents and businesses with high capacity communications network	100%	80%	50%	NA
		% of public areas with access to high capacity communications network	100%	80%	50%	NA
A Balanced and Diversified Economy	To high levels of diverse local employment	No of initiatives/programs provided to assist youth employment	3	2	1	0
		% of employment self sufficiency	80%	60%	25%	20%
		% of employment self containment	80%	60%	25%	20%
		Number of jobs within project area	30,000	25,000	20,000	4724
		No of strategic jobs	4000	3000	2000	1000
		No of KIEO industries within the city (i.e. Multimedia, and Sustainable Built Environment etc)	3	2	1	1
		% of commercial floor space that is non retail	80%	70%	60%	20%
		No of alternative business models in the city (e.g. co-operatives, business incubators etc)	3	2	1	0
Economic Identity	To promote a strong national economic identity for the City	No of programmes implemented that supports a strong economic identity e.g. marketing and branding etc).	3	2	1	0

