

appendices

Future Planning Committee



Future Planning Committee
20 June 2018

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8.1 Draft Local Planning Strategy – Victoria Park Towards 2050

Town of Victoria Park

TOWARDS 2050

Local Planning Strategy

TOWN OF VICTORIA PARK
LOCAL PLANNING STRATEGY

CERTIFICATION FOR ADVERTISING

Certified for advertising by the Western Australian Planning Commission on _____

Signed for and on behalf of the Western Australian Planning Commission

A duly authorised officer of the Commission (*pursuant to the Planning and Development Act 2005*)

ADOPTION AND SUBMISSION FOR APPROVAL

Supported for submission to the Western Australian Planning Commission for endorsement by resolution of the Town of Victoria Park at its Ordinary Council Meeting held on _____

MAYOR

CHIEF EXECUTIVE OFFICER

ENDORSEMENT

Endorsed by the Western Australian Planning Commission on _____

A duly authorised officer of the Commission (*pursuant to the Planning and Development Act 2005*)

Version Control

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EXECUTIVE SUMMARY

The Town of Victoria Park (the Town) has prepared a Local Planning Strategy (LPS) to outline the vision and strategic land use planning direction for the Town's future towards 2050. It has been prepared in accordance with the requirements of the Planning and Development Act 2005 and Planning and Development (Local Planning Schemes) Regulations 2015 and is shaped by various State Government and Council strategies, policies and plans, as well as community input.

The primary function of the LPS is to inform the preparation of a new Local Planning Scheme for the Town. It also provides broad direction for other land use planning-related initiatives that the Town will seek to undertake.

The LPS is arranged into two parts:

Part 1, which comprises:

- The overall strategy vision, principles and objectives.
- Specific strategies and actions to deliver various desired planning outcomes.
- Details relating to the implementation and review of the LPS.

Part 2, which comprises background information and analysis, including:

- The purpose of the LPS and the steps involved in its development.
- The State, regional and local planning context.
- A profile of the Town, its key planning issues and the factors that influence the direction of the LPS.

The Town sits at the eastern gateway to the City of Perth and has within its boundary the Burswood Peninsula containing Crown Perth, Belmont Park Racecourse and Perth Stadium and an educational and institutional precinct anchored by Curtin University and Technology Park, a significant main-street along Albany Highway and long-established residential areas, some with well-intact heritage character. Significant public transport infrastructure, a substantial frontage to the Swan River and the West Coast Eagles training facility and Perth Football Club at Lathlain Park are also features of the Town.

The Town has a current population of approximately 39,000 people and hosts around 35,000 jobs, with both figures having grown by about 35% in the past decade. The State Government has set a target for the Town to add 19,400 new dwellings by 2050, potentially seeing the population increase to around 75,000 people.

In engaging the community on its aspirations for the Town's future, a range of liveability values were expressed around the themes of where to best accommodate growth and development, the desire for innovative, people-oriented and sustainable urban design, retention of the Town's heritage and character and the provision of vibrant centres and high-quality civic infrastructure and green spaces.

Consistent with the broader vision for Perth and the Town's Sustainable Community Plan, the LPS seeks to capitalise on opportunities to:

- Transform land around the Town's rail stations into vibrant transit oriented developments, linked to main street destinations along Albany Highway.
- Create centres as diverse places to live, work and play with exciting activation and community engagement initiatives.
- Establish new community facilities and infrastructure and building on a strong and vibrant economy to support business, population growth and job creation.
- Maintain and enhance the Town's heritage, character and environment.

A range of strategies and actions have been identified, including multi-faceted approaches and partnerships with the public and private sector in pursuit of the Town's vision to be a dynamic place for everyone.

PART 1 – LOCAL PLANNING STRATEGY

1.0 Vision

Consistent with the Town’s Strategic Community Plan 2017-2032, the vision of the LPS is for the Town to be a dynamic place for everyone that is:

- Home to Perth’s most empowered and engaged community.
- Perth’s premier place for entertainment and entrepreneurship.
- A leader in sustainability.
- Somewhere that people come first in urban design and safety.
- Inclusive and connected, with a thriving community.

2.0 Planning Principles and Objectives

The principles that underpin the LPS similarly mirror the mission of the Strategic Community Plan. The mission is based on the four pillars of sustainability:

- Social
- Economic
- Environment
- Civic Leadership

The objective is for the Town to be a place for everyone that is sustainable, connected, safe, diverse, resilient and prosperous by focussing on achieving strategic outcomes for:

- A community that is healthy, informed and knowledgeable, empowered with a sense of pride, safety and belonging and has an awareness and appreciation of arts, culture, education and heritage.
- Provision of clean, safe and accessible places to visit, where the value of waste, water and energy is recognised.
- Provision of desirable places for commerce and tourism that support equity, diverse local employment and entrepreneurship.
- Land use planning that puts people first in urban design, allows for housing options for people with different needs and enhances the Town’s character.
- A safe, sustainable, interconnected, convenient and well-maintained transport network that makes it easy for everyone to get around.
- Appropriate and sustainable facilities that are well built, maintained and managed.
- Enhancement and protection of the Town’s natural environment and provide appropriate, inviting and sustainable green spaces that are well maintained and managed.

3.0 Strategies and Actions

Analysis of the regional and local planning framework, Town characteristics, trends and projections and community input outlined in Part 2 has led to the identification of various strategies and actions to achieve the vision, principles and outcomes set out above. Strategies and actions are arranged under the following headings:

- Economy, Employment and Activity Centres
- Population and Housing
- Urban Design and Heritage
- Recreation and Open Space
- Community Facilities
- Tourism and Visitors
- Environment
- Transport
- Infrastructure Services

3.1 Population and Housing

Strategy #	1
Provide housing development opportunities in identified areas where the capacity of infrastructure and services can support a more intensive form of development and the character and amenity of the neighbourhood would not be prejudiced.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En1 – Land use planning that puts people first in urban design, allows for different housing options for people with different housing needs and enhances the Town’s character.
Actions	
1.1	Undertake master planning, the preparation of form-based codes and the implementation of changes to local planning scheme and policy provisions for the following areas: <ul style="list-style-type: none"> • Burswood Peninsula • Causeway Precinct • Albany Highway Secondary Centre • Oats Street Station Precinct • Carlisle Station Precinct • Victoria Park Station Precinct • Curtin-Bentley Specialised Centre • Berwick Street/Canning Highway
1.2	Investigate opportunities through the preparation of a Local Housing Strategy for more intensive residential development in the following areas: <ul style="list-style-type: none"> • Areas identified in Action 1.1 • East Victoria Park interface with Curtin/Bentley Activity Centre • Along Urban Corridors shown on the Local Planning Strategy Map and other road corridors identified in Action 3.2 • The transition from the Albany Highway Activity Centre to lower density residential areas, where there are fewer original character dwellings remaining.

Strategy #	2
Facilitate well designed and connected urban environments providing a diversity of housing choice serving the needs of the Town’s population now and into the future.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En1 – Land use planning that puts people first in urban design, allows for different housing options for people with different housing needs and enhances the Town’s character.
Actions	
2.1	Consider the use of Scheme provisions that allow Council to negotiate development incentives where appropriate with developers proposing affordable housing.
2.2	Review Local Planning Policy 20: Design Guidelines for Developments with Buildings Above 3 Storeys, which contains sustainability requirements for high density residential, commercial or mixed-use developments, to ensure it remains up-to-date and relevant.
2.3	Consider the use of Scheme provisions to better provide for the development of alternative housing options, such as share houses and student housing.
2.4	Encourage dispersed small-scale accessible housing within residential areas for independent living for persons with disabilities or special needs through Scheme provisions and subject to location criteria: <ul style="list-style-type: none"> • Within or close to activity centres • In close proximity to public transport • In close proximity to major services such as shops, medical centres and similar.
2.5	Ensure that the local planning scheme maintains existing low density residential codes where appropriate to provide properties of sufficient size to cater for the needs of larger households.

3.2 Economy, Employment and Activity Centres

Strategy #	3
Facilitate the continued transition of the Town into a dynamic 'inner city' destination for residents, workers and visitors.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec1 – A desirable place for commerce and tourism that support equity, diverse local employment and entrepreneurship. En1 – Land use planning that puts people first in urban design, allows for different housing options for people with different housing needs and enhances the Town's character.
Actions	
3.1	Ensure that the planning initiatives referred to in Action 1.1 include provision for economic development, jobs creation and activation.
3.2	Provide for development of multi-functional corridors along key transport routes that support efficient movement, connections to and between activity centres, integration with transit and high amenity, including investigation of the potential for increased densities and a mix of land uses. The following roads within the Town have potential to form such corridors: <ul style="list-style-type: none"> • Canning Highway. • Albany Highway. • Causeway precinct. • Geddes Street. • Shepperton Road. • Orrong Road between Archer and Oats Streets. • Archer Street. • Oats Street/Hillview Terrace. • Berwick Street – Geddes to Kent Street. • Berwick Street – Hillview Terrace to Boundary Road. • Kent Street – Berwick Street to Jarrah Road, and • Carlisle train station.
3.3	Support the development of additional retail floorspace in accordance with the Activity Centres Strategy.
3.4	Formulate and implement a public realm strategy and place making strategies and place plans to activate and manage key centres and places in the Town.

Strategy #	4
Diversify and strengthen the Town's economic capacity and employment self-sufficiency through appropriate land use mix and built form outcomes specific to each of the Town's activity centres and station precincts.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec1 – A desirable place for commerce and tourism that supports equity, diverse local employment and entrepreneurship.
Actions	
4.1	Advocate that the State Government redefine the Burswood Peninsula as a specialised centre and the entire length of Albany Highway within the Town as a single Secondary Centre in the Perth region's activity centres network.
4.2	Review the zoning of Industrial zoned land in Welshpool and its interface with Residential zoned land in East Victoria Park and Carlisle in the context of opportunities to facilitate the creation of an origin and destination transit oriented development at the Oats Street station.
4.3	Designate the Albany Highway Secondary Centre as a 'Regional Centre' under the new local planning scheme.

Strategy #	5
Attract investment to the Town to provide a prosperous, diverse and resilient economy and a hub for business, education, technology and research.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec1 – A desirable place for commerce and tourism that support equity, diverse local employment and entrepreneurship.
Actions	
5.1	Partner with the State Government, Curtin University and other stakeholders for the continued development of Bentley-Curtin as a specialised centre for knowledge that evolves to become more urban with high-quality access.
5.2	Prepare and implement an Economic Development Strategy.
5.3	Support planning and development that leverages and stimulates economic development.
5.4	Enhance a regional approach to economic development and strategic planning and enhance partnership collaboration activity with Federal, State and Local Government agencies.

3.3 Urban Design and Heritage

Strategy #	6
Embrace and enhance the Town's Aboriginal and European heritage and character.	
Strategic Community Plan (2017-2032) - Strategic Outcome	S4 – A place where all people have an awareness and appreciations of arts, culture, education and heritage.
Actions	
6.1	Identify character areas that require protection through lower density residential coding and/or additional planning controls.
6.2	Update the heritage municipal inventory, designate heritage areas and establish heritage lists under the local planning scheme and take account of the Town's heritage assets and their contribution to Town character.
6.3	Reconnect with indigenous heritage, including investigation of potential recognition of sites with heritage significance and entry and exit art installations at Town borders and key Town attractions.
6.4	Investigate the potential for development of a heritage walking trail throughout the Town.

Strategy #	7
Promote excellence in built form outcomes for the Town that capture the identity and character of its neighbourhoods and centres and promote a sense of place and high standards of amenity and liveability.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En1 – Land use planning that puts people first in urban design, allows for different housing options for people with different housing needs and enhances the Town's character. S4 – A place where all people have an awareness and appreciations of arts, culture, education and heritage.
Actions	
7.1	Create points of difference between the two main retail nodes that comprise critical components of the Albany Highway Secondary Centre to: <ul style="list-style-type: none"> • Consolidate retail activity to the two main centres. • Diversify the retail offer. • Establish a unifying approach to landscaping, entry statements and small parks for each of the Centre's six sub-precincts. • Relax parking standards for non-residential uses. • Maximise density development opportunities within the walkable catchment of the Centre.
7.2	Encourage safe environments, community identity and high standards of urban design and sustainability through the local planning framework.
7.3	Develop and implement initiatives to activate laneways and other inactive public spaces in centres.
7.4	CPTED principles should be embedded in the planning framework to ensure that the built environment contributes to a safe public realm.

3.4 Recreation and Open Space

Strategy #	8
Ensure optimisation of environmentally sustainable recreation spaces, enhance parklands and ensure accessibility for all residents, workers and visitors.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec2 – A clean, safe and accessible place to visit. En6 – Appropriate, inviting and sustainable green spaces for everyone that are well maintained and well managed.
Actions	
8.1	Prepare a public open space strategy that considers: <ul style="list-style-type: none"> The definition of public open space and development of an inventory, classification system and maintenance standards for existing sites. A recreational needs analysis and assessment of notional POS supply deficiencies. Where population growth is projected to occur. Opportunity for usage and management. Alternative ways of providing for the community’s recreation needs.
8.2	Encourage the use of roof top gardens and other high quality and innovative landscaping treatments in private open space where appropriate.
8.3	Explore potential partnership opportunities with Curtin University for increased community access to its recreation facilities.
8.4	Develop master plans for Town reserves identified in the Sport and Recreation Facilities Strategy.
8.5	Incorporate sustainable design and equal access provision in the development of new and upgraded recreation facilities.
8.6	Provide land and facilities for recreation and other community use on the Burswood Peninsula.

Strategy #	9
Improve connectivity to the Swan River foreshore and enhance its health, amenity and landscape values.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec2 – A clean, safe and accessible place to visit. En2 – A safe, interconnected and well maintained transport network that makes it easy for everyone to get around. En6 – Appropriate, inviting and sustainable green spaces for everyone that are well maintained and well managed.
Actions	
9.1	Ensure that land use and development maintain and enhance the health, amenity and landscape values of the river foreshore, including its recreational and scenic values.
9.2	Provide well designed, safe and legible access to the Swan River foreshore for pedestrians and cyclists.

3.5 Community Facilities

Strategy #	10
Provide appropriate community facilities and services and a high level of accessibility to them for the current and future Town community.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En5 - Appropriate and sustainable facilities for everyone that are well built, well maintained and well managed.
Actions	
10.1	Ensure land is available to accommodate community needs and that community facilities are well-planned, fit for purpose and provide equal access for people of all abilities.
10.2	Work with the Department of Education and non-government school providers to address primary and secondary school needs in the Town, including provision of a new primary school in Burswood.
10.3	Consider the impact of land use and development proposals on Town assets and their future management, including community, recreation and transport facilities and other Town property.

Strategy #	11
Attract major cultural opportunities to meet the local and regional needs of residents, businesses and tourists.	
Strategic Community Plan (2017-2032) - Strategic Outcome	S4 – A place where all people have an awareness and appreciations of arts, culture, education and heritage.
Actions	
11.1	Concentrate commercial, health, education, entertainment and cultural developments in and around activity centres and corridors with good access to public transport.

3.6 Tourism and Visitors

Strategy #	12
Make the Town a desirable place to visit.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec1 – A desirable place for commerce and tourism that supports equity, diverse local employment and entrepreneurship. Ec2 – A clean, safe and accessible place to visit.
Actions	
12.1	Ensure that the local planning framework provides appropriate provisions for tourism-related development.
12.2	Address the rise of small-scale tourist accommodation, such as that which can be booked through emerging technologies like Airbnb, and its impact on local residential communities by ensuring policy guidance sets appropriate standards and location criteria.
12.3	Identify the nature and importance of tourism to the Town, including the type of facilities and attractions, their level of amenity and accommodation supply, gaps and opportunities.
12.4	Encourage tourism growth and development that reinforces the local tourism identity, including innovative tourist accommodation development and facilities to meet tourists' needs.
12.5	Identify service capacity and infrastructure projects that could potentially impact on tourism growth and visitors' experiences, including how tourists access accommodation and move between attractions.
12.6	Improve wayfinding and connections between Burswood Peninsula and the Albany Highway main street for tourists and visitors.

3.7 Environment

Strategy #	13
To promote sustainable, liveable, healthy and green places for everyone.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En1 – Land use planning that puts people first in urban design, allows for different housing options for people with different housing needs and enhances the Town's character. En4 – A clean place where everyone knows the value of waste, water and energy. En6 – Appropriate, inviting and sustainable green spaces for everyone that are well maintained and well managed. En7 – Increased vegetation and tree cover.
Actions	
13.1	Develop planning measures to protect water resources, apply water-sensitive urban design principles and ensure the efficient use of water, energy and other resources in the design, construction and maintenance of public and private development.
13.2	Ensure the planning framework provides for the conservation of ecological systems and biodiversity and protection of sites with environmental value from inappropriate use and development.
13.3	Avoid or minimise environmental degradation and hazards and prevent environmental problems that could arise from siting incompatible land uses close together or failing to consider the capability of land to accommodate proposed development.

13.4	Consider flood, fire, nuisance insects and acid sulphate soils risk in proposals for land use and development.
13.5	Prepare and implement strategies for the protection of significant bushland and increasing the amount of vegetation and tree canopy in the Town, including implementation of the recommendations of the Urban Forest Strategy.
13.6	Recognise and consider degraded or contaminated land and facilitate its rehabilitation or remediation for appropriate future use.
13.7	Implement as applicable the actions of the Town's Climate Change Adaptation Plan.

3.8 Transport

Strategy #	14
Provide an integrated urban transport system focussed on moving people effectively and efficiently within the Town, providing connections between suburbs, activity centres and major destinations.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec2 – A clean, safe and accessible place to visit. En2 – A safe, interconnected and well maintained transport network that makes it easy to get around. En3 – A place with sustainable, safe and convenient transport options for everyone.
Actions	
14.1	Improve wayfinding and connectivity to public transport, activity centres and recreation facilities through upgrades to the pedestrian and cycling network.
14.2	Encourage best-practice design and construction standards for new development proposals and new or redeveloped transport infrastructure proposals.
14.3	Capitalise on opportunities provided by implementation of the State Government's Metronet initiative in respect to improvements to public transport infrastructure and transit oriented development.
14.4	Utilise the Swan River as a way of connecting communities and attractions.
14.5	Develop and implement a Bike Plan for the Town.
14.6	Develop tools to measure public transport accessibility and link to development requirements within the local planning framework.
14.7	Ensure provision of land for public transport infrastructure within activity centres and along the Perth-Armadale railway.
14.8	Consider the need for planning provision for parking for key users, end of trip facilities for cyclists, travel plans and cash-in-lieu contributions for public parking or alternative transport modes.

Strategy #	15
Ensure that the movement of regional transport through the Town is managed whilst maintaining a high level of connectivity for local transport.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En2 – A safe, interconnected and well maintained transport network that makes it easy to get around. En3 – A place with sustainable, safe and convenient transport options for everyone.
Actions	
15.1	Ensure planning proposals for noise-sensitive land uses in close proximity to primary transport corridors address the potential for noise impacts and incorporate noise amelioration measures as appropriate.
15.2	Protect major transport corridors and freight operations from incompatible urban encroachment.
15.3	Advocate for the upgrade of Burswood rail station to provide an improved and safer user-experience for patrons and to support proposed development of land in the adjoining precincts.
15.4	Promote the conversion of the Perth Stadium rail station to a commuter station when appropriate in future to support additional development planned for the Burswood Peninsula.

15.5	Improve the level of accessibility in those parts of the Town where the rail corridor forms a physical barrier dividing the community, by advocating for sinking the railway and or grade-separating the Oats Street and Archer Street rail crossings.
15.6	Explore options for a light rail link between Curtin University and the City (and beyond) via the Albany Highway Secondary Centre, including investigate of the issues and benefits of routing light rail along Albany Highway (in addition to Shepperton Road as an alternative) and potential stop locations and land use/development integration.
15.7	Explore the potential for a bus service and/or light rail from the Causeway to the Burswood Peninsula to better connect the Peninsula to the City and Albany Highway Secondary Centre.
15.8	Ensure that development proposed under protected airspace over the Town appropriately addresses safety risks and applicable standards and requirements associated with aircraft flights in and out of Perth Airport.

Strategy #	16
Adopt a parking management approach that is focussed on providing access for people and not vehicles, supports sustainable transport modes and constrains parking demand.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En2 – A safe, interconnected and well maintained transport network that makes it easy to get around. En3 – A place with sustainable, safe and convenient transport options for everyone.
Actions	
16.1	Review planning provisions for managing on and off-street parking supply that reflect public transport accessibility and other more sustainable modes of transport and public parking availability.
16.2	Consider inclusion of provisions in the local planning framework requiring the construction of decked or multi-storey car parks with sufficient floor-to-ceiling heights that can be converted to other uses in the future should the need for on-site car parking be reduced over time.
16.3	Prepare and implement parking management plan/s.

3.9 Infrastructure Services

Strategy #	17
Ensure that utilities required for development and growth of the Town are provided in a timely and sustainable manner.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En5 – Appropriate and sustainable facilities for everyone that are well built, well maintained and well managed.
Actions	
17.1	Invest in infrastructure that stimulates growth and productivity.
17.2	Coordinate cost-efficient provision of infrastructure and services with new growth, possibly involving developer contribution arrangements to fund improvements in areas of fragmented land ownership.
17.3	Undertake early consultation with infrastructure service providers to determine the capacity of essential services and upgrading requirements for any new major development projects and developments areas within the Town.
17.4	Address sewer capacity/network issues that exist in Burswood and Carlisle.
17.5	Explore the potential for repurposing drainage sumps where appropriate so that land may be productively used or shared with other uses.
17.6	Continue to lobby the State Government to co-fund underground power conversions in suburbs where overhead power supplies remain in place.
17.7	Ensure that development proposed adjacent to high pressure gas mains that run through the Town appropriately addresses the safety risks and applicable development standards associated with the gas supply network.

4.0 Strategy Map

TOWARDS 2050 – TOWN OF VICTORIA PARK - LOCAL PLANNING STRATEGY MAP

Town of Victoria Park - A dynamic place for everyone.



Key Outcomes -

- Activity Centres that provide desirable places to live, learn, work and play:
 1. Burswood Peninsula Specialised Centre - major entertainment and tourism destination and transit-oriented, high intensity residential and mixed-use development.
 2. Causeway District Centre - city centre commercial and employment hub with entertainment and residential uses.
 3. Albany Highway Secondary Centre - vibrant, diverse main-street centre for entertainment, retail, commercial and residential uses in a form that is respectful of the Town's heritage and positively contributes to its identity.
 - 4-6. Victoria Park Station Precinct, Carlisle Station/Archer Street Precinct, Oats Street Station Precinct - activated, transit-oriented, mixed use areas that capitalise on their proximity to Perth, and the Albany Highway centre.
 7. Berwick Precinct - activated centre for office and residential development.
 8. Curtin/Bentley Specialised Centre - key hub for education, technology, research and institutional uses with increased housing and commercial development, high-quality access and improved connectivity with East Victoria Park.
- Urban Design, Land Use and Place Planning that:
 - Promotes excellent built form and high standards of amenity, liveability and attractions.
 - Embraces and enhances the Town's heritage and character.
 - Provides attractive places to work and visit.
- An integrated movement network:
 - That moves people within the Town connecting destinations and supports the more intensive development planned for activity centres.
 - That provides a range of high-quality transport options.
 - Where parking is managed to provide access for people and support sustainable transport modes.
- Protection and enhancement of the environment by:
 - Managing water, energy, other natural resources and waste.
 - Conserving ecological systems, bushland and biodiversity.
 - Increasing the Town's tree canopy.
- Open spaces and facilities that:
 - Meet community needs and are highly accessible.
 - Are sustainable, healthy, attractive and well-maintained.
- Infrastructure and utilities that:
 - Are well built, maintained and managed.
 - Support future growth and development of the Town.

LEGEND

- Industrial Centre
- Station Precinct
- Activity Centre
- Urban Corridor
- Urban
- Green Network
- + Rail Station
- Perth-Armadale Railway
- Primary Roads
- Secondary Roads
- F Possible Ferry Stop

Key Indicators of the Town's Transition		
	Now	2050+
Population	37,000	110,000
Dwellings	17,000	54,500
Jobs	35,000	99,000
Commercial Floorspace (m ²)	556,000	1,000,000
Retail Floorspace (m ²)	66,000	135,600
Tourists/year	5,000,000	20,000,000

This document is a conceptual illustration of the key strategic outcomes of the Town of Victoria Park's draft Local Planning Strategy. It is not drawn to scale and does not prevail over any adopted regional or local planning scheme, plan or policy. It should be read in conjunction with the complete Local Planning Strategy document.

5.0 Implementation

The LPS will guide Council and the State Government in executing their respective land-use planning responsibilities and initiatives. These include those related to the development and maintenance of a statutory planning framework, in addition to strategic planning initiatives.

Some actions identified in the LPS involve undertaking certain investigations or studies, while others will be implemented through the preparation, consideration and adoption of a new local planning scheme and subsequent amendments and new and revised planning strategies, plans and policies.

The LPS will also be taken into account where it is relevant to the determination of certain applications for planning approval.

6.0 Monitoring and Review

The LPS provides strategic planning direction for the Town towards 2050. It is focussed on such a timeframe given the long-term view of growth targets set for the Town by the State planning framework and the transformational nature and significance of the vision for the Town's future, which will take many years to realise.

Local authorities are required by legislation to review their planning schemes and therefore the over-arching strategic framework every five years. The Town could well undertake several reviews of its strategic planning framework between now and 2050 to ensure that strategies align with changes to State policy or community views and remain appropriate in the context of emerging planning issues.

This will necessitate regular monitoring of the progress made in implementing the actions identified in the LPS, as well as assessment of the currency and appropriateness of the LPS vision, principles and strategies.

The Town will monitor and report on its progress in implementing the LPS and maintain a close watching brief on the factors that influence planning for the Town and its future to ensure it can recognise and respond when any refinement to the planning direction is required.

PART 2 – BACKGROUND INFORMATION AND ANALYSIS

1.0 Introduction

Part 2 of the Town of Victoria Park’s Local Planning Strategy (LPS) provides the background information and analysis of key issues that underpin the strategic vision, objectives, strategies and actions for future planning and development of the Town contained in Part 1.

1.1 Town Location and Extent

The Town, as it currently exists, was formed in July 1994 as a result of the break-up of the City of Perth, though for several months was known as the Town of Shepparton until changed to the Town of Victoria Park following a residents’ petition that campaigned for this change of name.

The Town has a land area of 17.62km² and is comprised of the suburbs of Burswood, Carlisle, East Victoria Park, Lathlain and Victoria Park and parts of Bentley, Kensington, St James and Welshpool. In addition to bordering the City of the Perth, the Town adjoins the Cities of Belmont to the east, Canning to the south and City of South Perth to the west.

The Town sits at the eastern gateway to the City of Perth and has within its boundary the Burswood Peninsula containing Crown Perth, Belmont Park Racecourse and Perth Stadium and an educational and institutional precinct anchored by Curtin University and Technology Park, a significant main-street along Albany Highway and long-established residential areas, some with well-intact heritage character. Significant public transport infrastructure, a substantial frontage to the Swan River and the West Coast Eagles training facility and Perth Football Club at Lathlain Park are also features of the Town.

Figure 1: Town of Victoria Park Location Map

1.2 Purpose of the Local Planning Strategy

Western Australian planning legislation provides for local government authorities to prepare a local planning scheme as the principal statutory tool to regulate land use and development for their respective district. A LPS must be prepared as a precursor to the preparation of a new scheme and provide an interface between regional and local plans and set out the long-term planning direction and rationale for zoning and classification of land.

The Town’s current Town Planning Scheme No.1 (TPS 1) came into effect in September 1998. A review of TPS 1 was completed in July 2017 and coincided with the finalisation of the Town’s 2017-2032 Strategic Community Plan.

The Plan was shaped by an extensive and inclusive strategic planning and community engagement initiative, known as Evolve, which sets out a long-term vision for the Town’s future evolution as a dynamic and vibrant place with activated, well-connected and engaged centres for business, education, entertainment and living.

The TPS 1 review concluded that a new scheme needs to be prepared to reflect contemporary strategic and legislative requirements and the Plan’s vision for the Town’s future.

The draft LPS takes a long-term view over a timeframe that leads towards and beyond 2050. More specifically it:

- outlines the framework of regional and local planning strategies and policies that are applicable to the Town;
- sets out the context and characteristics of the Town; and
- provides strategic direction for future population and employment, shopping and business activities, transport, parks, open space and other public uses and a basis for the zones, reservations and statutory provisions to be contained in a new scheme, policies and plans.

1.3 Local Planning Strategy in the Planning Framework

The LPS has the function of interpreting State Government regional plans to the local context. Figure 2 shows the position of the LPS in the Town’s planning framework.

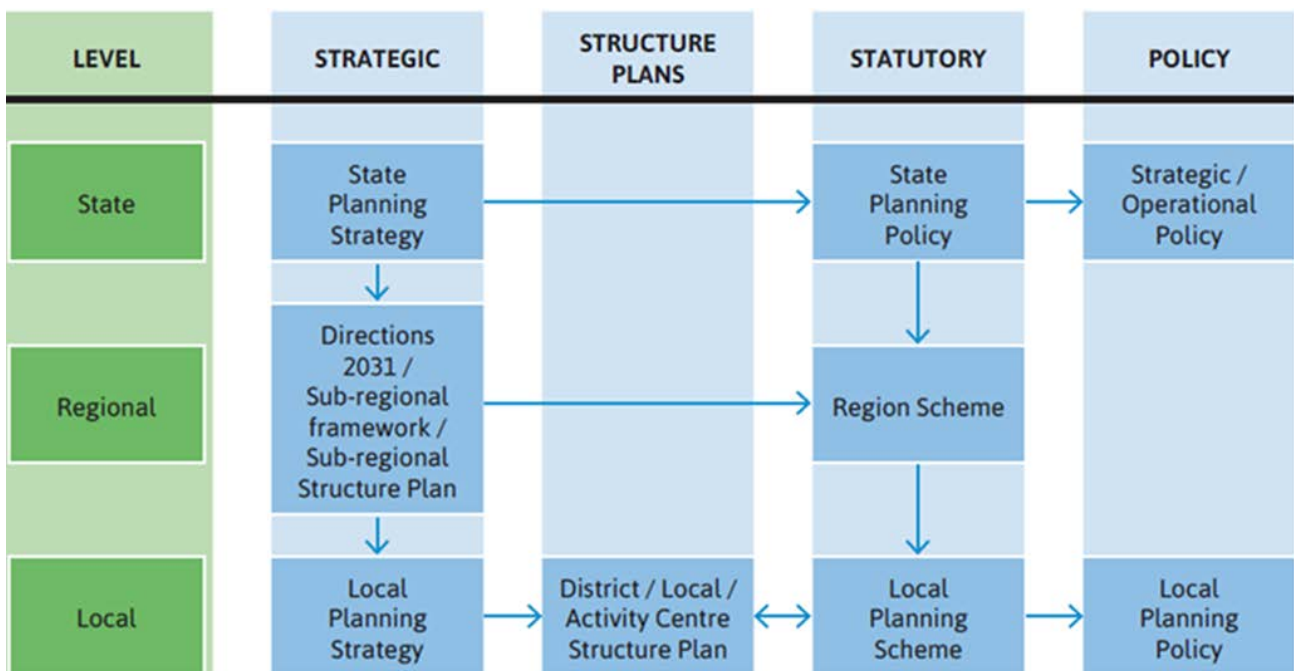


Figure 2: Local Planning Strategy in the Planning Framework

The relationship of the LPS to other key Town strategic plans is represented in Figure 3.



Figure 3: Relationship of LPS to other Town Strategies

1.4 Process for Preparation, Assessment and Endorsement of Local Planning Strategy

The Western Australian Planning Commission’s (WAPC) Local Planning Manual provides a guide to the preparation of a LPS. The Planning and Development (Local Planning Scheme Regulations) 2015 sets out the required process for the assessment and endorsement of a LPS. A summary of this process is illustrated in Figure 4.

Community engagement undertaken through the Evolve initiative to inform the development of the Strategic Community Plan had a significant emphasis on land use planning issues. A series of workshops, café conversations, online engagement and pop-up engagement was carried out over eight months to gain an understanding of the community’s needs, expectations and desires for the future. Workshops were dedicated to detailing the functions of the planning system and the significant role played by the State Government, where community sentiment on key planning issues and options was explored. The feedback collected has shaped the content of the LPS.

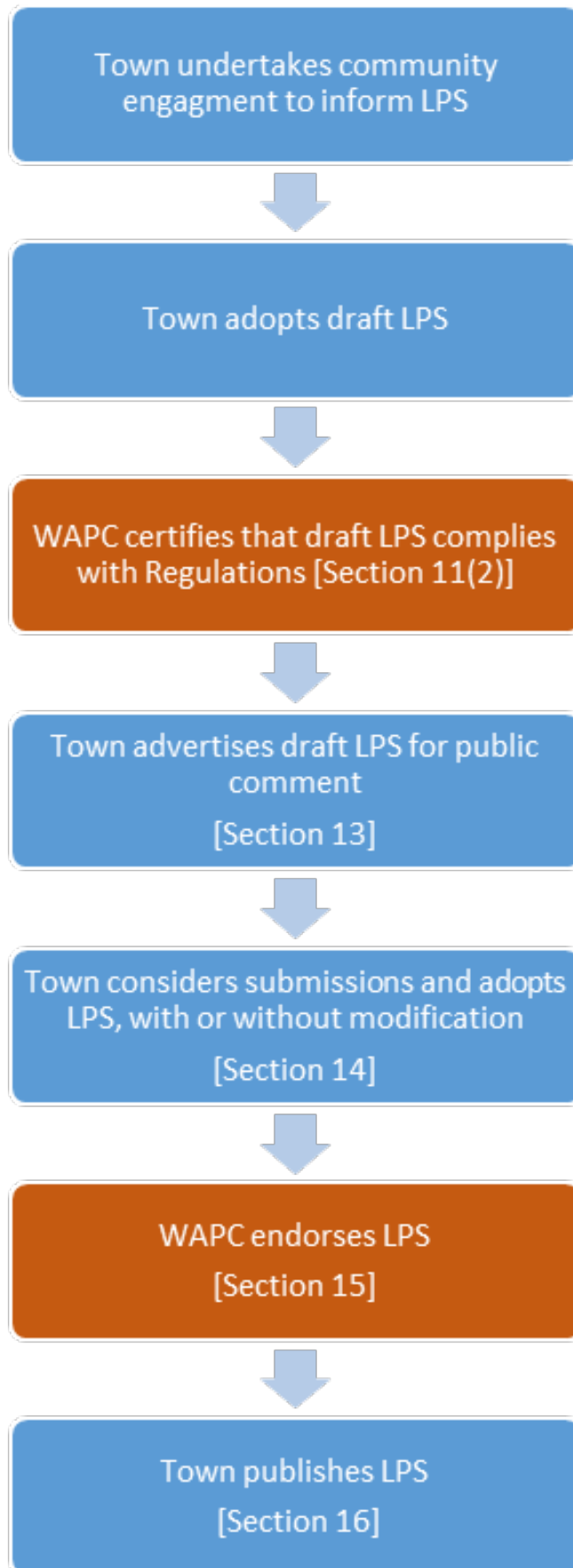


Figure 4: LPS Process

2.0 State and Regional Planning Context

The State Government’s planning framework is comprised of various strategies, legislation, policies, plans and guidelines that provide context for and shape and inform the strategic direction set out in Part 1 of the LPS. The main components of the State planning framework, its key features and the considerations relevant for the Town’s planning framework are summarised in the tables contained in following sections.

2.1 State Planning Strategies

Framework Component	State Planning Strategy 2050	
Prepared By	Western Australian Planning Commission	
Released	2014	
	Key Features	Considerations for the Town’s Planning Framework
	<ul style="list-style-type: none"> - High level strategic document that provides direction for State, regional and local planning strategies, plans and policies. - Recognises various global and local factors that provide a context for and influence the State’s future development and sets out a vision, supported by a set of principles, goals and strategic directions for sustained growth and prosperity with high standards of liveability and public health. - Strategy vision is for a diverse, liveable, connected and collaborative State. - Strategy principles relate to community, economy, environment, infrastructure, regional development and governance. - Strategy goals include aspirations for global competitiveness, strong and resilient regions, sustainable communities, infrastructure planning and coordination and conservation. - Strategy directions cover themes of economic development, physical and social infrastructure, environment and security. 	<ul style="list-style-type: none"> - Perth will remain as the main gateway to the State and function as its financial, administrative and social centre. Given its location in inner-Perth, the Town will have an important role in achieving the Strategy’s aspirations, particularly in respect to: <ul style="list-style-type: none"> - Land being available to accommodate population growth and provide for the needs of enterprise and the community, with infill and higher density housing optimised where appropriate. - Investing in infrastructure that stimulates growth and productivity. - Providing for efficient movement of people, goods and services through an integrated movement network and transit oriented development. - Attracting global capital and providing for a diverse, resilient economy. - Ensuring activity centres, public facilities and industrial areas are well-planned. - Being a leading educational, technology, knowledge and research centre. - Ensuring the efficient use of water, energy and other resources in the design, construction and maintenance of public and private development. - Providing the community with convenient access to jobs, activity centres, social and recreation opportunities and communication technology. - Creating a sense of place and belonging by protecting and enhancing local character and amenity and accommodating the housing and other social needs of a diverse community. - Ensuring a strategic approach to environmental planning.

Framework Component	State Sustainability Strategy	
Prepared By	Government of Western Australia	
Released	2003	
	Key Features	Considerations for the Town’s Planning Framework
	<ul style="list-style-type: none"> - Seeks to shape and advance the sustainability agenda throughout the State. - Contains a vision, principles, goals and concepts and presents global and local views and trends on to enhance awareness, understanding and increased involvement with sustainability directions and initiatives. 	<ul style="list-style-type: none"> - All settlements need to reduce their ecological footprint while improving the community’s quality of life. Key themes to address include: <ul style="list-style-type: none"> - reduction of energy usage and waste - access to sustainable modes of transport (walking, cycling and public transport) - triple-bottom line economic, social and environmental factors being considered equally in the planning process.

Framework Component	State Affordable Housing Strategy 2010-2020: Opening Doors to Affordable Housing	
Prepared By	Government of Western Australia	
Released	2010	
	Key Features	Considerations for the Town’s Planning Framework
	<ul style="list-style-type: none"> - Identifies actions to provide new opportunities and targets for the provision of affordable housing, including recommendations for planning policies and the approvals system to ensure efficient supply of land and housing types. 	<ul style="list-style-type: none"> - Refer to Section 4.4.8 – Housing Affordability.

<ul style="list-style-type: none"> - The WAPC subsequently released a Discussion Paper in 2013 that outlined a range of options for the planning system to support the development of affordable housing ranging from ensuring a diversity of housing types to the use of either voluntary incentives or mandatory provisions in planning schemes. - In 2014 the WAPC indicated its preference for the use of voluntary incentives in planning schemes to encourage affordable housing in new developments. 	
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2.2 State Planning and Other Legislation

Framework Component	Planning and Development Act	
Released	2005	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Provides a system of land use planning and development in the State, including provisions for: <ul style="list-style-type: none"> - Establishment and operation of the WAPC and Development Assessment Panels. - Preparation of State planning policies, region and local planning schemes and improvement plans. - Subdivision and development control. - Applications for review to the State Administrative Tribunal. 	<ul style="list-style-type: none"> - Requires that the Town regularly review its planning scheme. Related planning regulations require that any new scheme be informed by a LPS.

Framework Component	Planning and Development (Local Planning Schemes) Regulations	
Released	2015	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Establishes requirements for the form and content of local planning schemes and their operation and the process involved in their preparation, consideration, adoption and review. 	<ul style="list-style-type: none"> - A LPS must be prepared as a precursor to the preparation of a new planning scheme for the Town and provide an interface between regional and local plans and set out the long-term planning direction and rationale for zoning and classification of land.

Framework Component	Casino (Burswood Island) Agreement Act	
Released	1985	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Enacted to ratify and authorise the implementation of an agreement between the State Government and Burswood Property Trust to construct and operate a casino on the Burswood Peninsula. 	<ul style="list-style-type: none"> - The Act effectively removes a defined part of the Burswood Peninsula, known as the 'Resort Lands' and comprising iconic uses of land at Crown Casino and Perth Stadium, from zoning and development control provisions of the Metropolitan Region Scheme and local planning scheme. Notwithstanding that the Resort Lands lie outside of the Town's planning controls, the LPS should recognise the significance of the land uses and their inclusion in the definition of the Peninsula as a specialised centre in the Town's activity centres network.

Framework Component	Heritage of Western Australia Act	
Prepared By	Government of Western Australia	
Released	1990	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Provides for and encourages the conservation of places that have State cultural heritage significance, including: <ul style="list-style-type: none"> - Establishment and operation of the Heritage Council. - Establishment of the Register of Heritage Places. - Development assessment parameters. - Heritage agreements, conservation incentives and orders, penalties, acquisition and compensation. - Requirements for preparation of local heritage inventories. - Act has been under review and a new Heritage Act Bill was introduced to State Parliament in November 2017. 	<ul style="list-style-type: none"> - The Town has several places listed on the State Heritage Register and numerous places listed in its Municipal Heritage Inventory. The Town's heritage assets make a significant contribution to the character and sense of place and need to be taken into account in the planning direction to be contained in the LPS and future local planning scheme and policies.

Framework Component	Environmental Protection Act
Prepared By	Government of Western Australia
Released	1986
Key Features	Considerations for the Town's Planning Framework
<ul style="list-style-type: none"> - Provides for establishment of the Environmental Protection Authority (EPA) to prevent, control and abate pollution and environmental harm and conservation, preservation, protection, enhancement and management of the environment. 	<ul style="list-style-type: none"> - While not directly relevant to the LPS, the future proposed local planning scheme and any proposed amendments to it once established will require referral to the EPA to determine if formal assessment under the Act is necessary.

2.3 State Planning Policies and Guidelines

State planning policies are prepared and adopted by the WAPC under Part 3 of the Planning and Development Act 2005. The WAPC and local governments must have due regard to their provisions when preparing or amending local planning schemes and when determining applications for planning consent. The WAPC has also adopted operational policies and guidelines on various planning matters. Applicable policies and guidelines to the Town are summarised in the following tables.

Framework Component	Statement Planning Policy (SPP) 1 State Planning Policy Framework
Key Features	Considerations for the Town's Planning Framework
<ul style="list-style-type: none"> - Overarching policy that sets out key principles for land use planning decisions around the following themes: <ul style="list-style-type: none"> - Environment – to protect and enhance the key natural and cultural assets of the State and deliver a high quality of life based on environmentally sustainable principles. - Community – to respond to social changes and facilitate the creation of vibrant, safe and self-reliant communities. - Economy – to actively assist in the creation of regional wealth, support the development of new industries and encourage economic activity in accordance with sustainable development principles. - Infrastructure – to facilitate strategic development by making provision for efficient and equitable transport and public utilities. - To assist the development of regional Western Australia by taking account of the special assets and accommodating the individual requirements of each region. - Policy also sets out the arrangement of various State policies and regional strategies and plans as a defined planning framework. 	<ul style="list-style-type: none"> - The LPS and resulting new Town Planning Scheme should provide for planning decisions that aim to achieve the sustainable use and development of land, taking account of and giving effect to the Policy's principles, particularly in respect to: <ul style="list-style-type: none"> - Conservation of ecological systems and biodiversity. - Sustainable natural resource management. - Protection of sites with significant environmental values from inappropriate use and development. - Avoiding or minimising environmental degradation and hazards. - Preventing environmental and operational problems that could arise from siting incompatible land uses close together. - Accommodating future population growth and providing housing choice. - Providing land for community and cultural use, employment, commercial activity, industry, open space, education, health, infrastructure and tourism. - Integrating land use and transport planning to reduce the need for transport, promote the use of public transport and reduce the dependence on private cars. - Encouraging safe environments, community identity and participation and high standards of urban design. - Ensuring physical and community infrastructure is coordinated and provided in an efficient, accessible and timely way.

Framework Component	SPP 2 Environment and Natural Resources Policy
Key Features	Considerations for the Town's Planning Framework
<ul style="list-style-type: none"> - Defines the principles and considerations that represent good and responsible planning in terms of environment and natural resource issues, with the following objectives: <ul style="list-style-type: none"> - Integrate environment and natural resource management with broader land use planning and decision-making. - Protect, conserve and enhance the natural environment. - Promote and assist in the wise and sustainable use and management of natural resources. 	<ul style="list-style-type: none"> - The LPS and resulting new Town Planning Scheme should: <ul style="list-style-type: none"> - Avoid development that may result in unacceptable environmental damage. - Seek opportunities for improved environmental outcomes, including environmental restoration or enhancement. - Take account of the availability and condition of, and potential effects on, natural resources. - Protect significant natural, indigenous and cultural features. - Support conservation and management of native remnant vegetation, wetlands and waterways. - Take account of potential impacts from climate change on human activities, communities, natural systems, water resources and cultural heritage.

	<ul style="list-style-type: none"> - Encourage urban water management through water sensitive design and water conservation initiatives. - Consider flood risk in land use and development and the risks associated with nuisance insects. - Promote urban development patterns, densities and form that support reduced travel demand. - Have regard to the policies relevant to management of the potential for conflict between sensitive land uses and activities with air quality impacts. - Have regard to the capability of land to accommodate land uses and development and facilitate measures to reduce impacts on land, buildings and infrastructure. - Recognise and consider degraded or contaminated land and facilitate its rehabilitation or remediation for appropriate future use. - Consider mechanisms to protect areas of high biodiversity and conservation value and safeguard and enhance habitat corridors. - Promote energy efficient development and urban design and the retention of existing vegetation and revegetation in subdivision and development.
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Framework Component	SPP 2.8 Bushland Policy for the Perth Metropolitan Region	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Bush Forever (2000) identifies areas of vegetation within the Perth metropolitan region considered to have regional environmental significance. - SPP2.8 aims to secure long term protection of biodiversity and associated environmental values, recognises the protection and management of significant bushland areas as a fundamental consideration of the planning process and integrate and balance wider environmental, social and economic factors. 	<ul style="list-style-type: none"> - Only one Bush Forever Site is located within the Town (Site 48 – Kensington Bushland, Kent Street), which is afforded a high level of protection being reserved for Parks and Recreation and identified as a Bush Forever Area under the MRS. - SPP 2.8 suggests that local government prepare a local bushland protection strategy for all bushland located outside of Bush Forever sites and in the interim seek to identify and protect significant bushland through planning processes.

Framework Component	SPP 2.9 – Water Resources	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Provides additional guidance to SPP 2 on the consideration of water resources in land use planning processes. 	<ul style="list-style-type: none"> - The LPS and resulting new Town Planning Scheme should incorporate measures that reflect the policy's provisions relating to protection of significant environmental, recreation and cultural values of water resources.

Framework Component	SPP 2.10 Swan-Canning River System	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Provides a vision for the future of the Swan-Canning river system, guiding principles for future land use and development along the river system and performance criteria and objectives for specific precincts, including: <ul style="list-style-type: none"> - A regional framework for the preparation of precinct plans based on the precincts identified in the Swan River System Landscape Description; - A context for consistent and integrated planning and decision making in relation to the river; and - Guidance to ensure that activities, land use and development maintain and enhance the health, amenity and landscape values of the river, including its recreational and scenic values. 	<ul style="list-style-type: none"> - The Town's Swan River foreshore falls into the Perth Water and Lower Swan precincts. - For the Perth Water precinct, the policy recognises the importance of the Swan River for recreational, transport and commercial activities where the river has a mainly urban edge that has been largely modified. Public access and the protection of river views from key public places are a priority as well as ensuring that new development complements the river setting. - The Lower Swan precinct is characterised by a more natural landscape as the river meanders through a mix of high quality and degraded riverine vegetation. Protection and enhancement of foreshore vegetation is the priority for this precinct as well as enhancement of existing recreation, tourism and commercial nodes.

Framework Component	SPP 3 Urban Growth and Settlement	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Aims to facilitate urban growth and settlements, with a specific focus on urban sustainability, residential density and land use mix. Its objectives are to: <ul style="list-style-type: none"> - Promote a sustainable and well planned pattern of settlement, with sufficient and suitable land to provide for a 	<ul style="list-style-type: none"> - The LPS and resulting new Town Planning Scheme should reflect the following key elements of the policy's provisions in respect to managing urban growth in metropolitan Perth, planning for liveable neighbourhoods and coordination of services and infrastructure by:

<p>wide variety of housing, employment, recreation facilities and open space.</p> <ul style="list-style-type: none"> - Build on existing communities with established local and regional economies, concentrate investment in the improvement of services and infrastructure and enhance the quality of life in those communities. - Manage the growth and development of urban areas in response to the social and economic needs of the community and in recognition of relevant climatic, environmental, heritage and community values and constraints. - Promote the development of a sustainable and liveable neighbourhood form which reduces energy, water and travel demand whilst ensuring safe and convenient access to employment and services by all modes, provides choice and affordability of housing and creates an identifiable sense of place for each community. - Coordinate new development with the efficient, economic and timely provision of infrastructure and services. 	<ul style="list-style-type: none"> - Encouraging residential density in areas that are well-served by employment, services and public transport, such as near the Perth CBD, in and around activity centres and near higher education and areas of high amenity near the river. - Prioritising infill development in established urban areas, particularly through urban regeneration and intensification of under-utilised urban land, while respecting neighbourhood character. - Concentrating commercial, health, education, entertainment and cultural developments in and around activity centres and corridors with good access to public transport. - Developing an integrated land use and transport network to reduce car dependence and broaden travel options. - Protecting biodiversity and areas of environmental significance and promoting creation of an interlinked system of open space. - Protecting water resources and reducing use of non-renewable resources and waste generation. - Coordinating cost-efficient provision of infrastructure and services with new growth, possibly involving developer contribution arrangements to fund improvements in areas of fragmented land ownership.
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Framework Component	SPP 3.1 Residential Design Codes	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - The R-Codes provide a basis for the assessment of applications for planning approval for land subdivision and residential development throughout the State and have the following objectives: <ul style="list-style-type: none"> - Provide residential development of an appropriate design for the intended residential purpose, density, context of place and site and scheme objectives. - Encourage design consideration of the social, environmental and economic opportunities possible from new housing and an appropriate response to local amenity and place. - Encourage design which considers and respects heritage and local culture. - Facilitate residential development which offers future residents the opportunities for better living choices and affordability. - Ensure certainty, timely assessment and determination of proposals applied consistently across government. 	<ul style="list-style-type: none"> - The allocation of residential densities across the Town and formulation of local planning policies needs to be done in the context of the applicable R-Codes requirements. - The use of form-based codes should be considered to address issues that are unique to inner urban environments that cannot be appropriately addressed by the R-Codes.

Framework Component	SPP 3.5 Historic Heritage Conservation	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Applies to the conservation and protection of historic cultural heritage at both a state and local level and has the following objectives: <ul style="list-style-type: none"> - Conserve places and areas of historic heritage significance. - Ensure that development does not adversely affect the significance of heritage places and areas. - Ensure that heritage significance at both the State and local levels is given due weight in planning decision-making. - Provide improved certainty to landowners and the community about the planning processes for heritage identification, conservation and protection. 	<ul style="list-style-type: none"> - The Town's planning framework should incorporate the following policy measures: <ul style="list-style-type: none"> - Identification of heritage places through a municipal inventory. - Designation of heritage areas and establishment of heritage lists under the local planning scheme. - Development control and assessment principles and provisions for heritage places and areas.

Framework Component	SPP 3.6 Development Contributions for Infrastructure	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Sets out the principles and considerations that apply to development contributions for the provision of infrastructure in new and established urban areas, and the form, content and process to be followed. The policy has the objectives of: 	<ul style="list-style-type: none"> - The establishment of development contribution arrangements may need to be considered as a means to fund the upgrading of infrastructure needed in areas subject to development, regeneration or other change. Arrangements are usually formally established under the local planning scheme.

<ul style="list-style-type: none"> - Promoting the efficient and effective provision of public infrastructure and facilities to meet the demands arising from new growth and development. - Ensuring that development contributions are necessary and relevant to the development to be permitted and are charged equitably among those benefiting from the infrastructure and facilities to be provided. - Ensuring consistency and transparency in the system for apportioning, collecting and spending development contributions. - Ensuring the social well-being of communities arising from or affected by development. 	
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Framework Component	SPP 3.7 Planning in Bushfire Prone Areas	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Provides a basis for land use planning to address bushfire risk management, particularly for structure plans, subdivision and development proposals for bushfire prone areas. 	<ul style="list-style-type: none"> - The Department of Fire and Emergency Services has mapped several locations throughout the Town as being bushfire prone (Swan River foreshore at Belmont Park Racecourse and Rivervale, Kensington Bushland, Hillview Terrace Bushland). Bushfire risk associated with these areas should be addressed in any proposed structure plan or subdivision, development or building permit applications.

Framework Component	SPP 4.1 Draft State Industrial Buffer	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Provides a state wide approach to the definition and securing of buffer areas around industry, infrastructure and special uses, to both protect sensitive uses from impacts of industry and avoid non-compatible uses impacting on the effective operation of industry. - Note also, Environmental Protection Authority Guidance Note – Separation Distances between Industrial and Sensitive Land Uses GS 3). 	<ul style="list-style-type: none"> - The interface between Industrial zoned land in Welshpool and Residential zoned land in East Victoria Park and Carlisle needs to be considered in any proposal for change of zoning or new or extended development.

Framework Component	SPP 4.2 Activity Centres for Perth and Peel	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Specifies broad planning requirements for the planning and development of new activity centres and the redevelopment and renewal of existing centres in Perth and Peel. It is mainly concerned with the distribution, function, broad land use and urban design criteria of activity centres, and with coordinating their land use and infrastructure planning. - Promotes the integration of activity centres with public transport, ensuring they contain a range of activities to promote community benefits through infrastructure efficiency, economic benefits of business clusters and lower transport energy use and associated carbon emissions. - Encourages consolidated residential and commercial development in activity centres so that they contribute to a balanced network. - Establishes a hierarchy of activity centres for Perth: <ul style="list-style-type: none"> - Capital City - Strategic metropolitan centres - Secondary centres - Specialised centres - District centres - Neighbourhood centres (supplemented by local centres) 	<ul style="list-style-type: none"> - The following Town centres are identified in SPP 4.2: <ul style="list-style-type: none"> - Secondary Centre - Victoria Park. - District Centres - East Victoria Park, Oats Street, Burswood. - Specialised Centre – Curtin/Bentley. - The Activity Centres Strategy (see sections 3.5 and 4.5) reviewed this aspect of SPP 4.2 and concluded that: <ul style="list-style-type: none"> - The entire length of Albany Highway within the Town should be designated as a single Secondary Centre. - The Burswood Peninsula should be designated as a Specialised Activity Centre.

Framework Component	SPP 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Promotes a system in which sustainable land use and transport are mutually compatible, with objectives to: <ul style="list-style-type: none"> - Protect people from unreasonable levels of transport noise by establishing a standardised set of criteria to be used in the assessment of proposals; 	<ul style="list-style-type: none"> - Schedule 1 to the policy identifies the following roads within the Town as Primary Freight Roads: <ul style="list-style-type: none"> - Orrong Road/ Graham Farmer Freeway - Shepperton Road - Canning Highway/Great Eastern Highway

<ul style="list-style-type: none"> - Protect major transport corridors and freight operations from incompatible urban encroachment; - Encourage best-practice design and construction standards for new development proposals and new or redeveloped transport infrastructure proposals; - Facilitate the development and operation of an efficient freight network; and - Facilitate the strategic co-location of freight handling facilities. 	<ul style="list-style-type: none"> - Welshpool Road - The Armadale/Thornlie passenger rail line is also identified as a key item of transport infrastructure. - Planning proposals for noise-sensitive land uses in close proximity to primary transport corridors (100-200m depending on type of transport route) need to address the potential for noise impacts and incorporate noise amelioration measures as appropriate.
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Framework Component	Development Control Policy 1.6 - Planning to Support Transit Use and Transit-Oriented Development	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Seeks to maximise the benefits to the community of an effective and well used public transit system by promoting planning and development outcomes that will support and sustain public transport use. - Applies to the drafting of local planning strategies and consideration of planning proposals within defined transit oriented precincts. Also applies to consideration of network changes. - Promotes transit-supportive development layout/structure and land use, investment in public domain in transit precincts, precinct planning and transit/land use integration. 	<ul style="list-style-type: none"> - Given the existence of five rail stations in the Town and several high-frequency bus services that pass through, most of the Town is defined in the Policy as a transit oriented precinct. - Significant potential exists for activating land around each rail station, along key bus routes and in and around the commercial and specialised centres throughout the Town with additional development for a mix of employment, entertainment, residential and community uses and investment in the public realm. Pursuit of this potential is a key plank of the LPS.

Framework Component	Structure Plan Framework and Local Development Plan Framework	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Sets out the manner and form in which structure plans, activity centre plans and local development plans are to be prepared and considered. 	<ul style="list-style-type: none"> - To be applied to the preparation and consideration of local structure plans and development plans for areas that require detailed planning.

Framework Component	Liveable Neighbourhoods	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Operational WAPC policy applied to structure plans and large-scale subdivision proposals for new urban land and infill precincts. 	<ul style="list-style-type: none"> - To be applied to the preparation and consideration of local structure plans for areas that require detailed planning. - Provides principles and standards to benchmark established communities against contemporary 'best practice' new sustainable community development principles, such as for foreshore reserves and public open space and the provision of land for community facilities.

Framework Component	Design WA (draft)	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - State Government initiative to ensure good design is at the centre of all development proposals and cities, towns and neighbourhoods are created where people want to live, work and socialise. - Stage 1 of the initiative includes the following draft documents: <ul style="list-style-type: none"> - State Planning Policy for Design of the Built Environment, with ten principles for good design and requirements and guidelines for expert design review as part of the evaluation process. - Apartment Design Policy, for apartments and mixed use developments to replace Part 6 of the R-Codes. - Design Skills Discussion Paper. 	<ul style="list-style-type: none"> - Town Local Planning Policies may need review upon finalisation of the Stage 1 documents.

Framework Component	Better Urban Water Management (2008)	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - The State Government's Better Urban Water Management guideline has been designed to facilitate better management of urban water resources by ensuring an appropriate level of consideration is given to the total water cycle at each stage of the planning process. It also provides guidance on the implementation of State Planning Policy 2.9 Water Resources. 	<ul style="list-style-type: none"> - A local planning strategy should identify objectives for water resource management, together with other environmental, social and economic issues in the local government area, and propose strategies to achieve these objectives. Implementation of strategies, together with timing and responsibilities, should be identified and incorporated into the local planning strategy where possible.

2.4 Regional Strategies, Plans and Schemes

A series of plans for the Perth region have been prepared over the course of time and have direct implications for planning the Town. The most significant of the current plans are summarised in the following tables.

Framework Component	Directions 2031 and Beyond	
Prepared By	Western Australian Planning Commission	
Released	2010	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - High-level strategic plan that establishes a vision for future growth of the Perth and Peel region, building on the themes identified in Network City (2005) and based on a 'Connected City' scenario. - Targets an increase in population of the Perth and Peel region to 2.2 million by 2031, requiring an additional 328,000 dwellings and 353,000 jobs, with 121,000 new dwellings and 147,000 new jobs in the 19 local authorities that comprise the Central sub-region. - Aims to guide planning and delivery of housing, infrastructure and services necessary to accommodate and manage population growth, including increased emphasis on infill development and therefore increased residential densities in established urban areas. - Sets out a range of initiatives for a liveable, prosperous, accessible, sustainable responsible city. 	<ul style="list-style-type: none"> - Most of the Plan's initiatives apply broadly to the Perth/Peel region. More locally, the Plan identifies a network of activity centres in the Town including designation of Curtin/Bentley as a Specialised Centre, Victoria Park as a Secondary Centre and East Victoria Park and Burswood as District Centres. Burswood is also identified as a Metropolitan Attractor. Variation to the composition of the activity centres network is warranted in respect to: <ul style="list-style-type: none"> - Burswood Peninsula – should be designated as a Specialised Centre to reflect the unique nature and variety of land uses, including Crown Perth, Belmont Park Racecourse, Perth Stadium and existing and proposed high density residential, mixed use and entertainment uses. - Albany Highway – the whole of the section of the highway within the Town should be designated as a Secondary Centre to reflect the nature of the main street as a sizeable, continuous activity centre, albeit with nodes of different character. - An additional dwellings target of 11,200 by 2031 is set for the Town, though this is superseded by the revised target contained in the Central Sub-Region Planning Framework (see below).

Framework Component	Perth and Peel @ 3.5 million	
Prepared By	Western Australian Planning Commission	
Released	2015	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Builds on the vision set out in <i>Directions 2031</i>, expanding the future horizon to 2050 and adjusting up the population forecast for the Perth/Peel region to 3.5 million. - Plan is accompanied by planning frameworks for four sub-regions (including the Central Sub-Region). - Key challenges to be met in this time frame include: <ul style="list-style-type: none"> - Accommodating significant population growth (in the order of 1.5 million additional people). - Increasing the proportion of infill development and managing further greenfield development (2014 rates of infill development were around 28%, but need to rise to 47% by 2050). - Achieving a connected city growth pattern – new jobs and dwellings need to be focussed on existing activity centres integrated with efficient public transport. - Increasing housing diversity and affordability – 78% of the current housing supply comprises detached houses and greater diversity is required for an ageing population and diverse households. - Reducing car dependency – the cost of Perth's congestion was estimated at about \$1billion in 2009 and by 2020 could be more than \$2.1 billion. - Achieving efficient use of water sources in a drying climate – 43% of potable water supply is from groundwater, 39% from desalination and 18% from dams and these proportions will need to change as the climate changes and population grows. - Ensuring the region's environmental assets are protected – the regions sit within Australia's only global biodiversity hotspot. - Maintaining liveability – affordable housing is different to 	<ul style="list-style-type: none"> - The LPS needs to address the growth forecasts and employment and dwelling targets set for the Town, as well pursue objectives for activity centres, public transport utilisation, green corridors and areas of natural environment conservation (see Central Sub-Region Structure Plan table).

affordable living as it is not always cheaper to live in outer urban areas as higher costs of transport, utilities and other service costs add to total living costs.	
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Framework Component	Central Sub-Regional Planning Framework															
Prepared By	Western Australian Planning Commission															
Released	2018															
	Key Features	Considerations for the Town's Planning Framework														
	<ul style="list-style-type: none"> - The Central Sub-Region covers 19 inner ring local authorities, including the City of Perth and the Town. The region has the largest concentration of people and jobs and will accommodate much of the future population growth forecast in <i>Directions 2031 and Perth and Peel @ 3.5 million</i>. - Focuses on achieving a higher level of infill residential and employment development within the existing built environment by making better use of established infrastructure. - Advocates greater use of activity centres, transport corridors and transit station precincts to support a diversity of higher-density accommodation close to jobs and amenities, while ensuring urban development does not encroach on existing industrial centres and the green network. - Key targets include: <ul style="list-style-type: none"> - Population increase from 782,947 (2011) to 1.2 million (2050) - the area will need approximately 780,000 jobs by 2050 jobs, up from 546,121 (2011) - more than 11,000 hectares of land will be conserved for green open space - 215,000 additional dwellings will be needed to reach the 2050 infill target. Six of the 19 Central Sub-Regional local governments are proposed to accommodate about 150,000 additional dwellings, as follows: <table border="1"> <thead> <tr> <th>Local Government</th> <th>Infill Housing Target</th> </tr> </thead> <tbody> <tr> <td>Stirling</td> <td>60,400</td> </tr> <tr> <td>Canning</td> <td>19,600</td> </tr> <tr> <td>Victoria Park</td> <td>19,400</td> </tr> <tr> <td>Melville</td> <td>18,500</td> </tr> <tr> <td>Perth</td> <td>16,000</td> </tr> <tr> <td>Bayswater</td> <td>15,800</td> </tr> </tbody> </table>	Local Government	Infill Housing Target	Stirling	60,400	Canning	19,600	Victoria Park	19,400	Melville	18,500	Perth	16,000	Bayswater	15,800	<ul style="list-style-type: none"> - Achievement of the additional dwelling target form the Town of 19,400 will require a multi-faceted approach to facilitating growth in designated areas. This is a key focus of the LPS. - As discussed in section 2.3, 2.4 and 4.5, two variations to the activity centres hierarchy for the Town are warranted: <ul style="list-style-type: none"> - The entire length of Albany Highway within the Town should be designated as a single Secondary Centre. - The Burswood Peninsula should be identified as a Specialised Activity Centre. - The Framework supports development of multi-functional corridors along key transport routes that support efficient movement and high amenity and recommends that they be a focus for investigation of increased densities and a mix of land uses. The following roads within the Town have potential to form such corridors: <ul style="list-style-type: none"> - Canning Highway. - Albany Highway. - Causeway precinct. - Geddes Street. - Shepperton Road. - Orrong Road between Archer and Oats Streets. - Archer Street. - Oats Street/Hillview Terrace. - Berwick Street – Geddes to Kent Street. - Berwick Street – Hillview Terrace to Boundary Road. - Kent Street – Berwick Street to Jarrah Road, and - Carlisle train station.
Local Government	Infill Housing Target															
Stirling	60,400															
Canning	19,600															
Victoria Park	19,400															
Melville	18,500															
Perth	16,000															
Bayswater	15,800															

Framework Component	Public Transport Plan for Perth in 2031 (and Metronet)	
Prepared By	Perth Transport Authority	
Released	2011	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Outlines the future public transport network within the Perth region by 2031, with a focus on increasing capacity of the existing network and expanding it to service a broader area. Election of the Labor Government in 2017 saw the adoption of Metronet initiative, which has resulted in several changes to the composition of the planned future network and the timing of its delivery. 	<ul style="list-style-type: none"> - The Plan envisaged the Town in 2031 would be serviced by the existing railway (extended beyond Armadale to Byford), bus services and a new light rail system service linking Curtin University and Oats Street station to Perth and beyond. It is understood that the Plan is now under review. - Metronet is not pursuing light rail as a priority, however it is important that the Town's planning framework protect the potential for its future provision. Stage 1 Metronet projects of relevance to the Town include installation of a grade-separated railway crossing at Oats Street, extension of the Perth to Thornlie railway to Cockburn Central and planning for the Byford extension. These projects will provide benefits to the Town in terms of increased convenience and accessibility to other parts of the Perth region.

Framework Component	Transport @ 3.5 Million – Perth and Peel Transport Plan	
Prepared By	Department of Transport, Public Transport Authority & Main Roads Western Australia	
Released	2017	
	Key Features	Considerations for the Town's Planning Framework

- Objectives of the Plan are to integrate land use with transport networks, deliver high frequency rapid transit connected with efficient public transport feeder services and provide a safe, connected arterial road network for the efficient distribution of people and freight.	- Largely reflects the draft Public Transport Plan for Perth in 2031, except that it proposes extension of the light rail system beyond Curtin University to Canning Bridge by 2050. - Proposes additional pedestrian bridges across the Swan River between Heirisson Island and Belmont Racecourse by 2050.
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Framework Component	Capital City Planning Framework	
Prepared By	WAPC	
Released	2013	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Forms a framework for planning of central Perth, including an area within a 12 kilometre by 12 kilometre frame around the city centre. - Builds on the Directions 2031 vision for Perth to be a world class liveable central city; green, vibrant, compact and accessible with a unique sense of place. Sets out the following objectives: <ul style="list-style-type: none"> - Become a more liveable city. - Enhance sense of place. - Reconnect with indigenous heritage. - Provide for a growing and diverse residential population. - Reduce the city's resource footprint, including greenhouse gas emissions. - Build robustness against climate change. - Build the knowledge and cultural economy. - Reduce dependency on private cars. - Build a compact central Perth. - Provides a spatial plan for Perth with a range of urban development types and examples of desirable land use, public realm, built form and access characteristics for each development typology. 	<ul style="list-style-type: none"> - The Framework sets out the following actions of relevance to the Town: <ul style="list-style-type: none"> - Major growth on the Burswood Peninsula is envisaged and further planning is required. - Continued development of Bentley-Curtin as a specialised centre for knowledge is a high priority. The centre should evolve to become more urban with high-quality access. - Intensification of development should be mainly within activity centres and along main streets and transit corridors. - Plan to add vibrancy to main streets and activity centres with a mix of uses. - Maintain character housing in the Town. - Maintain and evolve main street characteristics and activity along Albany Highway. - Utilise the Swan River as a way of connecting communities and attractions. - The spatial plan provides a conceptual illustration of these actions. The LPS builds on and refines these concepts based on further detailed analysis and consideration.

Framework Component	Economic and Employment Land Strategy	
Prepared By	WAPC	
Released	2012	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Focuses on the identification and de-constraining of land suitable for industrial activity to create an industrial land bank for the future and provide for a coordinated and proactive approach to facilitate zoning and development of identified land for industrial use. 	<ul style="list-style-type: none"> - Welshpool is identified as an existing industrial area, portion of which is located within the Town and in close proximity to Oats Street rail station. - Considerable scope exists to create a high intensity, mixed-use development as part of an activity centre around the station, where some land is currently zoned Industrial under the Metropolitan Region Scheme. Rezoning would be required to facilitate creation of an origin and destination transit oriented development and provide potential to allow for development of non-industrial uses to provide a buffer between existing industrial uses to remain and the adjoining residential area.

Framework Component	Metropolitan Region Scheme (MRS)	
Prepared By	Government of Western Australia	
Released	1963 and since amended	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Statutory land use scheme for the Perth Metropolitan Region. - Principal functions are to assign zones for the use of land and reservations for the provision of infrastructure and areas for regional open space and other community purposes. - Local government town planning schemes are required to complement the MRS by detailing more specific land use classifications and development standards for zoned land. The reservation of land under the MRS applies automatically in the same manner under a local authority planning scheme. 	<ul style="list-style-type: none"> - Zoning and reservation of land under the Town Planning Scheme will continue to need to be consistent with the MRS, including the following existing reserves: <ul style="list-style-type: none"> - Parks and Recreation - incorporating the Swan River foreshore and adjoining parklands, Lathlain Park and Kensington bushland. - Public Purposes - educational establishments at Curtin University, Bentley and Carlisle TAFE Colleges, Canning College and Kent Street High School. - Railways - Perth to Armadale Railway. - Primary Regional Roads – Graham Farmer Freeway, portion of Orrong Road, Great Eastern and Canning Highways and Shepperton Road.

	<ul style="list-style-type: none"> - The Industrial zoning of parts of Carlisle/Welshpool may ultimately require review to align with plans to facilitate future transit oriented development in close proximity to Oats Street train station as part of major activation of the station precinct and its linkage to the Albany Highway centre.
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Framework Component	Swan Canning River Protection Strategy	
Prepared By	Department of Parks and Wildlife & Swan River Trust	
Released	2016	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Provides a blueprint for managing the Swan Canning Riverpark, including responsibilities for numerous State government agencies and local governments to protect and maintain the ecological values, community benefits and amenity of the Riverpark. 	<ul style="list-style-type: none"> - Calls for the application of water sensitive design principles and guidelines and use of local planning schemes and policies to achieve a net reduction in nutrient inputs from land development.

Framework Component	Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region	
Prepared By	WA Local Government Association	
Released	2004	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Provide guidance for local government to better protect natural areas by preparing Local Biodiversity Strategies. 	<ul style="list-style-type: none"> - Recommends that local planning schemes include appropriate zonings and provisions to allow formal recognition and protection of locally significant natural areas.

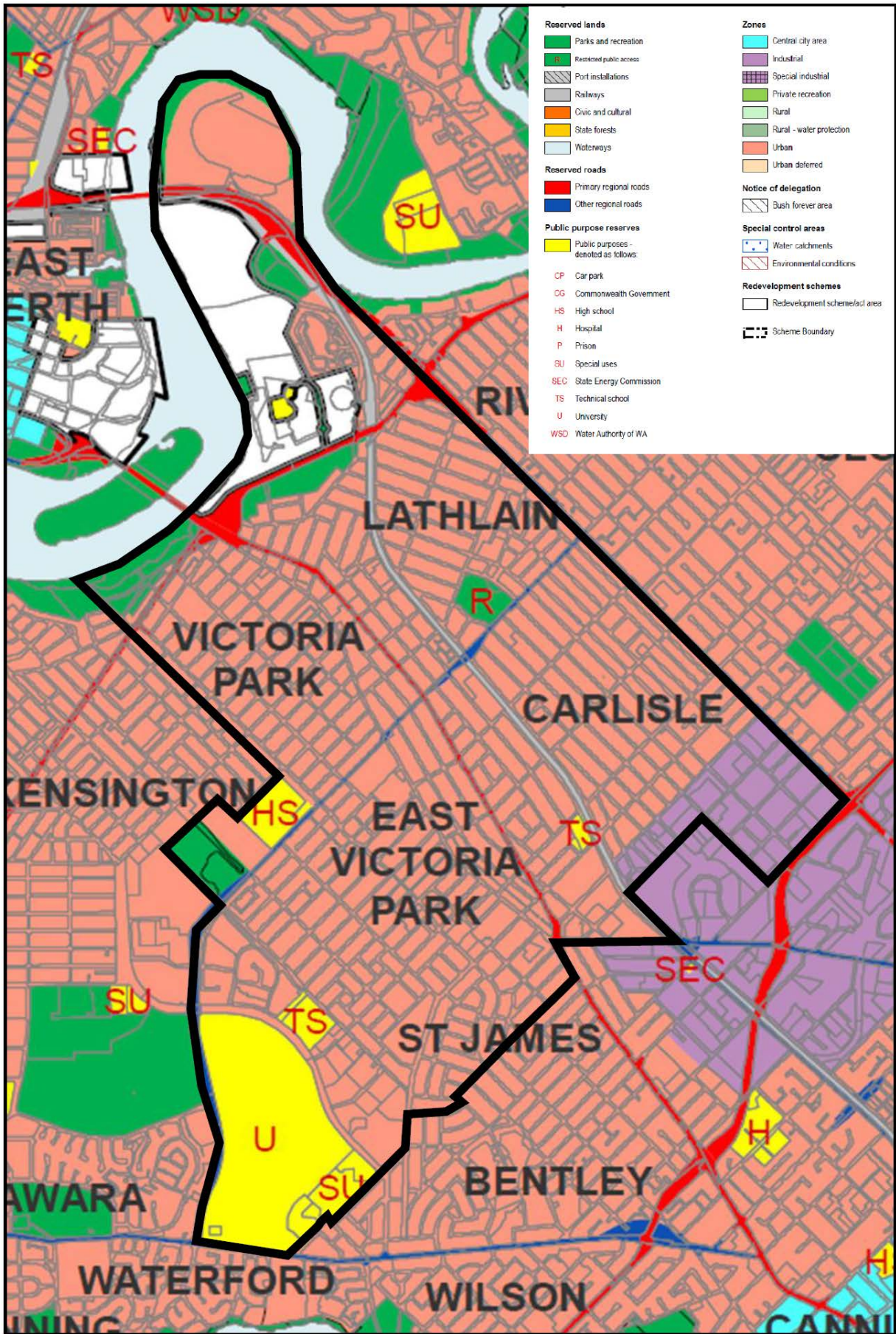


Figure 5: Extract from the Metropolitan Region Scheme Map (as at March 2018)

3.0 Local Planning Framework

The Town’s current local planning framework is comprised of various strategies, schemes, policies, plans and guidelines.

The main components of the current framework and key future considerations are summarised in this section.

Revision to elements of the framework will be necessary to fulfil the vision and objectives set out in Part 1 of the LPS.

3.1 Local Planning Schemes

The Town of Victoria Park - Town Planning Scheme No.1 (TPS 1) was gazetted in September 1998 and has since operated as the principal statutory land use and development plan for the Town. It consists of a scheme text, scheme map and 13 precinct plans.

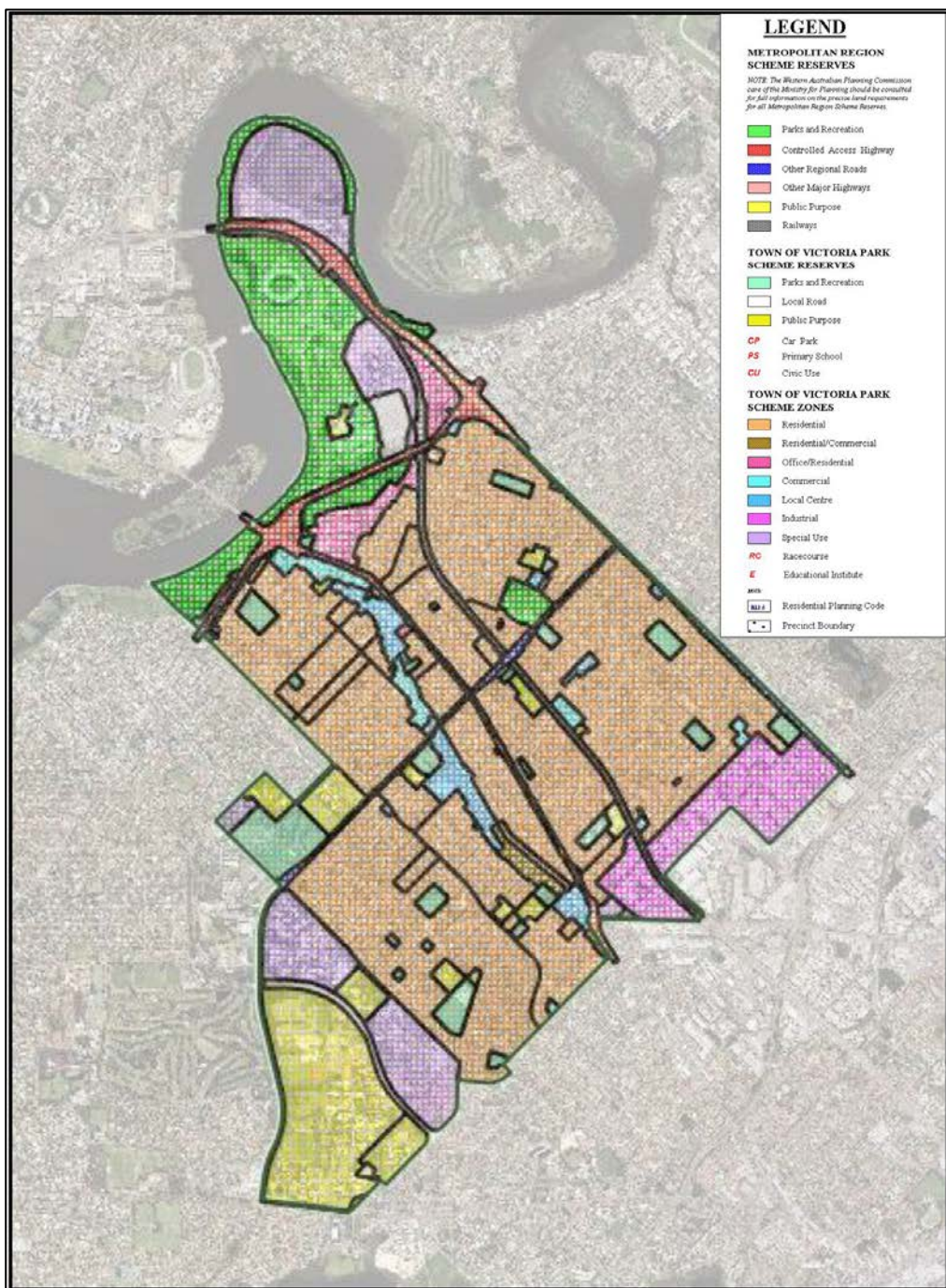


Figure 6: Town Planning Scheme 1 Map (as at March 2018)

The Town commenced a review of TPS 1 in 2008 and resolved in May 2010 to adopt a new draft local planning strategy and scheme for the purposes of community consultation. However State Government approval for consultation on the new strategy and scheme to commence was not forthcoming and the process was abandoned when the State’s local government reform agenda emerged in 2014 and significant changes to local government boundaries and governance arrangements were proposed.

The mooted amalgamation and boundary adjustments impacting on the Town, the City of South Perth and City of Canning did not proceed. After it become evident that the Town would continue to exist as it had since its inception in 1994, a fresh review of TPS 1 was undertaken. The review found that TPS 1 did not accord with the contemporary format for local planning schemes set out in the 2015 Local Planning Schemes Regulations, nor provide adequate statutory controls for certain land uses and development types or form a basis for achievement of the Town’s vision for its future towards and beyond 2050. As a result, the Town resolved in July 2017 to prepare a new local planning scheme and repeal TPS 1 upon the new scheme’s gazettal.

The new local planning scheme should incorporate:

- Model Scheme Text provisions, as prescribed in the Planning and Development (Local Planning Schemes) Regulations.
- Existing TPS 1 provisions that remain current and a necessary part of the local planning framework going forward.
- New or amended text provisions that address particular matters identified in the TPS 1 review, including certain land use definitions and permissibility, development and built form standards, approval exemptions, terminologies, inconsistencies between zoning table and precinct plan provisions.
- Text provisions intended to achieve the vision for future development of the Town as set out in the LPS.
- A new Scheme map.

The Town also resolved in July 2017 to revoke the Carlisle Minor Town Planning Scheme No.3, which had been in effect since 1969 but had long since served its purpose as a guide plan and cost sharing arrangement for the development of new streets and subdivision of land in Carlisle.

3.2 Local Planning Policies

Local Planning Policies are adopted under provisions that are deemed to be included in TPS 1 by the Planning and Development (Local Planning Schemes) Regulations 2015 (Schedule 2).

They assist the Town’s decision making process by provide guidance on a range of planning matters. Some provide development standards or guidelines for a particular area or type of land use, whereas others set out an administrative procedure or approach on a specific issue.

LPPs that are currently in effect in the Town are listed in the following table:

Local Planning Policies
LPP 1 - Public Notification/Advertising Procedure
LPP 2 - Home Occupation
LPP 3 - Non-Residential Uses in or Adjacent to Residential Areas
LPP 4 - Residential Uses in Non-Residential Areas
LPP 5 - Mixed Residential or Commercial Development
LPP 6 - Child Care Facilities within Residential Areas
LPP 7 - Vehicle Access to properties via a Right-Of-Way
LPP 8 - Sunbury Park Site Design Guidelines
LPP 9 - Design Guidelines for Burswood Lakes
LPP 10 - Pedestrian Walkways
LPP 11 - Control and Location of Amusement Centres
LPP 12 - Control and Location of Advertising Balloons and Blimps
LPP 13 - Roof Signs
LPP 14 - Industrial Uses in Proximity to Residential Areas
LPP 15 - East Victoria Park Gateway Shopping Area Design Guidelines
LPP 16 - Albany Highway Residential/Commercial Design Guidelines
LPP 17 - Street Frontage Design Guidelines for District Centres and Commercial Areas along Albany Highway
LPP 18 - Telecommunications Facilities

- LPP 19 - Satellite Dishes
 - LPP 20 - Design Guidelines for Developments with Buildings above 3 storeys
 - LPP 21 - Restricted Premises
 - LPP 22 - Development Standards for Causeway Precinct
 - LPP 23 - Parking Policy
 - LPP 24 - Loading and Unloading
 - LPP 25 - Local Planning Policy – Streetscape
 - LPP 26 - Local Planning Policy - Boundary Walls
 - LPP 27 - Building Height Controls
 - LPP 28 - Independent Representation for Appeals against Council decision on Applications for Development Approval
 - LPP 29 - Public Art Private Developer Contribution
 - LPP 30 - Car Parking Standards for Developments along Albany Highway
 - LPP 31 - Specialised Forms of Accommodation other than Dwellings
 - LPP 32 - Exemptions from Development Approval
 - LPP 33 - Guide to Concessions on Planning Requirements for Mixed-Use, Multiple Dwelling and Non-Residential Development
 - LPP 34 - Sea Containers Policy
 - LPP 35 - Policy Relating to Development in Burswood Station East
 - LPP 36 - Climate Control (Energy Efficiency)
 - LPP 37 - Community Consultation on Planning Proposals
- * PLNG10 Transitional Use Policy was adopted in 2017*

The Town has also adopted other policies covering various administrative and operational matters, which are contained in its Policy Manual.

3.3 Structure Plans

Structure plans have been prepared for some of the Town’s important development precincts. These plans provide a generalised pattern of land uses and form a basis for future land subdivision and development. Current structure plans are summarised in the following tables.

Structure Plans	
Structure Plan Name	Burswood Peninsula District Structure Plan (2015)
	<ul style="list-style-type: none"> - Provides a strategic framework for the planning, assessment, coordination and implementation of major development initiatives across the Burswood Peninsula. The vision is to create an attractive, vibrant and sustainable urban setting, with a diverse mix of housing, recreation, entertainment, tourism and employment opportunities. Principal objectives are to: <ul style="list-style-type: none"> - Place the Peninsula in its regional context and identify any factors that might influence the future planning and development of the area. - Confirm the role and function of Peninsula in the context of the State Government’s metropolitan planning strategy, Directions 2031 and Beyond. - Develop a spatial plan that defines planning and development precincts, and informs the preparation of local structure plans, planning scheme amendments, and statutory planning and development proposals. - Identify existing environmental and geotechnical site conditions and confirm what additional studies and investigations are necessary to support planning and development decisions. - Identify any social and community infrastructure that will be necessary to support the proposed new development. - Identify any services and infrastructure constraints, and options for the coordinated delivery of additional capacity to the area. - The scale of development across the peninsula is significant, with nine planning precincts estimated to yield: <ul style="list-style-type: none"> - 12,500 residential units; - 250,000 m² of commercial floor space; - 65,000 m² of retail floor space; - A new 60,000 seat stadium; and - A new 500 room hotel (Crown Perth). - The Plan reflects earlier detailed planning undertaken by the Town, including the 2013 Local Structure Plan adopted for the Belmont Park Racecourse Redevelopment and the 2003 Burswood Lakes Structure Plan.

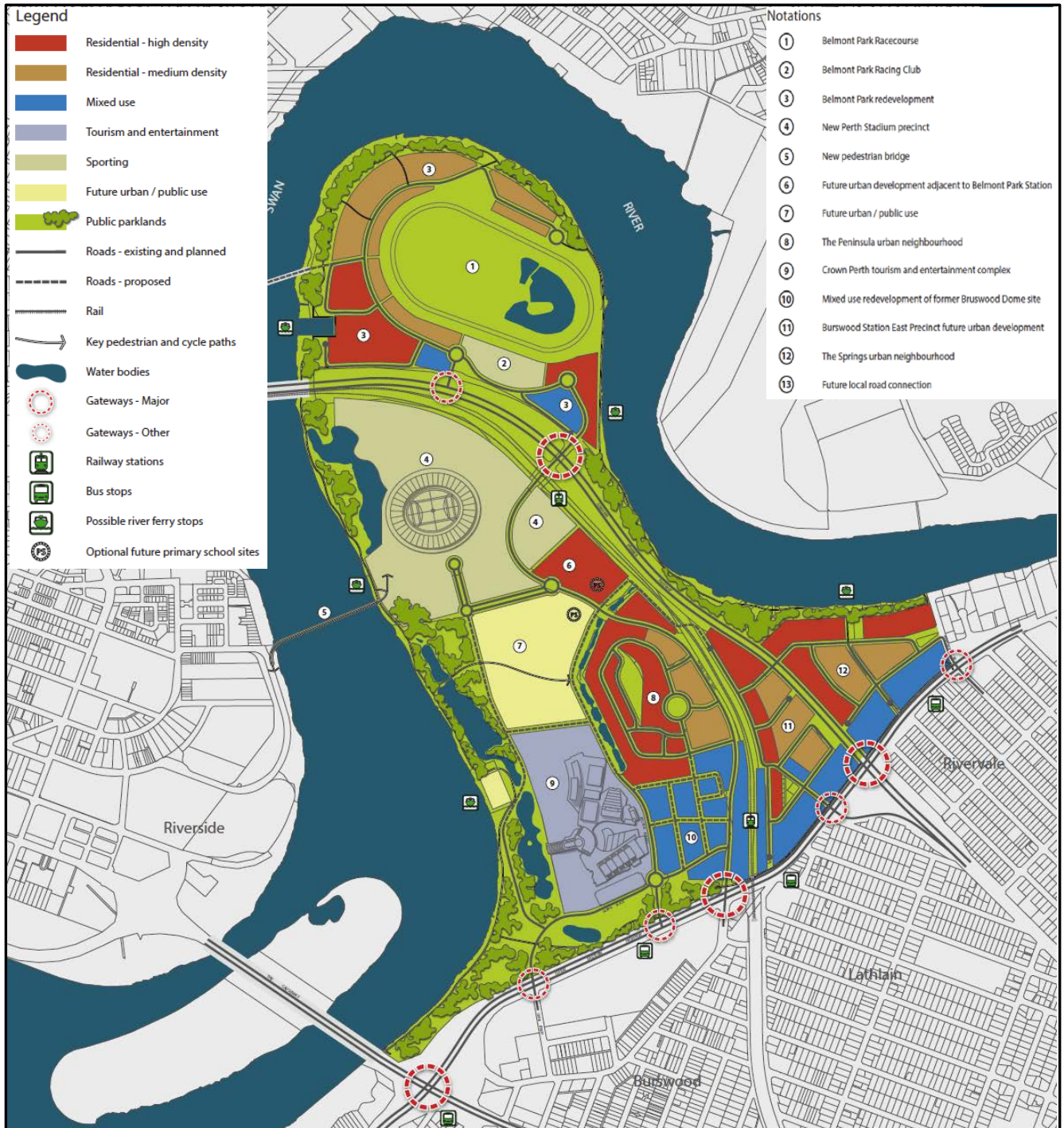


Figure 7 – Burswood Peninsula District Structure Plan

Structure Plan Name	Burswood Lakes Structure Plan (2003)
<ul style="list-style-type: none"> - Provides for the redevelopment of the former Portland Cement site into a high density residential neighbourhood. The development of the Peninsula is now nearing completion, with only two high rise tower sites and a number of low rise sites still to be developed. - Total development potential is for 1,250 dwellings with only small scale commercial uses for local day to day needs. 	



Figure 8 – Burswood Lakes Structure Plan

Structure Plan Name	Draft Burswood East Structure Plan (2018)
<ul style="list-style-type: none"> - Preparation of a draft master plan and Local Structure Plan by the Town for the Burswood Station East Precinct is well advanced. The master plan will propose redevelopment of the old industrial area into a vibrant mixed-use transit oriented development on the eastern side of the Burswood train station. - The plan proposes a total of 3,660 dwellings and 34,760m² of commercial floorspace. 	

Structure Plan Name	Belmont Park Racecourse Redevelopment Local Structure Plan (2013)
- Proposes new horse racing facilities and redevelopment of land surplus to racing needs for a mix of commercial and residential uses.	

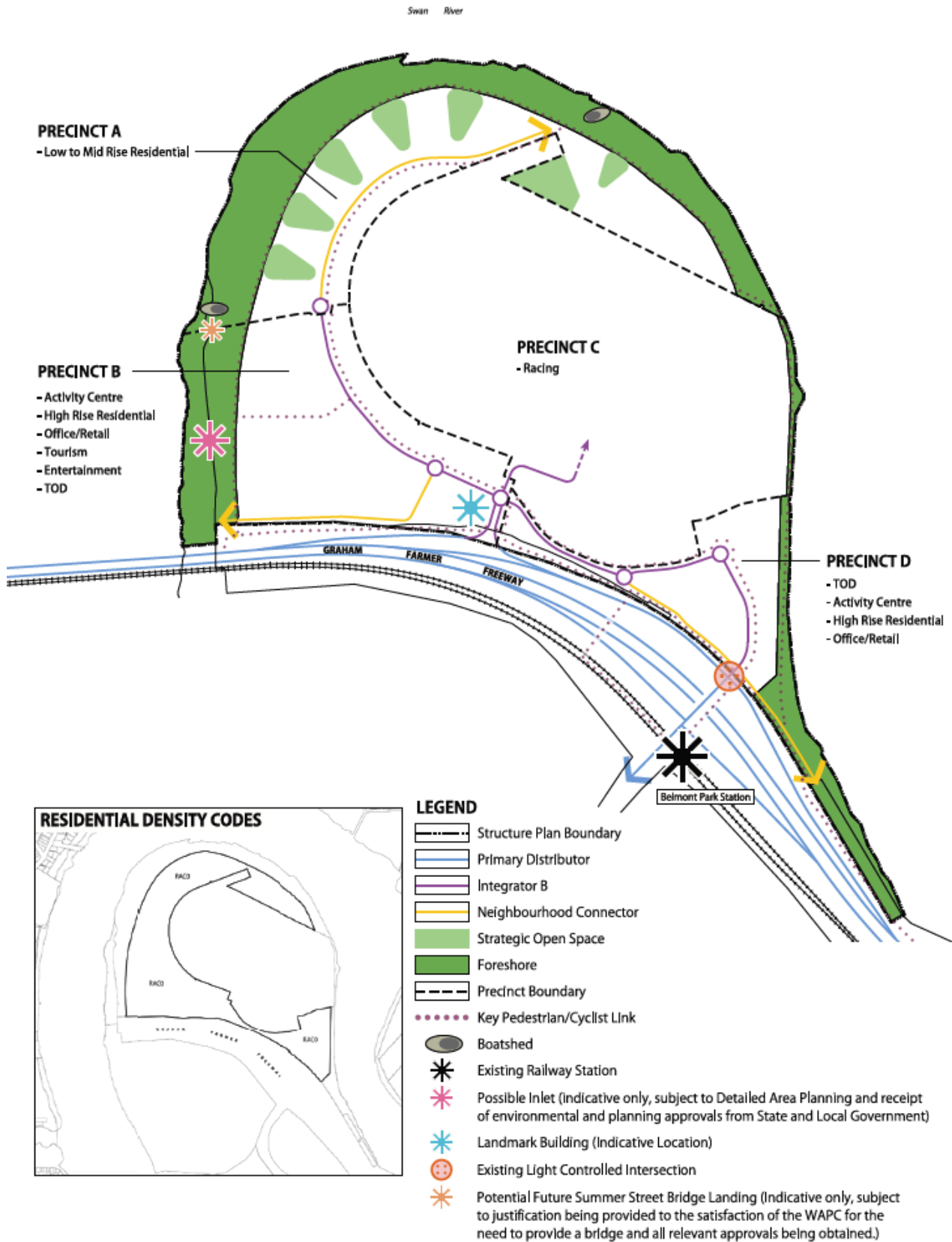


Figure 9 – Belmont Park Racecourse Redevelopment Structure Plan

Structure Plan Name Draft Bentley-Curtin Specialised Activity Centre Structure Plan (2016)

- Vision is for the Plan area to become an innovative, creative and collaborative centre of excellence in science, technology, education and research supporting the State’s economic growth through the development and commercialisation of ideas into viable and sustainable enterprise and a vibrant place that is accessible, safe, sustainable, affordable and attractive for people to study, work, live and enjoy life.
- Specifically, it aims to:
 - Guide increase of the residential population of approximately 2,311 (in 2011) to 9,500 by 2031.
 - Confirm the role of Bentley-Curtin as identified in Directions 2031 and Beyond and the Central Sub-regional Planning Framework.
 - Provide the strategic framework for coordinating subsequent planning and development including the MRS and local planning scheme amendments, legislative changes and local planning.
 - Set out the key structural elements essential to realise the opportunities within Bentley-Curtin.
 - Be informed by economic and infrastructure capacity analysis, a landscape public realm strategy and a transport assessment.
 - Provide general guidance on provision of social infrastructure to assist local government and key stakeholders.
 - Assist forward planning for infrastructure based on potential employment and residential populations.
- The plan area is divided into eight precincts, aimed at capitalising on the unique character and opportunities each presents, where further detailed planning is required.
- Curtin University and Technology Park operate under specific legislation and it is recognised that the legislative provisions may impact on the scope of planning and development that can occur.

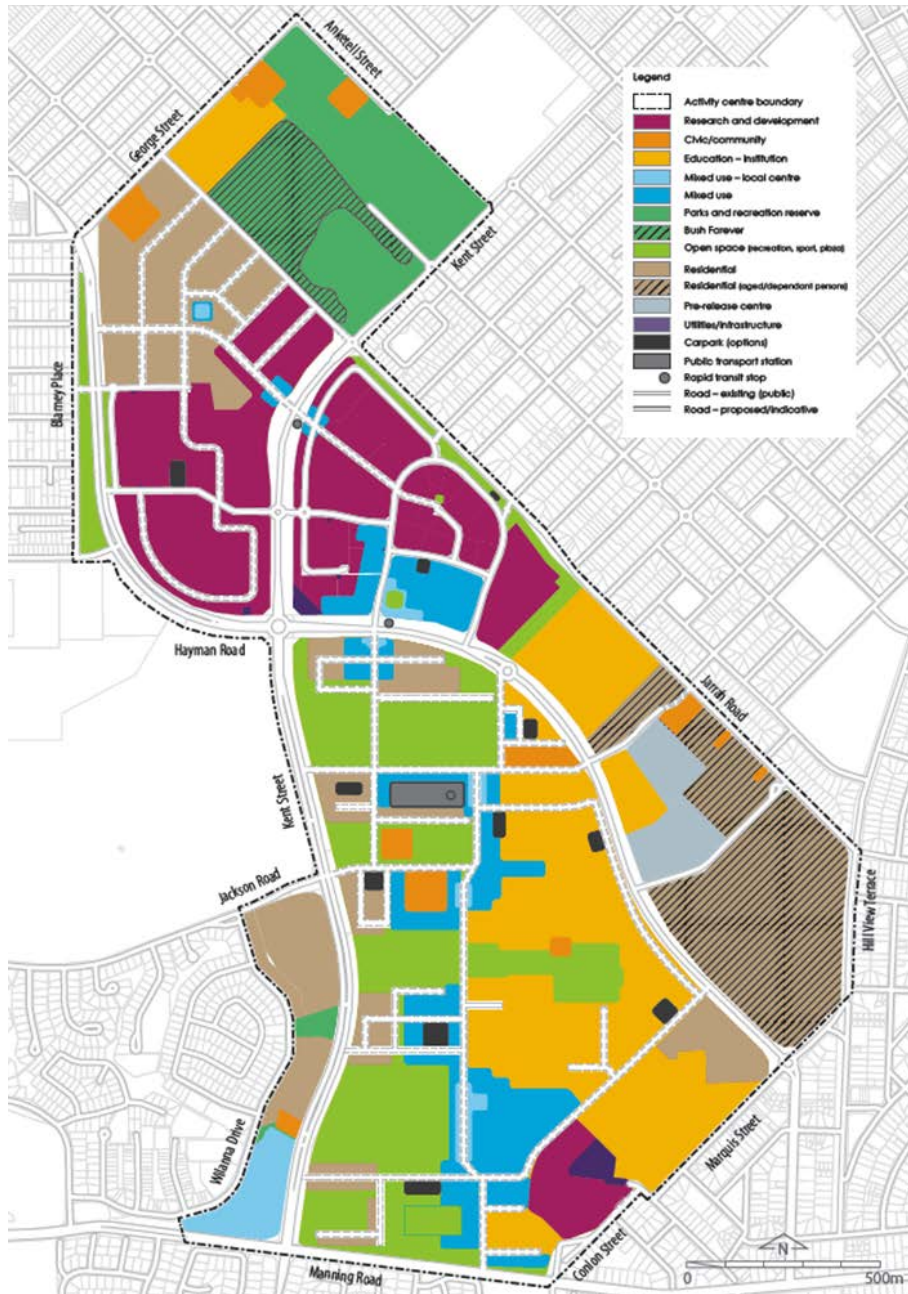


Figure 10 – Curtin-Bentley Specialised Centre Structure Plan

3.4 Local Planning Studies

A number of studies of various elements of the Town’s characteristics have been completed in recent years. The findings assist to understand the nature of the Town and the opportunities and issues that exist or will be likely to exist in future and therefore inform the strategic direction of the LPS.

The key findings of the studies and their relevance to the Town’s future planning is summarised in the following tables.

Framework Component	Town of Victoria Park – Analysis of Housing Consumption and Opportunities	
Prepared By	.id for Town of Victoria Park	
Released	2016	
	Key Findings	Considerations for Town’s Planning Framework
	<ul style="list-style-type: none"> - Provides an analysis of demographic and housing data for the Town to provide a picture of future housing demand and supply opportunities. - Refer to section 4.4 for key findings. 	<ul style="list-style-type: none"> - Identifies three key sources of potential future housing supply in the Town based on analysis of population composition and trends, calculations of the amount of developable land, accessibility and amenity factors, density assumptions and planning, heritage and environmental constraints: <ul style="list-style-type: none"> - Activity centres (Albany Highway, Curtin-Bentley and the Causeway, Burswood, Oats Street, Berwick and Carlisle precincts) – potential for 22,220 additional dwellings. - Infill development (out of centres, throughout the Town) – potential for 1,521 additional dwellings. - Strategic development sites (out of centres) – potential for 275 additional dwellings. - This potential growth, if fully realised, would meet and in fact exceed the growth target set in the Central Region Sub-Regional Framework for the Town.

Framework Component	Draft Public Open Space Assessment	
Prepared By	Town of Victoria Park	
Released	2015	
	Key Findings	Considerations for Town’s Planning Framework
	<ul style="list-style-type: none"> - Maps the amount, distribution, nature and accessibility of public open space (POS) within the Town. - Considers the State and local context in relation to POS standards, relevant studies, population characteristics, functionality and catchment hierarchy. - Recommends that a POS Strategy is prepared to further assess parkland function, quality and usage in the context of population growth. - Refer to section 4.7 for details. 	<ul style="list-style-type: none"> - The POS Strategy will need to consider: <ul style="list-style-type: none"> - Current notional POS supply deficiencies. - Where population growth is projected to occur. - Opportunity for usage and management. - Alternative ways of providing for the community’s recreation needs.

Framework Component	Albany Highway Built Form Study (draft)	
Prepared By	Urbanix for Town of Victoria Park	
Released	2013	
	Key Findings	Considerations for Town’s Planning Framework
	<ul style="list-style-type: none"> - Reviews built form implications for Albany Highway arising from SPP 4.2 – Activity Centres for Perth and Peel, the Capital City Framework and Perth Light Rail Master Class (2011) and taking into consideration: <ul style="list-style-type: none"> - Optimising development potential. - Character and design. - Activation and surveillance of the street. - Mixed use and density. - Building form, mass, frontages, height and scale. - Parking provision and access. - Solar access, private open space and privacy. - Proposes building envelopes and massing models on a specific street-block basis. 	<ul style="list-style-type: none"> - Recommends: <ul style="list-style-type: none"> - Undertaking more detailed and rigorous study of the problems and benefits of routing light rail along Albany Highway (as well as along Shepperton Road as an alternative). - Devising block to block building envelope and design-based policy and guidelines for Albany Highway to replace existing building height, plot ratio and density limits.

Framework Component	Residential Character Study	
Prepared By	Town of Victoria Park	
Released	2003	
	Key Findings	Considerations for Town's Planning Framework
	<ul style="list-style-type: none"> - Investigated dwellings constructed prior to 1945 that were still remaining within the Town and concluded that original character is still intact within parts of the Town, warranting protection. - Identified development pressure points and suggested a change in focus from a redevelopment to retain ethos. 	<ul style="list-style-type: none"> - See table on the 2010 review of this study below.

Framework Component	Residential Character Study Review (draft)	
Prepared By	Town of Victoria Park	
Released	2010	
	Key Findings	Considerations for Town's Planning Framework
	<ul style="list-style-type: none"> - The review found that there was a conflict between R-Code density provisions and the aim to retain character dwellings and considered managing this conflict through use of split density codings. - Included a new survey of original dwellings, adding some that were missed in the initial survey and deleting others that had since been redeveloped. 	<ul style="list-style-type: none"> - Need to identify areas that require protection through lower density residential coding. - Innovative solutions to encourage retention of original character dwellings and character streetscapes, while still allowing infill development at the rear of properties, are required. Form-based codes may be one solution. Requirements need to be easily understood and simple to administer.

Framework Component	Municipal Heritage Inventory	
Prepared By	Heritage Today for Town of Victoria Park	
Released	2000	
	Key Findings	Considerations for Town's Planning Framework
	<ul style="list-style-type: none"> - Contains a listing and description of 84 places within the Town with identified heritage significance, including four places that appear on the State Heritage List. 	<ul style="list-style-type: none"> - Provides a reference tool for the preparation of heritage-related policy, conservation initiatives and the determination of development proposals.

3.5 Local Planning Strategy Components

Various strategic land use planning initiatives completed or being undertaken by the Town focus on specific subject matters and effectively inform components of the LPS. Strategy goals and actions in respect to future planning for activity centres, housing, economic development and public open space have been identified through these initiatives. Key features and considerations of these initiatives are summarised in the following tables.

Framework Component	Activity Centres Strategy	
Released	2018	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - The 2013 Activity Centres Strategy has been reviewed in light of new land use and floorspace data released by the WAPC and the continued evolution of the commercial environment. - SPP 4.2's centres hierarchy, as applicable to the Town, has been reviewed and the conclusion is that: <ul style="list-style-type: none"> - The entire length of Albany Highway within the Town should be designated as a single Secondary Centre. - The Burswood Peninsula should be designated as a Specialised Activity Centre. - The concept of 'activation areas' is a critical part of the Strategy – these are broader areas that include the centre core and flanking residential areas that through implementation of a conscious density strategy can support the viability and vitality of the centre and contribute to achievement of additional dwelling targets identified for the Town. In addition to Burswood and Albany Highway, activation areas are identified in precincts at the Causeway, Victoria Park station, Archer Street, Oats Street, Berwick Street and Curtin-Bentley. - Maintain existing convenience shopping at small local centres and make landscape improvements to the public domain where possible. 	<ul style="list-style-type: none"> - Key Strategy actions for the Town's activation areas include: <ul style="list-style-type: none"> - Designating the Albany Highway Secondary Centre as a 'Regional Centre' under the new local planning scheme. - Considering application of the R-AC Code for the core of activation areas and R40/R60 for land in close proximity, particularly along linking corridors in the new local planning scheme. Alternatively, form-based codes could be applied to provide more intense urban form where there is greater sensitivity to development of individual sites. - Developing a strategy to create points of difference between the two main retail nodes that comprise critical components of the Albany Highway Secondary Centre. Key objectives will be to: <ul style="list-style-type: none"> - Consolidate retail activity to the two main centres. - Diversify the retail offer. - Establish a unifying approach to landscaping, entry statements and small parks for each of the Centre's six sub-precincts. - Relax parking standards for non-residential uses. - Maximise density development opportunities within the walkable catchment of the Centre.

	<ul style="list-style-type: none"> - For Burswood and Curtin Specialised Centres, support additional retail floorspace but only for convenience shopping needs. Proposals for retail development over 5000m2 should be subject to a retail sustainability assessment demonstrating no adverse impact on the Secondary Centre. - Providing for higher density residential development adjacent to GO Edwards Park and office development elsewhere in the Causeway Precinct. - Rezoning some of the industrial zoned land to residential/commercial or apply form-based codes to residential or through form-based codes and increasing density codings in the Oats Street Precinct to prepare for future activation. - Supporting redevelopment for higher density residential and office and showroom uses in preference to retail uses in the Berwick Street Precinct. - Strengthening links between the Archer Street Precinct and Secondary Centre by reviewing upcoding potential of land within 200 metres of Archer Street (between Mars Street and Albany Highway) - Reviewing density codings or appropriate form-based codes to consolidate the Victoria Park Station Precinct and its linkage to the Secondary Centre as a transit oriented development. - Refer also to section 4.5.
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Framework Component	Local Housing Strategy	
Released	Pending preparation	
Key Features	Considerations for the Town's Planning Framework	
<ul style="list-style-type: none"> - A Local Housing Strategy typically sets out an action plan aimed at meeting the future housing needs of a local community. It forms an important guideline for the local planning scheme and the statutory planning provisions for housing development that the scheme contains. - The Town does not have a current Local Housing Strategy, however it has completed substantial background work to inform the broad direction of the LPS, including the id Housing Analysis and Opportunities Discussion Paper referred to in section 3.4, previous heritage and character studies and community engagement feedback on housing issues through the Evolve initiative. The Activity Centres Strategy also contains critical guidance on housing-related matters. 	<ul style="list-style-type: none"> - While no current Local Housing Strategy is in place, the required approach to future housing provision in the Town is in a broad sense quite apparent, in that: <ul style="list-style-type: none"> - Demographic data, trends analysis and State planning guidance all point to the need for more intensive forms of residential development to cater for increasing numbers of small household sizes and greater variety in household types. - Activity centres will be a focal point for new residential development and areas identified for activation are well-suited to cater for more intensive forms of development given that are or will be well-serviced for commercial activity and public transport. - Strong community support exists for retention of the character of existing residential areas and properties that can accommodate larger households. Projections indicate larger properties for families will remain in demand in the Town well into the future. - Development of a significant amount of new housing is already provided for under existing local planning scheme provisions, such as on the Burswood Peninsula, where a large proportion of future growth is expected to occur, which if it does would go a long way towards achievement of the additional dwelling targets set by the State Government for the Town. The new local planning scheme could reflect similar provisions to those that presently exist in TPS 1. While some changes are required to define the spatial extent of and development controls in activity centres, wholesale changes to residential density codes are not required to achieve the dwelling targets. - This said, the Town should prepare a new Local Housing Strategy to set out detailed recommendations for longer-term changes to the new planning scheme that may be required to cater for future housing needs. Section 4.4 provides additional details. 	

Framework Component	Public Open Space Strategy	
Released	In preparation	
Key Features		Considerations for the Town's Planning Framework
<ul style="list-style-type: none"> - A Public Open Strategy guides the provision of a parkland network that enhances sense of place, ensures balanced provision of sport, recreation and nature functions, retains significant environmental and cultural features and realises opportunities for achieving efficiencies and sharing of infrastructure. The Town is presently prepared a Public Open Space Strategy. 		<ul style="list-style-type: none"> - A public open space strategy for the Town is required and will need to consider: <ul style="list-style-type: none"> - The definition of public open space and development of an inventory, classification system and maintenance standards for existing sites. - A recreational needs analysis and assessment of notional POS supply deficiencies. - Where population growth is projected to occur. - Opportunity for usage and management. - Alternative ways of providing for the community's recreation needs. - Refer also to section 4.7.

Name of Strategy/Plan	Economic Development Strategy	
Released	In preparation	
Key Features		Considerations for the Town's Planning Framework
<ul style="list-style-type: none"> - Intended to replace the Town's 2013 Tourism and Economic Development Plan, which has largely been implemented. - Initial analysis in support of the Strategy has considered the current economic situation of the Town, commercial and housing trends and investigated clusters of local and export industries and their performance. - Will make recommendations for supporting high-performing industries and boosting under-performing industries and ambitious future goals given the strength of the Town economy and its mix of industry and trade clusters. 		<ul style="list-style-type: none"> - A key role for the Town's local planning framework is to build on a strong and vibrant local economy. The focus will be on ensuring that the local planning scheme provides for the appropriate identification, zoning and control of development of land for commerce and other employment-generating uses. Other components of the planning framework may need modification to incorporate the Economic Development Strategy's recommendations once they are finalised.

3.6 Other Community Strategies and Plans

The Town regularly prepares community-oriented strategic plans as part of its corporate governance functions. The current plans cover a broad spectrum of interests, with various objectives and initiatives identified for community wellbeing, economic development, transport and the environment. Alignment of the Town's land use planning framework with these plans is a focus of the LPS. The plan's key features and relevance to the planning framework are outlined in the following tables.

Name of Strategy/Plan	Strategic Community Plan 2017 – 2032	
Released	2017	
Key Features		Considerations for the Town's Planning Framework
<ul style="list-style-type: none"> - Sets out the vision, mission and values to guide the Town to 2032 based on the community engagement process through the Evolve project. The plan outlines strategic outcomes under the themes of Social, Economic, Environment and Leadership and sets measures for a range of strategic outcomes. 		<ul style="list-style-type: none"> - The LPS and various specific elements of the Town's planning framework need to recognise and reflect the following Strategic Outcomes of the Plan: <ul style="list-style-type: none"> - S1 A healthy community. - Ec1 A desirable place for commerce and tourism that support equity, diverse local employment and entrepreneurship. - E1 A clean, safe and accessible place to visit. - En1 Land use planning that puts people first in urban design, allows for different housing needs and enhances the Town's character. - En2 A safe, interconnected and well maintained transport network that makes it easy for everyone to get around. - En3 A place with sustainable, safe and convenient transport options for everyone. - En5 Appropriate, inviting and sustainable green spaces for everyone that are well-maintained and well-managed. - En6 Increased vegetation and tree canopy.

Name of Strategy/Plan	Social Infrastructure Plan	
Released	2017	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Considers the future growth and demographic composition of the Town to 2050 and beyond, examines existing facilities, service provision benchmarks and community needs and identifies actions to guide the provision of social infrastructure through planning, partnerships and advocacy. - Sets out a vision for social infrastructure that is flexible, multi-purpose, inclusive, high-quality, vibrant, contemporary, attractive, safe, accessible, affordable, well-managed, clean, comfortable and sustainable. 	<ul style="list-style-type: none"> - The Plan identifies 73 strategic actions, including the following land use planning-related initiatives: <ul style="list-style-type: none"> - Make provision for a multi-purpose community centre, including child health clinic and seniors facilities, in Burswood. - Work with the Department of Education and non-government school providers to address primary and secondary school needs in the Town, including provision of a new primary school in Burswood. - Prepare a public open space strategy to address increased demand for open space from an increased population, including exploration of the need for additional sporting fields and strategies to increase the capacity of existing fields.

Name of Strategy/Plan	Integrated Movement Network Strategy (IMNS)	
Released	2013	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Provides a high-level framework to guide planning for the delivery of an efficient, safe, well-connected and sustainable transport system in the Town, with the following objectives: <ul style="list-style-type: none"> - Support the Town's vision and objectives as set out in its Community Plan. - Manage traffic congestion by efficient use of roadway space and capacity and better transport and land use integration. - Support economic growth. - Enhance the urban environment with greater emphasis on bicycle and pedestrian paths and connections with public transport. - Improve access to employment, entertainment, medical, education and community facilities. - Reduce transport costs for the community by providing better public transport services. - Improve transport links, connections and movements. - Create a healthier community through encouraging active travel such as cycling and walking. - Focus on environmental sustainability with less reliance on motor vehicle transport. - Provide a basis for the current and future management of parking on private and public land. - Contains strategies and actions relating to the themes of roads, public transport, parking, cycling and walking, travel demand management and monitoring. 	<ul style="list-style-type: none"> - The Strategy contains 55 strategy elements with over 220 individual actions, including the following key land use planning-related initiatives: <ul style="list-style-type: none"> - Incorporate provisions in the new local planning scheme for development of benchmark servicing and delivery plans for land uses within activity centres. - Develop tools to measure public transport accessibility and link to development requirements within the local planning scheme. - Develop land use policies for activity centres that are supportive of increased public transport trip generation or patronage capture and address parking and cycling considerations. - Ensure provision of land for public transport infrastructure within activity centres and along the railway. - Various actions relating to the introduction of light rail and its connection from the Causeway to Curtin University and Burswood, including selection of the preferred routes and stops and review of development potential along the selected route/stops. - Review local planning scheme provisions to set standards for provision of parking for key users, end of trip facilities for cyclists, cash-in-lieu contributions for public parking or alternative transport modes, - Reduce Scheme/Policy parking requirements that reflect public transport accessibility and public parking availability. - Include thresholds and scope for Travel Plan requirements in the local planning scheme for major developments proposed in activity centres.

Name of Strategy/Plan	Environmental Plan 2013-2018	
Released	2013	
	Key Features	Considerations for the Town's Planning Framework
	<ul style="list-style-type: none"> - Directs environmental management of the Town by identifying focus areas and associated actions for implementation: <ul style="list-style-type: none"> - Climate change adaptation and greenhouse protection – by promoting efficient use of energy, reduction in greenhouse gas emissions and community awareness to effect climate change action. - Water management – by protecting and enhancing water resources, effective stormwater management and community awareness programs on sustainable water use. 	<ul style="list-style-type: none"> - Planning-related actions of the Plan involve integrating the Guidelines for Managing Small to Medium-Size Industry (2008) and Erosion and Sediment Control Local Planning Policy and Guidelines (2008) into the local planning framework.

<ul style="list-style-type: none"> - Land management – by incorporating environmental considerations into planning and development approval processes. - Natural areas and biodiversity – by ensuring effective maintenance, protection and enhancement of the Town’s biodiversity. - Solid waste management – by implementing strategies and projects that aim to reduce waste creation and disposal and efficient manage its recovery. 	
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Name of Strategy/Plan	Healthy Vic Park Plan 2017-2022	
Released	2017	
	Key Features	Considerations for the Town’s Planning Framework
	<ul style="list-style-type: none"> - Satisfies the Public Health Act 2016 requirement for an integrated health and wellbeing planning process that supports the vision for the Town to be a happy and healthy community. - Contains the following objectives: <ul style="list-style-type: none"> - Provide healthy places and spaces to encourage and support healthy lifestyle opportunities. - Guide and encourage the community to lead healthier lifestyles through the provision of lifestyle and educational opportunities. - Educate and empower local business and events in prioritising community health. 	<ul style="list-style-type: none"> - Actions relevant to the local planning framework include: <ul style="list-style-type: none"> - Developing and implementing a POS strategy and Bike Plan for the Town. - Developing and implementing a LPS to create a comprehensive strategic direction for a growing community. - Reviewing the Local Planning Scheme. - Developing and implementing a Laneway Activation Strategy. - Incorporating activated urban spaces in any local structure plans and local development plans.

Name of Strategy/Plan	Asset Management Plans	
Released	2017	
	Key Features	Considerations for the Town’s Planning Framework
	<ul style="list-style-type: none"> - The State Government’s Integrated Planning and Reporting Framework requires Local Government authorities to prepare asset management plans to address existing and proposed assets, whole of life asset costing, service levels and renewal funding gaps as a major input into their financial planning. The Town has prepared management plans for the following asset classes: <ul style="list-style-type: none"> - Property - Recreation - Transport - Plant and Equipment - Information and Communications Technology 	<ul style="list-style-type: none"> - Actions relevant to the local planning framework include considering the impact of proposals for land use and development on the future management of Town assets, including recreation, transport and property.

Name of Strategy/Plan	Disability Access and Inclusion Plan (DAIP)	
Released	2017	
	Key Features	Considerations for the Town’s Planning Framework
	<ul style="list-style-type: none"> - The DAIP guides the Town in its intention to provide and promote access and equity in service provision for all members of the community. 	<ul style="list-style-type: none"> - The DAIP seeks to ensure people of all abilities have equal access to all Town facilities. This includes public places (such as parks, playgrounds and footpaths), buildings and car parks.

4.0 Local Profile

This section outlines the current natural, social, economic and development setting of the Town and provides local context for the strategic direction set out in the LPS.

4.1 Historic Development

When Captain James Stirling first visited the Swan River region, he extolled its virtues as a fertile land, fruitful and abundant. This assessment is not surprising considering that land around the Swan River had been significant to the Aboriginal people of the area, called the Whadjuk, for thousands of years prior to European exploration. The Whadjuk people were custodians of the land that sustained them for countless generations, however their lives were irrevocably changed with the arrival of the British in 1827.

In the 1830's, soon after colonial settlement, major land grants were established over much of what is now Victoria Park. A track was surveyed between Perth and Albany and the first Causeway was built in 1843, with inns and stores established along what is now known as Albany Highway.

During the 1880's and 1890's, subdivision of residential lots commenced. The Victoria Park Roads Board was proclaimed on 20 July 1894 and the area was declared the Municipality of Victoria Park on 30 April 1897. Development hastened around this time as a result of population growth driven by the gold rush.

On 18 November 1917, the Municipality was dissolved with all By-Laws and Regulations of the Victoria Park Municipal Council repealed and replaced by those of the City of Perth.

The period between 1920 and 1930 was one of rapid development in Victoria Park and the character of many of its suburbs was established during this period. There was a further surge of new residential growth in the 1950s, though the take-up of private cars at this time saw the demise of the tram service to the Town.

By 1960, development along Albany Highway had reached its peak with nearly 260 retail shops. Accessibility by car made Albany Highway the third largest commercial centre after Perth and Fremantle and the regional centre for the south-east corridor. The 1960's also saw the start of the development of blocks of apartments in advantageous positions along the ridges looking towards the river and the centre of Perth and opening of a tertiary college at what is now known as Curtin University in Bentley.

By 1970, Albany Highway was congested with traffic and Shepperton Road was upgraded to act as a bypass for through-traffic. Around the same time, new regional indoor shopping centres were established in Belmont and Canning. All of these factors resulted in a decline in the regional dominance of the Albany Highway strip.

The 1980s saw the start of the transformation of the Burswood Peninsula with the construction of the casino and indoor arena.

On 1 July 1994, the State Government enacted the City of Perth Restructuring Act 1993. This defined the Town's boundary, which remains today. Initially though the new authority was named the Town of Shepperton, but several months later was amended to the Town of Victoria Park following a residents' petition demanding the name change.

The Town's historical development still impacts today, as the residential character of houses constructed in the pre-World War II era is highly desirable. Similarly, the character of the Albany Highway main street has evolved over the years but has remained as a focal point of the Town. A revival in main street retail and entertainment/hospitality uses in recent years has seen it reinvent itself from a declining commercial strip into a vibrant destination with a range of restaurants, cafes, small bars and specialty shops. Burswood continues to evolve as a major destination with Crown Perth, Perth Stadium and Belmont Park racecourse. The Curtin/Bentley area is a key education and technology hub that will diversify uses in future. The existing railway network offers potential for the activation of precincts around the stations and along their linkages to Albany Highway as significant destinations in their own right.

4.2 Physical Features

4.2.1 Geology and Soils

The north-western boundary of the Town follows the edge of the Swan River, which curves around the Burswood peninsula between McCallum and Charles Paterson Parks. Tidal flats along the riverfront overlay alluvial clays and silts that are prone to flooding and settlement under loads. Land on the peninsula was subject to past dredging, landfill and industrial development and soil conditions can present construction challenges as the area transitions.

Land rises to the south-east of the riverfront on an elevated narrow band of the Spearwood dunal system, which is characterised by yellow or red/brown sandy soils with appreciable iron and aluminium content. These soils have some capacity to retain nutrients, though they can under high nutrient loads leach into groundwater and contribute to algal blooms in receiving water bodies.

Further inland, soils transition to the Bassendean dunal system, which is the dominant soil type in the Town. These soils tend to be sandy in composition with little silt or clay, but have poor nutrient-retention ability.

Acid sulphate soils (ASS) are soils and sediments that contain iron sulfides. They occur naturally and are widespread in low-lying coastal areas. Harmless when left in a waterlogged, undisturbed environment, but when exposed to air, through drainage or excavation, the iron sulphides react with oxygen and water to produce iron compounds and sulphuric acid. This acid can release other substances, including heavy metals, from the soil and into the surrounding environment and waterways.

State Government mapping indicates that some of the Town sits on land with high-moderate risk of ASS, generally corresponding with the alluvial soils along the riverfront and sandy soils on the Spearwood dunal ridgeline (as shaded red in Figure 11), with much of the rest of the Town having moderate to low ASS risk (shaded yellow on Figure 11). Activities with the potential to disturb ASS must be managed carefully to avoid environmental harm.

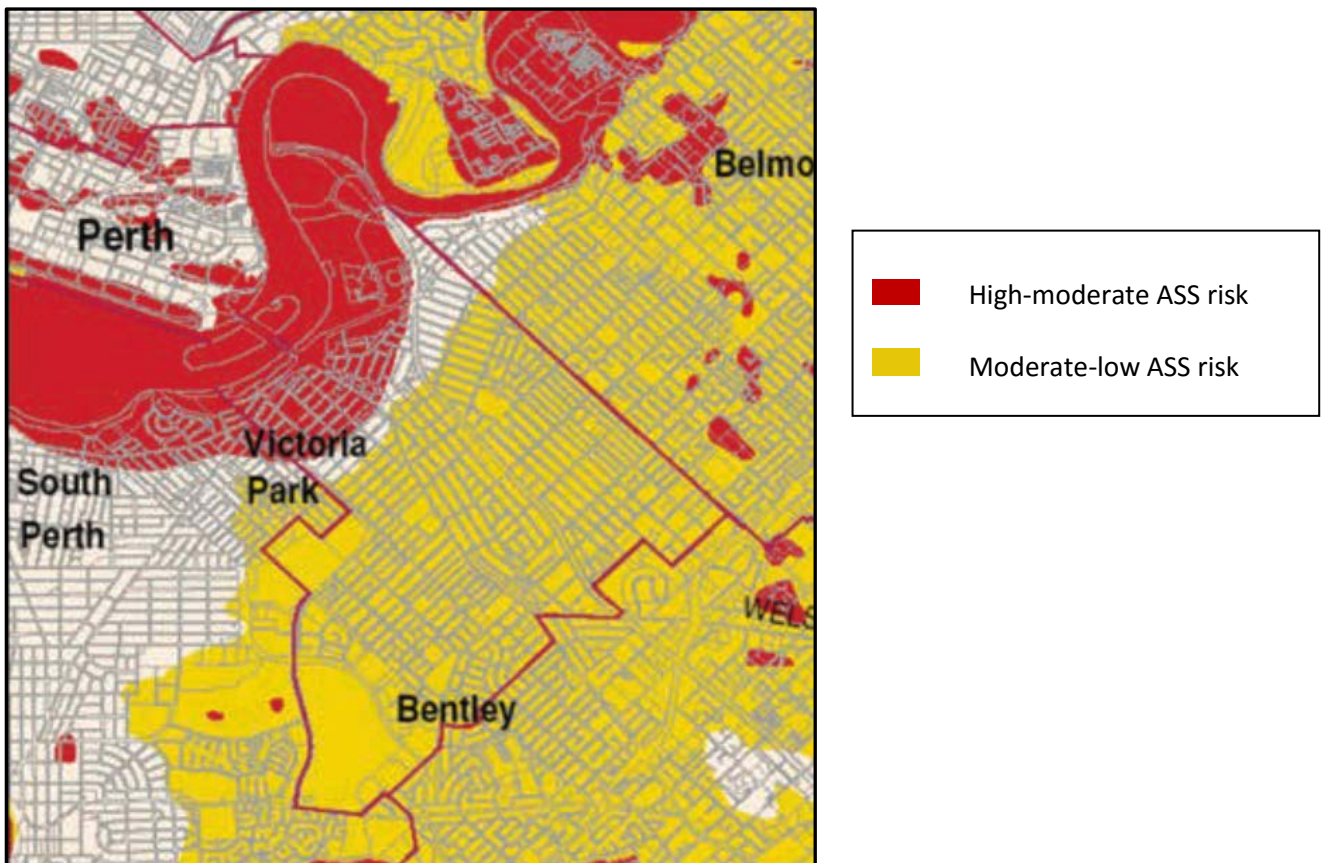


Figure 11: Acid Sulphate Soils Mapping

4.2.2 Vegetation and Bushland

Three vegetation complexes exist in the Town; the Bassendean, the Swan and the Vasse, with the Bassendean complex the most prevalent.

The Bassendean complex stretches discontinuously for the whole length of the Swan Coastal Plain from Moore River to Dunsborough. Typical Bassendean complex vegetation varies from Jarrah (*Eucalyptus marginata*), Sheoak (*Allocasuarina*) and Banksia woodlands, Melaleuca (Paperbark and Honey Myrtle) low woodland, to sedge lands on wetter sites. Low woodland dominated by Banksia, Pricklybark (*Eucalyptus todtiana*) and Christmas Tree (*Nuytsia floribunda*), with a dense understorey, and Woollybush (*Adenanthos*) is also characteristic of the Bassendean system.

Much of the Town has been cleared of native vegetation. Of its 17.62 km² area, approximately 202ha (or 11.46%) is reserved for Parks and Recreation by either the MRS or TPS 1, with 22.4ha containing remnant bushland. 39 sites in the Town have been identified as containing some remnant native vegetation including:

- Four bushland reserves;
- Nine other parks;
- Nine road reserves; and
- 17 drainage sumps.

The most environmentally significant of the bushland reserves is Kensington Bushland on Kent Street, which is identified as a Bush Forever site and reserved by the MRS for Parks and Recreation. The adjacent former Kent Street sand quarry and Kensington Police and Citizens Youth Club site are also important bushland reserves that are reserved for Parks and Recreation and Public Purposes-Civic Uses by TPS 1. The Hillview Community Bushland at the corner of Hillview Terrace and Berwick Street is the fourth bushland reserved and is reserved for Parks and Recreation by TPS 1. All these sites and are described in detail within the *Remnant Vegetation Management Plan* (2004) and the high level of species diversity is of ecological importance and also a culturally valuable asset to the Town.

Remnant vegetation in bushland areas, as well as individual trees on sites, can provide refuge and resources for a number of fauna species, be a seed source for future rehabilitation and provide a cooling effect as part of the Town's tree canopy.

Mapping of the tree canopy across Perth has been undertaken by the State Government and provides an accurate baseline for comparing the extent of tree coverage over time and as a management tool to assist Local Governments to develop strategies to assist future care and expansion of this green infrastructure over time. The Town is currently preparing an Urban Forest Strategy, which is likely to identify actions needed to increase the Town's tree canopy, given a decline in recent years.

4.2.3 Climate

The CSIRO 50th percentile scenarios (the mid-point of the spread of model results) predict that rainfall in Perth will decline by between 10% and 40% and temperature is predicted to increase by 0.6 °C to 3.0 °C by 2070 (CSIRO, 2007). This rise in temperature has the potential to impact on flora, fauna and people, through increased heat stress and risk of bushfires.

In addition, climate change is predicted to result in sea level rise and trigger an increase in the frequency and magnitude of extreme weather events, which include high tides, storm surges (low barometric pressure), wind and waves (CSIRO, 2007 and ACECRC, 2008 as cited in Swan River Trust, 2010). These changes have the potential to affect the foreshore areas of the Swan River and potentially the surrounding land, predominantly the low lying areas of the Burswood peninsula and Victoria Park.

It has been reported that climate change is likely to result in lower rainfall in Western Australia's south west region, coupled with more intense rainfall events (CSIRO, 2007). This variability has the potential to result in localised flooding from stormwater during extreme events, becoming more frequent in the future. Declining stream flows and superficial groundwater levels have been observed over the past ten years, most likely as a

result of declining annual rainfall. Continuing reductions are likely to maintain this pattern and may have significant impacts on surface and groundwater availability for both human and environmental needs. As groundwater levels decrease, climate change may also increase the risk of acidification and heavy metal contamination resulting from the disturbance of ASS.

The Town has prepared a Climate Change Adaptation Plan that identifies risks and provides responses to the most significant risks based on the Town's sphere of operational control. This is intended to improve the Town's resilience to the impacts of climate change into the future. The actions proposed address the following areas:

- water and energy efficiency and other sustainable design issues
- the climate resilience of essential infrastructure
- the long-term protection and enhancement of open space and urban forests
- the protection of local properties and assets from extreme river level events
- community resilience to increased heat and flooding risks
- protection and enhancement of biodiversity corridors.

The Town is also a signatory to the Local Government Climate Change Declaration (WALGA).

4.3 Water Management

Significant water resources in the Town comprise the Swan River, groundwater and lakes.

Regional groundwater flows very slowly from the dunal areas in the south-eastern parts of the Town and through sandy soils towards the Swan and Canning Rivers. The depth to the water table varies within the Town from less than 1m below the surface to up to 21 metres in places

The Town contains several artificial lakes, with most being situated on parkland spaces of the river foreshore. The topography of the area prior to urbanisation would have had a number of small catchments draining to low spots, some of which may have been seasonally marshy or wet. With development of drainage systems, many of these low spots were preserved as infiltration basins or sumps for disposal of stormwater.

The Town's major freshwater body is the lake in G.O. Edwards Park, Burswood. The lake is approximately 40 years old, having been constructed upon the site of a former uncontrolled landfill in the 1970s as part of the 150 year celebrations for the State. The site is reserved for 'Parks and Recreation' in the MRS, being occupied by parkland comprising the lake and approximately 10 hectares of open space, including large expanses of irrigated turf, some native garden beds and stands of mature trees. The lake has two islands and is fed by a groundwater source providing a year-round water supply. Unlike many of Perth's ephemeral urban wetlands which dry out during summer, the lake maintains a fairly constant water level throughout the year, even though water from it is used for reticulating parkland. This, together with the fact that groundwater is suspected to be carrying nutrients into the system, is a major contributing factor causing algae outbreaks in this lake, including the presence of toxic blue-green algae. Water quality must be managed during the summer when outbreaks of algal blooms occur.

The majority of water used to reticulate POS is sourced from groundwater supplies. The exceptions are Taylor Reserve and McCallum Park, which are irrigated using reclaimed stormwater and several small neighbourhood parks throughout the Town where scheme water is used. The Town coordinates the reticulation systems remotely, as well as on-site.

Urban development and activity that has occurred on or adjacent to the Swan River has impacted heavily on the ecologies and water quality contained within the river system in the past. Various environmental regulations and initiatives are focussed on protecting and enhancing the river system's natural values, with the Swan Canning Water Quality Improvement Plan (2009) one example of established management and control actions for the river catchment.

Better Urban Water Management (2008) embeds a total water-cycle management approach into the various land use planning and approval processes and has specific recommendations on the content of a LPS, as summarised in section 2.3.

4.4 Population and Housing

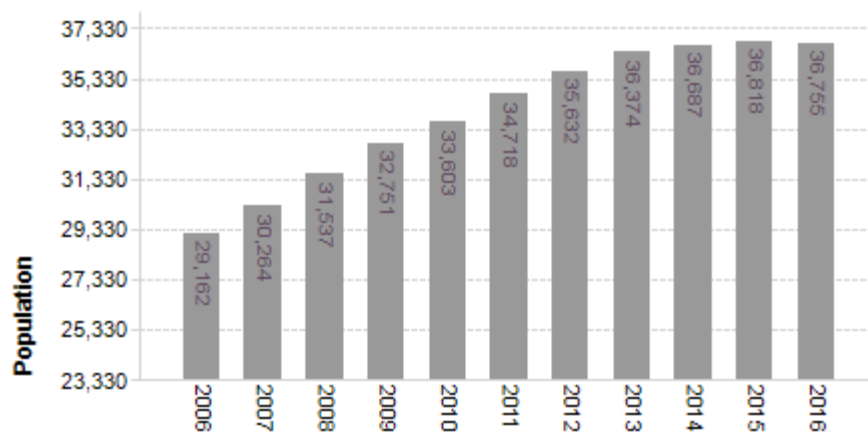
The Town is due to experience significant population change in coming years. Change is expected to result from migration, natural increase and aging of the population. Global trends, such as urbanisation, growth of the global economy and community expectations around sustainability will also drive population change.

This section provides a snapshot of the current composition of the Town’s population and housing stock and what they are likely to look like in the future. This is based on data from a range of sources including *Future Trends*, id forecasts and the Australian Bureau of Statistics and informed by the regional and local strategic planning context.

4.4.1 Current Population Size

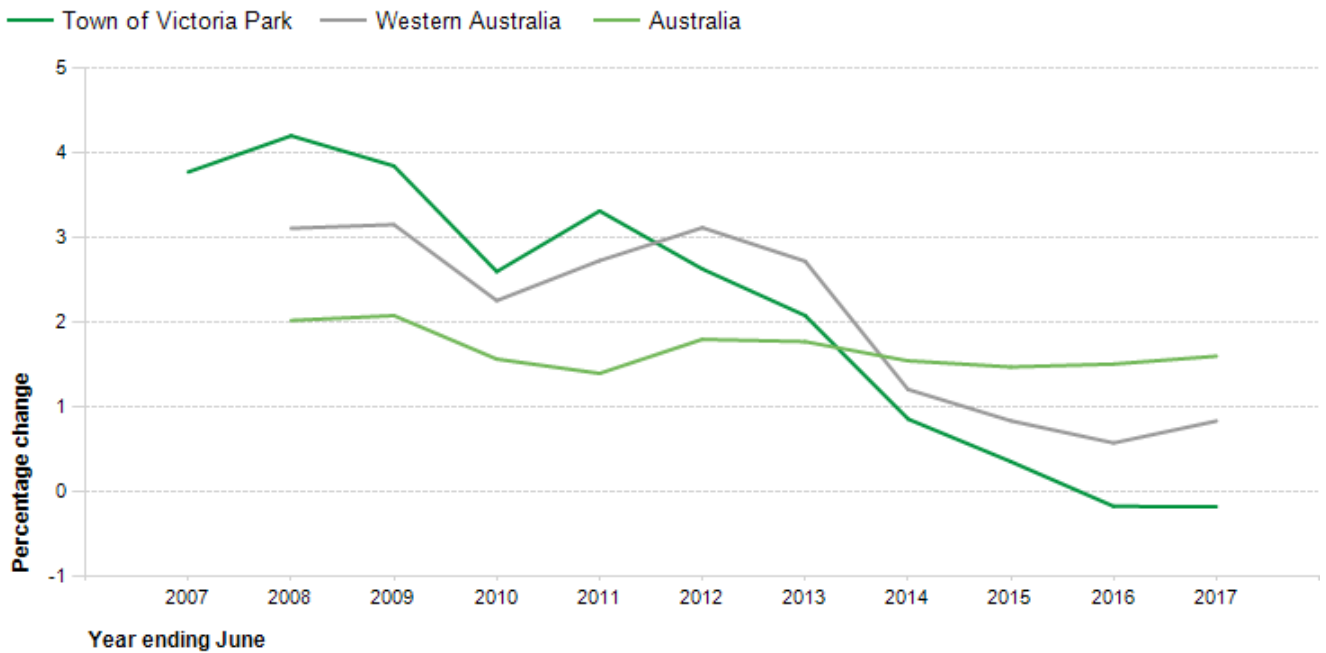
The Town’s population in 2016 was estimated to be 36,755. It increased by 2,037 persons in the five year period between the 2011 and 2016 censuses, during which time 1,172 new dwellings were constructed, though this was a significant slowing of growth from the 2006-2011 period when the population grew by 5,556 persons.

Estimated Resident Population Town of Victoria Park



Source: Australian Bureau of Statistics, Regional Population Growth, Australia (3218.0). Compiled and presented by .id the population experts

Estimated Resident Population (ERP)



Source: Australian Bureau of Statistics, Regional Population Growth, Australia (3218.0). Compiled and presented in economy.id by .id, the population experts



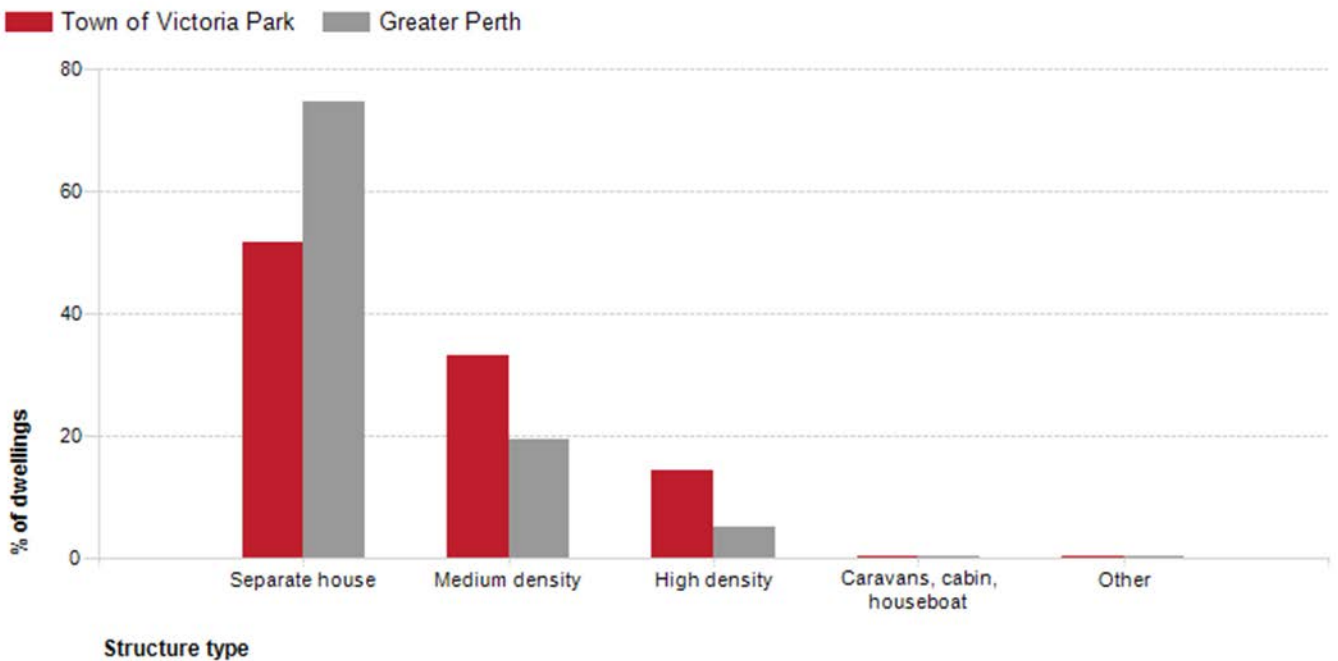
Figures 12a & 12b: Estimated Resident Population – Town v Western Australia v Australia

4.4.2 Current Dwelling Composition

The Town has a very different composition of housing in comparison to Greater Perth. In Greater Perth, separate houses make up the vast majority (74.6%) of dwelling stock, but in the Town, they account for just over half (51.6%).

Medium density housing in the Town makes up 33.3% of dwelling stock, compared to the Greater Perth average of 19.6%. These proportions have increased marginally in both Perth and the Town in recent years. The Town also has a higher than average proportion of high density dwellings, accounting for 14.5% of all dwellings (compared to 5.1% in Greater Perth).

Dwelling structure, 2016



Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Enumerated data)
 Compiled and presented in profile.id by .id, the population experts.



Figure 13: Dwelling Structure 2016

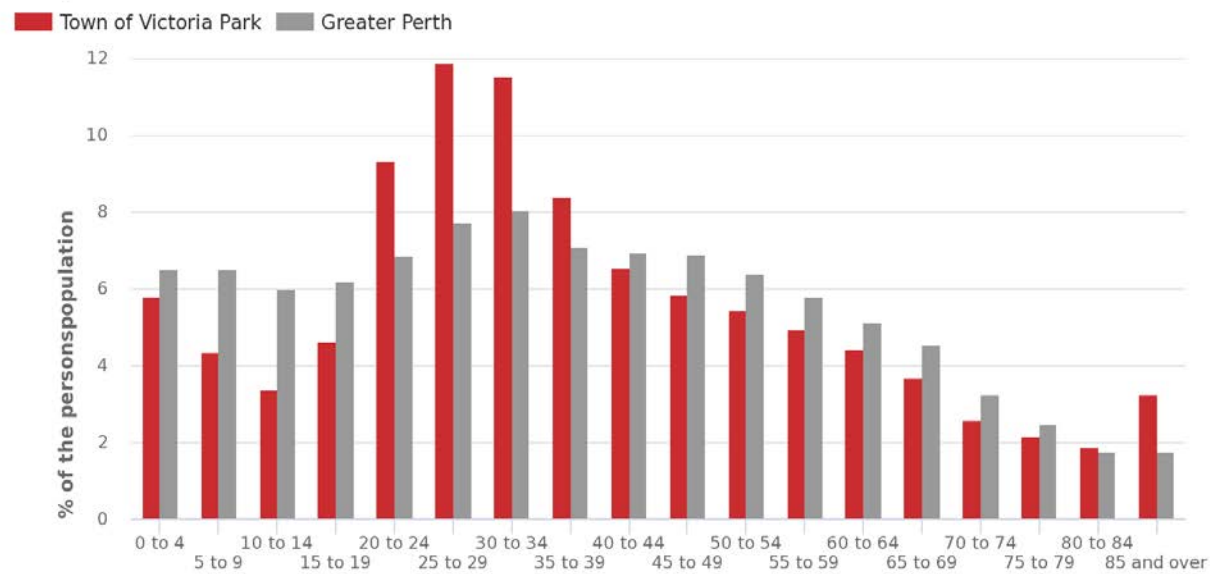
4.4.3 Current Age Structure

As shown in Figure 14, the Town’s population is currently dominated by younger adults aged 20-34 who make up a greater proportion of total residents than Greater Perth. A large and increasing contingent of young professionals currently occupy the area. Most are renters, but increasingly they are buying houses and having children. There has been a considerable increase in children aged 0-4 years, showing the dominant group of young couples are beginning their families in the Town. This is a trend seen in inner suburban areas across Australia – families are choosing to live and raise their children there at least for the early years, close to employment opportunities and inner city life. As children reach high school age, families tend to move further out into nearby suburban areas.

Compared to Greater Perth, there are relatively few people of middle age, but a high proportion of elderly due to the presence of retirement villages in Bentley.

Age structure - five year age groups, 2016

Total persons



Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Usual residence data). Compiled and presented in profile.id by .id, the population experts.



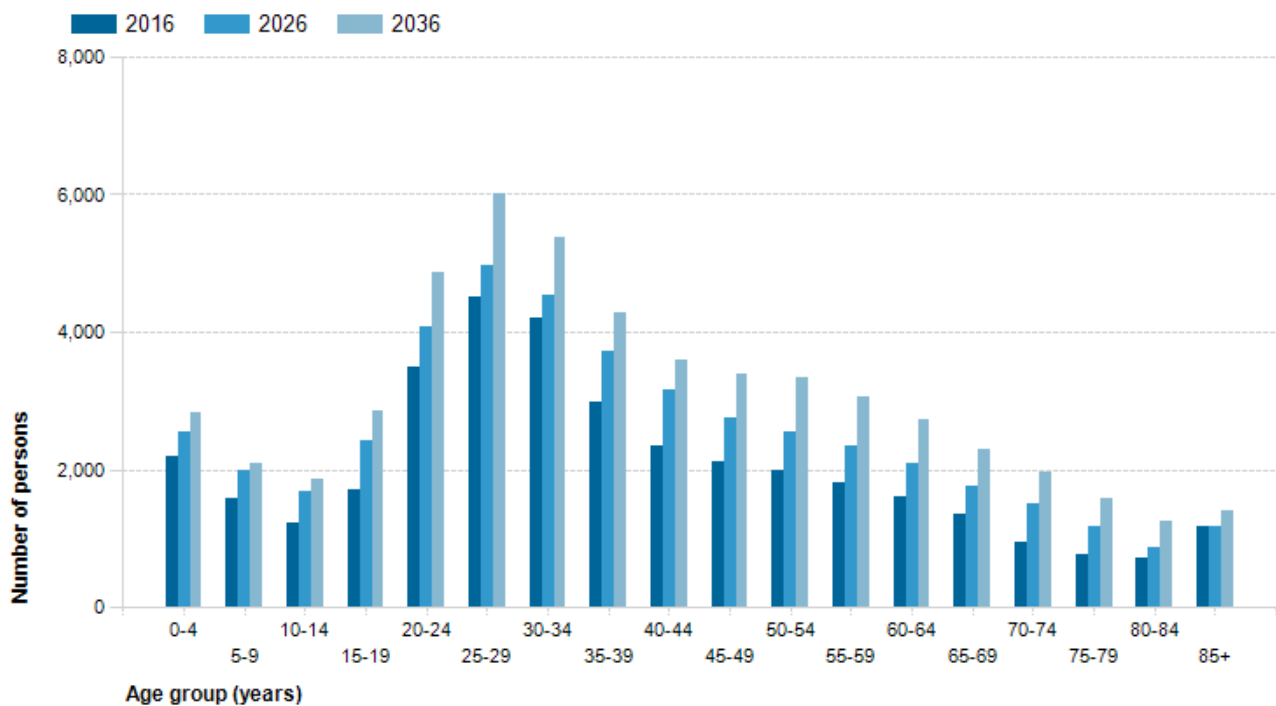
Figure 14: Age Structure 2016

4.4.3 Forecast Age Structure

The age structure of the population in 2036 is not expected to change significantly as the proportions of age groups remain fairly constant and only the total numbers are increasing, as shown in Figure 15.

Forecast age structure - 5 year age groups

Town of Victoria Park - Total persons



Population and household forecasts, 2016 to 2036, prepared by .id the population experts, January 2016.

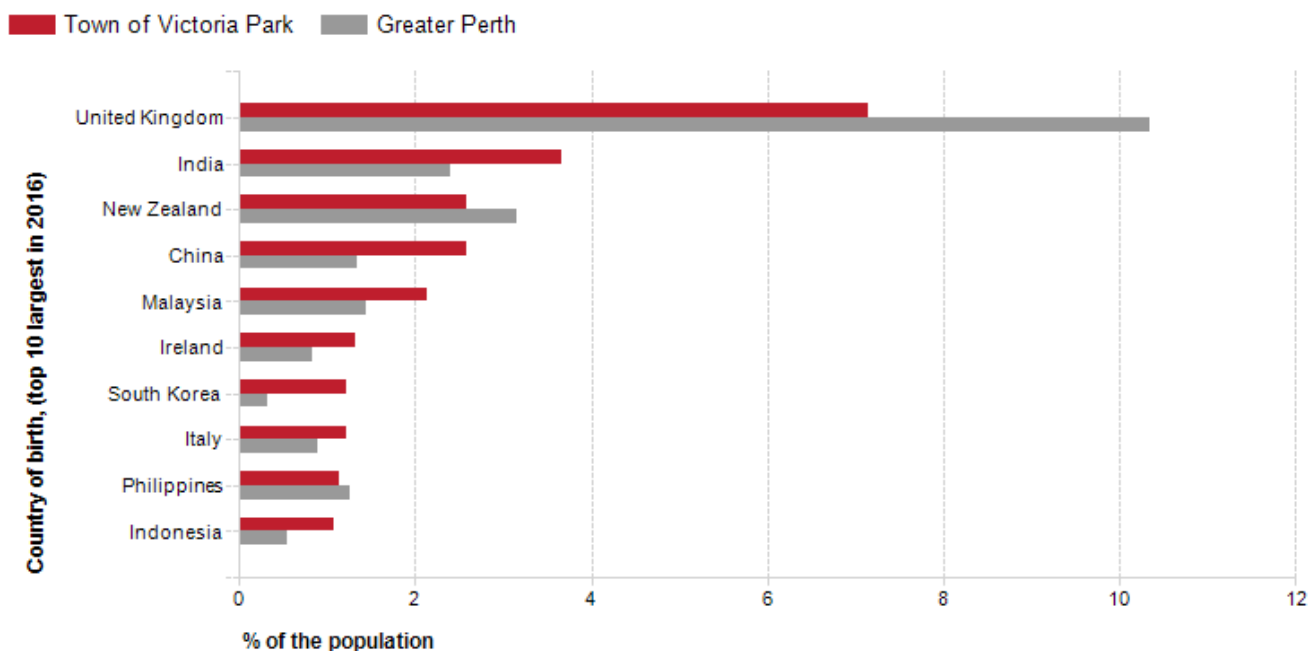


Figure 15: Forecast Age Structure

4.4.4 Birthplace

The Town has a high multicultural demographic with 40% of residents born overseas and 27.5% from a non-English speaking background, compared with 36.1% and 19.3% respectively for Greater Perth. The largest non-English speaking country of birth in the Town of Victoria Park was India, where 3.7% of the population, or 1,281 people, were born.

Birthplace, 2016



Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Usual residence data)
Compiled and presented in profile.id by .id, the population experts.



Figure 16: Birthplace

The Town is also now a destination for overseas migrants from China, Malaysia, Korea and the Philippines. Many migrants are now settling in the area long-term, not just temporarily as university students. Between 2011 and 2016, the number of people born overseas increased by 862 persons, though this was a significant drop from the increase of 3,460 persons between 2006 and 2011. The number of people from a non-English speaking background increased by 813 persons between 2011 and 2016, compared to 2,755 between 2006 and 2011.

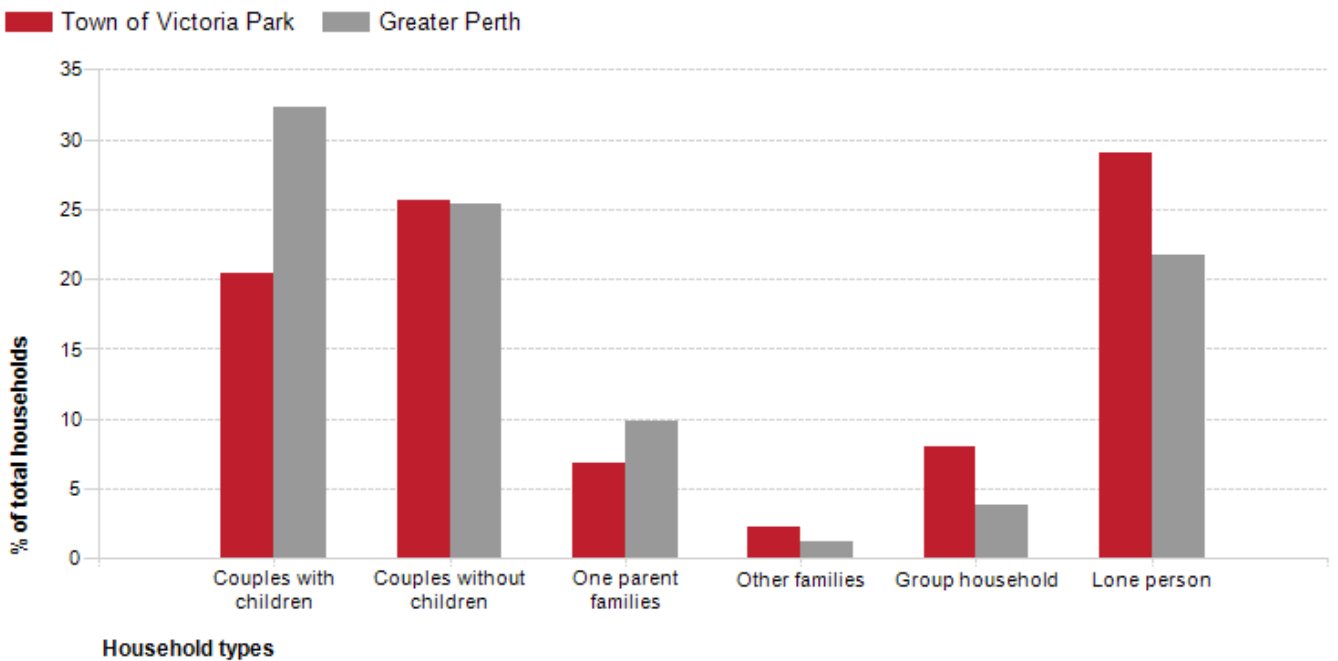
4.4.5 Household Size and Structure

According to the 2016 census, the dominant household type within the Town is the lone person household, which made up 29.0% of household types compared to 21.7% in Greater Perth. There is also a greater proportion of group households in the Town (8.1%) compared to Greater Perth (4.0%).

The greatest growth in household types over the previous five years was in the couples with children (+328 households), followed by couples without children (+278 households). There was a small reduction in the number of lone person households (-145).

The greatest growth in household type between 2016 and 2036 is expected to be lone person households (+3,385 households) and couples without children (+2,910 households).

Household type, 2016



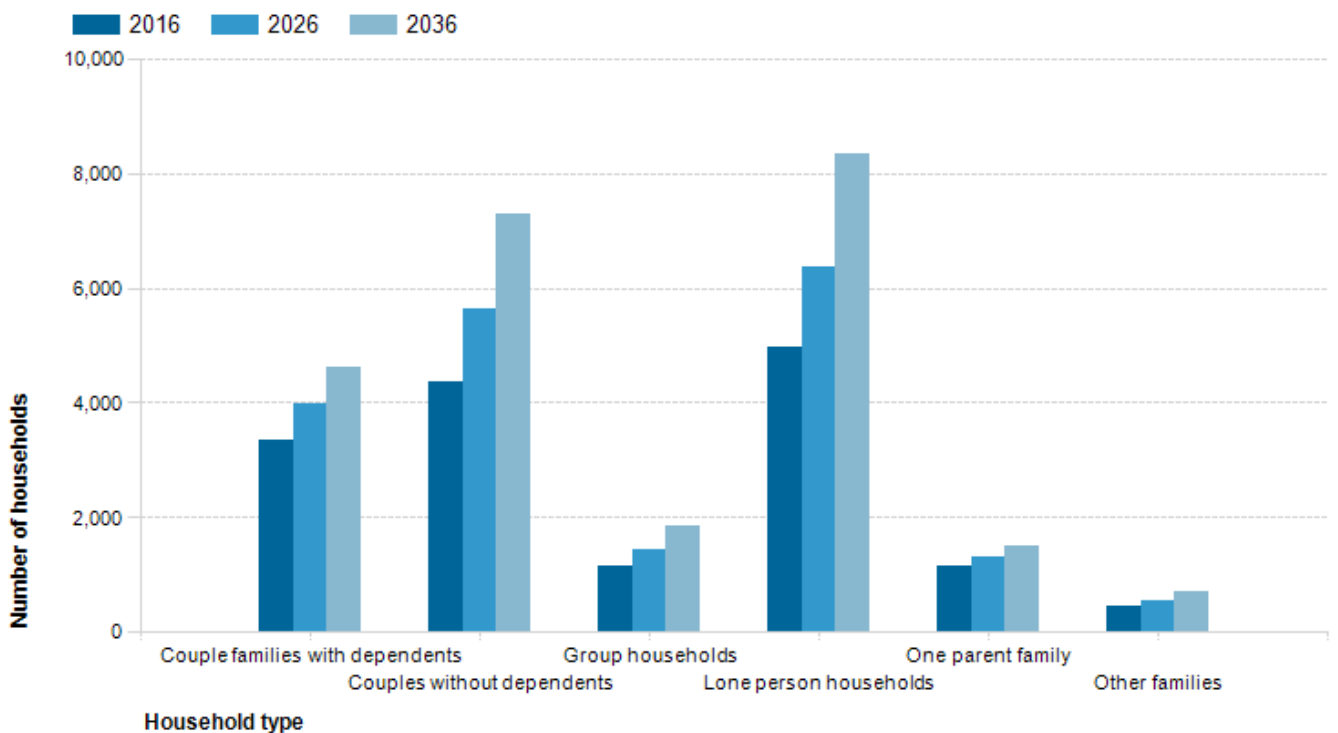
Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Enumerated data)
 Compiled and presented in profile.id by .id, the population experts.



Figure 17: Household Type 2016

Forecast household types

Town of Victoria Park



Population and household forecasts, 2016 to 2036, prepared by .id the population experts, January 2016.



Figure 18: Forecast Household Type 2036

The size of households generally follows the life-cycle of families. Households are usually small at the stage of relationship formation (early marriage), and then increase in size with the advent of children. They later reduce in size again as these children reach adulthood and leave home. Household size can also be influenced by a lack

(or abundance) of affordable housing. An increasing household size in an area may indicate a lack of affordable housing opportunities for young people, an increase in the birth rate or an increase in family formation in the area. A declining household size may indicate children leaving the area when they leave home, an increase in retirees settling in the area, or an attraction of young singles and couples to the area. Overseas migrants and indigenous persons often have a tradition of living with extended family members which significantly affects household size.

Household size in Australia has generally declined since the 1970s, but between 2006 and 2016 the average household size remained stable for the nation as a whole. In 2016, average household size in the Town was 2.22 persons. This is forecast to increase to 2.29 persons in 2021 and then drop again marginally to 2.26 in 2026, 2.22 in 2031 and 2.18 in 2036.

4.4.6 Future Growth Projections

As detailed in section 2.4, the State Government has set targets for the development of additional dwellings for each metropolitan local government in its plans for future growth of the Perth region. A housing target of an additional 11,200 dwellings by 2031 was allocated to the Town by *Directions 2031* in 2011. At that time, the Town had 15,921 dwellings, which meant a target total of 27,121 dwellings by 2031. *Perth and Peel @ 3.5million* later revised the dwellings target for the Town for an additional 19,400 dwellings by 2050, meaning an effective total target of 36,523 dwellings, given that in 2016, there were 17,123 dwellings in the Town.

Dwelling numbers can be influenced through the zoning of land and application of development standards that control where additional development may take place and at what density and scale. The LPS sets out how the Town is proposing to achieve the dwelling targets that have been set through regional plans, supported by .id's dwellings and population forecast data and the Housing Opportunities study.

Continued population growth is expected over a prolonged period and by 2036 it is expected that the Town will house 54,713 persons. This represents an increase to the current population of 45.28% and an average annual rate of change of 2.52%.

Forecast population

Town of Victoria Park

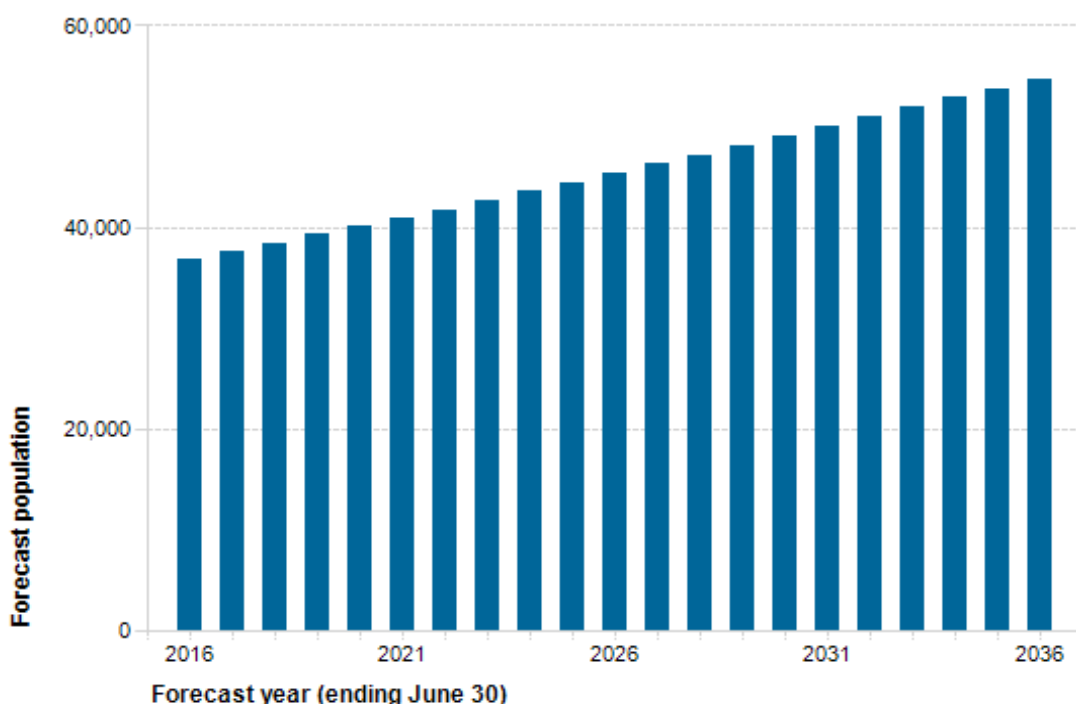
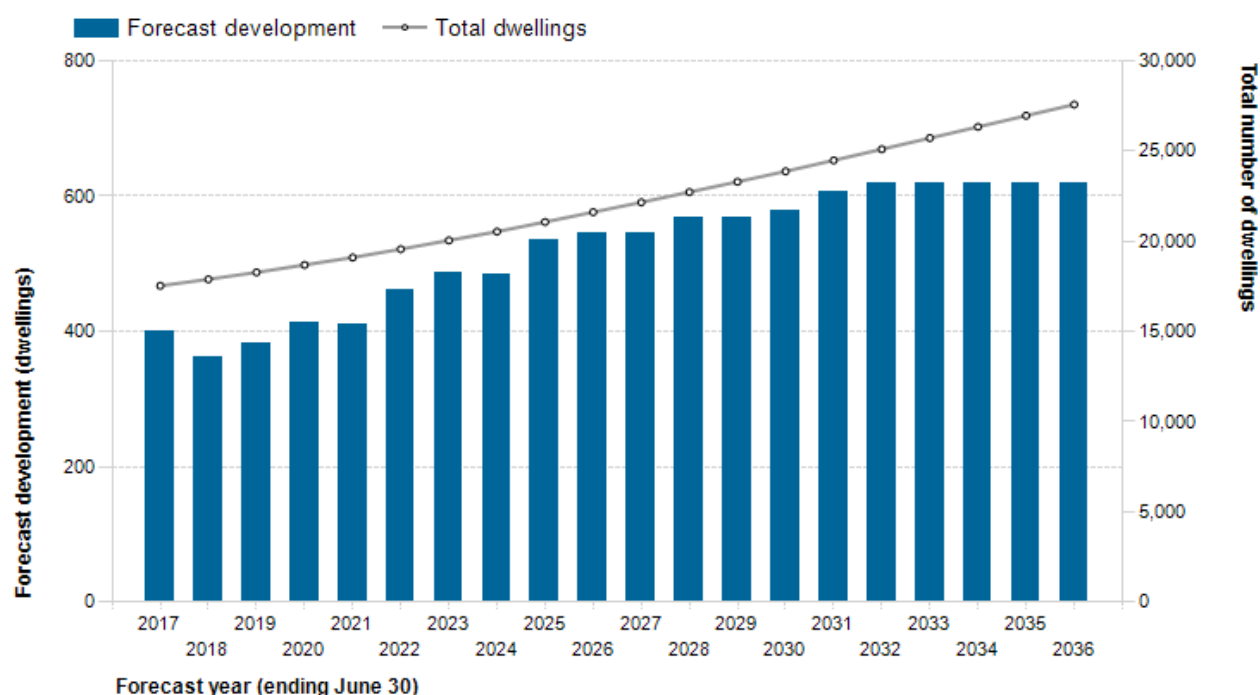


Figure 19: Forecast Population to 2036

Forecast residential development

Town of Victoria Park



Population and household forecasts, 2016 to 2036, prepared by .id the population experts, January 2016.



Figure 20: Forecast Dwellings to 2036

Anticipated dwelling and population growth across each of the Town's suburbs is detailed in the following tables. Further explanation of where growth is anticipated follows later in section 4.4.7.

Forecast Dwellings by Suburb

Town of Victoria Park	2016		2036		Change between 2016 and 2036		
	Area	Number	%	Number	%	Number	%
Town of Victoria Park		17,123	100.0	27,564	100.0	+10,441	+61.0
Bentley		771	4.5	1,071	3.9	+300	+38.9
Burswood		1,319	7.7	9,800	35.6	+8,481	+642.8
Carlisle - Welshpool		3,163	18.5	3,313	12.0	+150	+4.7
East Victoria Park - Kensington		4,722	27.6	5,397	19.6	+675	+14.3
Lathlain		1,494	8.7	1,702	6.2	+208	+13.9
St James		906	5.3	976	3.5	+70	+7.7
Victoria Park		4,747	27.7	5,304	19.2	+557	+11.7

Population and household forecasts, 2016 to 2036, prepared by .id, the population experts, January 2016.

Forecast Population by Suburb

Town of Victoria Park	Forecast year				
Summary	2016	2021	2026	2031	2036
Population	36,755	40,861	45,344	49,913	54,713
Change in population (5yrs)		4,105	4,484	4,569	4,800
Average annual change		2.14%	2.10%	1.94%	1.85%
Households	15,402	17,149	19,315	21,722	24,278
Average household size	2.28	2.29	2.26	2.22	2.18
Population in non private dwellings	1,674	1,674	1,674	1,674	1,674

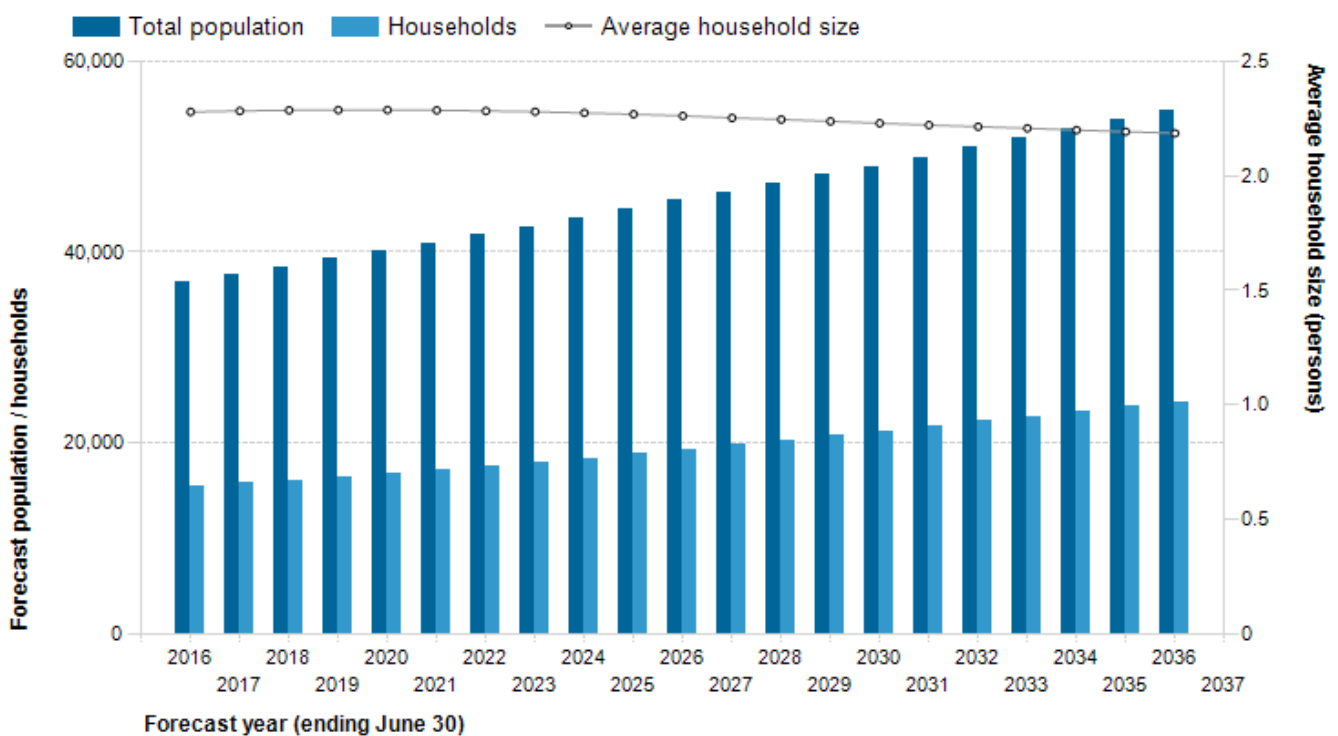
Dwellings	17,123	19,089	21,601	24,468	27,564
Dwelling occupancy rate	89.95	89.84	89.42	88.78	88.08
Population and household forecasts, 2016 to 2036, prepared by .id, the population experts, January 2016					

	2011		2016		2031		2036		Ultimate 2050+	
Separate Houses	8,312	52.2%	8,886	51.9%	8,389	34.5%	8,435	30.6%	8,531	15.6%
Medium Density	5,110	32.1%	5,737	33.5%	6,047	24.8%	6,285	22.8%	13,381	24.5%
High Density	2,499	15.7%	2,499	14.6%	9,901	40.7%	12,844	46.6%	32,731	59.9%
Total Dwellings	15,921	100%	17,122	100%	24,337	100%	27,564	100%	54,643	100%

Source: 2011 & 2016: census and id profile, 2031 & 2036: .id forecast, ultimate: TVP data

Forecast population, households and average household size

Town of Victoria Park



Population and household forecasts, 2016 to 2036, prepared by .id the population experts, January 2016.



Figure 21: Forecast Population, Households and Average Household Size 2016-2036

By 2050, the Town will have evolved to a community of 75,000 residents. Scope exists for the Town’s population to further increase to around 110,000 once all development that is currently anticipated is complete, though this is not expected to occur until sometime after 2050.

Ultimate dwelling estimates are based on less reliable sources than the data prepared by forecast.id as this looks at the long term future of the Town. It should be noted that this does not correspond to the 2050 dwelling targets of *Perth & Peel @3.5 million* and is likely to take significantly longer than the 2050 timeframe. The data is based on the Town’s current land use expectations for the ultimate build-out. This is necessarily unreliable as development trends will change in the future and what is currently unacceptable to the Town’s community may change in the future. The data assumes full build out of the areas currently subject of structure plans and additional density around existing railway stations, in particular Oats Street Station.

The ultimate dwelling data shows the Town is likely to substantially exceed the 2050 dwelling target of an additional 19,400. Given the areas subject to approved structure plans and master plans, it is very likely that the Town will reach over 35,321 total dwellings by 2050. The ultimate build-out potential demonstrates that the land use planning provisions need to be in place to accommodate the anticipated level of growth. The challenge is to ensure that infrastructure and services keep pace with the rate of residential development. This includes commercial premises, community facilities, transport systems, public open space and servicing infrastructure.

4.4.7 Planning for Future Growth

TPS 1 identifies a number of areas that permit higher density development. These are generally areas subject to historic higher density development patterns, such as along the ridge line, or areas that are separate from the existing lower density residential areas, such as the Burswood Peninsula and the Causeway Precinct. Another area is along Albany Highway where higher density residential and mixed use development has been considered desirable to increase the vibrancy of the Activity Centre.

The majority of the existing residential areas within the Town have a lower to medium density coding of R20 or R30 with some pockets of R40. These areas are expected to be developed for single and grouped dwellings of one or two storeys in height.

In addition to existing zoning provisions, various Structure Plans provide for higher density development within specific areas. The approved Structure Plans make provision for the following dwelling numbers:

Structure Plan	Dwelling Numbers	Comment
Burswood Lakes Structure Plan	1,250	Substantially completed.
Belmont Park Racecourse Redevelopment Structure Plan	3,000 – 4,500	Requires Local Development Plans for each precinct before development can occur.
Burswood Station East	3,600	Draft Structure Plan in preparation.
Bentley/Curtin Specialised Activity Centre Structure Plan	5,000	Broad district-level Structure Plan, which requires more detailed work as part of a Local Structure Plan to enable implementation. 1,345 dwellings already exist in the Plan area.
Causeway Precinct	1,150	Review of Scheme provisions to examine if scope exists for additional growth potential is warranted.
Total	14,000 – 15,500	

The Town is able to accommodate additional dwellings within areas where limited impact on existing lower density residential neighbourhoods should result. Generally, additional development is expected to be concentrated in the following locations:

- Burswood Peninsula
- Causeway Precinct
- Albany Highway
- Oats Street Station Activity Centre
- Carlisle and Victoria Park railway station precincts
- Curtin University-Bentley

Most new development in these locations is expected to be in the form of multiple dwellings. Given the predominance of one and two-person households within the Town, there appears to be a need for additional development of smaller, apartment-style dwellings.

Elsewhere, additional medium density housing, including infill development, is anticipated in accordance with current residential density codes in Carlisle and St James and to a lesser extent in Victoria Park, East Victoria Park and Lathlain.

To balance this, there is a need to ensure the availability of homes to cater for families choosing to live within the Town. Low density/single house development is expected to be maintained, though not increase in most areas as low density neighbourhoods are generally fully developed, with some minor exceptions in Lathlain and East Victoria Park, which have a small number of under-developed R20 lots remaining.

While TPS 1 already provides significant scope for more intensive development than currently exists, many of the areas identified with this potential in the LPS require additional planning to enable and guide this transformation, such as master planning, changes to scheme provisions or infrastructure funding arrangements. Key areas requiring planning or further investigation for future development are described below.

Oats Street Activity Centre

The potential activation of land around Oats Street railway station for higher intensity, mixed-use development is a key outcome of the LPS.

The area around and to the south of Oats Street railway station is currently zoned Industrial under TPS 1 and Urban under the MRS. The portion of land on the eastern side of the railway line is zoned Industrial under the MRS. The area has had some developer-interest since the completion of a mixed use development in a R60-Special Use zone on Welshpool Road.

The Town has been in discussion with Department of Transport and Public Transport Authority (PTA) regarding the location of Oats Street railway station. The station is currently located too close to Oats Street to allow for grade separation of the road and railway line and will need to be moved to achieve a grade-separated crossing. The ultimate location of the train station has not yet been determined and would depend on the future of nearby train stations. It is likely that Welshpool station to the south will be closed due to its limited patronage, being located in an industrial area with very low boarding numbers. Carlisle station, which also has a relatively low number of boardings and its future is under consideration, on the other hand has potential for more intensive residential and commercial development and should therefore be retained.

Relocating Oats Street to the south would have a beneficial impact for the walkable catchment and would bring the train station closer to the centre of the future activity centre. Figures 22 and 23 highlight the 400m and 800m catchment based on the current station location (Figure 22) and the potential future station location (Figure 23). A detailed investigation including master plan and activity centre plan need to be undertaken to determine future potential of this precinct, including infrastructure capacities and integration with surrounding land uses. This should include the entire activity centre, including the residential zoned components to ensure the full potential of the transit oriented development is realised.

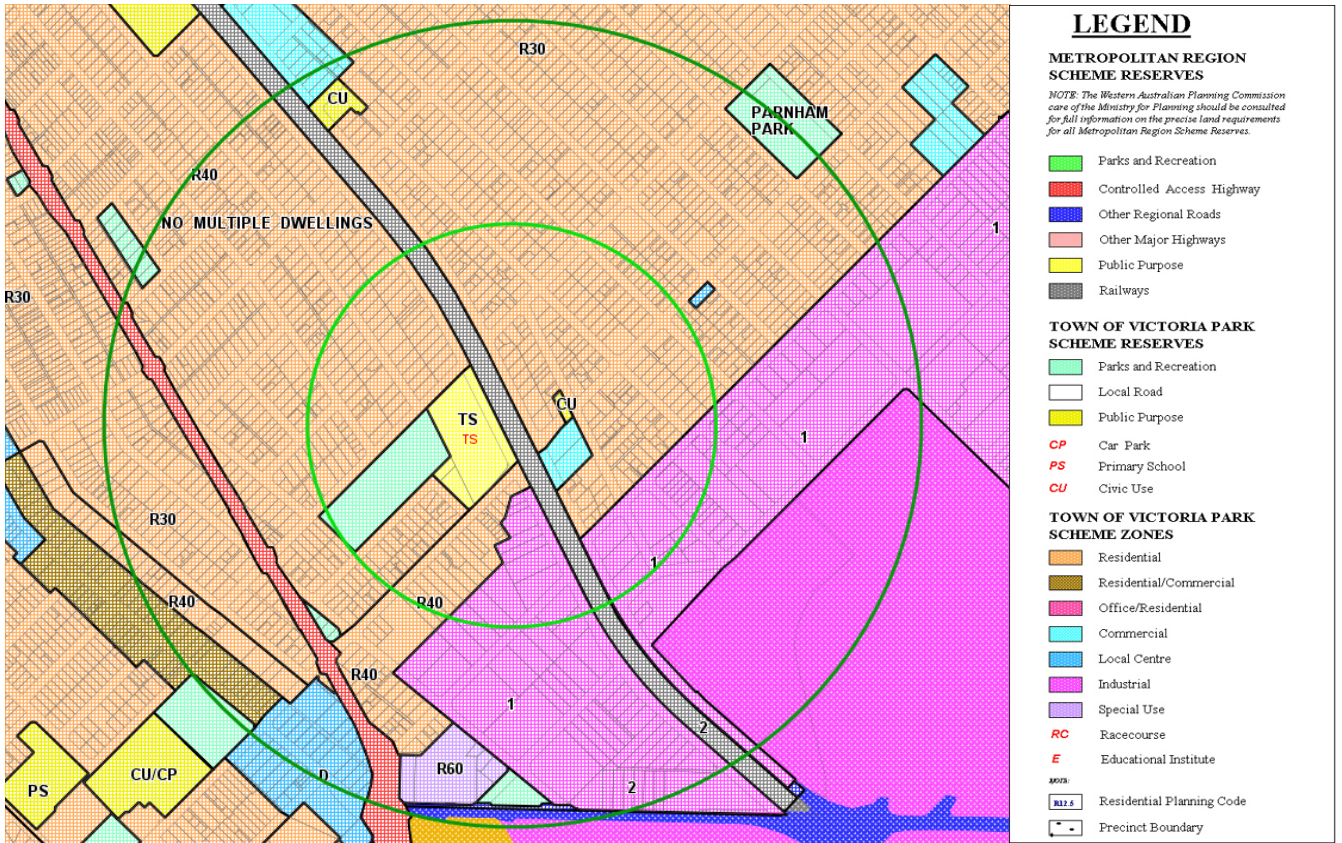


Figure 22: Current TPS 1 Map for the Oats Street Station walkable catchment (existing station location)

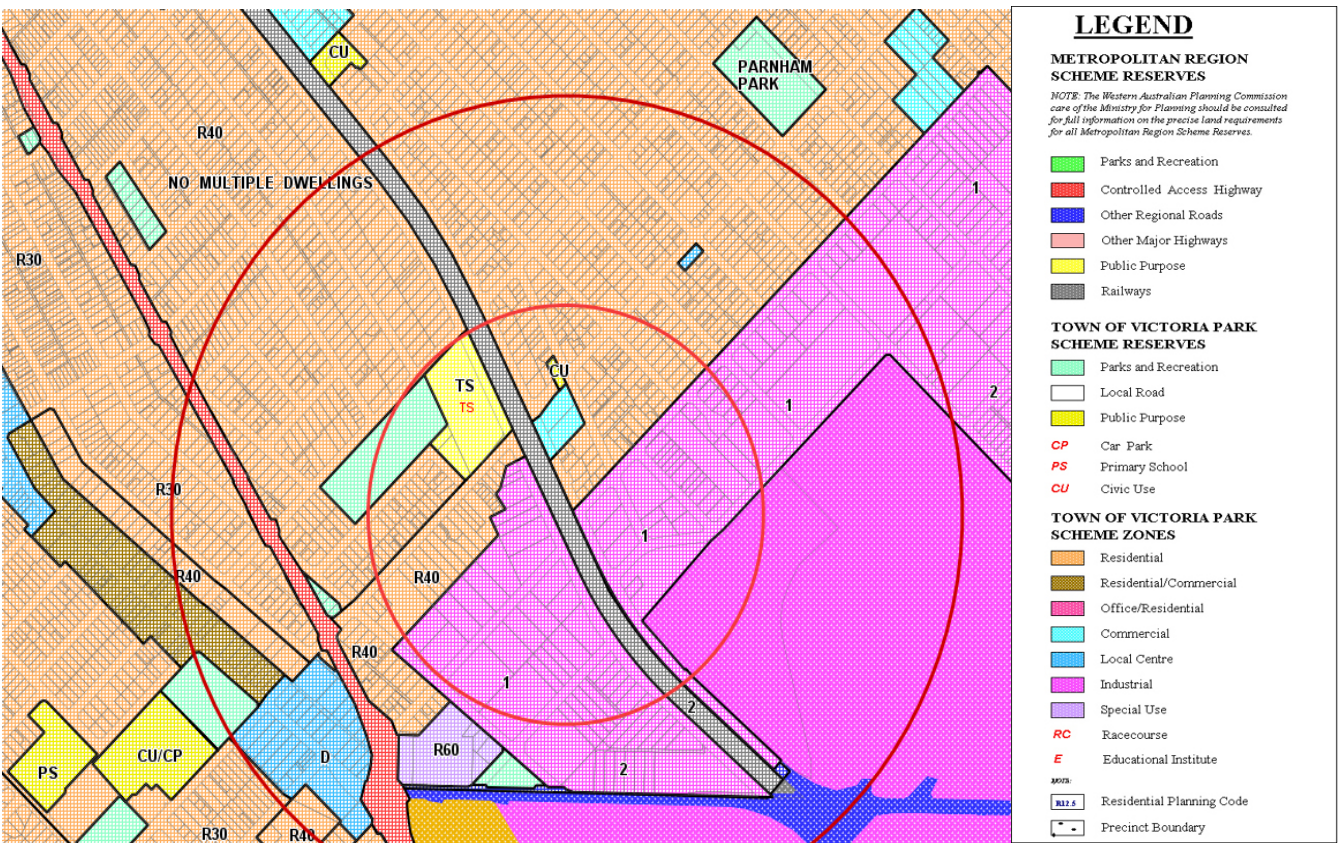


Figure 23: Current TPS 1 Map for the Oats Street Station walkable catchment (relocated station location)

Burswood, Victoria Park and Carlisle Station Precincts

Land around the Carlisle and Victoria Park stations, as well as land in Lathlain located within the walkable catchment of Burswood Station is largely zoned residential. Each station has significant potential to form the focal point of transit oriented development precincts, but also some constraints to realising this potential, particularly in respect to potential impacts on heritage buildings, established neighbourhood character and infrastructure capacity.

Carlisle Station

Discussion with the PTA has indicated that there is a push from the State Government to improve railway line efficiencies and close under-performing stations, with Carlisle station currently having insufficient boardings to justify its retention. It is in the Town’s interest, however, to keep all stations within the Town open in part due to the expected population growth and an increased reliance on public transport to cope with the expected growth in transport needs. Another significant consideration is the direct link between Carlisle station and Park Shopping Centre shopping centre on Albany Highway.

Figure 24 shows the 400m and 800m catchment of the Carlisle train station. While a significant portion of the residential catchment within East Victoria Park falls within the Residential Character Study Area and has therefore limited potential for further significant density increases, there is scope of increasing densities in Carlisle to boost the population within the catchment. Further investigation is required, taking into account recently subdivided and developed land, which is unlikely to redevelop in the near future. The link between Carlisle Station and the Albany Highway Activity Centre along Mint Street could also be strengthened to improve walkability between Albany Highway and the station.

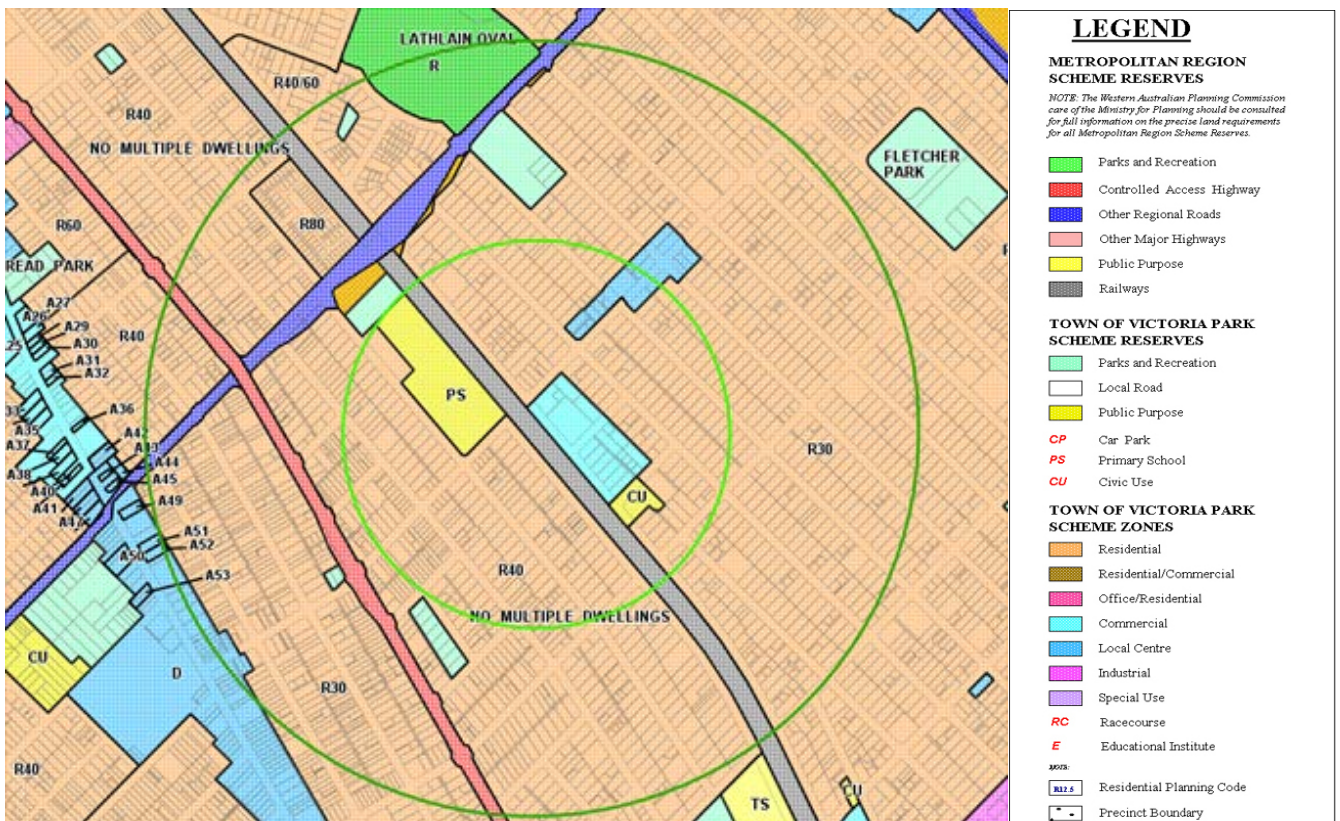


Figure 24: Current TPS 1 Map for the Carlisle Station walkable catchment

Victoria Park Station

Victoria Park station also has part of its catchment within the Residential Character Study area and as a result has limited scope for a significant increase in density in this area. Further density increases can be considered for Lathlain and Burswood as well as the link between the station and Albany Highway along Duncan Street. The future of the Association for the Blind land Rutland Ave requires consideration.

An increase in density in Lathlain within the train station catchment would benefit the redeveloped Lathlain Park Precinct and enable greater activation and therefore safety on the route between the train station and Lathlain Park. At the same time additional residential development would boost the small Lathlain Place activity centre and aid its continued survival.

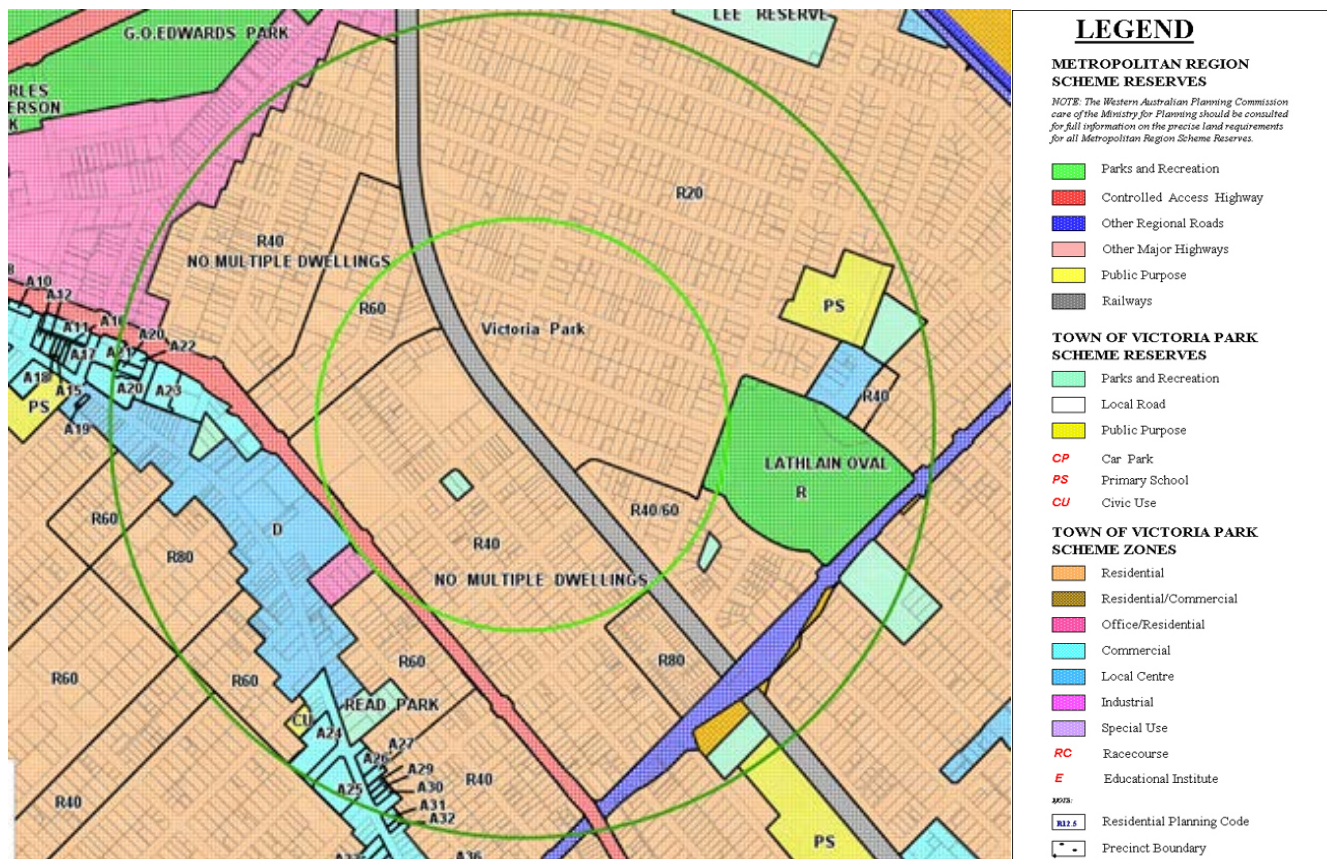


Figure 25: Current TPS 1 Map for the Victoria Park Station walkable catchment

Burswood Station

The catchment for Burswood Station is mainly located within the Burswood Peninsula and that is addressed separately through detailed planning for the Burswood Station East and West Precincts. However, the north-western portion of Lathlain also falls within the walkable catchment due to the location of the pedestrian bridge over Great Eastern Highway linking Lathlain with Burswood Station.

While Figure 26 shows the 400m radius to encompass a significant portion of northern Lathlain, it is unrealistic to expect pedestrians to safely cross Great Eastern Highway and therefore only the portions of Lathlain in close proximity to the footbridge should be considered for a density increase.

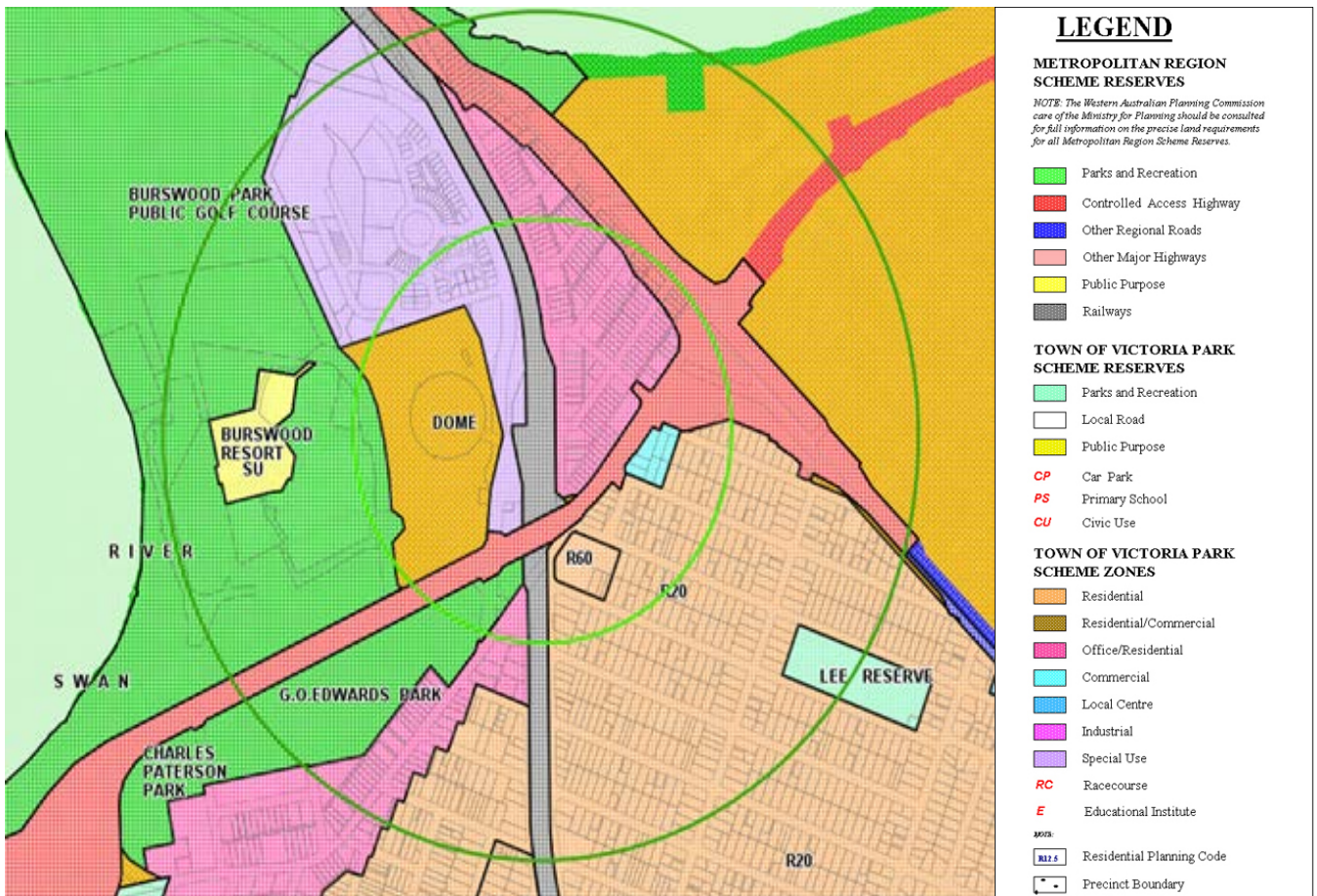


Figure 26: Current TPS 1 Map for the Burswood Station walkable catchment

Kent Street

Kent Street is an important connector between the Albany Highway Secondary Centre and the Curtin-Bentley Specialised Activity Centre. Kent Street is also a potential route for light rail or bus rapid transit connecting Curtin-Bentley to UWA/QEII via the City.

While a portion of Kent Street is located in the Residential Character Study Area and includes a very intact character streetscape, especially on the southern side, the western portion could be considered for increased density.

East Victoria Park/St James

The parts of East Victoria Park and St James located west of Berwick Street have generally been retained at a lower density of R20 as an area for family homes and bigger backyards. However, the area borders the Curtin-Bentley Specialised Activity Centre, which will ultimately evolve into a major destination for employment, residential, research and development as well as educational uses. The area is also well serviced with bus services that link Curtin with central Perth and Oats Street station and beyond.

It is the stated intention of Curtin University to open up its campus to the wider Town community and to look outwards and integrate with the Town rather than retaining its past inward focus. This has given the Town the incentive to consider its interface with the Specialised Activity Centre and open up the Town's interface towards Curtin.

The development of the Curtin-Bentley Activity Centre is a long term prospect with the need to complete more detailed planning to implement the District Structure Plan prepared by the Department of Planning in late 2016 as well as legislative change to enable Curtin University to implement their ambitious expansion plans. As a result, the investigation of the residential area for potential future density increase are also treated as a long term

prospect. This should not be included in the review of the local planning scheme at this stage but should be earmarked for future Scheme reviews.

Similarly, the future size of the Etwell Street Local Centre needs to be considered in light of the potential future population of the area as this centre might not sufficiently serve the future population, though this is not identified as an urgent required action.

Other Locations

Other areas that should be considered for increases in density in future include:

- The area around Lathlain Park that could benefit from additional activation and community uses currently being established there; and
- The transition from the Albany Highway Activity centre to the adjacent, mostly lower density, residential area. While this area generally falls within the Residential Character Study Area, there may be scope to refine development controls to exclude some areas with few original dwellings available.

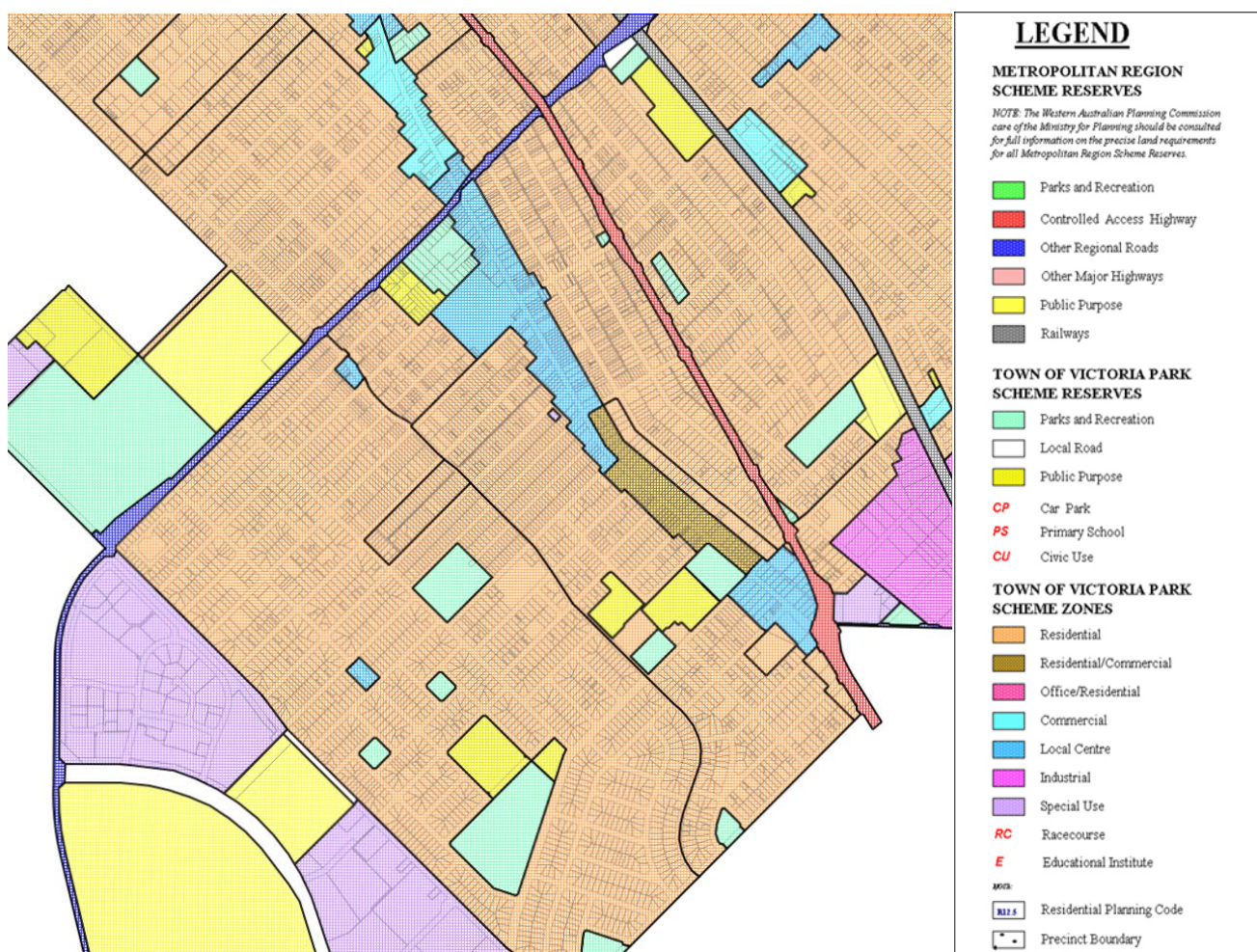


Figure 27: Current TPS 1 Map for East Victoria Park (including the Kent Street urban corridor) and St James

4.4.8 Housing Affordability

As detailed in section 2.1, the State Government has explored options to increase the ability of the planning system to deliver affordable housing. The Town’s submission on the 2013 Housing Affordability Discussion Paper highlighted the following:

- Local government needs to have control over the locations in which affordable housing is being introduced, either through voluntary or mandatory provisions.
- Given the Town’s experience with voluntary, incentive-based affordable housing provisions within the Causeway Precinct, it is considered that mandatory provisions in strategic locations are needed to ensure affordable housing units are being developed.

- Ongoing administration of affordable housing units is not to be left with local government. Mechanisms need to be in place to ensure that affordable housing units remain 'affordable' in perpetuity.
- A clear implementation model needs to be in place that eliminates any uncertainties for the developer and the planning authority and avoids time delays in the assessment of development applications that include affordable housing.
- Incentives need to be a combination of planning incentives and other financial incentives at State and/or federal government level, such as through the taxation system, to be effective in off-setting any loss in revenue for the developer. The planning system alone cannot provide sufficient incentives for a development that includes affordable housing to be viable.

Legislation needs to be amended to remove any doubt about the ability of planning schemes to address affordable housing and to enable local government to encourage affordable housing development by offering development incentives. This would need to be supported by a specific affordable housing needs analysis to ensure the right dwelling mix is being achieved.

TPS 1 contains a provision in the "Development Standards for Causeway Precinct" which states the following: *"Where a developer/proponent proposes affordable housing provision (for example via the inclusion of shared equity units) within their development Council will negotiate development incentives. These incentives could include reduced parking requirements."*

This clause should be extended to include the Albany Highway Precinct within the new local planning scheme.

To date developers have not shown any interest in taking up any incentives offered under this provision. It is therefore questionable whether incentives offered under the planning system alone are sufficient and other incentives, possibly through the taxation system, may need to be considered alongside planning incentives to improve uptake of any voluntary, incentive based provisions.

Form-based codes that are based on optimum built form outcomes are in some ways undermining the possibility to offer incentives as the optimum built form outcomes have already been applied through the local planning Scheme and any incentives could result in negative built form and urban design outcomes.

Consideration needs to be given to other desired outcomes, such as preservation of character areas and achieving good urban design outcomes. Provision of affordable housing cannot take precedence over other objectives or be to the detriment of achieving good planning and urban design outcomes for the local community.

Housing affordability was examined by id. in 2016 as part of its review of housing opportunities in the Town. Housing stress was evaluated in respect to pressure on both mortgagees and rental tenants. The data found that mortgage stress was not a significant issue in the Town, possibly because those that cannot afford to live in the area have purchased elsewhere. However rental stress was significantly higher than the Perth metropolitan average, mainly because many rental households are on low incomes. Some of this relates to the prevalence of public housing in Bentley, but it could also mean that some renters are prepared to accept a trade off in housing costs to live in an area that has good accessibility to employment, education and lifestyle opportunities.

Housing affordability has an element of subjectivity to it and there are a range of factors that impact on it. Given assumptions about market conditions and interest rates, the data indicates that the Town is largely unaffordable to lone person households. This is significant in light of a small decline between 2011 and 2016 in the number of young lone person households, indicating that they either have moved elsewhere or adjusted their living arrangements to become a two or more person household to share costs.

While housing affordability is a serious concern, there is limited opportunity for local government to influence affordability. Some ways of improving affordable living are to:

- Require less car parking bays in areas with good accessibility to public transport to reduce construction costs of dwellings and encourage residents to use alternative forms of transport (already proposed as a Local Planning Policy for development along Albany Highway) – though issues with market acceptability of such a measure are acknowledged.

- Encourage smaller and more affordable housing appropriately in or near activity centres and with good access to public transport and employment opportunities.

4.4.9 Sustainable Housing and Alternative Housing Options

The community engagement process through the ‘Evolve’ initiative highlighted the community’s desire to focus on sustainability in housing. This has highlighted the need to review Council’s *Local Planning Policy – Streetscape* to encourage residential development to adopt sustainable design features for low and medium residential development. Council’s *Local Planning Policy 20: Design Guidelines for Developments with Buildings Above 3 Storeys* already contains sustainability requirements for high density residential, commercial or mixed-use developments. These Design Guidelines should also be reviewed to ensure that they remain up-to-date and stay relevant in a rapidly changing environment.

A review of the *Local Planning Policy – Streetscape* should balance the needs of sustainable housing design with the need to complement the residential character of the locality where this is appropriate. Given the projected population growth and increase in high density living, the use of roof top gardens and green walls should be encouraged where appropriate to compensate for the lack of backyard space.

Alternative housing options, such as share houses and student housing should also be considered and barriers to their development removed from the local planning scheme. These alternative housing options can contribute to a more sustainable lifestyle by providing accommodation for low income earners such as students, young professionals and low paid workers in or close to activity centres, such as along Albany Highway or near Curtin University. This can also reduce housing costs and provide for more affordable housing within the Town.

4.4.10 Accessible Housing

Accessible Housing refers to housing that has been constructed or adapted to enable independent living for persons with disabilities or special needs. With an aging population, provision of suitable housing is becoming more important.

A number of aged care facilities and retirement villages are located within the Town, mostly in Bentley. However, the trend is towards dispersed small-scale accessible housing within residential areas. This should be encouraged in the local planning scheme, subject to location criteria, such as:

- Within or close to activity centres
- In close proximity to public transport
- In close proximity to major services such as shops, medical centres and similar.

4.4.11 Short Stay Accommodation

The Town has been experiencing a growing demand for short-stay accommodation due to its close proximity to the Perth CBD, Curtin University, airport and the Swan River as well as the wide range of commercial, retail and educational opportunities available within the Town.

An increase in events and activities on the Burswood Peninsula with the opening of Perth Stadium are expected to increase demand for tourism facilities, including accommodation within the Town. The Town is in a good position to accommodate some of this demand due to its excellent public transport accessibility and supporting facilities such as the Albany Highway main street which has potential to attract visitors, though this must be balanced with the amenity expectations of residents in terms of the suitability of short stay accommodation when seeking to establish in predominantly residential areas.

The growth of short-stay accommodation has increased in popularity within the Town, as evidenced by the fact that as at May 2018, approximately 175 properties in the Town were being advertised for short-term rent on online accommodation booking site Airbnb.

The Town has adopted *Local Planning Policy 31: Specialised Forms of Accommodation other than Dwellings* which provides guidance for required standards and location criteria for residential accommodation that does not fall under the definition of a “dwelling”. The effectiveness of this Policy should be regularly reviewed.

4.5 Economy, Employment and Activity Centres

The promotion of sustainable, diverse, resilient and prosperous places in the Town is a key aim of the Sustainable Community Plan.

The Central Sub-Regional Planning Framework has significant emphasis on consolidating the use of existing urban land and identifies various precincts that are to play a crucial role in accommodating the substantial increase envisaged to the population and workforce and in growing and diversifying the local economy.

The Framework provides a spatial plan for the location of these precincts. This plan, as it relates to the Town, is largely reflected on the LPS Map in Part 1. The Framework provides the following description for each precinct:

Activity Centres: are hubs that attract people for a variety of activities, such as shopping, working, studying and living. These centres mainly consist of a concentration of commercial uses combined with a varying proportion of other land uses such as residential, schools and open space. The role and function of these centres and the diversity of activities within them varies depending on their catchment.

Urban Corridors: provide connections between activity centres and maximise the use of high-frequency and priority public transport. Urban corridors shown in the Framework represent significant opportunities to accommodate increased medium-rise higher density residential development by good quality, high frequency public transport.

Station Precincts: are areas surrounding train stations and major bus interchanges with the potential to accommodate transit-oriented development, other than areas identified as activity centres in SPP 4.2.

Industrial Centres: are the areas zoned Industrial or Urban under region schemes. As there is little land available within the Central sub-region to cater for further industrial development, there is a need to plan, protect and preserve industrial centres within close proximity to arterial routes in to and out of the sub-region in order to maintain employment diversity.

Green Network: Population growth needs and higher density living are to be supported by a green network of public and private open spaces. Consisting of public and private open spaces, the green network includes Bush Forever sites, national and regional parks, district and local parks, sports fields, school grounds, community facilities, golf courses, foreshores and beach areas connected by streetscapes, trails, cycle paths and pedestrian footpaths. In describing the green network it is important to identify the destinations, the connecting elements and the landscape features that create a unique sense of place and contribute to the comfort and appeal of accessing places by cycling and walking.

4.5.1 Economic Profile

The Town hosts some significant commercial activities, including business, entertainment and education uses in addition to transport infrastructure of regional economic significance. These include:

- Curtin University
- Bentley Technology Park
- Perth Stadium
- Crown Perth
- Belmont Racecourse
- Albany Highway main street
- Two TAFE colleges
- Armadale Railway
- Victoria Park Bus Transfer Station

The Town is also situated in close proximity to other areas of regional economic significance, including:

- Perth CBD
- Perth Airport

- Department of Agriculture and Food
- Welshpool/Kewdale Industrial Area

In 2016, the Town's gross regional product was estimated to be \$5.34 billion, representing 2.1% of the State's gross state product. 4,422 businesses were registered in the Town, with an increase of 316 businesses since 2011. The Construction industry had the largest number of total registered businesses in the Town comprising 16.5% of all total registered businesses, compared to 18.8% in Western Australia.

Registered businesses by industry

Town of Victoria Park - Total registered businesses	2016			2011			Change 2011-2016	
	Industry	Number	%	Western Australia %	Number	%	Western Australia %	Number
Agriculture, Forestry and Fishing	51	1.2	7.5	79	1.9	9.3	-28	-35.4%
Mining	55	1.3	1.3	64	1.6	1.8	-9	-14.1%
Manufacturing	162	3.7	3.9	191	4.7	3.7	-29	-15.2%
Electricity, Gas, Water and Waste Services	10	0.2	0.3	16	0.4	0.3	-6	-37.5%
Construction	730	16.5	18.8	625	15.2	17.2	+105	16.8%
Wholesale Trade	170	3.8	3.0	185	4.5	2.8	-15	-8.1%
Retail Trade	254	5.7	5.6	303	7.4	6.2	-49	-16.2%
Accommodation and Food Services	251	5.7	3.8	167	4.1	3.6	+84	50.3%
Transport, Postal and Warehousing	388	8.8	6.6	338	8.2	5.6	+50	14.8%
Information Media and Telecommunications	45	1.0	0.6	31	0.7	0.6	+14	45.2%
Financial and Insurance Services	379	8.6	9.0	290	7.1	10.4	+89	30.7%
Rental, Hiring and Real Estate Services	496	11.2	10.7	430	10.5	10.4	+66	15.3%
Professional, Scientific and Technical Services	629	14.2	11.8	622	15.1	11.6	+7	1.1%
Administrative and Support Services	210	4.8	3.6	199	4.8	3.6	+11	5.5%
Public Administration and Safety	23	0.5	0.3	17	0.4	0.3	+6	35.3%
Education and Training	56	1.3	1.1	65	1.6	1.0	-9	-13.8%
Health Care and Social Assistance	179	4.1	5.1	134	3.3	4.1	+45	33.6%
Arts and Recreation Services	56	1.3	1.0	55	1.3	1.0	+1	1.8%
Other Services	205	4.6	4.4	164	4.0	4.0	+41	25.0%
Industry not classified	73	1.6	1.5	132	3.2	2.5	-59	-44.7%
Total business	4,422	100.0	100.0	4,106	100.0	100.0	+316	7.7%

Source: Australian Bureau of Statistics, Counts of Australian Businesses, including Entries and Exits, 2011 to 2016

Note: Non-employed businesses includes sole proprietors where the proprietor does not receive a wage or salary separate to the business income.

Registered businesses by industry 2016

Total registered businesses

Town of Victoria Park Western Australia



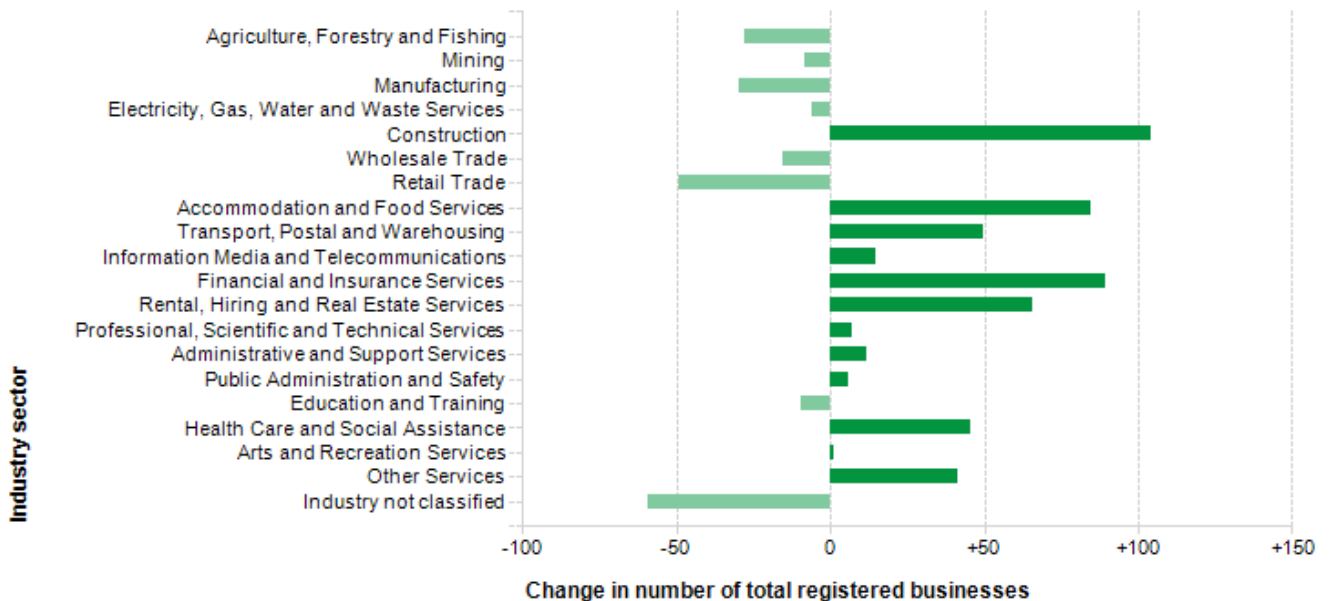
Source: Australian Bureau of Statistics, Counts of Australian Businesses, including Entries and Exits, 2011 to 2015 Cat. No. 816



Figure 28: Registered Businesses by Industry 2016

Change in registered businesses by industry, 2011 to 2016

Town of Victoria Park - Total registered businesses



Source: Australian Bureau of Statistics, Counts of Australian Businesses, including Entries and Exits, 2011 to 2015 Cat. No. 816



Figure 29: Change in Registered Businesses by Industry 2011-2016

The Town is in the process of updating its Economic Development Strategy. The key objective will be to build on the existing strengths of the local economy and increase its diversity, robustness and resilience.

While the Strategy will have a focus on ensuring that the local planning scheme provides for the appropriate zoning and control of development of land for commerce and other employment-generating uses, particularly in activity centres, it will also aim to promote the Town as an attractive destination for investment in high-quality property development, entrepreneurship, education, technology and creative and innovative businesses, as well as contain strategies for regional collaboration, place management and activation of the public realm and growth of local and traded clusters.

Local clusters are groups of interconnected industries, firms, institutions or agencies whose activity relates to the production of goods and services for the population based in the region they are located. Traded clusters are groups of interconnected industries, firms, institutions or agencies whose coordinated activity relates to the production of goods and services for the population beyond the region they are located.

4.5.2 Employment

The Town's employment data is an important indicator of the community's socio-economic status. The levels of full or part-time employment, unemployment and labour force participation indicate the strength of the local economy and social characteristics of the population.

Employment Status

Employment status is linked to a number of factors including age structure, which influences the number of people in the workforce, the economic base and employment opportunities available in the area and the education and skill base of the population.

17,499 people living in the Town in 2016 were employed, of which 64% worked full-time and 36% part-time. While the number of people employed increased over the previous five years by 725 persons, there was as similar increase in the number of employment residents.

Employment status Town of Victoria Park - Persons (Usual residence)	2016			2011			Change 2011 to 2016	
	Number	%	Greater Perth %	Number	%	Greater Perth %	Number	%
Employed	17,499	91.4	91.9	16,774	94.6	95.2	+725	4.3%
Employed full-time	11,084	57.9	56.4	11,069	62.4	60.2	+15	0.1%
Employed part-time	6,119	31.9	33.9	5,442	30.7	33.1	+677	12.4%
Hours worked not stated	296	1.5	1.5	263	1.5	1.9	+33	12.5%
Unemployed (Unemployment rate)	1,654	8.6	8.1	965	5.4	4.8	+689	71.4%
Looking for full-time work	936	4.9	4.8	496	2.8	2.7	+440	88.7%
Looking for part-time work	718	3.7	3.3	469	2.6	2.0	+249	53.1%
Total labour force	19,153	100.0	100.0	17,739	100.0	100.0	+1,414	8.0%

Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 and 2016. .id, the population experts.

Industry Sectors and Occupation Types

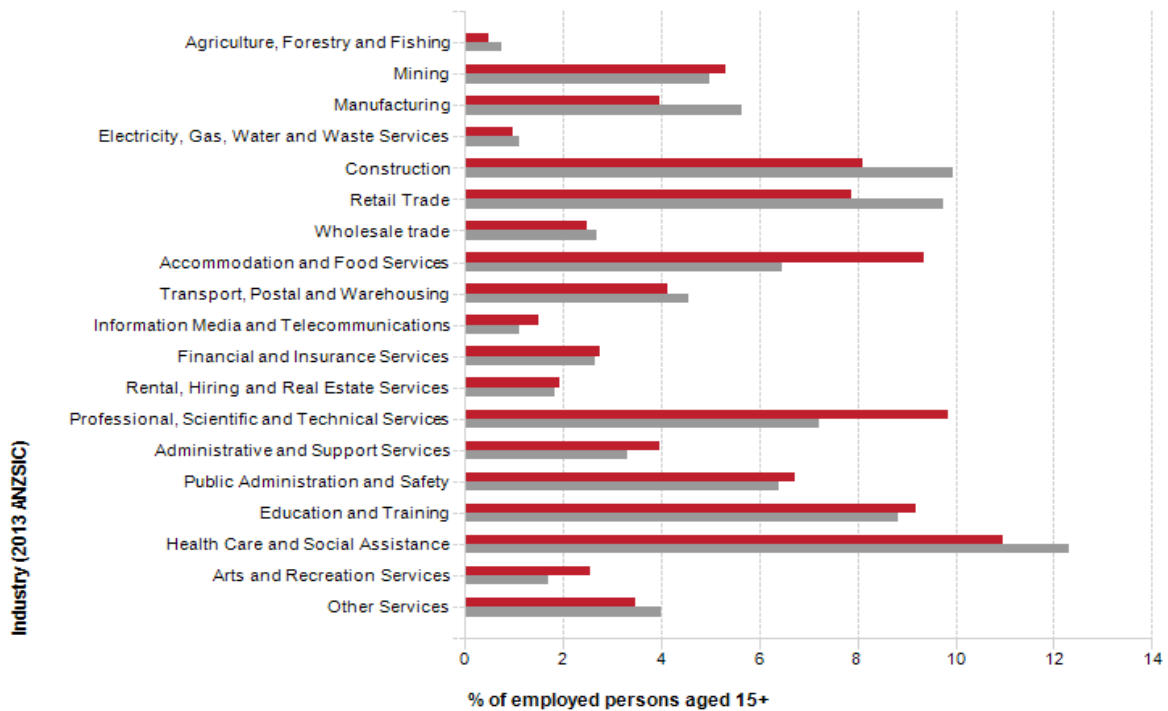
Town residents are employed in a range of industries. An analysis of the jobs held by the resident population in Town in 2016 shows the three most popular industry sectors were:

- Health Care and Social Assistance (1,919 people or 11.0%).
- Professional, Scientific and Technical Services (1,723 people or 9.9%).
- Accommodation and Food Services (1,639 people or 9.4%).

Industry sector of employment, 2016

Total employed persons

■ Town of Victoria Park ■ Greater Perth



Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Usual residence data)
Compiled and presented in profile.id by .id, the population experts.

.id the population experts

Figure 30: Industry Sector of Employment 2016

In combination, these three industries employed 5,281 people in total or 30.2% of the total employed resident population. In comparison, Greater Perth employed 12.3% in Health Care and Social Assistance, 7.2% in Professional, Scientific and Technical Services, and 6.5% in Accommodation and Food Services.

The major differences between the jobs held by the population of the Town and Greater Perth were:

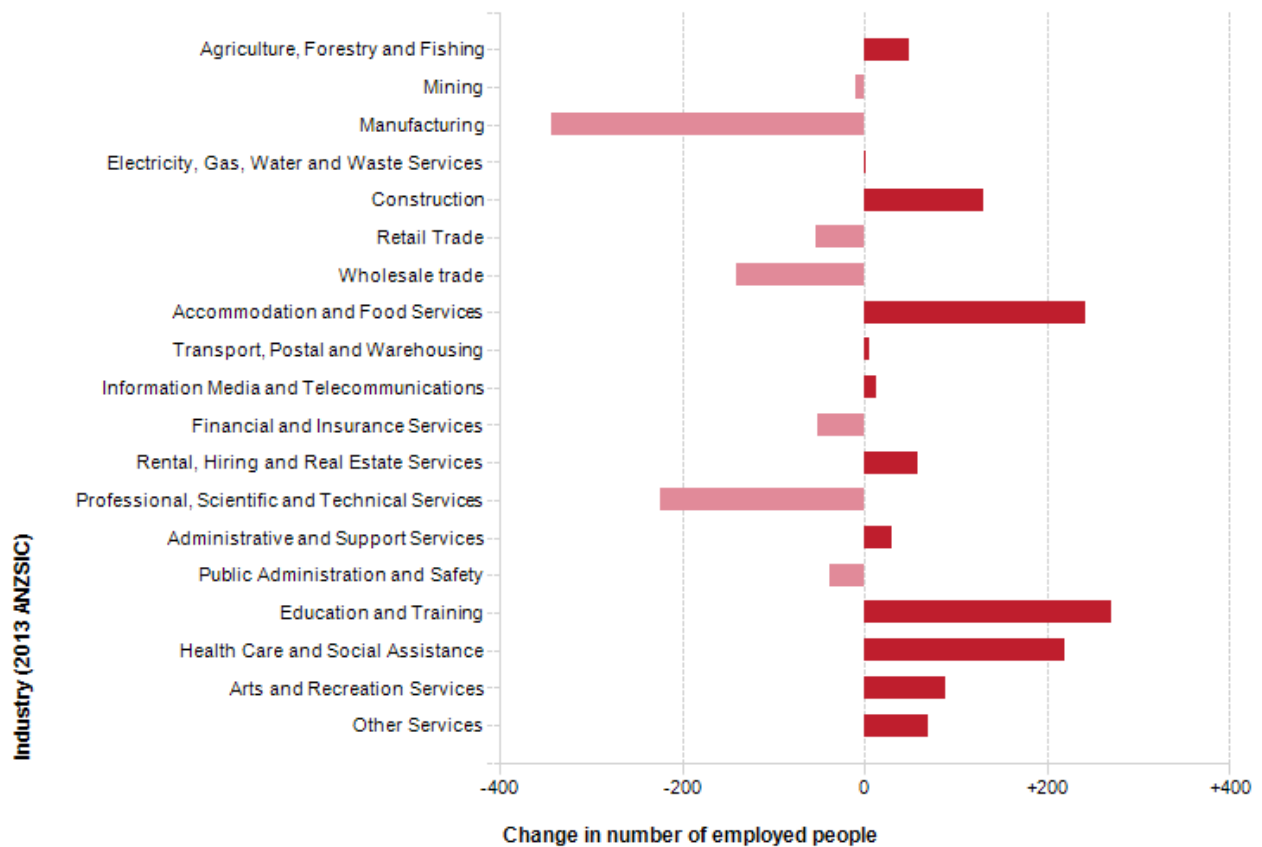
- A larger percentage of persons employed in accommodation and food services (9.4% compared to 6.5%).
- A larger percentage of persons employed in professional, scientific and technical services (9.9% compared to 7.2%).
- A smaller percentage of persons employed in retail trade (7.9% compared to 9.8%).
- A smaller percentage of persons employed in construction (8.1% compared to 9.9%).

The largest changes in the jobs held by the resident population between 2011 and 2016 in the Town of Victoria Park were for those employed in:

- Manufacturing (-343 persons).
- Education and Training (+271 persons).
- Accommodation and Food Services (+241 persons).
- Professional, Scientific and Technical Services (-223 persons).

Change in industry sector of employment, 2011 to 2016

Town of Victoria Park - Total employed persons



Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 and 2016 (Usual residence data)
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Figure 31: Change in Industry Sector of Employment 2011-2016

There were more professionals in the Town in 2016 than any other occupation. The Town's occupation statistics quantify the occupations in which the residents work (which may be within the residing area or elsewhere). This will be influenced by the economic base and employment opportunities available in the area, education levels, and the working and social aspirations of the population. When viewed with other indicators, such as Educational Qualifications and Individual Income, Occupation is a key measure for evaluating the Town's socio-economic status and skill base.

An analysis of the jobs held by the resident population in Town in 2016 shows the three most popular occupations were:

- Professionals (5,023 people or 28.7%).
- Technicians and Trades Workers (2,385 people or 13.6%).
- Clerical and Administrative Workers (2,203 people or 12.6%).

In combination these three occupations accounted for 9,611 people in total or 55.0% of the employed resident population. In comparison, Greater Perth employed 22.2% in Professionals, 15.6% in Technicians and Trades Workers, and 13.6% in Clerical and Administrative Workers.

The major differences between the jobs held by the Town's population and Greater Perth were:

- A larger percentage of persons employed as Professionals (28.7% compared to 22.2%).

- A smaller percentage of persons employed as Technicians and Trades Workers (13.6% compared to 15.6%).
- A smaller percentage of persons employed as Machinery Operators and Drivers (4.6% compared to 6.5%).
- A smaller percentage of persons employed as Sales Workers (7.8% compared to 9.2%).

Occupation of employment, 2016

Total employed persons

■ Town of Victoria Park ■ Greater Perth



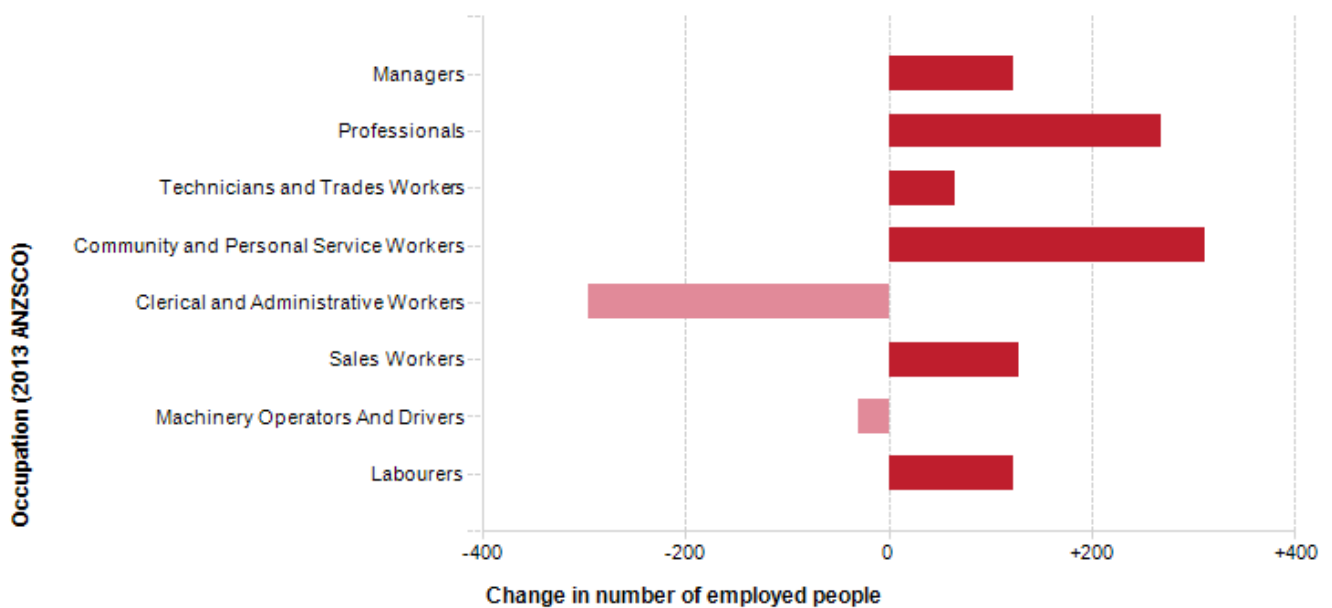
Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Usual residence data)
Compiled and presented in profile.id by .id, the population experts.

.id the population experts

Figure 32: Occupation of Employment 2016

Change in occupation of employment, 2011 to 2016

Town of Victoria Park - Total employed persons



Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 and 2016 (Usual residence data)
Compiled and presented in profile.id by .id, the population experts.

.id the population experts

Figure 33: Change in Occupation of Employment 2011-2016

Household Income

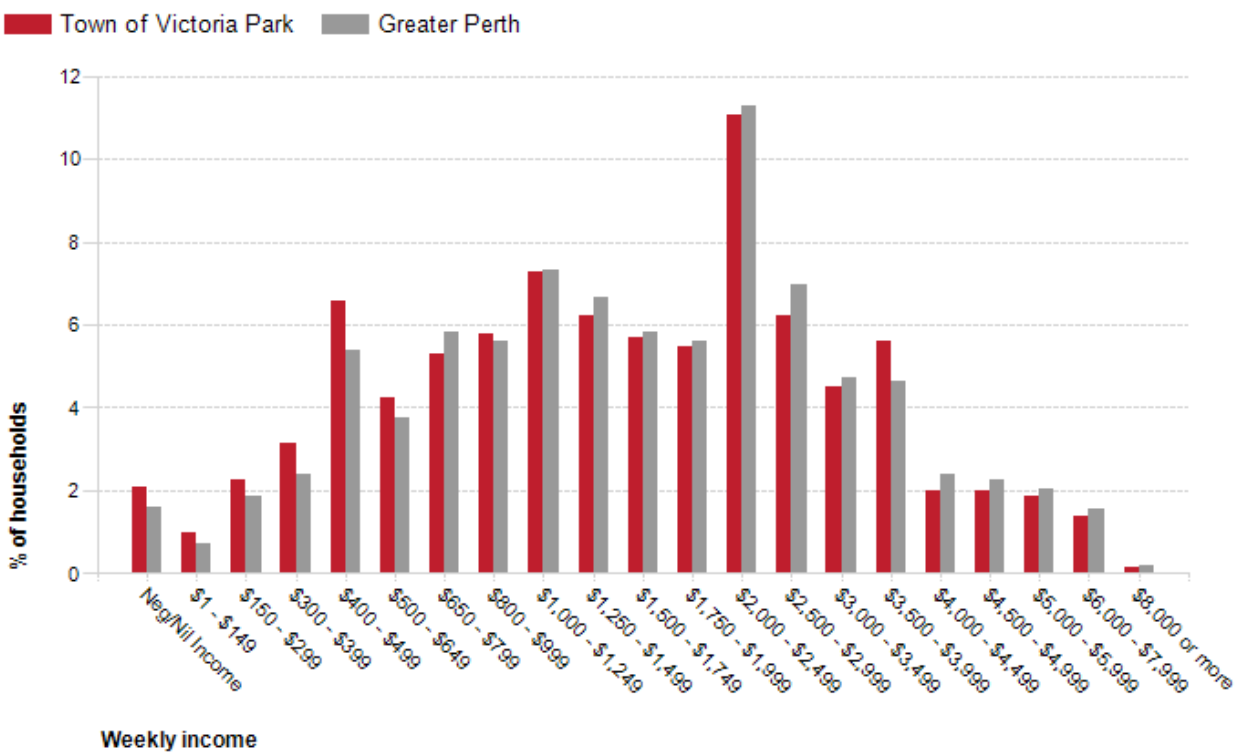
Analysis of household income levels in the Town in 2016 compared to Greater Perth shows that there was a smaller proportion of high income households (those earning \$2,500 per week or more) and a higher proportion of low income households (those earning less than \$650 per week).

Overall, 23.7% of the households earned a high income and 19.3% were low income households, compared with 24.8% and 15.7% respectively for Greater Perth.

The major differences between the household incomes of the Town and Greater Perth were:

- A larger percentage of households who earned \$400 - \$499 (6.6% for the Town compared to 5.4% for Greater Perth).
- A smaller percentage of households whose earnings were not stated (10.1% for the Town compared to 11.4% for Greater Perth).

Weekly household income, 2016



Source: Australian Bureau of Statistics, Census of Population and Housing, 2016 (Enumerated data)
 Compiled and presented in profile.id by .id, the population experts.



Figure 34: Weekly Household Income 2016

Employment Self-Sufficiency

Journey to Work data sheds light on how many workers live locally, how many commute from other areas and which areas they commute from. Some areas attract a large external workforce because they have major employment centres or because local residents have a different set of skills or aspirations than the local jobs require. Understanding where workers reside assists in planning and advocacy for roads and public transport provision. It also helps to clarify economic and employment drivers across areas and assists in understanding the degree to which the Town provides local employment.

Of the 27,823 local workers in the Town of Victoria Park, 3,283 or 11.8% also live in the area. This proportion has remained the same for the past 10 years.

Residential location of workers - Town of Victoria Park	2016	
	Number	%
SLA		
Live and work in the area	3,283	11.8
Work in the area, but live outside	24,540	88.2
Total workers in the area	27,823	100.0

Source: Australian Bureau of Statistics, *Census of Population and Housing 2011*. Compiled and presented in *economy.id* by *.id*, the population experts.

Residential location of local workers by LGA by industry Town of Victoria Park – All industries	2016	
LGA	Number	%
Victoria Park (T)	3,283	11.8
Canning (C)	2,875	10.3
Stirling (C)	2,489	8.9
Gosnells (C)	2,485	8.9
Melville (C)	1,560	5.6
South Perth (C)	1,446	5.2
Belmont (C)	1,366	4.9
Swan (C)	1,274	4.6
Wanneroo (C)	1,267	4.6
Joondalup (C)	1,173	4.2
Cockburn (C)	1,119	4.0
Armadale (C)	1,097	3.9
Kalamunda (S)	1,054	3.8
Bayswater (C)	1,029	3.7
Rockingham (C)	571	2.1
Vincent (C)	506	1.8
Perth (C)	427	1.5
Mundaring (S)	370	1.3
Kwinana (C)	323	1.2
Fremantle (C)	316	1.1
Cambridge (T)	242	0.9
Bassendean (T)	221	0.8
Serpentine-Jarrahdale (S)	211	0.8
Nedlands (C)	175	0.6
Mandurah (C)	172	0.6
Subiaco (C)	165	0.6
Claremont (T)	90	0.3
East Fremantle (T)	83	0.3
Mosman Park (T)	60	0.2
Cottesloe (T)	47	0.2
Murray (S)	29	0.1
Northam (S)	17	0.1
Brisbane (C)	14	0.1
Chittering (S)	14	0.1
Busselton (C)	13	0.0
Melbourne (C)	10	0.0
No Fixed Address (WA)	10	0.0
Toodyay (S)	10	0.0

Source: Australian Bureau of Statistics, [Census of Population and Housing 2016](#). Compiled and presented in *economy.id* by *.id*, the population experts. Excludes residential locations with fewer than 10 people.

Journey to Work

Understanding where the Town's residents go to work assists in planning and advocacy for roads and public transport provision. It also helps to clarify the economic and employment drivers across areas and assists in understanding the degree of employment self-containment within the Town.

13,485 or 77.4% of the Town's working residents travel outside of the area to work.

Employment location of residents - Town of Victoria Park	2016	
	Number	%
Live and work in the area	3,283	18.9
Live in the area, but work outside	13,485	77.4
Work location unknown	648	3.7
Total employed residents	17,416	100.0

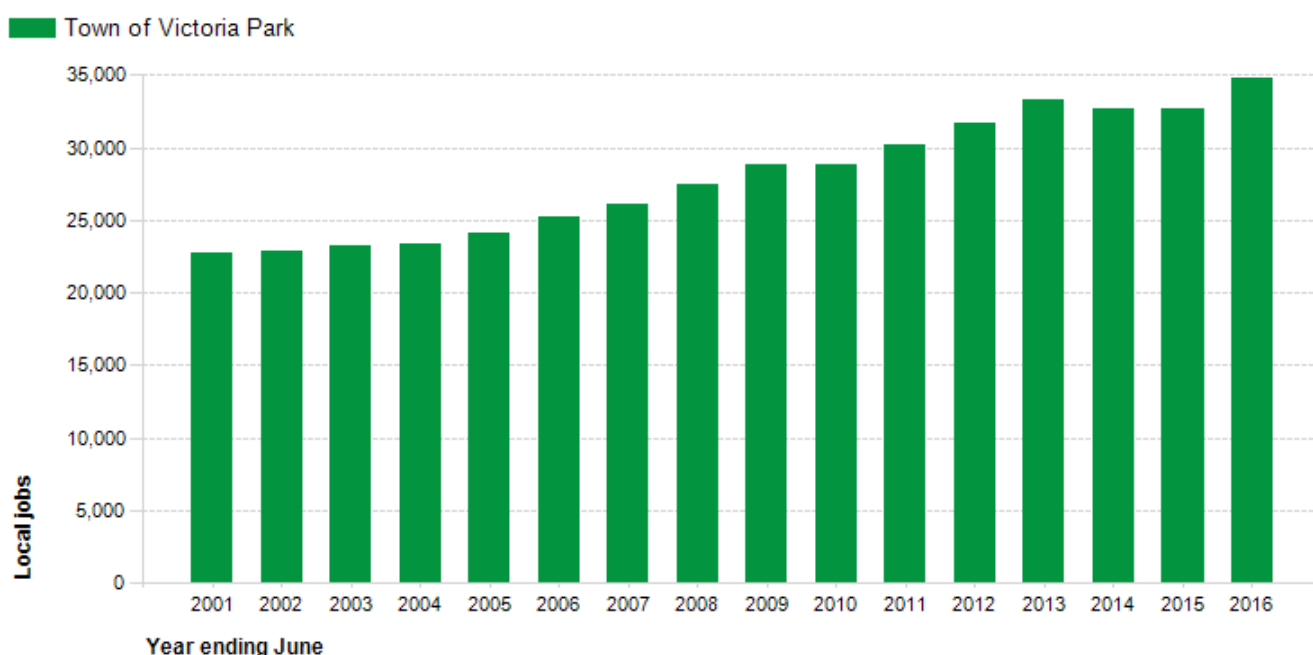
Source: Australian Bureau of Statistics, [Census of Population and Housing 2011](#). Compiled and presented in *economy.id* by *.id*, the population experts.

Residential location of local workers by LGA	2016	
	Number	%
Victoria Park (T)	3,283	11.8
Canning (C)	2,875	10.3
Stirling (C)	2,489	8.9
Gosnells (C)	2,485	8.9
Melville (C)	1,560	5.6
South Perth (C)	1,446	5.2
Belmont (C)	1,366	4.9
Swan (C)	1,274	4.6
Wanneroo (C)	1,267	4.6
Joondalup (C)	1,173	4.2
Cockburn (C)	1,119	4.0
Armadale (C)	1,097	3.9
Kalamunda (S)	1,054	3.8
Bayswater (C)	1,029	3.7
Rockingham (C)	571	2.1
Vincent (C)	506	1.8
Perth (C)	427	1.5
Mundaring (S)	370	1.3
Kwinana (C)	323	1.2
Fremantle (C)	316	1.1
Cambridge (T)	242	0.9
Bassendean (T)	221	0.8
Serpentine-Jarrahdale (S)	211	0.8
Nedlands (C)	175	0.6
Mandurah (C)	172	0.6
Subiaco (C)	165	0.6
Claremont (T)	90	0.3
East Fremantle (T)	83	0.3
Mosman Park (T)	60	0.2
Cottesloe (T)	47	0.2
Murray (S)	29	0.1
Northam (S)	17	0.1
Brisbane (C)	14	0.1
Chittering (S)	14	0.1
Busselton (C)	13	0.0
Melbourne (C)	10	0.0
No Fixed Address (WA)	10	0.0
Toodyay (S)	10	0.0

Source: Australian Bureau of Statistics, [Census of Population and Housing 2016](#). Compiled and presented in *economy.id* by *.id* the population experts. Excludes residential locations with fewer than 10 people.

Jobs hosted in the Town have grown by 37% over past decade – compared with the Town’s 34% population growth. There are nearly as many jobs (34,732) as residents (39,024) – indeed the Town’s employment self-sufficiency ratio is 1.63, which is higher than other local governments in the south-east corridor. A high employment self-sufficiency ratio is normally taken to be a sign of a relatively sustainable living environment. However, only 18.9% of local residents work in the Town, with more residents travelling to the Perth CBD to work (24%). A further 17.4% of residents work in abutting local governments with the rest working elsewhere within or outside the Perth Region.

Local jobs



Source: National Institute of Economic and Industry Research (NIEIR) ©2016
Compiled and presented in economy.id by .id the population experts



Figure 35 – Local Jobs

Year (ending June 30)	Town of Victoria Park		Western Australia		Town of Victoria Park as a % of Western Australia
	Number	% change	Number	% change	
2,016	34,732	+6.38	1,369,217	+0.58	2.54
2,015	32,649	-0.27	1,361,267	+1.64	2.40
2,014	32,737	-1.75	1,339,258	+0.63	2.44
2,013	33,320	+5.19	1,330,925	+3.58	2.50
2,012	31,674	+5.05	1,284,926	+4.31	2.47
2,011	30,152	+4.43	1,231,853	+3.48	2.45
2,010	28,873	+0.24	1,190,370	-0.01	2.43
2,009	28,804	+4.71	1,190,539	+4.01	2.42
2,008	27,508	+5.62	1,144,659	+4.32	2.40
2,007	26,046	+3.03	1,097,251	+3.07	2.37
2,006	25,279	+4.63	1,064,541	+5.32	2.37
2,005	24,160	+3.52	1,010,737	+3.98	2.39
2,004	23,339	+0.58	972,088	+1.22	2.40
2,003	23,204	+1.59	960,386	+2.36	2.42
2,002	22,841	+0.61	938,225	+1.43	2.43
2,001	22,703		925,030		2.45

Source: [National Institute of Economic and Industry Research \(NIEIR\)](#) ©2016. Compiled and presented in economy.id by [.id](#), the population experts

Clearly most of the local jobs are filled by those who reside outside the Town. These local jobs are found throughout the Town, with the main employment centres being at Curtin (28% of local jobs) and Burswood (19%) as illustrated in the figures below. The localities surrounding the northern parts of Albany Highway and the Causeway area account for 19% of jobs while areas associated with the central and southern parts of Albany Highway account for 16% of jobs. Other centres of employment include that part of the Welshpool Industrial area within the Town (with 10% of jobs).

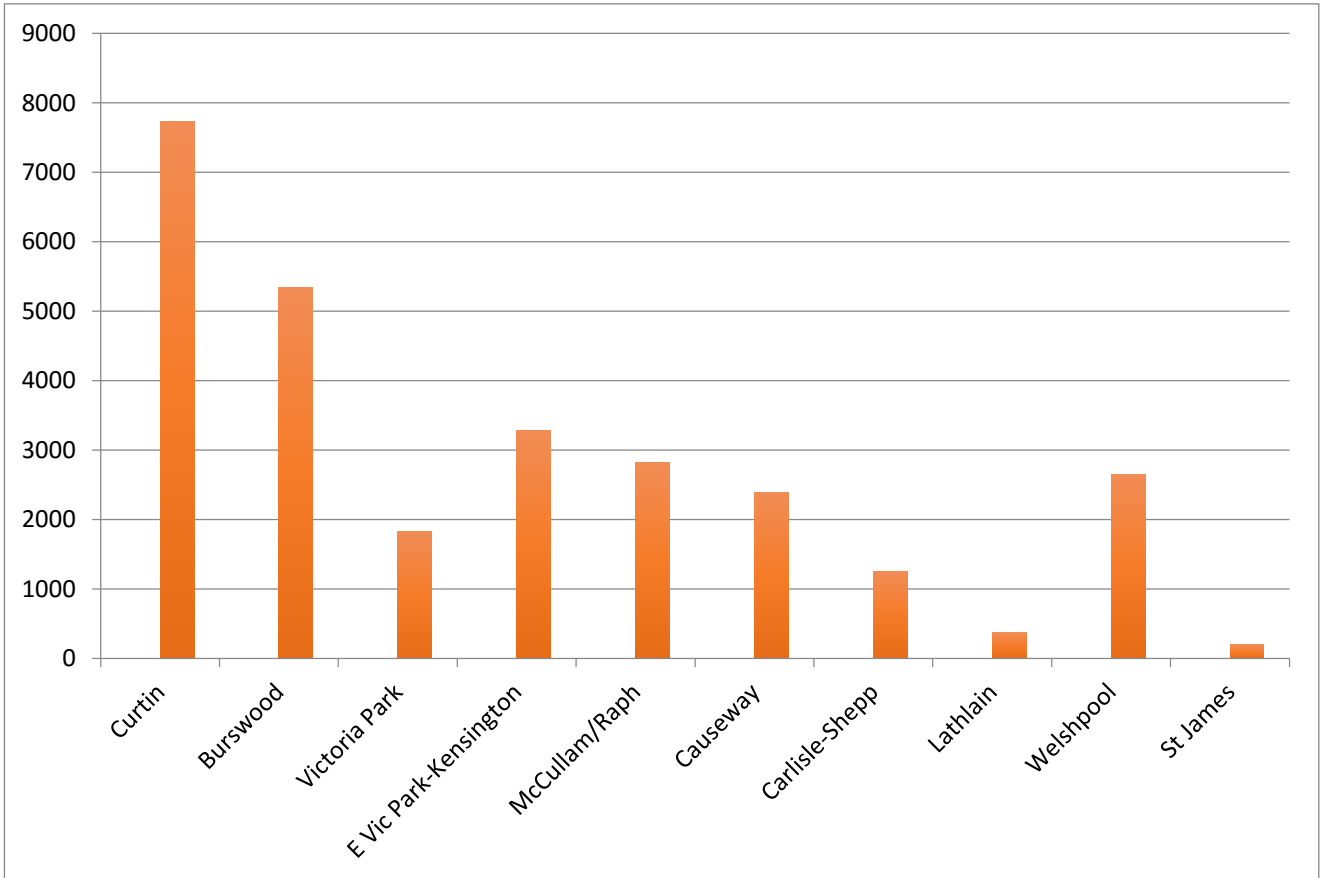
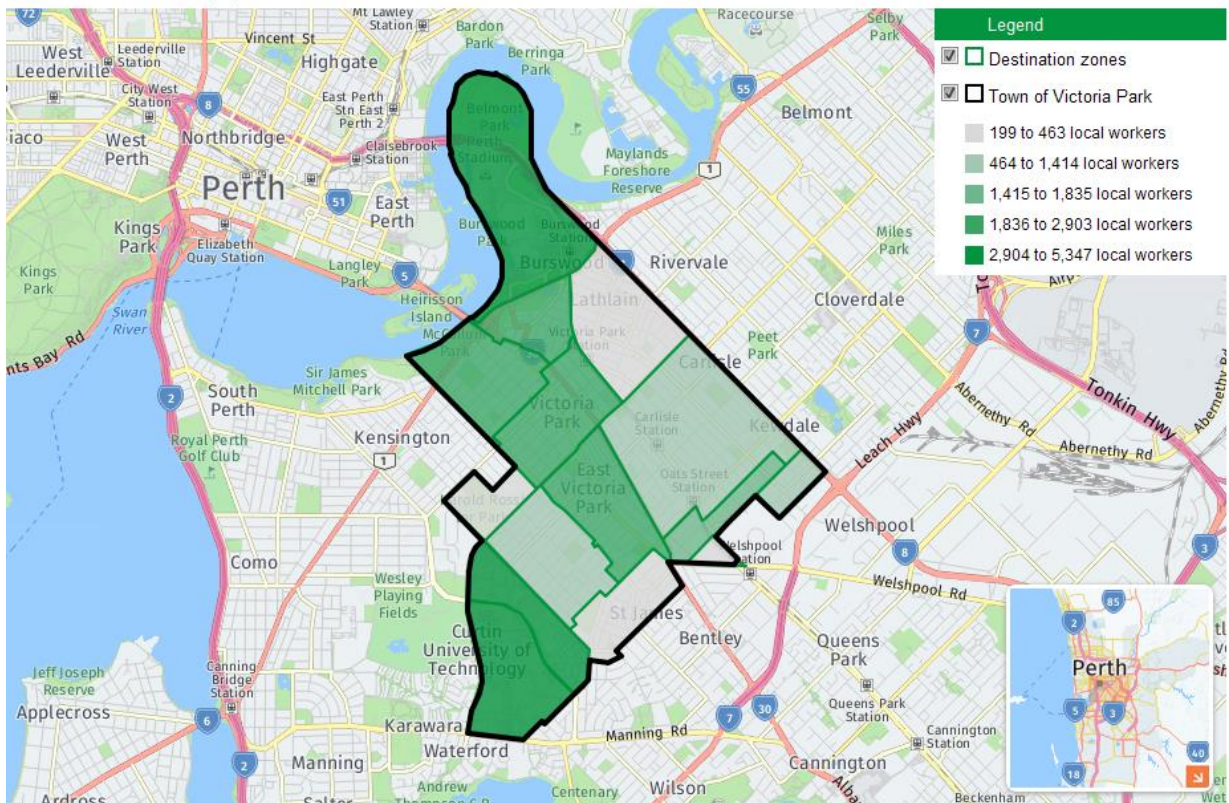


Figure 36: Location of Employment in the Town of Victoria Park – 2016 Census

All industries

Town of Victoria Park - Employment locations - Number of local workers



Source: Australian Bureau of Statistics, Census of Population and Housing 2016. Compiled and presented in economy.id by .id, the population experts.

.id
the population experts

Figure 37 - Location of workers – 2016

4.5.3 Activity Centres

Activity centres are hubs where employment, services and living places are concentrated. By focusing activity in these hubs, people have a lesser need to commute long distances to work and can find most of their general shopping and entertainment needs fulfilled locally. Because of the potential for activity centres to provide a more efficient and sustainable urban form they have become a focus of the State’s regional planning.

As the State Government’s 2015 *Perth and Peel @ 3.5 million* indicated, activity centres “play an increasingly crucial role in the development of Perth and Peel by providing greater housing and employment opportunities and creating a sense of place through social and business activities and services. Increasing residential development in and around activity centres linked by a robust movement network is key to delivering a connected and sustainable city that is well placed to accommodate a substantial future population increase.”

Activity centres will be integral to the Town’s future growth and development. The Town’s Activity Centres Strategy provides a framework for activating certain areas for more intensive and varied land use and development, as was summarised in section 3.5. Further expansion on the context for the Strategy and its key elements is provided below.

Strategic Considerations

According to the Department of Planning’s 2015 commercial activity survey, the Town has over 556,000m² of existing commercial floorspace. Uses normally associated with activity centres (these being, shop and other retail and offices) represent approximately 48% of the total floorspace.

Commercial Floorspace in the Town of Victoria Park

Use Category	m ²	%
Shop/Retail	75,968	13.7
Other Retail	85,203	15.3
Service Industry	37,446	6.7
Entertainment	30,148	5.4
Office	106,091	19.1
Health Welfare	62,791	11.3
Storage/Transport	26,782	4.8
Manufacture	48,702	8.8
Utilities	12,480	2.2
Primary Industry	5,055	0.9
Vacant	65,453	11.8
TOTAL	556,119	100

Department of Planning Commercial Activity Survey 2015 (net lettable area only and excludes industrial areas, development on reserved land and land occupied by residential uses)

The amount of commercial floorspace in the Town has grown substantially since 1990.

Commercial Floorspace Growth in the Town of Victoria Park

Year of Survey	Occupied Floor Area (m ²)	Vacant Floor Areas (m ²)	Total Floor Area (m ²)	% Vacant
1990	274,729	36,341	311,070	11.7
1993	276,835	39,223	316,058	12.4
1997	280,160	52,305	332,465	15.7
2002	289,612	55,842	345,454	16.2
2007	355,436	32,267	387,703	8.3
2015	490,666	65,453	556,119	11.8

Although the vacancy rate within the Town’s commercial areas has risen since 2007, it appears that the Town’s main activation areas are healthy. However, the areas undergoing transformation, or awaiting for it to occur, experience high vacancy rates – notably the residential/commercial precinct along Albany Highway and the Burswood Station East, Causeway, Technology Park and Berwick Street precincts.

Activity Centre	Vacant Floor Area (m2)	%	Total Floor Area (m2)
Albany Highway total	12,730	6.3	203,436
- Northern Precinct	2,325	5.6	41,702
- VP Precinct	2,736	5.6	50,190
- Central Precinct	1,816	6.0	27,343
- Town Centre Precinct	2,547	4.2	60,895
- Res/Comm Precinct	1,306	17.8	7,323
- Gateway Precinct	2,000	12.5	15,926
Burswood Station East	8,995	29.4	30,573
Causeway	13,859	15.8	87,901
Technology Park	11,583	16.7	69,365
Berwick	4,757	30.4	15,646
Oats Street	11,555	10.3	111,577
Archer Street	1,610	17.4	9,231
Other	364	1.3	28,447
Total	65,453	11.8	556,119

Since the adoption in 2010 of SPP 4.2, approval has been granted for the expansion of retail floorspace by over 75% of the activity centres located in an arc equidistant from the Perth CBD. This is potentially transformational. Moreover, it is occurring at a time of potential retail contraction due to growing on-line sales. The retail spending to support these super-regional centres is likely to result in less retail spending available to other centres, such as those within the Town.

By 2019, Carousel, to the immediate south of the Victoria Park Secondary Centre, will have expanded its shop/retail floorspace by 54%. The resulting centre will be close to the same amount of floorspace as the Secondary Centre. Being a Metropolitan Strategic Centre, the development approval process for Carousel did not require the consideration of any impacts on lower order centres such as Victoria Park yet virtually the whole of the Town falls within the primary trade area of the Carousel shopping centre, from which 50% of Carousel's trade is drawn.

There will be a growing point of difference between the different types of centre. Patrons will be offered a starker choice between the experience of a visit to one of the super-regional centres compared with a traditional main street centre. While these developments present a threat to centres such as Victoria Park, it does offer an opportunity where an alternative, more amenable, human scale, shopping experience can be provided.

State Policy Requirements

According to SPP 4.2, the Town of Victoria Park's retail hierarchy includes:

- One Secondary Centre – Victoria Park.
- Three District Centres – East Victoria Park, Burswood and Oats Street.
- One Specialised Centre – Bentley/Curtin.

In addition, the 2013 Activity Centres Strategy identified two Neighbourhood Centres (Archer Street and Berwick Street) and five Local Centres (Orrong-Archer, Orrong Road, Lathlain, Sussex Street and Etwell Street).

Modification of the SPP 4.2 hierarchy to include East Victoria Park within the Secondary Centre, include the Causeway Precinct as a District Centre and re-classify Burswood as a Specialised Activity Centre is considered to be warranted.

To better address the need to broaden the functions of centres the concept of "Activation Areas" has been embraced. Activation Areas may have a wider area associated with them including significant residential areas where they can, through a conscious density strategy, lend support to the centres. Previously unclassified precincts (including the Causeway and Victoria Park Station) should be identified as Activation Areas.

The Secondary Centre should be designated a 'Regional Centre' under the local planning scheme in accordance with Table 5 of SPP 4.2.

The Central Sub-regional Planning Framework indicates that the core areas of activity centres (with a higher density designation of R-AC) should be surrounded by a frame area of at least 200m to allow expansion and support for the centre with linking higher density corridors along the high-quality transport routes. The long linear Secondary Centre with its abutting character areas presents some challenges to these general policies requiring a modification of any blanket approach.

In recent years the Town has responded proactively and designed its strategies and policies to align with the concept of activity centres, with a focus on street activation, mixed use, managed parking and transit oriented development. The suite of Scheme Precinct Plans and to commercial area design guidelines (LPP 15, 16 and 17), are examples, though it is necessary to regularly review this guidance to ensure it represents good practice.

It may be desirable to prepare structure plans for specific areas as the need arises.

Residential Support for Centres

While the Town attracts employees, shoppers and recreation seekers from beyond the Town boundaries, the primary planning consideration is the likely future population within the Town. In the long term it could be expected that in view of its inner city location that medium and high density housing will predominate throughout the district. However, in the short to medium term the overwhelming source of future housing supply (93%) is expected to be located within the Town's activity centres, and most of this located in the Burswood Peninsula Precinct.

Certainly, there are social and physical infrastructure implications arising from the State Government's target for the Town of providing for an additional 19,400 dwellings over the next 30 years or so. However, the significant residential populations within walking distance of its activity centres will potentially stimulate the character of the centres.

The Town has a high employment self-sufficiency ratio of 1.63 (ratio of local jobs to resident workforce), and the greatest recent employment growth has been in sectors generally associated with activity centres (accommodation and food services, retail).

In order to promote the concept of Activation Areas there will be a greater need to ensure that opportunities to provide dwellings within easy walking distance of the centres are maximized. This will draw some opposition from those seeking to quarantine all character areas from development pressures. However, it is considered that some targeted density housing within identified Activation Areas and along linking corridors, particularly where laneways are available to reduce streetscape impacts, would have merit. As a guide, areas central to the Activation Areas should be considered for the R-AC Code and land within walking distance of a centre be coded R40/60. Alternatively, the development of form based codes for designated Activation Areas could address the need for more intense urban form with greater sensitivity to individual sites.

Form-based codes seek to provide an appropriate form and scale of development by focussing on the relationship between building facades and the public realm, the form and mass of buildings and the scale and types of streets and blocks. They typically include the following elements:

- Regulating plan – designating the scope of the regulated area where particular built-form standards apply based on clear community intentions for the area's physical character.
- Public space standards – specifying elements within the public realm, such as roadways, footpaths and street parking, landscaping and furniture.
- Built-form standards – controlling the configuration, features and functions of buildings that define and shape the public realm.
- Administration and definitions – defining the application and review process and a glossary of technical terms used.

Form-based codes may also include signage provisions and environmental requirements, such as stormwater management, tree protection and solar access and can be applied as either a mandatory regulation or in the form of an instructional guide depending on the circumstances.

Retail Needs Assessment

Virtually the whole of the Town falls within the primary trade area of the Carousel shopping centre from which 50% of Carousel's trade is drawn. The Carousel shopping centre is currently in the process of a major expansion which is likely to siphon off most, if not all, of any expansion in trade potential within its trade area.

The Bentley shopping centre does not, despite its proximity, have a major impact on the shopping along Albany Highway.

Bounded as it is by large shopping centres to the west and south, commercial development in the Town will continue to have a truncated core trading area which does not extend beyond the local authority boundary to an extent that would enhance its trading potential of commercial development, including that along Albany Highway. Hence it is the socio-economic characteristics of the Victoria Park community which will continue to be the determinant of the existing and future potential of commercial development in the Town.

The inference to be drawn from the Town's demographic characteristics is that there will be increasing demand for niche comparison specialty shopping providing opportunities for redevelopment and refurbishment of the existing retail stock rather than the development of additional shops. Bulk shopping represented by weekly grocery shopping will remain constant relative to the population. From a commercial perspective it can be inferred that there will be a relatively low demand for bulk, high retailing establishments, chain supermarkets, discount department stores and the like. However, increased population density, especially in high and medium density, brings with it demand for niche retailing, retail services and recreational retail such as restaurants. There is, on the other hand, likely to be slowly growing demand for small office space from the large and growing professional class, to meet the escalating trends in self-employment.

Over preceding years it has been found that for the metropolitan region as a whole the floorspace per capita has been estimated to be 1.74m² for suburban retail shopping floorspace. However, in general outer suburbs are well below this figure while inner suburbs such as Victoria Park are well above. The reason for the inner suburbs having a higher per capita ratio is that they have inherited a large legacy of old shops, many of which are used for marginal retailing purposes, that are under performing in terms of turnover generated compared to newer shops in the outer suburbs.

Over the 1991 – 2015 period the per capita floor area ratio in shopping centres has been falling on average at 2.23% per annum. This is apparent because while the population in Victoria Park has been increasing steadily over the period the shopping floorspace declined between 1991 and 2007 and thereafter has remained relatively constant between 2007 and 2015 while, over the same period the population of Victoria Park has been increasing. It is believed that the per capita floor area ratio will continue to fall in the future. As the population continues to grow and until the average of about 1.74m² per capita is reached, turnover levels per square metre will reach a level that will support refurbishment and minor increases in new shop floor area. This process has already begun and will accelerate and will accelerate towards 2021 and beyond.

It is doubted whether the locality selected at Belmont Park would have sufficient special merit to attract a unique retail attractor. It is unlikely to be like the Hillary's Marina which has a metropolitan wide attraction and could therefore be regarded as "iconic". Accordingly, it is believed that Belmont Park will be similar in size and composition to other district size shopping centres throughout the metropolitan region. Consequently, it is an assumption in the models for Victoria Park that the proposed Belmont Park District shopping centre would directly compete with the shopping infrastructure of Victoria Park at 2036.

In respect of Curtin/Bentley, the location of the numerous food and catering outlets classified as restaurants, cafes or function centres are so located within the campus that they are unlikely to attract a public clientele and therefore they will have no competitive impact on the other shopping structure in Victoria Park.

However, it is assumed that a proportion of the additional shop floorspace contemplated in the Master Plan will rely on drawing trade potential from outside of the University. This would have a competitive impact on the other shop floorspace in Victoria Park and in South Perth. In particular as impact would be felt on the small Karawara District shopping centre located about 1 km away from the likely site of any shopping centre to be developed on the University site. It has therefore been included in the model.

The model has run four scenarios, the results of which are summarized on Table 3.8. Scenario 1 is for 2026 and Scenario 2 for 2036 at which time a small neighbourhood centre is assumed to have been developed at Burswood. Scenario 3 assumes that at 2036 there would be substantial retail development at both Burswood and Curtin, but less than indicated on structure plans. Scenario 4 assumes that the structure plan proposals are achieved irrespective of their viability for the hypothetical demonstration of their impact on other centres.

Scenario 1: By 2026 the increased trade potential in Victoria Park should be able to support an additional 14,600 m² of shop floorspace. A neighbourhood shopping centre of 5,000 m² in a location just west of Burswood Station would be viable. In the absence of any other new competition in Victoria Park, the two main shopping precincts of Victoria Park and East Victoria Park are undersupplied with shopping and would be trading very well. This particularly applies to Victoria Park which is the least affected by the assumptions of expansion for Bentley Park Plaza and Carousel. It also benefits directly from trade coming from South Perth along Canning Highway. However, it is also noticeable that the smaller shopping centres do not reflect much growth potential. It is also noticeable that the Gateway precinct at the southern end of Albany Highway, being closer to the competition posed by Bentley Plaza and Carousel shopping centre, will not gain the same benefits from the expanded population at 2026.

Scenario 2: In this scenario the assumption is that at 2036 aside from the new Burswood neighbourhood shopping centre, there has been no other new shopping development in Victoria Park. On these assumptions Victoria Park should be able to support an additional 27,500m² of shop floorspace. Under this scenario trading conditions in Victoria Park would be booming and it would be fair to say that land values would have risen to a level that the numerous car yards in Victoria Park would have been displaced by a higher order land uses.

Scenario 3: The assumptions in this scenario are that all the proposals for additional shopping on the Burswood Peninsula and the Bentley Curtin complex are operational. The model reflects that in this situation the existing shopping structure in Victoria Park especially Victoria Park at Victoria Park East would be trading within acceptable levels. However, this is because the proposed centres in the Burswood Peninsula would fail to perform anywhere near a viable level and therefore the impact would be greatly reduced. With regard to Belmont Park while the retail floorspace input was 31,000m² (as reflected in the District Structure Plan), the model output is only 11,375m². The model shows that Belmont Park at 31,000m² can only draw a third of the customers it needs to be viable. It is doubtful that a centre of 11,375m², reflected by the model, would be viable because the Belmont Park location with respect to its trade area is poor and is unlikely to attract sufficient trade. The same can be said for Burswood Station West and Burswood Station East. Burswood Station West only attracts a third of the trade potential it requires while Burswood Station East attracts about half of its trade requirement. What the modelling has indicated is that these three proposals are not likely to be viable in the context of their locations, their trade area potential and the competition.

Scenario 4: Scenario 4 is a hypothetical scenario based on the improbable event that the proposals for Burswood Peninsula and the Bentley–Curtin would somehow be viable at their planned sizes. To do this the parameters in the model were altered to increase the attractiveness (drawing power) of the three proposals such that the model reflected viability commensurate with their proposed sizes. The purpose of this exercise is to demonstrate that were this to be achieved, the impact on the future potential for the shopping along Albany Highway relative to what it could have been (Scenario 2) would be severe. For example, Victoria Park shows only a marginal improvement over its 2016 situation. All other centres along Albany Highway including East Victoria Park would be trading below their 2016 levels. Such an outcome in the unlikely event it was to occur would be seriously disadvantageous for the existing retail structure of the Town.

Retail Model Input-Output (m2) Table 2015-2036 Based on the Continuation of Current Trends

Centre	2015 Data Input	2015 Model Calibration	2015 Correlation	Model Output 2016	Scenario 1 Model Output 2026 with only one new neighbourhood centre	Scenario 2 Model Output 2036 Without Burswood and Curtin structure plan proposals	Scenario 3 Model Output 2036 With Burswood and Curtin structure plan proposals	Scenario 4 Model Output 2036 With Burswood and Curtin structure plan proposals enforced
Vic Park East (Res/Comm)	736	717	-2.6%	718	706	703	655	580
Belmont Park	0	0	na	0	0	0	11,375	31,070
Victoria Park	20,883	20,634	-1.0%	20,738	27,812	39,790	31,102	23,179
East Victoria Park	28,358	28,291	-0.2%	28,373	30,384	31,810	30,508	25,801
Alday St Gateway	6,938	6,868	-1.0%	6,879	6,726	6,789	6,521	5,784
Canning Hwy/Berwick	2,554	2,545	-0.4%	2,028	2,148	1,794	1,734	1,387
Archer St	2,268	2,258	-0.4%	2,262	2,125	2,593	2,118	1,786
Orrong Rd/Archer St	690	656	-4.9%	597	597	1,413	549	463
Lathlain	270	262	-3.1%	262	279	288	282	218
Burswood Neigh Centre	0	0	na	0	6,533	4,855	0	0
Burswood Stn East	0	0	Na	0	0	0	6,488	20,030
Burswood Stn West	0	0	Na	0	0	0	4,325	8,000
Etwell St	195	208	6.7%	209	228	232	230	201
Orrong Rd	741	751	1.4%	753	854	950	845	647
Curtin University	0	0	na	0	0	0	9,162	14,971
Sussex St	200	205	2.4%	206	230	229	240	202
Oats St	485	472	-2.7%	472	414	466	391	343
Oats St District Centre	755	737	-2.3%	739	679	587	649	569
Cohn St	84	81	-4.1%	81	69	84	63	55
Carlisle	470	446	-5.1%	446	397	438	369	315
Total	65,577	65,130		64,821	80,181	93,023	107,604	135,600

The model results do not mean there will be no new shopping development (or very little) for the next 20 years. If the proposals for the Burswood Peninsula are moderated to about 20,000 m² of shop floorspace (including the 5,000m² neighbourhood centre) by 2036, the prospects for refurbishment and redevelopment along Albany Highway would remain positive.

It has been concluded that in addition to the assumptions run in the model, the impact of 'e' trade could reduce retail floorspace demand by 8% at 2026 and 17% at 2036. These factors should be applied to Table 3.7 to further constrain future prospects for shopping centre growth. However, even the worst-case scenario for Albany Highway is that there will be improving trading conditions but they will be slow and uneven. It appears that the Victoria Park precinct by virtue of its close proximity to South Perth via Canning Highway will be in a stronger position for expansion and refurbishment than East Victoria Park which is closer to the Carousel strategic metropolitan Centre and more constrained from South Perth.

The overall conclusion to be drawn from this analysis is that the future prosperity for the existing shopping structure in Victoria Park, especially Albany Highway, will depend on how the proposals envisaged for the Burswood Peninsula develop. So far the proposed expansion of the major shopping centres south of the river, namely Carousel and Garden City, will not have an undue impact on the future shopping prospects in Victoria

Park. The impact of future “e” trade on future shop floorspace requirements in Victoria Park are difficult to foresee but the best guess would be an 8% impact by 2026 and a 17% impact by 2036.

Other key conclusions to be drawn from the analysis are that:

- The retail structure of Albany Highway is in the process of evolution and improvement. Specialty shops are giving way to personal service and lifestyle premises such as cafes and restaurants. The vacancy rate of the Albany Highway Secondary Centre has fallen from 9% in 2007 (excluding open car yards) to 6.3% in 2015. Notwithstanding this, retail floorspace represents only 28% of the overall floorspace of the Secondary Centre.
- At this time Victoria Park is still slightly overprovided with shop floorspace relative to its trade potential. By 2026 Victoria Park will begin to see an increase in shop floorspace along Albany Highway especially around the Victoria Park sub-centre and to a lesser extent around East Victoria Park. The exact process is hard to foresee. For a while the economics of redevelopment may not produce new buildings but instead lead to the refurbishment and conversion of premises not currently used shopping purposes.
- Many of its commercial functions, in particular the automotive trade, but also regionally oriented offices and many of the restaurants along Albany Highway, serve a district or regional area outside of Victoria Park, particularly the residents of South Perth. Because car yards occupy significant areas of land they should be regarded as sustainable land banks until economic conditions justify their conversion to higher order uses.
- Victoria Park is relatively well served with the daily ‘milk and bread’ walking convenience level facilities.
- The only area with potential for new shopping development in the next 20 years is on the Burswood Peninsula. However, the current proposals for an additional 59,000m² of shopping floorspace appear to be grossly excessive. Although 15,000 – 20,000m² of shopping could be located on the Burswood Peninsula, it is believed that Belmont Park in particular is not a good location for a ‘run of the mill’ competitive shopping centre. It is too isolated from the wider residential areas. The potential for shopping on the Peninsula is limited to serving local needs. For a large centre, such as that contemplated in the Burswood Peninsula District Structure Plan, to be viable it would need to offer something special or unique, and thereby provide a very strong and wide attraction. Such a centre is difficult to foresee in the context of the existing metropolitan shopping structure.
- Until the aspirations of the Bentley – Curtin structure plan are more certain, the proposals for up to 10,000m² of additional retailing in Curtin University appear to be excessive. The indications are that a new centre of 10,000m² would not be viable at least until the other residential and employment components of the structure plan are substantially realised. Based on past trends this could be beyond 2036.

Albany Highway Secondary Centre

The commercial area abutting Albany Highway within the Town is effectively one activity centre. However, the two retail centres (based on Victoria Park Central and The Park shopping centres) should be considered as nodes within the Albany Highway activity centre strip and the Town should develop a strategy to create certain points of difference between the two nodes.

The centre has seen a significant increase in commercial floorspace (30%) since the 2007 survey. The Secondary Centre includes a balance of shop, other retail and office space – all with over 40,000m² of floorspace indicating that the SPP 4.2 targets regarding mix of land use are well met in the Secondary Centre. Moreover, the vacancy rate is generally quite low at 6.2%.

Uses such as gyms and health clubs have become a significant new land uses and cafes, restaurants and function centres now make up 33% of all shop/retail floorspace offering a wide range of attractions.

To enable the Town to take advantage of the potential of the outdoor, informal and various experiences offered by the Albany Highway centre, a number of challenges need to be addressed. The Secondary Centre does not provide a clear retail offer, lacks vibrancy, is interspersed by non-retail uses, suffers areas of low streetscape amenity and has few public spaces. Landscaping is limited, of poor quality and lacks any consistent theme. The 3.4km strip requires that the sub-precincts be made distinct and differences be emphasized and promoted rather than indistinctly merge.

To deal with some of these challenges, the Strategy will assist in facilitating:

- The consolidation of retail activity into the major centres recognising that the Town is well-provided with retail floorspace, with little scope for major expansion;
- The development of diverse shopping experiences provided by the combination of enclosed shopping centres and strip shopping and the emerging trend of recreational commercial uses, such as restaurants along Albany Highway;
- The establishment of a unifying approach to landscaping, entry statements and small parks for each of the Secondary Centre's sub-precincts;
- The implementation of policies that reduce the parking standards for non-residential land uses within the Secondary Centre.
- Maximise the opportunities for density development within walking distance of the centres.

Northern Sub-Precinct

Contrary to past expectations, the area used for car sales in this sub-precinct has not declined. While the past policy has been to encourage the phasing out of such uses, there are some advantages to the Town of their retention in the short term. Retention of the large land parcels provides a valuable asset to facilitate long term comprehensive development.

Victoria Park Sub-Precinct

A comprehensive design theme should be created for the sub-precinct with landscaping, public art, street furniture, activity and small parks to create a unique identity.

Central Sub-Precinct

The area used for car sales in the sub-precinct has yet to significantly contract. While it is important to resist land fragmentation, a gradual transfer of the uses to residential with some commercial would be desirable. A design theme should be implemented particularly through tree planting in the road reserve.

Town Centre Sub-Precinct

A comprehensive design theme should be created for the sub-precinct with landscaping, public art, street furniture, activity and small parks to create a unique identity. Reduced parking standards for shop/retail uses should be implemented and some parking spaces adjacent to Albany Highway in front of the Park Centre should be converted to a linear park.

A predominantly residential precinct with limited provision for commercial uses at street level with consistent design theme for new development and public areas should be promoted.

Gateway Sub-Precinct

Transition to more pedestrian friendly frontages to commercial uses should be promoted. A significant entry statement to the Town should be provided.

Specialised Activity Centres

The development of the Town's two Specialised activity centres, at Burswood and Curtin/Bentley, will have a profound impact on the Town's future.

The Burswood Peninsula is a large strategically located site constrained from development until recently. In view of its favourable location it should continue to develop as a centre of entertainment and tourism. In addition, it will provide most of the Town's future population and employment growth. How the future population and workers on the Peninsula should be serviced is an important issue. The very large commercial space and significant retail space indicated by recent Burswood sub-precinct structure plans has potential to adversely impact on the hierarchy of activity centres in the Town. Modelling has shown that retail floorspace beyond that required for daily convenience would be detrimental to investment in the Secondary Centre.

The Bentley/Curtin Precinct comprises the Curtin University campus, adjoining Technology Park and various other institutional uses. The land is currently developed with low-intensity uses. This could change in the future as the site's strategic location is capitalized upon. How the future development of the Precinct impacts on the Town needs to be considered and planned for.

Convenience shopping for the local communities in the Burswood and Curtin Specialised Activity Areas should be supported, but larger proposals should be critically assessed for their impact on the retail hierarchy. Any application for retail development over 5,000m² at Burswood or Curtin should be subject to an independently prepared retail sustainability assessment in view of the Activity Centre Strategy modelling demonstrating that the Secondary Centre would be detrimentally affected by significant retail development in the Specialised Activity Centres.

Other Activation Areas

Causeway

The Causeway Precinct provides a strong urban link between the Secondary Centre and Burswood. The Activation Area should be promoted with higher density residential adjacent to GO Edwards Park and office development elsewhere subject to achieving the standards set out in LPP 22. The Causeway Precinct should be redefined as a District Centre within the activity centres hierarchy.

Oats Street

This important future Activation Area at the Town's southern boundary is reliant in part on station relocation and rezoning of land from industrial use. Preparation for future activation should be made by appropriate rezoning of some areas from industrial to residential/commercial and the increase of density codings or appropriate form-based codes, from low density to medium density.

Berwick Street

This centre should continue to develop as a highway commercial centre. Redevelopment for higher density residential with some offices and showrooms in preference to retail uses should be supported.

Archer Street

The Archer Street Precinct offers a relatively strong Activation Area with some potential for consolidation of the surrounding residential areas. Links with the Secondary Centre should be strengthened by reviewing increased density recoding potential within 200m of Archer Street between Mars Street and Albany Highway.

Victoria Park Station

This well-located area offers scope for some consolidation as a transit orientated development precinct. Review of density codings, or appropriate form-based coding, directly north and south of the Victoria Park station should be undertaken to better consolidate the residential area and provide a stronger urban link to Albany Highway.

Local Activation Areas

A number of small centres provide some convenience shopping but limited other amenities. The Lathlain centre provides a model for emulation elsewhere – in part as a result of improvements in the public domain, the centre thrives. The existing convenience shopping, which provide focal points in the residential districts should be maintained and landscape improvements to the public domain made where possible.

4.6 Tourism and Visitors

The State planning framework, through documents such as the State Planning Strategy, State Government Strategy for Tourism in WA 2020 and WAPC policies and guidelines set out the role and importance of tourism to the State economy.

Tourism and hospitality are also key industries in the Town's economy. The Town is home to several regional destinations and attractions including Perth Stadium, Crown Casino, Albany Highway mainstreet and the Swan River and its foreshore. Visitation data for recent years in the Town is detailed in the following tables:

Visitor nights - Numbers

Town of Victoria Park - 2008/09 to 2015/16	Town of Victoria Park		Western Australia			
	Year	International Visitor Nights	Domestic Visitor Nights	International Visitor Nights	Domestic Visitor Nights	Domestic Daytrips
2015/16		1,045,648	216,974	27,664,937	43,815,866	19,373,075
2014/15		1,424,261	-	28,842,363	37,127,127	17,572,814
2013/14		1,064,393	-	27,405,388	32,649,965	15,391,818
2012/13		1,396,971	-	27,919,684	29,598,118	14,717,478
2011/12		1,068,171	-	25,703,958	26,885,024	14,154,159
2010/11		1,107,491	190,548	22,381,886	24,758,308	13,446,769
2009/10		945,912	139,425	21,768,488	22,254,717	12,342,787
2008/09		1,023,261	99,718	20,924,267	25,956,844	12,249,158

International visitors - 5 year total

Town of Victoria Park - 2011/12 to 2015/16	Town of Victoria Park				Western Australia			
	Main reason for trip	Visitors	Visitor nights	%	Average length of stay (days)	Visitors	Visitor nights	%
Visiting friends and relatives	34,110	747,616	26.7	21.9	1,799,718	30,563,752	25.9	17.0
Holiday	42,441	910,975	33.2	21.5	3,567,968	44,886,870	51.4	12.6
Business	12,765	212,088	10.0	16.6	668,478	10,140,413	9.6	15.2
Education	22,082	3,062,465	17.3	138.7	298,380	22,169,156	4.3	74.3
Employment	12,880	969,093	10.1	75.2	438,365	25,507,452	6.3	58.2
Other reason					174,774	4,268,684	2.5	24.4
Total	127,706	5,999,443	100.0	47.0	6,947,686	137,536,329	100.0	19.8

Source: Tourism Research Australia - Unpublished data from the International Visitor Survey 2016.

The Strategic Community Plan aims for the Town to be a desirable place for tourism and its location and attractions offer significant potential for further tourism-related development.

TPS 1 does not specifically address tourism in any detail. Tourism development tends to be considered in the same context as other land uses. While it is not necessary for the local planning scheme to specifically identify sites for future tourism-related activities or contain controls to protect tourism facilities from encroachment of incompatible or conflicting uses, the local planning framework should:

- Identify the nature and importance of tourism to the Town, including the type of facilities and attractions, their level of amenity and accommodation supply, gaps and opportunities.
- Encourage tourism growth and development that reinforces the local tourism identity, including innovative tourist accommodation development and facilities to meet tourists' needs.
- Identify service capacity and infrastructure projects that could potentially impact on tourism growth and visitors' experiences, including how tourists access accommodation and move between attractions.

Other tourism-related planning considerations include:

- Improvement to connections from Burswood Peninsula to the Albany Highway main street.
- Addressing the rise of small-scale tourist accommodation, such as that which can be booked through emerging technologies like Airbnb, and its impact on local residential communities.

These considerations would best be addressed in an updated Economic Development Strategy for the Town, in which the promotion of the Town's tourism potential will be a key component.

4.7 Public Open Space and Recreation

Public open space (POS) and the recreational facilities built on it are critical Town assets. The Town's *Healthy Vic Park Plan 2017 – 2022* recognises the importance of community health and wellbeing by focussing on the provision of healthy places and spaces. The Town plays a significant role in the promotion and protection of the

health and well-being of its community through the provision of facilities, services and environments that promote physical activity and healthy lifestyles. POS also forms a key part of the Town’s green infrastructure and contributes to the community’s sense of place and economy.

4.7.1 Public Open Space

The Town has various POS sites that fulfil a range of functions, such as active sporting fields for formalised sports, areas for passive recreation and land set aside for stormwater detention function or environmental conservation. A classification system is needed to differentiate the types of open space and the role that each site plays in meeting the recreational needs of the local, district and regional community. This classification helps form a basis for determining the adequacy of existing POS to meet current and future needs of the Town and the wider community.

While the classification system adopted by the Town is based on a framework developed by the Department of Sport and Recreation, in many cases POS will not satisfy all of the framework’s criteria, particularly in relation to typical size. As such, a best-fit approach has been applied with the primary function of POS being the overriding consideration.

POS included in the classification comprises all sites used or available for recreation. State Government POS provision policy requirements for land subdivision proposals (that is, 10% of subdivisible area being ceded for POS) form a benchmark to assess the supply of existing POS within the Town. Land reserved for Parks and Recreation under the TPS 1 is calculated separately from land that is similar reserved under the MRS, as MRS-reserved POS is not usually credited towards the 10% subdivision requirement. Tables below detail the extent and classification of existing POS within the Town, ordered by suburb. In summary, the classification process has found that:

Lathlain is deficient in the amount of POS, but has a range of local, neighbourhood and district open space site. Future development of Lathlain Park has potential to increase the amount of local and neighbourhood space.

Carlisle has about half of the 10% provision of public open space, most of which is in district open space. The only potential neighbourhood site is the vacant land formerly developed with the Lathlain Carlisle Bowling Club.

Burswood has minimal local open space and no neighbourhood or district open space. However, the amount of regional open space is significant and some could potentially be developed to provide future local, neighbourhood and district public open space.

Victoria Park has little public open space, but has a range of local, neighbourhood and district open space.

East Victoria Park and St. James have close to a 10% provision of public open space, with a good range of local, neighbourhood and district open space.

Amount of Public Open Space by Suburb

LATHLAIN				
POS CLASSIFICATION	NAME	AREA	REGIONAL OPEN SPACE (ROS)	AREA
DISTRICT	J A Lee Reserve	28551	Lathlain Park	88401 ¹
NEIGHBOURHOOD	Rayment Reserve	9394		
LOCAL	Forster Av Reserve	1967		
TOTAL POS		3.9912 ha		8.8401 ha
GROSS AREA		132.9 ha		132.9 ha
POS % OF GROSS		3.00%		6.65%

CARLISLE		
POS CLASSIFICATION	NAME	AREA
DISTRICT	Parnham Park	19590
	Fletcher Park	42369
	Carlisle Reserve	32068
NEIGHBOURHOOD	Lathlain Carlisle Bowling Site	15814

LOCAL	Millers Crossing	5595
	Tom Wright Park	3942
	Gemini Way Sump	837
TOTAL POS		12.0215 ha
GROSS AREA		215.5 ha
POS % OF GROSS		5.58%

BURSWOOD (Part - South of Causeway Precinct, Causeway Precinct, Burswood Lakes aka -The Peninsula & Burswood Station East)				
POS CLASSIFICATION	NAME	AREA	REGIONAL OPEN SPACE (ROS)	AREA
NEIGHBOURHOOD	-	-	Go Edwards Park	103795
LOCAL	Stiles Griffiths Reserve	1970	Charles Paterson Park	38814
	Charnley Gdns Burswood	1416	Balbuk Reserve	13730
	Vantage Way Burswood	879	Reserve Leased To Wa Recreational Water Sports Association	11887
	Pallinup St	425	Burswood Park Board Parkland	87 HA. (APPROX.) 2
	The Promenade	7587		
	The Circus	3512		
TOTAL		1.5789 ha		94.4810 ha.³
GROSS AREA (Part of Suburb)		81.37 ha		168.37 ha³
POS % OF GROSS		1.94%		56.12%³

VICTORIA PARK & KENSINGTON				
POS CLASSIFICATION	NAME	AREA	REGIONAL OPEN SPACE (ROS)	AREA
DISTRICT	Raphael Park	51032	Taylor Reserve	76621
NEIGHBOURHOOD	George St Reserve	27080	Mccallum Park	111954
	Hawthorne Reserve	9698	Kensington Bushland	82980
LOCAL	Asquith Reserve	2804	Kent Street (Old Tip Site)	45111
	Read Park	7838		
	Memorial Gardens	3258		
	Sunbury Reserve	1860		
	Miller St Reserve	1002		
	Duncan Reserve	2146		
	State St Reserve	615		
TOTAL POS		10.7333 ha		31.6666 ha
GROSS AREA		232.8 ha		232.8 ha
POS % OF GROSS		4.61%		13.60%

EAST VICTORIA PARK & ST JAMES		
POS CLASSIFICATION	NAME	AREA (M²)
DISTRICT	Harold Rossiter Park	76127
	Fraser Park	29613
	Higgins Park	72330
	Aqualife Complex	21469
	Leisurelife Complex	20324
	Victoria Park Bowling Club	13802
NEIGHBOURHOOD	Edward Millen Park	28191
	Edward Millen Grounds	15750
	John Macmillan Park	17650
	John Bissett Park	12869
	Kate Street Reserve	9962
	Hillview Bushland	10275
LOCAL	Shepperton Road Reserve	7023
	Mint Street Reserve	3259
	Isaia Corner	1205
	Alday Reserve	1353
	Hampshire Reserve	853
	Devenish Reserve	743
	Victoria Heights Park	6741
	Manners Reserve	5680
	Mazzini Reserve	5059

	Forward Reserve	4768
	Rotary Reserve	5393
	Houghton Reserve	9515
	Playfield Reserve	8348
	Somerset Park	7103
TOTAL POS		39.5405ha
GROSS AREA		411.5 ha
POS % OF GROSS		9.61%

Note:

1 The total area of Lathlain Park is 8.84 ha. However under the Metropolitan Region Scheme the land is reserved parks and recreation - restricted public access and a large portion of the site is leased to the Perth Football Club and has restricted public access. The site is now subject to a 'Heads of Agreement' with West Coast Eagles (WCE). This will see about 7.5 ha of the site become the subject of lease arrangements to WCE or Perth Football Club, with the balance of about 1.34 ha being available for unrestricted public access. However the 'Heads of Agreement' provides for community use of parts of the lease area under certain conditions. This particularly applies in relation to proposed Oval 2 (an area of about 1.77 ha.), where the options for community use will generally apply after 4pm Monday to Friday and all day on Saturday and Sunday.

2 The parkland area (about 87 ha.) administered by the Burswood Park Board pursuant to a State Agreement is not subject to the provisions of the Metropolitan Region Scheme and the Minister for Racing and Gaming is responsible for approving planning and development applications. Current and proposed future development of this parkland area is reflected in the Burswood Peninsula District Structure Plan, March 2015.

3 These figures include the parkland area (about 87 ha.) administered by the Burswood Park Board.

4 The suburb of Bentley has not been included, as the portion of the suburb within the Town contains land owned by the Minister for Science and Innovation that total about 3.75 ha and form a landscape buffer around Bentley Technology Park. This area was not developed to function as local or neighbourhood open space and future use/ development will be considered as part of the Bentley Curtin Specialised Activity Centre Structure Plan. It should also be noted that none of the land within the suburb of Bentley within the Town is considered to be within 'gross subdivisible areas' for the purposes of calculating normal requirements for provision of public open space.

The POS assessment is largely quantitative and there has been no detailed survey of open space quality or community usage and attitudes on which to base a qualitative assessment and plans for improvements and maintenance of open spaces. The quantitative measures of amount, distribution and accessibility only provide part of the assessment of the adequacy of open space provision. The form, facilities, quality and attractiveness of open spaces and how adequately they meet the needs of the communities they serve is also significant.

This highlights the importance of a whole of organisation approach and the engagement of the community in developing a POS Strategy to examine community needs and expectations and ensure a variety of uses are accommodated including active sporting fields and areas for passive recreation. This is in particularly important in light of the expected population growth within the Town, much of which will be in a more compact form than is presently the case. As apartments with balconies and small courtyards rather than the traditional spacious backyards become more common, access for residents to attractive and functional POS will become increasingly important.

The POS Strategy will also need to consider innovative ways of providing outdoor green space for residents that isn't typically considered to be part of a POS network, such as roof top gardens to cater for residents of apartment buildings.

4.7.2 Recreation Facilities

The Town's flagship leisure centres, Aqualife and Leisurelife, provide a wide range of recreation services to the Town. These facilities provide necessary community facilities and a home to services that promote social interaction as well as physical activity. In addition to contributing to greater physical health, they also promote mental health and social inclusion through group activities and socialisation.

The Town also provides club room facilities for sporting clubs on its various active open spaces. Sporting clubs have a social as well as fitness and recreational role to play within the community.

Curtin University offers a wide range of sporting and recreational facilities on campus and is keen to share these facilities with Town residents. With the implementation of the Greater Curtin Masterplan existing and proposed sport and recreation facilities will be made available to the greater community and development of partnerships with the Town are possible.

Some popular recreational activities are not reliant on dedicated facilities, such as walking, running and cycling, but require a well-designed and safe network of roads, footpaths and trails. These activities have a close relationship with commuting functions and are addressed in more detail in the Transport section later. However, it needs to be acknowledged that these activities also have a recreational function and in that context generate their own needs. These include appropriate facilities to encourage walking, running and cycling, such as continuous footpaths and/or shared paths, a safe road cycling environment, bicycle parking facilities and drink fountains in appropriate locations.

Natural areas such as the Swan River foreshore are strong attractors for Town residents and visitors. The foreshore paths encourage walking, running and cycling for recreation and the parkland encourages informal sports such as family football and cricket games. These uses should be encouraged within the foreshore parks by providing and maintaining appropriate pathways and grass areas. Access to the foreshore and river needs to be well designed, safe and legible for pedestrians and cyclists.

The draft *Taylor McCallum Park Masterplan* is cognisant of these different functions of the foreshore and identifies areas for parkland and event space, river edge revegetation, a beach and activity node and parking space as well as pedestrian and dual use pathways providing linkages with the adjoining foreshore area within the City of South Perth and the Burswood Park Board managed land on the Burswood Peninsula.

The Belmont Park Racecourse Redevelopment Structure Plan makes provision for the upgrade of the foreshore with areas for passive recreation and revegetation. The entire foreshore will be publically accessible and a pathway system will provide connectivity. The Structure Plan makes provision for ferry access, a marina and celebration of Aboriginal culture and heritage.

The redevelopment of Lathlain Park to incorporate the West Coast Eagles and Perth Demons training facility and WAFL match facility opens up the park, which in the past has been inaccessible to the public, for community use. This includes community access to one of the two ovals for passive recreation when not in use by the football clubs for training purposes, creation of a new community activity zone, community access to some of the West Coast Eagles facilities, including function space, museum, shop and café, sports medicine facilities, child care and recreation facilities.

The Town endorsed a Sport and Recreation Facilities Strategy in 2013, which informs the upgrade and development of sport and recreation facilities in the Town, taking into account changing demographics and projected demand for individual sports, together with a review of existing facilities to assist the Town in meeting the current needs of community and sporting clubs while placing the Town in a position to meet the needs for future generations. The Town subsequently amended some of the recommendations and the associated priorities in 2015. Strategy recommendations involving a land use planning perspective include:

- Development of master plans for various Town reserves.
- Incorporation of sustainable design in the development of new and upgraded recreation facilities.
- Improving connectivity to recreation facilities through upgrades to the pedestrian and cycling network.
- Provision of land and facilities for recreation and other community use on the Burswood Peninsula.

4.8 Community Planning

Investment in social infrastructure is essential for the health, social wellbeing and economic prosperity of communities and has been described as the cornerstone of wellbeing in a community. Social infrastructure has been defined as *“the interdependent mix of facilities, places, spaces, programs, projects, services and networks that maintain and improve the quality of life in a community”*. It can also be defined as the structures and facilities that help communities and neighbourhoods to function effectively. These can include:

- Universal facilities and services such as education, health, active open space, recreation and sport, safety and emergency services, religious, arts and cultural facilities, community centres and meeting places.
- Lifecycle targeted facilities and services such as those for the elderly, youth and children.
- Targeted facilities and services for groups with special needs such as families, people with a disability and indigenous and culturally diverse people.

The National Health Services (NHS) Healthy Urban Development Unit (2008) states that “Social infrastructure has a key role to play in promoting social cohesion, bringing different socio-economic and ethnic groups together, and creating a true sense of community belongingness”. Communities that offer opportunities for human development have strong social capital, and act as magnets for investment, growth, and economic development.

As detailed in section 3.2.5, the Town has prepared a Social Infrastructure Plan to ensure the Town’s social infrastructure keeps pace with the projected population growth and changing community needs over the years to 2036 and 2050 and beyond. Its purpose is to:

- Develop a framework to guide how the Town’s social infrastructure will accommodate future growth.
- Identify and appropriately plan for and assist in the delivery of social infrastructure in the Town of Victoria Park.
- Provide an evidence based framework and guide for the future planning, provision and investment in Council owned social infrastructure over the next 30 years.
- Enable Council to set priorities and recommendations for future social infrastructure development based on strong evidence and analysis.

Development of strategies for the provision of public open space and community facilities are important planning-related recommendations of the Plan.

4.9 Heritage, Character and Urban Design

4.9.1 Aboriginal Heritage

The Swan River and its foreshores have been recognised for their importance to the Aboriginal people in regard to food, resources, occupation areas and links with dreamtime mythology. Aboriginal occupation of sites along the Swan River dates back 40,000 years, with the river used for fishing, shellfish gathering and meeting places, particularly at crossing points.

All Aboriginal heritage sites, whether identified or registered or not, are protected by the Aboriginal Heritage Act (1972). The Act sets out obligations on those undertaking development or using land in a manner that may adversely impact an Aboriginal site.

Registered Sites located within the Town are listed in the following tables:

ID	Name	Status	Type	Region
3536	Swan River	Registered Site	Mythological	Metro/Wheatbelt
3701	Burswood Island	Registered Site	Ceremonial/Camp	Metro/Wheatbelt
15915	Burswood Island Camp	Registered Site	Camp	Metro/Wheatbelt
15916	Burswood Island	Registered Site	Artefacts/Scatter, Water Source	Metro/Wheatbelt
24319	Wadjup	Registered Site	Ceremonial, Camp, Meeting Place, Named Place	Metro/Wheatbelt

4.9.2 Built Heritage

The State Heritage Register is prepared under the terms of the Heritage of Western Australia Act 1990 and lists places of state heritage significance. The following places within the Town are listed:

No.	Place	Other Name	Register
1	Old Burswood Canal		State, MI, National Trust, Aboriginal Heritage
2	Edward Millen Home	(fmr) Hillview Clinic, Rotunda Maternity Hospital, Mildred Creak Centre	State, MI, National Trust
3	Kent Street Senior High School	Kent Street Central School, Kent Street High School	State, MI
4	Windmill & Wishing Well	Brisbane + Wunderlich Windmill & Wishing Well	State, MI
5	Victoria Park Primary School		State, MI, National Trust
6	Broken Hill Hotel, Victoria Park		State, MI, National Trust

7	Victoria Park Post Office		State, MI, National Trust
8	Victoria Park Police Station		State, MI
9	St Peter's Anglican Church & Memorial Hall		State, MI, National Trust

The Town compiled a Municipal Inventory in June 2000 as required by the Heritage Act. The Inventory lists 85 places of heritage significance and assigns a management category to each place. A review list includes properties that warrant investigation for future inclusion in a future updated Municipal Inventory.

4.9.3 Town Character

It is important to distinguish between historic heritage significance and urban or neighbourhood character. The notion of character is broader and perhaps more subjective than heritage. Community perception about character reflects a wider range of criteria than the social or architectural value of individual buildings.

The Town has defined “character” as *“the product of built and natural elements of a locality which collectively distinguish it from other, nearby localities. Within a definable precinct these basic elements appear in sufficient quantities as to produce a unifying effect. The basic elements which contribute to the character of a locality can include, amongst other things building form, scale, height, materials and orientation, private plantings, setbacks of buildings from the street, the number of crossovers, street trees, street width and geometry and street furniture.”*

A combination of individual elements form streetscapes and it is often the entire streetscape that is regarded as establishing the character of a residential area.

The Town has some of Perth’s older suburbs that developed predominantly through the formation of large estates during the Gold Boom period, in the years before and after Federation in accordance with early precepts of urban villages and the garden city movement. Development was structured around the tram route on Albany Road and two railway stations and a still-intact subdivision pattern is evident from the first generations of development in the 1880s and 1890s.

The basic pattern of activities and some of the building fabric of the Town dates from the early generations of development and the eras that followed. Some parts of the Town have a high level of intactness, or at least considerable amounts of early building fabric which shape the Town’s primary character.

Despite there being a gap between subdivision and housing construction in early generations of development, there was a high degree of consistency within areas in terms of style and period of homes once they were built. For the most part, traditional housing in Victoria Park and parts of East Victoria Park consisted of relatively modest detached cottages and bungalows of either brick and iron or tile construction, or timber and iron construction. Very few original homes had two storeys and there were only a handful of attached houses in the form of duplexes.

Development in areas located further from the tram line, such as Carlisle, Lathlain and parts of Victoria Park and St James occurred only after the Second World War, which included some State Housing Commission estates, with a transitional style of brick and tile housing.

During the 1960s the introduction of zoning laws encouraged the development of medium and high rise flats in escarpment and ridge locations that gave the flats extensive outlooks. In the mid-1980s the GR Codes were introduced, followed by the R Codes, and have encouraged the development of infill development throughout extensive in parts of the Town. Until relatively recently, much of that new development paid little heed in terms of either style or massing to the existing housing in the area. This changed with the development of new Local Planning Policies that sought to protect the original character of the area from the late 1990s with the introduction of the Raphael Precinct Design Guidelines and the Policy on Weatherboard Precincts.

This history of development has resulted in much of the Town having a traditional residential character, with some minor variations over time rather than having markedly different characteristics across the various eras. The outstanding characteristics of that traditional residential character being gridded form of subdivision, albeit

that the direction of primary residential streets are opposed east and west of Albany Highway, and predominantly freestanding single storey cottages and bungalows of brick or timber.

The Residential Character Study 2003 undertaken by Hocking Planning and Architecture found that the core area of the Town of Victoria Park, located generally between the railway line and Berwick Street, retains much of its original character and contains a substantial number of original dwellings, constructed between the 1890s and the 1940s. The Study concluded that there is sufficient original housing stock remaining throughout the Study Area to warrant protection of the existing character in these areas. The study also concluded that the existing density codings in much of the area do not encourage retention of original dwellings. It recommended a change in ethos from one of demolition and redevelopment to one of protection and sympathetic infill.

The Residential Character Study Review undertaken in 2010 looked at ways in which retention of original dwellings could be encouraged while retaining the existing development potential of most lots. The Review recommended establishment of a Special Control Area and explored a way of applying split density codings to create larger lots at the front of sites to retain original dwellings and the original streetscape character while allowing additional infill development to occur at the rear of sites.

More innovative ways are required through which the same principle can be achieved without increasing administrative complexity and red tape, which the State government's planning reform is aiming at minimising. The R Codes approach to development control does not serve the inner city local governments well and does not facilitate protection of areas of special character. Alternative means to achieve this end should be considered, such as the use of form based codes that can be applied in a more flexible way to achieve specific development outcomes.



Figure 38: Original Dwellings within the Residential Character Study Area

4.9.4 Urban Design

In recent times, property in the Town has become sought after and redevelopment pressures have increased. These pressures have produced and will continue to produce pressures for incremental change particularly within established residential areas. Where changes have been indiscriminate and not considerate of the pattern and form of the neighbourhood context, it has been destructive of the environment of the Town rather than adaptive or evolutionary. Increased interest in high density development has made development of design policies necessary to ensure new development, both residential and commercial provides a positive contribution to the existing and/or desired streetscapes. This includes consideration of the relationship of the building to the existing streetscape context, functionality and amenity of the building and apartments, and resource efficiency. The Evolve community engagement process has confirmed a community desire for new buildings to relate to the streetscape and be of human scale to provide a pleasant pedestrian environment, especially along Albany Highway and other existing or future main streets.

The Town has responded to the need to ensure new development achieves a good urban design outcome with the introduction of a Design Review Committee consistent of professionals in the areas of architecture, urban design, landscape architecture and assessment of energy efficiency of buildings. The industry leading Design Review Committee advises Council on applications in respect to structure plan proposals, major development applications where the value of the development exceeds \$5m and includes all developments involving buildings in excess of three storeys. It provides advice to Council in respect to provisions of the local planning scheme and advice on appropriate review and amendment of the scheme provisions.

Crime Prevention through Environmental Design (CPTED) is a crime prevention strategy that focuses on the planning, design and structure of cities and neighbourhoods. It reduces opportunities for crime by using design and place management principles that reduce the likelihood of essential crime ingredients (law, offender, victim or target, opportunity) from intersecting in time and space. CPTED principles should be embedded in the planning framework to ensure that the built environment contributes to a safe public realm. A review of the local planning scheme should consider CPTED implications.

The portion of Albany Highway running through the Town has many sections where a low-scale village atmosphere exists. The retail activities, footpaths, signage and materials associated with windows and wall finishes all add to the 'grit' of the street. This has a universal appeal as evidenced by the popularity of streets in Fremantle or Carlton in Melbourne.

Developers are generally not willing to fund street-level works beyond their property. The outcome almost always is a more sterile and uninviting pedestrian-level experience when redevelopment occurs. If the 'village' elements along Albany Highway are redeveloped then care should be taken to ensure that development occurs in such a way that the ambiance of the environment is not lost in the process. Principles and design guidelines need to be developed to maintain the desirable character of the Albany Highway streetscape.

Since its introduction in 2005, the Town has been relying on the Local Planning Policy – Streetscape to achieve desirable urban design outcomes within the Town's residential areas. The R Codes have limitation in dealing with infill development in existing inner city areas, and in particular with ensuring new development respects the character of existing streetscapes. The Policy therefore varies the R-Codes requirements for "Streetscape" and "Building Design" in an attempt to ensure new development is sympathetic to the existing streetscape character. The Town has taken the view that new development should be designed sympathetically with existing character dwellings and has not favoured completely modern buildings that contrast the old.

The Policy requires review to bring it up-to-date with best practice planning of inner city areas and to ensure that sustainable design of new dwellings and additions is encouraged. There may be scope to review the Town's approach to complementing character dwellings with modern additions. This approach may assist in achieving better sustainability outcomes as it would allow greater flexibility with regard to roof pitches, shapes, building materials and similar. This approach would also highlight original character dwellings within the street rather than blending them into a streetscape of a mix of old houses and replicas.

4.9.5 Place Making and Management

Place making is a holistic, multi-disciplinary approach to creating authentic, vibrant and resilient places that are valued by the local community and those that visit. It involves collaboration between stakeholders to articulate a vision for a place and to plan and deliver that vision. While it incorporates traditional place development processes of master planning and urban design, place making is also focussed on social and economic development, community engagement, arts, culture and sustainability.

Place management involves influencing and coordinating a local authority's service units and working with local stakeholders to deliver desired place outcomes, typically in activity centres or public areas. There is usually a focus on initiatives that activate a place through events, innovative use of spaces, marketing and business engagement, as well as on character, design and presentation and movement to and within a place

Creating dynamic places that are prosperous, resilient, liveable, sustainable, connected, diverse and safe is fundamental to the Town's Strategic Community Plan and directly aligned with the LPS's focus on activity centres as critical drivers of the Town's future transformation.

The formulation of a public realm strategy for the Town and place making strategies and place plans for individual centres will be required to provide direction on their activation.

4.10 Transport

A sustainable and efficient transport system is needed to underpin and support the projected population and economic growth within the Town and the inner sub-region. This needs to recognise the Town's dual role as an important destination for employment, education and entertainment, and therefore a traffic destination in its own right, as well as a through route for transport from the south-east corridor into the Perth CBD. The Town recognises the need to build an effective urban transport system rather than suburban commuter system, focussed on moving people within the inner city sub-region, providing connections between different suburbs and centres rather than just focussing on moving large numbers of people from outer suburbs into the CBD.

The Town's IMNS takes a "public transport focus" approach. This includes land use and transport integration, improvements to stop infrastructure, introduction of light rail and additional bus services. Detailed strategies and actions have been developed as part of the IMNS.

While the Town is well served with a public transport system providing good connections into the Perth CBD by train and bus, the cross-town movement and connections with other centres are not as well developed. The Perth-Armadale railway and a number of major roads dissect the Town and create barriers for the community as well as between major destinations, making pedestrian movement and wayfinding difficult.

In addition to the function of movement, streets also have a function of place. Streets are a destination and place to linger, a meeting point for people and a place of economic activity. Increased emphasis on activation of shopfronts and the public realm, such as through alfresco dining, the development of 'parklets' and other forms of public seating as well as public art and wall murals encourage people to linger within the street as a place. The transport system needs to take account of this duality of functions and needs to ensure that the two functions work together in a coordinated way rather than create conflict points.

4.10.1 Roads

The Town's road network has limited opportunity for expansion and as a result any improvements need to focus on management to balance the needs of local and regional traffic as well as the needs of different users. The IMNS outlines a range of strategies and actions relating to roads.

A number of freight corridors run through the Town and need to be retained for this purpose. The primary freight routes are:

- Orrong Road/ Graham Farmer Freeway
- Shepperton Road

- Canning Highway/Great Eastern Highway
- Welshpool Road

Each of these roads has a different characteristic and needs to be treated according to its merits.

Orrong Road is currently constructed to 4-lane divided standard with a 70km/h posted speed limit. It has limited public transport. The State government has examined various plans to increase capacity of Orrong Road and it is expected that additional lanes will be added at some point in the future. The road is a significant divider between the Town of Victoria Park and City of Belmont with limited pedestrian crossing points. Increases to residential densities along Orrong Road are not contemplated as this is not an environment well-suited to more intensive residential development. Access issues of existing driveways off Orrong Road should be resolved by Main Roads directly by purchasing land for alternative access if Main Roads wish to remove current crossovers.

Shepperton Road is constructed to a 4-lane road and has bus lanes in the northern most section. The posted speed limit is 60km/h and accommodates a high frequency bus route into the Perth CBD. Both sides of the road are located within the Residential Character Study Area. However, there may be scope to increase residential densities to achieve strategic goals, such as facilitate a light rail route along Shepperton Road between the Causeway and Kent Street. This should be examined further in the context of light rail route planning.

Canning Highway/ Great Eastern Highway has varying number of lanes through the Town and a posted speed limit of 60km/h. The road is also a major public transport route, connecting buses with the Victoria Park Transfer Station at the Causeway and into the Perth CBD. A number of high density residential developments have been constructed recently on the northern side of Canning Highway, fronting McCallum Park. Some older high density developments are located on the southern side of Canning Highway with little capacity for further density increases. On Great Eastern Highway little high density development has occurred which is a reflection of the more difficult access to public transport in this location. The northern side of the road is part of the Burswood Station East redevelopment, which is currently undergoing a structure planning process. The southern side is located in Lathlain, which has poor accessibility to public transport, with the exception of the area near the footbridge connecting Lathlain to Burswood Train Station. The Red Castle development is one example of how this area could develop to make the most of its public transport accessibility.

Welshpool Road runs through the Town for only a very short portion. It is constructed as a 4-lane road with a posted speed limit of 60km/h. The road forms the boundary between the Town of Victoria Park and the City of Canning. The northern side of the road falls within the Oats Street Activity Centre and is subject to a structure planning process. This will determine appropriate uses.

While it is important to ensure the major freight routes are protected to enable them to serve the existing industrial areas efficiently, it is also necessary to keep in mind possible future changes to how freight is transported. The use of roads by private vehicles is likely to change over time with the development of autonomous vehicles. It is likely that these vehicles will take up less road space than the currently operating cars, as they eliminate human error, and therefore can travel in close distance to each other. While this technology has yet to be refined to be able to be mass produced, it is something to keep in mind for the future of the Town's roads.

The use of drones to deliver smaller goods is already considered a likely possibility in the short term. This would free up roads from delivery vehicles, but would require other infrastructure such as drone landing places on apartment buildings and similar. While this technology still seems futuristic and not sufficiently advanced to be implemented immediately, planning instruments need to be reviewed and if necessary updated should this potential technological advancements become reality.



Figure 39 – IMNS Roads Recommendations

4.10.2 Heavy Rail

The Town is home to four commuter train stations along the Perth-Armadale/Thornlie line. Stations are located at Burswood, Victoria Park, Carlisle and Oats Street. A fifth station, at Perth Stadium, has replaced the former Belmont Park event station and is a major component of the transport strategy to provide access for Stadium patrons.

The State government is working on implementing its Metronet initiation, which includes a substantial extension of the existing urban passenger rail network. A major component of the first stage of Metronet is a new rail line from Bayswater to Perth Airport and beyond to Forrestfield. The proposed extensions impacting on the Town are an extension of the Armadale line to Byford and extension of the Thornlie line to Cockburn Central. Grade separation of three existing road crossings on the Armadale line are also proposed in Stage 1, including Oats Street. It is not clear at this stage whether the proposed rail extensions in the outer suburbs will come at the cost of improvements to inner-city railway infrastructure.

An upgrade of Burswood Station is essential to support the proposed developments at Burswood Station East and West. The station is currently run down and a security risk for patrons. The station is proposed to serve a

major transit oriented development that is access constrained for vehicles and will include a strict parking cap for development. Burswood Station will serve as the main public transport access for Burswood Station East residents and employees. A bus service along Great Eastern Highway will provide secondary public transport access.

The State Government has indicated on occasions in recent times that the future of Carlisle Station requires review due to its low boarding numbers and the need to improve running efficiencies on the Armadale/Thornlie line. For the Town's transport and land use planning objectives, it is of critical importance that Carlisle Station remains open. The projected population growth for the Town will need to be underpinned by a well-functioning public transport system to minimise any growth in vehicle numbers and road congestion. In addition, Carlisle Station is located in prime position to service the Town Centre along Mint Street. This link should be strengthened to encourage pedestrian movement between Carlisle Station and the Town Centre/ Albany Highway main street. There is scope to increase residential densities within the walkable catchment of Carlisle Station. This needs to be examined in more detail.

The future location of Oats Street station has long been discussed with the State Government. As indicated in earlier sections, land around the station has a significant opportunity to be activated as a transit oriented, mixed use centre. The catchment currently includes a significant portion of industrial development, with scope to be moved either south should the decision be made to close Welshpool Station or north should Carlisle Station be closed, to accommodate some of its catchment.

While the Armadale railway line provides excellent access to the City for Town residents and for workers and visitors to parts of the Town, it acts as a significant barrier that divides the Town community. The Town has discussed at various times with the State Government the potential to grade-separate the Oats Street and Archer Street rail crossings. It is the Town's preference that the rail line be sunk to better connect the Town and capitalise on opportunities for improved access to facilities and services on either side of the line and minimise impacts on nearby residential properties. At the same time, land above the rail line could be made available for public open space or for development in close proximity to stations. This is considered to be a long term prospect as the Government is currently not in favour of allowing any development within the rail reserve.

In the meantime, the grade separation of Oats Street and the railway has been identified as a Stage 1 Metronet project. Preliminary concept plans produced by Metronet indicate construction of a new station platform on the southern side of Oats Street (the existing platform currently sits just to the north of Oats Street) and sinking of the railway line to allow Oats Street to pass over the railway line. The ultimate station location and railway/road crossing grade-separation arrangements need to be determined before any substantial planning for the Activity Centre can occur.

The Perth Stadium Station has been planned with the ability to be converted to a full commuter station at some point in the future, even though for the time being it will be an events only station catering to the New Perth Stadium. It is important for the station to operate as a full commuter station as development occurs at Belmont Park Racecourse to ensure that new residents have a train station available to them.

4.10.3 Light Rail

The possibility of introducing a light rail network to Perth has been the subject of numerous studies and concept plans over many years, but has not come to fruition yet largely due to the significant capital cost of the required infrastructure. Due to the budget constraints of State and Federal governments the development of a light rail route funded by the public sector may not occur for some and innovative funding solutions are required.

Curtin University has a strong interest in a light rail service between Curtin and UWA, via Victoria Park, (also referred to as the Knowledge Arc). Curtin has developed an "Entrepreneur Rail Model" whereby the light rail infrastructure is funded by developers through uplift in development potential around the proposed stations. Ideally this model is led by the private sector who decide the appropriate station locations and route to maximise development and therefore value uplift. A notional route was identified by the Town and Curtin that runs from the University along Kent Street and then into the City via either Albany Highway or Shepperton Road.

Curtin's Sustainability Policy Institute has also recently commenced investigations into the potential for trackless trams to service the Knowledge Arc route, with initial findings indicating significant cost savings to build compared to traditional light rail and scope to carry a larger number of passengers due to the modular format of carriages.

A possible spur line should also be considered from the Causeway via Burswood Road onto the Burswood Peninsula to provide another option for linking the Peninsula to the City and to connect the Peninsula to the Albany Highway Activity Centre.

4.10.4 Buses

The Town is generally served well with buses, especially in a north-south direction, connecting the Town to the Perth CBD. The introduction of the 900 series high frequency bus services has added four high frequency bus routes through the Town connecting the City and Thornlie via Shepperton Road, and the City and Curtin University via Albany Highway as well as a service along Canning Highway to Fremantle and another along Great Eastern Highway via Belmont Forum to the Airport.

Despite the good bus connections within the Town there is a lack of east-west connections and local bus services connecting activity centres with each other. This is important to enable short vehicle trips to be transferred to public transport as well as improving accessibility for people who do not have access to their own vehicle or are not licensed to drive, such as young people or the elderly.

Connectivity between the Burswood Peninsula and other parts of the Town is poor and there are currently no bus routes serving the Peninsula other than those provided immediately before and after events at Perth Stadium. With increased development occurring in this location, bus services are essential to improve connectivity.

Future trends point towards the increased use of autonomous vehicles, which could include a driverless local bus service. This technology is currently being tested within the City of South Perth with a driverless electric bus. A local bus system based on this technology could be developed in the future, connecting the Burswood Peninsula with Albany Highway and providing local connections between the Town's activity centres and centres within neighbouring local governments.



Figure 40 – IMNS Public Transport Related Recommendations

4.10.5 Ferries

Ferries have not played a major public transport role in the past within the Perth Metropolitan area and there is currently only one ferry service operating between Elizabeth Quay and Mends Street in South Perth. Ferries could be a low-speed alternative to bus and rail public transport and provide efficient connections between riverside destinations, however this form of transport is currently constrained by a lack of financial viability.

A potential expanded ferry service may become more viable as the population in the inner suburbs increases. Possible future ferry terminals within the Town could include McCallum Park, Crown Casino/ Perth Stadium and Belmont Park Racecourse.

4.10.6 Walking and Cycling

The Town’s IMNS bases its strategies and actions for walking and cycling on a “maximise priority” approach. This includes giving pedestrians and cyclists greater priority, especially in and around activity centres. Detailed strategies and actions are included in the IMNS.

The Town is currently preparing a bike plan jointly with the City of South Perth to identify and improve cycling routes within the two local governments. The plan will include a long term strategic plan together with a 5-year implementation programme.

Walking is becoming increasingly important as the city expands and more people choose to live within walking distance of activity centres and major transport hubs. It also needs to be acknowledged that everyone, no matter what mode of transport they choose, is a pedestrian at some stage during their trip, even if it is only be walking from a car parking bay to their final destination.

Pedestrian infrastructure, including safe and well-designed footpaths, appropriate signalling at intersections, drink fountains, weather protection and places to sit and rest, end of trip facilities, bicycle parking and public realm improvements, including hard and soft landscaping, help to create an attractive and safe pedestrian environment. This includes designing footpaths to be accessible by a range of mobility devices such as prams, wheelchairs, bicycles etc. While some major pedestrian routes are well known through observation and anecdotal evidence, further work is required to identify the main pedestrian routes within the Town and the facilities that are appropriate for each. This includes routes to bus stops, train stations and activity centres and open spaces.

Albany Highway is an obvious and well-used route. However, even it requires further activation within the quieter spaces between activity nodes. These sections have little weather protection or pedestrian appeal. The application of CPTED principles in new development and refurbishments assists pedestrians to feel safe as well as creating active street frontages with shops or cafes facing the streets rather than blacked out windows and passive frontages.

In areas where there is little scope to activate street frontages with shops and cafes, residential uses may be appropriate at ground level as this provides the impression of passive surveillance provided residential dwellings are not setback significantly from the street.

Wayfinding and pedestrian connectivity between the Burswood Peninsula and Albany Highway is currently poor. Great Eastern Highway functions as a significant divider and route-finding is difficult. In the long term, elevated pedestrian linkages should be considered to connect the Peninsula with the Albany Highway precinct. In the short term, improvements are needed to signage to clearly indicate the location of pedestrian paths and the distance to major attractors.

The pedestrian connections between Curtin-Bentley activity centre and the East Victoria Park residential area also need to be improved. The current Technology Precinct is very inward focused and does not encourage pedestrian movements between residential areas and Curtin University. Any local structure planning to be undertaken for this area should consider how pedestrian and cyclist movements between the University and nearby residential areas can be improved.

Improvements to pedestrian crossings at major roads such as Shepperton Road, Great Eastern Highway, Canning Highway and Orrong Road, as well as across the rail line, would reduce severance of the community and improve connectivity at a local level. Any improvements to these roads needs to consider pedestrian movements and include the appropriate pedestrian infrastructure.



Figure 41 – IMNS Walking and Cycling Recommendations

4.10.7 Parking

The Town has prepared a Parking Management Plan that deals with seven identified parking hotspots and introduces a range of parking management measures specifically tailored to the parking issues and needs within each hotspot area, including timing restrictions, charges and technologies to aid enforcement. The issue of parking is also covered at a higher level within the IMNS where it is acknowledged that Council should take a more active approach in managing on and off-street parking supply and monitoring and adjusting future supply in conjunction with encouraging the use of alternative modes of transport.

Parking management is considered to be a traffic management tool as the availability and pricing of parking impacts on motorists' behaviour, including promoting the use of alternative modes of transport. Parking is influenced by two separate but related matters, being parking availability on private property, such as residents, employees and visitors to a particular property, and publicly accessible on and off-street parking spaces. While Council has full control over management and supply of the latter, the former is controlled through planning provisions but management is generally the responsibility of property owners.

In principle a shift from private provision of parking to publicly available parking provides for more efficient use of existing parking spaces as bays are not reserved for specific users, such as employees or visitors to a particular

building. Council's intent is therefore to gradually reduce parking requirements on private properties and increase publicly available parking spaces. These bays can be monitored and supply managed by Council.

A cap on the maximum number of parking bays may also be applied in particular areas where the road system cannot cope with increased traffic as part of new development. This would include both private and public bays. Areas where parking caps are currently being applied include Burswood Station East and the Curtin-Bentley Activity Centre. Other areas may be subject to parking caps in the future, for example the Albany Highway Activity Centre, in particular if light rail is introduced. There are also restrictions on the supply of parking within the Belmont Park Structure Plan area, however, actual maximum numbers have not been set.

Local scheme and policy provisions prescribe minimum car parking requirements for non-residential land uses, while the R-Codes prescribe parking requirements for residential development. Current requirements are generally not location-specific and do not consider the opportunities to promote alternative modes of transport, particularly for the movement of the workforce during peak periods.

The IMNS includes recommendations to review the existing planning requirements for parking provision, the adoption of reduced parking standards that reflect public transport access and availability of public parking supply within a reasonable walking distance of the site, as well as the provision of end-of-trip facilities.

The future need for car parking spaces may change as the trend to reduced car ownership continues and alternatives to owning a car become more common, such as autonomous cars, ride sharing services and car share schemes, which are already more prevalent in the eastern Australia than they are in the west. The local planning scheme should therefore consider including a requirement to construct decked or multi-storey car parks with sufficient floor-to-ceiling heights that can be converted to other uses in the future should the need for on-site car parking be reduced over time.

Travel plans prepared by businesses can also have a positive effect on reduced car travel. There are some administrative obstacles to Council requiring businesses to prepare travel plans due to the difficulty in assessing and enforcing them. As a result, this is currently a voluntary contribution by businesses to assist their employees with planning their trips to and from their workplace. Discussions with the State Government has indicated the possibility that further guidance for local governments might be made available and at such time that it is, the introduction of mandatory travel plans for larger businesses will need to be revisited.

4.10.8 Perth Airport Protected Airspace

The Airports (Protection of Airspace) Regulations 1996 prescribe airspace around airports for protection from activities that could pose a hazard to air navigation. These are referred to as controlled activities and include, but are not limited to:

- Construction or erection of any building or other structure that may intrude into prescribed airspace, including construction cranes.
- An activity that results in artificial or reflected light that exceeds acceptable light intensities or is capable of blinding or confusing pilots.
- An activity that results in air turbulence.
- An activity that results in the emissions of smoke, dust or other particulate matter.

Protected airspace comprises the airspace above the lower of three sets of defined invisible surfaces above the ground – known as the:

- Obstacle Limitation Surfaces (OLS).
- Procedures for Air Navigation Services - Aircraft Operations (PANS-OPS) surfaces.
- Communication, Navigation, and Surveillance (CNS) facility protection surfaces.

OLS defines the airspace that should ideally be kept free of obstacles. These surfaces only relate to visual operations or the visual stages of an instrument flight. The purpose of the OLS is not to restrict or prohibit all obstacles, but to ensure that existing or potential obstacles are examined for their impact on aircraft operations and that their presence is properly taken into account. PANS-OPS surfaces define the airspace related to aircraft

operations that are reliant on instrument navigation and are not to be permanently infringed in any circumstance. CNS protection surfaces are generally limited to the airport estate and protection of ground based air navigation infrastructure.

Details of Perth Airport’s OLS and PANS-OPS airspace protection surfaces are available from Perth Airport. Development of parts of the Burswood Peninsula are subject to controls relating to these surfaces. Persons wishing to undertake a controlled activity are required to apply to Perth Airport, which prefers to assess each case individually as there may be unique factors that apply.



Figure 42 - Extract from Burswood Peninsula District Structure Plan – Height limits in protected airspace.

4.11 Infrastructure Services

Ensuring that existing and/or planned infrastructure services can accommodate anticipated growth and the changing expectations for technology in a sustainable manner will be a critical function for the Town. It will be a particularly important consideration in planning for the more intensive residential and commercial development activity that is envisaged.

Early consultation with the service providers can help to determine the capacity of essential services and upgrading requirements for any new major development projects and developments areas within the Town.

4.11.1 Sewerage

The provision of sewage reticulation and treatment services within the Town is the responsibility of the Water Corporation.

Most parts of the Town are connected to the Water Corporation's sewerage system, with land in the Carlisle Industrial Precinct and an area adjacent to Goodwood Parade in Burswood being the major exceptions. Future subdivision of unsewered land will require connection to a sewer. Absence of a sewer connection will likely constrain the type of uses and intensity of development that may be permitted.

As development increases over time, existing wastewater infrastructure may become insufficient to meet the future needs of the area. The Water Corporation is willing to be involved in the planning process to determine any required infrastructure upgrades to the headworks system.

4.11.2 Stormwater

The Town's drainage system was constructed to accommodate stormwater collected from roads, footpaths and other hard surfaces. It was primarily designed to minimise the threat of flooding, pre-dating relatively recent developments in the holistic management of stormwater, including management of water quality and impacts on the receiving environment.

Stormwater from about 80% of the Town area drains via pipes into sumps or compensating basins. Sumps are owned and managed by the Town, whereas compensating basins and pumping stations are operated by the Water Corporation.

The large sump network in the Town (some 90 sumps) is a cost and maintenance burden whilst occupying land that could be productively shared with other uses. The Town has started a program of considering sumps on a case-by-case basis with the intention to repurpose them without adversely impacting their stormwater treatment function. Investigations should continue into repurposing sumps where appropriate so that land that could be productively shared with other uses and ease the cost and maintenance burden.

In particular, the Town's Land Asset Optimisation Strategy (2015) identifies that some sumps within the Town may have potential for development into POS. All of the sites are small, are not adjoining existing open space areas and would only provide opportunities to develop small local open space areas. The Strategy notes that prior to any sump being decommissioned, subdivided or reduced in size it will need to be confirmed that the identified site is not required for expanded drainage capacity and is surplus to requirements and additional local open space is not required in the locality.

The information in the following table has been extracted from the *Land Asset Optimisation Strategy* and the location of the individual drainage sump sites are shown on Figure 41. The POS Strategy needs to review the value in potentially converting some of these sites into local open space.

Existing Drainage Sumps with Potential for use as Open Space

Reference	Address	Suburb	Area	Identified requirement for open space in immediate precinct	Possible requirement for open space in immediate precinct
A	2 Cookham Road	Lathlain	1013m ²		X
B	60 Egham Road	Lathlain	1012m ²		X
C	91 Planet Street	Carlisle	1052 m ²		X
D	76 Planet Street	Carlisle	1052 m ²		X
E	39 Esperance Street	East Vic Park	637 m ²		X
F	19 Ashburton Street	East Vic Park	544 m ²		X
G	10 Axon Street	Victoria Park	1012m ²	X	
H	6 Sunbury Street	Victoria Park	1013m ²	X	
I	19 State Street	Victoria Park	1013m ²	X	
J	59 Manchester Street	Victoria Park	1013m ²	X	
K	42 McMillan Street	Victoria Park	1013m ²	X	
L	3 Merton Street	Victoria Park	900 m ²	X	
M	146 Sussex Street	Victoria Park	947 m ²	X	
N	21 Swansea Street	Victoria Park	506 m ²	X	

Source: Land Asset Optimisation Strategy



Figure 43: Drainage Sump Locations

Management of water quality and adoption of improved stormwater drainage and management systems are increasingly becoming more important and the Town needs to address and act upon these changes. As noted in section 4.3, appropriate planning controls should be in place to ensure that new developments operate in accordance with water sensitive urban design principles, do not have any adverse effects on the Town's stormwater drainage network and where necessary undertake site-by-site assessment and suitable construction methods to manage potential problems.

4.11.3 Water

As with sewerage (including waste water) and stormwater main drains, the provision of water supply within the Town is the responsibility of the Water Corporation. As water becomes an increasingly precious commodity, a closer relationship between water supply and wastewater and stormwater systems is warranted.

A key concern is whether the supply of water can meet future demand. Constraints may not necessarily apply to physical infrastructure but rather efficient water use as WA continues to experience the effects of a drying climate. The Water Corporation has a long-term plan to deliver water services by becoming more climate resilient based on reduced water use, increased water recycling and developing new water sources.

Recognition of the inter-relationships of water supply, stormwater and wastewater systems should underpin any future water management strategy. The opportunity exists to encourage the re-use of greywater and other water use-efficiencies in major redevelopments and in the Town's own operations and support developers in any approach they make to the Water Corporation and other relevant State Government agencies in this regard.

4.11.4 Power and Lighting

Western Power is responsible for the poles, cables and wires that constitute the network that transports electricity from power generators to customers. It is also responsible for maintaining and upgrading this network.

Western Power has developed a Network Capacity Mapping Tool, which although not complete and is general in nature, provides access to some of their network planning information including a 20-year outlook for the annual forecast remaining capacity from Zone Substations.

Current power capacity for the Town is very good to average, while extended forecasts estimate that Carlisle and Victoria Park (West) may drop to average, due to increased commercial development.

The State Government is in the process of converting older residential areas to underground power through the State Underground Power Program (SUPP). Funding is comprised of 25% from the State Government, 25% from Western Power, and 50% from participating local governments. The undergrounding of power has a number of benefits – increased safety; avoidance of storm damage and resultant power cuts; improved street lighting as a result of new lighting being installed to current Australian Standards; and urban design improvement as a result of the reduction of visual clutter and tree pruning. As a result, there has been strong community support for this initiative. The Town should continue to lobby the State Government to co-fund the undergrounding of power in its remaining suburbs.

4.11.5 Telecommunications

State Planning Policy 5.2 - Telecommunications Infrastructure Policy aims to balance the need for effective telecommunications services and roll-out of networks, with the community interest in protecting the visual character of local areas. This policy provides clear guidance on the siting, location and design of telecommunications infrastructure. Installation of National Broadband Network (NBN) infrastructure under this scheme has been undertaken throughout the Town in recent years and is now complete.

4.11.6 Gas

The majority of the Town is served with reticulated gas mains provided by ATCO Gas Australia. The Burswood Peninsula is least served due its reduced development density.

High pressure gas mains run through the Town and may restrict development opportunity within their vicinity or at least require appropriate management measures to mitigate negatively impacting on the safe operation of the gas supply network.

5.0 Summary Analysis

A summary of the planning considerations that emerge from the examination of the Town's characteristics and its context within the State, regional and local planning framework is set out in the following table. Considerations are arranged by theme and inform the strategies and actions identified in Part 1.

Theme Population and Housing			
No.	Planning Consideration	Planning Framework References	LPS (Part 1) Strategy No.
1.1	Ensure land is available to accommodate population growth, with infill and high density housing optimised where appropriate.	<ul style="list-style-type: none"> • State Planning Strategy • SPP1 – State Planning Framework • SPP 3 – Urban Growth and Settlement • Directions 2031 and Beyond • Perth and Peel @ 3.5million • Central Sub-Regional Planning Framework • Capital City Planning Framework 	1
1.2	Accommodate the different housing needs of a diverse community.	<ul style="list-style-type: none"> • State Planning Strategy • SPP1 – State Planning Framework • SPP 3.1 – Residential Design Codes • Directions 2031 and Beyond • Perth and Peel @ 3.5million • Central Sub-Regional Planning Framework • Capital City Planning Framework • Local Profile Section 4.4.9 - Areas Requiring Further Investigation 	2
1.3	Consider the use of Scheme provisions that allow Council to negotiate development incentives where appropriate with developers proposing affordable housing.	<ul style="list-style-type: none"> • Housing Affordability Discussion Paper • Local Profile Section 4.4.5 - Housing Affordability 	2
1.4	Encourage residential density in areas that are well-served by employment, services and public transport, such as near the Perth CBD, in and around activity centres, higher education and areas of high amenity near the river	<ul style="list-style-type: none"> • SPP 3 – Urban Growth and Settlement • Directions 2031 and Beyond • Perth and Peel @ 3.5million • Central Sub-Regional Planning Framework • Capital City Planning Framework • Local Profile Section 4.5.3 - Activity Centres 	1
1.5	Accommodate construction of 19,400 additional dwellings in the Town by 2050 (based on 2016 number of existing dwellings, means a total of 36,303 dwellings).	<ul style="list-style-type: none"> • Directions 2031 and Beyond • Perth and Peel @ 3.5million • Central Sub-Regional Planning Framework 	1
1.6	Long-term housing supply opportunities for the Town exist predominantly in or near Activity centre locations (Albany Highway, Curtin-Bentley and the Causeway, Burswood, Oats Street, Berwick and Carlisle precincts).	<ul style="list-style-type: none"> • Town of Victoria Park – Analysis of Housing Consumption and Opportunities • Local Profile Section 4.4.9 - Areas Requiring Further Investigation 	1
1.7	Identify character areas that require protection through lower density residential coding.	<ul style="list-style-type: none"> • Residential Character Study Review 	6
1.8	The Town is able to accommodate additional dwellings within areas where limited impact on existing lower density residential neighbourhoods should result. Generally, additional development is expected to be concentrated in the following locations: <ul style="list-style-type: none"> • Burswood Peninsula • Causeway Precinct • Albany Highway • Oats Street Station Activity Centre • Carlisle and Victoria Park railway station precincts • Curtin University-Bentley 	<ul style="list-style-type: none"> • Local Profile Section 4.4.4 – Future Dwelling Growth • Local Profile Section 4.4.9 - Areas Requiring Further Investigation 	1
1.9	Review Local Planning Policy 20: Design Guidelines for Developments with Buildings Above 3 Storeys, which contains sustainability requirements for high density residential, commercial or mixed-use developments, to ensure it remains up-to-date and relevant.	<ul style="list-style-type: none"> • Local Profile Section 4.4.6 – Sustainable Housing and Alternative Housing Options 	2

1.10	Alternative housing options, such as share houses and student housing should be considered and barriers to their development removed from the local planning scheme.	<ul style="list-style-type: none"> Local Profile Section 4.4.6 – Sustainable Housing and Alternative Housing Options 	2
1.11	The trend towards dispersed small-scale accessible housing within residential areas for independent living for persons with disabilities or special needs should be encouraged in the local planning scheme, subject to location criteria, such as being: <ul style="list-style-type: none"> Within or close to activity centres In close proximity to public transport In close proximity to major services such as shops, medical centres and similar. 	<ul style="list-style-type: none"> Local Profile Section 4.4.7 – Accessible Housing 	1
1.12	Consider application of the R-AC Code for the core of activation areas and R40/R60 for land in close proximity, particularly along linking corridors in the new local planning scheme. Alternatively, form-based codes could be applied to provide more intense urban form where there is greater sensitivity to development of individual sites.	<ul style="list-style-type: none"> Activity Centres Strategy Local Profile Section 4.4.9 Areas Requiring Further Investigation Local Profile Section 4.5.3 - Activity Centres 	1
1.13	Provide for higher density residential development adjacent to GO Edwards Park and office development elsewhere in the Causeway Precinct.	<ul style="list-style-type: none"> Activity Centres Strategy Local Profile Section 4.5.3 - Activity Centres 	1
1.14	Support redevelopment for higher density residential and office and showroom uses in preference to retail uses in the Berwick Street Precinct.	<ul style="list-style-type: none"> Activity Centres Strategy Local Profile Section 4.5.3 - Activity Centres 	1
1.15	Strengthen links between the Carlisle/Archer Street Precinct and Secondary Centre and review residential density upcoding potential of land within 200 metres of Archer Street (between Mars Street and Albany Highway) to underpin retention of Carlisle station in the passenger rail network.	<ul style="list-style-type: none"> Activity Centres Strategy Local Profile Section 4.4.9 Areas Requiring Further Investigation Local Profile Section 4.5.3 - Activity Centres Local Profile Section 4.10.2 – Heavy Rail 	1
1.16	Review density codings or appropriate form-based codes to consolidate the Victoria Park Station Precinct and its linkage to the Secondary Centre as a transit oriented development.	<ul style="list-style-type: none"> Activity Centres Strategy Local Profile Section 4.4.9 Areas Requiring Further Investigation Local Profile Section 4.5.3 - Activity Centres 	1

Theme Economy, Employment and Activity Centres			
No.	Planning Consideration	Planning Framework References	LPS (Part 1) Strategy No.
2.1	Ensure land is available to accommodate the needs of enterprise.	<ul style="list-style-type: none"> State Planning Strategy SPP1 – State Planning Framework SPP 4.2 – Activity Centres for Perth and Peel Capital City Planning Framework Strategic Community Plan 2017 – 2032 Local Profile Section 4.5.1 - Economy 	3,4
2.2	Attract global capital and provide for a diverse, resilient economy.	<ul style="list-style-type: none"> State Planning Strategy Capital City Planning Framework Local Profile Section 4.5.1 - Economy 	5
2.3	Ensure activity centres and industrial areas are well-planned.	<ul style="list-style-type: none"> State Planning Strategy SPP 4.2 – Activity Centres for Perth and Peel Capital City Planning Framework Local Profile Section 4.5.1 - Economy 	4
2.4	Be a leading educational, technology, knowledge and research centre.	<ul style="list-style-type: none"> State Planning Strategy Capital City Planning Framework Local Profile Section 4.5.1 - Economy 	5
2.5	Provide the community with convenient access to jobs, activity centres, social and recreation opportunities and communication technology	<ul style="list-style-type: none"> State Planning Strategy SPP 4.2 – Activity Centres for Perth and Peel Strategic Community Plan 2017 – 2032 	3,4
2.6	Recognise land uses on Burswood Peninsula as worthy of definition as a specialised centre in the Activity Centres network.	<ul style="list-style-type: none"> Activity Centres Strategy Capital City Planning Framework 	4

2.7	Concentrate commercial, health, education, entertainment and cultural developments in and around activity centres and corridors with good access to public transport.	<ul style="list-style-type: none"> • SPP 3 – Urban Growth and Settlement • SPP 4.2 – Activity Centres for Perth and Peel • DCP 1.6 - Planning to Support Transit Use and Transit-Oriented Development • Directions 2031 and Beyond • Perth and Peel @ 3.5million • Central Sub-Regional Planning Framework 	3,4
2.8	The zoning of Industrial zoned land in Welshpool and its interface with Residential zoned land in East Victoria Park and Carlisle needs to be considered in the context of opportunities to facilitate the creation of an origin and destination transit oriented development at the Oats Street station.	<ul style="list-style-type: none"> • SPP 4.1 – State Industrial Buffer (draft) • Capital City Planning Framework • Activity Centres Strategy (draft) • Metropolitan Region Scheme 	4
2.9	Two variations to the SPP 4.2 Activity Centres for Perth and Peel centres hierarchy for the Town are warranted: <ul style="list-style-type: none"> - The entire length of Albany Highway within the Town should be designated as a single Secondary Centre. - The Burswood Peninsula should be identified as a Specialised Activity Centre. 	<ul style="list-style-type: none"> • Capital City Planning Framework • Activity Centres Strategy • Local Profile Section 4.5.3 – Activity Centres 	4
2.10	Provide for development of multi-functional corridors along key transport routes that support efficient movement and high amenity and recommends that they be a focus for investigation of increased densities and a mix of land uses. The following roads within the Town have potential to form such corridors: <ul style="list-style-type: none"> - Canning Highway. - Albany Highway. - Causeway precinct. - Geddes Street. - Shepperton Road. - Orrong Road between Archer and Oats Streets. - Archer Street. - Oats Street/Hillview Terrace. - Berwick Street – Geddes to Kent Street. - Berwick Street – Hillview Terrace to Boundary Road. - Kent Street – Berwick Street to Jarrah Road, and - Carlisle train station. 	<ul style="list-style-type: none"> • Central Sub-Regional Planning Framework • Activity Centres Strategy • Capital City Planning Framework • Local Profile Section 4.4.9 Areas Requiring Further Investigation • Local Profile Section 4.5.3 - Activity Centres 	3
2.11	Continued development of Bentley-Curtin as a specialised centre for knowledge is a high priority. The centre should evolve to become more urban with high-quality access.	<ul style="list-style-type: none"> • Capital City Planning Framework • Local Profile Section 4.4.9 Areas Requiring Further Investigation 	5
2.12	Designate the Albany Highway Secondary Centre as a 'Regional Centre' under the new local planning scheme.	<ul style="list-style-type: none"> • Activity Centres Strategy • Local Profile Section 4.5.3 – Activity Centres 	4
2.13	Create points of difference between the two main retail nodes that comprise critical components of the Albany Highway Secondary Centre to: <ul style="list-style-type: none"> - Consolidate retail activity to the two main centres. - Diversify the retail offer. - Establish a unifying approach to landscaping, entry statements and small parks for each of the Centre's six sub-precincts. - Relax parking standards for non-residential uses. - Maximise density development opportunities within the walkable catchment of the Centre. 	<ul style="list-style-type: none"> • Activity Centres Strategy • Local Profile Section 4.5.3 - Activity Centres 	7
2.14	Support additional retail floorspace in the Burswood and Curtin Specialised Centres but only for convenience shopping needs. Proposals for retail development over 5,000m2 should be subject to a retail sustainability assessment demonstrating no adverse impact on the Secondary Centre.	<ul style="list-style-type: none"> • Activity Centres Strategy • Local Profile Section 4.5.3 - Activity Centres 	3
2.15	Detailed investigation of the Oats Street Station Precinct, including master planning and activity centre planning, is required to determine future potential of this precinct, including infrastructure capacities and integration with surrounding land uses. This should include the entire activity centre, including the residential zoned components to ensure	<ul style="list-style-type: none"> • Local Profile Section 4.4.9 Areas Requiring Further Investigation • Local Profile Section 4.5.3 - Activity Centres • Local Profile Section 4.10.2 – Heavy Rail 	3,4

	the full potential of the transit oriented development is realised.		
2.16	Prepare and implement an Economic Development Strategy.	• Local Profile Section 4.5.1 – Economy	4,5
2.17	Support planning and development that leverages and stimulates economic development	• Local Profile Section 4.5.1 – Economy	5
2.18	Enhance a regional approach to economic development and strategic planning and enhance partnership collaboration activity with Federal, State and Local Government agencies.	• Local Profile Section 4.5.1 – Economy	5
2.19	Formulate a place making strategy for the Town and develop place plans for individual centres to provide direction on the approach needed to activate and manage great places.	• Local Profile Section 4.9.4 – Place Making and Management • Local Profile Section 4.5.1	3

Theme		Urban Design and Heritage	
No.	Planning Consideration	Planning Framework References	LPS (Part 1) Strategy No.
3.1	Create a sense of place and belonging by protecting and enhancing local character and amenity.	• State Planning Strategy • Capital City Planning Framework	7
3.2	Take account of the Town's heritage assets and their contribution to Town character in the local planning framework.	• Heritage of Western Australia Act • SPP 3.5 – Historic Heritage Conservation • Capital City Planning Framework	6
3.3	Identify heritage places through a municipal inventory and designate heritage areas and establish heritage lists under the local planning scheme.	• SPP 3.5 – Historic Heritage Conservation	6
3.4	Encourage safe environments, community identity and high standards of urban design.	• SPP1 – State Planning Framework • Sustainable Community Plan 2017 -2032 • Local Profile Section 4.9.4 - Urban Design	7
3.5	Promote energy efficient development and urban design.	• SPP 2 - Environment and Natural Resources • Capital City Planning Framework	7
3.6	Provide residential development of an appropriate design for the intended residential purpose, density, context of place and site and scheme objectives.	• SPP 3.1 – Residential Design Codes	7
3.7	Consider the use of form-based codes to address issues that are unique to inner-city urban environments that cannot be appropriately addressed by the R-Codes.	• Local Profile Section 4.9.3 - Town Character	1,7
3.8	Allocate residential densities across the Town and formulate policies in the context of applicable R-Codes requirements.	• SPP 3.1 – Residential Design Codes	1
3.9	Ensure good design is at the centre of all development proposals and cities, towns and neighbourhoods are created where people want to live, work and socialise.	• Design WA • Strategic Community Plan 2017 – 2032 • Local Profile Section 4.9.4 - Urban Design	7
3.10	Apply Liveable Neighbourhoods to large-scale structure plan, subdivision and development proposals.	• Liveable Neighbourhoods	1
3.11	Reconnect with indigenous heritage.	• Capital City Planning Framework	6
3.12	Local planning schemes need to be consistent with the MRS.	• Metropolitan Region Scheme	1
3.13	Develop block to block building envelope and design-based policy and guidelines for Albany Highway to replace existing building height, plot ratio and density limits.	• Albany Highway Built Form Study	1,7
3.14	Devise solutions to encourage retention of original character dwellings and character streetscapes, while still allowing infill development at the rear of properties.	• Residential Character Study Review • Local Profile Section 4.9.3 - Town Character	6
3.15	Develop and implement a Laneway Activation Strategy.	• Healthy Vic Park Plan 2017-2022	7
3.16	Review Local Planning Policy – Streetscape to ensure balance of the needs of sustainable housing design with the need to complement the residential character of the locality where this is appropriate.	• Local Profile Section 4.9.4 - Urban Design	7
3.17	CPTED principles should be embedded in the planning framework to ensure that the built environment contributes to a safe public realm.	• Local Profile Section 4.9.4 – Urban Design	7

Theme		Recreation and Open Space	
No.	Planning Consideration	Planning Framework References	LPS (Part 1) Strategy No.
4.1	Ensure land is available for public open space.	<ul style="list-style-type: none"> SPP1 – State Planning Framework Social Infrastructure Plan 	8
4.2	Ensure that land use and development maintain and enhance the health, amenity and landscape values of the river foreshore, including its recreational and scenic values.	<ul style="list-style-type: none"> SPP 2.10 – Swan-Canning River System Capital City Planning Framework Local Profile Section 4.7 - Public Open Space and Recreation 	9
4.3	Promote creation of an interlinked system of public open space.	<ul style="list-style-type: none"> SPP 3 – Urban Growth and Settlement 	8
4.4	A public open space strategy is required and will need to consider: <ul style="list-style-type: none"> The definition of public open space and development of an inventory, classification system and maintenance standards for existing sites. A recreational needs analysis and assessment of notional POS supply deficiencies. Where population growth is projected to occur. Opportunity for usage and management. Alternative ways of providing for the community's recreation needs. 	<ul style="list-style-type: none"> Town Public Open Space Assessment 2015 Social Infrastructure Plan Local Profile Section 4.7 - Public Open Space and Recreation 	8
4.5	Provide appropriate, inviting and sustainable green spaces for everyone that are well-maintained and well-managed.	<ul style="list-style-type: none"> Strategic Community Plan 2017 – 2032 Social Infrastructure Plan 	8
4.6	Incorporate activated urban and open spaces in local structure plan or development plans.	<ul style="list-style-type: none"> Healthy Vic Park Plan 2017-2022 	1
4.7	The use of roof top gardens and other high quality and innovative landscaping treatments in private open space should be encouraged where appropriate to compensate for the diminishing size of private yards.	<ul style="list-style-type: none"> Healthy Vic Park Plan 2017-2022 Local Profile Section 4.7 - Public Open Space and Recreation 	8
4.8	Explore potential partnership opportunities with Curtin University for increased community access to its recreation facilities.	<ul style="list-style-type: none"> Local Profile Section 4.7 - Public Open Space and Recreation 	8
4.9	Access to the Swan River foreshore needs to be well designed, safe and legible for pedestrians and cyclists.	<ul style="list-style-type: none"> Local Profile Section 4.7 - Public Open Space and Recreation 	9
4.10	Develop master plans for Town reserves identified in the Sport and Recreation Facilities Strategy.	<ul style="list-style-type: none"> Local Profile Section 4.7 - Public Open Space and Recreation 	8
4.11	Incorporate sustainable design in the development of new and upgraded recreation facilities.	<ul style="list-style-type: none"> Local Profile Section 4.7 - Public Open Space and Recreation 	8
4.12	Improve connectivity to recreation facilities through upgrades to the pedestrian and cycling network.	<ul style="list-style-type: none"> Local Profile Section 4.7 - Public Open Space and Recreation 	14
4.13	Provide land and facilities for recreation and other community use on the Burswood Peninsula.	<ul style="list-style-type: none"> Local Profile Section 4.7 - Public Open Space and Recreation 	8
4.14	Ensure equal access for people of all abilities to POS.	<ul style="list-style-type: none"> Disability and Inclusion Plan 2017 	8

Theme		Community Facilities	
No.	Planning Consideration	Planning Framework References	LPS (Part 1) Strategy No.
5.1	Ensure land is available to accommodate community needs.	<ul style="list-style-type: none"> State Planning Strategy SPP1 – State Planning Framework Social Infrastructure Plan 	10
5.2	Ensure public facilities are well-planned.	<ul style="list-style-type: none"> State Planning Strategy Social Infrastructure Plan 	10
5.3	Accommodate the social needs of a diverse community.	<ul style="list-style-type: none"> State Planning Strategy Social Infrastructure Plan 	11
5.4	Ensure community infrastructure is planned and provided in an efficient, accessible and timely manner.	<ul style="list-style-type: none"> SPP1 – State Planning Framework Social Infrastructure Plan 	10
5.5	Concentrate commercial, health, education, entertainment and cultural developments in and around activity centres and corridors with good access to public transport.	<ul style="list-style-type: none"> SPP 3 – Urban Growth and Settlement 	11
5.6	Provide for a healthy community.	<ul style="list-style-type: none"> Strategic Community Plan 2017-2032 Social Infrastructure Plan 	7,8, 9, 10, 11
5.7	Make provision for a multi-purpose community centre, including child health clinic and seniors facilities, in Burswood.	<ul style="list-style-type: none"> Social Infrastructure Plan 	10

5.8	Work with the Department of Education and non-government school providers to address primary and secondary school needs in the Town, including provision of a new primary school in Burswood.	• Social Infrastructure Plan	10
5.9	Ensure equal access for people of all abilities to Town facilities.	• Disability and Inclusion Plan 2017	10
5.10	Consider the impact of proposed development on the future management of Town assets.	• Asset Management Plans	10

Theme Tourism and Visitors			
No.	Planning Consideration	Planning Framework References	LPS (Part 1) Strategy No.
6.1	Ensure land is available to accommodate the needs of tourists.	• SPP1 – State Planning Framework	12
6.2	Capitalise on the tourism potential of the river and its foreshore by providing and maintaining facilities to encourage walking, running, cycling and informal play.	• Local Profile Section 4.7 - Public Open Space and Recreation	9
6.3	Make the Town a desirable place for tourism.	• Strategic Community Plan 2017 – 2032	12
6.4	Address the rise of small-scale tourist accommodation, such as that which can be booked through emerging technologies like Airbnb, and its impact on local residential communities by ensuring policy guidance sets appropriate standards and location criteria.	• Local Profile Section 4.4.8 – Short Stay Accommodation • Local Profile Section 4.6 – Tourism and Visitors	12
6.5	Identify the nature and importance of tourism to the Town, including the type of facilities and attractions, their level of amenity and accommodation supply, gaps and opportunities.	• Local Profile Section 4.6 – Tourism and Visitors	12
6.6	Encourage tourism growth and development that reinforces the local tourism identity, including innovative tourist accommodation development and facilities to meet tourists' needs.	• Local Profile Section 4.6 – Tourism and Visitors	12
6.7	Identify service capacity and infrastructure projects that could potentially impact on tourism growth and visitors' experiences, including how tourists access accommodation and move between attractions.	• Local Profile Section 4.6 – Tourism and Visitors	12
6.8	Improve connections from Burswood Peninsula to the Albany Highway main street for tourists and visitors.	• Local Profile Section 4.6 – Tourism and Visitors	12

Theme Environment			
No.	Planning Consideration	Planning Framework References	LPS (Part 1) Strategy No.
7.1	Ensure the efficient use of water, energy and other resources in the design, construction and maintenance of public and private development.	• State Planning Strategy • SPP 2– Environment and Natural Resources • SPP 3 – Urban Growth and Settlement • Perth and Peel @ 3.5million • Central Sub-Regional Planning Framework • Capital City Planning Framework • Better Urban Water Management • Local Profile Section 4.11.3 – Stormwater	13
7.2	Incorporate measures to protect the environmental, recreation and cultural values of water resources.	• SPP 2 – Environment and Natural Resources • SPP 2.9 – Water Resources • SPP 3 – Urban Growth and Settlement • Better Urban Water Management	13
7.3	Ensure a strategic approach to environmental planning.	• State Planning Strategy • SPP 2– Environment and Natural Resources	13
7.4	Settlements need to reduce their ecological footprint by reducing energy usage and waste.	• State Sustainability Strategy • SPP 2– Environment and Natural Resources • SPP 3 – Urban Growth and Settlement • Capital City Planning Framework	13

7.5	The new local planning scheme and any amendments to it need to be referred to the Environmental Protection Authority to determine if formal review is required.	<ul style="list-style-type: none"> • Environmental Protection Act 	13
7.6	The planning framework should ensure the conservation of ecological systems and biodiversity and protection of sites with environmental value from inappropriate use and development.	<ul style="list-style-type: none"> • SPP 1 – State Planning Framework • SPP 2– Environment and Natural Resources • SPP 2.8 – Bushland Policy for the Perth Metropolitan Region • Perth and Peel @ 3.5million • Central Sub-Regional Planning Framework • Local Government Biodiversity Planning Guidelines for the Perth Metropolitan Region 	13
7.7	The planning framework should avoid or minimise environmental degradation and hazards and prevent environmental problems that could arise from siting incompatible land uses close together.	<ul style="list-style-type: none"> • SPP1 – State Planning Framework • SPP 2– Environment and Natural Resources 	13
7.8	Consider flood risk in land use and development and risks associated with nuisance insects.	<ul style="list-style-type: none"> • SPP 2– Environment and Natural Resources • Better Urban Water Management • Local Profile Section 4.11.3 – Stormwater 	13
7.9	Recognise and consider degraded or contaminated land and facilitate its rehabilitation or remediation for appropriate future use.	<ul style="list-style-type: none"> • SPP 2– Environment and Natural Resources • Better Urban Water Management 	13
7.10	Have regard to the capability of land to accommodate land uses and development and facilitate measures to reduce impacts on land, buildings and infrastructure.	<ul style="list-style-type: none"> • SPP 2– Environment and Natural Resources 	13
7.11	Ensure protection of Bush Forever sites within the Town from inappropriate development.	<ul style="list-style-type: none"> • SPP 2.8 – Bushland Policy for the Perth Metropolitan Region 	13
7.12	Prepare local bushland protection strategies for significant bushland that is not identified as a Bush Forever site.	<ul style="list-style-type: none"> • SPP 2.8 – Bushland Policy for the Perth Metropolitan Region 	13
7.13	Ensure that land use and development maintain and enhance the health, amenity and landscape values of the river, including its recreational and scenic values.	<ul style="list-style-type: none"> • SPP 2.10 – Swan-Canning River System 	13
7.14	Address bushfire risk where applicable in the consideration of proposals for land use and development.	<ul style="list-style-type: none"> • SPP 3.7 – Planning in Bushfire Prone Areas 	13
7.15	Build robustness against climate change.	<ul style="list-style-type: none"> • Capital City Planning Framework 	
7.16	Apply water sensitive design principles and guidelines and use planning provisions to achieve a net reduction in nutrient inputs from land development.	<ul style="list-style-type: none"> • SPP 2.9 – Water Resources • Swan Canning River Protection Strategy • Local Profile Section 4.11.3 – Water 	13
7.17	Increase the Town's vegetation and tree canopy.	<ul style="list-style-type: none"> • Strategic Community Plan 2017 – 2032 	13
7.18	Embed environmental policy and guideline provisions for erosion and sediment control and management of small to medium size industry into the planning framework.	<ul style="list-style-type: none"> • Environmental Plan 2013-2018 	
7.19	Activities with the potential to disturb ASS must be managed carefully to avoid environmental harm.	<ul style="list-style-type: none"> • Section 4.2 – Physical Features 	13
7.20	Develop and implement an Urban Forest Strategy.	<ul style="list-style-type: none"> • Section 4.2 – Physical Features 	13
7.21	A local planning strategy should identify objectives for water resource management, together with other environmental, social and economic issues in the local government area, and propose strategies to achieve these objectives. Implementation of strategies, together with timing and responsibilities, should be identified and incorporated into the local planning strategy where possible.	<ul style="list-style-type: none"> • Better Urban Water Management 	13
7.22	Implement applicable actions of the Town's Climate Change Adaptation Plan.	<ul style="list-style-type: none"> • Section 4.2.3 – Climate 	13

Theme	Transport		
No.	Planning Consideration	Planning Framework References	LPS (Part 1) Strategy No.
8.1	Provide for efficient movement of people, goods and services through an integrated movement network and transit oriented development.	<ul style="list-style-type: none"> • State Planning Strategy • SPP1 – State Planning Framework • SPP 3 – Urban Growth and Settlement 	14,15

		<ul style="list-style-type: none"> • SPP 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning • Strategic Community Plan 2017 – 2032 	
8.2	Settlements need to reduce their ecological footprint by ensuring access to sustainable modes of transport (walking, cycling, and public transport) and reducing car dependency.	<ul style="list-style-type: none"> • State Sustainability Strategy • SPP1 – State Planning Framework • SPP 3 – Urban Growth and Settlement • Perth and Peel @ 3.5million • Central Sub-Regional Planning Framework • Capital City Planning Framework 	14
8.3	Planning proposals for noise-sensitive land uses in close proximity to primary transport corridors need to address the potential for noise impacts and incorporate noise amelioration measures as appropriate.	<ul style="list-style-type: none"> • SPP 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning 	15
8.4	Encourage best-practice design and construction standards for new development proposals and new or redeveloped transport infrastructure proposals.	<ul style="list-style-type: none"> • SPP 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning 	14
8.5	Protect major transport corridors and freight operations from incompatible urban encroachment.	<ul style="list-style-type: none"> • SPP 5.4 Road and Rail Transport Noise and Freight Considerations in Land Use Planning • Local Profile Section 4.10.1 - Roads 	15
8.6	Significant potential exists for activating land around each rail station, along key bus routes and in and around the commercial and specialised centres throughout the Town with additional development for a mix of employment, entertainment, residential and community uses and investment in the public realm.	<ul style="list-style-type: none"> • DCP 1.6 - Planning to Support Transit Use and Transit-Oriented Development • Capital City Planning Framework 	1, 3, 4
8.7	Capitalise on opportunities provided by implementation of the State Government’s Metronet initiative in respect to improvements to public transport infrastructure and transit oriented development.	<ul style="list-style-type: none"> • Metronet • Transport @ 3.5 Million – Perth and Peel Transport Plan 	14
8.8	Utilise the Swan River as a way of connecting communities and attractions.	<ul style="list-style-type: none"> • Capital City Planning Framework • Local Profile Section 4.7 – Open Space and Recreation • Local Profile Section 4.10.5 - Ferries 	14
8.9	Undertake more detailed and rigorous study of the issues and benefits of routing light rail along Albany Highway (as well as along Shepperton Road as an alternative), stop locations and development potential	<ul style="list-style-type: none"> • Albany Highway Built Form Study • Integrated Movement Network Strategy 	15
8.10	Develop and implement a Bike Plan for the Town.	<ul style="list-style-type: none"> • Healthy Vic Park Plan 2017-2022 • Local Profile Section 4.10.6 – Walking and Cycling 	14
8.11	Develop tools to measure public transport accessibility and link to development requirements within the local planning scheme.	<ul style="list-style-type: none"> • Integrated Movement Network Strategy 	14
8.12	Develop land use policies for activity centres that are supportive of increased public transport trip generation or patronage capture and address parking and cycling considerations.	<ul style="list-style-type: none"> • Integrated Movement Network Strategy 	1, 3, 4
8.13	Ensure provision of land for public transport infrastructure within activity centres and along the railway.	<ul style="list-style-type: none"> • Integrated Movement Network Strategy 	14
8.14	Review local planning scheme provisions to set standards for provision of parking for key users, end of trip facilities for cyclists, cash-in-lieu contributions for public parking or alternative transport modes.	<ul style="list-style-type: none"> • Integrated Movement Network Strategy • Local Profile Section 4.10.7 – Parking 	16
8.15	Reduce Scheme/Policy parking requirements that reflect public transport accessibility and public parking availability.	<ul style="list-style-type: none"> • Integrated Movement Network Strategy 	16
8.16	Include thresholds and scope for Travel Plan requirements in the local planning scheme.	<ul style="list-style-type: none"> • Integrated Movement Network Strategy 	14
8.17	Upgrade Burswood rail station to provide an improved and safer user-experience for patrons and to support proposed development of land in the adjoining precincts.	<ul style="list-style-type: none"> • Local Profile Section 4.10.2 – Heavy Rail 	15

8.18	Promote the conversion of the Perth Stadium rail station to a commuter station when appropriate in future to support additional development planned for the Burswood Peninsula.	<ul style="list-style-type: none"> Local Profile Section 4.10.2 – Heavy Rail 	15
8.19	Work to remove the rail corridor barrier dividing the community, including grade-separation of the Oats Street and Archer Street rail crossings.	<ul style="list-style-type: none"> Local Profile Section 4.10.2 – Heavy Rail 	15
8.20	Explore options for a light rail link between Curtin University and the City (and beyond) via the Albany Highway Secondary Centre.	<ul style="list-style-type: none"> Local Profile Section 4.10.3 – Light Rail 	15
8.21	Explore potential for a light rail spur line from the Causeway to the Burswood Peninsula to better connect the Peninsula to the City and Albany Highway Secondary Centre.	<ul style="list-style-type: none"> Local Profile Section 4.10.3 – Light Rail Local Profile Section 4.6 – Tourism and Visitors 	15
8.22	Explore potential for a bus service from the Causeway to the Burswood Peninsula to better connect the Peninsula to the City and Albany Highway Secondary Centre.	<ul style="list-style-type: none"> Local Profile Section 4.10.4 – Buses Local Profile Section 4.6 – Tourism and Visitors 	15
8.23	Improve walkability and way-finding through the Town, especially along major pedestrian routes, within and between activity centres and between activity centres and major public transport hubs.	<ul style="list-style-type: none"> Local Profile Section 4.10.6 – Walking and Cycling 	14
8.24	Provide pedestrian infrastructure, including safe and well-designed footpaths, appropriate signalling at intersections, drink fountains, weather protection and places to sit and rest, end of trip facilities, bicycle parking and public realm improvements, including hard and soft landscaping, to help create an attractive and safe pedestrian environment.	<ul style="list-style-type: none"> Local Profile Section 4.10.6 – Walking and Cycling 	14
8.25	Improve pedestrian connections throughout the Town, including to bus stops, train stations and activity centres and open spaces and across major roads.	<ul style="list-style-type: none"> Local Profile Section 4.10.6 – Walking and Cycling 	14
8.26	Implement the Parking Management Plan.	<ul style="list-style-type: none"> Local Profile Section 4.10.7 – Parking 	16
8.27	Take an active approach in managing on and off-street parking supply in conjunction with encouraging the use of more sustainable modes of transport.	<ul style="list-style-type: none"> Local Profile Section 4.10.7 – Parking 	16
8.28	Consider inclusion in the local planning framework of provisions requiring the construction of decked or multi-storey car parks with sufficient floor-to-ceiling heights that can be converted to other uses in the future should the need for on-site car parking be reduced over time.	<ul style="list-style-type: none"> Local Profile Section 4.10.7 – Parking 	16
8.29	Ensure that development proposed under protected airspace over the Town appropriately addresses safety risks and applicable standards and requirements associated with aircraft flights in and out of Perth Airport.	<ul style="list-style-type: none"> Local Profile Section 4.10.8 – Perth Airport Protected Airspace 	15
8.30	Ensure equal access for people of all abilities to Town transport-related facilities (eg carparks).	<ul style="list-style-type: none"> Disability and Inclusion Plan 2017 	10

Theme		Infrastructure Services	
No.	Planning Consideration	Planning Framework References	LPS (Part 1) Strategy No.
9.1	Invest in infrastructure that stimulates growth and productivity.	<ul style="list-style-type: none"> State Planning Strategy Local Profile Section 4.11 – Infrastructure Services 	17
9.2	Coordinate cost-efficient provision of infrastructure and services with new growth, possibly involving developer contribution arrangements to fund improvements in areas of fragmented land ownership.	<ul style="list-style-type: none"> SPP 3 – Urban Growth and Settlement SPP 3.6 – Development Contributions for Infrastructure Local Profile Section 4.11 – Infrastructure Services 	17
9.3	Undertake early consultation with infrastructure service providers to determine the capacity of essential services and upgrading requirements for any new major development projects and developments areas within the Town.	<ul style="list-style-type: none"> Local Profile Section 4.11 – Infrastructure Services 	17
9.4	Address sewer capacity/network issues that exist in Burswood and Carlisle.	<ul style="list-style-type: none"> Local Profile Section 4.11.1 – Sewer 	17

9.5	Explore the potential for repurposing drainage sumps where appropriate so that land may be productively used or shared with other uses.	• Local Profile Section 4.11.1 – Stormwater	17
9.6	Continue to lobby the State Government to co-fund underground power conversions in suburbs where overhead power supplies remain in place.	• Local Profile Section 4.11.4 – Power and Lighting	17
9.7	Ensure that development proposed adjacent to high pressure gas mains that run through the Town appropriately addresses the safety risks and applicable development standards associated with the gas supply network.	• Local Profile Section 4.11.6 – Gas	17

Town of Victoria Park

TOWARDS 2050

Draft Local Planning Strategy

Summary of Strategies and Actions

June 2018

LOCAL PLANNING STRATEGY

1.0 Vision

Consistent with the Town's Strategic Community Plan 2017-2032, the vision of the LPS is for the Town to be a dynamic place for everyone that is:

- Home to Perth's most empowered and engaged community.
- Perth's premier place for entertainment and entrepreneurship.
- A leader in sustainability.
- Somewhere that people come first in urban design and safety.
- Inclusive and connected, with a thriving community.

2.0 Planning Principles and Objectives

The principles that underpin the LPS similarly mirror the mission of the Strategic Community Plan. The mission is based on the four pillars of sustainability:

- Social
- Economic
- Environment
- Civic Leadership

The objective is for the Town to be a place for everyone that is sustainable, connected, safe, diverse, resilient and prosperous by focussing on achieving strategic outcomes for:

- A community that is healthy, informed and knowledgeable, empowered with a sense of pride, safety and belonging and has an awareness and appreciation of arts, culture, education and heritage.
- Provision of clean, safe and accessible places to visit, where the value of waste, water and energy is recognised.
- Provision of desirable places for commerce and tourism that support equity, diverse local employment and entrepreneurship.
- Land use planning that puts people first in urban design, allows for housing options for people with different needs and enhances the Town's character.
- A safe, sustainable, interconnected, convenient and well-maintained transport network that makes it easy for everyone to get around.
- Appropriate and sustainable facilities that are well built, maintained and managed.
- Enhancement and protection of the Town's natural environment and provide appropriate, inviting and sustainable green spaces that are well maintained and managed.

3.0 Strategies and Actions

Analysis of the regional and local planning framework, Town characteristics, trends and projections and community input outlined in Part 2 has led to the identification of various strategies and actions to achieve the vision, principles and outcomes set out above. Strategies and actions are arranged under the following headings:

- Economy, Employment and Activity Centres
- Population and Housing
- Urban Design and Heritage
- Recreation and Open Space
- Community Facilities
- Tourism and Visitors
- Environment
- Transport
- Infrastructure Services

3.1 Population and Housing

Strategy #	1
Provide housing development opportunities in identified areas where the capacity of infrastructure and services can support a more intensive form of development and the character and amenity of the neighbourhood would not be prejudiced.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En1 – Land use planning that puts people first in urban design, allows for different housing options for people with different housing needs and enhances the Town’s character.
Actions	
1.1	Undertake master planning, the preparation of form-based codes and the implementation of changes to local planning scheme and policy provisions for the following areas: <ul style="list-style-type: none"> • Burswood Peninsula • Causeway Precinct • Albany Highway Secondary Centre • Oats Street Station Precinct • Carlisle Station Precinct • Victoria Park Station Precinct • Curtin-Bentley Specialised Centre • Berwick Street/Canning Highway
1.2	Investigate opportunities through the preparation of a Local Housing Strategy for more intensive residential development in the following areas: <ul style="list-style-type: none"> • Areas identified in Action 1.1 • East Victoria Park interface with Curtin/Bentley Activity Centre • Along Urban Corridors shown on the Local Planning Strategy Map and other road corridors identified in Action 3.2 • The transition from the Albany Highway Activity Centre to lower density residential areas, where there are fewer original character dwellings remaining.

Strategy #	2
Facilitate well designed and connected urban environments providing a diversity of housing choice serving the needs of the Town’s population now and into the future.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En1 – Land use planning that puts people first in urban design, allows for different housing options for people with different housing needs and enhances the Town’s character.
Actions	
2.1	Consider the use of Scheme provisions that allow Council to negotiate development incentives where appropriate with developers proposing affordable housing.
2.2	Review Local Planning Policy 20: Design Guidelines for Developments with Buildings Above 3 Storeys, which contains sustainability requirements for high density residential, commercial or mixed-use developments, to ensure it remains up-to-date and relevant.
2.3	Consider the use of Scheme provisions to better provide for the development of alternative housing options, such as share houses and student housing.
2.4	Encourage dispersed small-scale accessible housing within residential areas for independent living for persons with disabilities or special needs through Scheme provisions and subject to location criteria: <ul style="list-style-type: none"> • Within or close to activity centres • In close proximity to public transport • In close proximity to major services such as shops, medical centres and similar.
2.5	Ensure that the local planning scheme maintains existing low density residential codes where appropriate to provide properties of sufficient size to cater for the needs of larger households.

3.2 Economy, Employment and Activity Centres

Strategy #	3
Facilitate the continued transition of the Town into a dynamic 'inner city' destination for residents, workers and visitors.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec1 – A desirable place for commerce and tourism that support equity, diverse local employment and entrepreneurship. En1 – Land use planning that puts people first in urban design, allows for different housing options for people with different housing needs and enhances the Town's character.
Actions	
3.1	Ensure that the planning initiatives referred to in Action 1.1 include provision for economic development, jobs creation and activation.
3.2	Provide for development of multi-functional corridors along key transport routes that support efficient movement, connections to and between activity centres, integration with transit and high amenity, including investigation of the potential for increased densities and a mix of land uses. The following roads within the Town have potential to form such corridors: <ul style="list-style-type: none"> • Canning Highway. • Albany Highway. • Causeway precinct. • Geddes Street. • Shepperton Road. • Orrong Road between Archer and Oats Streets. • Archer Street. • Oats Street/Hillview Terrace. • Berwick Street – Geddes to Kent Street. • Berwick Street – Hillview Terrace to Boundary Road. • Kent Street – Berwick Street to Jarrah Road, and • Carlisle train station.
3.3	Support the development of additional retail floorspace in accordance with the Activity Centres Strategy.
3.4	Formulate and implement a public realm strategy and place making strategies and place plans to activate and manage key centres and places in the Town.

Strategy #	4
Diversify and strengthen the Town's economic capacity and employment self-sufficiency through appropriate land use mix and built form outcomes specific to each of the Town's activity centres and station precincts.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec1 – A desirable place for commerce and tourism that supports equity, diverse local employment and entrepreneurship.
Actions	
4.1	Advocate that the State Government redefine the Burswood Peninsula as a specialised centre and the entire length of Albany Highway within the Town as a single Secondary Centre in the Perth region's activity centres network.
4.2	Review the zoning of Industrial zoned land in Welshpool and its interface with Residential zoned land in East Victoria Park and Carlisle in the context of opportunities to facilitate the creation of an origin and destination transit oriented development at the Oats Street station.
4.3	Designate the Albany Highway Secondary Centre as a 'Regional Centre' under the new local planning scheme.

Strategy #	5
Attract investment to the Town to provide a prosperous, diverse and resilient economy and a hub for business, education, technology and research.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec1 – A desirable place for commerce and tourism that support equity, diverse local employment and entrepreneurship.
Actions	
5.1	Partner with the State Government, Curtin University and other stakeholders for the continued development of Bentley-Curtin as a specialised centre for knowledge that evolves to become more urban with high-quality access.
5.2	Prepare and implement an Economic Development Strategy.
5.3	Support planning and development that leverages and stimulates economic development.
5.4	Enhance a regional approach to economic development and strategic planning and enhance partnership collaboration activity with Federal, State and Local Government agencies.

3.3 Urban Design and Heritage

Strategy #	6
Embrace and enhance the Town's Aboriginal and European heritage and character.	
Strategic Community Plan (2017-2032) - Strategic Outcome	S4 – A place where all people have an awareness and appreciations of arts, culture, education and heritage.
Actions	
6.1	Identify character areas that require protection through lower density residential coding and/or additional planning controls.
6.2	Update the heritage municipal inventory, designate heritage areas and establish heritage lists under the local planning scheme and take account of the Town's heritage assets and their contribution to Town character.
6.3	Reconnect with indigenous heritage, including investigation of potential recognition of sites with heritage significance and entry and exit art installations at Town borders and key Town attractions.
6.4	Investigate the potential for development of a heritage walking trail throughout the Town.

Strategy #	7
Promote excellence in built form outcomes for the Town that capture the identity and character of its neighbourhoods and centres and promote a sense of place and high standards of amenity and liveability.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En1 – Land use planning that puts people first in urban design, allows for different housing options for people with different housing needs and enhances the Town's character. S4 – A place where all people have an awareness and appreciations of arts, culture, education and heritage.
Actions	
7.1	Create points of difference between the two main retail nodes that comprise critical components of the Albany Highway Secondary Centre to: <ul style="list-style-type: none"> • Consolidate retail activity to the two main centres. • Diversify the retail offer. • Establish a unifying approach to landscaping, entry statements and small parks for each of the Centre's six sub-precincts. • Relax parking standards for non-residential uses. • Maximise density development opportunities within the walkable catchment of the Centre.
7.2	Encourage safe environments, community identity and high standards of urban design and sustainability through the local planning framework.
7.3	Develop and implement initiatives to activate laneways and other inactive public spaces in centres.
7.4	CPTED principles should be embedded in the planning framework to ensure that the built environment contributes to a safe public realm.

3.4 Recreation and Open Space

Strategy #	8
Ensure optimisation of environmentally sustainable recreation spaces, enhance parklands and ensure accessibility for all residents, workers and visitors.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec2 – A clean, safe and accessible place to visit. En6 – Appropriate, inviting and sustainable green spaces for everyone that are well maintained and well managed.
Actions	
8.1	Prepare a public open space strategy that considers: <ul style="list-style-type: none"> The definition of public open space and development of an inventory, classification system and maintenance standards for existing sites. A recreational needs analysis and assessment of notional POS supply deficiencies. Where population growth is projected to occur. Opportunity for usage and management. Alternative ways of providing for the community's recreation needs.
8.2	Encourage the use of roof top gardens and other high quality and innovative landscaping treatments in private open space where appropriate.
8.3	Explore potential partnership opportunities with Curtin University for increased community access to its recreation facilities.
8.4	Develop master plans for Town reserves identified in the Sport and Recreation Facilities Strategy.
8.5	Incorporate sustainable design and equal access provision in the development of new and upgraded recreation facilities.
8.6	Provide land and facilities for recreation and other community use on the Burswood Peninsula.

Strategy #	9
Improve connectivity to the Swan River foreshore and enhance its health, amenity and landscape values.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec2 – A clean, safe and accessible place to visit. En2 – A safe, interconnected and well maintained transport network that makes it easy for everyone to get around. En6 – Appropriate, inviting and sustainable green spaces for everyone that are well maintained and well managed.
Actions	
9.1	Ensure that land use and development maintain and enhance the health, amenity and landscape values of the river foreshore, including its recreational and scenic values.
9.2	Provide well designed, safe and legible access to the Swan River foreshore for pedestrians and cyclists.

3.5 Community Facilities

Strategy #	10
Provide appropriate community facilities and services and a high level of accessibility to them for the current and future Town community.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En5 - Appropriate and sustainable facilities for everyone that are well built, well maintained and well managed.
Actions	
10.1	Ensure land is available to accommodate community needs and that community facilities are well-planned, fit for purpose and provide equal access for people of all abilities.
10.2	Work with the Department of Education and non-government school providers to address primary and secondary school needs in the Town, including provision of a new primary school in Burswood.
10.3	Consider the impact of land use and development proposals on Town assets and their future management, including community, recreation and transport facilities and other Town property.

Strategy #	11
Attract major cultural opportunities to meet the local and regional needs of residents, businesses and tourists.	
Strategic Community Plan (2017-2032) - Strategic Outcome	S4 – A place where all people have an awareness and appreciations of arts, culture, education and heritage.
Actions	
11.1	Concentrate commercial, health, education, entertainment and cultural developments in and around activity centres and corridors with good access to public transport.

3.6 Tourism and Visitors

Strategy #	12
Make the Town a desirable place to visit.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec1 – A desirable place for commerce and tourism that supports equity, diverse local employment and entrepreneurship. Ec2 – A clean, safe and accessible place to visit.
Actions	
12.1	Ensure that the local planning framework provides appropriate provisions for tourism-related development.
12.2	Address the rise of small-scale tourist accommodation, such as that which can be booked through emerging technologies like Airbnb, and its impact on local residential communities by ensuring policy guidance sets appropriate standards and location criteria.
12.3	Identify the nature and importance of tourism to the Town, including the type of facilities and attractions, their level of amenity and accommodation supply, gaps and opportunities.
12.4	Encourage tourism growth and development that reinforces the local tourism identity, including innovative tourist accommodation development and facilities to meet tourists' needs.
12.5	Identify service capacity and infrastructure projects that could potentially impact on tourism growth and visitors' experiences, including how tourists access accommodation and move between attractions.
12.6	Improve wayfinding and connections between Burswood Peninsula and the Albany Highway main street for tourists and visitors.

3.7 Environment

Strategy #	13
To promote sustainable, liveable, healthy and green places for everyone.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En1 – Land use planning that puts people first in urban design, allows for different housing options for people with different housing needs and enhances the Town's character. En4 – A clean place where everyone knows the value of waste, water and energy. En6 – Appropriate, inviting and sustainable green spaces for everyone that are well maintained and well managed. En7 – Increased vegetation and tree cover.
Actions	
13.1	Develop planning measures to protect water resources, apply water-sensitive urban design principles and ensure the efficient use of water, energy and other resources in the design, construction and maintenance of public and private development.
13.2	Ensure the planning framework provides for the conservation of ecological systems and biodiversity and protection of sites with environmental value from inappropriate use and development.
13.3	Avoid or minimise environmental degradation and hazards and prevent environmental problems that could arise from siting incompatible land uses close together or failing to consider the capability of land to accommodate proposed development.
13.4	Consider flood, fire, nuisance insects and acid sulphate soils risk in proposals for land use and development.

13.5	Prepare and implement strategies for the protection of significant bushland and increasing the amount of vegetation and tree canopy in the Town, including implementation of the recommendations of the Urban Forest Strategy.
13.6	Recognise and consider degraded or contaminated land and facilitate its rehabilitation or remediation for appropriate future use.
13.7	Implement as applicable the actions of the Town's Climate Change Adaptation Plan.

3.8 Transport

Strategy #	14
Provide an integrated urban transport system focussed on moving people effectively and efficiently within the Town, providing connections between suburbs, activity centres and major destinations.	
Strategic Community Plan (2017-2032) - Strategic Outcome	Ec2 – A clean, safe and accessible place to visit. En2 – A safe, interconnected and well maintained transport network that makes it easy to get around. En3 – A place with sustainable, safe and convenient transport options for everyone.
Actions	
14.1	Improve wayfinding and connectivity to public transport, activity centres and recreation facilities through upgrades to the pedestrian and cycling network.
14.2	Encourage best-practice design and construction standards for new development proposals and new or redeveloped transport infrastructure proposals.
14.3	Capitalise on opportunities provided by implementation of the State Government's Metronet initiative in respect to improvements to public transport infrastructure and transit oriented development.
14.4	Utilise the Swan River as a way of connecting communities and attractions.
14.5	Develop and implement a Bike Plan for the Town.
14.6	Develop tools to measure public transport accessibility and link to development requirements within the local planning framework.
14.7	Ensure provision of land for public transport infrastructure within activity centres and along the Perth-Armadale railway.
14.8	Consider the need for planning provision for parking for key users, end of trip facilities for cyclists, travel plans and cash-in-lieu contributions for public parking or alternative transport modes.

Strategy #	15
Ensure that the movement of regional transport through the Town is managed whilst maintaining a high level of connectivity for local transport.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En2 – A safe, interconnected and well maintained transport network that makes it easy to get around. En3 – A place with sustainable, safe and convenient transport options for everyone.
Actions	
15.1	Ensure planning proposals for noise-sensitive land uses in close proximity to primary transport corridors address the potential for noise impacts and incorporate noise amelioration measures as appropriate.
15.2	Protect major transport corridors and freight operations from incompatible urban encroachment.
15.3	Advocate for the upgrade of Burswood rail station to provide an improved and safer user-experience for patrons and to support proposed development of land in the adjoining precincts.
15.4	Promote the conversion of the Perth Stadium rail station to a commuter station when appropriate in future to support additional development planned for the Burswood Peninsula.
15.5	Improve the level of accessibility in those parts of the Town where the rail corridor forms a physical barrier dividing the community, by advocated for sinking the railway and or grade-separating the Oats Street and Archer Street rail crossings.

15.6	Explore options for a light rail link between Curtin University and the City (and beyond) via the Albany Highway Secondary Centre, including investigate of the issues and benefits of routing light rail along Albany Highway (in addition to Shepperton Road as an alternative) and potential stop locations and land use/development integration.
15.7	Explore the potential for a bus service and/or light rail from the Causeway to the Burswood Peninsula to better connect the Peninsula to the City and Albany Highway Secondary Centre.
15.8	Ensure that development proposed under protected airspace over the Town appropriately addresses safety risks and applicable standards and requirements associated with aircraft flights in and out of Perth Airport.

Strategy #	16
Adopt a parking management approach that is focussed on providing access for people and not vehicles, supports sustainable transport modes and constrains parking demand.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En2 – A safe, interconnected and well maintained transport network that makes it easy to get around. En3 – A place with sustainable, safe and convenient transport options for everyone.
Actions	
16.1	Review planning provisions for managing on and off-street parking supply that reflect public transport accessibility and other more sustainable modes of transport and public parking availability.
16.2	Consider inclusion of provisions in the local planning framework requiring the construction of decked or multi-storey car parks with sufficient floor-to-ceiling heights that can be converted to other uses in the future should the need for on-site car parking be reduced over time.
16.3	Prepare and implement parking management plan/s.

3.9 Infrastructure Services

Strategy #	17
Ensure that utilities required for development and growth of the Town are provided in a timely and sustainable manner.	
Strategic Community Plan (2017-2032) - Strategic Outcome	En5 – Appropriate and sustainable facilities for everyone that are well built, well maintained and well managed.
Actions	
17.1	Invest in infrastructure that stimulates growth and productivity.
17.2	Coordinate cost-efficient provision of infrastructure and services with new growth, possibly involving developer contribution arrangements to fund improvements in areas of fragmented land ownership.
17.3	Undertake early consultation with infrastructure service providers to determine the capacity of essential services and upgrading requirements for any new major development projects and developments areas within the Town.
17.4	Address sewer capacity/network issues that exist in Burswood and Carlisle.
17.5	Explore the potential for repurposing drainage sumps where appropriate so that land may be productively used or shared with other uses.
17.6	Continue to lobby the State Government to co-fund underground power conversions in suburbs where overhead power supplies remain in place.
17.7	Ensure that development proposed adjacent to high pressure gas mains that run through the Town appropriately addresses the safety risks and applicable development standards associated with the gas supply network.

TOWARDS 2050 – TOWN OF VICTORIA PARK - LOCAL PLANNING STRATEGY MAP

Town of Victoria Park - A dynamic place for everyone.



Key Outcomes -

- **Activity Centres that provide desirable places to live, learn, work and play:**
 1. **Burswood Peninsula Specialised Centre** - major entertainment and tourism destination and transit-oriented, high intensity residential and mixed-use development.
 2. **Causeway District Centre** - city centre commercial and employment hub with entertainment and residential uses.
 3. **Albany Highway Secondary Centre** - vibrant, diverse main-street centre for entertainment, retail, commercial and residential uses in a form that is respectful of the Town's heritage and positively contributes to its identity.
 - 4-6. **Victoria Park Station Precinct, Carlisle Station/Archer Street Precinct, Oats Street Station Precinct** - activated, transit-oriented, mixed use areas that capitalise on their proximity to Perth, and the Albany Highway centre.
 7. **Berwick Precinct** - activated centre for office and residential development.
 8. **Curtin/Bentley Specialised Centre** - key hub for education, technology, research and institutional uses with increased housing and commercial development, high-quality access and improved connectivity with East Victoria Park.
- **Urban Design, Land Use and Place Planning that:**
 - Promotes excellent built form and high standards of amenity, liveability and attractions.
 - Embraces and enhances the Town's heritage and character.
 - Provides attractive places to work and visit.
- **An integrated movement network:**
 - That moves people within the Town connecting destinations and supports the more intensive development planned for activity centres.
 - That provides a range of high-quality transport options.
 - Where parking is managed to provide access for people and support sustainable transport modes.
- **Protection and enhancement of the environment by:**
 - Managing water, energy, other natural resources and waste.
 - Conserving ecological systems, bushland and biodiversity.
 - Increasing the Town's tree canopy.
- **Open spaces and facilities that:**
 - Meet community needs and are highly accessible.
 - Are sustainable, healthy, attractive and well-maintained.
- **Infrastructure and utilities that:**
 - Are well built, maintained and managed.
 - Support future growth and development of the Town.

LEGEND

- Industrial Centre
- Station Precinct
- Activity Centre
- Urban Corridor
- Urban
- Green Network
- Rail Station
- Perth-Armadale Railway
- Primary Roads
- Secondary Roads
- Possible Ferry Stop

Key Indicators of the Town's Transition		
	Now	2050+
Population	37,000	110,000
Dwellings	17,000	54,500
Jobs	35,000	99,000
Commercial Floorspace (m ²)	556,000	1,000,000
Retail Floorspace (m ²)	66,000	135,600
Tourists/year	5,000,000	20,000,000

This document is a conceptual illustration of the key strategic outcomes of the Town of Victoria Park's draft Local Planning Strategy. It is not drawn to scale and does not prevail over any adopted regional or local planning scheme, plan or policy. It should be read in conjunction with the complete Local Planning Strategy document.



8.2 Adoption of the City of South Perth and Town of Victoria Park Joint Bike Plan



Draft Joint Bike Plan

City of South Perth and
Town of Victoria Park

May 2018



aurecon



*Bringing ideas
to life*

Executive Summary

1. Introduction

Aurecon was commissioned to develop the joint Bike Plan for the City of South Perth (CoSP) and Town of Victoria Park (ToVP). The joint Bike Plan has been part funded through the WA Bicycle Network Grants Program, which is administered by the Department of Transport (DoT).

This is the first time two local governments have worked together to deliver a bike plan in Western Australia, providing an excellent opportunity to provide a consistent outcome and benefits for the local cycling community.

The joint Bike Plan sets out the long term vision for the strategic cycling network over the CoSP and ToVP area, in line with State Government's Perth and Peel Transport Plan for 3.5 million People and Beyond ('Perth Transport Plan for 3.5 million'). The joint Bike Plan also outlines five-year action plans for specific improvements to the cycle network and environment for each local government to further investigate and implement.



2. Structure of this Plan

The joint Bike Plan (the 'Plan') is divided into the following key sections:

Executive Summary

The executive summary outlines the key findings of the consultation; surveys, research and investigation for the Plan. In addition, it displays the vision for the overarching long term strategic bicycle network over both local government areas.

Introduction, Policy and Strategic Context

This section outlines the key objectives and background information of the Plan and provides context regarding the relevant policies and strategies that have influenced the development of the Plan.

City of South Perth

This section of the report focuses on the CoSP local government area. It details the findings from the consultation, surveys, research and investigation of the existing cycle network within the CoSP. In addition, it outlines the proposed five-year action plan, including a prioritised list of projects for the CoSP to further investigate and implement.

Town of Victoria Park

This section of the report focuses on the ToVP local government area. It details the findings from the consultation, surveys, research and investigation of the existing cycle network within the ToVP. In addition, it outlines the proposed five-year action plan, including a prioritised list of projects for the ToVP to further investigate and implement.

3. Stakeholder Consultation

As part of the development of the Plan, extensive consultation was undertaken with the local community and cycling groups and other key agencies. The marketing and promotion of the community engagement activities were carried out jointly by the CoSP and ToVP.

The local community were invited to provide feedback on their cycling journey via an online questionnaire, online mapping tools and community workshops. This provided the opportunity to identify common routes, existing issues, barriers to cycling, and desired locations to improve or provide additional facilities and infrastructure.

Throughout the development of the Plan, several agencies were consulted, including state government agencies, adjacent local government authorities, Curtin University and local cycling groups. Local government officers within the CoSP and ToVP were also consulted to ensure the Plan aligns with local strategies and future projects.

4. Research and Investigation

In a rapidly changing transport environment and with predicted increase in advanced technologies, such as autonomous vehicles, how will cycling fit into everyday travel behaviour in the next 30 years? The future of cycling is explored in this Plan with consideration into how future infrastructure can be integrated with future technologies.

To understand the existing cycling conditions within the CoSP and ToVP, significant investigation into the following was undertaken:

- Detailed literature review, including previous cycle planning documents;
- Interrogation of key demographic statistics of both CoSP and ToVP to understand the potential for increased cycling;
- Analysis of existing recorded crash data involving cyclists to understand trouble spots and wider trends;
- Assessment of the overall transport network to determine gaps in the existing cycle network and appropriate cycling connections to key existing and future trip generators; and
- Infrastructure audits, including saddle surveys, to assess the condition of existing and potential future cycle routes.

5. Strategic Cycle Network

The first key component of the Plan is the establishment of the long term aspirational cycle network, i.e. what the cycle network within the CoSP and ToVP endeavours to look like by the time Perth's population grows to 3.5 million (towards the year 2050).

The proposed aspirational cycle network outlines several ambitious routes aimed at making cycling a realistic and appealing option for a high proportion of the population. The aspirational cycle network has been influenced by the routes identified in the Perth Transport Plan for 3.5 million and the research, investigation and consultation undertaken as part of the project.

The proposed network is based on a cycling route hierarchy, developed by the DoT, which aims to provide consistency in cycle planning across the State. The function of each cycling route is briefly described below:

- **Primary Routes (red)** – These routes provide safe, prioritised and uninterrupted facilities which form the spine of a cycle network. They are conducive to medium and long distance commuting, recreational and tourism trips;
- **Secondary Routes (blue)** – These routes provide safe and direct connections, typically between primary routes and major trip generators such as shopping centres, industrial areas or major health, education, sporting and civic facilities; and
- **Local Routes (green)** – These routes provide safe cycling conditions in local (predominantly residential) areas. The purpose of local routes is to collect cycling traffic from local roads within towns and suburbs and distribute it to the primary and secondary networks.



The proposed aspirational network over both the CoSP and ToVP areas is shown at the end of the executive summary (refer to Figure A).

6. 5-Year Implementation Plan

The second key component of the Plan is the establishment of a 5-year action plan for both the CoSP and ToVP that identifies key cycle infrastructure projects to be further investigated and delivered by each council. A total of 13 key infrastructure projects are proposed for delivery over both council areas, as described in Figures B-1, B-2 and B-3.

High level order of cost estimates have been determined for these projects, however further investigation will need to be undertaken to develop detailed concepts and understand the true cost of each project. Funding assistance from other agencies, such as the DoT, will need to be explored by both CoSP and ToVP during implementation of the Plan.

In addition to the key cycling infrastructure projects identified, there are several minor works improvements that were identified throughout the infrastructure audits and investigation. These are generally considered low cost 'quick wins' and intended to be incorporated into each council's capital works programs where possible. Proposed improvements include items such as new or improved cycle bypass paths through roundabouts and intersections, improved pavement markings and signage and other infrastructure modifications that aim to further enhance the existing cycle routes, with particular regard to safety and convenience. An additional common issue is the consistency of application of bicycle detection loops at signalised intersections. The CoSP and ToVP should audit all intersections within their jurisdiction to identify all intersections that do not have bicycle detection loops and liaise with Main Roads to implement them.

It is intended that this Plan is revisited every 5 years to assess the outcomes of the previous 5-year implementation program in continuing the journey of achieving the long term aspirational network.

7. Supplementary Initiatives

Whilst investment in cycling infrastructure is vital in providing safe, connected options for cyclists, there are a range of additional measures that are just as critical in promoting mode shift towards cycling.

Several initiatives are proposed for each council area, and are summarised in Figure C at the end of the executive summary. Many of the proposed initiatives should be delivered simultaneously with the implementation of the proposed infrastructure projects as they are complementary and have the potential to increase the potential for behaviour change towards increased cycling.

8. Plans under Development

Clontarf-Waterford-Salter Point Foreshore Area (CoSP)

The CoSP is developing a masterplan for the section of foreshore from Clontarf through to Waterford and Salter Point. The Masterplan will provide a consolidated management strategy recognising the ecological, cultural and recreational values of the area. The Plan identifies the entire foreshore path as a long term cycle route within the CoSP, including a potential future cycling connection to the principal route along the Kwinana Freeway. It is proposed that cycle infrastructure is investigated to be provided along the full length of the foreshore to provide consistency and legibility and to capitalise on the beautiful scenery that is offered and encourage increased cycling in the community. The Plan aims to acknowledge a future cycling connection to the Mt Henry Bridge as a long term aspiration and one that will require significant further investigation and community consultation. An alternative route connecting to the Kwinana Freeway will need to be considered as part of this investigation.

Taylor Reserve and McCallum Park (ToVP)

Taylor Reserve and McCallum Park is proposed to be redeveloped in line with the Town of Victoria Park's 2015 Foreshore Access and Management Plan. The draft Concept Report (2017) details a variety of new high-quality spaces throughout the park with the intention to create a destination for the region, whilst maintaining the core function as an event space. Four precincts are proposed including a Parkland and Event Space, Beach and Activity Node, River Edge and Revegetation and Parking.

The existing separated cycle path along the foreshore is proposed to be realigned to the rear of the site and connected to the existing cycle paths on both sides of the park. This will provide cyclists with a direct route with minimal interruptions caused from other users of the park. The development of the concept is currently in progress.

As part of the redevelopment, an area is proposed for a BMX trail as part of the 'All Ages Play' Activity Hub (Taylor Reserve & McCallum Park Concept Report, November 2017). It is recommended that the feasibility of a hybrid style pump/BMX track similar to that at Shepherds Bush Park in Kingsley, but at a smaller scale, be constructed at this location. A Bike Skills Track, which has a considerably smaller footprint to the pump track, could also be considered at the Activity Hub if there is space. The facility should consider CPTED (Crime prevention through environmental design) principles.

9. Areas outside of Council Control

During the development of the Plan, several issues were identified regarding the safety, connectivity and convenience for cyclists, both in areas within council boundaries that are outside of local government control and adjoining routes to the study area. It is proposed that both the CoSP and ToVP lobby the following improvements to the respective agencies responsible for the below infrastructure:

- Canning Bridge & Kwinana Freeway principal shared path (PSP) (south of Canning Bridge)
 - Replace the existing degraded path with high quality red asphalt path with lighting. Investigate the feasibility of separation or path widening;
 - Investigate treatment to sections of the PSP under Canning Bridge where flooding occurs during high river tides and wet weather;
 - Investigate improving priority for cyclists connecting to Canning Station. The above should be considered in any future works planned in this area by the Transport Portfolio and as part of the Canning Bridge Activity Centre Plan; and
 - Monitor the usage of the bicycle storage facilities (through consultation with the Public Transport Authority (PTA)). Any future works should consider modifications and potential upgrades to storage facilities.
- Canning Highway crossing at Cale Street
 - Cale Street provides an important east-west connection through the CoSP and provides a convenient connection to the Labouchere Road cycling route. The existing crossing of Canning Highway is an issue as it is not wide enough to accommodate cyclists. Investigate providing an appropriate crossing across the Canning Highway intersection to facilitate cyclists, in liaison with Main Roads.
- The Causeway shared path
 - The Causeway is a critical connection between the ToVP and the Perth CBD, with significant conflicts experienced between pedestrians and cyclists. A pedestrian/cycle bridge across Heirisson Island is highlighted in the Perth Transport Plan at 3.5 million, and the acceleration of the implementation of this project is recommended.
- Burswood Park (controlled by the Burswood Park Board)
 - The existing shared path along the Swan River caters for high demand for a mix of users, creating the potential for conflict. Investigation into the feasibility of separation or path widening should be undertaken, as well as improved path lighting.
- Orrong Road
 - Orrong Road is under the control of Main Roads, with long term plans for the road unclear. The ToVP should continue to liaise with Main Roads and the City of Belmont to ensure that any future plans consider cyclists

10. Summary Figures

The following figures within the Executive Summary summarise the key findings of the Plan for both the CoSP and ToVP:

Figure A: The proposed aspirational network over both the CoSP and ToVP areas

Figure B-1: A figure showing the proposed 5-year implementation plan for both the CoSP and ToVP

Figure B-2: A summary description of the proposed 5-year action plan for the CoSP

Figure B-3: A summary description of the proposed 5-year action plan for the ToVP

Figure C: A summary of the proposed supplementary initiatives for both the CoSP and ToVP

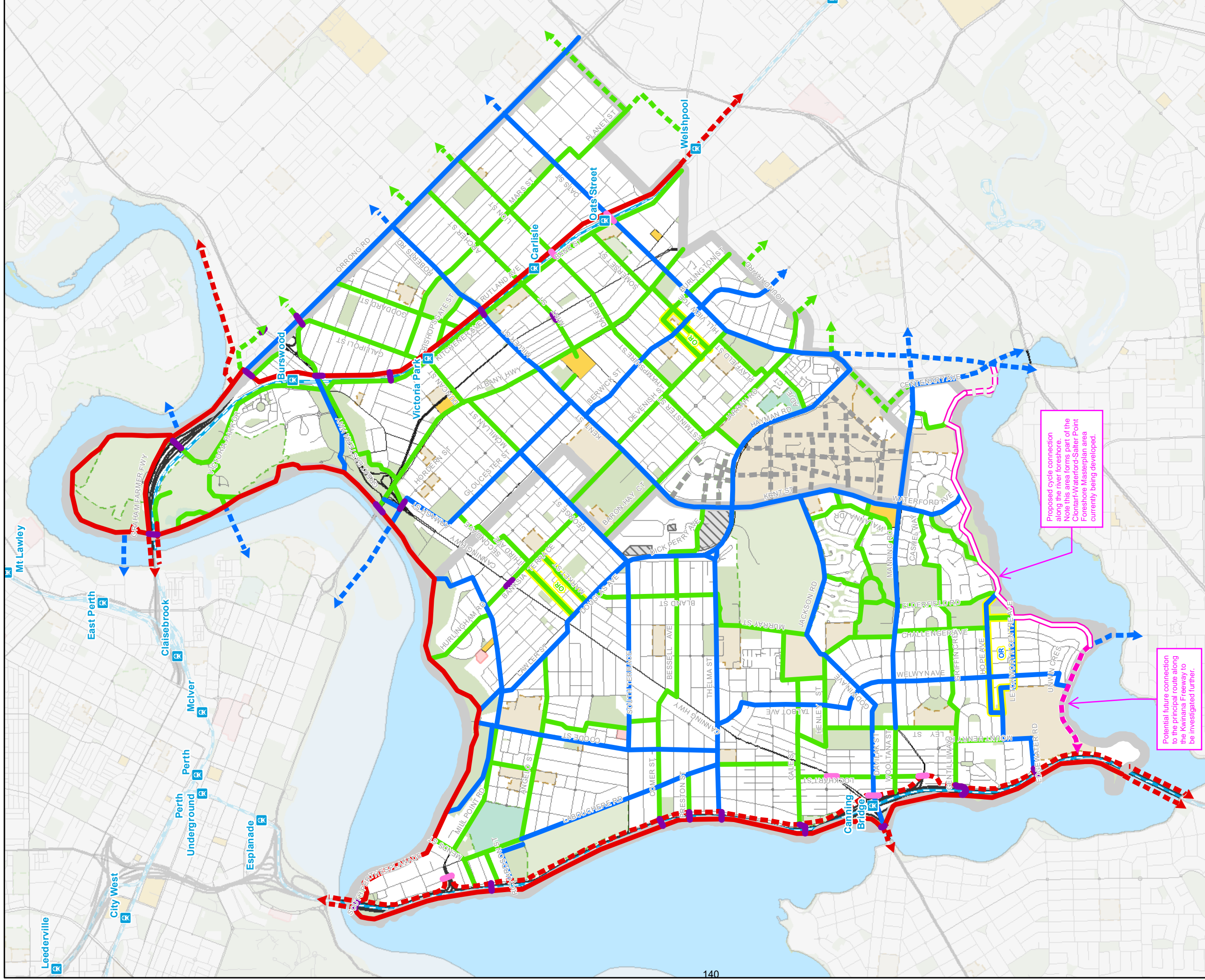


Figure A
Aspirational Cycle Network

Revision: 1	Project No: 255909	Date: May 2018
Prepared: S.Richards	Checked: M.LaGalia	Approved: M.LaGalia
Coordinate System: GDA 1994 MGA Zone 50	Source: © Landgate 2017, OpenStreetMap	Scale @ A3: 1:34,000

File: laurecon.info\shares\AU\PER\Projects\255909 - Joint Bike Plan CoSP & ToVP - CoSP Folder\3.0 Project\Delivery\GIS\ArcGIS\100\10_255909_ASP_CoSP\ToVP_Aspirational_Rcv1
 Client: Town of Victoria Park, City of South Perth



Legend

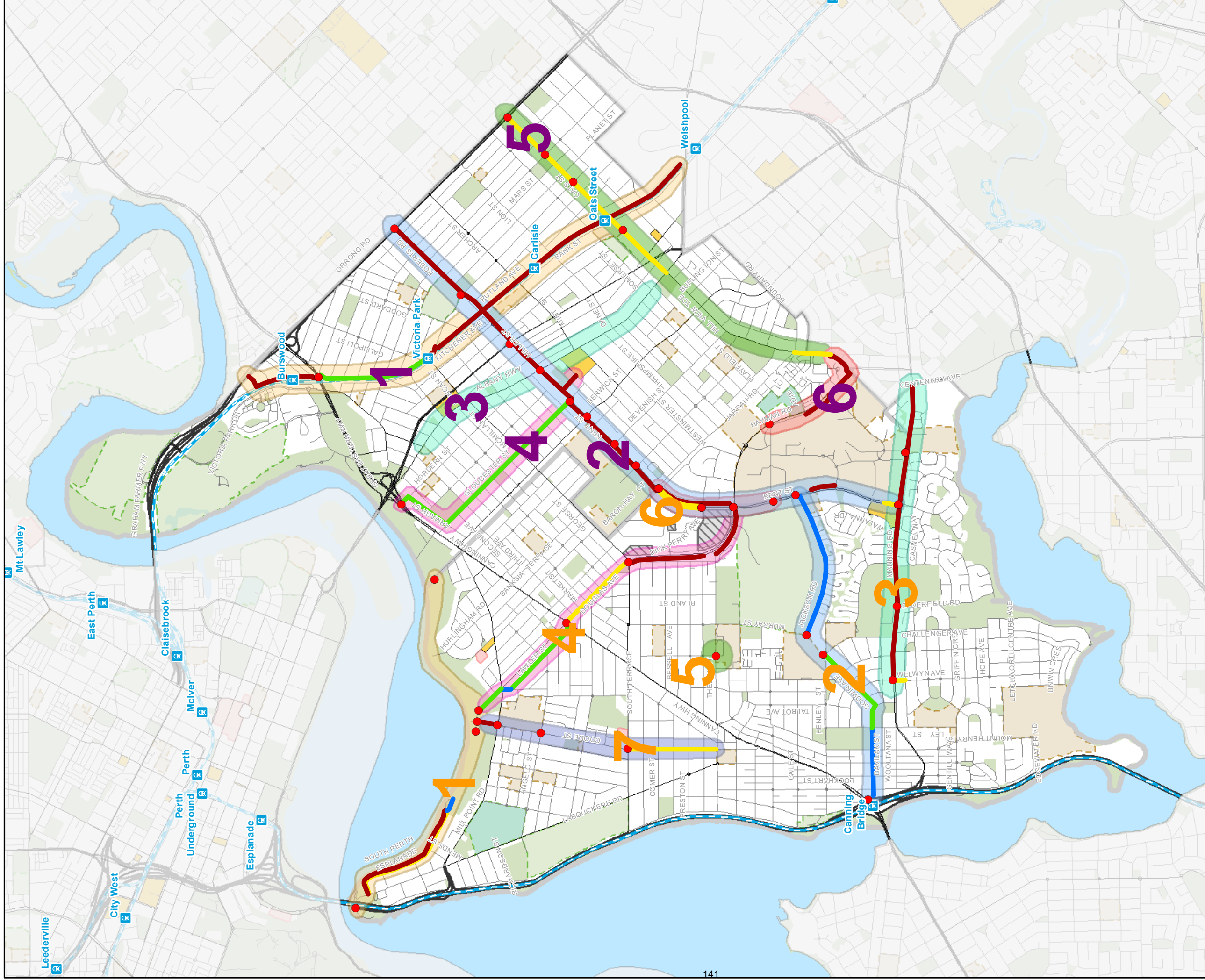
Rail Stop	Aspirational Network	Overpass/Underpass	LCA Boundary (Town of Victoria Park/City of South Perth)
Railway	Principal Route	Existing Overpass/Underpass	Shopping Area
Freeway	Principal Route - by others	Proposed Overpass/Underpass	Community Facility
Highway	Strategic Routes		Hospital Facility
Main	Strategic Routes - by other		Education Facility
Minor	Local Routes		Recreational Facility
	Local Routes - by others		Recreational Park or Reserve
	Within Curtin University		Reserve (Miscellaneous & Other)

Potential future connection along the river foreshore. Note this area forms part of the Contar-Waterford-Salter Point Foreshore Masterplan area currently being developed.

Potential future connection to the principal route along the Kwinana Freeway to be investigated further.

Scale: 0 to 2 km





Legend

- Rail Stop
- Railway
- Freeway
- Highway
- Main
- Minor
- Separated Path (Bikes Only)
- High Quality Shared Path (Bikes and Pedestrians)
- Bicycle Lanes or Sealed Shoulders
- Safe Active Street
- LGA Boundary (Town of Victoria Park/City of South Perth)
- Shopping Area
- Community Facility
- Hospital Facility
- Education Facility
- Recreational Facility
- Recreational Park or Reserve
- Reserve (Miscellaneous & Other)
- CoSP Prioritised Project 1
- ToVP Prioritised Project 1
- Prioritised Project 1
- Prioritised Project 2
- Prioritised Project 3
- Prioritised Project 4
- Prioritised Project 5
- Prioritised Project 6
- Prioritised Project 7

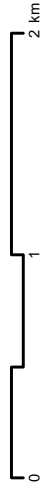


Figure B
5-Year Implementation Plan

Revision: 1	Project No: 255909	Date: May 2018
Prepared: S.Richards	Checked: M.LaGalia	Approved: M.LaGalia
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Client: Town of Victoria Park, City of South Perth		



1 South Perth Esplanade Project

New and upgraded cycle facilities along the South Perth Esplanade

- Option 1: Upgraded shared path and on-road cycle lanes.
- Option 2: Safe active street



\$1.5m

Refer to Section 8

2 Canning Bridge to Curtin Link

New cycle infrastructure between Canning Bridge and Curtin University:

- Bi-directional cycle path along Davilak Street;
- Safe active street along Godwin Avenue; and
- Bi-directional cycle path along Jackson Road.

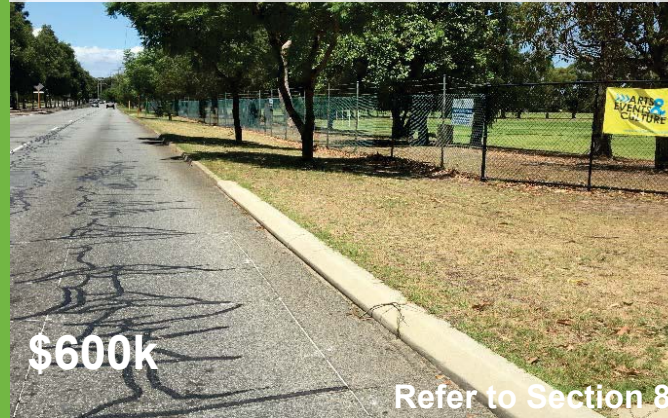


\$1.8m

Refer to Section 8

3 Manning Road Project

New and upgraded shared path facilities between Welwyn Avenue and Centenary Avenue.



\$600k

Refer to Section 8

4 Douglas Avenue Project

New and upgraded cycle facilities between Curtin University and South Perth Foreshore:

- Safe active street along Lawler Street;
- Protected on-road cycle lanes along Douglas Avenue; and
- Shared path upgrade along Hayman Road.



\$1.5m

Refer to Section 8

Investigation into a new shared path connection to fill a gap in the route near Penrhos College.



\$30k

Refer to Section 8

5 Thelma Street Investigation

New on-road cycle lanes between Dick Perry Avenue and Jarrah Road and intersection improvements.



\$400k

Refer to Section 8

6 Kent Street Project

New on-road cycle lanes between Thelma Street and South Terrace and intersection improvements.



\$500k

Refer to Section 8

7 Coode Street Project



1

Rutland Avenue Project

New cycle facilities between Welshpool Road and Riversdale Road.



\$2.3m

Refer to Section 15

2

Kent Street Project

Upgraded shared path facilities between Curtin University and Orrong Road along Kent Street, Miller Street and Roberts Road.



\$1.5m

Refer to Section 15

3

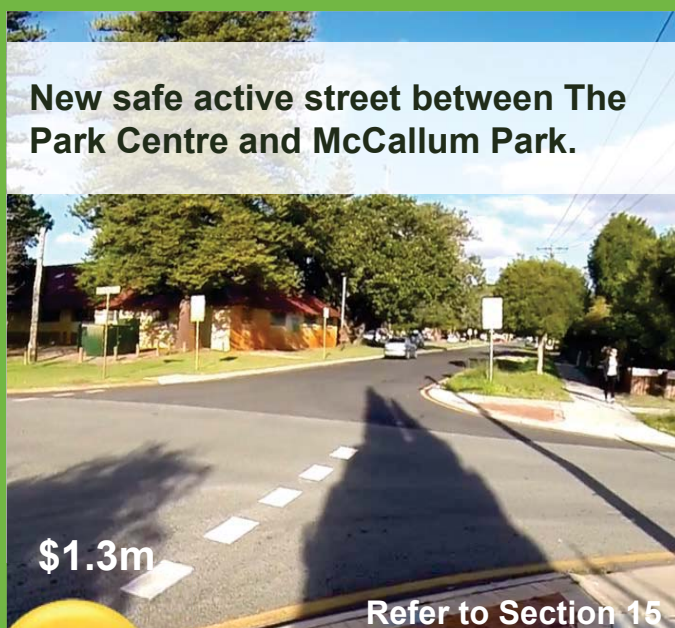
Albany Highway Investigation

Investigation into the long term treatment of Albany Highway to incorporate and enhance access for cyclists, plus interim measures to improve cyclist safety and awareness.



\$100k

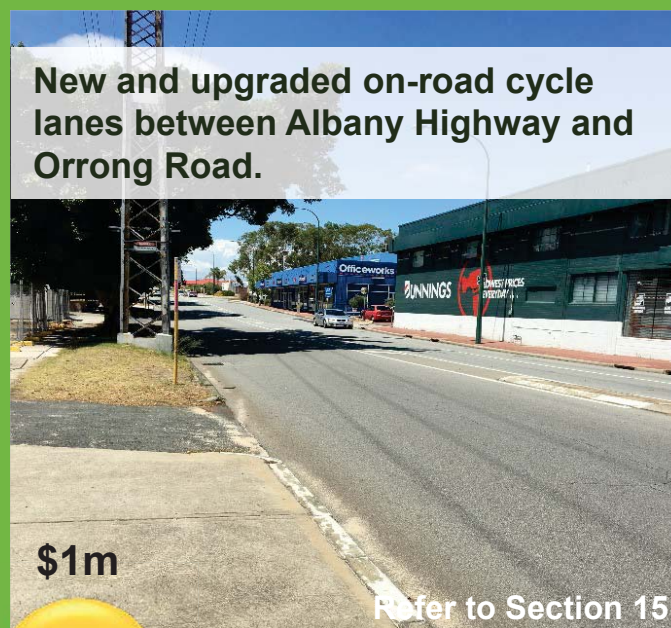
Refer to Section 15



New safe active street between The Park Centre and McCallum Park.

\$1.3m

Refer to Section 15



New and upgraded on-road cycle lanes between Albany Highway and Orrong Road.

\$1m

Refer to Section 15



Upgraded shared path facilities between Adie Court and Holder Street.

\$450k

Refer to Section 15

4

Gloucester Street Project

5

Oats Street Project

6

Hayman Road Project

Figure C
Supplementary Initiatives



Bike Parking and Amenities

Bike parking and amenities help complement the cycle network by reducing inconveniences associated with cycling.

- Amenities include bicycle pump stations, repair stations, water fountains and e-bike charging stations.
- Types of bike parking recommended include secure and sheltered, sheltered and unsheltered facilities.

CoSP	ToVP
Complete an audit/gap analysis of existing end of trip facilities	
Locations to install additional public bike parking and amenities should include:	
<ul style="list-style-type: none"> • Mends Street and Jetty • Manning Hub • George Burnett Park • South Perth foreshore at Coode Street • Angelo Street shops • Preston Street shops • Como IGA • Canning Bridge • South Perth Operations Centre • Clontarf Campus • Richardson Park • Moresby Street Shops 	<ul style="list-style-type: none"> • Albany Highway • Swansea Street markets • Archer Street shop • Bentley Technology Park • Burswood Park • John McMillan Park • Major bus stations

Cycle Monitoring

Helps to understand cycling patterns over time and inform cycle-related projects into the future. Pedestrian volumes should also be monitored as part of this on shared paths.

CoSP	ToVP
Potential locations for permanent cycle counters include:	
<ul style="list-style-type: none"> • Hayman Road • Lawler Street 	<ul style="list-style-type: none"> • Rutland Avenue • Kent Street • Taylor McCallum Park • Burswood Park

Wayfinding

Informs users of their surroundings in the built environment and guides them to key destinations.

CoSP	ToVP
Undertake a joint cycling wayfinding strategy to provide a consistent approach over the council areas. The strategy should consider DoT guidance.	
Key destinations for wayfinding include:	
<ul style="list-style-type: none"> • Rail stations • Curtin University • Perth Zoo • Mends Street Precinct • Preston Street Precinct 	<ul style="list-style-type: none"> • Manning Hub • Albany Highway Commercial Precinct • Perth Stadium • Crown Perth
Locations to intersecting cycle routes, road names, and bike parking facilities should also be incorporated.	

Innovative Solutions to Improve Cycling Priority

Exploring opportunities for creative solutions to increase cycling priority should be encouraged, particularly within challenging areas.

CoSP	ToVP
<p>Mends Street Precinct and Foreshore</p> <ul style="list-style-type: none"> • As part of the Connect South Project, support the introduction of a 'shared space' along the high activity area of Mends Street. The shared space concept involves reducing the posted speed limit to 30km/h and integrating all road users to provide pedestrians and cyclists with movement priority. 	<p>Kent Street/Albany Highway/Miller Street Intersection</p> <ul style="list-style-type: none"> • Investigate modifications to improve safe access for cyclists and reduce vehicle speeds. This will require consultation with the PTA in order to consider bus movements. <p>Hayman Road/Curtin University Main Street Intersection</p> <ul style="list-style-type: none"> • Investigate reconfiguration of the signal phasing to allow the pedestrian/cyclist signal phase to remain green until left and right turning vehicles trigger the loop detectors. This will require consultation with Main Roads.

Awareness Campaigns

Help encourage consideration amongst all users of the transport network. Examples of potential campaigns that could be considered by each council include:

- Positive encouragement pavement markings and signage. An example is the 'Take Care' pavement markings along shared paths within the City of Perth.
- Advertisement methods such as area-wide publicity campaigns. An example is the 'Share our Roads' campaign from the Road Safety Commission (RSC).

E-Bike Salary Sacrifice

E-bike salary sacrificing has recently been ruled in favour of by the ATO and as a result, there are leasing and financing companies that provide e-bike packages.

E-bikes are gaining in popularity and could help encourage people to cycle because they do not require as much physical energy to operate compared to traditional bikes and e-bikes allow a longer distance of travel for the equivalent amount of energy expenditure.

CoSP	ToVP
Offer an e-bike salary sacrifice service to City staff and promote to other organisations to offer the same service.	

Infrastructure



Behaviour Change



Supplementary Bike Initiatives

Trial Projects



Recreational Facilities



Kids Skills Track

Encourages youth to cycle and develop their skills in a safe environment.

It is proposed the existing cycle track at George Burnett Park is upgraded to include a revitalised skills track, consisting of asphalt path circuits with pavement markings and signage simulating an urban traffic environment.

The track should be supported by improved nearby cycle infrastructure connections.



Pump Track

Encourages people of all ages to cycle for recreational use.

It is proposed that a pump track is installed within George Burnett Park to complement the kids skills track. The track could consist of circular loops with smooth dirt mounds and berms that cyclists can ride around in a pumping motion.



Your Move

The Department of Transport's Your Move program supports communities, local governments, schools and workplaces to promote active transport and reduce congestion.



CoSP	ToVP
Each council should actively participate in the Your Move program, by utilising the tools available to promote active transport for council staff. Each council should also encourage other organisations within the community to participate.	
Investigate the establishment of an intensive project partnership with DoT, similar to the successfully run 'Your Move Central' program, by targeting local schools.	Investigate extending the intensive project partnership 'Your Move Central' to target schools and organisations that have yet to participate.

Events

Events encourage new cyclists to 'give it a try' and also consolidate travel behaviours for existing cyclists. It is recommended that both Councils:

- Continue to promote and participate in annual public events including Bike Week, Ride2Work Day and Ride2School Day.



Curtin University Bike Share Scheme

With the implementation of the Bike Plan recommendations, connectivity between Curtin University and Public Transport infrastructure will be enhanced. As such, there is an opportunity to establish a trial bike share scheme to complement the infrastructure projects.



CoSP	ToVP
Work with Curtin University to investigate establishing a bike share scheme	
<ul style="list-style-type: none"> • Potential docking stations in the vicinity of Canning Bridge Station, complementing the Davilak Street/Jackson Road bicycle link. 	<ul style="list-style-type: none"> • Potential docking stations at Victoria Park Station, Albany Highway and/or Carlisle Station, complementing the Kent Street/Miller Street bicycle link.

Cycle Volume and Speed Device

In addition to the installation of new permanent cycle counters, investigation should be undertaken into trial devices that indicate the following:

- Real-time number of cyclists and pedestrians using the path that day and year raising awareness and acknowledging the positive impacts. Potential locations could include the shared paths on the approach to the Narrows Bridge and Causeway.
- Real-time speed (similar to roadwork sites) and to 'slow down' if required. This can help promote behaviour change, encouraging cyclists to reduce speed in areas of high pedestrian and cyclist demand. Potential locations could include the shared paths at west of Mends Street and Burswood Park.



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- City of South Perth**
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- Appendix B – Detailed Infrastructure Audit Results (CoSP)**
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1 Introduction

1.1 Objective

The joint Bike Plan for the City of South Perth (CoSP) and Town of Victoria Park (ToVP) sets out an action plan for immediate improvements to the cycle network and environment, and a long term aspirational vision for the continued development and promotion of cycling within the CoSP and ToVP.

The joint Bike Plan has been part funded through the WA Bicycle Network Grants Program, which is administered by the Department of Transport (DoT), and is in line with State Government's Perth Transport Plan for 3.5 million.

Sections 3 to 9 focus on the CoSP local government area, while Sections 10 to 17 focus on the ToVP local government area. The following are the key objectives of the Plan:

- Evaluating cycling and associated infrastructure in the study area, considering cycling safety and the needs of all categories of cyclists regardless of their age, gender, experience or reason for cycling;
- Consulting with key stakeholders, including local and state government, and the local community regarding the future of cycling within the CoSP;
- Planning the expansion of the bicycle network to link key attractors and destinations including schools, public transport nodes and community priorities;
- Encouraging and promoting cycling; and
- Developing a five-year action plan with a prioritised schedule of works.

The desired outcome of this Plan is simple – to increase the number of people cycling. Specifically, the Plan aims to double the number of people cycling in the CoSP and ToVP over the next five years.

Increasing the number of trips undertaken by bike has proven economic, social and transport benefits. Particular emphasis on maximising shorter trips made by bikes is a key aspect to consider. A 5km to 10km ride to work will only take 15 to 30 minutes to complete on average, while peak-hour city trips up to 10km are generally faster by bike than any other form of transport, door to door.

Double the number of people cycling over the next five years

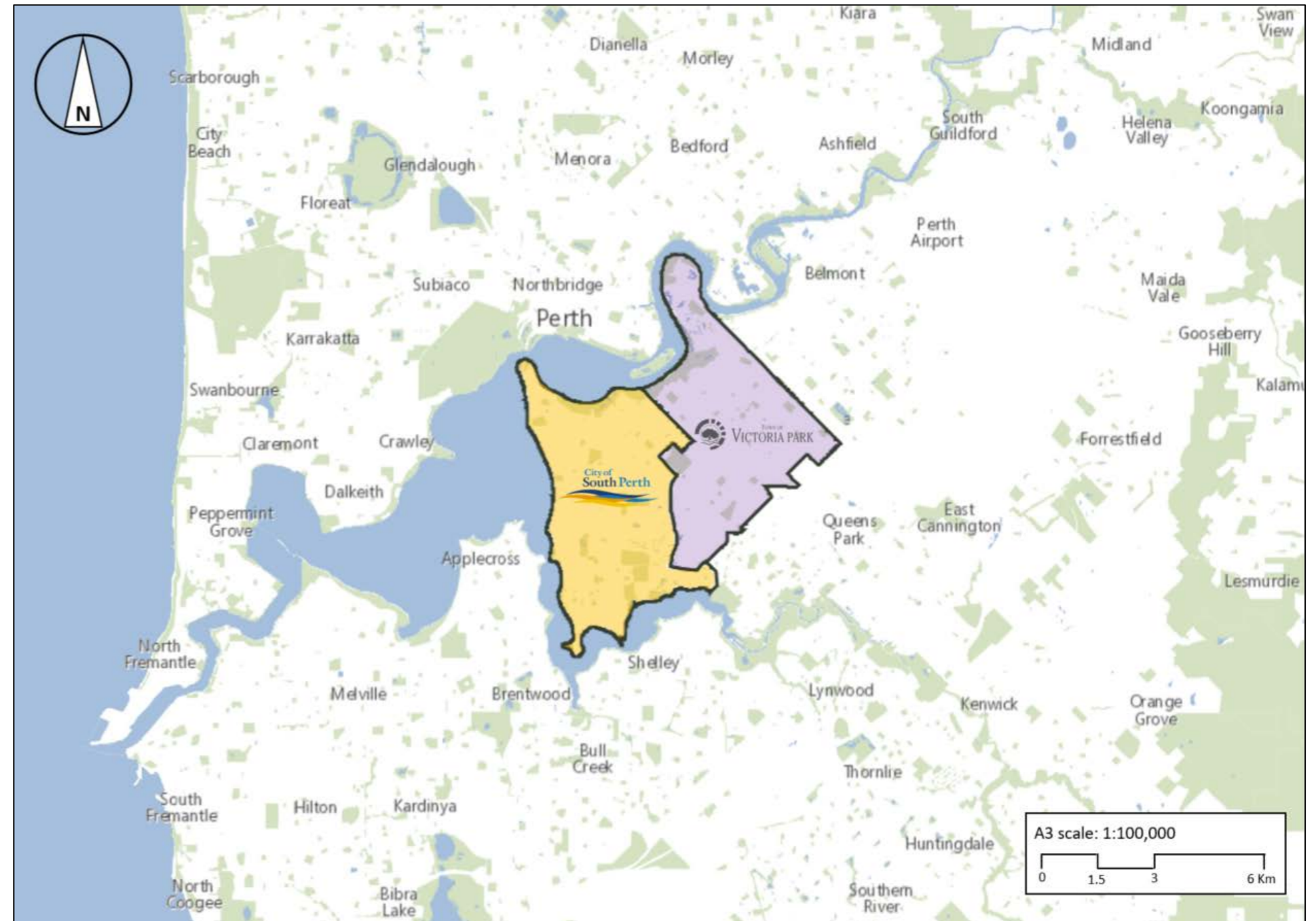


Figure 1-1: Locality map

1.2 Bicycle Users

There is a well-known planning concept of 880 cities, that if everything we do in our public spaces is great for an 8 year old and an 80 year old then it will be great for all people. The Plan aims to consider the 880 concept to allow for a safe and practical cycle network for all users.

“Step 1: Think of a child that you love and care for who is approximately 8 years of age. This could be a child, grandchild, sister, brother, cousin etc.

Step 2: Think of an adult, approximately 80 years of age who you love and care for. This could be a parent, grandparent, friend etc.

Step 3: Ask yourself: Would you send that 8 year old along with the 80 year old on a walk, or a bike ride on that infrastructure? If you would, then it is safe enough, if you would not, then it is not safe enough.”

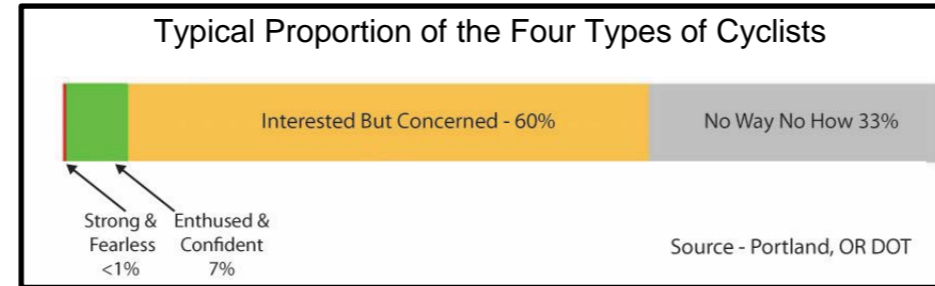


Cyclists can be separated into two main groups, those who cycle as a form of transport to reach a destination, and those who cycle for fitness and recreation.



There are generally considered to be four different attitudes towards cycling:

- ‘Strong and Fearless’ cyclists are people who will cycle regardless of roadway conditions;
- ‘Enthusied and Confident’ are comfortable sharing the roadway with general traffic but prefer to do so operating on their own facilities;
- ‘Interested but Concerned’ rarely cycle but would if they felt safer on the roadways with less and slower cars; and
- ‘No Way No How’ who are currently not interested in bicycling at all, for reasons of topography, inability, or complete lack of interest.



Source - Portland Office of Transportation

1.3 Bicycle Infrastructure

A variety of infrastructure is available for use by cyclists, as listed below. The minimum requirements for each type of infrastructure is also described:

■ Footpaths

- Provide limited priority for cyclists, however can legally be ridden by cyclists; and
- Generally concrete, narrow (1.5m to 1.8m) with no signage or line marking.

■ Shared Paths

- Provide direct connections between primary routes and major trip generators such as shopping centres, industrial areas, major health and educational institutions, sporting and civic facilities;
- Typically located on corridors situated within urban or built-up environments;
- Typically vary in width from 2.5m to 3.0m;
- Pavement surface can be concrete or asphalt (black or red);
- Requires signage and pavement markings, and line markings; and
- There are no official speed limits for cyclists by law on shared paths, however speed limits can be set by local governments.



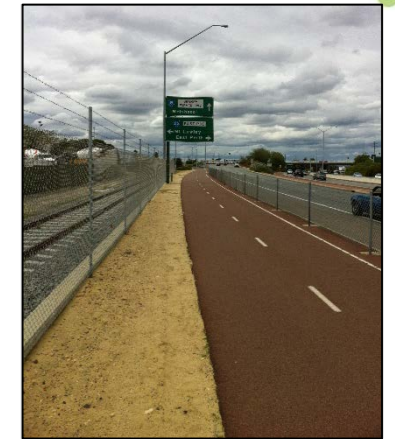
■ Separated Cycle Path

- Typically located in areas of significant cycling and pedestrian demand; and
- Similar purpose and design to a shared path, although signage and pavement markings indicate that the path is restricted to cyclist use only.



■ Principle Shared Paths

- Conducive to medium and long distance commuting, recreational and tourism trips;
- Typically take the form of high quality shared paths and run alongside major roads and rail corridors, parallel to river and ocean foreshores;
- In areas of high pedestrian activity, consideration should be given to separating cyclists and pedestrians;
- Grade separation is preferred at major intersecting roads/railways to avoid interruptions to cyclists;
- Generally owned and controlled by Main Roads WA; and
- Consist of red asphalt, 3.0m to 3.5m width, signage and pavement markings and line markings.



■ On-Road Cycle Lanes

- Similar to shared paths, cycle lanes provide direct connections between primary routes and major trip generators;
 - Cycle lanes are located on-road on the outer edge of each direction of general traffic lane;
 - Typically vary in width between 1.2 – 1.5m;
 - Red coloured surface treatment along the cycle lanes helps indicate priority to cyclists;
 - Green coloured surface treatments are used to help indicate priority to cyclists at intersections. This should be used sparingly to maintain its effectiveness;
 - DoT guidance indicates the requirement for some form of separation/protection by ‘soft’ measures such as painted hatching, plastic kerbing or armadillos which is necessary to provide high quality; and
 - Vertical signage and bicycle symbol pavement markings are required.
- Safe Active Street (previously known as ‘Bicycle Boulevard’)
- Typically form part of the local route network, which connects traffic from local roads within towns and suburbs and distribute it to the primary and secondary networks;
 - Safe active streets are constructed along low traffic and slow speed roads;



- Adopt 'self-explaining street' and 'filtered permeability' urban design principals;
- Typically involve a speed reduction to 30km/h, chicanes at regular intervals to slow vehicles, formalised parking bays, signage and pavement markings indicating an on-road environment shared by pedestrians, cyclists and vehicles; and
- DoT is currently in process of developing typical standards. There is the potential to integrate the design principles of Safe Active Streets into standard local area traffic management works.



1.3.1 Engineering Guidance

A range of best practice guidance is available for the selection of suitable cycle infrastructure which considers the environment and situation and desired user types.

Austrroads – Cycling Aspects of Austrroads Guides (2017 Edition)

Austrroads provides recommendations for proposed on-road infrastructure relative to the volume and speed of vehicles along the road (see Figure 1-2).

This guide recommends that a shared environment is suitable with low volumes and speeds, cycle lanes are suitable for medium to high volumes relative to speeds ranging from 30 to 60km/h, and physical segregation is required for remaining scenarios.

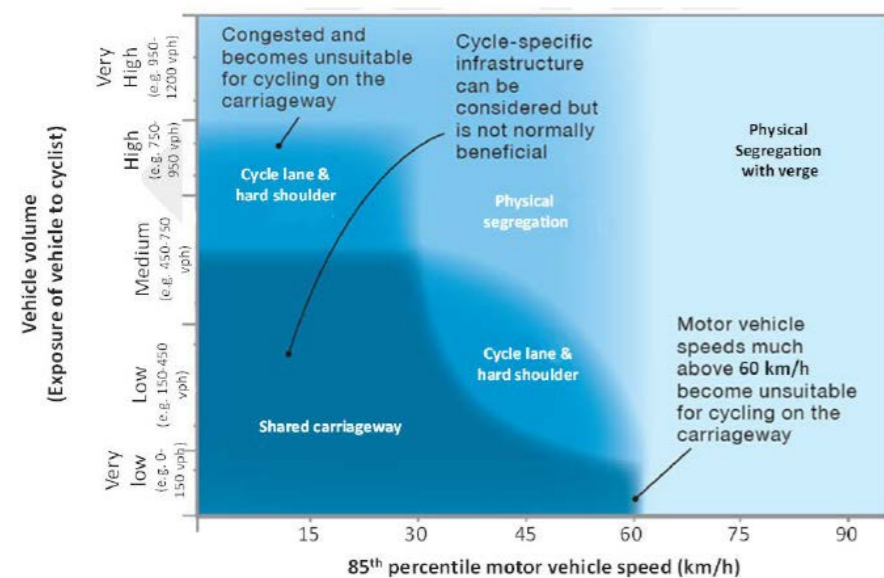


Figure 1-2: Recommended traffic volume/speed thresholds and cycle infrastructure (Source: Austrroads)

Austrroads also provides recommendations for proposed off-road infrastructure relative to the volume of pedestrians and cyclists along a bicycle path (see Figure 1-3).

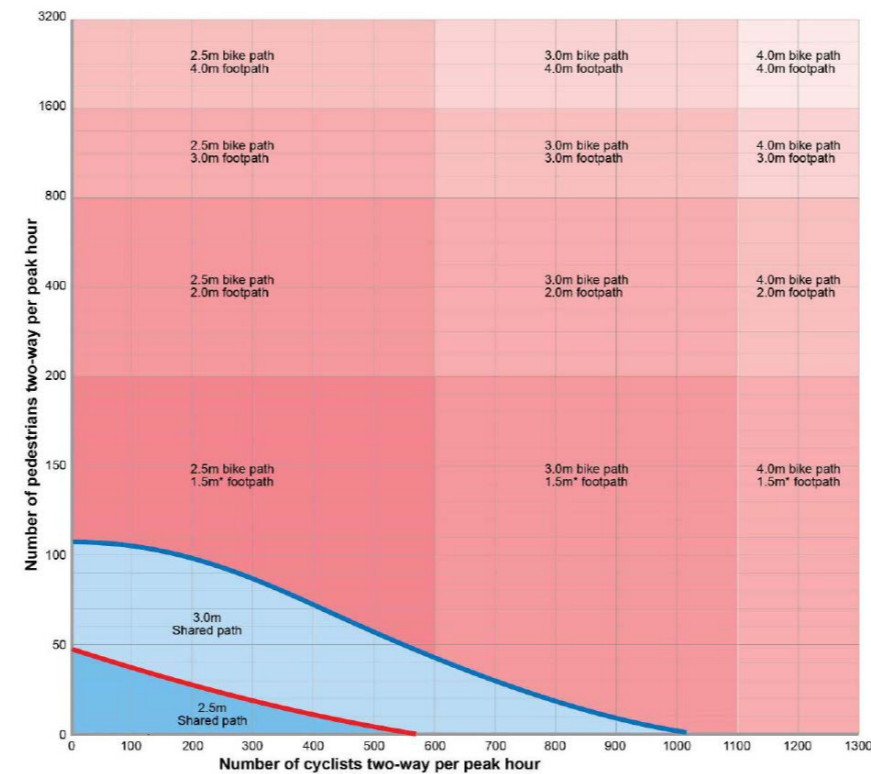


Figure 1-3: Recommended pedestrian/cyclist thresholds and cycle infrastructure for 50/50 directional split (Source: Austrroads)

In general, the types of infrastructure preferred by various types of cyclists for different ride purposes are shown in Figure 1-4.

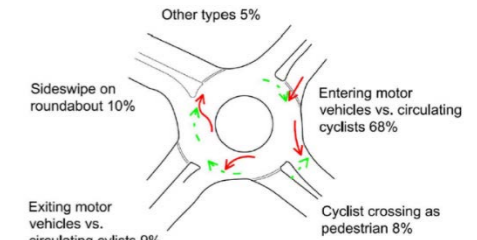


Figure 1-4: Preferred infrastructure for user types

Draft Main Roads Cycling Guidelines for Western Australia for Local Area Traffic Management (LATM) (November 2016)

The draft guidelines outline various traffic engineering measures to enhance cyclist safety at LATM devices. This guidance should be considered for all traffic management works across the local street environment in order to reduce any discouragement towards cycling due to inappropriate selection of traffic calming treatments.

Roundabouts are often safer than other types of intersections, although they may not be as safe for cyclists as other road users. The majority of crashes for cyclists at roundabouts occur when vehicles fail to give way to circulating cyclists (see Figure 1-5). Multi-lane roundabouts present even greater challenges for cyclists.



If a roundabout is to be located along a cycle route, the following treatments should be applied:

- On-road circulation: Cyclists are encouraged to 'claim the lane' and negotiate the roundabout in the centre of the circulatory carriageway. Bicycle pavement markings at the centre of the approach lanes can be used to highlight to motorists that cyclists are circulating; and
- Off-road navigation: Cyclists are encouraged to negotiate the roundabout without entering the circulatory carriageway. Smooth transition paths at the approaches should be used to connect bike lanes to off-road paths and crossing points should be provided on the arms of the roundabout. Bypass paths should consider pedestrians and mobility aid scooters.

On-road circulation is more common for confident cyclists, although off-road navigation is considered safer and preferred by non-confident cyclists. Vehicle speed is major a contributor to safety concerns for cyclists at roundabouts. As a result, a number of speed reductions techniques can be used, including:

- Vertical deflection devices at approach arms, potentially in the form of wombat (raised zebra) crossings;
- Horizontal deflection devices at approaches (which may include semi-mountable aprons for heavy vehicles). These are generally preferred to vertical deflections if they do not create a squeeze point for cyclists;
- Tighter approach radii; and
- Consideration of radial (rather than tangential) roundabout design philosophy.

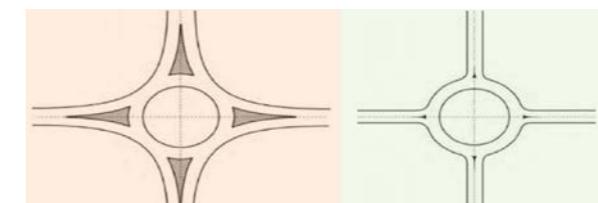


Figure 1-6: Tangential roundabout design (left, poor for cyclists) compared to radial design (right, better for cyclists) (source: Main Roads)

A range of alternative treatments are also available such as grade separation and cyclist priority at crossings.

1.4 The Future of Cycling

In a rapidly changing transport environment, how will cycling fit into everyday travel behaviour in the next 30 years? With advanced technologies, such as autonomous vehicles, set to become commercially available in the near future, what cycling infrastructure is needed now to future proof and integrate with these technologies?

Data Monitoring

Technology advances have resulted in the development of software which enables piezoelectric strips to record bike volume, speed, direction, separation, and clusters, along with pedestrian volumes. This means that both cyclist and pedestrian usage can be calculated and analysed to get an accurate representation of the volumes of people that use an area at any specific time. This advancement can greatly assist in the planning of future pedestrian and cycling related infrastructure and investment.

Other cyclist-pedestrian counters, such as the Eco-DISPLAY, have been installed in various locations across the globe, each giving the public a visual display of path user numbers.



(source: <https://www.eco-compteur.com/en/>)

E-Bikes

With the increasing cyclist numbers over recent years, global cycling technology and developments have prospered beyond the wildest of expectations. The e-bike revolution, bike sharing schemes and safer street designs now make it easier, more affordable and safer for people to pedal their way around their city. An electronic bike, commonly referred to as an e-bike, is a form of assisted cycling, whereby a battery power source supplements the effort needed to get from A to B. Global e-bike sales have increased exponentially over the past few years and with the trend expected to continue, will see some 35 million sold this year alone. With this increase in popularity, many Europeans are expected to adopt e-bikes as a legitimate form of transport, allowing them to go further than before and with much less effort.



International Best Practise

For decades, the Dutch have been at the forefront of cycling culture and infrastructure. A cycling oriented mentality, coupled with innovative design, provides substantiating evidence to support the fact that Dutch people cycle, on average, 2.9 kilometres per day. To cater for these bicycles, the Utrecht municipality will soon complete the construction of the worlds largest bicycle parking facility. The 12,500 strong facility will greatly contribute to the regions parking facilities, increasing it to a total of 33,000.

Another addition to the Dutch cycling network is the Hovenring, a 72 meter diameter elevated roundabout (solely for cyclists) that facilitates the navigation of a busy intersection. A similar design was also previously implemented in Norway, with this structure separating cyclists from some 40,000 vehicles per day.



(source: <http://ipvdelft.com/portfolio-item/hovenring/>)

Countries around the world, including India and Iceland have installed creative 3-dimensional zebra crossings to help slow vehicles down in areas of high pedestrian activity. The idea came about as an alternative to speed humps which were not preferred by local authorities.



(source: <http://icelandreview.com>)

Smartphone Applications

The invention of the smartphone has revolutionised our way of life. They connect us to the world, can remind us to do things and with the help of applications (or 'apps') can help cyclists navigate the intricate network of cycle paths all over the globe. The map app, that is factory installed onto most smartphones, does well at navigating any street network. However, increased traffic volume along with restrictions on cycling activities, can make some roads dangerous and even illegal to cycle on.

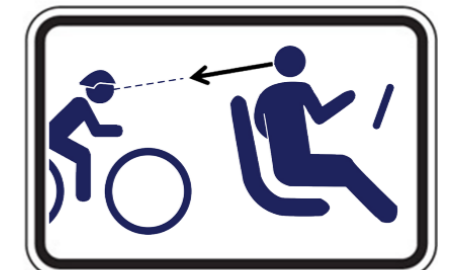
A number of Cycling GPS apps currently exist on the smartphone market, such as:

- *Ride with GPS* was released in 2007 and enables users to enter a destination, be navigated to that destination and track their ride whilst simultaneously being provided with their ride statistics and metrics. Available on both Apple and Android devices, the app has a focus on 'sharing' our ride with your network – from geotagged photos to outside software compatibility.
- *Bike Citizens* has over 450 downloadable city maps, which can find the best way to get from A to B. This app can be customised to suit the cyclist's confidence level as well as their level of urgency to get to their destination – planning a route to cater for their individual needs. Turn-by-turn navigation can easily guide the cyclist on a range of roads and bike paths, sharing their journey with the wider community. The collective data can be used by local planning authorities to make cycling schemes in urban areas easier to plan.



Apps, such as those mentioned above, represent the future of recreational and social cycling. With the rapid development of technology, resulting in increased mobile phone battery life, the useability and application of GPS apps will continue to grow into the future.

All the above initiatives aim to make cycling more enjoyable and ultimately a safer form of transportation. There are also non-infrastructure means of increasing cyclist safety. Simple spatial awareness by employing such methods as the 'Dutch reach' (<https://www.dutchreach.org/>) to open your car door, makes it safer for cyclists and the public. Many local governments have begun to recognise the benefits that cycling can provide – a better lifestyle, enhanced sense of community and reduced traffic congestion to name a few.



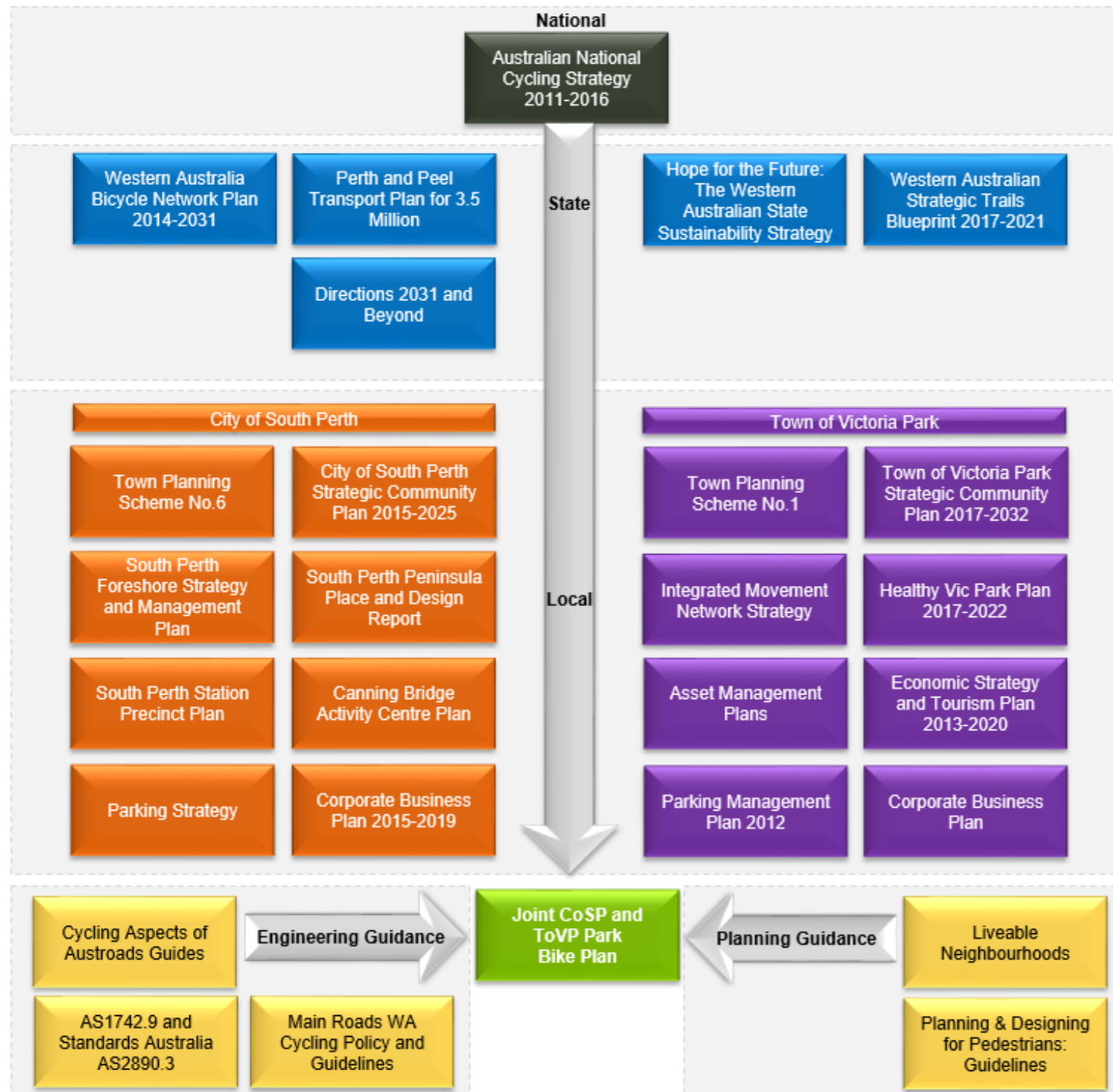
[DutchReach.org](https://www.dutchreach.org/)

NEW ZEALAND BICYCLING COALITION

Increased levels of investment, along with the adoption of a cycling mentality, mean that the future of cycling in Australia looks promising. Governments and councils all over Australia are working with the community to better plan, prioritise and deliver better connected cycling infrastructure to increase the percentage of cyclists nationally.

2 Policy and Strategic Context

A range of national, state and local policies and strategies are applicable to the preparation of the Plan. The relationship between the policies and strategies for both the CoSP and ToVP and how they pertain to each other and the Plan is diagrammatically represented in Figure 2-1. This section describes how each of these influences the Plan in more detail.



2.1 National

On a national level the policy documents intend to promote a standardised level of planning for various levels of government.

2.1.1 Australian National Cycling Strategy, 2011-2016 (Australian Bicycle Council)

The Australian National Cycling Strategy (NCS) set out a series of actions intended to deliver the overarching vision to double the number of people cycling in Australia over the five year period of the strategy. The NCS focused on areas considered critical to maintaining momentum regarding cycling, whilst aiming to ensure that all local planning and transport plans are fully integrated and address the needs of cycling.

Following a review of the NCS in 2017, it was reinforced that increased walking and cycling is in the national interest whilst identifying that a fresh approach to national cycling and walking coordination is required. As a result, it was decided that there is no immediate need for a new national cycling or walking strategy in the short term. The Australian Bicycle Council (ABC) is proposed to be reformed into the *Cycling and Walking Australian/New Zealand* (CWANZ) group which is expected to be established by May 2018. CWANZ will be responsible for the national coordination of action on cycling, whilst focusing on a small number of strategic actions that aim to deliver outcomes that are in the national interest and that cannot be delivered effectively by jurisdictions working alone. It is also intended that the scope is expanded to include walking.

On a national level, the following objectives will be a key focus for CWANZ:

- **Cycling and Walking as an integral element of liveable, healthy and productive communities;**
- **Increased investment in cycling and walking from all levels of government;**
- **Applied innovation and learning; and**
- **National consistency and harmonisation.**

The implementation of the joint Bike Plan supports the goal of the NCS in doubling cycling mode share and incorporates a series of actions to create a comprehensive network of safe and attractive cycling routes.

2.2 Western Australia

2.2.1 Directions 2031 and Beyond (Department of Planning, WA Planning Commission, 2010)

Directions 2031 recognises the importance of walking and cycling as not only the most sustainable form of transport, but also a major contributor to the health of our communities and for the contribution it can make to the overall travel picture as other parts of the movement network become more heavily congested. The framework also encourages a long-term approach to the provision of infrastructure in an economically sustainable way.

The following outlines the key messages that guide the way forward in terms of bike planning:

- Encourage increased opportunities, and a shift to more sustainable transport modes including cycling;
- Activity centres that are integrated with and encourage the efficient operation of the transport network, including the promotion of cycling;
- Encourage local government to institute public open space strategies to encourage cycling as part of the overall community health picture; and
- Finalising the review of and subsequently implementing the Perth bicycle network to build upon the current cycling infrastructure and policy development to support state and local government initiatives to increase cycling activity.

2.2.2 Western Australian Bicycle Network Plan (DoT, 2014-2031)

The Western Australian Bicycle Network Plan (WABN) is part of the DoT Integrated Transport Framework and Moving People ideology. The WABN Plan aims to leave a lasting legacy for cyclists and potential cyclists. The WABN Plan replaces the Perth Bicycle Network as the strategic level of planning for WA and Perth.

The WABN Plan is focussed on achieving several strategic initiatives to provide a safe and sustainable cycling network to ultimately promote and encourage cycling as a mode of transport. The key recommendations of the WABN Plan include:

- Expansion of the PSP network;
- A feasibility study for an end-of-trip facility in the CBD;
- A connections to schools program;
- A connections to rail/major bus stations program;
- Review of traffic management on local roads;
- Review of the local bicycle routes;
- Development of an online journey planner;
- Planning for cycling facilities in larger regional cities;
- Formulation of a WABN Implementation Reference Group; and
- Biennial review of the Plan.

A clear theme throughout the plan is that Perth has significant potential for increased cycling should infrastructure be provided and current attitudes be contested.

2.2.3 Perth and Peel Transport Plan for 3.5 Million (WA Department of Transport, 2017)

The Perth and Peel Transport Plan (PTP) establishes the transport infrastructure that is needed in the long term to ensure Perth remains one of the most liveable cities in the world. The PTP presents several infrastructure projects with reference to population-based timelines of 2.7 million, 3.5 million and beyond 3.5 million in the Perth and Peel region. The following key objectives of the PTP relate to cycling:

- The need for Perth to have a transport network that optimises use of the existing network as it grows;

- The need for integration of land use across the public transport, active transport and road networks; and
- Provision for a safe, connected active transport network of primarily off-road cycleways and walkways.

The PTP aims to deliver the following outcomes, related to cycling:

- Increase cycling and walking to 18 per cent of all day trips;
- Reduce the mode share of car driver trips to 50 per cent of all-day trips, and to 29 per cent of peak period trips to the CBD.

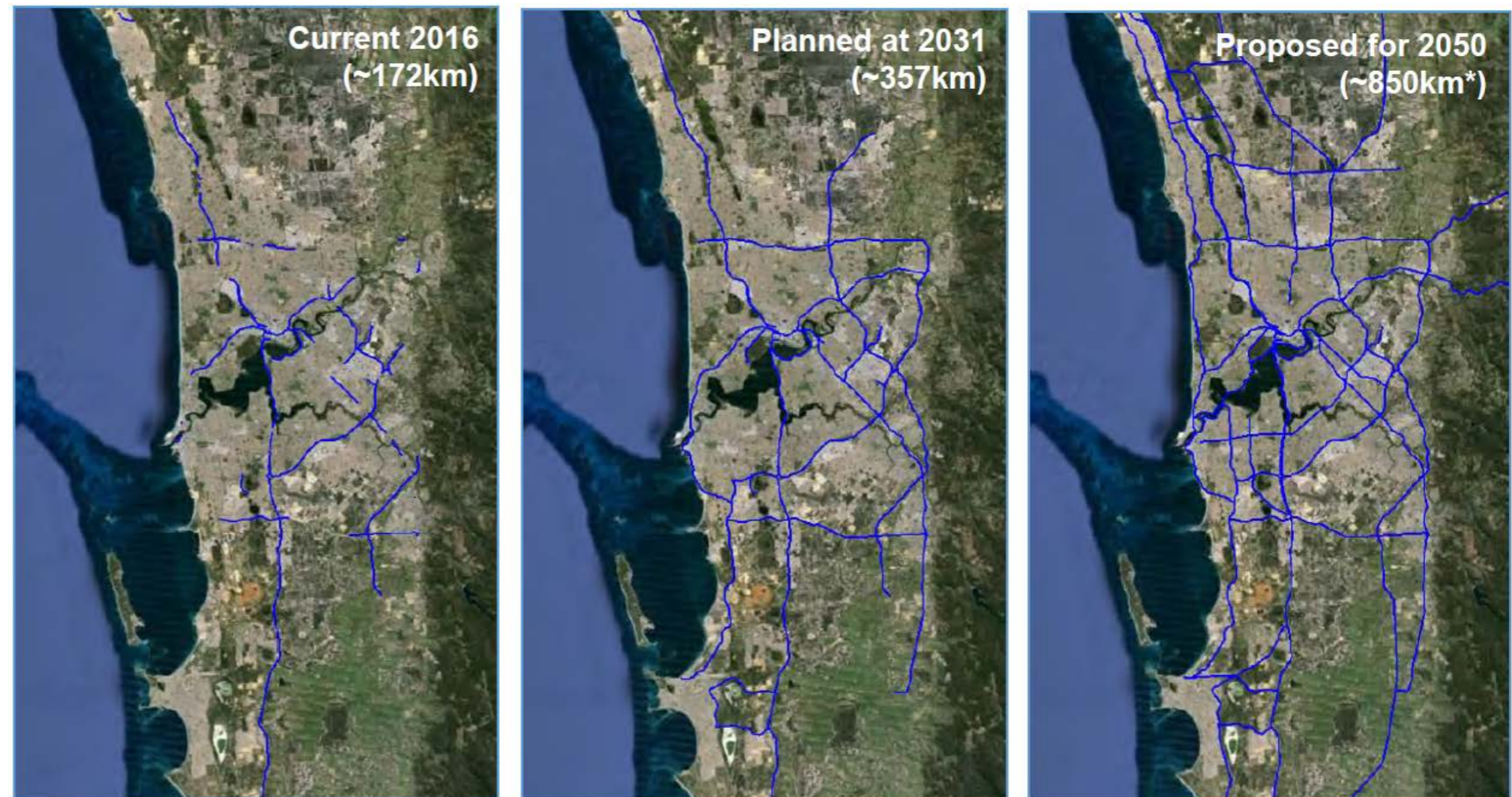
The PTP identifies that Perth light rail will create an important connection with Canning Bridge, Curtin University, Victoria Park, Perth CBD and the Queen Elizabeth II (QEII)/ University of Western Australia (UWA) precinct. The PTP also identifies a number of 'Green Bridges' which aim to improve travel times and connectivity for cyclists and pedestrians across rivers and lakes. In particular, the Heirisson Island Bridge is proposed to be built by the time Perth reaches a population of 2.7 million, intended to replace the existing off-road shared path on the Causeway (intended to be reconfigured to accommodate light rail). Additionally, the current 172 km of off-road commuter and recreational cycleways is proposed to be extended to approximately 850 km, with 185 km added by the time the Perth population reaches 2.7 million, and 500 km by 3.5 million.

2.2.4 Hope for the Future: The Western Australian State Sustainability Strategy (Government of WA, 2003)

This strategy was developed by the State Government in 2003 and establishes illustrative actions for sustainability in Western Australia, recognising that overcoming car dependence is fundamental to sustainability in cities. One chapter of the strategy focuses on "Sustainability and Settlements," with a priority area identified as "integrating land use and balanced transport." An objective of this item was to "achieve a more sustainable balance between car use and other transport options through the promotion and provision of efficient and effective public transport and non-motorised personal transport alternatives."

2.2.5 Western Australian Strategic Trails Blueprint 2017-2021

This is an overarching guide for consistent and coordinated planning, development and management of quality trails and trail experiences across Western Australia. It provides a vision, guiding principles, strategic directions and actions for consideration across the State for government, trail managers, landholders, trail support groups, tourism operators and the community. Some cycle paths used for recreational use in Perth are part of the trails portfolio, which are in close proximity to CoSP and ToVP.



2.3 Local Government

City of South Perth

2.3.1 Town Planning Scheme No.6

The CoSP's *Town Planning Scheme No.6* outlines how land is to be used and developed within the city. It classifies areas for land use and includes provisions to coordinate infrastructure and development within the local government area. The overriding objective of the Town Planning Scheme is to require and encourage performance-based development in each of the 15 precincts of the City in a manner which retains and enhances the attributes of the City and recognises individual precinct objectives and desired future character as specified in the Precinct Plan for each precinct.

Bicycle parking requirements for various land uses, are outlined in the scheme in addition to provisions of end-of-trip facilities for staff. The South Perth Station Precinct and Canning Bridge Activity Centre each have specific bicycle parking and end-of-trip facility requirements.

2.3.2 Parking Strategy (2015)

The Parking Strategy provides a strategic citywide parking framework for the short, medium and longer terms and identifies a comprehensive action plan to assist in the future preparation of Parking Control Areas (PCA) plans. The strategy supports and encourages different forms of sustainable transport. It recommends investing funding from parking into sustainable transport initiatives such as cycle paths and other cycling support facilities.

2.3.3 Canning Bridge Activity Centre Plan (2016)

This Canning Bridge Activity Centre Plan (CBACP) has been prepared to provide a guide to development of the CBACP area. It is proposed that the CBACP area will comprise of a mix of residential, civic, office, retail and entertainment uses against the backdrop of the Swan and Canning Rivers and the adjacent open space. The CBACP establishes a foundation for the future of the area including objectives and goals for its ongoing development, guidelines for the style of built form which is expected, and an implementation framework for orderly improvements to infrastructure and land over time. The future cycle network is detailed, outlining the proposed infrastructure and the potential conflict points. Provisions for end of trip facilities are also outlined for new developments.

As part of the proposed public transport interchange, which includes rail, bus and ferry services, consideration for priority cycle access and parking is required, with a focus on maximising convenience and safety.

2.3.4 South Perth Station Place and Design Report (2017)

The report sets the vision and direction of the South Perth Peninsula area, with one of the key goals to improve movement and connectivity. A modal shift from private vehicles is emphasised as part of this goal and hence strategies for improving the cycling network are proposed. One of the key recommendations is for the development of an Integrated Transport Plan.

2.3.5 South Perth Station Precinct Plan (2011)

The South Perth Station Precinct Plan guides development in the precinct surrounding the planned South Perth railway station on the Perth/Mandurah line. A number of cycling links throughout the precinct are to be enhanced to be safer and more attractive for use.

2.3.6 South Perth School Bicycle Infrastructure Audit (2014)

The South Perth School Bicycle Infrastructure Audit assesses bicycle infrastructure surrounding four primary schools; Collier, Como, Kensington and South Perth. A prioritised work schedule was developed for each school with a focus on addressing safety issues.

2.3.7 City of South Perth Strategic Community Plan 2015-2025 (2015)

The Strategic Community Plan 2015-2025 is the overarching plan to guide the Council over the next 10 years and has a long-term focus and emphasis on the community's aspirations, priorities and vision for the future. Infrastructure and Transport is a key emergent theme from the plan that prioritises a safe transport network that is cycle friendly.

The Plan details that sustainability is at the core of the community's expectations and underpins the City's Integrated Planning and Reporting Framework. The current Sustainability Strategy 2012-2015 is due to be updated in 2017-18 to further align with this.

2.3.8 South Perth Foreshore Strategy and Management Plan (2015)

The South Perth Foreshore Strategy and Management Plan (The SPF Plan) guides the management of the foreshore into the future, balancing the competing demands for use. Strategies and priorities for the SPF are outlined, to guide the long-term plan to revitalise the foreshore and adjacent commercial and tourist precincts. As such, the SPF Plan outlines four area-wide strategies and 10 prioritised site specific nodes that require revitalisation. Transport and access is one of the four area-wide strategies and Mends Street is identified as the highest priority node. The Mends Street project forms the basis of the 'Connect South' project which will include a \$7.5 million upgrade by 2020, including upgrades to several roads in the precinct.

2.3.9 National Cycling Participation Survey (2017)

The National Cycling Participation Survey (NCPS) is a standardised survey that is repeated biennially to estimate the participation for each state and territory. This report aims to complement this by collecting data from a sample within South Perth to better analyse participation within the local government.

Overall, participation in CoSP is higher than average for Perth and Western Australia, with approximately 10,200 South Perth residents cycling in a typical week. The highest cycling participation rate for CoSP was among children aged under 10 which was considerably higher than Perth. Recreational use for cycling was higher than for transport. Commuting was the highest purpose for cycling as a form transport (compared to education, public transport, shopping, visiting people). Perceptions were also

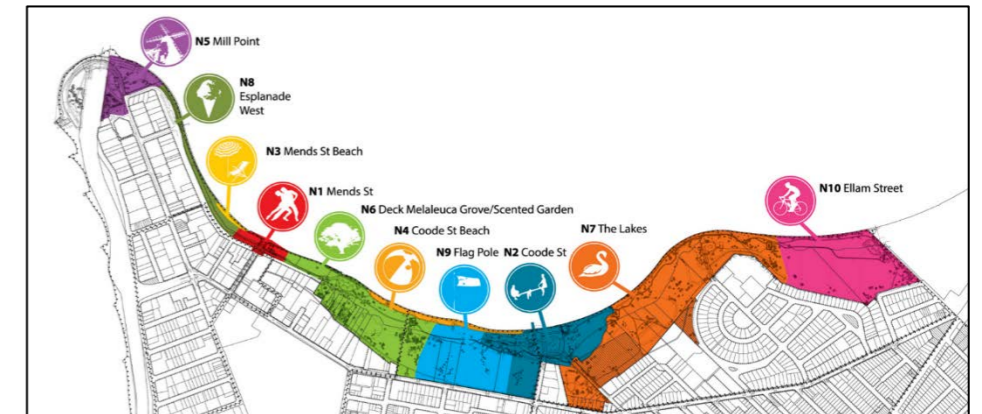
measured, which showed that overall, most CoSP residents either feel comfortable or very comfortable about riding in the area.

2.3.10 Major Developments

Connect South Project

Connect South is a major project to enhance and invigorate the Mends Street precinct and foreshore area. The precinct was identified as the highest priority of ten node strategies in the South Perth Foreshore Strategy and Management Plan

Connect South will deliver a piazza on the foreshore as well as streetscape and amenity improvements, landscaping upgrades and place activation activities. A key strategy for the entire foreshore, as indicated in the South Perth Foreshore Strategy and Management Plan, is to identify transport considerations aimed to reduce car use and conflict between modes of transport, and investigate multimodal transport options. Cycling is a major area of consideration for Connect South and must also be integrated with any future plans for upgrades along the South Perth Esplanade.



Clontarf-Waterford-Salter Point Foreshore Area

The City is developing a masterplan for the section of foreshore from Clontarf through to Waterford and Salter Point. The Masterplan will provide a consolidated management strategy recognising the ecological, cultural and recreational values of the area. The Joint Bike Plan identifies the entire foreshore path as a long term cycle route within the City of South Perth, including a potential future cycling connection to the principal route along the Kwinana Freeway. It is proposed that cycle infrastructure is investigated to be provided along the full length of the foreshore to provide consistency and legibility and to capitalise on the beautiful scenery that is offered and encourage increased cycling in the community. The Plan aims to acknowledge a future cycling connection to the Mt Henry Bridge as a long term aspiration and one that will require significant further investigation and community consultation. An alternative route connecting to the Kwinana Freeway will need to be considered as part of this investigation.

Town of Victoria Park

2.3.11 Town Planning Scheme No.1 and Local Planning Policies

The Town of Victoria Park's *Town Planning Scheme No.1* is the instrument for controlling and guiding development and growth within the ToVP.

A key objective of the scheme includes catering for the diversity of demands, interests and lifestyles, where this Plan plays a key role. The scheme also aims to protect and enhance the health, safety and general welfare of the Town's inhabitants and the social, physical and culture environment of the Town, all of which are strengthened by the implementation of this Plan.

Precinct Plans

Each precinct within the ToVP is detailed for its intent based on what is seen to be appropriate for the precinct. Information is provided about the purposes for which land may be used and guidelines for the development of land and buildings. Consistent among each precinct is the consideration of safe and accessible provision for pedestrians, cyclists and motorists. Council will require that new developments and redevelopment of existing facilities take into consideration pedestrian access and safety, and make appropriate provisions for cyclists.

Local Planning Policies

A number of local planning policies provide specific guidance to cycling facilities, including:

- **Design Guidelines for Burswood Lakes – Policy 9**
 - This policy outlines the design guidelines for the Burswood Lakes project.
- **Design Guidelines for Developments with Buildings above 3 Storeys – Policy 20**
 - These Design Guidelines set the planning and design framework for any development incorporating buildings above 3 storeys or 11.5 metres in height.
- **Development Standards for Causeway Precinct– Policy 22**
 - This policy outlines the standards for the Causeway Precinct and includes provisions for cycling.

2.3.12 Local Planning Policy 23 – Parking Policy

This Policy consolidates the Council's parking requirements, and outlines its approach to the provision of parking facilities for non-residential and residential uses in the Municipality. The policy addresses the impact of parking facilities on pedestrians and cyclists and aims for parking facilities to have safe, convenient and efficient vehicle and bicycle access for pedestrians, cyclists and motorists.

There are currently no detailed bicycle parking requirements for developments within the ToVP, however these are currently being developed for inclusion in the planning scheme.

2.3.13 Integrated Movement Network Strategy (IMNS)

The IMNS is a strategic document for the period up to 2031 and considers all modes of transport and the movement needs of all users, now and in the future. Key objectives and outcomes that form the IMNS include:

- Enhancement of the urban environment and amenity with greater emphasis on provision for bicycle and pedestrian paths and connections to, and interchange with, public transport;
- Improved access to employment, entertainment, medical, education and community facilities, while considering the needs of people with mobility, visual or hearing impairment;
- Reduced transport cost for the community by providing better public transport services, improving pedestrian and cycling facilities and enhancing permeability throughout the Town;
- Creation of a healthier and more accessible community through encouraging active travel such as cycling and walking; and
- Improved environmental conditions through less reliance on private motor vehicle transport.

The overarching strategy for cycling and walking is:

“Greater priority afforded to pedestrians and cyclists (particularly around Activity Centres); proactive identification of measures to improve universal access; greatly improved facilities and infrastructure through more prescriptive requirements in the Town Planning Scheme (TPS).”

2.3.14 Healthy Vic Park Plan 2017

The Public Health Act 2016 requires all local governments to develop a local Public Health Plan, which is currently being finalised for the Town. The goal of the plan is to provide opportunities for all residents and visitors to achieve and maintain good health and wellbeing.

From the community engagement process, the community rated 'infrastructure for walking and cycling' as the number two public health priority, following parks and public open spaces. The community rated 'physical inactivity/ low exercise levels' as the third most important health risk factor.



Figure 2-3: Results for the Community Survey (source: Draft Healthy Vic Park Plan)

The development and implementation of a bike plan is a key action of the Healthy Vic Park Plan. Additionally, the following actions are supported by the Bike Plan:

- Promote active transport methods for the community and schools;
- Develop and implement a Laneway Activation Strategy;
- Deliver and support programs and initiatives that encourage a physically active lifestyle;
- Delivery programs and initiatives that encourage the use of active transport including Your Move;
- Implement Crime Prevention Through Environmental Design (CPTED) principles in structure plans, local development plans and development assessment; and
- Promote and encourage premier public events in the local community.

2.3.15 Parking Management Plan 2012

The purpose of the Plan is to provide a framework for implementing parking management changes to address identified existing parking problems in Hotspot Areas. The techniques proposed include:

- Encouraging businesses to develop transport plans in support of recruitment and retention of staff by providing end of trip facilities for staff who walk, run or cycle;
- Implementing paid parking, with part of the revenue allocated to cycle infrastructure works; and
- Replacing some parking bays on streets with bicycle parking bays.

2.3.16 Asset Management Plans

The suite of Asset Management Plans (five in total) describe how the Town's assets will be managed over the next 15 years to a standard reflective of the community's desires and affordability. The community's desires were identified from the community consultation process, in which provision of alternative modes of transport such as bus, train, bikes and light rail was priority.

2.3.17 Economic Strategy & Tourism Plan 2013-2020

The *Economic Strategy & Tourism Plan* provides a strategic agenda to support the growth of the Town as one of Australia's most dynamic urban communities. Economic infrastructure development and productive precinct development are two of the core drivers of the economy identified, and are supported by the Plan. Relevant actions include:

- Ensuring there is suitable access for pedestrian, cycling and vehicles for neighbourhood shopping nodes; and
- Utilising the Town's facilities to hold major events such as those for cycling.

2.3.18 Other Plans

The joint Bike Plan supports the objectives of several other local planning documents, including:

Strategic Community Plan 2017-2032

The Strategic Community Plan is the principal strategy and planning document for the ToVP that reflects community long-term vision, values, aspirations and priorities with consideration to local government area/place/regional plans, local government strategies and resourcing.

One of the community's key priorities is creating a place that allows sustainable, safe and convenient transport options for all users, with this Plan directly attributing to this outcome.

Disability, Access and Inclusion Plan (DAIP) 2018-2023

The DAIP guides the ToVP in its intention to strive to provide and promote access and equity in service provision for all members of the community. All recommendations and design outcomes of this Plan must be aligned with the DAIP and consider universal access and design to ensure safe and convenient access for all members of the community. The development of the DAIP 2018-2023 is currently in progress.

Environmental Plan 2013-2018

The Environmental Plan is the main strategic document directing environmental management for the ToVP, focusing on several key objectives, including climate change adaption and greenhouse protection.

The ToVP was previously involved in the TravelSmart Cycling 100 initiative which supported the objective of the Environmental Plan in reducing greenhouse pollution. The initiative offered a free bike to staff who participated in the program which required riders to meet monthly cycling targets over a one-year period.

2.3.19 Major Developments

The following major development areas are proposed within the ToVP, which offer the opportunity to provide improved cycling facilities:

Taylor Reserve and McCallum Park

Taylor Reserve and McCallum Park is proposed to be redeveloped in line with the Town of Victoria Park's *2015 Foreshore Access and Management Plan*. The draft Concept Report (2017) details a variety of new high-quality spaces throughout the park with the intention to create a destination for the region, whilst maintaining the core function as an event space. Four precincts are proposed including a Parkland and Event Space, Beach and Activity Node, River Edge and Revegetation and Parking.

The existing separated cycle path along the foreshore is proposed to be realigned to the rear of the site and connected to the existing cycle paths on both sides of the park. This will provide cyclists with a direct route with minimal interruptions caused from other users of the park. The development of the concept is currently in progress.

Lathlain Precinct Redevelopment Project

The Lathlain Precinct Redevelopment Project (LPRP) involves the redevelopment and/or revitalisation of eight project zones within the Lathlain Precinct. The project is currently underway and is being delivered by the ToVP in partnership with the West Coast Eagles, the State Government, the Federal Government and the Perth Football Club.

The project involves the delivery of active community recreation space in addition to new headquarters for the West Coast Eagles football club.

The Lathlain Precinct will form a key recreational destination for the local community, and therefore cycle access needs to be considered.



2.4 Curtin University

Curtin University is one of Perth's major educational institutions and its Bentley Campus is located within ToVP, adjacent to CoSP. The campus is part of the Bentley-Curtin specialised activity centre, and is planned to transform into a high activity area open to the entire community. A high demand for cyclists travelling to Curtin University currently exists, which is expected to increase as the area develops.

The following planning documents and studies are relevant to the development of the Plan:

- The Greater Curtin Master Plan (2013) sets out Curtin University's vision for growth and how this can be achieved. Movement is an area of focus, with a cycle network proposed, with strong external connections;
- The Curtin University Cycling Access Management Plan Draft (2015) assesses the adequacy of existing cycle parking, end-of-trip facilities and cycle access routes at Curtin University and identifies a number of required improvements;
- The Draft Bentley-Curtin Specialised Activity Centre Structure Plan (2016) identifies the proposed cycle network in the form of on-road cycle

lanes, pedestrian and cycle shared paths, cycle friendly streets and shared space environments;

- The Integrated Transport and Movement Plan (2017) provides a framework for achieving the Greater Curtin Master Plan's vision for transport and movement. A cycle network capital works program is recommended to be undertaken to understand the amount of works required, and how it can be implemented; and
- The Draft Curtin University Students Staff Mapping Report (2016) identifies the combined population of current students and staff across the metropolitan area. The report identifies the following suburbs with the highest concentration of staff and students:
 - ToVP: Bentley and St James;
 - CoSP: Karawara, Waterford, Como, Manning and Salter Point;
 - City of Canning: Bentley, Wilson, Cannington, Queens Park and East Cannington; and
 - City of Gosnells: Kenwick and Beckenham.

As shown in Figure 2-4, most of these suburbs are located within eight kilometres of Curtin university, which indicates that cycling is a suitable method of travel for a large number of Curtin university staff and students.

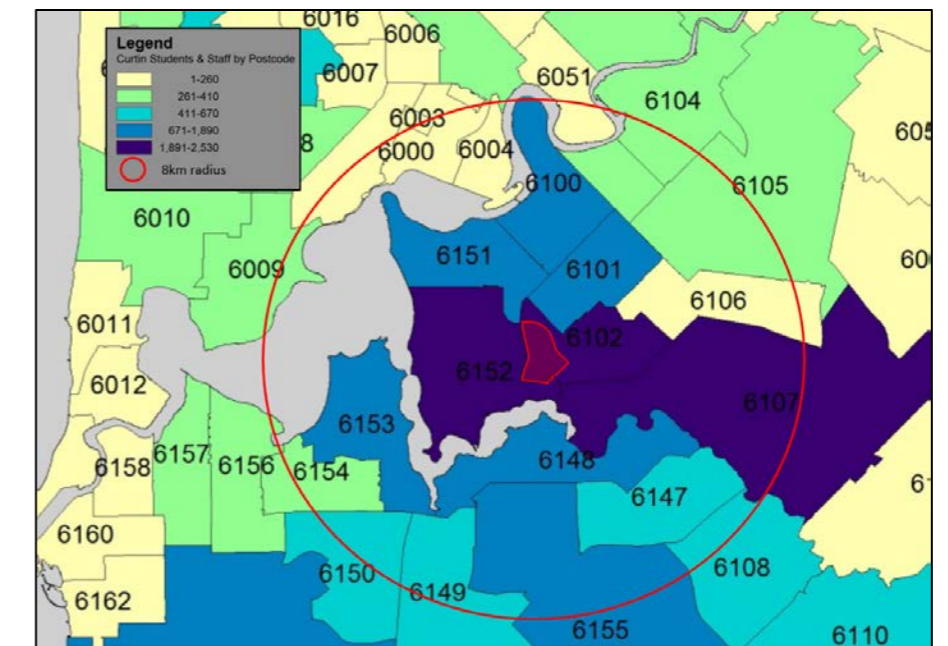


Figure 2-4: Curtin University Mapping

The future of universities and higher education is uncertain. The technological impact of robotics and artificial intelligence on professional careers could change the way universities function in the future, and ultimately change the way people interact and travel to Curtin University. The CoSP and ToVP should keep in close consultation with Curtin University as technologies continue to develop.



City of
South Perth

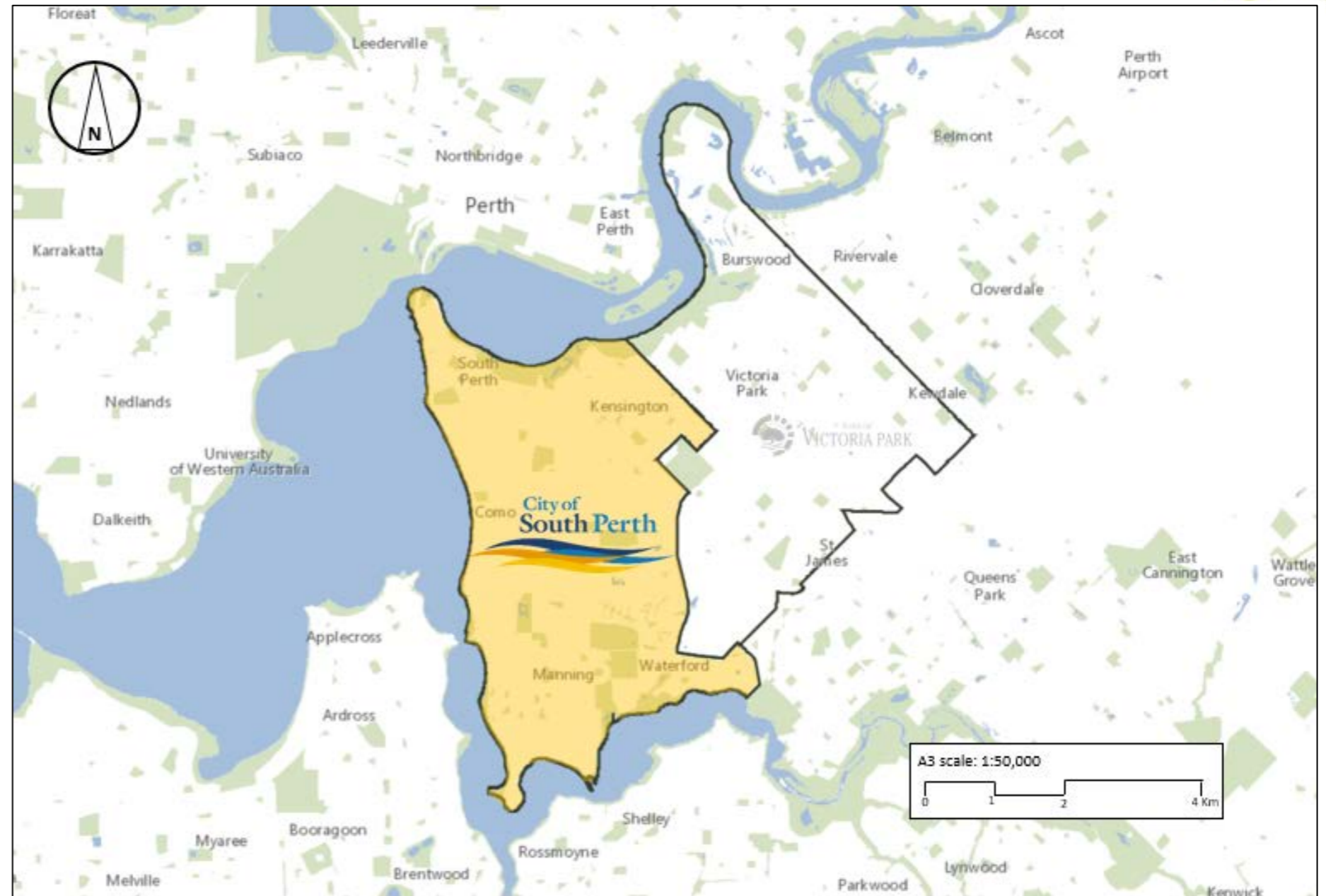


3 Background

The CoSP is located approximately four kilometres south of Perth's Central Business District (CBD) and covers an area of approximately 19.9 square kilometres. The CoSP shares boundaries with the ToVP and City of Canning, whilst providing direct routes over the Swan River into the City of Melville and City of Perth.

With reference to the CoSP Community Profile (profile.id.com.au, 2017) the estimated resident population as of June 2016 is approximately 44,000 with a population density of 23 persons per hectare. In the development of this Bike Plan, the diverse population within the CoSP was taken into consideration. Some of the key demographic statistics for the CoSP include:

- 1.6x higher population than the City of Perth, and 1.3x higher density;
- 53% medium and high density housing;
- A median age of 37 years;
- Approximately 59% of residents have a tertiary qualification;
- Approximately 36% of residents were born overseas, indicating strong cultural diversity;
- Approximately 65% of households have only one or two occupants; and
- 50% of households had access to two or more motor vehicles compared to 57% in Greater Perth. Car ownership per household in the CoSP did not change significantly between 2011 and 2016.



The abovementioned statistics highlight the potential for increased cycling trips in the CoSP. For example, the high percentage of households with one or two occupants highlight the potential for increased local shopping trips by bicycle due to smaller quantities of shopping that may not require the storage space of a motor vehicle.

Increased cycling in the CoSP will provide enormous environmental, health and economic benefits to the community including:

- Reduced car use, resulting in less traffic congestion, demand for parking, carbon emissions, and neighbourhood noise, and improvements in air quality;
- Improved physical and mental wellbeing;
- Reduced household travel costs, and potential time savings; and
- Increased foot traffic around local businesses.

Investment in creating an active community will result in better connected safer, healthier and happier residents and will make South Perth a more vibrant place to live and visit.

With reference to the CoSP Community profile (*profile.id.com.au*, 2017), the current statistics for travel mode to work for CoSP residents is shown in Figure 3-1. It indicates that approximately 65% of trips are undertaken by car (as either driver or passenger), approximately 13% of trips are by public transport, and 2.5% of trips by bicycle. Considering the proximity to the CBD and approximately 42% of South of Perth residents work in South Perth and Perth CBD, there is potential to increase the percentage of cyclists.

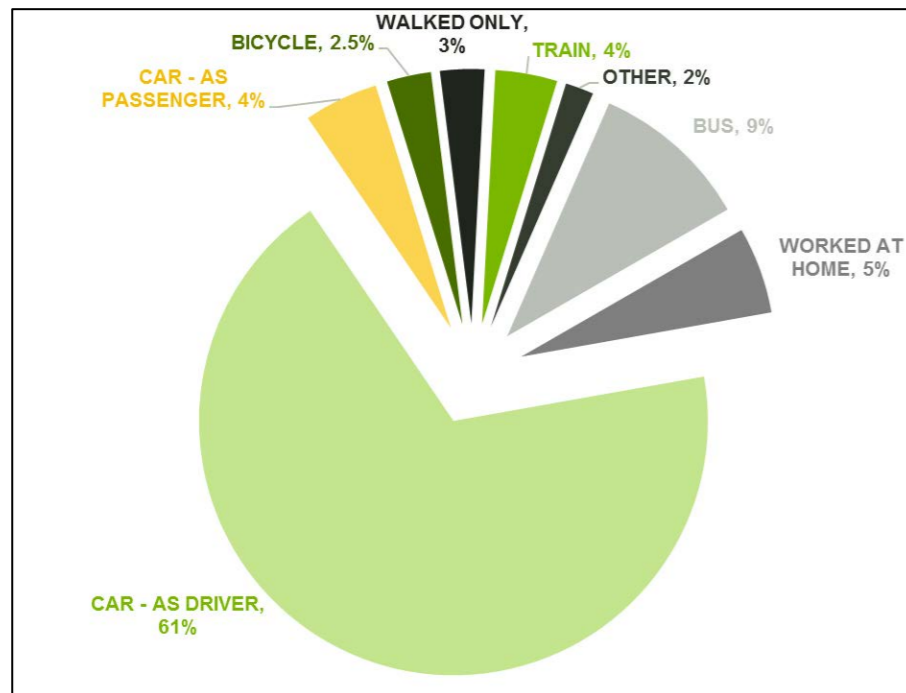


Figure 3-1: CoSP Mode of Travel (Census 2016)

The age group distribution within the CoSP is shown in Figure 3-2. In comparison to Greater Perth (Perth Metropolitan), there is a higher proportion of 18 to 24 year olds (tertiary education and independence), 25 to 34 year olds (young workforce), 50 to 59 year olds (older workers and pre-retirees) and 60 to 69 year olds (empty nesters and retirees).

In 2016 there were approximately 13,000 people who work in the CoSP, with 29% living in the area (refer to Figure 3-3).

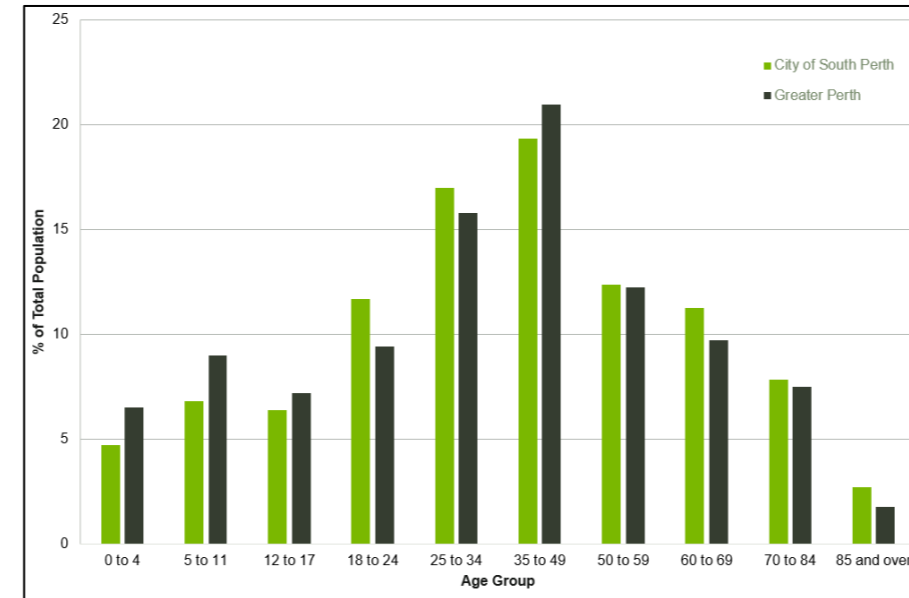


Figure 3-2: CoSP age group distribution (Census 2011)

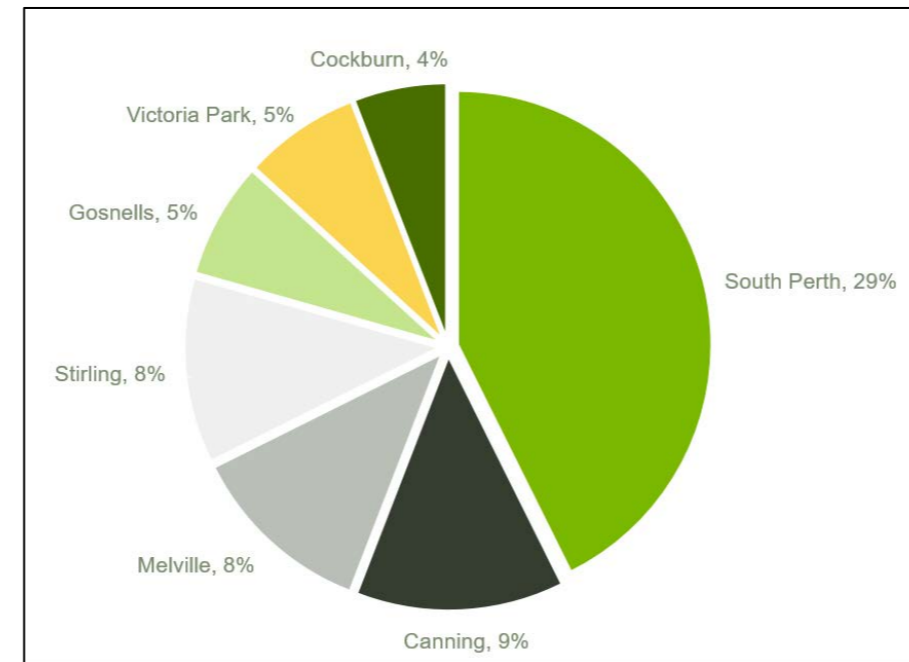


Figure 3-3: CoSP workers location of living (Census 2011)

In addition, approximately 79% of employed residents work outside of CoSP while the rest work within the area. A more detailed breakdown of employment locations is shown in Figure 3-4.

The cycling participation rate by residents of South Perth when measured over the past week or month is higher than average for Perth and Western Australia, as indicated by the 2017 National Cycling Participation Survey. Approximately 10,200 South Perth residents cycle in a typical week and 19,700 resident cycle at least once in a typical year.

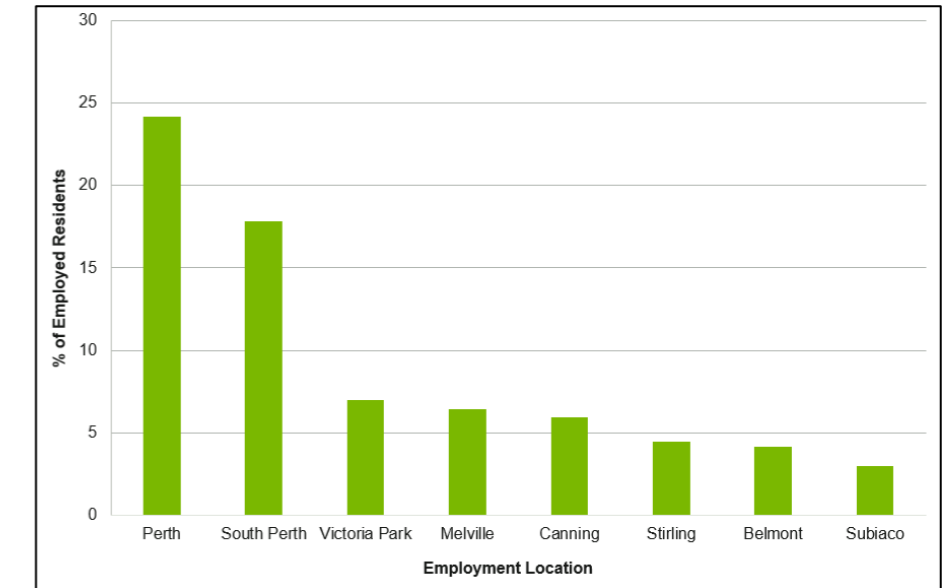


Figure 3-4: Employment location of CoSP residents (Census 2011)

4 Crash Analysis

4.1 Crash Data

Safety is a very important factor in building a successful Bike Plan. The availability and quality of existing cycle facilities is a good way of identifying the level of safety performance within a region. Main Roads WA crash data was utilised to determine the level of safety for the existing facilities within the CoSP.

Over the last five year period from 1 January 2012 to 31 December 2016, a total of approximately 4,500 crashes have occurred within the CoSP, with 2.6% of them involving cyclists. The number and severity of crashes involving cyclists per year is shown in Figure 4-1.

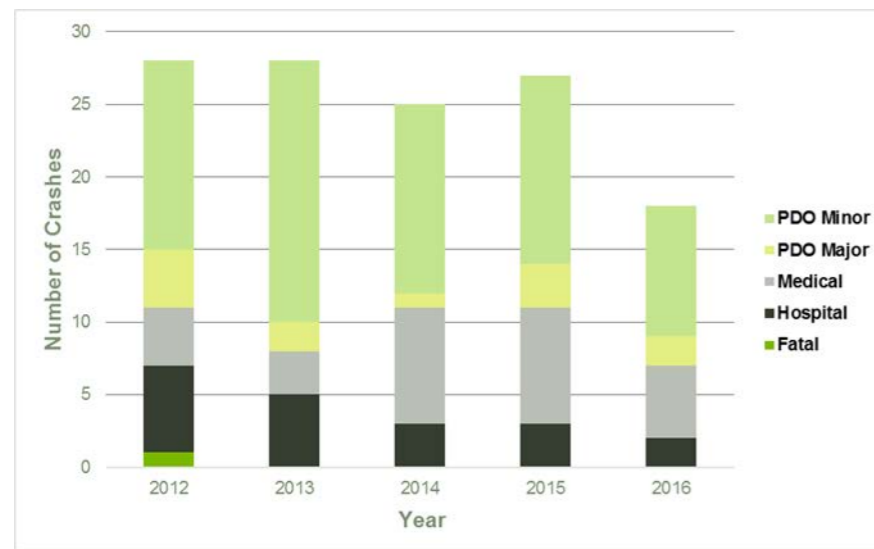


Figure 4-1: Total recorded crashes involving cyclists

In summary:

- A total of 126 crashes involved bicycles;
- 1 resulted in fatality;
- 15% resulted in hospital treatment; and
- 22% resulted in medical attention.

It should be noted that crash data only contains records of reported crashes, although unreported crashes are typical when there is no personal injury and no damage to property. It can be seen that the number of crashes have fluctuated from year to year with 2016 recording the lowest number of crashes in recent years.

Factors that can attribute to an increase in the number of crashes include a general increase in traffic volumes and non-compliance with speed limits. The reduction in crashes involving cyclists in 2016 is positive, however the Plan requires a strong focus on improving safety for cyclists.

The total number of recorded crashes from 2012 to 2016 grouped by severity is summarised in Figure 4-2 and illustrated in Figure 4-3.

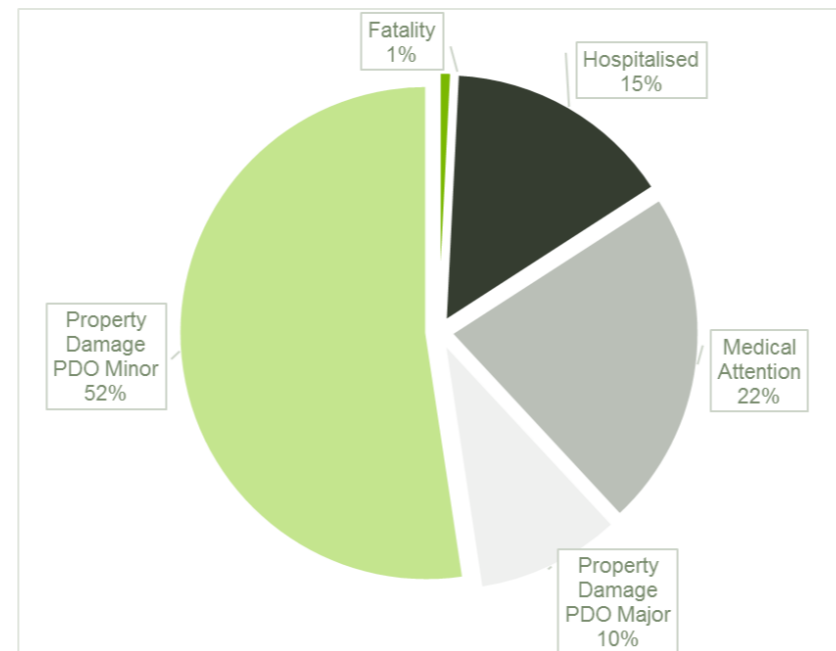


Figure 4-2: Total recorded crashes by severity

4.2 Crash Locations

More than 61% of the total recorded bicycle crashes have occurred at intersections, with 30% of the intersection crashes occurring at roundabouts. This is somewhat unsurprising as intersections, including roundabouts, often create 'pinch points' where space has not been allocated for cyclists.

The roads within the CoSP that have recorded more than three crashes in the last five years is shown in Table 3-1. The highest number of recorded crashes in recent years has occurred along South Perth Esplanade, which caters not only for high volumes of recreational cyclists, but also a wide range of path users which introduces potential conflicts. High numbers of recorded crashes have generally been recorded on roads with high traffic volumes which are often the more direct travel routes to destinations. This accentuates the fact that cyclists use these direct routes to commute and that these roads are dominated by high traffic volumes and therefore there is an increased probability of conflict, particularly at intersections where bicycles often have limited priority. These roads represent the high priority locations for funding directed towards crash investigation and safety improvement works.

Other notable statistics include:

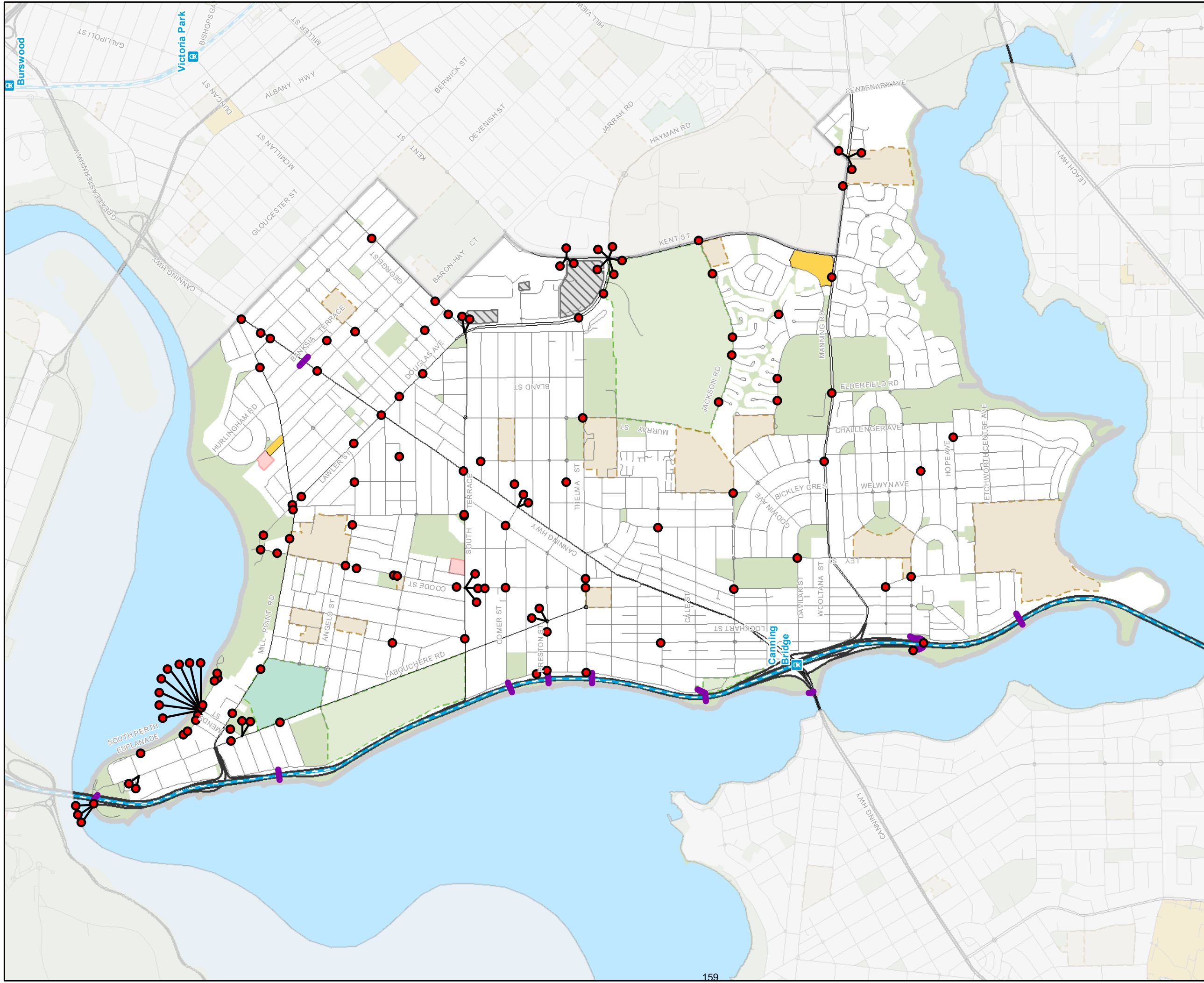
- 15% of all crashes occurred at driveways, where vehicles enter or exit a driveway and collide with a cyclist in the lane or on the path; and
- 11% of recorded bicycle crashes occurred on off-road paths.

The crash statistics have been used to influence and prioritise the recommended projects outlined in Section 8.

Table 4-1: Locations with the highest number of crashes involving cyclists

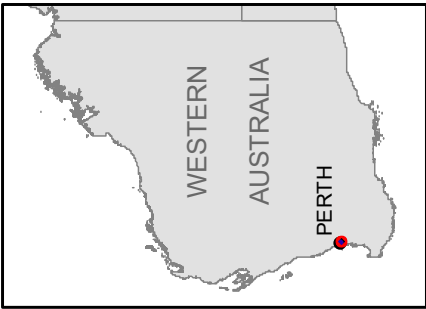
Crash Locations (roads with 5 crashes or more)		
Location	Number of Crashes	Severity
South Perth Esplanade	18	6 x Hospitalised 2 x Medical Attention but not Hospitalised 1 x PDO Major 9 x PDO Minor
Douglas Avenue	14	1 x Hospitalised 4 x Medical Attention but not Hospitalised 4 x PDO Major 5 x PDO Minor
Coode Street	13	2 x Hospitalised 2 x Medical Attention but not Hospitalised 2 x PDO Major 7 x PDO Minor
South Terrace	9	1 x Hospitalised 1 x Medical Attention but not Hospitalised 1 x PDO Major 6 x PDO Minor
Mill Point Road	8	3 x Hospitalised 1 x PDO Major 4 x PDO Minor
Kent Street	8	1 x Hospitalised 4 x Medical Attention but not Hospitalised 3 x PDO Minor
Manning Road	7	2 x Medical Attention but not Hospitalised 1 x PDO Major 4 x PDO Minor
Canning Highway	7	1 x Hospitalised 1 x Medical Attention but not Hospitalised 3 x PDO Minor 2 x PDO Major
Labouchere Road	6	2 x Hospitalised 1 x Medical Attention but not Hospitalised 1 x PDO Major 2 x PDO Minor
Jackson Road	5	1 x Hospitalised 2 x Medical Attention but not Hospitalised 1 x PDO Minor 1 x Fatality
George Street	5	1 x Hospitalised 4 x PDO Minor

*Note that a crash severity of 'PDO' refers to 'property damage only'



CoSP Figure 4-3 Crash Locations Involving Cyclists in the CoSP

Revision: 1	Project No: 255909	Date: May 2018
Prepared: S.Richards	Checked: M.LaGalia	Approved: M.LaGalia
Coordinate System: GDA 1994 MGA Zone 50	Scale @ A3: 1:25,000	
Source: © Landgate 2017, OpenStreetMap		
File: laurecon.info\shares\AUPER\Projects\255909 - Joint Bike Plan CoSP & ToVP - CoSP Folder\3.0\Project\Delivery\GIS\ArcGIS\10.2_255909_A3P_CoSP_CrashLocat_Rev1		
Client: Town of Victoria Park, City of South Perth		



Legend

- Crash Location
- Rail Stop
- Overpass/Underpass
- Existing Overpass/Underpass
- LCA Boundary (City of South Perth)
- Freeway
- Highway
- Main
- Minor
- Shopping Area
- Community Facility
- Hospital Facility
- Education Facility
- Recreational Facility
- Recreational Park or Reserve
- Reserve (Miscellaneous & Other)

0 1 2 km



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5 Stakeholder Consultation

5.1 Community Engagement

As part of the development of the Plan, the local community were invited to provide feedback on their cycling journey with the aim of identifying common routes, existing issues, barriers to cycling, and desired locations to improve or provide additional facilities and infrastructure.

The community were invited to provide feedback through one or all of the following methods:

- Completion of a survey (online or hard copy);
- Input into an online mapping tool; and
- Attendance at a community workshop.

It should be noted that the methods of community engagement were carried out simultaneously between the CoSP and ToVP.

5.1.1 Community Survey

The joint CoSP and ToVP community survey was open to the public from May 1st to June 9th 2017. The survey was completed by a total of 349 participants, with 181 people from the CoSP (62% male, 37% female, 1% other). A graphical summary of the demographics and other results from survey respondents from the CoSP is shown in Appendix A.

In terms of the reasons for cycling, the most common reasons included recreational and exercise (37%), commuting to/from work (20%), to/from shopping (11%) and to/from entertainment locations (11%), noting that respondents could select multiple options. With the scenic cycling route available along the Swan River, recreational cycling is highly popular in the CoSP as reflected in the survey results.

A summary of the most common issues raised from the community survey regarding popular routes can be seen in Table 5-1.

The issues raised in the community survey have been used to influence and prioritise the recommended projects outlined in Section 8.

Table 5-1: Summary of issues raised regarding popular routes

Location	Issue/Concern	% of Comments
Canning Highway	- difficulty in crossing Canning Highway due to high traffic volumes, high traffic speed and lack of safe	10%
	- a desire for dedicated bicycle infrastructure (i.e. bicycle lanes)	
	- high traffic volumes and speeds contribute in creating an intimidating road environment for cyclists	
Swan River Foreshore	- issues with pedestrians using the separated cycle path creates an uncomfortable cycling environment	10%
	- high speed cyclists intimidate recreational cyclists	
	- issues with lack of visibility and priority for cyclists crossing Coode Street puts them in dangerous positions with vehicles and pedestrians	
	- issues with lack of visibility and priority for cyclists crossing Douglas Avenue puts them in dangerous positions with vehicles and pedestrians	
	- a desire for separated cycle paths at McCallum Park and Burswood Park (ToVP)	
	- lack of appropriate lighting at McCallum Park and Burswood Park (ToVP)	
South Perth Esplanade	- issues with sprinklers wetting cyclists during the early morning journeys	7%
	- high pedestrian volumes, narrow space, obstructions and poor pavement surface of shared path create an uncomfortable cycling environment	
	- a desire for dedicated bicycle infrastructure (i.e. bicycle lanes)	
Mill Point Road	- a lack of motorist awareness at Mends Street intersection puts cyclists in dangerous positions	5%
	- connection to Narrows Bridge creates a pinch point due to design	
	- lack of appropriate traffic calming measures increase the probability of conflict between cyclists and other modes of transport	
	- lack of driver awareness contribute in creating an intimidating road environment for cyclists	
Manning Road	- difficulty in crossing Mill Point Road due to lack of safe crossing points	5%
	- a desire for dedicated bicycle infrastructure (i.e. bicycle lanes)	
	- difficulty in crossing Manning Road due to high traffic volumes, high traffic speed and lack of safe	
Kwinana Freeway PSP	- high traffic volumes and speeds contribute in creating an intimidating road environment for cyclists	5%
	- issues with general maintenance (i.e. leaves, sticks and soil) of path surface creating an uncomfortable cycling environment	
	- shared path is too narrow when considering high pedestrian and cyclist volumes creating an uncomfortable cycling environment	
Waterford/Salter Point to PSP	- issues with lack of lighting, edge lines and bushes affects visibility	5%
	- a desire for dedicated bicycle infrastructure (i.e. shared path) along Canning River Foreshore	
Causeway Bridge	- a desire for dedicated bicycle infrastructure (i.e. bicycle lanes or shared path) through local streets	4%
	- high pedestrian volumes and narrow shared path creating an uncomfortable cycling environment	
Labouchere Road	- shared path surface is uneven and uncomfortable for cyclists	3%
	- issues with vehicles parking in the existing bicycle lanes, and the high traffic speeds create an uncomfortable cycling environment	
	- a desire for dedicated bicycle infrastructure (i.e. bicycle lanes) for the remaining stretch north of Angelo Street	
Douglas Avenue	- difficulty in crossing Labouchere Road due to high traffic volumes, impaired visibility from parked vehicles and lack of safe crossing points	3%
	- lack of appropriate traffic calming measures increase the probability of conflict between cyclists and other modes of transport	
	- a desire for dedicated bicycle infrastructure (i.e. bicycle lanes) north of Canning Highway	
Coode St	- difficulty in crossing Douglas Avenue due to high traffic volumes and lack of safe crossing points	2%
	- lack of appropriate traffic calming measures increase the probability of conflict between cyclists and other modes of transport	
	- issues with vehicles parking in the existing bicycle lanes, lack of driver awareness at roundabouts and the high traffic speed creating an uncomfortable cycling environment	
Murray Street	- a desire for dedicated bicycle infrastructure (i.e. bicycle lanes) along the entire route	2%
	- lack of appropriate traffic calming measures increase the probability of conflict between cyclists and other modes of transport	
South Terrace	- lack of appropriate traffic calming measures increase the probability of conflict between cyclists and other modes of transport	2%
	- lack of driver awareness and aggressive driver behaviour contribute in creating an intimidating road environment for cyclists	
Total		63%

5.1.2 Online Mapping Tool

The CoSP interactive online mapping tool was open to the public from May 1st to June 9th 2017. The tool allowed members of the community to place pins on a map of the CoSP to comment on the following items:

- 'Bike Issue' (red pin) – may include locations where there are missing links, unsafe crossings, lights, or other issues relating to the cycling experience;
- 'I enjoy riding here' (green pin) – may include locations that are enjoyable to ride, have great end of trip facilities (i.e. bicycle parking, lockers, showers) or notable for other reasons; and
- 'Bike Idea' (yellow pin) – may include locations that are not necessarily unsafe or an issue, however would like to see an improvement.

Referring to Figure 5-3, a total of 181 pins were dropped on the mapping tool (noting that users could submit an unlimited number of pins). As shown in Figure 5-1 and Figure 5-2, the majority of riders that contributed to the mapping tool were confident cyclists, and for a range of riding purposes. Note that this captures the rider's perception of what the confidence level they see themselves. Future surveys should consider alternative ways to capture the views of riders of lower confidence level, which will assist in initiating greater mode shift towards cycling.

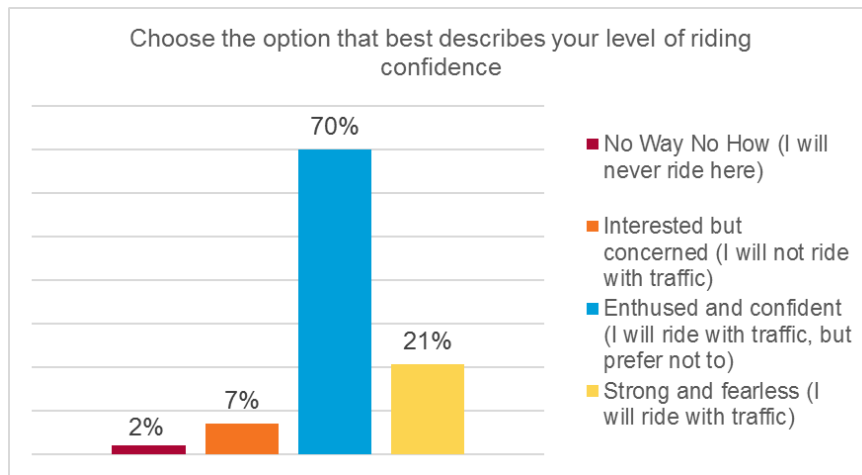


Figure 5-1: Online mapping tool respondents – level of rider confidence

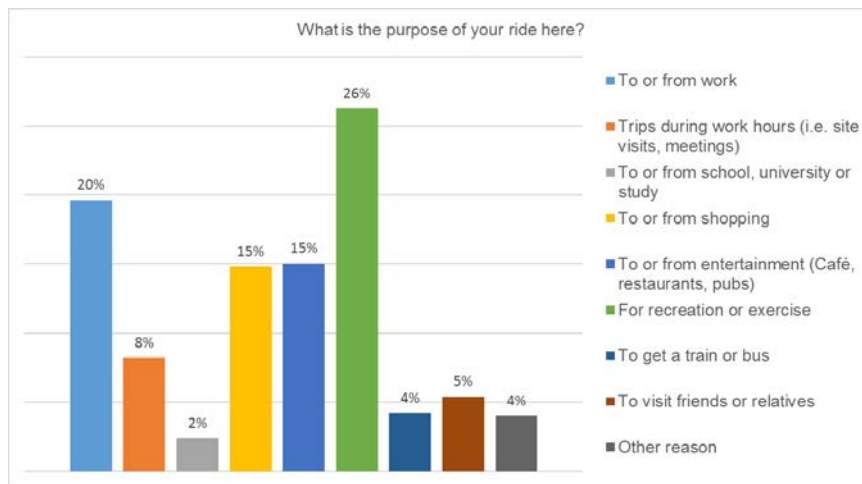


Figure 5-2: Online mapping tool respondents – purpose of ride at pin location

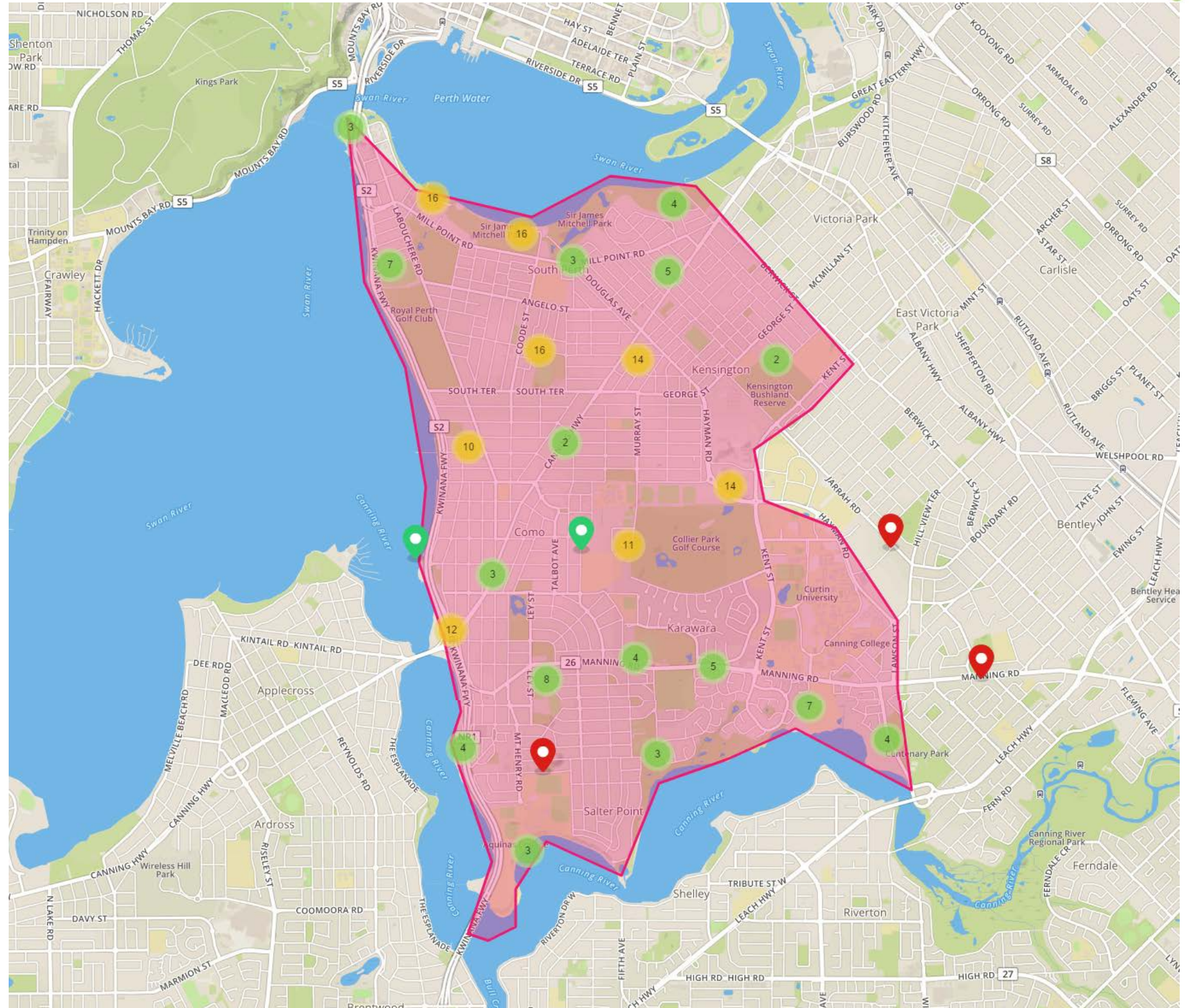


Figure 5-3: CoSP online mapping tool

The following summarises the key feedback provided from the online mapping tool:

Bike Issues (red pins)

1. Vehicles parked on cycle lanes i.e. South Terrace near Royal Perth Golf Club;
2. Roads with high traffic without cycle infrastructure, including at intersections i.e. Canning Highway;
3. Busy locations without adequate cyclist crossing facilities i.e. at South Perth Foreshore Path carparks, Canning Highway and Manning Road; and
4. Fast cyclists and unaware pedestrians using busy shared paths i.e. South Perth Esplanade.

Bike ideas (yellow pins)

1. Improved cycle infrastructure at intersections i.e. continuation of on-road bike lanes and advanced stop cycling boxes;
2. Increased supply of separated facilities i.e. between pedestrian and cyclists, and cyclists and vehicles;
3. Increased end of trip facilities at key destinations i.e. bike parking at Mends Street, Preston Street and Clontarf Markets, and repair station along foreshore;
4. New cycle friendly crossings i.e. at Curtin University South Entrance; and
5. Improved continuation of paths i.e. Canning River foreshore from Centenary Avenue to Kwinana Freeway.

'I like riding here' (green pins)

1. Cycle infrastructure at intersections i.e. continuation of paths along waterfronts i.e. Swan River and Canning River;
2. Locations with high quality shared paths;
3. Direct cycle routes without interruptions i.e. Kwinana Freeway PSP;
4. Areas where there is separation from pedestrians and vehicles i.e. Sir James Mitchell Park;
5. Areas with high visibility and the sense of security this provides.

The issues raised in the online mapping tool have been used to influence and prioritise the recommended projects outlined in Section 8.

5.1.3 Community Workshop

The CoSP community workshop was held on the 31st May 2017 at the CoSP Community Hall. The community were invited to contribute ideas, report issues, prioritise and suggest improvements. Members of the community who were not able to attend the CoSP workshop were encouraged to attend the ToVP workshop which was facilitated in the same way.

The workshop followed a human centred approach where residents were invited to participate in interactive activities that placed the end user at the centre of the thought process. The aim of each activity was to understand the issues, needs and challenges that the community face regarding cycling. By the end of the evening residents could transform some of the key issues raised into real 3-dimensional solutions. The key issues raised are detailed below.

Infrastructure

- Lack of consideration for cyclists at intersections (i.e. cycle lanes through intersections, storage at stop lines and space at roundabouts);
- Insufficient signage for existing under/overpasses (i.e. Banksia Terrace / Canning Highway);
- Required stoppages at low points of terrain require additional effort for journeys;
- Cycle infrastructure located in 'door zone';
- Maintenance required along Kwinana PSP (i.e. clear debris);



Figure 5-4: Intersection concept with the provision of coloured cycle lanes

- Lack of bike lanes on major routes (i.e. Manning Road and Canning Highway);
- The need for connectivity from South Perth foreshore to southern areas (i.e. Manning);
- Difficulty crossing major roads due to insufficient facilities (i.e. Canning Highway);

- Lack of cycle infrastructure at Canning Bridge;
- Lack of connection from Waterford to PSP along Canning River foreshore;
- Insufficient width of shared path and uneven surface along the Causeway; and
- Lack of space for cyclists on Murray Street.

End of Trip Facilities

- Lack of secure bike parking at train stations, particularly Canning Bridge Station;
- Lack of bike parking at major public destinations (i.e. shopping centres, civic buildings, sports grounds) and activity centres (i.e. Mends Street, Preston Street, Angelo Street); and
- Insufficient supply of sheltered parking, and water and repair stations.

Safety

- Lack of cycle infrastructure and high traffic volumes and speeds creates an intimidating road environment (i.e. Canning Highway and Manning Road);
- Narrow paths in busy environments act as barriers to cycling (i.e. Causeway Bridge); and
- Lack of separation of cyclists and pedestrians leads to conflicts (i.e. South Perth Esplanade and McCallum Park shared paths).

Youth Safety and Behaviour Change

- Increased focus on initiatives that encourage young cyclists;
- Lack of youth orientated cycle facilities (i.e. pump tracks); and
- The need for cycle paths and cycles zones that separate school children from traffic.

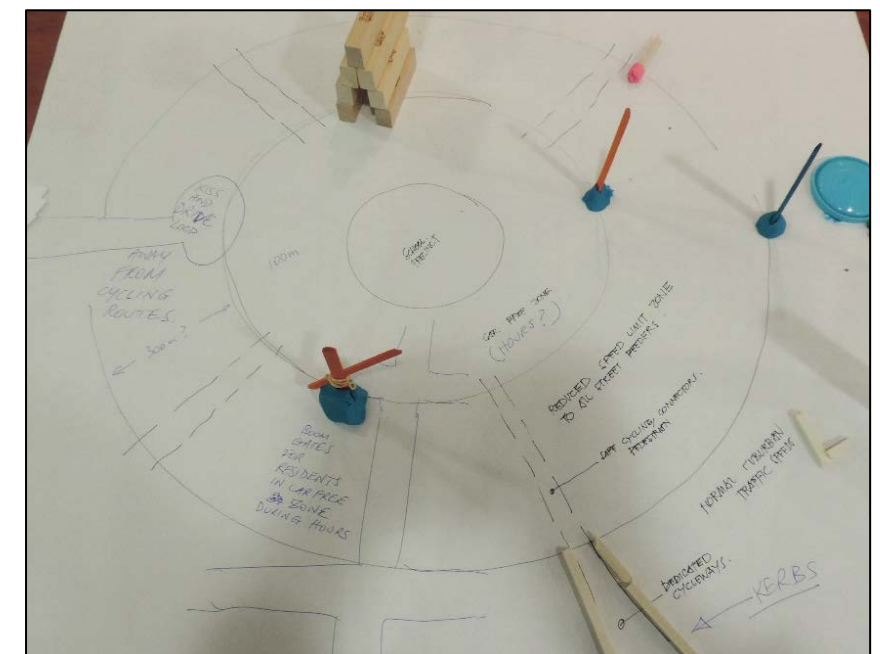


Figure 5-5: School 'Safe Zone' concept constructed during the workshop

A summary of the conversation capture from the workshop can be found in Appendix A.

In addition to the input received during the workshop, a number of individual submissions were provided by attendees. The key ideas from these submissions are detailed below:

- Manning Road off-road cycle facilities are mostly inadequate, and there are no on-road facilities;
- Burswood Park path requires separation between cyclists and pedestrians;
- Champions of cycling are crucial for advancing cycle infrastructure and travel behaviours. These people need to be internal to the key organisations in the area i.e. Council and Curtin University;
- Consideration of best practice will ensure the best possible cycle facilities are installed; and
- A children's bicycle training track was proposed by a local community group. This would help introduce cycling to the young generation and allow them to improve their cycling skills in a safe vehicle-free environment.

The issues raised in the community workshop have been used to influence and prioritise the recommended projects outlined in Section 8.



6 Bicycle Network and Facilities

6.1 Existing Infrastructure Audit

A number of cycle routes traverse the CoSP, many of which have been developed over time through the implementation of the 1996 Perth Bicycle Network Plan and WA Bicycle Network Plan (DoT, 2014-2031). The existing network exists of various types of bicycle infrastructure, including off-road separated and shared paths and on-road cycle lanes. A map of the existing bicycle facilities in the CoSP is shown in Figure 6-1.

In the development of this Plan, the existing bicycle routes have been re-evaluated in light of the State Government's Perth Transport Plan at 3.5 million. As such, an assessment of the existing bicycle network was undertaken with consideration of the routes identified in the Perth Transport Plan at 3.5 million.

The study area was divided into 'links' – a small or complete section of cycle path, on-road facility or roadway. A total of 20 links were assessed on a saddle survey throughout the CoSP.

The assessment of each link was undertaken using the criteria outlined in the Transport Research Laboratory (TRL) Street Audit Network software package (Cycling Component - CERS), as shown in in Table 6-1.

Table 6-1: CERS assessment parameters

Category	Parameters
Convenience	Continuity
	Legibility
	Directness
Accessibility / Safety	Worst Intersection Conflict Point
	Traffic Volume
	Traffic Proximity
	Traffic speed
	Link Conflict Points
Comfort	Effective width
	Surface Quality
	Maintenance
	Overall Effort
Attractiveness	Personal security
	Lighting
	Quality of Environment

6.1.1 Link Rating

The following steps were employed to assess each link.

Step 1 – Identify start and termination point of link

1. Determine individual link lengths of all bicycle routes (this includes the division of routes / corridors);
2. Check each link length logically using data collected on site for suitability; and
3. Assign name and identification reference code for each link.

Step 2 – Check data availability of route

1. Traffic data – Gather from available Main Roads data or estimate based on the road hierarchy and onsite observations. The traffic data available for the audited links is shown in Figure 6-2;
2. Traffic speeds – Note the on-street posted speed limit and determine whether or not the traffic speed on-site is commensurate; and
3. Terrain – From site visits, gather an indication of the terrain (uphill or downhill grade) along the link.

Step 3 – Intersections

1. Once link length is established, note all types of intersections along the extent of the link; and
2. Highlight the worst performing intersection based on desktop assessment, onsite observation and professional judgement.

Step 4 – On site evaluation

1. Undertake site visits to complete the audit assessment, ensuring all parameter fields are completed (refer to Table 6-2);
2. Where necessary add comments which substantiate scoring decisions or any other relevant information for future reference;
3. Total score for the link will be automatically assigned on completion of all parameters; and
4. Add any relevant conclusions for each link for future reference.

During the assessment of each link, each parameter was manually scored on a range from -3 to +3, where +3 is the highest score and -3 the lowest. For a parameter to warrant a score of +3, it would need to be exemplary and of a standard identified as best practice. The scores were therefore allocated on a range from very poor to optimum with 0 representing an average score:

The scoring scale is set out below:

VERY POOR	POOR	AVERAGE	GOOD	VERY GOOD
-3	-2	-1	0	1
			2	3

An overall score for each link was determined, giving a general indication of how well the route caters for cyclists. Generally, any link that scores above 10 is considered good, a link that receives a score between -10 and 10 is average and a link scoring below -10 is a poor link. The scoring scale for the overall score is shown below:

VERY POOR	POOR	AVERAGE	GOOD	VERY GOOD
-30	-20	-10	0	10
			20	30

6.1.2 Audit Findings

The detailed findings of the infrastructure audit, along with an action plan for each individual link is presented in Appendix B with each link described in terms of:

- Assigned link number;
- Scored colour code;
- Link name;
- Link description;
- Photo inventory;
- Issues identified; and
- Suggestions for improvements.

The suggestions highlighted in the detailed link results in Appendix B are intended to be included in the CoSP maintenance team's work packages for when each specific link is next scheduled for maintenance (unless stated otherwise as a proposed project). It is important to note that there are many cases within the City where existing unsigned sealed shoulders have previously been considered as appropriate for cyclists, however these do not meet the minimum requirements for cycle lanes as defined by the Road Traffic Code and appropriate guidelines. As such, there should be a long term focus on upgrading existing cycle infrastructure in line with the minimum requirements as described in Section 1.3.

The general performance of the audited links is shown in Figure 6-3, where routes with protected cycling infrastructure and low traffic volumes generally outscored those where cyclists are left to mix with high traffic volumes. The scoring performance of each link for each assessment parameter is tabled in Appendix B.

A high level map summary of the proposed recommendations for all the audited infrastructure can also be found in Appendix B ("Infrastructure Audit Summary for CoSP"). The recommendations outlined on this map can be considered when any of the cycle routes are due for resurfacing or opportunities for works in those areas arise.



CoSP Figure 6-1 Existing Bicycle Facilities in the CoSP

Revision: 1	Project No: 255909	Date: May 2018
Prepared: S.Richards	Checked: M.LaGalia	Approved: M.LaGalia
Coordinate System: GDA 1994 MGA Zone 50	Scale @ A3: 1:25,000	
Source: © Landgate 2017, OpenStreetMap		
File: laurecon.info\shares\AUPER\Projects\255909 - Joint Bike Plan CoSP & ToVP - CoSP Folder\3.0\Project\Delivery\GIS\ArcGIS\10013_255909_ASP_CoSP_Existing_Rev1		
Client: Town of Victoria Park, City of South Perth		



Legend

	Rail Stop		Separated Path (Bikes Only)
	Railway		High Quality Shared Path (Bikes and Pedestrians)
	Freeway		Bicycle Lanes or Sealed Shoulders
	Highway		Safe Active Street
	Main		Existing Overpass/Underpass
	Minor		

	LGA Boundary (City of South Perth)
	Shopping Area
	Community Facility
	Hospital Facility
	Education Facility
	Recreational Facility
	Recreational Park or Reserve
	Reserve (Miscellaneous & Other)

0 1 2 km



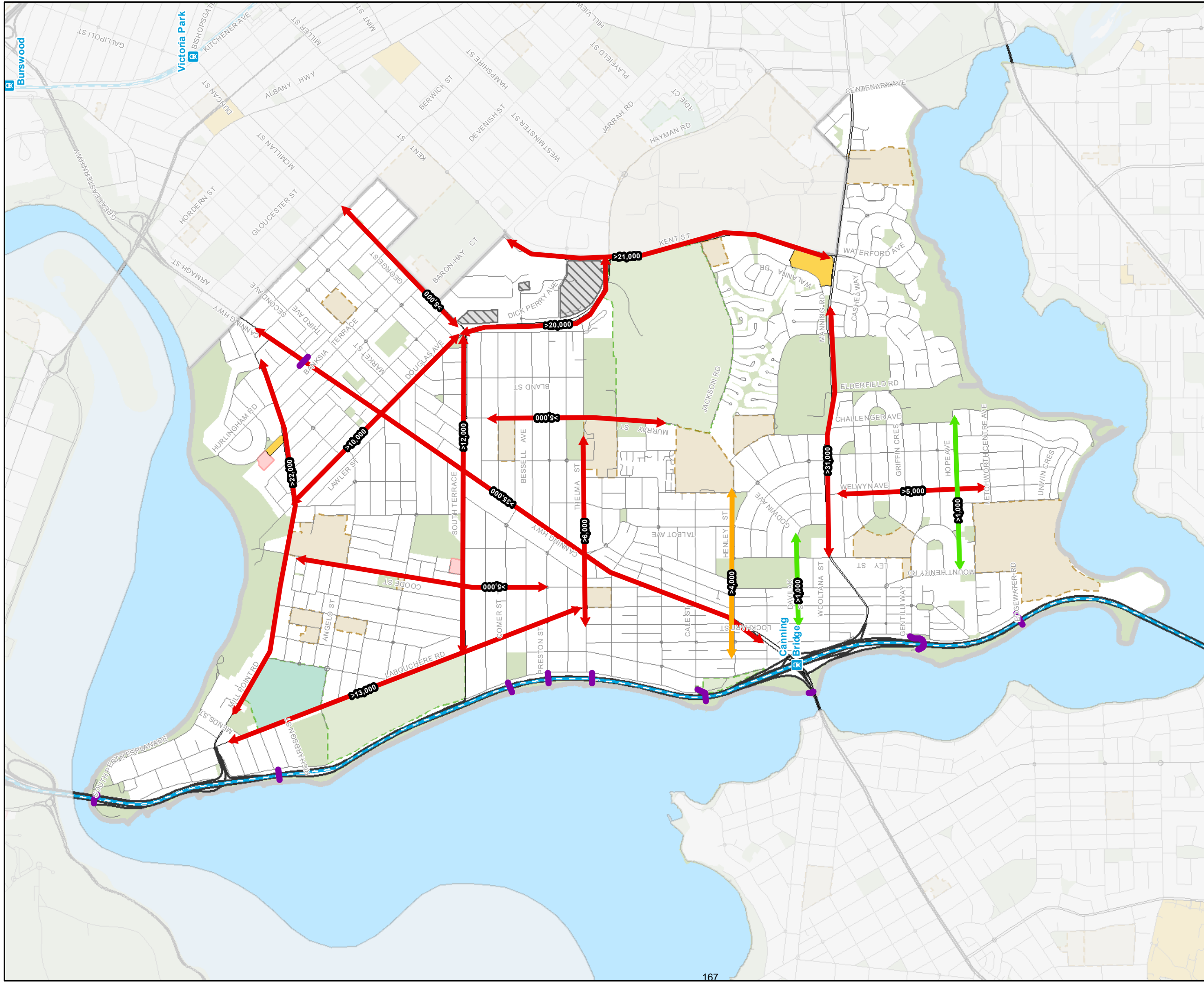
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Table 6-2: CERS assessment framework

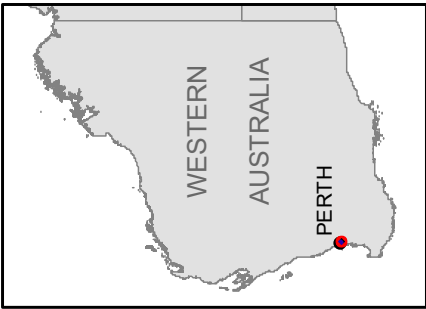
Category	Parameters	What to assess
Convenience	Continuity	Any issues that may affect the continuity if a facility were to be introduced This could include change in carriageway width, or delay to cyclists (e.g. through signalised intersections)
	Legibility	Issues that may affect a cyclist's ability to follow the route Take note of any existing cycle / traffic signs that provide directions and any landmarks
	Directness	Ascertain if the proposed link is the most direct path with no delays Use site inspections, internet based maps and photography was used to ascertain if there is an alternative route which cyclists could use Take into account intersections or other features that may result in delay
Accessibility / Safety	Worst Intersection Conflict Point	Based on the type of intersection in combination with traffic flow and the size of the intersection Those intersections with fewer potential conflict points are awarded a greater score Ascertained using provided traffic data, collision data and site inspections/ internet based maps
	Traffic Volume	Use existing data for assessment purposes. Those roads with a lighter traffic flows will receive a high score
	Traffic Proximity	Based on mixture of traffic and width of traffic lane(s) in a single direction of travel A wide lane with cars only will provide a higher score than a narrow roadway which routinely accommodates buses or other large vehicles
	Traffic speed	Use recorded 85th percentile speeds or if unavailable posted speed limit signage The lower the speed of vehicular traffic the higher the score
	Link Conflict Points	Includes obstructions along the route carriageway surface Whether visibility is restricted due to roadside furniture, vegetation etc. Considers the presence and frequency of private access points (driveways etc.)
Comfort	Effective width	Assess any existing cycle lane provision Assess the entire width of the carriageway (to include possible effect of overtaking) Make note of parked cars; this will determine what measures may be required to remove parking or whether a cycle lane away from the edge of the carriageway could be introduced
	Surface Quality	Observe quality of road surface and type, i.e. cracking, potholes, cobblestones etc. Observe any skid / fall hazards such as gully gratings, service chamber covers etc. Observe number of reinstatements and quality.
	Maintenance	Assess current drainage facilities and whether drainage channels appear to be free from detritus and regularly swept Identify any areas where ponding of water is evident; large areas of standing water will deter cyclists and alter their path, a particular issue on signed only routes where there is no designated lane Assess quality of road markings to determine clarity – will affect vehicular paths and therefore behaviour through intersections and along routes Provides an indication of the future score of maintenance if not addressed
	Overall Effort	Make note of the gradient of the link to determine the effort cyclists would need to make to negotiate links. Especially problematic if cyclists are required to stop, e.g. at intersections, pedestrian crosswalks, and need to restart
Attractiveness	Personal security	Determine whether the area around the link has litter / graffiti or evidence of vandalism as cycling demand can be suppressed through fear of crime Make a note of the presence of any CCTV cameras in the vicinity Identify any areas of concealment adjacent to the proposed route
	Lighting	Make note of the regularity and positioning of lighting columns to determine the lighting levels during the hours of darkness Lighting should be available on cycle routes as a safety measure and to provide an additional level of personal security
	Quality of Environment	Determine the quality of the property frontages along the link, is this a route that cyclists would want to navigate? Are the frontages and fence lines etc. of good quality and well maintained? The presence of trees / vegetation will make the route more appealing to cyclists. Is regular maintenance likely to occur?





CoSP Figure 6-2 Existing Traffic Volumes in the CoSP

Revision: 1	Project No: 255909	Date: May 2018
Prepared: S.Richards	Checked: M.LaGalia	Approved: M.LaGalia
Coordinate System: GDA 1994 MGA Zone 50	Source: © Landgate 2017, OpenStreetMap	Scale @ A3: 1:25,000
File: laurecon.info\shares\AU\PER\Projects\255909 - Joint Bile Plan CoSP & ToVP - CoSP Folder\3.0\Project\Delivery\GIS\ArcGIS\0017_255909_A3P_CoSP_TrafficVol_Rev1		
Client: Town of Victoria Park, City of South Perth		

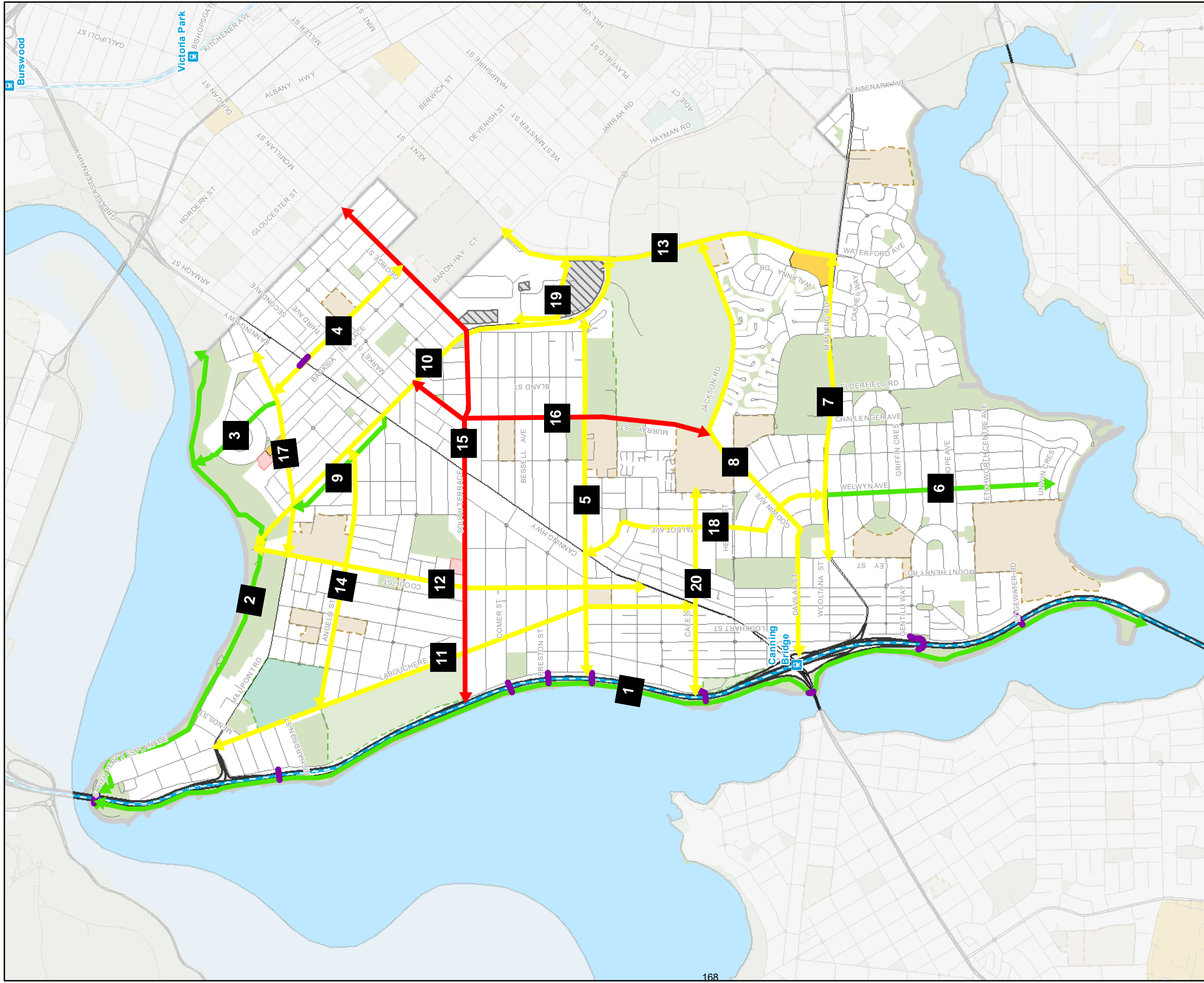


Legend

- Rail Stop
- Railway
- Freeway
- Highway
- Main
- Minor
- Overpass/Underpass
- Existing Overpass/Underpass
- Existing Traffic Volumes (Vehicles Per Day)
- <2000
- 2000 - 5000
- >5000
- LGA Boundary (City of South Perth)
- Shopping Area
- Community Facility
- Hospital Facility
- Education Facility
- Recreational Facility
- Recreational Park or Reserve
- Reserve (Miscellaneous & Other)

0 1 2 km



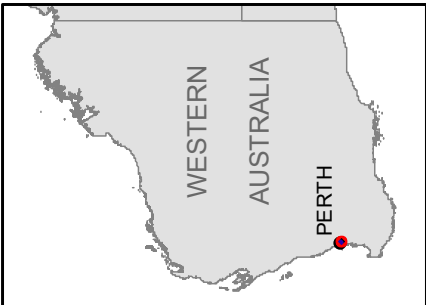


CoSP Figure 6-3 Audited Links and Corresponding Performance for the CoSP

Revision: 1	Project No: 255909	Date: May 2018
Prepared: S.Richards	Checked: M.LaGalia	Approved: M.LaGalia
Coordinate System: GDA 1994 MGA Zone 50	Source: © Landgate 2017, OpenStreetMap	Scale @ A3: 1:25,000

File: laurecon.info\shares\AUPER\Projects\255909 - Joint Bike Plan CoSP & ToVP - CoSP Folder\3.0\Project\Delivery\GIS\ArcGIS\0011_255909_A3P_CoSP_AuditedLink_Rev1

Client: Town of Victoria Park, City of South Perth



Legend

	Rail Stop		Audited Links
	Railway		Poor
	Freeway		Good
	Highway		Average
	Main		Existing Overpass/Underpass
	Minor		LGA Boundary (City of South Perth)

	Shopping Area
	Community Facility
	Hospital Facility
	Education Facility
	Recreational Facility
	Recreational Park or Reserve
	Reserve (Miscellaneous & Other)

0 1 2 km



7 Aspirational Cycle Network

It is suggested that the CoSP bicycle network consist of a range of routes that traverse the City and provide access to various land uses. The routes should range from many local routes to fewer primary and secondary routes aimed at providing efficient through movement for commuter cyclists.

The cycle network should be in line with DoT's hierarchy as part of the Perth Transport Plan @3.5million and wherever possible CoSP should be actively involved in influencing the strategy as it pertains to South Perth. It should further be considered that the transport network needs of cyclists, with a destination in mind, are exactly the same as motorists travelling to a destination. This includes the need to include direct and efficient routes, and for this reason the network is similar to the general traffic network.

The overall cycle network is shown in Figure 7-2, and is intended to be **aspirational**– i.e. the long term vision of what the cycle network within the CoSP endeavours to look like by the time Perth's population grows to 3.5 million (towards the year 2050). The proposed aspirational cycle network outlines several ambitious routes aimed at making cycling a realistic and appealing option for a high proportion of the population. The aspirational cycle network has been influenced by the routes identified in the Perth Transport Plan for 3.5 million and the research, investigation and consultation undertaken as part of the project.

The proposed network is based on the DoT cycling route hierarchy, which comprises of three tiers – Primary Routes, Secondary Routes and Local Routes.

7.1.1 Primary Routes

Primary Routes typically consist of high quality shared paths that are located along major road and rail corridors and ocean and river foreshores. Principle routes aim to avoid interruptions to cyclists with consideration to separation of pedestrians and cyclists at areas of high pedestrian activity, and grade separation at major intersecting roads and railways.

It is proposed that these Primary Routes include:

- Kwinana Freeway; and
- South Perth Foreshore

Demand on these routes is high for a wide range of users, and therefore separation of pedestrians and cyclists should be considered.

7.1.2 Secondary Routes

Secondary Routes are typically located on corridors situated within urban or built-up environments. Secondary Routes provide safe and direct connections between Primary Routes and major trip generators such as shopping centres, industrial areas, major health and educational institutions, sporting and civic facilities. Secondary routes can take the following forms:

- Fully protected on-road bicycle lanes;
- On-road bicycle lanes separated from traffic with “soft” measures such as painted hatching, plastic kerbing or armadillos;

- Shared paths within verges to allow access to shops and businesses; and
- Occasionally a Safe Active Street environment may be appropriate.

It is proposed that these Secondary Routes include:

- Labouchere Road;
- Coode Street;
- Lawler Street/Douglas Avenue/Hayman Road;
- South Terrace/George Street;
- Kent Street/Waterford Avenue;
- Thelma Street;
- Mill Point Road (east of Coode Street);
- Davilak Street/Davilak Crescent/Godwin Avenue/Jackson Road;
- Barker Street/Talbot Avenue/Bickley Crescent/Welwyn Avenue;
- Manning Road;
- Parts of the Canning River Foreshore and
- Hope Avenue or Letchworth Centre Avenue.

7.1.3 Local Routes

Local Routes are typically located in local areas (i.e. residential). The purpose of local routes is to collect cycling traffic from local roads within towns and suburbs and distribute it to the secondary and primary networks. Local routes can take the following forms:

- 30km/hr Safe Active Streets which adopt “self-explaining street” and “filtered permeability” urban design principles;
- Very quiet suburban streets, communicated using sharrows or appropriate signage/way finding;
- Short sections of shared path; and
- Occasionally, on road cycle lanes on quiet roads (less than 50km/h) may be appropriate.

It is proposed that these Local Routes include:

- Mends Street;
- Charles Street;
- Angelo Street;
- Hurlingham Road;
- Banksia Terrace;
- Vista Street/View Street;
- Fourth Avenue;
- Comer Street;
- Waverley Street/Alien Street/Pilgram Street;
- Bland Street;

- Dick Perry Avenue;
- Preston Street;
- Cale Street;
- Murray Street (south of Thelma Street);
- Lockhart Street;
- Wooltana Street;
- Henley Street;
- Ley Street;
- Challenger Avenue;
- Elderfield Street;
- Goss Avenue;
- Parts of the Canning River Foreshore; and
- Gentilli Avenue/Cloister Avenue/Duckett Avenue/Griffin Crescent/Carlow Circle/Cashel Way.



Figure 7-1: Route hierarchy example infrastructure (source: DoT)

It should be noted that the DoT Hierarchy also includes Long Distance Trails and Training Circuits, although these are not applicable to CoSP.



CoSP Figure 7-2 Aspirational Cycle Network for the CoSP

Revision: 1	Project No: 255909	Date: May 2018
Prepared: S.Richards	Checked: M.LaGalia	Approved: M.LaGalia
Coordinate System: GDA 1994 MGA Zone 50	Source: © Landgate 2017, OpenStreetMap	Scale @ A3: 1:25,000

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Client: Town of Victoria Park, City of South Perth



Legend

Rail Stop	Aspirational Network	Overpass/Underpass	Shopping Area
Railway	Principal Route	Existing Overpass/Underpass	Community Facility
Freeway	Principal Route - by others	Proposed Overpass/Underpass	Hospital Facility
Highway	Strategic Routes	LGA Boundary (City of South Perth)	Education Facility
Main	Strategic Routes - by others	Recreational Park or Reserve	Recreational Facility
Minor	Local Routes	Reserve (Miscellaneous & Other)	
	Local Routes - by others		
	Proposed Cycle Connection		
	Potential Future Connection		
	Within Curtin University		

0 1 2 km



8 Projects and Prioritisation

8.1 Projects and Prioritisation Process

As a result of the research, investigation and consultation undertaken as part of the project, several potential infrastructure projects were identified and shortlisted for inclusion in the **5-year implementation plan**.

A process was then undertaken to provide an indication of the priority with which the CoSP should aim to implement the infrastructure projects. It should be noted that the prioritisation process is subjective and is intended to provide guidance only. Opportunities may arise over the implementation of this Plan which may fast track or hinder the progress of projects.

Prioritisation of Bicycle Infrastructure Proposals, published by the Australian Bicycle Council and the federal Department of Infrastructure, Transport, Regional Development and Local Government, provides guidance on the prioritisation of bicycle facilities. It also suggests a list of criteria for assessing proposed bicycle facilities. These are listed in the form of six objectives which are outlined below:

1. Public Consultation

Consideration of stakeholder concerns and the impact that the project may have on alleviating issues.

2. Strategic

Consideration of how the project fits into the long term aspirational cycle network.

3. Connectivity

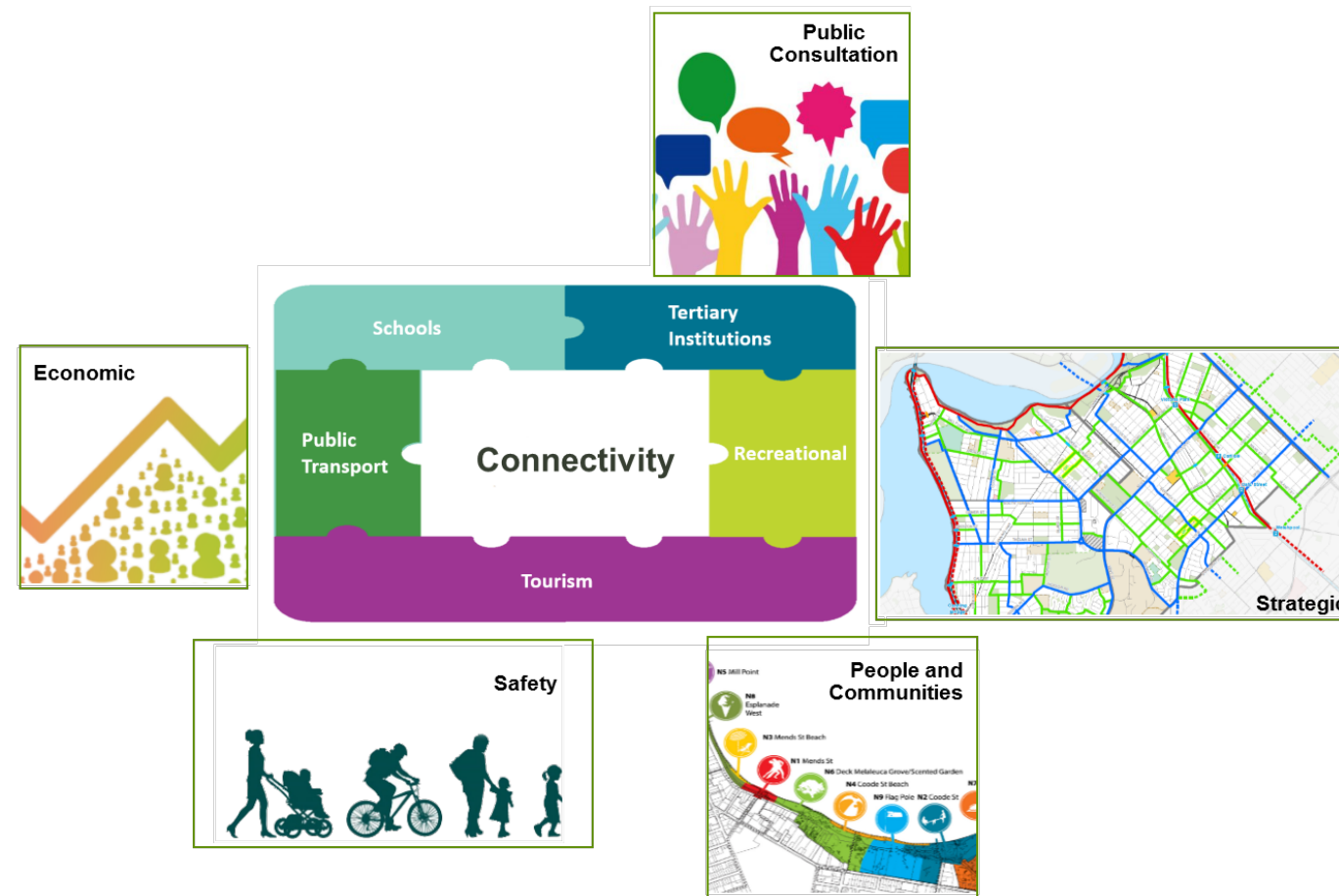
Consideration of how the project may impact accessibility to the following destinations and facilities:

- Schools;
- Tertiary institutions;
- Recreational and tourism facilities;
- Employment zones; and
- Public transport hubs.

4. Economic

Consideration of how the project may impact the following:

- Mode shift – refers to the potential to encourage mode shift away from the private vehicle;
- Impact on motor vehicles – refers to the potential impact on private vehicle trips (i.e. journey times); and
- Impact on accessibility to commercial facilities.



5. Safety

Consideration of how the project impacts general safety of the following users:

- Cyclists; and
- Pedestrians.

6. People and Communities

Consideration of the how the project impacts the following:

- Level of service – refers to the quality or 'bicycle friendliness' of the route, including factors such as coherence, comfort and convenience; and
- Townscape/urban planning – refers to how the proposed project fits into an overall town plan.

Prioritisation of Bicycle Infrastructure Proposals further suggests that the above criteria be used as part of a multi-criteria analysis (MCA). Therefore, in order to prioritise the proposed infrastructure projects, the broad qualitative impact of each proposal was identified under each of the above six objectives.

A score was then assigned for each objective for each project, with the following weightings applied:

Public Consultation: 20%

- For the purpose of this study, the total number of comments from both the community survey and the stakeholder consultation were counted, and then grouped into a range for assessment.

Strategic: 25%

Connectivity: 25%

Economic: 5%

Safety: 15%

- This criterion takes into consideration the number of crashes that occurred on the proposed route.

People and communities: 10%

The sum of these individual scores yielded a total score for each proposal out of 10. The priority level of each proposal was then assigned using the total score, as follows:

- 7.0 -10.0: high priority
- 5.0 – 6.99: medium priority
- ≤ 5.0: low priority

8.2 Infrastructure Project List

A total of seven cycling infrastructure projects are proposed within the CoSP over the next 5-years. High level order of cost estimates have been determined for these projects (further details in Section 9), however further investigation will need to be undertaken to develop detailed concepts and understand the true cost of each project. Funding assistance from other agencies, such as the DoT, will need to be explored during implementation of the Plan.

The detailed project sheets for the CoSP, including project justification, prioritisation ratings and indicative costs are provided in Appendix C.

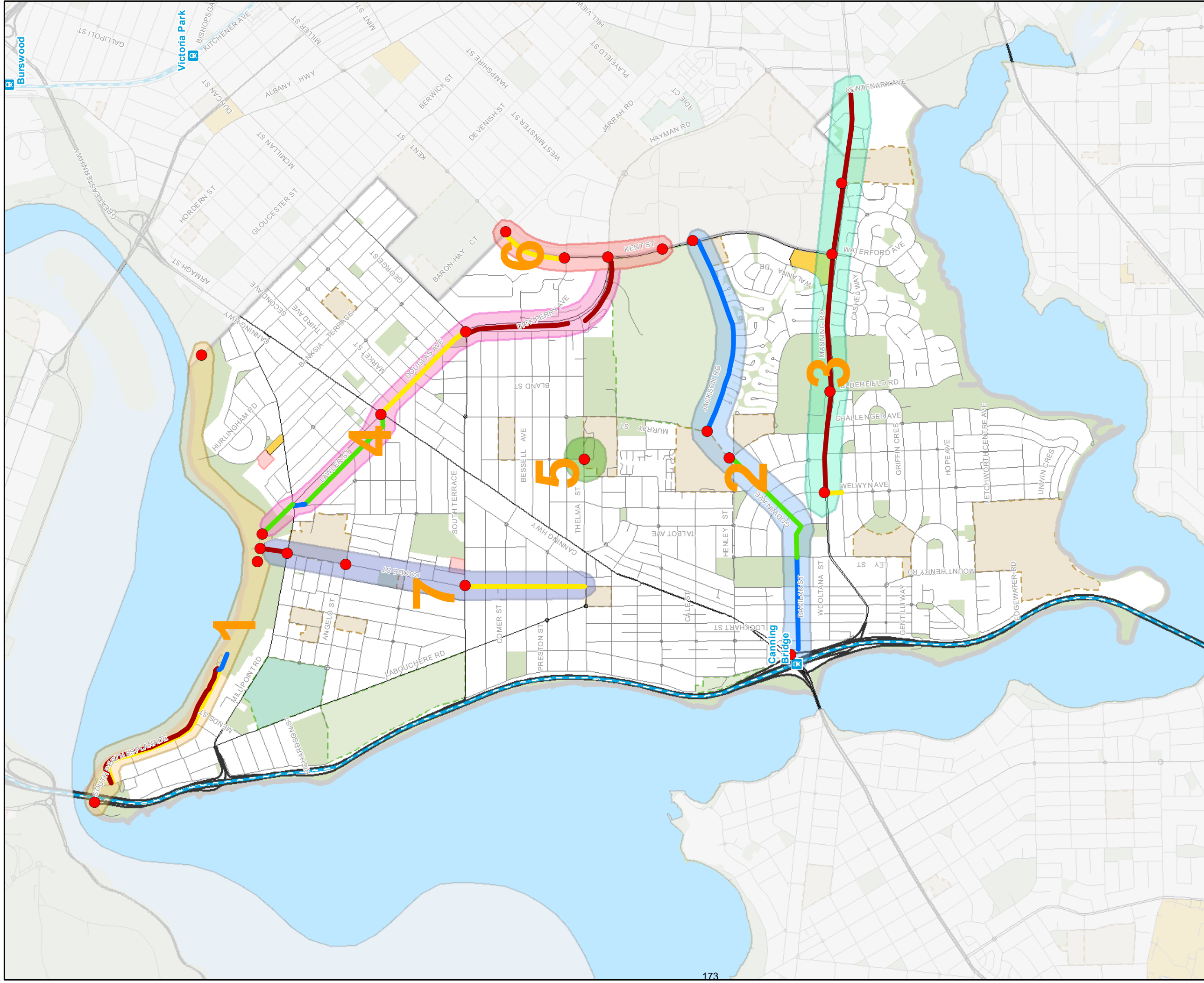
A description of the CoSP prioritised project list is provided in this section, and shown in Figure 8-1. The implementation of these projects will be dependent on further investigation and community consultation.

In line with CoSP's sustainability strategies, where vegetation is required to be removed, it is recommended that this be replaced. As an example, some vegetation can affect sight lines, which could be replaced with the appropriate plant species or ground vegetation.

Table 8-1: Summary of prioritised infrastructure project list for the CoSP

#	Project Name	Location	Description	Public Consultation	Strategic	Connectivity	Economic	Safety	People & Communities	Weighted Total / 10	Estimated Cost*
1	South Perth Esplanade	Between Kwinana Freeway Off-Ramp / Mill Point Road intersection and Ellam Street	This project includes various improvements along the South Perth Foreshore and is divided into several components. The key component of the proposed project involves new and upgraded cycle infrastructure along South Perth Esplanade, either in the form of on-road cycle lanes and wide shared path or development of the route into a safe active street. Additional improvements include modifications at the shared path intersection with the Kwinana Freeway Off-Ramp and the foreshore path crossing points at Coode Street, Douglas Avenue and Ellam Street to provide improved safety and priority for cyclists.	8	10	6.4	6.0	10	10	8.50	\$1,500,000.00
2	Canning Bridge to Curtin Link	Between Canning Bridge to Kent Street	This project provides a connection between Curtin University and Canning Bridge and is divided into three sections. This includes a proposed separated bi-directional cycle path along Davilak Street, a safe active street/bicycle boulevard along Davilak Crescent and Godwin Avenue and a separated bi-directional cycle path along Jackson Road.	4	8	9.8	4.3	10	10	7.97	\$1,800,000.00
3	Manning Road Project	Between Welwyn Avenue and Centenary Avenue	This project includes a number of modifications to provide a complete cycling connection along Manning Road. This includes installing a new shared path between Elderfield Road and Kent Street, and formalising the existing footpath with red paint and pavement markings elsewhere. Cyclist crossing improvements are also proposed at the intersections of Welwyn Avenue, Elderfield Road, Kent Street and the Curtin University South Entrance.	8	8	7.6	6.7	8	8	7.83	\$600,000.00
4	Douglas Avenue Project	Between South Perth Foreshore and Kent Street	This project provides a connection from the South Perth Foreshore to Curtin University and is split into four sections. This includes the development of Douglas Avenue into a safe active street between the South Perth Foreshore and Mill Point Road, a bi-directional path on Tate Street between Douglas Avenue and Lawler Street, the development of Lawler Street into a safe active street, upgraded on-road cycle lanes on Douglas between Canning Highway and South Terrace/George Street, and an upgraded shared path from South Terrace/George Street to Kent Street.	8	8	7.2	3.3	8	7	7.47	\$1,500,000.00
5	Thelma Street Investigation	Between Throssell Street and Kent Street	This project aims to strengthen the east-west cycle route along Thelma Street by investigating an improvement to the gap in cyclist connection between the existing shared path and the Thelma Street on-road lanes.	4	8	7.2	4.0	8	8	6.80	\$30,000.00
6	Kent Street Project	Between Manning Road and Jarrah Road	This project aims to strengthen the overall on-road cyclist connection between Curtin University and the City of Belmont, providing access to key destinations along the route. This includes the installation of on-road protected cycle lanes between Kent Street and Jarrah Road, plus off-road bypass paths at the Jarrah Road, Dick Perry Avenue, Hayman Road, and Curtin Main Street intersections.	4	8	7.4	5.3	7.5	7	6.74	\$400,000.00
7	Coode Street Project	Between Thelma Street and South Perth Foreshore	This project aims to strengthen the north-south connection from the South Perth Foreshore to Thelma Street by filling a gap in the existing network. This includes installing on-road protected cycle lanes between Thelma Street and South Terrace, off-road bypass paths at the South Terrace and Angelo Street intersections, advanced cycle stop boxes at the Mill Point Road intersection and improving the shared path and on-road environment connecting to the South Perth Foreshore.	4	8	6	4.0	9	8	6.65	\$500,000.00

*High level order of cost estimates have been determined for these projects, however further investigation will need to be undertaken to develop detailed concepts and understand the true cost of each project



Legend

- Rail/Stop
- Railway
- Freeway
- Highway
- Main
- Minor
- Separated Path (Bikes Only)
- High Quality Shared Path (Bikes and Pedestrians)
- Bicycle Lanes
- Safe Active Street
- LGA Boundary (City of South Perth)

- 1** CoSP Prioritised Project
- Prioritised Project 1
- Prioritised Project 2
- Prioritised Project 3
- Prioritised Project 4
- Prioritised Project 5
- Prioritised Project 6
- Prioritised Project 7

- Shopping Area
- Community Facility
- Hospital Facility
- Education Facility
- Recreational Facility
- Recreational Park or Reserve
- Reserve (Miscellaneous & Other)



CoSP Figure 8-1 Infrastructure Project Locations for the CoSP

Revision: 1	Project No: 255909	Date: May 2018
Prepared: S.Richards	Checked: M.LaGalia	Approved: M.LaGalia
Coordinate System: GDA 1994 MGA Zone 50	Source: © Landgate 2017, OpenStreetMap	Scale @ A3: 1:25,000
File: laurecon\infoshares\AU\PER\Projects\255909 - Joint Bile Plan CoSP & ToVP - CoSP Folder\3.0\Project\Delivery\GIS\ArcGIS\B014_255909_A3_CoSP_Prioritised_Rev1		
Client: Town of Victoria Park, City of South Perth		



1 South Perth Esplanade Project

The proposed recommendations for South Perth Esplanade are divided into sections and outlined below.

8.2.1 Freeway Off-Ramp/Mill Point Road intersection

There are currently poor sight lines for cyclists crossing the intersection, for what is a heavily utilised cycle route. The following is recommended:

- Investigate the installation of traffic calming devices on the off-ramp to slow cyclists down;
- Install a zebra crossing or raised wombat crossing to increase priority for cyclists at this important crossing; and
- Investigate the drainage/leaking issue on shared path under Freeway bridge. This will require liaison with Main Roads.



8.2.2 South Perth Esplanade (between Mill Point Road and beginning of South Perth Foreshore path)

There are several considerations for cycling along this route, including the following:

- There is strong demand along South Perth Esplanade for high speed cyclists who desire separation from other modes and obstructions;
- There is strong pedestrian demand for recreational use along South Perth Esplanade;
- Driver awareness of cyclists is low in the area, particularly for vehicles turning into and out of Mends Street, and when parking along South Perth Esplanade;
- Mends Street is utilised by cyclists and pedestrians as a connection and destination;

- This area has recorded the highest number of cyclist crashes within the CoSP in the last 5 years; and
- Connect South is a \$7.5 million major project that is currently underway which aims to enhance and invigorate the Mends Street precinct and foreshore area.

The following options are recommended to be further investigated:

- Option 1:
 - Installation of red asphalt on-road cycle lanes along South Perth Esplanade with appropriate signage and line marking. Green asphalt should be used across intersecting roads; and
 - Upgrade the existing shared path to a 3.5m wide red asphalt path with appropriate signage and line marking.
- Option 2:
 - Develop South Perth Esplanade into a safe active street, which may involve the following:
 - Reducing the posted speed limit to 30km/hr;
 - Formalising on-street parking using line-marking;
 - Installing raised plateaus at intersections; and
 - Enhancing the attractiveness of the street.
 - Upgrade the existing shared path to a 3.5m wide red asphalt path with appropriate signage and line marking; and
 - Note that the existing traffic volumes along this route are approximately 3,000 which is higher than the recommended minimum of 1,500 vehicles per day for a safe active street, and therefore this option should be further discussed with the DoT.

As part of the Connect South Project, Mends Street should be treated carefully. The introduction of a 'shared space' along the high activity area of the Mends Street precinct can be an effective option, particularly in this location where there is high pedestrian activity. The shared space concept involves reducing the posted speed limit to as low as 10km/h and integrating all road users to provide pedestrians and cyclists with movement priority over motor vehicles.

Pedestrians should have the highest priority through this section, however cyclists do need to be considered, particularly given the high cycling numbers travelling in the east-west direction, plus cyclists arriving at the Mends Street precinct as a destination. The confident cyclists should be encouraged to use the road (with slow vehicle speed critical for this) and less confident cyclists can utilise a wide shared path along South Perth Esplanade. The cyclist cross flow through the shared space should clearly articulate how cyclists should navigate through the area from the proposed dedicated shared paths. It is recommended that urban design techniques are considered to communicate to cyclists that they are entering a shared environment and modify their riding behaviour, for example using treatments to physically slow cyclists on the approach and alternative pavement marking/signage such as 'reduce speed'/'shared zone ahead' signage. The City of Perth have recently implemented a new shared path along Roe Street, outside of City West Station where the cyclists cross through a

"pedestrian priority zone" (refer to the below images). A similar concept could be considered to minimise cyclist/pedestrian conflict through this area.



Mends Street is a key destination, and as such more bicycle parking should be provided along Mends Street along both sides. Converting parking bays to bicycle parking should be considered (approximately 6 bicycle bays can utilise the space for 1 car bay). Currently up to four bikes can be taken on the ferry service at the Mends Street Jetty, however there should be a dedicated focus in providing more bicycle parking at this destination, as well as a secure bicycle parking facility at the ferry terminal to encourage increased ferry trips. This could be in the form of a bike cage that can be physically locked by the user (i.e. using a padlock), or where the SmartRider card is used. The Public Transport Authority (PTA) could be consulted in this regard. There may be an opportunity to provide bicycle parking facilities in the form of public art to increase the attractiveness and awareness of bicycles using the area.



The CoSP should also investigate the installation of an e-bike charging station within the Mends Street precinct, to encourage and cater for the increased use of e-bikes in the future.

8.2.3 South Perth Esplanade Off-Road Paths

The following is recommended at various off-road path crossings along the existing South Perth foreshore cycle path:

- Existing shared path east of South Perth Esplanade and adjacent to playground/picnic area
 - Install new footpath traversing parallel to existing shared path;
 - Install signage and pavement markings along shared path to indicate 'Bicycle Only' use; and
 - This conflict was highlighted in the 2015 South Perth Foreshore Strategy and Management Plan as part of Node 6.



- Address conflict points and provide increased priority for cyclists along the foreshore path by:
 - Installing traffic calming at road intersections to the cycle path to provide increased priority for cyclists i.e. continuous red asphalt, zebra crossings, wombat crossings or raised plateaus (or a combination of treatments).



During the implementation of the South Perth Esplanade project, supplementary initiatives should be incorporated to support behaviour change and encourage cycling. This should include wayfinding signage, bike parking and amenities and awareness campaigns (discussed in Section 8.5).

2 Canning Bridge to Curtin Link

This project formed part of the previous bike plan, forming a cycle link between Canning Bridge Station and Curtin University.

Each segment of the Canning Bridge to Curtin Link is divided into three sections, with the following recommendations:

- Section 2a: Davilak Street (between Canning Bridge and Ley Street)
 - Install bi-directional cycle path on the northern side of Davilak Street; and
 - Investigate the feasibility of decreasing the posted speed limit to 30km/h.
- Section 2b:
 - Davilak Crescent (between Ley Street and Godwin Avenue)
 - Option 1: Develop into a safe active street by reducing to 30km/h, formalising on-street parking and installing pavement marking; or
 - Option 2: Install off-road red asphalt shared path on the southern side of Davilak Street.
 - Godwin Avenue (between Davilak Crescent and Henley Street)
 - Develop into a safe active street by reducing to 30km/h, formalising on-street parking and installing pavement marking. Install raised plateau at Bickley Street (noting that this provides a connection to the secondary north-south cycle route); and
 - Modify connection from Henley Street to the Godwin Avenue path to provide a direct connection cyclists (in line with the Curtin Bicycle Link Master Plan, May 2015).
- Wayfinding is also recommended as part of the route.

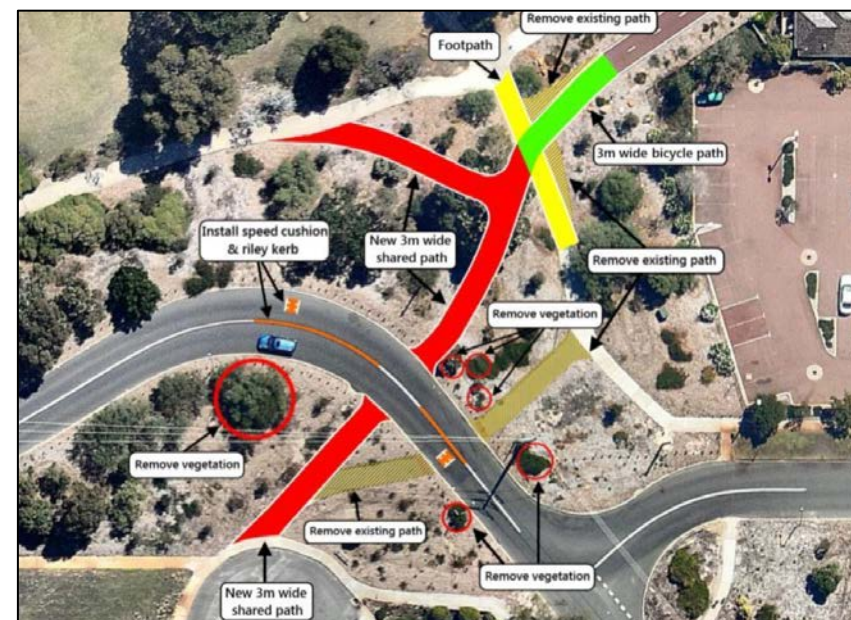


Figure 8-2: Proposed Henley Street path connection (source: Curtin Bicycle Link Master Plan, May 2015)

- Section 2c: Jackson Road (between Henley Street and Kent Street)
 - Replace the existing footpath with two-way bidirectional cycle path along Jackson Road; and
 - Construct new footpath alongside the cycle path, meandering through the existing trees.

During the implementation of the Canning Bridge to Curtin Link project, supplementary initiatives should be incorporated to support behaviour change and encourage cycling. This should include wayfinding signage, bike parking and amenities and awareness campaigns (discussed in Section 8.5). In addition, it is proposed that a bike share scheme is trialled once the project is completed, in liaison with Curtin University and the ToVP (discussed in Section 8.5.5).

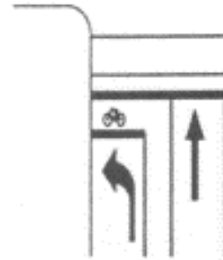
3 Manning Road Project

Manning Road provides a direct east-west connection across the southern section of South Perth to Curtin University and neighbouring councils and is proposed as a secondary cycle route. Existing traffic volumes along the road are excessive (approximately 32,000 vehicles per day), the speed limit is high (70km/hr) and Manning Road is a bus route, which creates a hostile environment for on-road cycling. The off-road paths along Manning Road are narrow and inconsistent, however there is great potential for improvements due to minimal driveway crossovers and generous verge space.

The following modifications are recommended, with further investigation and liaison with adjacent councils required.

- Manning Road (southern side, between Welwyn Avenue and Elderfield Road)
 - Replace existing concrete path with 2.5m-3.0m red asphalt shared path.
- Manning Road/Elderfield Road intersection
 - Upgrade the intersection to include pedestrian/cyclist crossings on all legs, with wide medians and holding rails to cater for cyclists.
- Manning Road (southern side, between Elderfield Road and Marino Place)
 - Install a new 2.5m-3.0m red asphalt shared path, ensuring that the path deviates behind the bus stops where possible; and
 - Investigate the installation of cut-throughs at the various side intersections, including Marino Place, Wexford Court and Fermoy Close.
- Manning Road (southern side, between Marino Place and Kent Street/Waterford Avenue)
 - Replace existing concrete path with 2.5m-3.0m red asphalt shared path.
- Manning Road/Kent Street/Waterford Avenue intersection
 - Install formal pedestrian/cyclist crossings in both east-west directions;
 - Remove existing pram ramps and install cut-throughs;

- Install holding rails at all waiting points at the intersection; and
 - Install zebra crossings across the left-turning lanes to improve pedestrian/cyclist priority to cross the intersection.
- Manning Road (southern side, between Kent Street/Waterford Avenue and Centenary Avenue)
 - Spray existing path with red paint and re-install shared path pavement markings (to be done during the installation of the new Manning Road shared path). This will reinforce and make the cycle route consistent and complete.
 - Modifications to the Manning Road/Curtin University South entrance signalised intersection:
 - Formalise a pedestrian/cyclist crossing on the eastern side of the intersection. Install a wide median cut-through at the crossing and install holding rails to cater for cyclists; and
 - Install zebra crossings at the existing pedestrian crossings to improve priority for cyclists and pedestrians crossing in the east-west direction.



- Welwyn Avenue/Manning Road intersection
 - Install a cyclist advanced stop box at the Welwyn approach at the intersection to allow cyclists to turn left or continue straight along the secondary route;
 - Investigate the narrowing of traffic lanes on Manning Road at the intersection to widen the median crossing and install holding rails to cater for cyclists;
 - Investigate the installation of a pram ramp and pedestrian/cyclist crossing on the eastern side of the intersection with a wide median crossing and holding rails to cater for cyclists. This will facilitate southbound cyclists accessing the southbound cycle lane, from north of Manning Road. Installing a crossing on the eastern side will provide improved priority and amenity for cyclists, however will have an impact on delay of the Manning Road east-west movement. This will therefore require further investigation and studies; and
 - Extend the southbound on-road bike lane up to Manning Road to guide cyclists into it.



4 Douglas Avenue Project

This project forms a key cycle link between Curtin University and the South Perth Foreshore. Traffic volumes across the route vary, with up to 11,000 vehicles per day along the busiest sections. There is no cycle infrastructure available on Douglas Avenue (between Mill Point Road and Canning Highway) and therefore many cyclists utilise the parallel Lawler Street. Douglas Avenue also recorded the second highest number of crashes involving cyclists in the last five years.

The proposed cycle route involves improved cycle infrastructure spanning across the following road sections:

- **Section 4A:** Douglas Avenue (between South Perth Foreshore and Mill Point Road)
- **Section 4B:** Lawler Street (between Mill Point Road and Canning Highway)
- **Section 4C:** Douglas Avenue (between Canning Highway and South Terrace)
- **Section 4D:** Hayman Road (between South Terrace and Kent Street)

8.2.4 4A – Douglas Avenue (between South Perth Foreshore and Mill Point Road)

This section of Douglas Avenue carries low traffic volumes as it does not provide a direct connection to Mill Point Road. As such, it is proposed that this section is developed into a safe active street in order to provide a convenient connection to the existing cycle path along the South Perth Foreshore. This should involve reducing to 30km/h, formalising on-street parking and installing pavement marking. Lighting along this road should also be reviewed, and wayfinding signage incorporated.

8.2.5 4B – Lawler Street

Lawler Street provides a safe alternative route to Douglas Avenue between Mill Point Road and Canning Highway. Lawler Street carries low traffic volumes and connects (via Tate Street) directly to the signalised crossing at Mill Point Road.

The following modifications are recommended, with further investigation and liaison with the relevant authorities required:

- Lawley Street/Mill Point Road intersection
 - Install a bi-directional cycle path adjacent to the kerb on the eastern side of Tate Street connecting directly from Mill Point Road signalised crossing. Formalise parallel parking on one side of the road in this section, ensuring adequate clearance from the cycle path; and
 - Install raised plateau at Tate Street/Lawley Street intersection with north-south crossing to facilitate northbound cyclists coming from Lawler Street.



- Lawler Street/Elizabeth Street (between Tate Street and Canning Highway)
 - Develop this section into a safe active street by reducing the posted speed limit to 30km/h, formalising on-street parking and installing pavement marking.
- Lawler Street/Angelo Street intersection
 - As part of the development of the safe active street, investigate modifications to the intersection to strengthen the cyclist crossing i.e. converting the intersection to left in, left out.

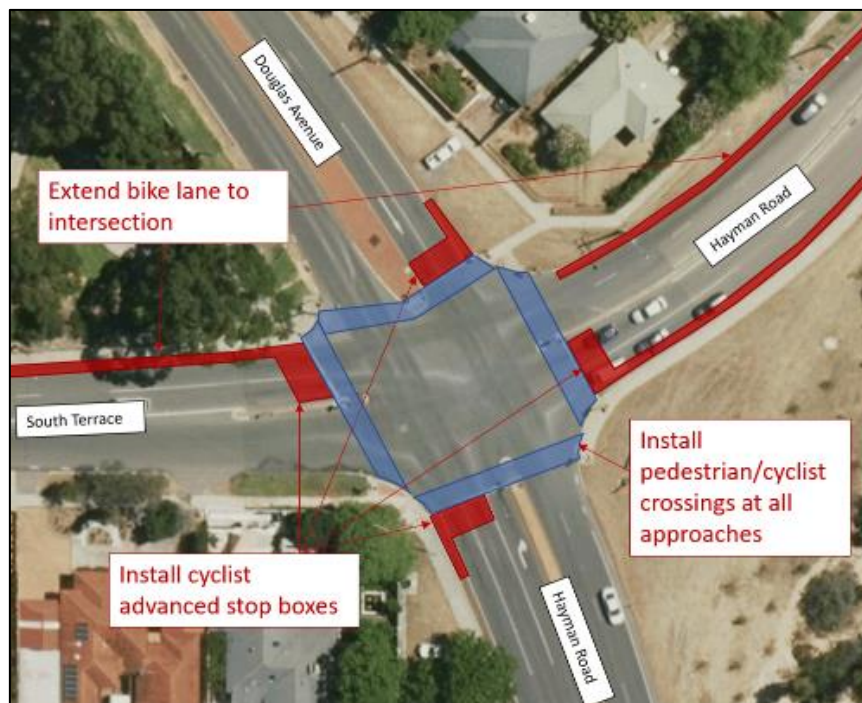
8.2.6 4C – Douglas Avenue

On this section of Douglas Avenue, on-road cycle lanes/ sealed shoulders are currently provided with red asphalt surfacing, however they are not marked as cycle lanes, and are narrow near the South Terrace/ George Street intersection. The on-road cycle lanes do not span the entire length to the Canning Highway intersection, and lack suitable options to enter/exit the roadway. Crossing the intersection of Douglas Avenue/Canning Highway is inconvenient to cyclists, particularly for southbound cyclists using Lawler Street who are required to cross twice with lengthy delay.

The following modifications are recommended, with further investigation and liaison with relevant authorities required:

- Douglas Avenue/Canning Highway
 - It is inconvenient for southbound travelling cyclists to utilise Douglas Avenue from Lawler Street. Investigate improving the north-south connection for cyclists across Canning Highway in collaboration with Main Roads. This could involve modification to the configuration and signal phasing on the Douglas Avenue approaches; and

- Investigate the continuation of cycle lanes and an advanced cycling stop box in the northbound direction on the approach to the Canning Highway intersection.
- Douglas Avenue (between Canning Highway and George Street/South Terrace)
 - Currently on-road red asphalt sealed shoulders are provided, however they are not marked as cycle lanes, and are narrow near the South Terrace intersection. The cycle lanes should be 1.5m at a minimum and it is recommended that protection of the lanes is considered. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane; and
 - As part of this section, cycle access into the Moresby Street activity strip should be considered, i.e. a new path connection at the Moresby Street/Douglas Avenue intersection.
- Douglas Avenue/Kent Street/George Street/South Terrace intersection
 - This intersection is critical as it connects to key secondary cycle routes.
 - It is recommended that the following modifications are investigated at this intersection:
 - Install formal pedestrian/cyclist crossings on all legs of the intersection and investigate widening of the median crossings to accommodate cyclists. Install holding rails in median crossings on all intersection legs;
 - Continue all on-road cycle lanes through the intersection in all directions and install advanced stop cycle boxes on all approaches (may require narrowing of traffic lanes on the South Terrace and George Street approaches); and
 - In order to accommodate the above, minor realignment of the intersection may be necessary.



8.2.7 4D – Hayman Road

- Hayman Road (western side, between George Street/South Terrace and Thelma Street)
 - Upgrade existing path to a 2.5m-3.0m red asphalt shared path.
- Hayman Road (between George Street/South Terrace and Kent Street)
 - Currently on-road sealed shoulders are provided, however they are not sealed with red asphalt nor marked as cycle lanes. It is recommended that when the next resurfacing works along Hayman Road are undertaken that this entire section of on-road cycle lanes is reviewed. The cycle lanes should be sealed in red asphalt at a minimum width of 1.5m and it is recommended that a hatched road marking is installed to provide a buffer zone to the traffic lane. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. Off-road bypass paths should be installed prior to the bus stops to allow on-road cyclists a safe diversion if a bus is stopped.
- Hayman Road (connection to Bessell Avenue)
 - Upgrade shared path connection to facilitate enhanced access to Bessell Avenue (proposed as a local cycling route).



- Hayman Road/Kent Street intersection
 - Install off-road bypass in east-bound direction on the Hayman Street approach at the Kent Street roundabout



- It is also recommended to investigate the reduction of the speed limit to 60km/h for entire length.

5 Thelma Street Investigation

Thelma Street is an important east-west secondary route throughout the CoSP, providing direct connections between Curtin University, Penrhos College and the Kwinana Freeway principal shared path, as well as providing key connections to perpendicular secondary routes.

The connection with the west end of the Penrhos College carpark and Throssell Street is a challenging location for cyclists travelling east-west to navigate. The existing shared path leads cyclists into the carpark, which increases chances of conflicts with vehicles and pedestrians, particularly during school peak periods.

The following is proposed to be explored to improve connectivity and legibility of cycling infrastructure along this key route.

- Thelma Street (between Throssell Street and Murray Street)
 - Investigation into the cyclist connection between the existing shared path and the Thelma Street on-road lanes
 - This should include liaison with the PTA and Penrhos College to understand whether there are any opportunities to modify the bus drop-off layout and movements; and
 - A potential option is to deviate the shared path around the existing parking lot and tie in to the on-road cycle lanes by:
 - Continuing the shared path along the northern edge of the car park. This could be achieved by reducing the size of the cul-de-sac and car park aisle width;
 - Installing raised plateau to raise motorist awareness and slow vehicle speeds;
 - Installing new cyclist crossing for westbound cyclists; and
 - Install wheel stops in car parking bays to prevent vehicle overhang into the cycle path.



6 Kent Street Project

This project forms a key east-west cycle link between Curtin University, through the Town of Victoria Park towards the City of Belmont.

Kent Street is an important secondary route and local route for both less confident and fearless cyclists to access Curtin University. The section is a challenging environment, with Kent Street catering for high traffic volumes, a high frequency bus route and posted speed limit of up to 70km/h.

In addition to the recommendations outlined below, additional improvements to cycle infrastructure along Kent Street are proposed in the ToVP recommendations (due to local government boundaries). Due to the unique nature of Kent Street, all proposed upgrades to Kent Street are recommended to be undertaken jointly by the CoSP and ToVP.

The following modifications are recommended, with further investigation and liaison with the relevant authorities required:

■ Kent Street/Curtin Main Street intersection

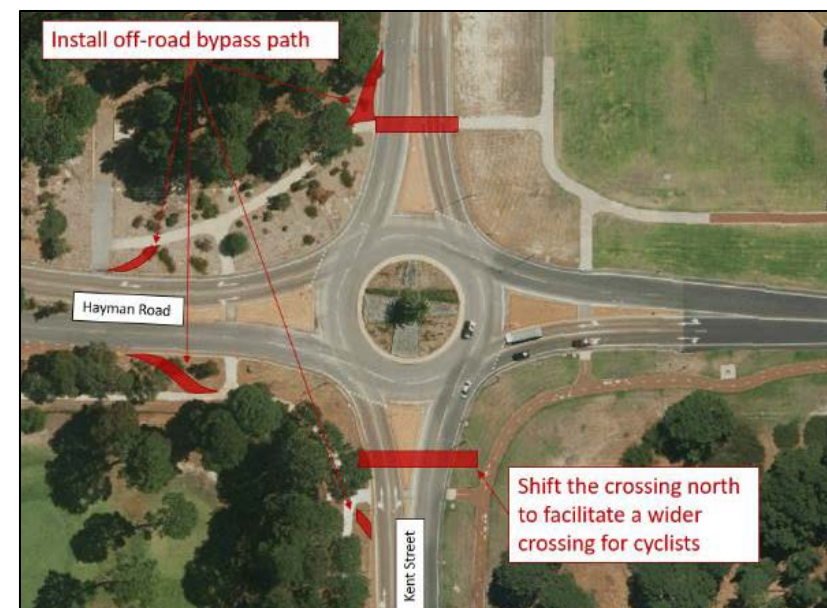
- The intersection was recently upgraded, however removes priority for cyclists. It is recommended that an off-road bypass path is provided at the crossing point located just south of the intersection to give on-road cyclists travelling northbound a safe option to enter the Curtin Main Street. Signage should be provided to direct cyclists off the lane to access the Curtin Main Street and holding rails should be installed in the central median.



■ Kent Street/Hayman Road intersection

- Install off-road bypasses on Kent Street to provide smooth transitions for northbound on-road cyclists on both sides of the roundabout;
- Install holding rails on all legs of the intersection; and

- In collaboration with the ToVP shift the central wide the central median crossing to cater for cyclists (minimum 2.5m) plus holding rails.



■ Kent Street (western side, between Dick Perry Avenue/Turner Avenue and Jarrah Road/Baron-Hay Court)

- Currently narrow, inconsistent sealed shoulders are provided in this section. It is recommended that new 1.5m formal on-road bike lanes with red asphalt and bicycle pavement markings are installed (approximately 400m length). Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. Separation in the form of painted line marking should be considered. This should be undertaken in collaboration with the ToVP.

■ Kent Street/Dick Perry Avenue/Turner Avenue intersection

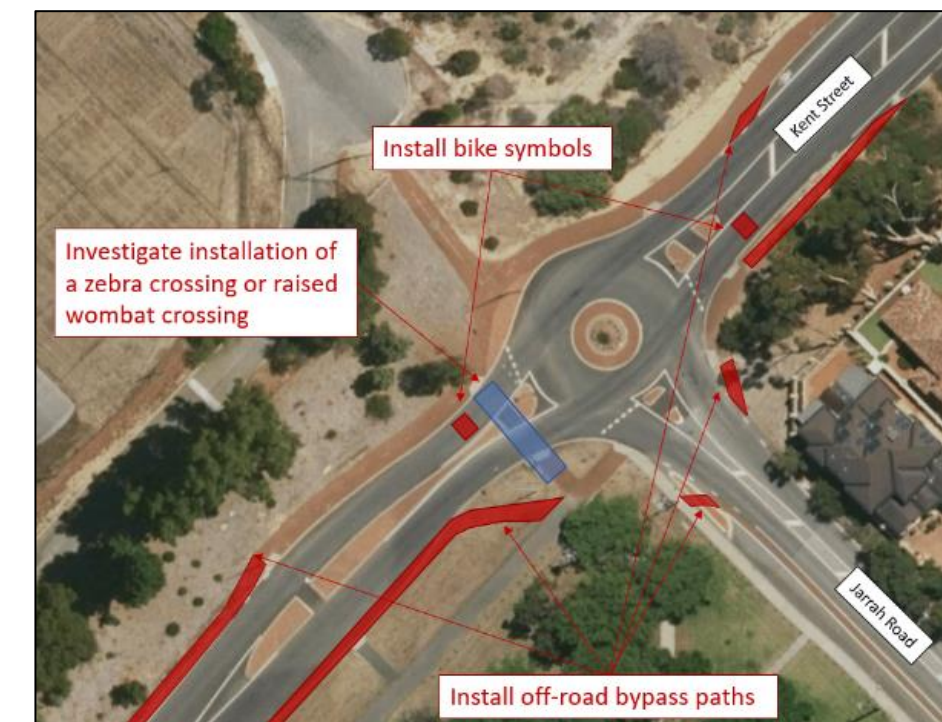
- Install off-road bypasses on Kent Street to provide smooth transitions for northbound on-road cyclists on both sides of the roundabout.



■ Kent Street/Jarrah Road/Baron-Hay Court

In collaboration with the ToVP, the following is recommended:

- Realign the existing off-road bypass path to provide a smooth transition for on-road cyclists opting to navigate the roundabout;
- Install holding rails on all approaches to the intersection;
- Install bicycle pavement symbol in the centre of the approach lane on Kent Street to raise driver awareness for cyclists circulating the roundabout; and
- This is an important intersection for cyclists, as it also connects to a local cross route. The following improvements are recommended in collaboration with ToVP:
 - Install appropriate off-road bypass paths with smooth transitions for on-road cyclists on all approaches to the roundabout to ensure connectivity. Construct an entry ramp onto the southbound bike lane along Jarrah Road from the south-east corner of intersection; and
 - Consider installing a zebra crossing or raised wombat crossing on the south-western leg of the intersection to assist cyclists in crossing the local route.



7 Coode Street Project

Coode Street provides a north-south direct connection between Como Primary School, Wesley College and the South Perth Foreshore. This route carries traffic volumes generally below 6,000 vehicles per day and the posted speed is 50km/hr.

Existing cycle lanes exist between South Terrace and Mill Point Road, however there are no formal cycle lanes between South Terrace and Thelma Street. The existing on-road bike lanes discontinue at the Mill Point Road, Angelo Street and South Terrace intersections, and there is a lack of suitable safe options to enter/exit the roadway from the cycle lanes at these locations.

The following recommendations are proposed (beginning from the Coode Street/Thelma Street intersection):

■ Coode Street (between Thelma Street and South Terrace)

There are no formal cycle lanes, forming a gap in the cycle network.

- Install 1.5m red asphalt on-road cycle lanes;
- Install cycle bypasses around existing median island pinch points; and
- Install off-road bypass paths at the Comer Street and Preston Street roundabouts.

■ Coode Street/South Terrace intersection

At this intersection one traffic lane diverges to two at the intersection putting cyclists into a dangerous position. The potential for road widening to provide continuous cycle lanes through the intersection is limited due to the narrow cross section and surrounding land constraints.

- Install on-ramps/off-ramps connecting from on-road cycle lanes to allow cyclist to cross at the pedestrian signal crossings and then re-enter cycle lanes after the intersection.

■ Coode Street/Angelo Street intersection

At this intersection one traffic lane diverges to two at the intersection putting cyclists into a dangerous position. The potential for road widening to provide continuous cycle lanes through the intersection is limited due to the narrow cross section and surrounding land constraints.

- Install off-ramp connecting from on-road cycle lane to allow cyclist to cross at the pedestrian signal crossing; and
- Further investigate the continuation of cycle lanes at the north approach and departure.



■ Coode Street/Mill Point Road intersection

The intersection provides a squeeze point putting cyclists in a dangerous position.

- Investigate installing advanced stop cycle boxes at the intersection on the southern approach.



■ Coode Street (between Mill Point Road and the South Perth Foreshore)

- Upgrade the existing footpath between the South Perth Foreshore and Mill Point Road to a 2.5m-3.0m red asphalt shared path with appropriate line marking and signage, ensuring appropriate tie in to the Mill Point Road intersection. Additionally, consider the installation of cycle friendly traffic calming devices to reduce vehicle speed for on-road cyclists.

8.3 Minor Works Improvements

Several infrastructure improvements to additional cycle routes, not captured in the key project recommendations, have also been identified where relatively minor works is required. It is proposed that these 'quick win' projects are also completed over the next five years to improve the amenity of cycling routes. These improvements are listed below:

8.3.1 Thelma Street

- Remove 'pedestrian only' signs and install shared path signage along the Wesley Playing Fields;



- Install an appropriate off-road bypass path with smooth transition at the traffic calming device;



- At the existing roundabout of Thelma Street/Murray Street, the connection to the existing shared path from the Thelma Street on-road cycle lanes is currently inconvenient for cyclists. Investigation into improving this important east-west connection for cyclists should be undertaken;

An infrastructure option that could be investigated is the installation of a direct ramp connection for westbound on-road cyclists connecting to the off-road path. This type of treatment is not believed to have been used in Perth, and could be trialled to determine whether it provides a safe option;

- It has been observed that vehicles often park on the existing shared path along Thelma Street (west of Murray Street) during peak parking demand periods at the adjacent Penrhos College. This parking is not acceptable and should be enforced by the CoSP. Regular monitoring of the area by CoSP rangers and fines to offending vehicles should be given. Additional signage could also be erected to indicate no parking is allowed. The level of compliance should be monitored in the short term, and more permanent protection of the path (i.e. flexible bollards) should be investigated if there is continual non-compliance;



- Install an appropriate off-road bypass path at the Thelma Street/Labouchere Road intersection; and
- Install a pedestrian crossing connecting directly to the Thelma Street overpass.



8.3.2 Labouchere Road

- Install appropriate off-road bypass cycle paths connecting to the existing on-road cycle lanes at the Preston Street and Thelma Street intersections.

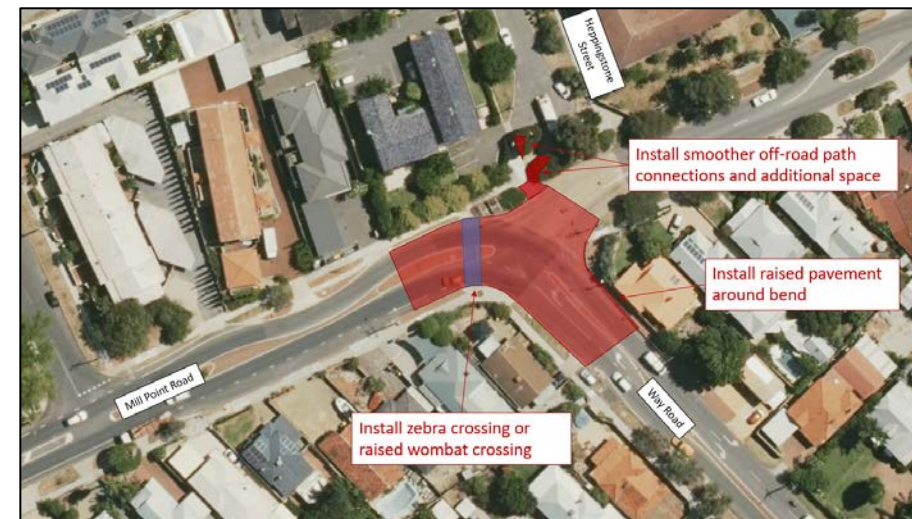
8.3.3 Welwyn Avenue

- Install appropriate off-road bypass cycle paths connecting to the existing on-road cycle lanes at the Hope Avenue and Conochie Crescent intersections; and
- Investigate the indentation of the existing on-street car parking bays on the eastern side of Welwyn Avenue, just south of the Griffin Crescent intersection into the verge to allow the continuation of on-road cycle lanes outside of the door zone of vehicles.



8.3.4 Mill Point Road

- Investigate the modification to the intersection of Mill Point Road and Way Road to slow vehicles approaching the bend and enhance the connection to Heppingstone Street whilst providing safe and convenient access to the existing on-road cycle lanes on Mill Point Road. A potential option could be to install a raised plateau at the intersection with zebra crossing to slow vehicles and allow priority crossing for pedestrians and cyclists.



8.3.5 Manning Road

- Widen the existing pram ramp on the western crossing of the Manning Road/Centenary Avenue intersection to allow additional storage space for crossing cyclists.



8.3.6 South Terrace

- Investigate the modification of the traffic calming devices between Murray Street and Hayman Road, which currently require eastbound cyclists to exit the roadway and use the existing path that is shared with pedestrians. Consistent with the surroundings calming devices, a dedicated path or lane for cyclists is required, to reduce conflict for cyclists.



8.3.7 Melville Parade shared path extension from Richardson Street

- Install a new shared path connection from the existing Richardson Street shared path to the Kwinana Freeway overpass.



8.3.8 Banksia Terrace

- Investigate improvements to lighting, signage, pavement surface and general amenity of the existing underpass. Modify the access to the cycle path to provide a smoother transition for cyclists; and
- Investigate providing priority for cyclists across the Third Avenue and Fourth Avenue intersections. Note the example below of cycle path priority across a minor intersection (Leake Street, Bayswater).



8.3.9 Bicycle Detection Loops

A common issue is the consistency of application of bicycle detection loops at signalised intersections. Without bicycle detection loops traffic signals will not be activated until general vehicles arrive at the intersection. This can often add frustration and inconvenience for cyclists during off-peak periods. The CoSP should audit all intersections within their jurisdiction to identify all applicable intersections that do not have bicycle detection loops and liaise with Main Roads to implement them.



8.4 Areas Outside Local Government Control

A number of issues identified are located in areas outside of local government control. It is proposed that the CoSP lobby for improvements to these areas, as described below:

8.4.1 Canning Bridge and Kwinana Freeway PSP (south of Canning Bridge)

The Kwinana Freeway PSP is highly patronised by both pedestrians and cyclists (particularly on weekends) and is a critical element of the cycle network.

- The section of PSP south of the Canning Bridge is poorly lit, particularly in sections through dense vegetation creating an insecure environment;
- The surface of the PSP through this section is in need of resurfacing with sporadic patchwork along the route and an inconsistent edge line which can be difficult to see at high cycle speeds; and
- Sand was also observed along the PSP through this section

The Kwinana Freeway PSP is under the control of Main Roads and as such it is recommended that the CoSP lobby to Main Roads to consider the following:

- Kwinana Freeway PSP (between Canning Bridge and Mount Henry Bridge)
 - Review this section of the PSP and investigate the feasibility of separation or path widening. Cyclist volumes for this section are approximately 1,265 per day (2014/2015, Main Roads permanent counter). It is recommended that the daily volume of pedestrians should be surveyed to determine the peak demands and justify the separation or widening;
 - Resurface existing path and install edge lines to improve demarcation of path;
 - Install path lighting; and
 - Ensure that the PSP is maintained regularly through liaison with Main Roads.
- Canning Bridge
 - Sections of the PSP under Canning Bridge is flooded during high river tides and wet weather. It is recommended to adopt a similar treatment to the shared path beneath the Causeway in Victoria Park;
 - Cyclists are required to cross Canning Highway at four signalised crossings to access Canning Station with high delays. Improved

priority for cyclists connecting to Canning Station should be investigated. The above should be considered in any future works planned in this area by the Transport Portfolio;

- As part of the Canning Bridge Activity Centre Plan, a future ferry terminal is proposed, which should provide priority access for pedestrians and cyclists and should be considered in any future works; and
- The Public Transport Authority monitor the usage of the bicycle storage facilities. Any future works should consider modifications and potential upgrades to these facilities.



8.4.2 Canning Highway crossing at Cale Street

Cale Street provides an important east-west connection through the CoSP and provides a convenient connection to the Labouchere Road cycling route. The existing crossing of Canning Highway is an issue as it is not wide enough to accommodate cyclists. The following is recommended:

- Investigate providing an appropriate staggered crossing across the Canning Highway intersection to facilitate cyclists, in liaison with Main Roads. A staggered crossing is one that is provided at a slight distance apart, therefore preventing users from crossing in a straight line.



8.5 Supplementary Project List

While investment in cycling infrastructure is highly important, there are a range of additional measures that can be employed to complement this investment, which are included in the following section.

8.5.1 Wayfinding

Wayfinding informs users of their surroundings in the built environment. It is important to show information at strategic points to guide people in the right directions. There is currently a lack of information on most routes, including directions to key links and areas of activity. The previous strategy was completed in 2010 and requires updating. It was noted during the saddle surveys that the signage used for wayfinding needs updating (see Figure 8-4).



Figure 8-3: Lack of wayfinding at Sir James Mitchell Park foreshore path intersection with Coode Street path.

A wayfinding strategy for the state-wide strategic cycle network is currently being developed by the DoT. Some of the key routes of the strategic network are within CoSP and therefore an updated wayfinding strategy for the ToVP local network will require alignment with the strategic network wayfinding. This is particularly important for key attractors and destinations, such as Perth Zoo, Curtin University, Mends Street and Jetty, Preston Street and Manning Hub. Particular routes mentioned include Douglas Avenue/Lawler Street, Banksia Terrace, and at all freeway overpasses.

It is recommended that a joint local wayfinding strategy is undertaken over both CoSP and ToVP council areas. Liaison with Curtin University and other key destinations (i.e. Perth Zoo) should also be undertaken to provide improved awareness and consistency of entire cycle routes to local destinations (particularly at key intersections). For example, strong wayfinding from Canning Bridge to the Causeway should be provided to indicate a clear alternative route to Canning Highway for cyclists. Creative and playful branding for wayfinding signage could also be explored, such as the example shown in Figure 8-5 which was completed as part of the DoT's Your Move program (discussed further in Section 0).



Figure 8-4: Existing cycle wayfinding at Thelma Street /Murray Street intersection



Figure 8-5: Cycling wayfinding pavement markings in City of Wanneroo

8.5.2 Bike Parking and Amenities

Bike parking and amenities help complement the cycle network by reducing inconveniences associated with cycling. There is a demand for end of trip facilities at a number of locations throughout CoSP, particularly at areas with commercial activity. An audit/gap analysis of existing end of trip facilities is recommended to help gain an understanding of current supply and demand which would inform Council of the locations that could be benefited the most from investment. The size and type of facilities that are suitable (i.e. secure bike parking, sheltered and functional bike racks and lockers) should also be considered in the analysis. The term bike rack refers to the device to which you fix your bike to. It is recommended that these be in the form that supports the entire bicycle (i.e. U-rails) and allows users to lock the bicycle frame and wheels (Department of Transport, 2014). Retrofitting vertical poles with bicycle parking racks is a potential option to increase bicycle parking. The CoSP should also aim to install bicycle parking racks at all sports grounds and playgrounds.

There is also a lack of bicycle repair and pump stations throughout CoSP, and is recommended that these be located in popular destinations with the

end of trip facilities. Additionally, water supply stations should be located throughout the cycle network.

In addition to the completion of an audit/gap, it is recommended that the following parking and amenities be installed:

- Bicycle Pump and Repair Station:

- Mends Street Jetty;
- Manning Hub;
- George Burnett Park; and
- Along the South Perth Foreshore at Coode Street.

It is noted that a bicycle repair station is proposed at the west side of Canning Bridge (City of Melville).

- Water fountains are also recommended to be installed at the above locations.

- Secure and sheltered:

- In line with the 2017 South Perth Peninsula Place and Design Report it is recommended to provide secure and sheltered cyclist storage capable of accommodating more bicycles near the Mends Street Jetty.

- Sheltered Bike Parking

- Mends Street;
- Manning Hub;
- Angelo Street shops;
- Preston Street shops (i.e. IGA);
- Como IGA;
- Moresby Street shops;
- Canning Bridge (liaison with PTA);
- Major bus stations; and
- South Perth Operations Centre.

- Bike racks

- George Burnett Park;
- Angelo Street Shops;
- Clontarf Campus; and
- Richardson Park.

- It is recommended to explore the use of bike parking as a tool to enhance the urban environment (i.e. art bike racks). Opportunities to advertise the health and environmental benefits of cycling, and behaviour change programs, events, and campaign should also be explored; and

- In addition, the CoSP should investigate the installation of e-bike charging stations to encourage and cater for the potential increased use in e-bikes. A potential location to include an e-bike charging station is along the Mends Street precinct.



Figure 8-6: Bicycle shaped bike rack

8.5.3 Cycle Monitoring

The use of cycle counters helps to understand cycling patterns over time and inform cycle-related projects into the future. There is currently a lack of cycle data available in CoSP.

Three permanent cycle counters currently exist in CoSP, which are located on the Kwinana Freeway PSP at Mill Point, the foreshore separated path at Sir James Mitchell Park, and separated path off Henley Street (adjacent to Como Secondary School).

It is recommended that cycle data collection be increased for CoSP and analysed on a regular basis (i.e. annually) to determine changes in cyclist use. Permanent counters should be installed along key cycle corridors and temporary counts should be undertaken when possible as part of road traffic counts. PBN grant funding is also available for cycle data collection, which should be applied for. The following locations are recommended for the installation of permanent bicycle counters:

- Manning Road shared path on the south side, west of Kent Street. This will help capture trips heading east-west through CoSP and to Curtin University. This will also help measure the success of the proposed shared path upgrade (refer to Project 3 in Section 8.2);
- Hayman Road shared path, on the south side west of Kent Street. This will help capture trips heading north west-south east through CoSP from the Swan River Foreshore to Curtin University;
- Lawler Street Safe Active Street. This will help capture trips heading north west-south east through CoSP to/from the Swan River Foreshore. This will also help measure the success of the proposed works as part of Project 4 in Section 8.2; and
- Thelma Street shared path, just west of Murray Street. This will help capture trips heading east-west through CoSP. This will also help measure the success of the proposed works as part of Project 5 in Section 8.2.

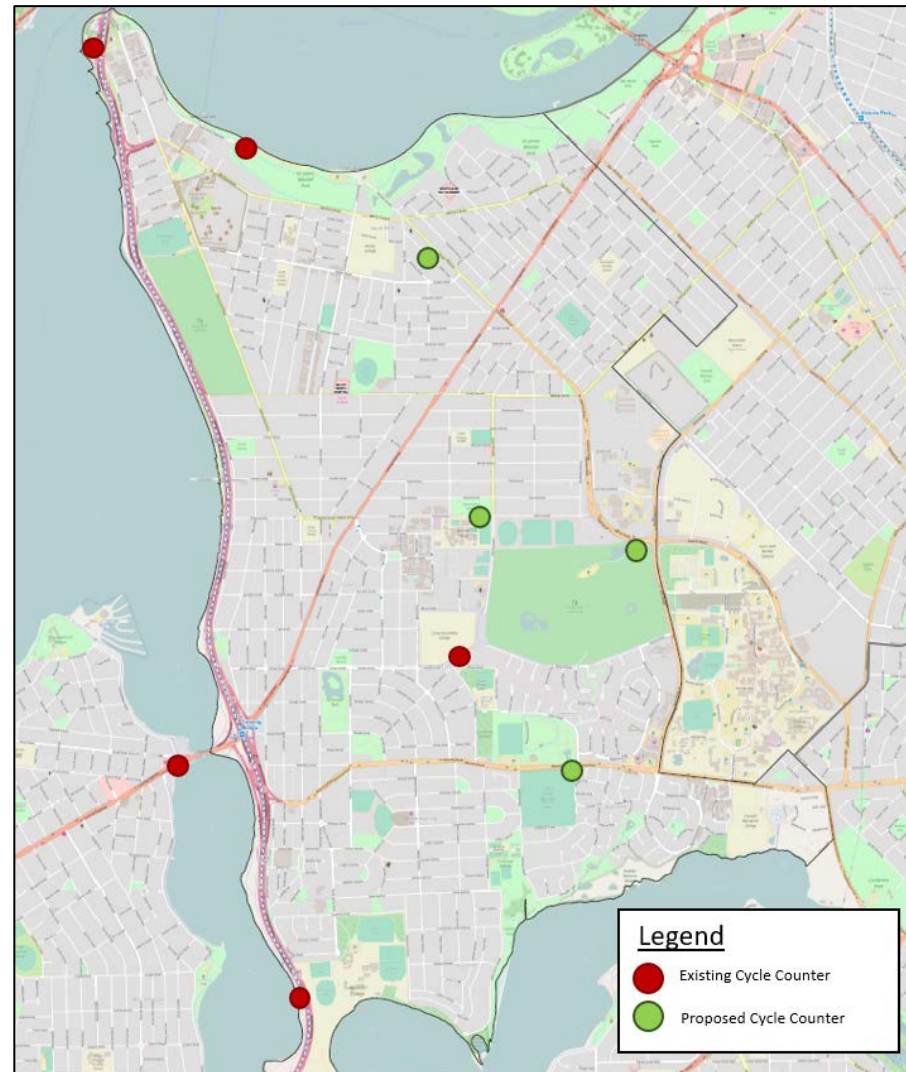


Figure 8-7: Proposed location of permanent cycle counters in CoSP

In addition, the number of pedestrians using shared paths should be monitored regularly (i.e. using video surveys), to assess demand and justify the potential need for path widening or separation. The CoSP should allow for the collection of pedestrian data at the above sites on a regular basis, i.e. annually.

8.5.4 Dedicated Cycle Tracks

Cycle tracks located in community parks for recreational use are increasing in popularity throughout Perth. These facilities provide an environment for cyclists to ride separate from general traffic. A number of local governments have installed cycle track facilities in Perth which have been observed to have high levels of use. Two popular types include:

- Pump Tracks – These facilities often consist of circular loops with smooth dirt mounds and berms that cyclists can ride around in a pumping motion. These facilities can also include bike jumps, which are associated with more experienced cyclist skills; and
- Bike Skills Track – These facilities often consist of asphalt path circuits with pavement markings and signage simulating an urban traffic environment. These facilities are targeted for youth/beginner cyclists.

The highest cycling participation rate for CoSP was among children aged under 10 and is also considerably higher than for Perth. In addition to the community feedback, it is clear that there is a considerable demand is likely for Bike Skills Track and Pump Track facilities.

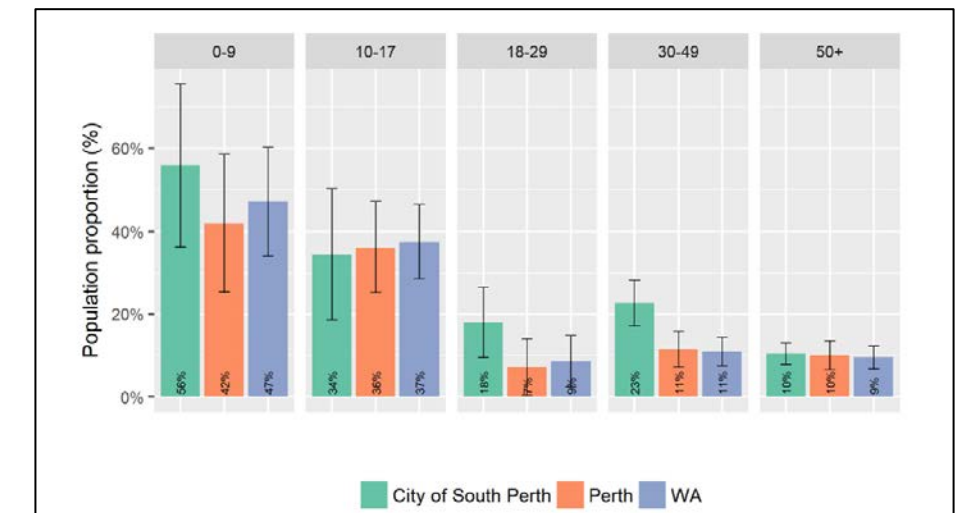


Figure 8-8: Cycling participation by age (source: National Cycling Participation Survey 2017)

A recent example for this is at Shepherds Bush Park in Kingsley, Joondalup. This facility has a 'Pump and Jump Track' which additionally features jumps to offset the replacement of the BMX park. A children's Bike Skills Track is also located adjacent to this.



Figure 8-9: Shepherds Bush Bike Skills Track (left) and Pump and Jump Track (right) (source: City of Joondalup)

It is proposed that a Pump Track and Bike Skills Track be constructed at George Burnett Park at suitable location (see Figure 8-10). This location provides adequate space, cycle connections, parking, public bathrooms and barbeque facilities. This corresponds with existing uses at George Burnett Park which consists of an existing cycle loop track and skate park. The facility should consider CPTED (Crime prevention through environmental design) principles.





Figure 8-10: Potential locations of for Pump and Bike Skills Tracks at George Burnett Park (source: ArcGis)

State funding is available for these projects as part of the Trails program. Comparing to the Shepherds Bush Park facilities, the Bike Skills Track can expect a construction cost of approximately \$60,000 and the Pump Track \$70,000. It should be noted however that these facilities are the largest of their type in the State, and could be smaller. Construction of Pump Tracks requires specific expertise and youth services are required for involvement in the design and operation. A yearly maintenance budget must also be considered for the facilities. Lessons learnt from previous councils should be enquired further prior to the development of the project (i.e. City of Joondalup), to more accurately understand project considerations. It is recommended to investigate existing dedicated cycle tracks in CoSP (i.e. kids track at Manning Primary School). Those determined as suitable could be considered for inclusion on the Your Move metropolitan map.

8.5.5 Trial Projects

Trial projects help kick-off new initiatives and projects that benefit cycling. A number of recent trial projects have proved successful including in CoSP such as the RAC Intellibus, which has attracted a high number of people to visit South Perth Esplanade to trial the fully driverless shuttle bus. The Safe Active Street projects have also received funding by DoT (i.e. Shakespeare Road, City of Vincent) which has helped with construction and marketing for alternative cycle treatments.

It is recommended to investigate the following projects:

- Innovative solutions to improve cycling priority
 - As part of the Connect South Project, support the introduction of a ‘shared space’ along the high activity area of Mends Street. The shared space concept involves reducing the posted speed limit to 30km/h and integrating all road users to provide pedestrians and cyclists with movement priority.
- Cycle volume and speed device

- Investigate the installation of an automated cycle counter, such as the ‘Bike Barometer’ (see Figure 8-11). This device records passing cyclists and pedestrians, and displays real-time cycle counts for the day, month, year and sometimes lifetime of the device. Not only does a device such as this help understand cycle patterns, but also raises awareness for cycling and gives cyclists a sense of public acknowledgement for choosing to cycle. Encouraging messages that display the benefits of cycling can also be incorporated into the device, i.e. “You have saved the economy \$XX by cycling today”, “you saved XX fuel emissions today”. These devices have been fitted in locations around the world, as well as in Australia. The bike barometer shown in Figure 8-11 was fitted as part of a joint venture between a local bike store and the City of Moreland.

A potential location includes the shared path on the south approach to the Narrows Bridge.

- Investigate the installation of a device that indicates real-time speed to cyclists along shared paths (similar to roadwork sites) and to ‘slow down’ if required. This can help promote behaviour change, encouraging cyclists to reduce speed in areas of high pedestrian and cyclist demand. A potential location includes the shared path west of the Mends Street jetty. This improves safety for sustainable travel modes, which could potentially attract funding from RAC, as it aligns with their mobility agenda.



Figure 8-11: Example bike barometer in Melbourne, Victoria (source: <http://www.velocycles.com.au/over-counter/>)

- Curtin University Bike Share Scheme
 - The proposed cycle network will significantly improve the cycling connection between Curtin University and Perth rail lines. Through the proposed Canning Bridge to Curtin Link project (CoSP project 2 in Section 8.2) there will be an improved cycling connection between Canning Bridge Station and Curtin University, and through the Kent Street project (ToVP project 2 in Section 15.2) there will be an improved cycling connection between Curtin University and Victoria

Park and Carlisle Stations. It is recommended that CoSP work with Curtin University and the ToVP to investigate establishing a bike share scheme with bike share docking stations located at Canning Bridge Station, Victoria Park and/or Carlisle stations and Curtin University to complement the proposed projects as part of this Plan. The potential for bike docking stations at other key locations where there is the potential for high uptake, i.e. high density locations and/or high percentages of student housing should also be investigated. The stations should be provided in locations that provide good passive surveillance, lighting and with good accessibility to the destinations.

- Urbi bike share facilities have recently been installed at the City of Joondalup as part of a 12-month trial, with stations located around the town centre. Urbi is partnering with a number of businesses in Joondalup, such as Edith Cowan University which offer discounts to students. The scheme works by registering on the Urbi phone application, locating a bike share station, unlocking the bike and helmet (with a code supplied by the phone application), cycling for a maximum of 45 minutes, returning to any bike share station, and finishing the hire (see Figure 8-12). Payment is completed through the phone application, and is costed per a single, daily, weekly, or monthly rate provided trips are less than 45 minutes. Trips that exceed 45 minutes are charged an additional \$6 per hour.

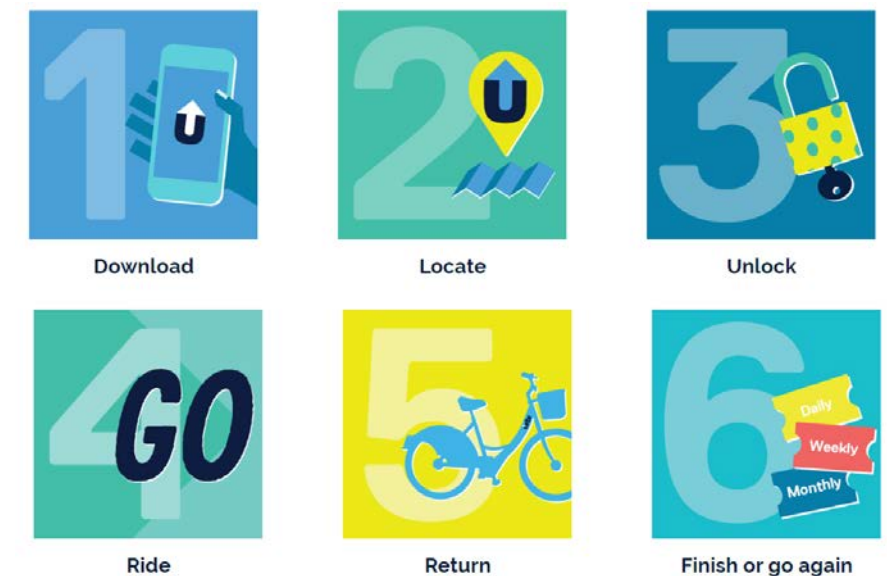


Figure 8-12: Six steps for use of Urbi Bike Share (source: <http://urbi.bike/>)

- The 2017 South Perth Peninsula Place and Design Report proposed to support public bike-share implementation and installation where possible, potentially in cooperation with the City of Perth to establish a shared system with hire stations on both sides of Perth Water. This should be further investigated. A consistent state-wide bike share scheme could provide increased benefits overall (i.e. better legibility and consistency in equipment), but would require state level involvement.
- Alternative cyclist transition at three-legged roundabouts
 - As discussed in Section 8.3.1, an infrastructure option that could be trialled at the intersection of Thelma Street/Murray Street is the installation of a direct ramp connection for on-road cyclists connecting to an off-road path. This would provide a convenient option for cyclists. This type of treatment is not believed to have been used in Perth, and could be trialled to determine whether it provides a safe option.

8.5.6 E-bike Scheme

E-bikes are gaining in popularity and could help encourage people to cycle because they do not require as much physical energy to operate compared to traditional bikes and allow a longer distance of travel for the equivalent amount of energy expenditure.

E-bike salary sacrificing has recently been ruled in favour of by the ATO and as a result, there are leasing and financing companies that provide e-bike packages to employers. The program typically works by deducting a monthly fee from the employee's wage, which is the pre-tax wage if the employee agrees to use the bike predominantly for work-related travel. It is recommended that CoSP/ToVP offer an e-bike salary sacrifice service to City staff and promote to other organisations to offer the same service.

8.5.7 School Infrastructure Improvements

Cycle safety for youth is a critical aspect that must be considered for schools. Four primary schools in CoSP have been previously audited for cycle infrastructure with a number of infrastructure improvements recommended. It is recommended that these improvements be completed and more schools also be audited. As part of this work, consideration of 'school zones' should be investigated, where access to the area is restricted to vehicles and prioritised for cycling and walking. This was raised as a potential treatment from the community workshop, and could be investigated as a trial project.

As part of the school cycle infrastructure improvements, a marketing campaign aimed at parents could be undertaken to encourage students to cycle to school. Incentives and rewards for students that cycle could also be implemented. This could then lead to a reduction in demand for car parking. Additionally, this could increase the social acceptability of children riding to school unsupervised.

8.5.8 Behaviour Change Projects

In order to maximise the benefit of cycle infrastructure improvements, it is recommended to employ cultural and behavioural change strategies to encourage more people to participate in active transport and realise the benefits of the investment.

8.5.8.1 Your Move

The Department of Transport's Your Move program supports communities, local governments, schools and workplaces to promote active transport and reduce congestion. The two parts of the Your Move Program include:

- Joining Your Move online
 - Support is offered to local government, school and workplace 'champions' who want to promote walking, cycling and public transport. Through registering on the Your Move website, organisations can access information, run travel surveys, choose activities to implement, and share activities to earn rewards. Training and networking forums also run each quarter.
 - It is recommended that CoSP sign up to the program to enable internal champions to drive the Program at the council. Having CoSP lead the

program in the area will encourage other organisations to also participate.

- It is also recommended that CoSP engage with a number of organisations in the area to promote the program (i.e. Curtin University).
- Intensive Project Partnership
 - The Department of Transport also undertakes intensive projects to influence travel choices for specific local governments, schools and workplaces. The program has previously partnered with the City of Cockburn and the City of Wanneroo where it provided area specific services and products. As part of Your Move Central a number of city workplaces and households in ToVP were partnered in addition to two local primary schools (i.e. Victoria Park Primary and Ursula Frayne Primary). A number of activities undertaken at the schools included National Ride to School Day events, reward schemes via posting activities on the Your Move website, a breakfast event which involved Transperth journey planning and SmartRider discounts, and branded monsters along routes to encourage youth interest.
 - It is recommended that the program be investigated with DoT for selected local primary schools (i.e. Manning Primary School, South Perth Primary, Como Primary, Collier Primary and Kensington Primary).
 - It is recommended that a similar program be investigated with DoT for opportunities for other schools and workplaces across the council area. The timing and location of future intensive projects will depend on funding and strategic priorities, such as the state government's Metronet initiative. This may lead to opportunities for partnership with Curtin University, to better integrate with the surround train services.



Figure 8-13: Your Move program methodology (source: Department of Transport)

8.5.8.2 Active Transport Events

One of the major objectives of involvement in cycling and walking events is to encourage first-time users to 'give it a try.' While participation in one event may not convert the individual, the culmination of a number of events over time will considerably break down barriers, which increases the chances of changing travel habits.

Public Events

A number of annual public events are held in Perth that encourage active travel. Promotion of these events, by CoSP, could be achieved by:

- Registering a CoSP team into these events;
- Sponsoring events, i.e. hiring a bike doctor to attend public events;
- Sponsoring CoSP staff entries;

- Facilitating fundraisers for particular staff participants;
- Run rewards schemes based on participation. MBS Environmental previously ran a raffle which allowed staff to enter a ticket for each day they cycled to work during Bike Week. This encourages more than a single trip to work by bicycle; and
- Running events in CoSP that support public events. As an example a breakfast could be provided to staff who cycle or walk to work during Bike Week.

Some of the public events that promote cycling to work include:

- Bike Week- an annual celebration held in Western Australia where a number of events are held during a specific week. CoSP has previously participated in this, such as the 'Fiesta and Bike week' event organised in 2015, which included complimentary bike repairs and snacks at the Narrows Bridge followed by a leisurely ride along the South Perth Foreshore;
- Ride2Work Day- held annually in October, it works by providing a range of incentives at key commuting destinations in cities. In 2017, a breakfast was provided at Elizabeth Quay in the Perth CBD for those who had cycled to work on that day; and
- Ride2School- Ride2School Day held is annually in March and works by encouraging active travel within school communities by celebrating those who already actively travel to school and encouraging those who don't know how to start. A number of schools in CoSP have previously been involved in this event. The Ride2School Program is also available all year-round and works with families, communities, policy-makers and partner organisations to encourage students to ride, walk, skate or scoot to school.



Local Events

In addition to supporting public events, it is recommended that CoSP facilitate events specific to the local government including:

- Introduction of an Active Commuters Breakfast or equivalent could be held for staff where a complimentary breakfast could be provided to those who choose active transport methods on that particular day. An additional incentive could include hosting a bicycle mechanic who can complete free tune-ups of attendees' bikes. A potential location for this could include at a local shopping centre, which could provide the opportunity for local advertising. Partnership opportunities could be sought with local cycling groups, such as South Perth Bicycle Users Group, to offer subsidies to promote, organise and run these events.

8.5.8.3 Awareness Campaigns

There is a lack of cyclist and driver awareness and education throughout South Perth and the wider area. It is recommended that as part of wayfinding and revitalisation of cycle infrastructure, pavement markings and signage be installed that educate and raise awareness of the needs of other modes and how they can successfully operate together. The 'Take Care' pavement markings in the City of Perth is one current example.

A publicity campaign aimed at increasing awareness of cyclists and improving the behavior of all road users would help to counter these problems and improve cyclist safety. The WA Police Force could be invited to be a part of awareness campaigns to educate road users on cycling. Tools that can be used include street advertisements, billboards and advertisements. An example 'Share our Roads' campaign to improve bike safety in WA. Campaigns should aim to 'normalise' cycling and reinforce the image of cyclists being of all ages and demographics.

Joint awareness campaigns could be undertaken jointly by both CoSP and ToVP, and should also involve other organisations such as Curtin University who are in the process of developing a strategic behaviour change strategy.



8.5.8.4 Information

It is important that information regarding the existing cycle infrastructure is made readily available to the community, so that cycle trips are made as convenient as possible. A *Map Your Move* metropolitan map (previously TravelSmart) for the CoSP that displays walk and cycle information (available at the *Your Move website*) should be made easily available on the CoSP website. A supply of hard copies should also be available at CoSP reception.

The following information should also be made readily available to the community, i.e. on the CoSP website to encourage increased cycling:

- Information on current and planned cycling initiatives and incentives; and
- Information on e-bikes, including the increased advantages and where to acquire them.

8.5.9 Integrated Transport Plan

The 2012-2017 South Perth Bike Plan recommended to produce an up to date Integrated Transport Plan, focusing on 'Moving People' to provide policy measures and guide transport planning for the longer term (15-30 years). It is recommended that this plan be developed within the next five years.

9 Implementation

A total of seven cycling infrastructure projects, along with minor works improvements are proposed within the CoSP over the next 5 to 10 years. As mentioned earlier, high level order of cost estimates have been determined for these projects, however further investigation will need to be undertaken to develop detailed concepts and understand the true cost of each project.

As summarised in Table 9-1, the estimated cost of implementation is approximately \$7.3 million. This indicates that an estimated \$7.3 million is spent over the next five years to achieve the goals of this bike plan. Although this may be ambitious, a strong pledge is required to make the CoSP stand above the rest in terms of becoming a cycling city.

It is suggested that the CoSP firstly submit all the applicable projects to relevant grants and sponsorship programs for funding. It would then be preferable to approach other relevant agencies such as DoT to determine how best to implement the projects in their jurisdiction. Boundary road projects should be presented to adjacent local councils in an attempt to partner with the respective councils to implement these specific projects. The joint nature of this plan will make this process particularly advantageous with the ToVP. Also prospective business partnerships should be identified early in the process, to get business buy in and potentially set up public private partnerships.

Finally, once all of the proactive steps have been taken, the City should have a good idea of which projects could be funded, completely or partly, by grants and sponsorships, which projects could be funded by other agencies such as DoT, which projects could be funded as part of a partnership with other councils or businesses, and which projects will have to be funded completely by the CoSP.

All of this information along with the priority of projects should then be taken into account in an exercise to allocate projects and stages of projects to the forward capital works schedule of current and future years.

Funding of the proposed supplementary initiatives described in Section 8.5 will require further investigation. As part of future more detailed costing works for each of the key infrastructure projects, funding for the supplementary initiatives should be included. In addition, the cost of some supplementary initiatives could be incorporated into the project with assistance from other sectors, for example marketing, landscaping and streetscape. Trial projects could also attract funding from other agencies such as Main Roads and RAC. The proposed pump and bike skills tracks at George Burnett Park should be built in tandem with the Canning Bridge to Curtin Link or Manning Road projects as these will provide direct links to the facility. Funding for the pump and bike skills track can be investigated further, with potential funding available from the DoT and Lotterywest.

It should be noted that the maintenance of all cycling infrastructure paths should be undertaken regularly and included in the capital works schedule.

Table 9-1: Summary of estimated 5-year implementation cost for the CoSP

#	Project	Estimated Cost	Potential Funding Assistance
1	South Perth Esplanade Project	\$1.5m	DoT, RAC
2	Canning Bridge to Curtin Link	\$1.8m	50% DoT
3	Manning Road Project	\$600k	50% DoT, Lotterywest
4	Douglas Avenue Project	\$1.5m	50% DoT
5	Thelma Street Investigation	\$30k (investigation)	50% DoT
6	Kent Street Project	\$400k	33% DoT, 33% Curtin University
7	Coode Street Project	\$500k	50% DoT
8	Minor Works Improvements ("Quick Wins")	\$1m	Capital Works Programme
TOTAL		\$7.3m	

The estimated timeframes proposed for the cycling infrastructure projects are shown in Table 9-2. It is proposed that the highest priority projects are implemented first, with minor works improvements undertaken every year.

It should be noted that the estimated timeframes is intended to provide guidance only. Opportunities may arise over the implementation of this Plan which may fast track or hinder the progress of projects.

Table 9-2: Indicative five year implementation plan for the CoSP

#	Project	2018/19	2019/20	2020/21	2021/22	2022/23
1	South Perth Esplanade Project					
2	Canning Bridge to Curtin Link					
3	Manning Road Project					
4	Douglas Avenue Project					
5	Thelma Street Investigation					
6	Kent Street Project					
7	Coode Street Project					
8	Minor Works Improvements					



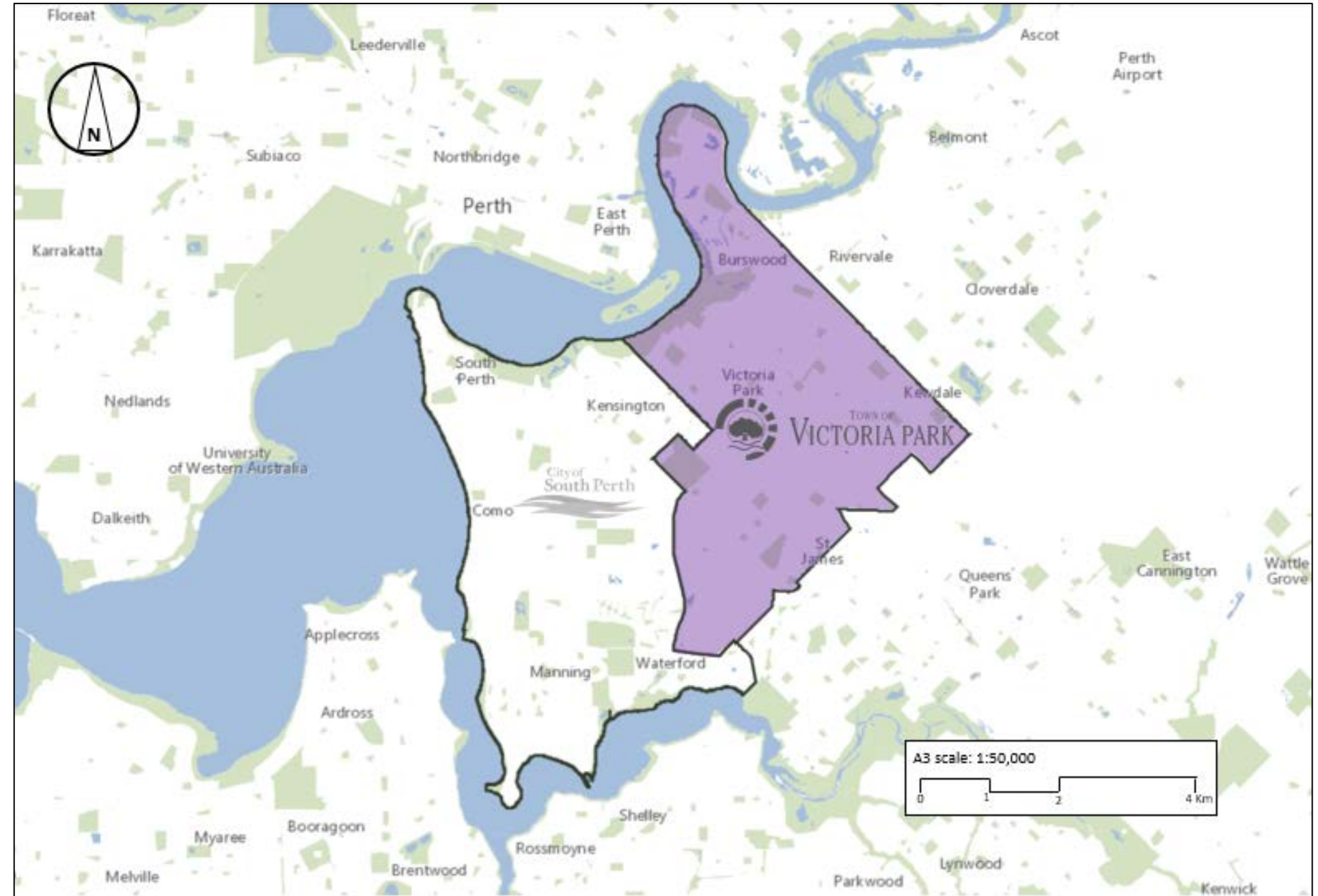
TOWN OF
VICTORIA PARK

10 Background

The Town of Victoria Park is located approximately five kilometres south east of Perth's Central Business District (CBD) and covers an area of approximately 18 square kilometres. The City of South Perth shares boundaries with the City of South Perth, City of Canning and the City of Belmont, whilst providing direct routes over the Swan River into the City of Perth and City of Vincent.

With reference to the ToVP Community Profile (profile.id.com.au, 2017) the estimated resident population as of June 2016 is approximately 37,000 with a population density of 21 persons per hectare. In the development of this Bike Plan, the diverse population within the ToVP was taken into consideration. Some of the key demographic statistics for the ToVP include:

- 1.4x higher population than the City of Perth, and 1.2x higher density;
- 48% medium and high density housing;
- A median age of 34 years;
- Approximately 55% of residents have a tertiary qualification
- Approximately 40% of residents were born overseas, indicating strong cultural diversity;
- Approximately 67% of households have only one or two occupants; and
- 43% of households had access to two or more motor vehicles compared to 57% in Greater Perth. Car ownership per household in the Town of Victoria Park decreased by 3% between 2011 and 2016.



The abovementioned statistics highlight the potential for increased cycling trips in the ToVP. Car ownership has decreased within the town and therefore there is potential to encourage increased cycling. Additionally, the high percentage of households with one or two occupants highlight the potential for increased local shopping trips by bicycle due to smaller quantities of shopping that may not require the storage space of a motor vehicle.

Increased cycling in the ToVP will provide vast environmental, health and economic benefits to the community including:

- Reduced car use, resulting in less traffic congestion, demand for parking, carbon emissions, and neighbourhood noise, and improvements in air quality;
- Improved physical and mental wellbeing;
- Reduced household travel costs, and potential time savings; and
- Increased foot traffic around businesses.

Investment in creating an active community will result in better connected, safer, healthier and happier residents and will make the Victoria Park a more vibrant place to live and visit.

With reference to the ToVP Community profile (*profile.id.com.au*, 2017), the current statistics for travel mode to work for residents is shown in Figure 10-1. It indicates that approximately 62% of trips are undertaken by car (as either driver or passenger), approximately 17% of trips are by public transport, and 2% of trips by bicycle. Considering the proximity to the CBD and approximately 43% of ToVP residents work in Victoria Park and Perth CBD, there is potential to increase the percentage of cyclists.

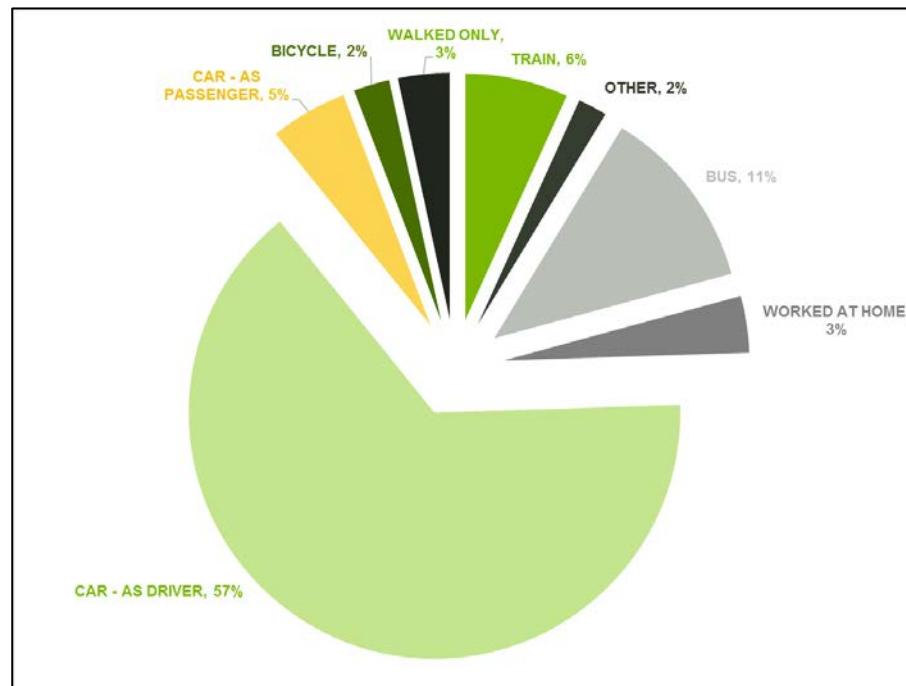


Figure 10-1: Travel mode to work in Town of Victoria Park-(Census 2016)

The age group distribution within ToVP is shown in Figure 10-2. In comparison to Greater Perth (Perth Metropolitan), there is a higher proportion of 18 to 24 year olds (tertiary education and independence) and 25 to 34 year olds (young workforce).

In 2016 there were approximately 28,000 residents who work in ToVP, with 12% living in the area (refer to Figure 10-3).

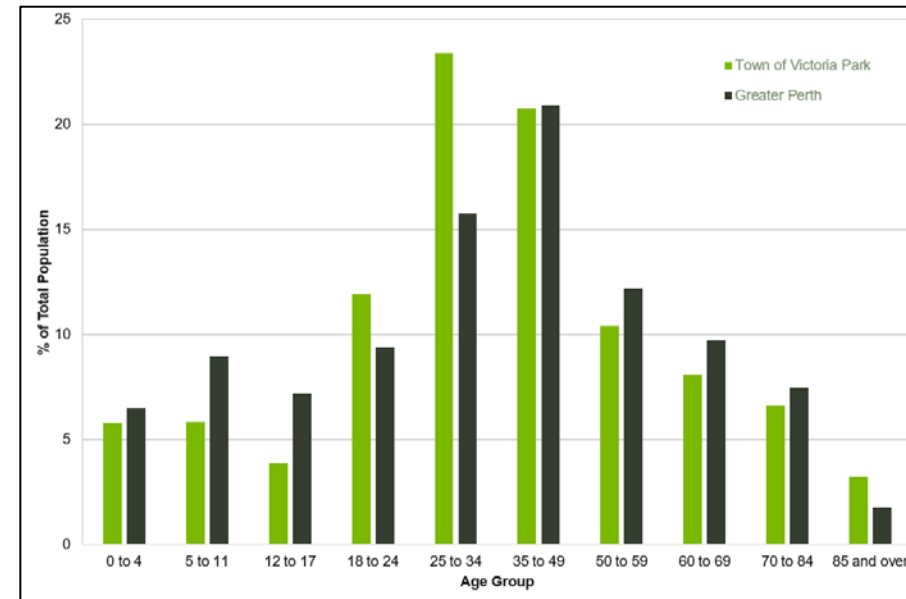


Figure 10-2: ToVP age group distribution (Census 2011)

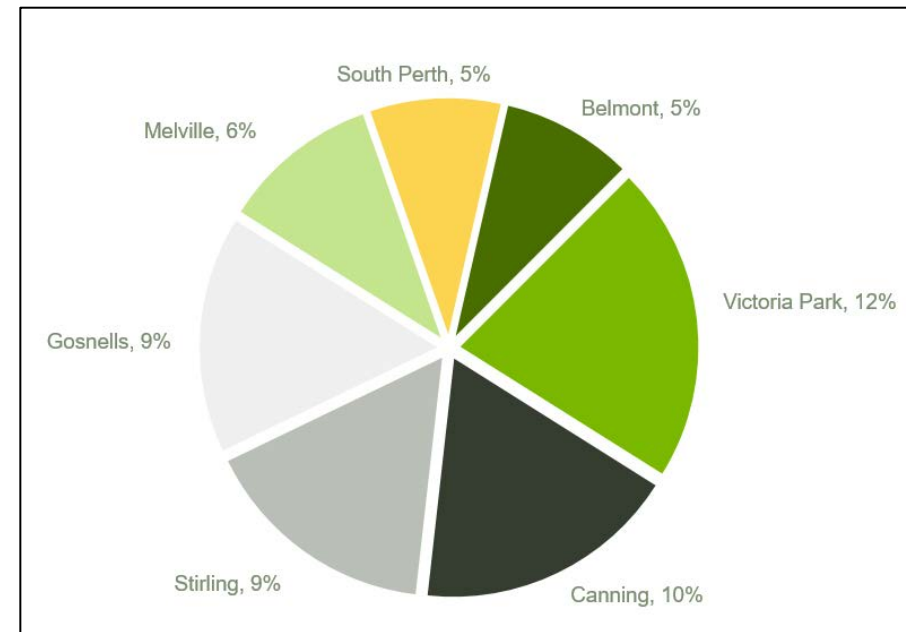


Figure 10-3: ToVP workers location of living (Census 2010)

In addition, approximately 77% of employed residents work outside of ToVP while the rest work within the area. A more detailed breakdown of employment locations is shown in Figure 10-4).

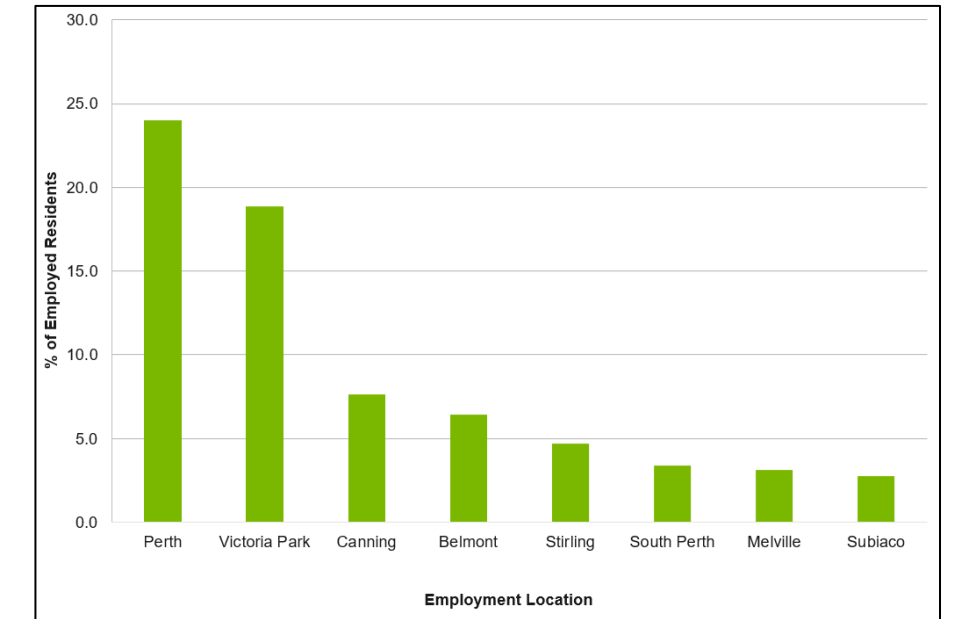


Figure 10-4: Employment location of ToVP residents (Census 2011)

11 Crash Analysis

11.1 Crash Data

Safety is a very important factor in building a successful Bike Plan. The availability and quality of existing cycle facilities is a good way of identifying the level of safety performance within a region. Main Roads WA crash data was utilised to determine the level of safety for the existing facilities within the ToVP.

Over the last five-year period 1 January 2012 to 31 December 2016, a total of approximately 5,000 crashes have occurred within the ToVP, with 2.9% of them involving cyclists. The number and severity of crashes involving cyclists per year is shown in Figure 11-1.

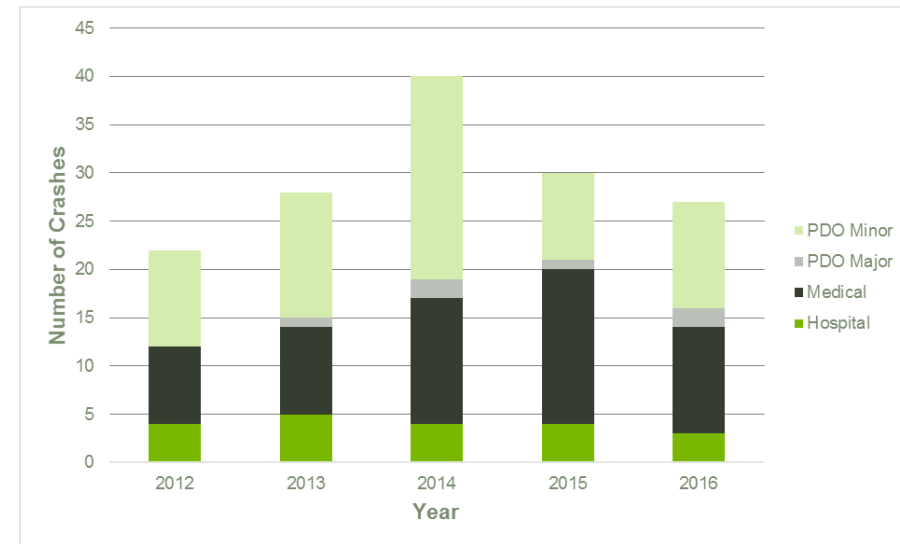


Figure 11-1: Total crashes involving bicycles

In summary:

- A total of 147 crashes involved bicycles;
- There were zero fatalities during this time;
- 13% resulted in hospital treatment; and
- 38% resulted in medical attention.

It should be noted that crash data only contains records of reported crashes, although unreported crashes are typical when there is no personal injury and no damage to property. It can be seen that the number of crashes has fluctuated over the past 5 years, 2014 has the largest number of crashes recorded.

Factors that can attribute to an increase in the number of crashes include a general increase in traffic volumes and non-compliance with speed limits. The Plan requires a strong focus on improving safety for cyclists.

The total number of recorded crashes from 2012 to 2016 grouped by severity is summarised in Figure 11-2 and illustrated in Figure 11-3.

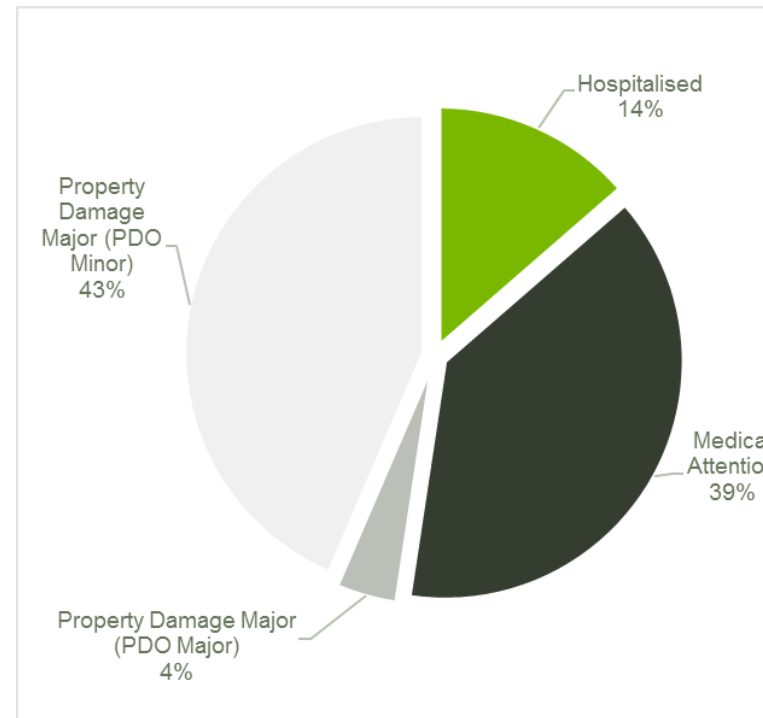


Figure 11-2: Total recorded crashes by severity

11.2 Crash Locations

More than 69% of the total recorded bicycle crashes occurred at intersections, with 24% of the intersection crashes occurring at roundabouts.

The highest number of crashes have occurred along high volume roads, i.e. Kent Street and Albany Highway (refer to Table 11-1). This accentuates the fact that cyclists use these direct routes to commute and that these roads are dominated by high traffic volumes and an increased probability of conflict, particularly at intersections where bicycles have limited priority. Albany Highway represents a major cyclist route with access to Perth City over the Causeway and has recorded a significant number of crashes. The intersections of Miller Road/Bishopsgate Street and Hayman Road/Kent Street have recorded 6 crashes and 5 crashes involving cyclists respectively in the last five years. These roads represent the high priority locations for funding directed towards crash investigation and safety improvement works.

Other notable statistics include:

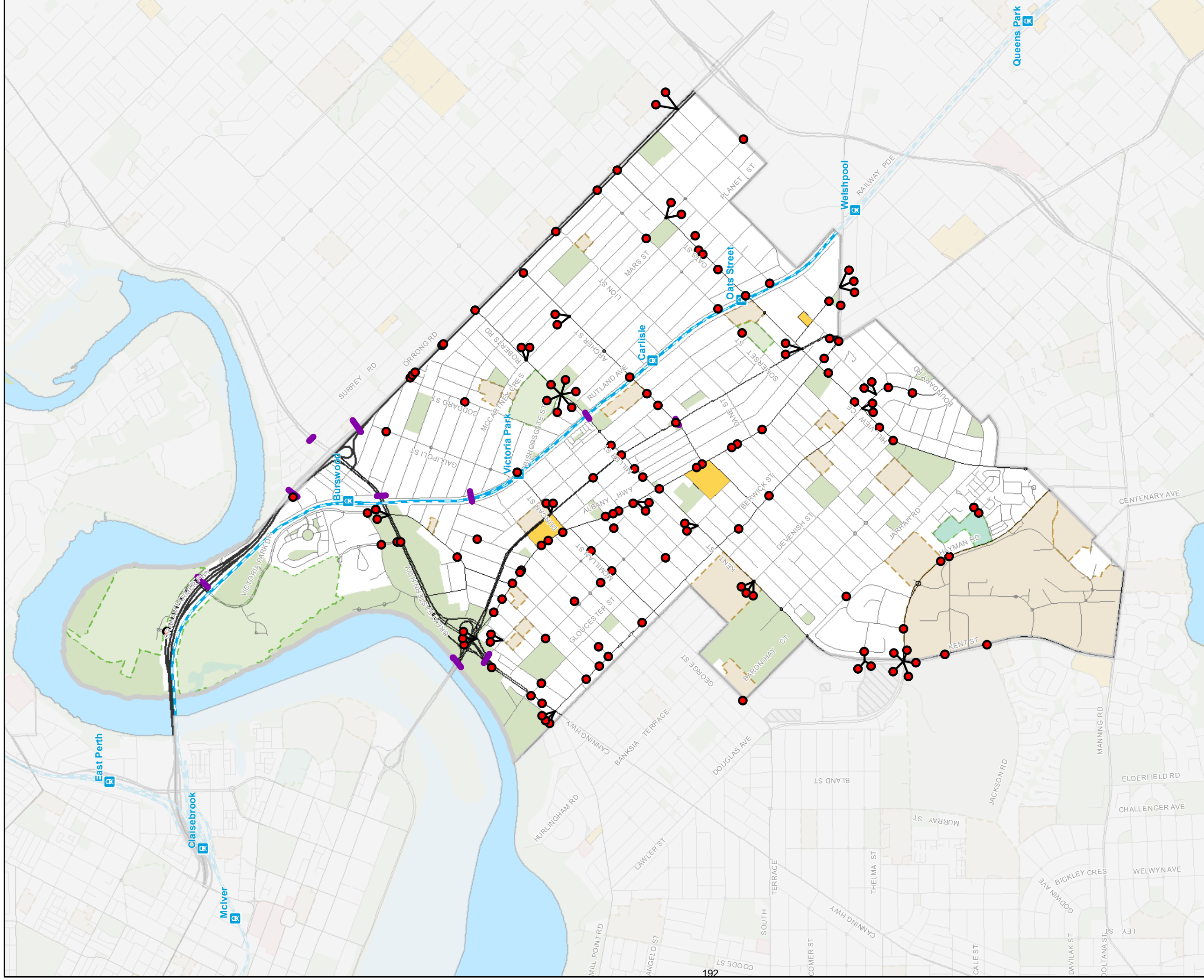
- 10% of all crashes occurred at driveways, where vehicles enter or exit a driveway and collide with a cyclist in the lane or on the path; and
- 11% of bicycle crashes occurred on off-road paths.

The crash statistics have been used to influence and prioritise the recommended projects outlined in Section 15.

Table 11-1: Locations with the highest number of crashes involving cyclists

Crash Locations (roads with 5 crashes or more)		
Location	Number of Crashes	Severity
Kent Street/Roberts Road/ Miller Street	23	2 x Hospitalised
		10 x Medical Attention but not Hospitalised
		11 x PDO Minor
Albany Highway	15	1 x Hospitalised
		6 x Medical Attention but not Hospitalised
		8 x PDO Minor
Berwick Street	14	1 x Hospitalised
		5 x Medical Attention but not Hospitalised
		8 x PDO Minor
Oats Street/Hill View Terrace	8	4 x Medical Attention but not Hospitalised 4 x PDO Minor
Orrong Road	8	2 x Hospitalised
		5 x Medical Attention but not Hospitalised
		1 x PDO Minor
Shepperton Road	6	1 x Hospitalised
		3 x Medical Attention but not Hospitalised
		2 x PDO Minor
Star Street	5	3 x Medical Attention but not Hospitalised
		2 x PDO Minor

*Note that a crash severity of 'PDO' refers to 'property damage only'



ToVP Figure 11-3 Crash Locations Involving Cyclists in the ToVP



Revision: 1	Project No: 255909	Date: May 2018
Prepared: S.Richards	Checked: M.LaGalia	Approved: M.LaGalia
Coordinate System: GDA 1994 MGA Zone 50	Scale @ A3: 1:27,000	
Source: © Landgate 2017, Main Roads WA		
File: laurecon.info\shares\AUPER\Projects\255909 - Joint Bike Plan CoSP & ToVP - CoSP Folder\3.0\Project\Delivery\GIS\ArcGIS\020_255909_ASP_ToVP_CrashData_Rev1		
Client: Town of Victoria Park, City of South Perth		

Legend

- Crash Location
- Rail Stop
- Railway
- Freeway
- Highway
- Main
- Minor
- Shopping Area
- Community Facility
- Hospital Facility
- Education Facility
- Recreational Park or Reserve
- Reserve (Miscellaneous & Other)
- Overpass/Underpass
- Existing O verpass/Underpass
- LCA Boundary (Town of Victoria Park)

0 1 2 km



12 Stakeholder Consultation

12.1 Community Engagement

As part of the development of the Plan, the local community were invited to provide feedback on their cycling journey with the aim of identifying common routes, existing issues, barriers to cycling, and desired locations to improve or provide additional facilities and infrastructure.

The community were invited to provide feedback through one or all of the following methods:

- Completion of a survey (online or hard copy);
- Input into an online mapping tool; and
- Attendance at a community workshop.

It should be noted that the methods of community engagement were carried out simultaneously between the CoSP and ToVP.

12.1.1 Community Survey

The joint CoSP and ToVP community survey was open to the public from May 1st to June 9th 2017. The survey was completed by a total of 349 participants, with 168 people from the ToVP (57% male, 43% female). A graphical summary of the demographics and other results from survey respondents from the ToVP is shown in Appendix D.

In terms of the reasons for cycling, the most common reasons included recreational and exercise (30%), commuting to/from work (24%), to/from shopping (13%) and to/from entertainment locations (13%), noting that respondents could select multiple options. With the scenic cycling route available along the Swan River, recreational cycling is highly popular in the ToVP as reflected in the survey results.

A summary of the most common issues raised from the community survey regarding popular routes can be seen in Table 12-1. It should also be noted that the CoSP community survey also raised significant concern for the lack of separated cycle infrastructure and adequate lighting along McCallum Park and Burswood Park. Additionally, issues were raised at areas outside of the ToVP, including Centenary Avenue (City of Canning), highlighting the need for greater consistency across council borders.

The issues raised in the community survey have been used to influence and prioritise the recommended projects outlined in Section 15.

Table 12-1: Summary of issues raised regarding popular routes

Location	Issue/Concern	% of Comments
Albany Highway	- a desire for dedicated bicycle infrastructure (i.e. bicycle lanes) to provide adequate separation from turning and parked vehicles (i.e. dooring)	20%
	- cars often exceed the 40km/hr speed limit creating an intimidating road environment for cyclists	
	- lack of appropriate traffic calming measures and motorist awareness increases the probability of conflicts between cyclists and other modes of transport	
Rutland Avenue	- a desire for dedicated bicycle infrastructure (i.e bicycle lanes) and crossing facilities at cross-roads	15%
	- high traffic volumes and speeds contribute in creating an intimidating road environment for cyclists	
Shepperton Road	- a desire for dedicated bicycle infrastructure (i.e bicycle lanes)	6%
	- difficulty in crossing Canning Highway due to high traffic volumes, high traffic speeds and a lack of safe crossing points (i.e.narrow medians)	
Berwick Street	- a desire for an extension to bicycle infrastructure (i.e bicycle lanes) along the route to improve separation from buses and cars	6%
Causeway Bridge	- shared path is too narrow when considering high pedestrian and cyclist volumes creating an uncomfortable cycling environment	4%
Canning Highway	- a desire for dedicated bicycle infrastructure (i.e bicycle lanes)	3%
Manning Road	- high traffic volumes and speeds cause an intimidating on-road environment for cyclists	2%
	- lack of dedicated bicycle infrastructure (i.e bicycle lanes) for connections with Curtin University	
Roberts Road	- issues with general maintenance (i.e. glass) create an uncomfortable cycling environment	2%
Oats St	- a desire for dedicated bicycle infrastructure (ie. bicycle lanes) west of Shepperton Road, which currently end	2%
Centenary Avenue	- a desire for dedicated bicycle infrastructure (i.e bicycle lanes)	2%
Total		61%

12.1.2 Online Mapping Tool

The ToVP interactive online mapping tool was open to the public from May 1st to June 9th 2017. The tool allowed members of the community to place pins on a map of the ToVP to comment on the following items:

- 'Bike Issue' (red pin) – may include locations where there are missing links, unsafe crossings, lights, or other issues relating to the cycling experience;
- 'I enjoy riding here' (green pin) – may include locations that are enjoyable to ride, have great end of trip facilities (i.e. bicycle parking, lockers, showers) or notable for other reasons; and
- 'Bike Idea' (yellow pin) – may include locations that are not necessarily unsafe or an issue, however would like to see an improvement.

Referring to Figure 12-3, a total of 184 pins were dropped on the mapping tool (noting that users could submit an unlimited number of pins). As shown in Figure 12-1 and Figure 12-2, almost the entire number of riders that contributed to the mapping tool were confident cyclists, for a range of riding purposes. Note that this captures the rider's perception of what the confidence level they see themselves. Future surveys should consider alternative ways to capture the views of riders of lower confidence level, which will assist in initiating greater mode shift towards cycling.

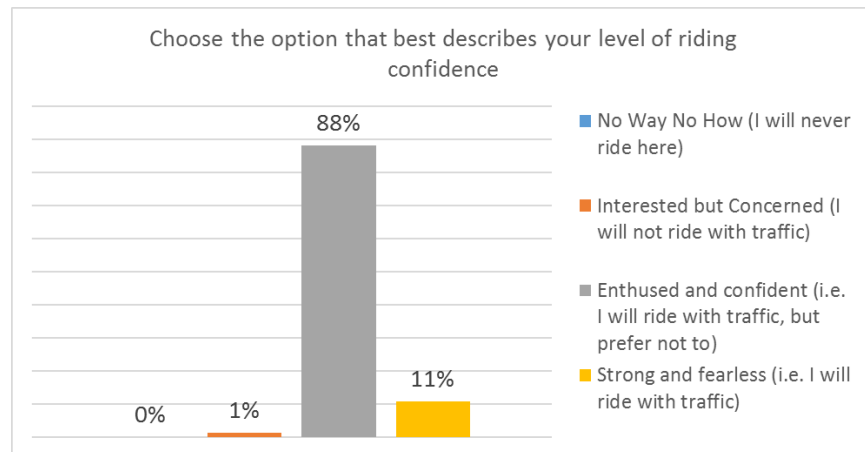


Figure 12-1: Online mapping tool respondents – level of rider confidence

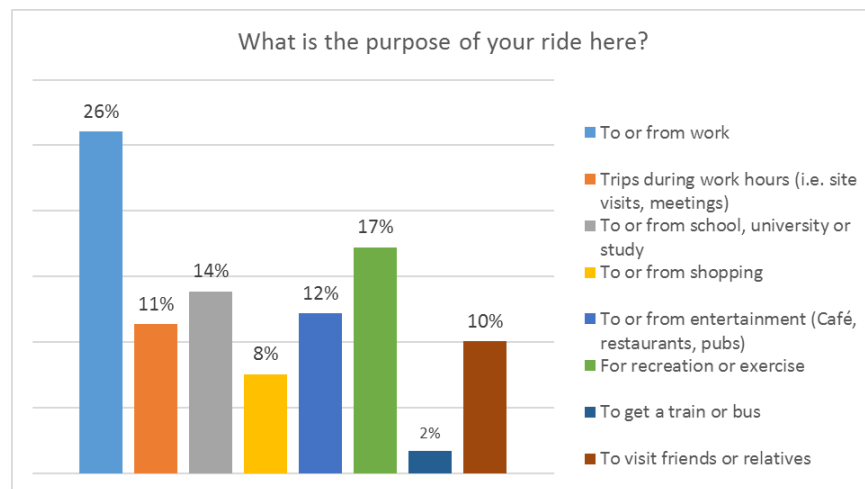


Figure 12-2: Online mapping tool respondents – purpose of ride at pin location

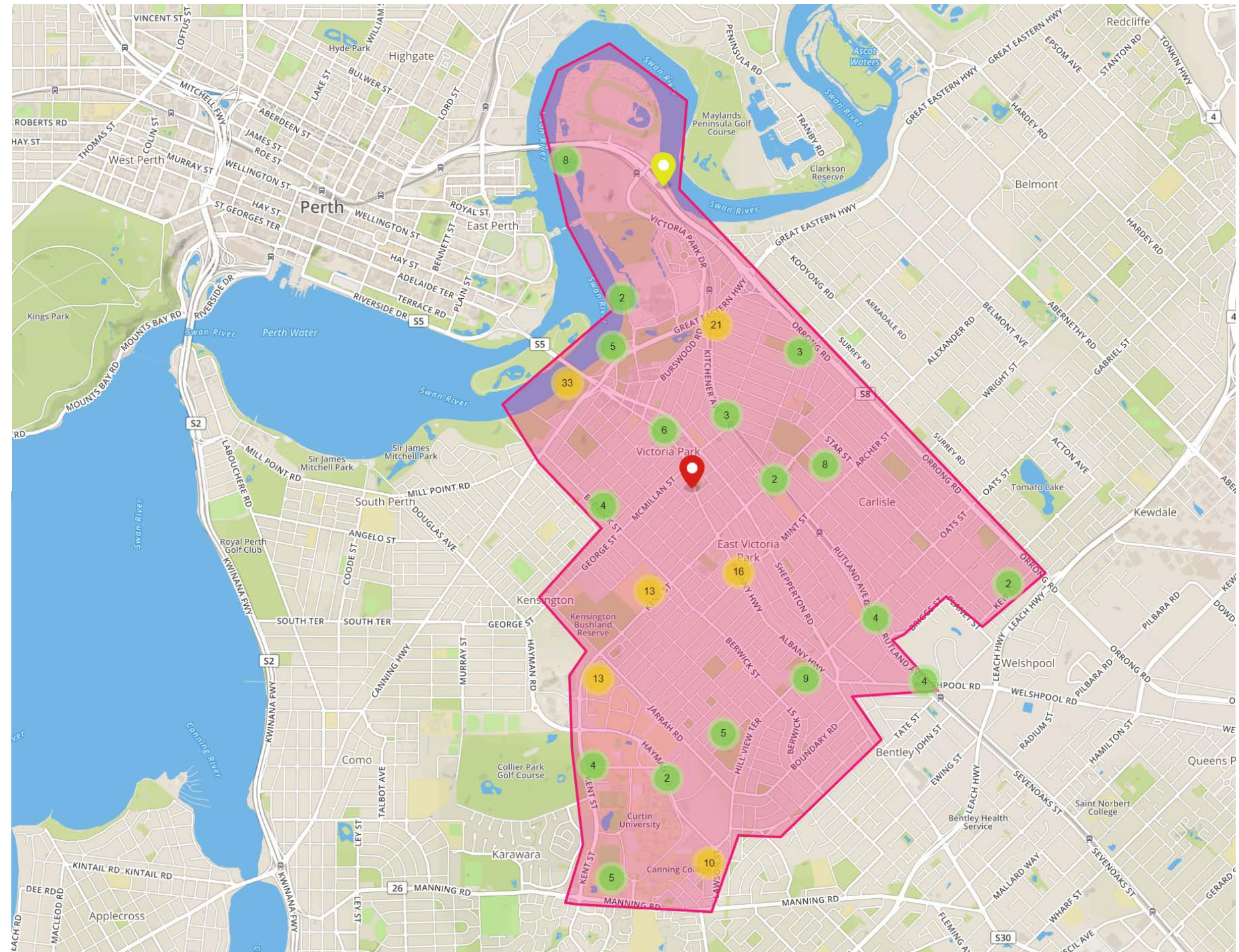


Figure 12-3: ToVP online mapping tool

The following summarises the key feedback provided from the online mapping tool:

Bike Issues (red pins)

1. Busy locations without adequate cyclist crossing facilities i.e. Manning Road at Curtin University South Entrance;
2. Lack of suitable off-road options for cyclists along key routes, and existing cycle facilities often discontinue i.e. Marquis Street;
3. Intersections with high traffic without cycle infrastructure i.e. Kent Street/ Berwick Street intersection;
4. Wayfinding is often inadequate i.e. for Curtin University to/from Kwinana Freeway; and
5. Debris and flooding along some off-road infrastructure i.e. Harold Rossiter Park shared path.

Bike ideas (yellow pins)

1. Reduce speed limit along some roads to increase safety for on-road cyclists i.e. Kent Street;
2. Increase the supply of separated facilities i.e. between pedestrian and cyclists, and cyclists and vehicles;
3. Provide a pump track facility within ToVP i.e. at McCallum Park;
4. Update signage to improve priority for cyclists i.e. 'No Entry, Buses and Taxis Excepted' at Adie Court/ Jarrah Road intersection; and
5. Increase the supply of Safe Active Streets throughout ToVP i.e. at Gloucester Street.

'I like riding here' (green pins)

1. Areas where there is separation from pedestrians and vehicles i.e. McCallum Park;
2. Cycle infrastructure which provides access to the areas natural attractions i.e. Swan River;
3. Roads with low traffic volumes i.e. Devenish Street; and
4. Areas with high visibility and the sense of security this provides.

The issues raised in the online mapping tool have been used to influence and prioritise the recommended projects outlined in Section 15.

12.1.3 Community Workshop

The ToVP community workshop was held on the 25th May 2017 in the ToVP. The community were invited to contribute ideas, report issues, prioritise and suggest improvements. Members of the community who were not able to attend the ToVP workshop were encouraged to attend the CoSP workshop which was facilitated in the same way.

The workshop followed a human centred approach where residents were invited to participate in interactive activities that placed the end user at the centre of the thought process. The aim of each activity was to understand

the issues, needs and challenges that the community face regarding cycling. By the end of the evening residents could transform some of the key issues raised into real 3-dimensional solutions. The key issues and comments raised are detailed below.

Recreational Facilities

- Lack of public cycling events;
- Lack of facilities for children (i.e. completely separated from road environment);
- A desire for pump track facilities (i.e. at McCallum Park, Edward Millen House, Kent Street near Kensington Bushland); and
- Recreational facilities can act as a key facilitator for encouraging people to try cycling, which can lead to commuting uses in the future.

Infrastructure and Maintenance

- Intersections create an intimidating cycle environment (roundabouts and signalised);
- Poor and inconsistent signage and marking of bike lanes;
- Lack of consideration for cyclists at construction sites;
- Difficulty crossing on roads due to insufficient facilities (i.e. Shepperton Road, Rutland Avenue and Orrong Road);
- Insufficient width of shared path and uneven surface along the Causeway;
- Lack of space for cyclists along high traffic roads (i.e. Albany Highway, Oats Street and Berwick Street);
- Lack of dedicated cycle infrastructure on Canning Highway and Rutland Avenue;
- Traffic calming measures cause cyclists to exit road (i.e. Bishopsgate Street);
- Glass is often on footpaths;
- Rubbish bins are often left on paths and bike lanes, impeding cyclist movement; and
- Great Eastern Highway overpass/footbridge is very narrow.



Figure 12-4: Road concept with separated cycle lanes

Education and Behaviours

- Lack of knowledge of road rules from drivers;

- Antisocial and inconsiderate driving behaviours by drivers to cyclists (i.e. at roundabouts, right of way);
- A desire for increased cyclist education (i.e. path etiquette, use of bells, high cycle speeds);
- A desire for increased pedestrian education for paths (cyclists can cycle on, dogs off-leash, general awareness for cyclists, use of headphones, walking 3 abreast); and
- A lack of understanding between all modes (pedestrians, cyclists and drivers) that we are people and as a community we need to show empathy rather than frustration.

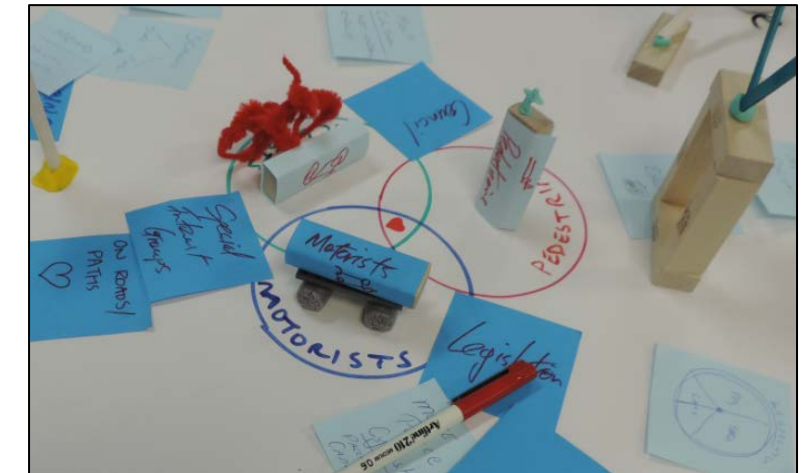


Figure 12-5: 'We are all human concept' for sharing facilities for all users

Connectivity

- Connectivity through Victoria Park is reliant on cycling on road;
- Lack of connectivity to Foreshore for all parts of Victoria Park;
- A desire for safer routes to schools;
- Lack of connection to public transport;
- Apparent pinch points at river, highway and train line crossings; and
- Difficulty with connection to Leach Highway PSP

Leadership and Implementation from Council

- Lack of service and information for cycling on the Council website;
- Engage with community to understand the most urgently needed initiatives/projects;
- Implement the previously planned projects for cyclists, particularly quick wins;
- Understand the benefits that active travel can have on the community and increase its priority on the council agenda;
- Be courageous and take risks with measures toward improving cycling in the council (i.e. lobbying for funding, innovative solutions); and
- Tougher enforcement on driver and parking laws.

The issues raised in the online mapping tool have been used to influence and prioritise the recommended projects outlined in Section 15.

12.2 Curtin University

A number of meetings were held with representatives from Curtin University and the Curtin University Bicycle User Group (CUBUG) in order to understand the current issues associated with cycling, and areas that should be considered in the Plan.

The following summarises the key comments:

- There is a lack of an east-west link through and external to the campus, i.e.
 - Canning Bridge to Curtin University; and
 - Armadale/Thornlie Rail Line to Curtin University.
- There is a need for improved infrastructure along key desired routes from Curtin University:
 - Douglas Avenue to South Perth Foreshore;
 - Kent Street to Albany Highway and ToVP train stations;
 - Manning Road to City of Canning train stations; and
 - Routes to Welshpool and areas south of Curtin University.
- There is a lack of cycle and pedestrian provisions at major intersections, particularly:
 - Main Street/Kent Street;
 - Main Street/Hayman Road;
 - Manning Road/Curtin University South Entrance; and
 - Kent Street/Hayman Road.
- Improvements are needed to wayfinding at existing routes, including:
 - Off-road connection between Jackson Road and Henley Street;
 - Banksia Terrace; and
 - Douglas Avenue/Lawler Street.
- A focus should be on connecting to the surrounding river foreshores, i.e.
 - Swan River; and
 - Canning River.
- Improved cyclist priority is required on shared paths that intersect with quieter side roads surrounding Curtin University, particularly on:
 - Hayman Road; and
 - Kent Street.

- Improved provisions for cyclists at signalised intersections is required, particularly:
 - Extended pedestrian crossing phasing at the Hayman Road/Main Street intersection; and
 - Installation of new pedestrian crossings at Manning Road/Kent Street and Manning Road/South Entrance intersections.
- Consistent and integrated cycle infrastructure is needed amongst surrounding council areas, particularly:
 - CoSP; and
 - City of Canning.
- Reduction in speed limits is required to create a safer on-road environment for cyclists, particularly at:
 - Hayman Road; and
 - Kent Street.
- There is the potential for a premier statement piece for pedestrians and cyclists at the Kent Street/Hayman Road intersection, which currently provides poor priority i.e. a suspended pedestrian/cyclist roundabout above the intersection similar to the Hovenring in the Netherlands.

- There is the potential to incorporate more bicycle infrastructure as public art to increase awareness and attractiveness of cycling to Curtin University.
- Improved wayfinding leading to the campus is required which is unique and effective but still integrated with the surrounding network.



13 Bicycle Network and Facilities

13.1 Existing Infrastructure Audit

A number of cycle routes traverse the ToVP, many of which have been developed over time through the implementation of the 1996 Perth Bicycle Network Plan and WA Bicycle Network Plan (DoT, 2014-2031). The existing network exists of various types of bicycle infrastructure, including off-road separated and shared paths and on-road cycle lanes. A map of the existing bicycle facilities in the ToVP is shown in Figure 13-1.

In the development of this Plan, the existing bicycle routes have been re-evaluated in light of the State Government's Perth Transport Plan at 3.5 million. As such, an assessment of the existing bicycle network was undertaken with consideration of the routes identified in the Perth Transport Plan at 3.5 million.

The study area was divided into 'links' – a small or complete section of cycle path, on-road facility or roadway. A total of 20 links were assessed on a saddle survey throughout the ToVP.

The assessment of each link was undertaken using the criteria outlined in the Transport Research Laboratory (TRL) Street Audit Network software package (Cycling Component - CERS), as shown in in Table 13-1.

Table 13-1: CERS assessment parameters

Category	Parameters
Convenience	Continuity
	Legibility
	Directness
Accessibility / Safety	Worst Intersection Conflict Point
	Traffic Volume
	Traffic Proximity
	Traffic speed
	Link Conflict Points
Comfort	Effective width
	Surface Quality
	Maintenance
	Overall Effort
Attractiveness	Personal security
	Lighting
	Quality of Environment

13.1.1 Link Rating

The following steps were employed to assess each link.

Step 1 – Identify start and termination point of link

1. Determine individual link lengths of all bicycle routes (this includes the division of routes / corridors);
2. Check each link length logically using data collected on site for suitability; and
3. Assign name and identification reference code for each link.

Step 2 – Check data availability of route

1. Traffic data – Gather from available Main Roads data or estimate based on the road hierarchy and onsite observations. The traffic data available for the audited links is shown in Figure 13-2;
2. Traffic speeds – Note the on-street posted speed limit and determine whether or not the traffic speed on-site is commensurate; and
3. Terrain – From site visits, gather an indication of the terrain (uphill or downhill grade) along the link.

Step 3 – Intersections

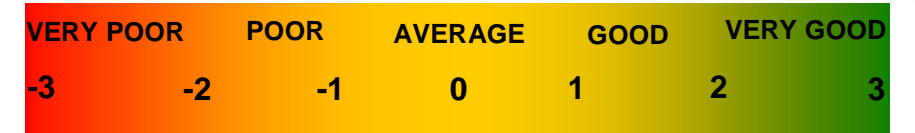
1. Once link length is established, note all types of intersections along the extent of the link; and
2. Highlight the worst performing intersection based on desktop assessment, onsite observation and professional judgement.

Step 4 – On site evaluation

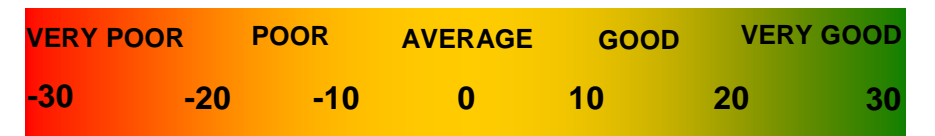
1. Undertake site visits to complete the audit assessment, ensuring all parameter fields are completed (refer to Table 6-2);
2. Where necessary add comments which substantiate scoring decisions or any other relevant information for future reference;
3. Total score for the link will be automatically assigned on completion of all parameters; and
4. Add any relevant conclusions for each link for future reference.

During the assessment of each link, each parameter was manually scored on a range from **-3** to **+3**, where **+3** is the highest score and **-3** the lowest. For a parameter to warrant a score of **+3**, it would need to be exemplary and of a standard identified as best practice. The scores were therefore allocated on a range from very poor to optimum with **0** representing an average score:

The scoring scale is set out below:



An overall score for each link was determined, giving a general indication of how well the route caters for cyclists. Generally, any link that scores above 10 is considered good, a link that receives a score between -10 and 10 is average and a link scoring below -10 is a poor link. The scoring scale for the overall score is shown below:



13.1.2 Audit Findings

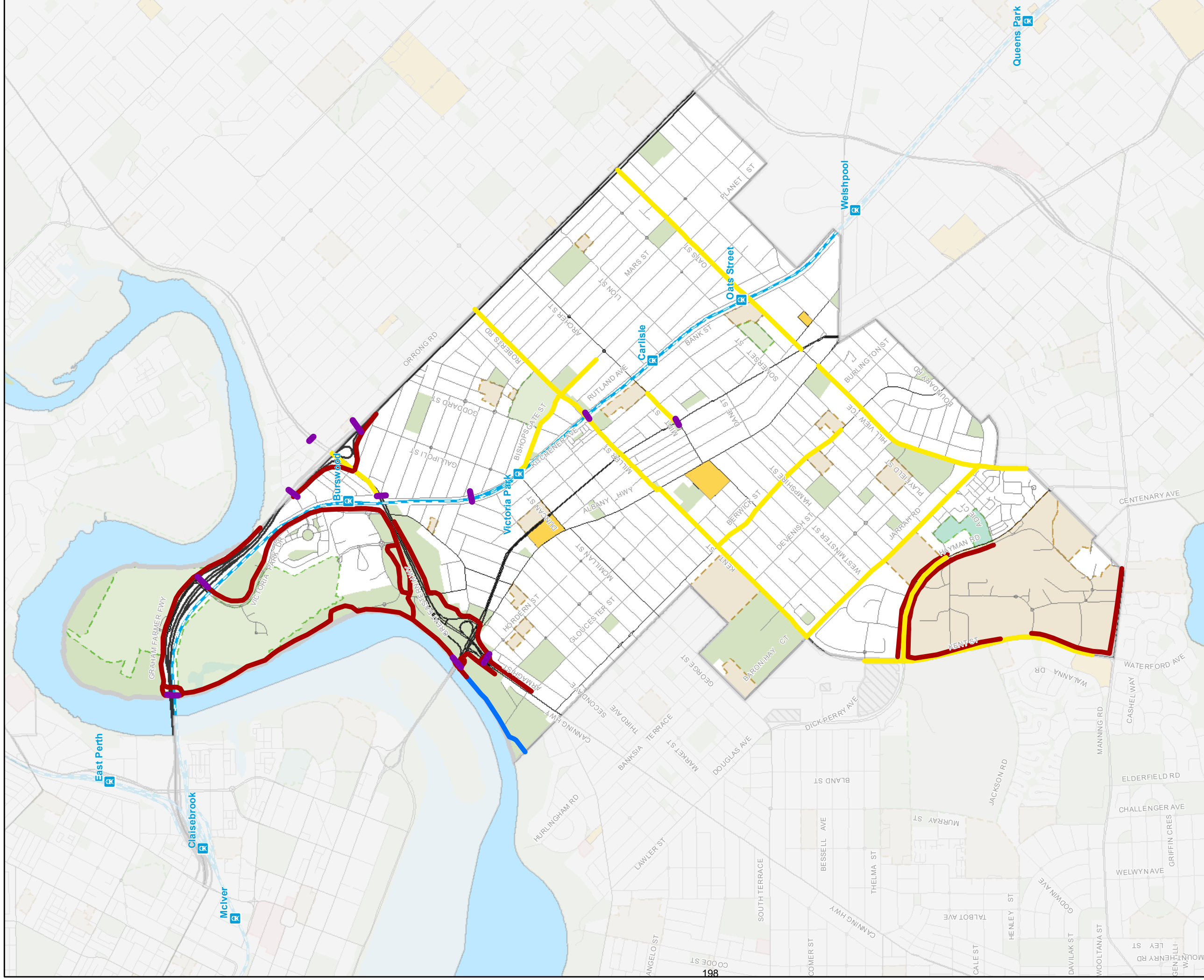
The detailed findings of the infrastructure audit, along with an action plan for each individual link is presented in Appendix E with each link described in terms of:

- Assigned link number;
- Scored colour code;
- Link name;
- Link description;
- Photo inventory;
- Issues identified; and
- Suggestions for improvements.

The suggestions highlighted in Appendix E are intended to be included in the ToVP maintenance team's work packages for when each specific link is next scheduled for maintenance (unless stated otherwise as a proposed project). It is important to note that there are many cases within the Town where existing unsigned sealed shoulders have previously been considered as appropriate for cyclists, however these do not meet the minimum requirements for cycle lanes as defined by the Road Traffic Code and appropriate guidelines. As such, there should be a long term focus on upgrading existing cycle infrastructure in line with the minimum requirements as described in Section 1.3.

The general performance of all the audited links are shown in Figure 13-3, where it can be seen that routes with protected cycling infrastructure and low traffic volumes generally outscored those where cyclists are left to mix with high traffic volumes.

A high level map summary of the proposed recommendations for all the audited infrastructure can also be found in Appendix E ("Infrastructure Audit Summary for ToVP"). The recommendations outlined on this map can be considered when any of the cycle routes are due for resurfacing or opportunities for works in those areas arise.



Legend

- Rail Stop
- Railway
- Separated Path (Bikes Only)
- High Quality Shared Path (Bikes and Pedestrians)
- Bicycle Lanes or Sealed Shoulders
- Safe Active Street
- Overpass/Underpass
- Existing Overpass/Underpass
- LGA Boundary (Town of Victoria Park)
- Shopping Area
- Community Facility
- Hospital Facility
- Education Facility
- Recreational Facility
- Recreational Park or Reserve
- Reserve (Miscellaneous & Other)



ToVP Figure 13-1 Existing Bicycle Facilities in the ToVP

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Prepared: S.Richards	Checked: M.LaGalia	Approved: M.LaGalia
Coordinate System: GDA 1994 MGA Zone 50	Source: © Landgate 2017, Main Roads WA	Scale @ A3: 1:27,000
File: laurecon\info\shares\AUPER\Projects\255909 - Joint Bike Plan CoSP & ToVP - CoSP Folder\3.0 Project\Delivery\GIS\ArcGIS\255909_A3P_ToVP_Existing_Rev1		
Client: Town of Victoria Park, City of South Perth		

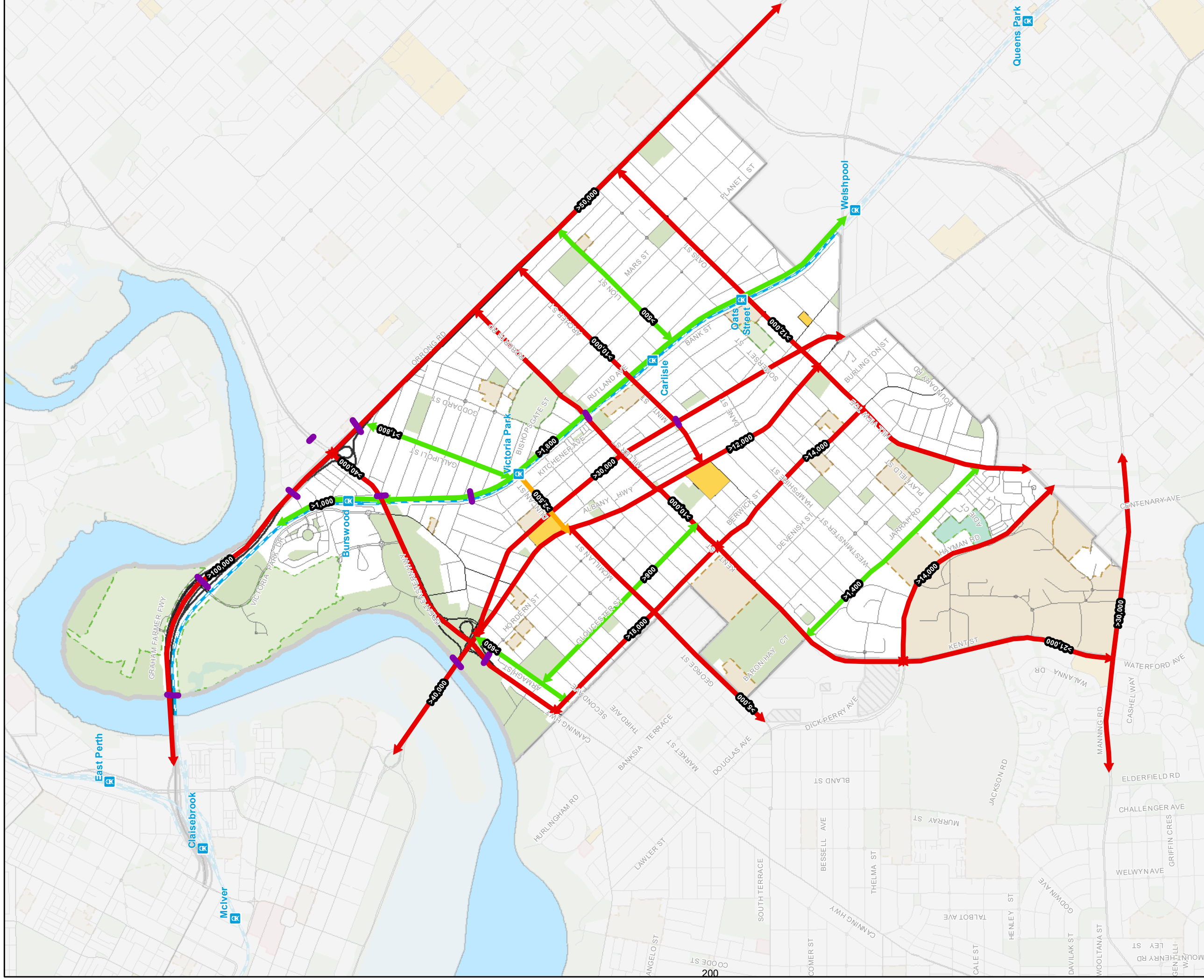




Table 13-2: CERS assessment framework

Category	Parameters	What to assess
Convenience	Continuity	Any issues that may affect the continuity if a facility were to be introduced This could include change in carriageway width, or delay to cyclists (e.g. through signalised intersections)
	Legibility	Issues that may affect a cyclist's ability to follow the route Take note of any existing cycle / traffic signs that provide directions and any landmarks
	Directness	Ascertain if the proposed link is the most direct path with no delays Use site inspections, internet based maps and photography was used to ascertain if there is an alternative route which cyclists could use Take into account intersections or other features that may result in delay
Accessibility / Safety	Worst Intersection Conflict Point	Based on the type of intersection in combination with traffic flow and the size of the intersection Those intersections with fewer potential conflict points are awarded a greater score Ascertained using provided traffic data, collision data and site inspections/ internet based maps
	Traffic Volume	Use existing data for assessment purposes. Those roads with a lighter traffic flows will receive a high score
	Traffic Proximity	Based on mixture of traffic and width of traffic lane(s) in a single direction of travel A wide lane with cars only will provide a higher score than a narrow roadway which routinely accommodates buses or other large vehicles
	Traffic speed	Use recorded 85th percentile speeds or if unavailable posted speed limit signage The lower the speed of vehicular traffic the higher the score
	Link Conflict Points	Includes obstructions along the route carriageway surface Whether visibility is restricted due to roadside furniture, vegetation etc. Considers the presence and frequency of private access points (driveways etc.)
Comfort	Effective width	Assess any existing cycle lane provision Assess the entire width of the carriageway (to include possible effect of overtaking) Make note of parked cars; this will determine what measures may be required to remove parking or whether a cycle lane away from the edge of the carriageway could be introduced
	Surface Quality	Observe quality of road surface and type, i.e. cracking, potholes, cobblestones etc. Observe any skid / fall hazards such as gully gratings, service chamber covers etc. Observe number of reinstatements and quality.
	Maintenance	Assess current drainage facilities and whether drainage channels appear to be free from detritus and regularly swept Identify any areas where ponding of water is evident; large areas of standing water will deter cyclists and alter their path, a particular issue on signed only routes where there is no designated lane Assess quality of road markings to determine clarity – will affect vehicular paths and therefore behaviour through intersections and along routes Provides an indication of the future score of maintenance if not addressed
	Overall Effort	Make note of the gradient of the link to determine the effort cyclists would need to make to negotiate links. Especially problematic if cyclists are required to stop, e.g. at intersections, pedestrian crosswalks, and need to restart
Attractiveness	Personal security	Determine whether the area around the link has litter / graffiti or evidence of vandalism as cycling demand can be suppressed through fear of crime Make a note of the presence of any CCTV cameras in the vicinity Identify any areas of concealment adjacent to the proposed route
	Lighting	Make note of the regularity and positioning of lighting columns to determine the lighting levels during the hours of darkness Lighting should be available on cycle routes as a safety measure and to provide an additional level of personal security
	Quality of Environment	Determine the quality of the property frontages along the link, is this a route that cyclists would want to navigate? Are the frontages and fence lines etc. of good quality and well maintained? The presence of trees / vegetation will make the route more appealing to cyclists. Is regular maintenance likely to occur?





Legend

- Rail Stop
- Railway
- Freeway
- Highway
- Main
- Minor
- Overpass/Underpass
- Existing Overpass/Underpass
- Existing Traffic Volumes (Vehicles Per Day)
- <2000
- 2000 - 5000
- >5000
- LGA Boundary (Town of Victoria Park)
- Shopping Area
- Community Facility
- Hospital Facility
- Education Facility
- Recreational Facility
- Recreational Park or Reserve
- Reserve (Miscellaneous & Other)



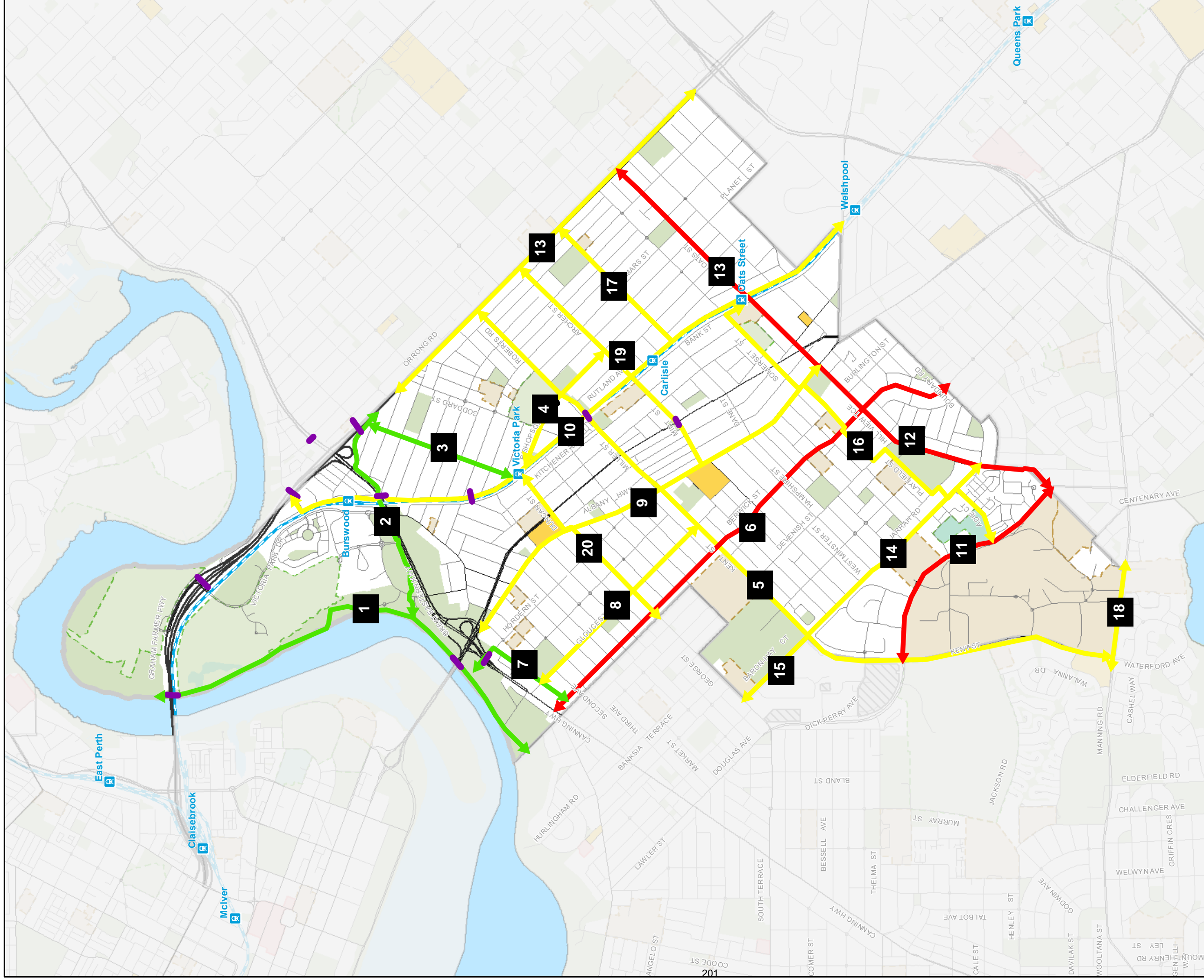
0 1 2 km



ToVP Figure 13-2 Existing Traffic Volumes in the ToVP

Revision: 1	Project No: 255909	Date: May 2018
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Coordinate System: GDA 1994 MGA Zone 50	Source: © Landgate 2017, Main Roads WA	Scale @ A3: 1:27,000
File: laurecon.info\shares\AUPER\Projects\055909 - Joint Bike Plan CoSP & ToVP - CoSP Folder\3.0\Project\Delivery\GIS\ArcGIS\022_255909_ASP_ToVP_Traffic\01_Rev1		
Client: Town of Victoria Park, City of South Perth		





Legend

- Rail Stop
- Railway
- Audited Links
- Poor
- Good
- Average
- Overpass/Underpass
- Existing Overpass/Underpass
- Shopping Area
- Community Facility
- Hospital Facility
- Education Facility
- Recreational Facility
- Recreational Park or Reserve
- Reserve (Miscellaneous & Other)

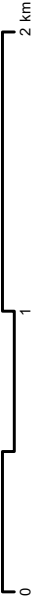


ToVP Figure 13-3 Audited Links and Corresponding Performance for the ToVP

Revision: 1	Project No: 255909	Date: May 2018
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Coordinate System: GDA 1994 MGA Zone 50	Source: © Landgate 2017, Main Roads WA	Scale @ A3: 1:27,000
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Client: Town of Victoria Park, City of South Perth		



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14 Aspirational Cycle Network

It is suggested that the ToVP bicycle network consist of a range of routes that traverse the Town and provide access to various land uses. The routes should range from many local routes to fewer secondary and primary routes aimed at providing efficient through movement for commuter cyclists.

The cycle network should be in line with DoT's hierarchy as part of the Perth Transport Plan @3.5million and wherever possible ToVP should be actively involved in influencing the strategy as it pertains to Victoria Park. It should further be considered that the transport network needs of cyclists, with a destination in mind, are exactly the same as motorists travelling to a destination. This includes the need to include direct and efficient routes, and for this reason the network is similar to the general traffic network.

The overall cycle network is shown in Figure 14-2, and is intended to be **aspirational**– i.e. the long term vision of what the cycle network within the ToVP endeavours to look like by the time Perth's population grows to 3.5 million (towards the year 2050). The proposed aspirational cycle network outlines several ambitious routes aimed at making cycling a realistic and appealing option for a high proportion of the population. The aspirational cycle network has been influenced by the routes identified in the Perth Transport Plan for 3.5 million and the research, investigation and consultation undertaken as part of the project.

The proposed network is based on the DoT cycling route hierarchy, which comprises of three tiers – Primary Routes, Secondary Routes and Local Routes.

14.1.1 Primary Routes

Primary Routes typically consist of high quality shared paths that are located along major road and rail corridors and ocean and river foreshores. Principle routes aim to avoid interruptions to cyclists with consideration to separation of pedestrians and cyclists at areas of high pedestrian activity, and grade separation at major intersecting roads and railways.

It is proposed that these Primary Routes include:

- Rutland Avenue; and
- Burswood Foreshore.

14.1.2 Secondary Routes

Secondary Routes are typically located on corridors situated within urban or built-up environments. Secondary Routes provide safe and direct connections between Primary Routes and major trip generators such as shopping centres, industrial areas, major health and educational institutions, sporting and civic facilities. Secondary routes can take the following forms:

- Fully protected on-road bicycle lanes;
- On-road bicycle lanes separated from traffic with “soft” measures such as painted hatching, plastic kerbing or armadillos;
- Shared paths within verges to allow access to shops and businesses; and

- Occasionally a Safe Active Street environment may be appropriate.

It is proposed that these Secondary Routes include:

- Hill View Terrace/Oats Street;
- Kent Street/Miller Street/Roberts Road;
- Hayman Road;
- Berwick Street;
- Gloucester Street;
- Orrong Road; and
- Great Eastern Highway shared path (via Burswood).

14.1.3 Local Routes

Local Routes are typically located in local areas (i.e. residential). The purpose of local routes is to collect cycling traffic from local roads within towns and suburbs and distribute it to the secondary and primary networks. Local routes can take the following forms:

- 30km/hr Safe Active Streets which adopt “self-explaining street” and “filtered permeability” urban design principles;
- Very quiet suburban streets, communicated using sharrows or appropriate signage/way finding;
- Short sections of shared path; and
- Occasionally, on road cycle lanes on quiet roads (less than 50km/h) may be appropriate.

It is proposed that these Local Routes include:

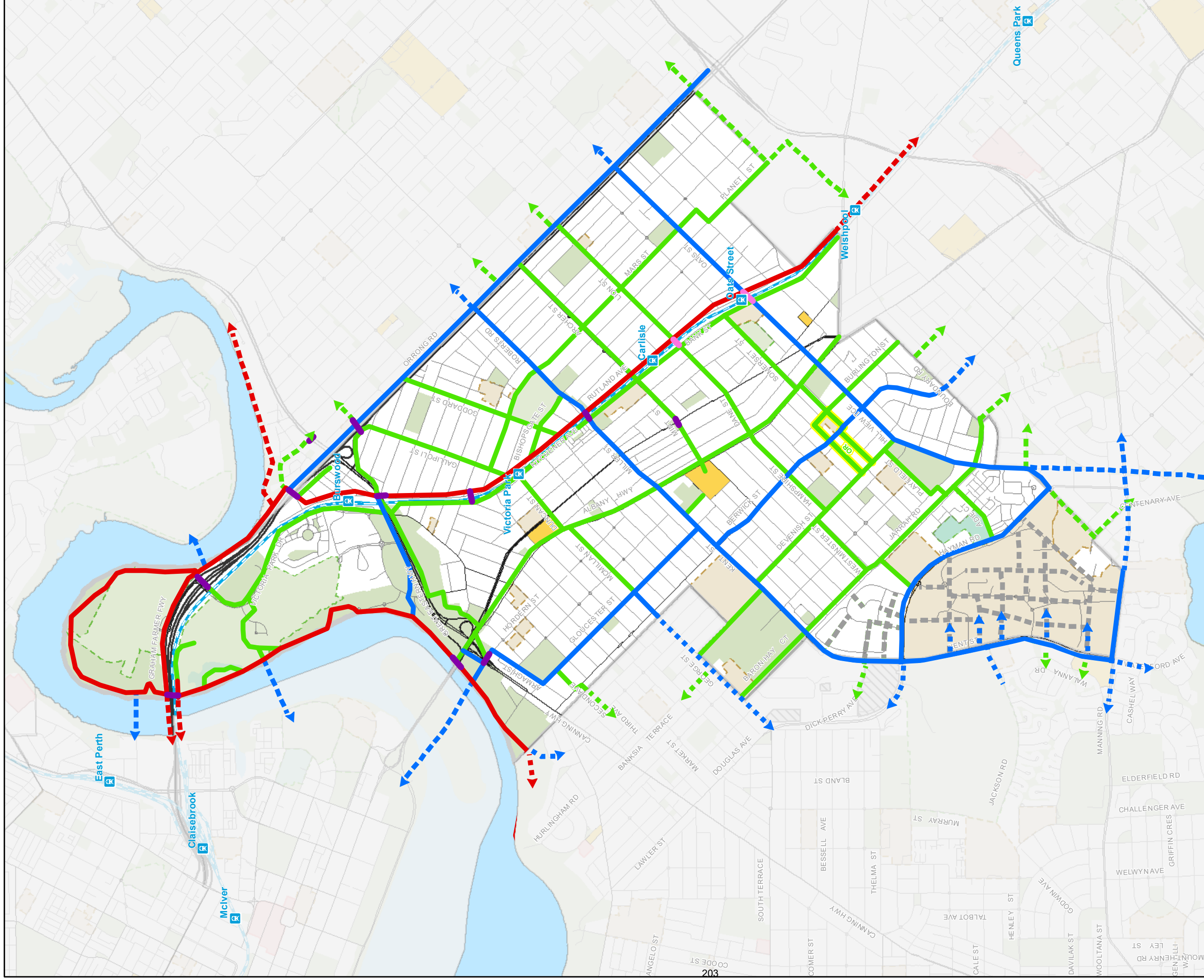
- Connections to Perth Stadium;
- Victoria Park Drive;
- Great Eastern Highway shared path (via Charles Patterson and G.O Edwards Park to Orrong Road Overpass);
- Great Eastern Highway to Riversdale Road shared path;
- West side of Rail Line (Kitchener Avenue and Bank Street);
- Gallipoli Street;
- Goddard Street;
- North south industrial route from Gallipoli Street to Kew Street (via McCartney Crescent, Mars Street, Cohn Street and Planet Street);
- Bishopsgate Street;
- Albany Highway;
- Colombo Street;
- McMillan/Duncan Street;
- John McMillan Park Shared Path;
- Mint/Archer Street;

- Dane Street/Hampshire/Westminster Street through to Hayman Road (via TAFE Campus);
- Lion Street/Asteroid Way/Apollo Way/Solar Way/Gemini Way/Galaxy Way;
- Cycle Ring Route between Hayman Road and Oats Street Station;
- Harold Rossiter Park;
- Baron-Hay Court;
- Jarrah Road/Boundary Road; and
- Burlington Street.



Figure 14-1: Route hierarchy example infrastructure (source: DoT)

It should be noted that the DoT Hierarchy also includes Long Distance Trails and Training Circuits, although these are not applicable to CoSP.



Legend

- Rail Stop
- Railway
- Freeway
- Highway
- Main
- Minor
- Aspirational Network
- Principal Route
- Principal Route - by others
- Strategic Routes
- Strategic Routes - by others
- Local Routes
- Local Routes - by others
- Within Curtin University
- Overpass/Underpass
- Existing Overpass/Underpass
- Proposed Overpass/Underpass
- LGA Boundary (Town of Victoria Park)
- Shopping Area
- Community Facility
- Hospital Facility
- Education Facility
- Recreational Facility
- Recreational Park or Reserve
- Reserve (Miscellaneous & Other)



**ToVP Figure 14-2 Aspirational
Cycle Network for the ToVP**

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Client: Town of Victoria Park, City of South Perth



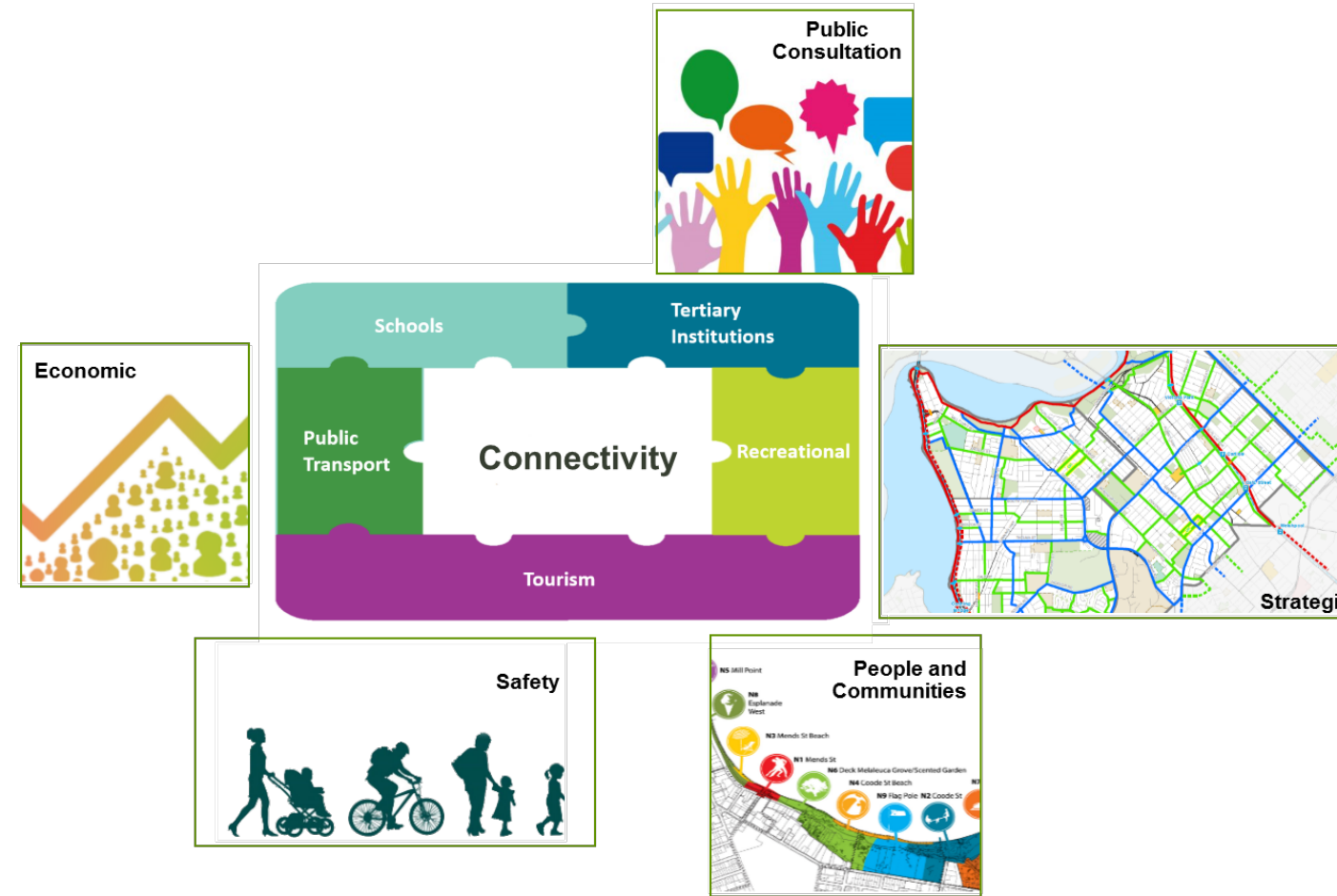
15 Projects and Prioritisation

15.1 Prioritisation Process

As a result of the research, investigation and consultation undertaken as part of the project, several potential infrastructure projects were identified and shortlisted for inclusion in the **5-year implementation plan**.

A process was then undertaken to provide an indication of the priority with which the ToVP should aim to implement the infrastructure projects. It should be noted that the prioritisation process is subjective and is intended to provide guidance only. Opportunities may arise over the implementation of this Plan which may fast track or hinder the progress of projects.

Prioritisation of Bicycle Infrastructure Proposals, published by the Australian Bicycle Council and the federal Department of Infrastructure, Transport, Regional Development and Local Government, provides guidance on the prioritisation of bicycle facilities. It also suggests a list of criteria for assessing proposed bicycle facilities. These are listed in the form of six objectives which are outlined below:



1. Public Consultation

Consideration of stakeholder concerns and the impact that the project may have on alleviating issues.

2. Strategic

Consideration of how the project fits into the long term aspirational cycle network.

3. Connectivity

Consideration of how the project may impact accessibility to the following destinations and facilities:

- Schools;
- Tertiary institutions;
- Recreational and tourism facilities;
- Employment zones; and
- Public transport hubs.

4. Economic

Consideration of how the project may impact the following:

- Mode shift – refers to the potential to encourage mode shift away from the private vehicle;
- Impact on motor vehicles – refers to the potential impact on private vehicle trips (i.e. journey times); and
- Impact on accessibility to commercial facilities.

5. Safety

Consideration of how the project impacts general safety of the following users:

- Cyclists; and
- Pedestrians.

6. People and Communities

Consideration of the how the project impacts the following:

- Level of service – refers to the quality or ‘bicycle friendliness’ of the route, including factors such as coherence, comfort and convenience; and
- Townscape/urban planning – refers to how the proposed project fits into an overall town plan.

Prioritisation of Bicycle Infrastructure Proposals further suggests that the above criteria be used as part of a multi-criteria analysis (MCA). Therefore, in order to prioritise the proposed infrastructure projects, the broad qualitative impact of each proposal was identified under each of the above six objectives.

A score was then assigned for each objective for each project, with the following weightings applied:

- Public Consultation: 20%
 - For the purpose of this study, the total number of comments from both the community survey and the stakeholder consultation were counted, and then grouped into a range for assessment.
- Strategic: 25%
- Connectivity: 25%
- Economic: 5%
- Safety: 15%
 - This criterion takes into consideration the number of crashes that occurred on the proposed route.
- People and communities: 10%

The sum of these individual scores yielded a total score for each proposal out of 10. The priority level of each proposal was then assigned using the total score, as follows:

- 7.0 -10.0: high priority
- 5.0 – 6.99: medium priority
- ≤ 5.0: low priority

15.2 Infrastructure Project List

A total of six cycling infrastructure projects are proposed within the ToVP over the next 5-years. High level order of cost estimates have been determined for these projects (further details in Section 16), however further investigation will need to be undertaken to develop detailed concepts and understand the true cost of each project. Funding assistance from other agencies, such as the DoT, will need to be explored during implementation of the Plan.

The detailed project sheets for ToVP, including project justification, prioritisation ratings and indicative costs are provided in Appendix F.

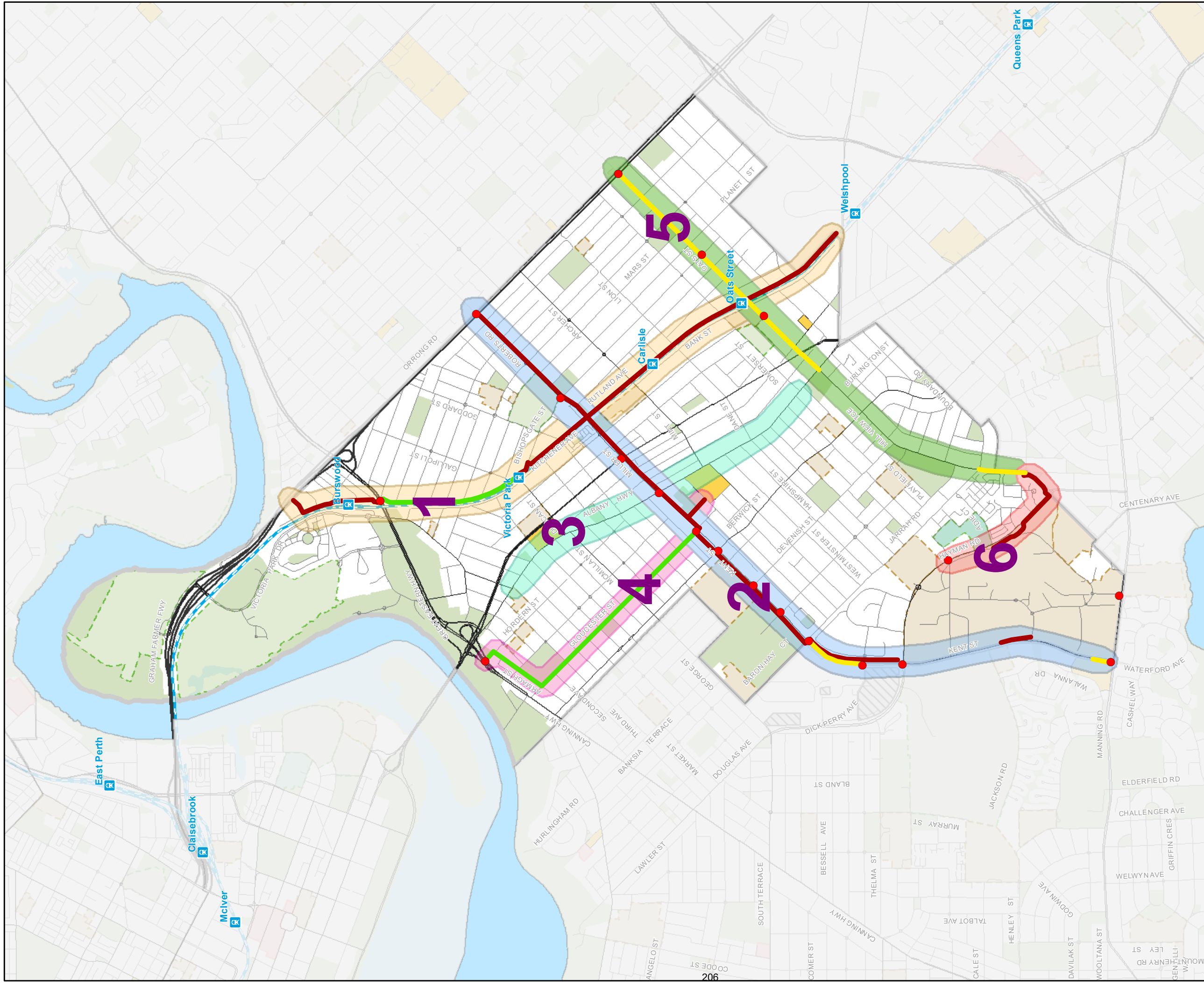
A description of the ToVP prioritised project list provided in this section, and shown in Figure 15-1. The implementation of these projects will be dependent on further investigation and community consultation.

There may be situations where the removal of vegetation may be required to facilitate an improved cycling outcome, and as such it is recommended that any affected vegetation is replaced. As an example, some vegetation can affect sight lines, which could be replaced with the appropriate plant species or ground vegetation.

Table 15-1: Summary of prioritised infrastructure project list for the ToVP

#	Project Name	Location	Description	Public Consultation	Strategic	Connectivity	Economic	Safety	People & Communities	Weighted Total / 10	Estimated Cost*
1	Rutland Avenue Project	Between Welshpool Road and Riversdale Road	This project is split into four stages. For stages 1 and 2, install a 3m wide raised high quality shared path on the west side of Rutland Avenue between Welshpool Road and Oats Street, and Oats Street and Bishopsgate Street. Convert Rutland Avenue to a Bicycle Boulevard/Safe Active Street between Bishopsgate Street and Streatley Avenue (Stage 3) and install a 3m wide raised high quality shared path on the west side of Goodwood Parade between Great Eastern Highway and Riversdale Road (Stage 4). Stage 1 is currently scheduled for construction in the 2017/18 financial year and concept designs have been completed for stages 3 and 4. Stage 2 is considered the lowest priority.	8	10	7.6	6.67	10	10	8.83	\$2,300,000.00
2	Kent Street Project	Between Manning Road and Orrong Road	This project is split into four stages. For Stage 2A, upgrade the missing gaps of high quality shared path on the east side of Kent Street to a 2.5m-3.0m shared path between Manning and Hayman Road and Hayman and Jarrah Road. Also as part of Stage 2A, investigate the reduction of the posted speed limit to 60km/h, and improve the on-road cycle lanes. Between Jarrah Road and Gloucester Street, formalise the existing shared path on the north side, and improve the on-road cycle lanes (Stage 2B). From Gloucester to Bishopsgate Street, upgrade the existing path to a 2.5m-3.0m high quality shared path on the southern side and improve the on-road cycle lanes (Stage 2C). Stage 2D includes upgrading the existing footpath to a 2.5-3.0m high quality shared path on the southern side, improving on-road cycle lanes and installing a pedestrian/cyclist crossing at Orrong Road.	8	8	8.2	5.33	9	8	8.07	\$1,500,000.00
3	Albany Highway Investigation	Between Canning/Great Eastern Highway and Welshpool Road	Undertake an investigation to determine the feasibility of reallocating parking and installing a bi-directional cycle path on one side of Albany Highway. In the interim, investigate the reduction of the posted speed limit to 30km/h, install additional traffic calming measures and install cycle awareness signage and pavement markings to create a more cycle friendly environment.	8	6	7.2	5.33	10	10	7.67	\$100,000.00
4	Gloucester Street Project	Gloucester Street (between Kent Street and Armagh Street) and Armagh Street (between Gloucester Street and Hordern Street)	Convert Gloucester Street and Armagh Street to a Safe Active Street/Bicycle Boulevard connecting from Kent Street to the Hordern Street underpass. This includes reversing directional priority at a number of intersections to improve cyclist priority. Install a 3.0m high quality shared path connection from Kent Street to the Park Shopping Centre and revitalise the Hordern Street underpass.	4	8	6	6.00	10	10	7.10	\$1,300,000.00
5	Oats Street Project	Between Albany Highway and Orrong Road	Install 1.5m continuous marked on-road cycle lanes on Hill View Terrace (between Holder Street and Boundary Road) and Oats Street (between Albany Highway and Shepperton Road). Upgrade the existing on-road cycle lanes for the remainder of the route including the installation of advanced stop cycling boxes at intersections.	4	8	7.4	4.00	8	8	6.85	\$1,000,000.00
6	Hayman Road Project	Between Kent Street and Marquis Street	Install a new 3.0m high quality shared path on the eastern side of Hayman Road and upgrade the existing footpath on the west side from Adie Court to Marquis Street to a 3.0m high quality shared path. Install a pedestrian/cyclist crossing at Brodie Hall Drive and investigate improving crossing priority for cyclists at the Hayman Road/Allen Court/Curtin Main Street signalised intersection.	4	8	5.4	2.67	9	9	6.53	\$450,000.00

*High level order of cost estimates have been determined for these projects, however further investigation will need to be undertaken to develop detailed concepts and understand the true cost of each project



Legend

- Rail Stop
- Railway
- Separated Path (Bikes Only)
- High Quality Shared Path (Bikes and Pedestrians)
- Bicycle Lanes or Sealed Shoulders
- Safe Active Street
- LGA Boundary (Town of Victoria Park)
- Shopping Area
- Community Facility
- Hospital Facility
- Education Facility
- Recreational Facility
- Recreational Park or Reserve
- Reserve (Miscellaneous & Other)

- 1** ToVP Prioritised Project
- Prioritised Project 1
- Prioritised Project 2
- Prioritised Project 3
- Prioritised Project 4
- Prioritised Project 5
- Prioritised Project 6
- Prioritised Project 7



ToVP Figure 15-1 Infrastructure Project Locations for the ToVP

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Coordinate System: GDA 1994 MGA Zone 50	Scale @ A3: 1:27,000	

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 Client: Town of Victoria Park, City of South Perth



1 Rutland Avenue Project

Rutland Avenue is a primary route along the Perth-Armadale rail line, where there is currently a significant gap. Consultation has previously been undertaken regarding the various stages of Rutland Avenue. Each proposed stage is briefly summarised below:

- Stage 1: Rutland Avenue – Welshpool Road to Oats St
 - This project is proposed to consist of a new 3m wide raised path. Crossing of Oats Street is also proposed to be provided.
- Stage 2: Rutland Avenue – Bishopsgate Street to Oats Street
 - This is the middle section of the missing Rutland Avenue link but was deemed the lowest priority section by cycle workshops held in late-2016. The project is proposed to consist of a new 3m wide raised path on rail side.
- Stage 3: Rutland Avenue – Streatley Road to Bishopsgate Street
 - It is proposed to develop this section into a safe active street by reducing the posted speed limit to 30km/h, formalising on-street parking and installing pavement marking.
- Stage 4: Goodwood Parade – Great Eastern Highway to Riversdale Road
 - This project is proposed to consist of a new 3m wide raised path on the west side Goodwood Parade.

As part of each stage, consideration of adequate cycle crossing facilities is required with intersecting roads (i.e. Mint Street and Oats Street), including adequate median storage and holding rails.

2 Kent Street Project

Kent Street/Miller Street/Roberts Road is a key strategic route of approximately 6km that connects multiple key destinations including Curtin University, Kent Street Senior High School, the Leisure Life Centre, Albany Highway commercial precinct and Lathlain Park.

Most of the route has sealed shoulders available that disappear at some intersections. A wide off-road path is available in parts however it is generally inconsistent.

It is proposed that on-road cycle lanes are formalised along the entire route, along with improvements to various intersections to provide continuity for cyclists. On-road cycle lanes will cater for confident cyclists, however a key aspect of the Plan is to encourage increased cycling for less confident cyclists. It is therefore proposed that a continuous off-road shared path is reinforced along the entire length of the route.

Kent Street is partly under the control of CoSP (south of Jarrah Road), with modifications proposed as part of the CoSP infrastructure project list. As

such, the Kent Street project should be undertaken jointly with the CoSP to ensure consistency.

During the implementation of the Kent Street project, supplementary initiatives should be incorporated to support behaviour change and encourage cycling. This should include wayfinding signage, bike parking and amenities and awareness campaigns (discussed in Section 15.5). In addition, it is proposed that a bike share scheme is trialled once the project is completed, in liaison with Curtin University and the ToVP (discussed in Section 15.5.5).

The proposed cycle route involves improved cycle infrastructure spanning across the following road sections:

- **Section 2A:** Kent Street (between Manning Road and Hayman Road)
- **Section 2B:** Kent Street (between Hayman Road and Jarrah Road)
- **Section 2C:** Kent Street (between Jarrah Road and Gloucester Street)
- **Section 2D:** Miller Street (between Gloucester Street and Bishopsgate Street)
- **Section 2E:** Roberts Road (between Bishopsgate Street and Orrong Road)

15.2.1 2A – Kent Street (between Manning Road and Hayman Road)

The section provides a challenging environment, with Kent Street catering for the following:

- High traffic volumes (in particular 22,000 vehicles per day between Manning Road and Hayman Road, and 12,000 vehicles per day between Hayman Road and Jarrah Road).
- A high frequency bus route with multiple bus stops
- 70km/h posted speed limit between Manning Road and Hayman Road

The following modifications are recommended, in collaboration with the CoSP:

- Investigation into the reduction of the posted speed in this section to 60km/h to reduce the speed differential between cyclists using the on-road facilities and general traffic.
- Kent Street/Manning Street intersection
 - On the southbound approach, realign the bypass off-ramp to provide a smoother transition for cyclists. Install signage to direct bicycles onto the bypass off-ramp.
- Kent Street (eastern side, just north of Beazley Avenue)
 - Replace existing concrete footpath with a 2.5m-3.0m high quality red asphalt shared path with appropriate line marking and signage (approximately 230m).
- Kent Street (between Manning Road and Hayman Road)
 - Currently on-road cycle lanes are provided, however some locations are not red asphalt nor marked as cycle lanes. It is recommended that when the next resurfacing works along Kent Street are undertaken that this entire section of on-road cycle lanes are paved in red asphalt

and marked as cycle lanes. In addition, green asphalt should be used for cycle lanes at intersections (i.e. Curtin Main Street and Beazley Avenue). Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane;

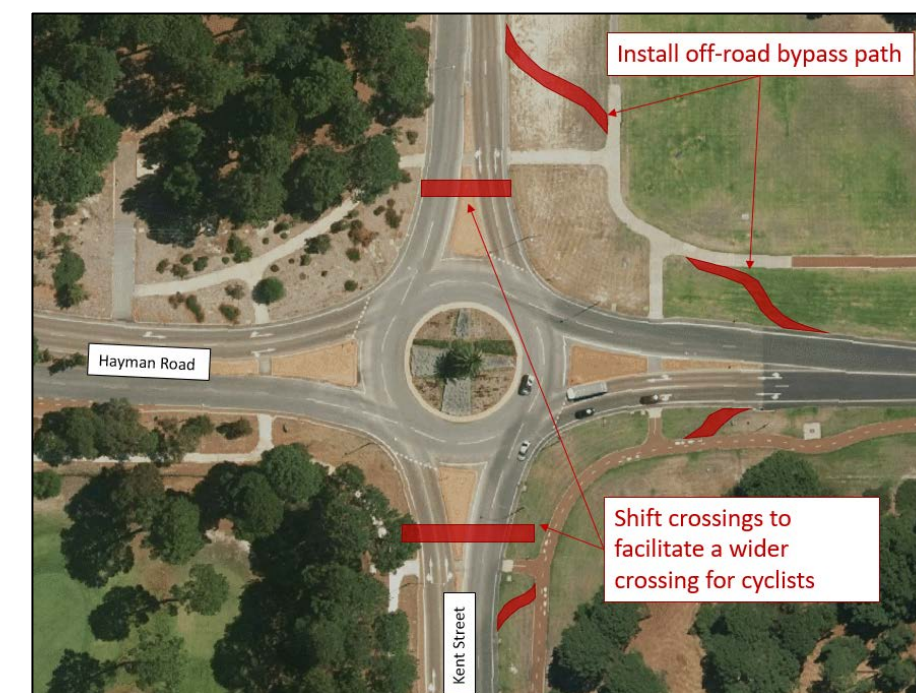
- To assist in mitigating potential conflict between cyclists using the on-road lanes and buses stopping, it is recommended that off-road bypass lanes are installed to give cyclists the option to bypass; and
- It should be noted that a signalised pedestrian/cyclist crossing is proposed north of Waterford Plaza as part of other works.

15.2.2 2B – Kent Street (between Hayman Road and Jarrah Road)

This section of Kent Street is a single carriageway, and caters for up to 12,000 vehicles a day.

The following modifications are recommended, in collaboration with the CoSP:

- Kent Street/Hayman Road intersection
 - It should be noted that the ToVP are investigating improvements to the overall safety of the intersection. The following modifications to improve cycling should be considered as part of any future works.
 - Shift the median cut-through at the crossings on both the Kent Street approaches to provide appropriately wide refuge for cyclists and install holding rails; and
 - Install appropriate off-road bypass paths on both the Kent Street approaches to ensure a smooth transition to the north-south crossing point. The existing east-west crossing point and path provided is at right angles to the on-road cycle lanes and does not provide an appropriate off-road bypass path.



- Kent Street (eastern side, between Hayman Road and Jarrah Road)
 - Replace existing concrete footpath with a 2.5m-3.0m high quality red asphalt shared path with appropriate line marking and signage.

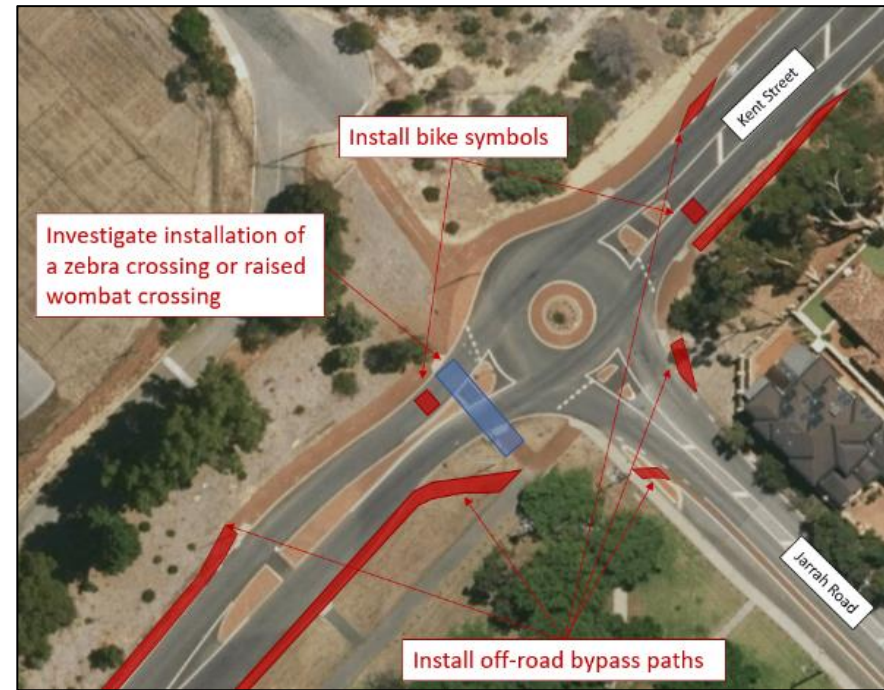
- Kent Street/Dick Perry Avenue/Turner Avenue intersection
 - Install off-road bypass paths with smooth transitions on the Kent Street approaches.



- Kent Street (between Dick Perry Avenue and Jarrah Road)
 - There is a gap in on-road cycle lanes in this location. It is recommended that the road cross section is widened to provide 1.5m continuous marked bike lanes plus a 500mm painted hatching buffer to the traffic lane.
- Kent Street/Jarrah Road/Baron-Hay Court

In collaboration with the CoSP, the following is recommended:

 - Realign the existing off-road bypass path to provide a smooth transition for on-road cyclists opting to navigate the roundabout;
 - Install holding rails on all approaches to the intersection;
 - Install bicycle pavement symbol in the centre of the approach lane on Kent Street to raise driver awareness for cyclists circulating the roundabout; and
 - This is an important intersection for cyclists, as it also connects to a local cross route. The following improvements are recommended in collaboration with ToVP:
 - Install appropriate off-road bypass paths with smooth transitions for on-road cyclists on all approaches to the roundabout to ensure connectivity. Construct an entry ramp onto the southbound bike lane along Jarrah Road from the south-east corner of intersection; and
 - Consider installing a zebra crossing or raised wombat crossing on the south-western leg of the intersection to assist cyclists in crossing the local route. Note that further investigation may be required as this would need to meet the Main Roads warrants for the provision of controlled crossings.

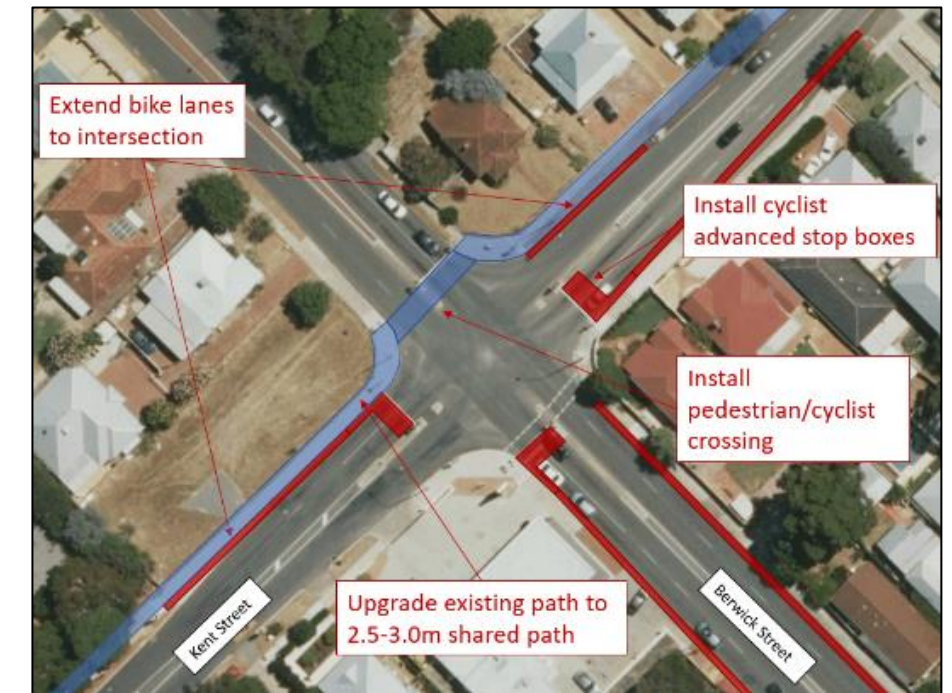


15.2.3 2C – Kent Street (between Jarrah Road and Gloucester Street)

The following modifications are recommended for this section of Kent Street:

- Kent Street (between Jarrah Road and Gloucester Street)
 - Formalise the existing shared path on the northern side by including pavement marking and signage. Between Jarrah Road and Etwell Street there is an opportunity to enhance the amenity and attractiveness of the shared path by improved landscaping adjacent to the path; and
 - Currently on-road cycle lanes are provided, however they are not surfaced with red asphalt. It is recommended that when the next resurfacing works along Kent Street are undertaken that this entire section of on-road cycle lanes are paved in red asphalt. In addition, green asphalt should be used for cycle lanes at intersections (i.e. Curtin Main Street and Beazley Avenue). Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane.
- Kent Street/Etwell Street intersection
 - Install appropriate off-road bypass paths with smooth transitions for on-road cyclists on all approaches to the roundabout to ensure connectivity; and
 - Widen the median cut-through at the crossings on both the Etwell approaches to cater for cyclists and install holding rails.
- Kent Street/Devenish Street intersection
 - Install appropriate off-road bypass paths with smooth transitions for on-road cyclists on both Kent Street approaches to the roundabout to ensure connectivity.
- Kent Street/Berwick Street intersection
 - Install advanced cyclist stop boxes on the Kent Street approaches. Note that advanced cyclist stop boxes are also recommended on the Berwick Street approaches as this forms part of the strategic route.

Ensure that the traffic signal detectors identify cyclists at the approaches.



- Kent Street (between Berwick Street and Gloucester Street)
 - Ensure that the shared path pavement continues across all driveway crossovers to maintain priority for cyclists/pedestrians.
- Kent Street/Gloucester Street intersection
 - Make minor modifications to improve the off-road bypass transition points on both approaches; and
 - Remove signage indicating for bicycles to exit the roadway. This signage is confusing as cyclists have the choice to 'claim' a lane at the approach to the roundabout.



15.2.4 2D – Miller Street (between Gloucester Street and Bishopsgate Street)

As with Kent Street, Miller Street caters for high traffic volumes (up to 12,000 vehicles per day) and a high frequency bus route, and has a posted speed limit of 60km/h. Existing on-road cycle lanes along Miller Street lack continuity, and are not surfaced with red asphalt east of Sunbury Road. A shared path runs along the south side of Kent/Miller Street, varying in quality and width. The Kent Street/Albany Highway/Miller Street intersection is a significant conflict for cyclists, with a lack of safe options for cyclists.

The following modifications are recommended with further investigation required:

- Miller Street (between Albany Highway and Bishopsgate Street)
 - Upgrade existing footpath to a 2.5m-3.0m shared path on the southern side; and
 - Currently marked on-road cycle lanes are provided, however the section between Sunbury Road and Bishopsgate Street are not surfaced with red asphalt. It is recommended that when the next resurfacing works along Miller Road are undertaken that this section of on-road cycle lanes are paved in red asphalt with green asphalt used at intersections. Where possible, existing traffic lanes should be narrowed to the minimum possible to facilitate wider cycle lanes.
- Kent Street/Albany Highway/Miller Street intersection
 - The intersection is hazardous for on-road cyclists, with high traffic volumes, wide lanes and high approach and circulating speeds of vehicles;
 - Install appropriate off-road bypass paths with smooth transitions for on-road cyclists on both Kent Street approaches to the roundabout to ensure connectivity; and
 - Investigate the following potential treatment options to reduce the approach speed of vehicles and reduce the chance of conflict:
 - Raising the circulating area of the roundabout as a plateau to slow vehicles on approach;
 - Installing alternative paving in the circulating area of the roundabout to indicate a slow, shared environment; and
 - Investigate the opportunity to reduce the width of the circulating lanes and providing mountable kerbing in the central island for larger vehicles. This will require consultation with the PTA with regards to buses using the roundabout. The investigation should be coordinated so that potential intersection modifications will coincide with any future resurfacing works.
- Miller Street/Shepperton Road intersection
 - This intersection is considered hazardous for road users, and may be subject to black spot funding; and
 - Consider the installation of advanced cyclist stop boxes on the Miller Street approaches connecting to the on-road cycle lanes.
- Miller Street/Sunbury Road/Beatty Avenue
 - Install holding rails at the crossings on the Sunbury Road and Beatty Avenue approaches.

- Miller Street/Bishopsgate Street/Roberts Road intersection
 - Install appropriate off-road bypass paths with smooth transitions for on-road cyclists on the Bishopsgate Street approaches to the roundabout to ensure connectivity.
 - As part of the Lathlain Park Redevelopment Project, the connectivity between Lathlain Oval and the former Carlisle Lathlain Bowls Club is proposed to be improved and should be coordinated with works as part this project.



15.2.5 2E – Roberts Road (between Bishopsgate Street and Orrong Road)

Roberts Road forms the final link between the rest of the east-west route, with the opportunity to provide a continuous cycle connection into the City of Belmont.

The following modifications are recommended, with further investigation required:

- Roberts Road (between Bishopsgate Street and Orrong Road)
 - Upgrade existing footpath to a 2.5m-3.0m shared path on the southern side; and
 - Currently marked red asphalt on-road cycle lanes are provided, however the lanes are not marked at intersections with side roads. In order to enhance the route, it is recommended that green asphalt is installed at the bike lanes across all intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane.
- Roberts Road/Star Street/Howick Street intersection
 - Install holding rails at the crossings on the Howick Street and Star Street approaches to cater for cyclists.
- Roberts Road/Orrong Road
 - As part of other works, the intersection of Orrong Road/Roberts Road is planned to be modified to remove the right turn movement out of Roberts Road. Provision for a wider pedestrian/cyclist crossing at Orrong Road should be coordinated at the same time, including the installation of holding rails for cyclists in the median island.

3 Albany Highway Investigation

Albany Highway (between Oats Street and the Causeway) is a key commercial and entertainment destination for Town of Victoria Park residents and for the wider Perth metropolitan area. Access to this area is predominantly by car, with up to 15,000 vehicles a day, while the posted speed limit is 40km/h for the entire length. The parallel Shepperton Road carries significantly higher traffic volumes, and although there is some usage from cyclists, bicycle infrastructure is not recommended along this route.

Albany Highway is a key through route and destination for recreational cyclists, however there is a significant opportunity to increase ridership for less confident cyclists. As such, priority should be given to bringing cyclists to Albany Highway as a destination. In assessing Albany Highway, the interaction between different types of cyclists and other road users needs to be carefully considered.

- In order to increase ridership for less confident cyclists, separation from vehicle traffic should be considered. Currently, less confident cyclists will ride on the existing footpath which has multiple conflict points, including pedestrians, service infrastructure, outdoor dining areas etc.
- In order to create a safer environment for confident cyclists (including recreational cyclists), it is recommended that the posted speed limit is reduced further to 30km/h.

The following modifications are recommended, with further investigation required.

- Lower cost improvements in the short term include:
 - Include traffic calming measures to slow vehicles along the route;
 - Enhance the street environment with signage and pavement markings to increase driver awareness and influence driver behaviour. This is particularly important at points where cyclists are likely to come into conflict with motor traffic and are potentially at risk. City of Perth have implemented similar signage to increase awareness of cyclists and modify motorist behaviour. Potential locations include:
 - The narrow sections with high activity such as between Dane Street and Sussex Street, and McMillan Street and Mackie Street.
 - Install additional zebra crossings along Albany Highway which will assist in slowing vehicles and increasing driver awareness; and
 - In coordination with the implementation of the above measures, reduce the speed limit for the full length of Albany Highway to 30km/h.
- It is proposed that Albany Highway remains a local route, whilst recognising that significant modifications will be required to improve the cycling environment, which will require extensive modifications and stakeholder consultation.

It is recommended that investigation into potential long term options to treat Albany Highway to incorporate and enhance access for cyclists is undertaken. As part of the investigation, the option of removing parking on one side of Albany Highway and installing a bi-directional cycle path on that side should be investigated further. In order to offset the loss of parking, the parking on the other side of Albany Highway could be reconfigured to 45

degree parking (refer to Figure 15-2). As part of the investigation there may be merit in investigating a parallel route, such as Litchfield Street/Swansea Street to support access to Albany Highway. Additionally, the investigation should consider a balance between safe and comfortable pedestrian movements (including disability access), the feasibility of off-street parking facilities, potential for increased tree canopy and awning cover, and overall traffic calming strategy that is bicycle friendly. It is recognised that significant works is required to improve the cycling environment along Albany Highway, with significant stakeholder consultation and further investigation into the feasibility of various options required.

It should be noted that there is strong evidence that the installation of bicycle infrastructure (i.e. bike lanes and bike parking) and shared space arrangements in commercial precincts can increase revenue for local businesses. For example the New York City Department of Transportation assessed the impacts that the implementation of 'sustainable streets' had throughout the city ("The Economic Benefits of Sustainable Streets, 2013). One case study at Brooklyn's Vanderbilt Avenue saw a doubling in retail sales in the three years following installation of bicycle lanes and a tree-lined median, with the area significantly outperforming city-wide trends.

With the potential introduction of light rail transit, Albany Highway may undertake significant changes in the long term which should be considered. An indicative cross section that includes shared light rail transit/general vehicle lanes is shown in Figure 15-3.

4 Gloucester Street Project

It is proposed that Gloucester Street forms part of a secondary north-south route between the City of Canning (via Berwick Street) and the South Perth foreshore (via Armagh Street and the Hordern Street underpass). Gloucester Street provides an alternative north-south option to Berwick Street, which has narrow shoulders, excessive traffic volumes and a narrow available cross section.

Gloucester Street carries predominantly low traffic volumes (<1,000 volumes) and it is proposed to be developed into a safe active street, providing suitable a connection for both confident and less confident cyclists, with the following additional opportunities:

- Gloucester Street provides a strategic connection to the east-west Kent Street secondary route
- Gloucester Street provides a local connection to the Park Avenue shopping centre

The following modifications are recommended, with further investigation required:

- Upgrade the existing footpath within John Macmillan Park to a 3.0m high quality shared path to provide an attractive connection to the Park Centre;
- Upgrade the existing footpath along Kent Street between Gloucester Street and John Macmillan Park to a 3.0m high quality shared path;



Figure 15-2: Potential Albany Highway cross section with bi-directional cycle lanes and angled parking



Figure 15-3: Potential Albany Highway cross section with bi-directional cycle lanes and shared light rail transit/general traffic lanes

- Install raised wombat crossings at the approaches to the Kent Street/Gloucester Street roundabout to slow vehicles and increase priority for crossing cyclists and pedestrians; and
 - Develop Gloucester Street (between Kent Street and Armagh Street) and Armagh Street (between Gloucester Street and Hordern Street) into a Safe Active Street. This could include the following treatments:
 - Reducing the posted speed limit to 30km/hr;
 - Formalising on-street parking using line-marking;
 - Reversing the directional priority at multiple intersections to provide cyclists with through priority, including State Street, Manchester Street, King George Street, McMaster Street, Cargill Street and Armagh Street;
 - Installing raised plateaus at intersections; and
 - Enhancing the attractiveness of the street.
 - Hordern Street underpass at Canning Highway
 - The underpass is prone to flooding. Consider covering the open vents in the underpass structure with clear plastic or other appropriate material to reduce the chance of flooding. Regular maintenance of the drainage collection points at the ends of the tunnel is also required to ensure no blockages; and
 - Investigation into measures to reduce conflict between cyclists and pedestrians, and improving the overall amenity of the underpass.
- Some challenges exist, which will require further investigation, including:
- The interface between the Berwick Street/Kent Street intersection and Gloucester Street will require further investigation. The interface between the north-south and east-west secondary routes will need to be carefully considered;
 - The crossings at Kent Street and McMillan Street will require further investigation; and
 - A short section between McMillan Street and King George Street is part of the 960 bus route (1 bus stop).

5 Oats Street Project

Hill View Terrace and Oats Street forms part of a key secondary route that connects multiple key destinations including Curtin University, Albany Highway, TAFE Carlisle, Aqualife and Oats Street Station. The route carries significant traffic volumes (up to 15,000 vehicles per day) and caters for a high frequency bus route.

This project aims to reinforce the Hill View Terrace/Oats Street secondary route by addressing the gap in dedicated on-road cycle lanes between Albany Highway and Shepperton Road and enhancing the existing on-road cycle lanes.

The proposed recommendations for the Oats Street Project are divided into sections and outlined below.

15.2.6 Hill View Terrace (between Holder Street and Albany Highway)

The following modifications are recommended, with further investigation required:

- Hill View Terrace (between Holder Street and Boundary Road)
 - Install new 1.5m wide on-road cycle lanes between Holder Street and Boundary Road; and
 - At the Holder Street roundabout, install appropriate off-road bypass paths to ensure a smooth transition with the shared path proposed on the north side of Marquis Street and the proposed bike lanes on Hill View Terrace.
- Hill View Terrace/Boundary Road/Jarrah Road intersection
 - Install advanced cyclist stop boxes on the Hill View Terrace approaches.
- Hill View Terrace (between Boundary Road and Albany Highway)
 - Upgrade the existing on-road cycle lanes as part of the next resurfacing, ensuring red asphalt and adequate bicycle pavement markings and signage.

15.2.7 Oats Street (between Albany Highway and Orrong Road)

The following modifications are recommended, with further investigation required:

- Oats Street (between Albany Highway and Shepperton Road)
 - There is a gap in on-road cycle lanes in this location. It is recommended that the road cross section is widened to provide 1.5m continuous marked bike lanes. This requires further investigation as the road corridor is constrained in this location.
- Oats Street/Albany Highway intersection
 - Install advanced cyclist stop boxes on the Oats Street approaches.

- Oats Street/Shepperton Road intersection
 - Upgrade the Oats Street/Albany Highway and Oats Street/Shepperton Road intersection to include on-road cycle lanes through the intersection.
- Oats Street (between Shepperton Road and Orrong Road)
 - Currently narrow sealed shoulders are provided, however they are not marked as cycle lanes or surfaced with red asphalt. It is recommended that this entire section of on-road cycle lanes are widened to 1.5m and paved in red asphalt. In addition, green asphalt should be used for cycle lanes at all intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane.
- Oats Street/Read Street intersection
 - Install appropriate off-road bypass paths on both the Oats Street approaches to ensure a smooth transition to the north-south crossing point; and
 - Install a median cut-through at the crossing on the Read Street approach to appropriately cater for cyclists and install holding rails.
- Oats Street/Bishopsgate Street intersection
 - The opportunity to provide smooth transitions to off-road bypass paths at the Oats Street approaches is limited at this intersection, however should be investigated. Investigation into slowing vehicles down on the approach to the intersection should also be undertaken, i.e. with horizontal deflection; and
 - It is also recommended that bicycle pavement markings are installed at the centre of the lane on the roundabout approaches to increase awareness of cyclists who are likely to take the lane.
- Oats Street/Star Street
 - Modify the off-road bypass paths on the eastern Oats Street approach to ensure a smooth transition. Remove the tactile ground surface indicators as these are a hazard for cyclists and not appropriate in this location;
 - Install holding rails at the crossings on the Star Street approaches; and
 - Remove the unnecessary tactile ground surface indicators at the off-road cyclist bypass path.



- Oats Street/Orrong Road
 - In collaboration with the City of Belmont and Main Roads, install advanced cyclist stop boxes on the Oats Street approaches connecting to the on-road cycle lanes.

6 Hayman Road Project

This project aims to address a gap in the existing shared path on the western side of Hayman Road. This section of Hayman Road is critical in providing connectivity to and between Curtin University, Bentley TAFE Campus, and other nearby destinations. Hayman Road is a secondary route and caters for both confident and less confident cyclists which needs to be considered.

It should be noted that Hayman Road is planned to be upgraded to a dual carriageway (two lanes in each direction), with works at the Curtin Main Street intersection recently completed.

The following modifications are recommended, with further investigation required.

- Western side of Hayman Road (between Adie Court and Marquis Street)
 - Upgrade the existing footpath to a 2.5m-3.0m high quality shared path to connect to the existing high quality shared path (just north of Adie Court). This should include the provision for lighting on the shared path; and
 - Zebra crossings (or raised wombat crossings desirably) should be installed at all crossovers to increase priority for cyclists using this path. This may require further investigation to understand the volume of pedestrians and cyclists using this route.
- Hayman Road/Allen Court/Curtin Main Street intersection
 - Investigate improving crossing priority for cyclists at the intersection, i.e. install zebra crossings across all left turn pockets and reconfigure the signal phasing to allow the pedestrian through phase to remain green until right turning vehicles trigger the loop detectors. This simple shift in signal configuration not only provides improved priority for cyclists/pedestrians but also provides a visual incentive to walk and cycle to Curtin University. This could be undertaken as a trial project, as further discussed in Section 15.5.5.
- Marquis Street (between Hayman Road and Holder Street)
 - Upgrade the existing footpath on the northern side of Marquis Street to a 2.5m-3.0m high quality shared path; and
 - Note that Marquis Street is an important connection point to both Hill View Terrace (secondary route) and Holder Street (local route connecting into the City of Canning). Treatment at the intersection of Marquis Street/Hill View Terrace/Holder Street will need careful consideration and further investigation. Modification of the existing entry point into Juniper Annesley may be required, which will require further liaison and investigation.

15.3 Minor Works Improvements

Several infrastructure improvements to additional cycle routes, not captured in the key project recommendations, have also been identified where relatively minor works is required. It is proposed that these 'quick win' projects are also completed over the next five years to improve the amenity of cycling routes. These improvements are listed below:

15.3.1 Rutland Avenue

In the interim to the Rutland Avenue project works, the following modification has been identified, which is recommended to be undertaken in the short term:

- Great Eastern Highway overpass at Rutland Avenue/Streatley Road
 - Improve connection to the off-road path by constructing smooth transition from Rutland avenue.



15.3.2 Causeway

The following is recommended in the vicinity of the Causeway:

- The pavement markings at the transition from shared path to cycle only path just west of the Causeway is misleading as pedestrians may continue along the cycle only path. The shared path pavement marking on the cycle only path should be removed, and a small footpath connection should be constructed to direct pedestrians appropriately; and
- Canning Highway underpass at the Causeway
 - Formalise priority of path intersection at the west side by installing give way line at the terminating leg.



15.3.3 Great Eastern Highway

A conflict point exists for cyclists travelling east-west along the Great Eastern Highway, connecting to the overpass to access the proposed principal shared path along Rutland Avenue/Goodwood Parade.

The following modifications are recommended, with further investigation and liaison with Main Roads and PTA required:

- Install a new 2.5m-3.0m high quality shared path on the northern side of Great Eastern Highway to bypass the existing bus stop. The path should connect to the existing ramp connecting to the overpass; and
- This project will require removal of the vegetation behind the existing bus stop and moderate earthworks, plus a retaining wall is likely required.



15.3.4 Adie Court Signage

Existing signage at the Adie Court/ Jarrah Road intersection indicates that entry is only permitted for taxis and buses. It is recommended that the 'no entry' signage is modified to also allow cyclists to access the road.

15.3.5 Harold Rossiter Park

The reticulation system adjacent to Harold Rossiter Park has been found to cause flooding on the existing shared path within the park. The following is recommended:

- Investigate flooding issue on the shared path within Harold Rossiter Park from the adjacent reticulation system.

15.3.6 Bicycle Detection Loops

A common issue is the consistency of application of bicycle detection loops at signalised intersections. Without bicycle detection loops traffic signals will not be activated until general vehicles arrive at the intersection. This can often add frustration and inconvenience for cyclists during off-peak periods. The CoSP should audit all intersections within their jurisdiction to identify all applicable intersections that do not have bicycle detection loops and liaise with Main Roads to implement them.



15.4 Areas Outside Local Government Control

A number of issues identified are located in areas outside of local government control. It is proposed that the ToVP lobby for improvements to these areas, as described below:

15.4.1 Future Heirisson Island Pedestrian/Cycle Bridge

The Perth and Peel Transport Plan at 3.5 million highlights a new pedestrian and cyclist only bridge, connecting from McCallum Park (just east of the Causeway) and over Heirisson Island to the Perth CBD. It is recommended that the Town of Victoria Park continue to lobby state government to accelerate the construction of this bridge in the next five years.

In the interim, the following modifications to the Causeway are recommended and should be discussed with the City of Perth:

- Resurface shared path and include signage indicating single file use; and
- The existing concrete balustrade along the Causeway path provides a hazard for cyclists. The Town should consult with the City of Perth to investigate modifications to railing to improve cyclist safety.

15.4.2 Burswood Park and Perth Stadium

The existing shared path along Burswood Park, connecting to Perth Stadium caters for high demand for a mix of users, creating the potential for conflict.

It is proposed that investigation into the installation of a separated footpath adjacent to the existing shared path and conversion of the shared path to a cycle only path. Improved lighting should also be investigated along this path to provide improved personal security, particularly given the likely increase in activity in the area during the evenings once the Burswood Stadium is completed. The existing shared path along Burswood Park is controlled by Burswood Park Board and will require further liaison.

It is recommended that a permanent cycle counter or a real-time speed display sign (north of Crown) is installed to monitor the use and behaviour on the foreshore path following the completion and opening of the new Perth Stadium. This will assist in determining the warrant for path separation.

Bicycle access and parking facilities at Perth Stadium should be strongly considered as part of the design works.

15.4.3 Orrong Road

Orrong Road is under the control of Main Roads, with long term plans for the road unclear. The ToVP should continue to liaise with Main Roads and the City of Belmont to ensure that any future plans consider cyclists.



15.5 Supplementary Project List

While investment in cycling infrastructure is highly important, there are a range of additional measures that can be employed to complement this investment, which are included in the following section.

15.5.1 Wayfinding

Wayfinding informs users of their surroundings in the built environment. It is important to show information at strategic points to guide people in the right directions. There is currently a lack of information on most routes, including directions to key links and areas of activity. The Integrated Movement Network Strategy (ToVP, 2013) proposed the development of a wayfinding strategy to be completed for the Town.

It was noted during the saddle surveys that the signage used for wayfinding needs updating (see Figure 15-5).

A wayfinding strategy for the state-wide strategic cycle network is currently being developed by the DoT. Some of the key routes of the strategic network are within ToVP and therefore an updated wayfinding strategy for the ToVP local network will require alignment with the strategic network wayfinding. This is particularly important for key attractors and destinations, such as Perth Zoo, Curtin University, Train Stations, Albany Highway, Perth Stadium, and Crown Perth.

It is recommended that a joint local wayfinding strategy is undertaken over both CoSP and ToVP council areas. Liaison with Curtin University and other key destinations (i.e. The Park Centre) should also be undertaken to provide improved awareness and consistency of entire cycle routes to local destinations (particularly at key intersections). For example, strong wayfinding from Canning Bridge to the Causeway should be provided to indicate a clear alternative route to Canning Highway for cyclists. Creative and playful branding for wayfinding signage could also be explored, such as the example shown in Figure 15-6 which was completed as part of the DoT's Your Move program (discussed further in Section 15.5.8.1).



Figure 15-5: Existing cycling wayfinding at the Rutland Avenue/Goodwood Parade overpass at Canning Highway



Figure 15-6: Cycling wayfinding pavement markings in City of Wanneroo

15.5.2 Bike Parking and Amenities

Bike parking and amenities help complement the cycle network by reducing inconveniences associated with cycling. There is a demand for end of trip facilities at a number of locations throughout ToVP, particularly at areas with high commercial activity. An audit/gap analysis of existing end of trip facilities is recommended to help gain an understanding of current supply and demand which would inform Council of the locations that could be benefited the most from further investment. The size and type of facilities that are suitable (i.e. secure bike parking, sheltered and functional bike racks and lockers) should also be considered in the analysis. The term bike rack refers to the device to which you fix your bike to. It is recommended that these be in the form that supports the entire bicycle (i.e. U-rails) and allows users to lock the bicycle frame and wheels (Department of Transport, 2014). Retrofitting vertical poles with bicycle parking racks is a potential option to increase bicycle parking. The ToVP should also aim to install bicycle parking racks at all sports grounds and playgrounds.

Key areas of focus for which the audit/gap analysis should investigate include:

- Along Albany Highway at the areas of high activity such as at café strips and major shopping centres;
- Swansea Street Markets;
- Victoria Park Markets (at John McMillan Park);
- Archer Street shops;
- Bentley Technology Park;
- Burswood Park;
- Victoria Park Library;
- Aqualife Centre;
- The Leisurelife Centre;
- Major bus stations (i.e. Curtin University);
- It is recommended to explore the use of bike parking as a tool to enhance the urban environment (i.e. art bike racks). Opportunities to advertise the

health and environmental benefits of cycling, and behaviour change programs, events, and campaign should also be explored; and

- In addition, the ToVP should investigate the installation of e-bike charging stations to encourage and cater for the potential increased use in e-bikes. A potential location for an e-bike charging station is along Albany Highway commercial precinct.



Figure 15-7: Bicycle shaped bike rack

15.5.3 Cycle Monitoring

The use of cycle counters helps to understand cycling patterns over time and inform cycle-related projects into the future. There is currently a lack of cycle data available in ToVP.

Two permanent cycle counters currently exist in ToVP, which are located on the shared path connections with Windan Bridge at Burswood Peninsula. A permanent cycle counter is also located on the west side of the Causeway within the City of Perth. Recently, the Town completed temporary cycle counts for many road sections across ToVP for the first time as part of the annual traffic counts.

It is recommended that cycle data collection is increased for ToVP and analysed on a regular basis (i.e. annually) to determine changes in cyclist use. Permanent counters should be installed along key cycle corridors and temporary counts should continue to be undertaken when possible as part of road traffic counts. PBN grant funding is also available for cycle data collection, which should be applied for. The following locations are recommended for investigation into the installation of permanent bicycle counters:

- Gloucester Street, adjacent to Raphael Park. This will help capture trips heading north-south through ToVP from the Swan River Foreshore. A permanent bicycle counter should be installed as part of the proposed Gloucester Street Project (see project 4 in Section 15.2) which will help measure the success of the project;
- Rutland Avenue, south of Canning Highway. This will help capture trips heading north-south through ToVP and to/from the Perth CBD. A permanent bicycle counter should be installed as part of the proposed Rutland Avenue Project (see project 1 in Section 15.2) which will help measure the success of the project;

- Kent Street shared path on the north side, west of Berwick Street. This will help capture east-west trips through ToVP and to/from Curtin University. A permanent bicycle counter should be installed as part of the proposed Kent Street Project (see project 2 in Section 15.2) which will help measure the success of the project;
- Kent Street shared path on the east side, north of Manning Road. This will help capture north-south trips into Curtin University and help justify the need for a shared path on the west side of Kent Street in the long term;
- Taylor McCallum Park, on the separated cycle path proposed in the master plan. This will help capture the number of cyclists trips using this highly utilised path; and
- Burswood Park. This will help capture the volume of cyclists using the shared path north of the Causeway and would help justify pedestrian and cyclist separation.

In addition, the number of pedestrians using shared paths should be monitored regularly (i.e. using video surveys), to assess demand and justify the potential need for path widening or separation. The ToVP should allow for the collection of pedestrian data at the above sites on a regular basis, i.e. annually.

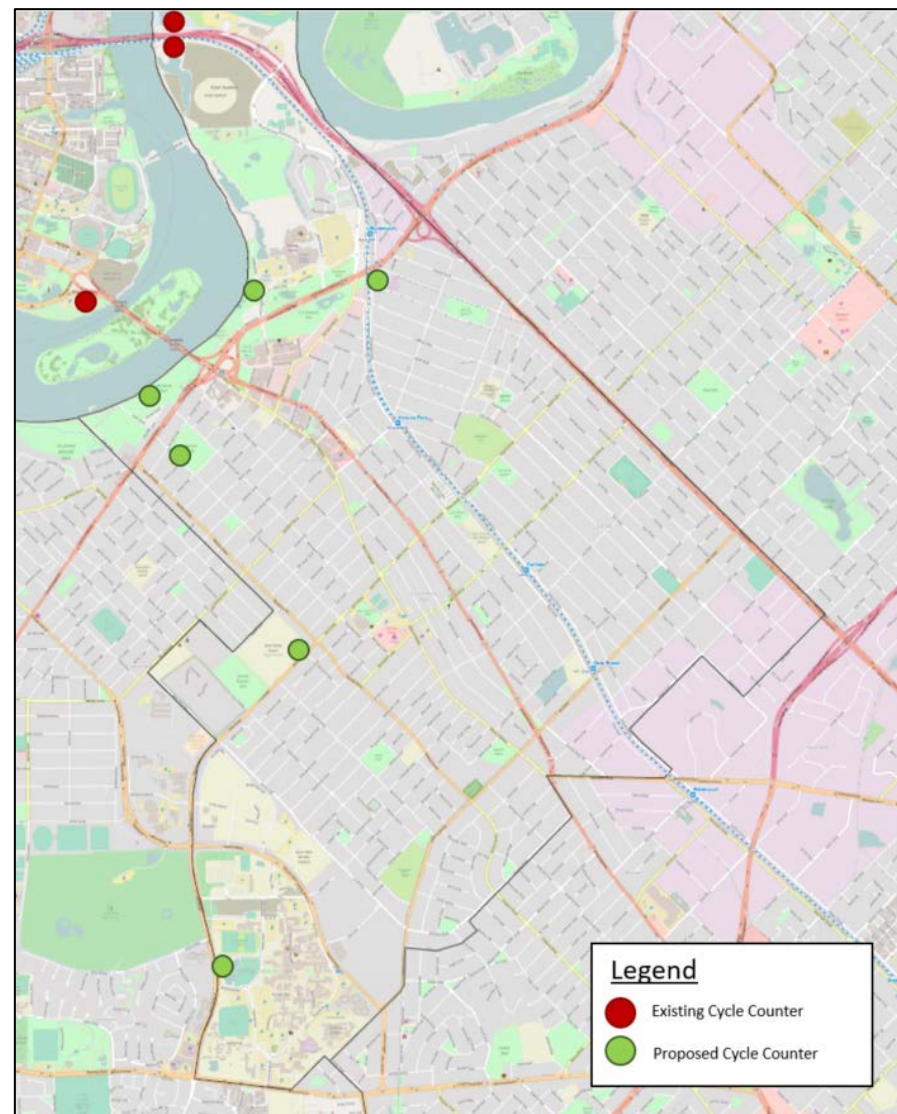


Figure 15-8: Proposed location of permanent cycle counters in ToVP

15.5.4 Dedicated Cycle Tracks

Cycle tracks located in community parks for recreational use are increasing in popularity throughout Perth. These facilities provide an environment for cyclists to ride separate from general traffic. A number of local governments have installed cycle track facilities in Perth which have been observed to have high levels of use. Two popular types include:

- Pump Tracks – These facilities often consist of circular loops with smooth dirt mounds and berms that cyclists can ride around in a pumping motion. These facilities can also include bike jumps, which are associated with more experienced cyclist skills; and
- Bike Skills Track – These facilities often consist of asphalt path circuits with pavement markings and signage simulating an urban traffic environment. These facilities are targeted for youth/beginner cyclists.

A recent example for this is at Shepherds Bush Park in Kingsley, Joondalup. This facility has a ‘Pump and Jump Track’ which additionally features jumps to offset the replacement of the BMX park. A children’s Bike Skills Track is also located adjacent to this.



Figure 15-9: Shepherds Bush Bike Skills Track (left) and Pump and Jump Track (right) (source: City of Joondalup)

Another example of a skills track is at Rayment Park in Lathlain, which was completed as part of the Lathlain Precinct Redevelopment Project and helps children learn road rules.



Figure 15-10: Rayment Park skills track (source: Lathlain Precinct Redevelopment Project, <http://www.lathlainprecinct.com.au/zone/rayment-park-zone>)

As part of the Taylor Reserve and McCallum Park redevelopment, an area is proposed for a BMX trail as part of the ‘All Ages Play’ Activity Hub (Taylor Reserve & McCallum Park Concept Report, November 2017). It is recommended that the feasibility of a hybrid style pump/BMX track similar to that at Shepherds Bush Park in Kingsley, but at a smaller scale, be constructed at this location. A Bike Skills Track, which has a considerably smaller footprint to the pump track, could also be considered at the Activity Hub if there is space. The facility should consider CPTED (Crime prevention through environmental design) principles.

State funding is available for these projects as part of the Trails program. Comparing to the Shepherds Bush Park facilities, the Bike Skills Track can expect a construction cost of approximately \$60,000 and the Pump Track \$70,000. It should be noted however that these facilities are the largest of their type in the State, and could be smaller. Construction of Pump Tracks requires specific expertise and youth services are required for involvement in the design and operation. A yearly maintenance budget must also be considered for the facilities. Lessons learnt from previous councils should be enquired further prior to the development of the project (i.e. City of Joondalup), to more accurately understand project considerations.

The Bike Skills Track helps support the recommendations in the Integrated Movement Network Strategy (ToVP, 2013) to provide support for cycle training programs.

15.5.5 Trial Projects

Trial projects help kick-off new initiatives and projects that benefit cycling. A number of recent trial projects have proved successful, such as the DoT’s Your Move Central Program in the ToVP which has positively influenced travel behaviour for Victoria Park Primary and Ursula Frayne Primary schools. The DoT Safe Active Street program have constructed numerous safe active streets throughout Perth (i.e. Shakespeare Road, City of Vincent) which have trialled alternative designs for cycling treatments to see what works (or not) in a local context.

It is recommended that the ToVP investigate the following projects:

- Innovative solutions to improve cycling priority
 - Investigate the reconfiguration of the signal phasing at Hayman Road/Curtin University Main Street intersection to allow the pedestrian/cyclist signal phase to remain green until left and right turning vehicles trigger the loop detectors. This improves the safety and priority for sustainable travel modes, and can help shift the behaviour of motorists. This will require consultation with Main Roads. This project may align with RAC WA’s mobility agenda, and could be conducted jointly; and
 - Investigate modifications to the Kent Street/Albany Highway/Miller Street intersection to improve safe access for cyclists and reduce vehicle speeds. This will require consultation with the PTA in order to consider bus movements. This intersection forms part of the proposed recommendations for the Kent Street Project (project 2 in Section 15.2).
- Cycle volume and speed device
 - Investigate the installation of an automated cycle counter, such as the ‘Bike Barometer’ (see Figure 15-11). This device records passing

cyclists and pedestrians, and displays real-time cycle counts for the day, month, year and sometimes lifetime of the device. Not only does a device such as this help understand cycle patterns, but also raises awareness for cycling and gives cyclists a sense of public acknowledgement for choosing to cycle. Encouraging messages that display the benefits of cycling can also be incorporated into the device, i.e. “You have saved the economy \$XX by cycling today”, “you saved XX fuel emissions today”. These devices have been fitted in locations around the world, as well as in Australia. The bike barometer shown in Figure 15-11 was fitted as part of a joint venture between a local bike store and the City of Moreland in Victoria.

A potential location for the device is the shared path on the south approach to the Causeway.

- Investigate the installation of a device that indicates real-time speed to cyclists along shared paths (similar to roadwork sites) and to ‘slow down’ if required. This can help promote behaviour change, encouraging cyclists to reduce speed in areas of high pedestrian and cyclist demand. A potential location includes the shared path at Burswood Park.



Figure 15-11: Example bike barometer in Melbourne, Victoria (<http://www.velocycles.com.au/over-counter/>)

■ Curtin University Bike Share Scheme

- The proposed cycle network will significantly improve the cycling connection between Curtin University and Perth rail lines. Through the proposed Canning Bridge to Curtin Link project (CoSP project 2 in Section 8.2) there will be an improved cycling connection between Canning Bridge Station and Curtin University, and through the Kent Street project (ToVP project 2 in Section 15.2) there will be an improved cycling connection between Curtin University and Victoria Park and Carlisle Stations. It is recommended that ToVP work with Curtin University and the CoSP to investigate establishing a bike share scheme with bike share docking stations located at Canning Bridge Station, Victoria Park and/or Carlisle stations and Curtin University to complement the proposed projects as part of this Plan. The potential for bike docking stations at other key locations where there is the potential

for high uptake, i.e. high density locations and/or high percentages of student housing should also be investigated. The stations should be provided in locations that provide good passive surveillance, lighting and with good accessibility to the destinations.

The potential for a bike docking station along the Albany Highway commercial precinct should also be investigated, i.e. at the ToVP council offices. Urbi bike share facilities have recently been installed at the City of Joondalup as part of a 12-month trial, with stations located around the town centre. Urbi is partnering with a number of businesses in Joondalup, such as Edith Cowan University which offer discounts to students. The scheme works by registering on the Urbi phone application, locating a bike share station, unlocking the bike and helmet (with a code supplied by the phone application), cycling for a maximum of 45 minutes, returning to any bike share station, and finishing the hire (see Figure 15-12). Payment is completed through the phone application, and is costed per a single, daily, weekly, or monthly rate provided trips are less than 45 minutes. Trips that exceed 45 minutes are charged an additional \$6 per hour.

- A consistent state-wide bike share scheme could provide increased benefits overall (i.e. better legibility and consistency in equipment), but would require state level involvement.

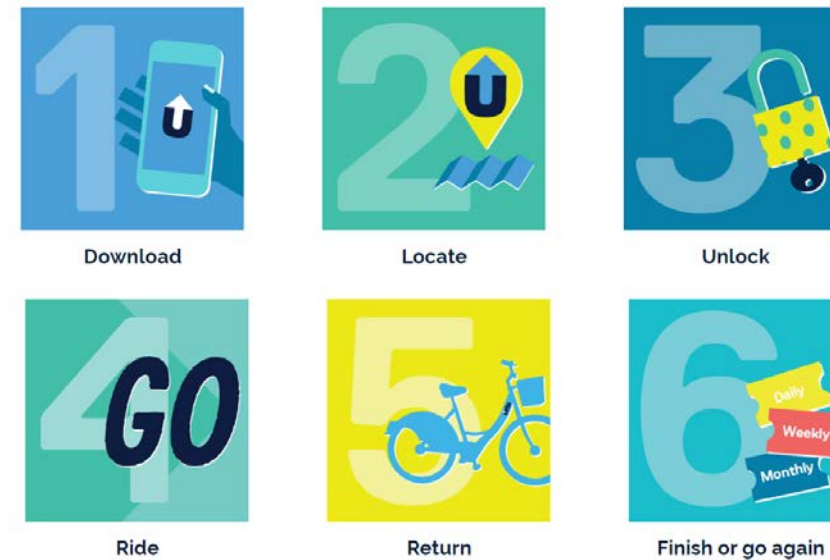


Figure 15-12: Six steps for use of Urbi Bike Share (source: <http://urbi.bike/>)

15.5.6 E-bike Scheme

E-bikes are gaining in popularity and could help encourage people to cycle because they do not require as much physical energy to operate compared to traditional bikes and allow a longer distance of travel for the equivalent amount of energy expenditure.

E-bike salary sacrificing has recently been ruled in favour of by the ATO and as a result, there are leasing and financing companies that provide e-bike packages to employers. The program typically works by deducting a monthly fee from the employee's wage, which is the pre-tax wage if the employee agrees to use the bike predominantly for work-related travel. It is recommended that CoSP/ToVP offer an e-bike salary sacrifice service to staff and promote to other organisations to offer the same service.

15.5.7 School Infrastructure Improvements

Cycle safety for youth is a critical aspect that must be considered for schools. It is recommended that cycle infrastructure audits of primary schools in the area be completed to improve infrastructure within their immediate vicinity.

As part of the school cycle infrastructure improvements, a marketing campaign aimed at parents could be undertaken to encourage students to cycle to school. Incentives and rewards for students that cycle could also be implemented. This could then lead to a reduction in demand for car parking. Additionally, this could increase the social acceptability of children riding to school unsupervised.

15.5.8 Behaviour Change Projects

In order to maximise the benefit of cycle infrastructure improvements, it is recommended to employ cultural and behavioural change strategies to encourage more people to participate in active transport and realise the benefits of the investment.

15.5.8.1 Your Move

The Department of Transport's Your Move program supports communities, local governments, schools and workplaces to promote active transport and reduce congestion. The two parts of the Your Move Program include:

■ Joining Your Move online

- Support is offered to local government, school and workplace ‘champions’ who want to promote walking, cycling and public transport. Through registering on the Your Move website, organisations can access information, run travel surveys, choose activities to implement, and share activities to earn rewards. Training and networking forums also run each quarter.
- It is recommended that ToVP sign up to the program to enable internal champions to drive the Program at the council. Having CoSP lead the program in the area will encourage other organisations to also participate.
- It is also recommended that ToVP engage with a number of organisations in the area to promote the program (i.e. Curtin University).

■ Intensive Project Partnership

- The DoT also undertakes intensive projects to influence travel choices for specific local governments, schools and workplaces. The program has previously involved partnerships with the City of Cockburn and the City of Wanneroo where it provided area specific services and products. As part of Your Move Central, the ToVP partnered with several city workplaces and households in ToVP in addition to two local primary schools (i.e. Victoria Park Primary and Ursula Frayne Primary). Many activities undertaken at the schools included National Ride to School Day events, reward schemes via posting activities on the Your Move website, a breakfast event which involved Transperth journey planning and SmartRider discounts, and branded monsters along routes to encourage youth interest. Your Move Central Program for Schools was a trial which was free for the schools.

- It is recommended that ToVP investigate the extension of the program to include additional local primary schools (i.e. Lathlain Primary and East Victoria Park). The timing and location of future intensive projects will depend on funding and strategic priorities, such as the state government's Metronet initiative. This may lead to opportunities for partnership with Curtin University, to better integrate with the surround train services.



Figure 15-13: Your Move program methodology (source: Department of Transport)

15.5.8.2 Active Transport Events

One of the major objectives of involvement in cycling and walking events is to encourage first-time users to 'give it a try.' While participation in one event may not convert the individual, the culmination of a number of events over time will considerably break down barriers, which increases the chances of changing travel habits.

Public Events

A number of annual public events are held in Perth that encourage active travel. Promotion of these events, by ToVP, could be achieved by:

- Registering a ToVP team into these events;
- Sponsoring events, i.e. hiring a bike doctor to attend public events;
- Sponsoring ToVP staff entries;
- Facilitating fundraisers for particular staff participants;
- Run rewards schemes based on participation. MBS Environmental previously ran a raffle which allowed staff to enter a ticket for each day they cycled to work during Bike Week. This encourages more than a single trip to work by bicycle; and
- Running events in ToVP that support public events. As an example a breakfast could be provided to staff who cycle or walk to work during Bike Week.

Some of the public events that promote cycling to work include:

- Bike Week- an annual celebration held in Western Australia where a number of events are held during a specific week. ToVP has previously participated in this, such as the 'Get On Ya Bike!' event organised in 2017, which included a bike expedition through ToVP followed by a complimentary barbeque at the Burswood foreshore;



- Ride2Work Day- held annually in October, it works by providing a range of incentives at key commuting destinations in cities. In 2017, a breakfast was provided at Elizabeth Quay in the Perth CBD for those who had cycled to work on that day; and
- Ride2School- Ride2School Day held is annually in March and works by encouraging active travel within school communities by celebrating those who already actively travel to school and encouraging those who don't know how to start. A number of schools in ToVP have previously been involved in this event. The Ride2School Program is also available all year-round and works with families, communities, policy-makers and partner organisations to encourage students to ride, walk, skate or scoot to school.

Local Events

In addition to supporting public events, it is recommended that ToVP facilitate events specific to the local government including:

- Introduction of an Active Commuters Breakfast or equivalent could be held for staff where a complimentary breakfast could be provided to those who choose active transport methods on that particular day. An additional incentive could include hosting a bicycle mechanic who can complete free tune-ups of attendees' bikes. A potential location for this could include at a local shopping centre, which could provide the opportunity for local advertising. Partnership opportunities could be sought with local cycling groups to offer subsidies to promote, organise and run these events.

15.5.8.3 Awareness Campaigns

There is a lack of cyclist and driver awareness and education throughout Victoria Park and the wider area. It is recommended that as part of wayfinding and revitalisation of cycle infrastructure, pavement markings and signage be installed that educate and raise awareness of the needs of other modes and how they can successfully operate together. The 'Take Care' pavement markings in the City of Perth is one current example.

A publicity campaign aimed at increasing awareness of cyclists and improving the behavior of all road users would help to counter these problems and improve cyclist safety. The WA Police Force could be invited to be a part of awareness campaigns to educate road users on cycling. Tools that can be used include street advertisements, billboards and advertisements. An example 'Share our Roads' campaign to improve bike safety in WA. Campaigns should aim to 'normalise' cycling and reinforce the image of cyclists being of all ages and demographics.

Joint awareness campaigns could be undertaken jointly by both CoSP and ToVP, and should also involve other organisations such as Curtin University who are in the process of developing a strategic behaviour change strategy.



15.5.8.4 Information

It is important that information regarding the existing cycle infrastructure is made readily available to the community, so that cycle trips are made as convenient as possible. A *Map Your Move* metropolitan map (previously TravelSmart) for the ToVP that displays walk and cycle information (available at the *Your Move website*) should be made easily available on the ToVP website. A supply of hard copies should also be available at ToVP reception.

The following information should also be made readily available to the community, i.e. on the CoSP website to encourage increased cycling:

- Information on current and planned cycling initiatives and incentives; and
- Information on e-bikes, including the increased advantages and where to acquire them.

16 Implementation

A total of seven cycling infrastructure projects, along with minor works improvements are proposed within the ToVP over the next 5 to 10 years. As mentioned earlier, high level order of cost estimates have been determined for these projects, however further investigation will need to be undertaken to develop detailed concepts and understand the true cost of each project.

As summarised in Table 16-1, the estimated cost of implementation is approximately \$7.65 million. This indicates that an estimated \$7.65 million is spent over the next five years to achieve the goals of this bike plan. Although this may be ambitious, a strong pledge is required to make the ToVP stand above the rest in terms of becoming a cycling city.

It is suggested that the ToVP firstly submit all the applicable projects to relevant grants and sponsorship programs for funding. It would then be preferable to approach other relevant agencies such as DoT to determine how best to implement the projects in their jurisdiction. Boundary road projects should be presented to adjacent local councils in an attempt to partner with the respective councils to implement these specific projects. The joint nature of this plan will make this process particularly advantageous with the CoSP. Also prospective business partnerships should be identified early in the process, to get business buy in and potentially set up public private partnerships.

Finally, once all of the proactive steps have been taken, the Town should have a good idea of which projects could be funded, completely or partly, by grants and sponsorships, which projects could be funded by other agencies such as DoT, which projects could be funded as part of a partnership with other councils or businesses, and which projects will have to be funded completely by the ToVP.

All of this information along with the priority of projects should then be taken into account in an exercise to allocate projects and stages of projects to the forward capital works schedule of current and future years.

Funding of the proposed supplementary initiatives described in Section 15.5 will require further investigation. As part of future more detailed costing works for each of the key infrastructure projects, funding for the supplementary initiatives should be included. In addition, the cost of some supplementary initiatives could be incorporated into the project with assistance from other sectors, for example marketing, landscaping and streetscape. Trial projects could also attract funding from other agencies such as Main Roads and RAC.

It should be noted that the maintenance of all cycling infrastructure paths should be undertaken regularly and included in the capital works schedule.

Table 16-1: Summary of estimated 5-year implementation cost for the ToVP

#	Project	Estimated Cost	Potential Funding Assistance
1	Rutland Avenue	\$2.3m	50% DoT
2	Kent Street	\$1.5m	50% DoT, CoSP
3	Albany Highway	\$100k (investigation)	Capital Works Programme
4	Gloucester Street	\$1.3m	50% DoT
5	Oats Street	\$1m	50% DoT
6	Hayman Road	\$450k	33% DoT, 33% Curtin University
7	Minor Works Improvements ("Quick Wins")	\$1m	Capital Works Programme
	TOTAL	\$7.65m	

The estimated timeframes proposed for the cycling infrastructure projects are shown in Table 16-2. It is proposed that the highest priority projects are implemented first, with minor works improvements undertaken every year.

It should be noted that the estimated timeframes is intended to provide guidance only. Opportunities may arise over the implementation of this Plan which may fast track or hinder the progress of projects.

Table 16-2: Indicative five year implementation plan for the ToVP

#	Project	2018/19	2019/20	2020/21	2021/22	2022/23
1	Rutland Avenue					
2	Kent Street					
3	Albany Highway					
4	Gloucester Street					
5	Oats Street					
6	Hayman Road					
7	Minor Works Improvements ("Quick Wins")					

17 Conclusion

The joint Bike Plan for the CoSP and ToVP sets out an action plan for immediate improvements to the cycle network and environment, and a strategic vision for the continued development and promotion of cycling within the CoSP and ToVP, in line with State Government's Perth Transport Plan for 3.5 million.

This is the first time two local governments have worked together to deliver a bike plan in Western Australia, providing an excellent opportunity to provide a consistent outcome and benefits for the local cycling community.

The desired outcome of this Plan is simple – to increase the number of people cycling. Specifically, the Plan aims to double the number of people cycling in the CoSP and ToVP over the next five years.

In a rapidly changing transport environment and with predicted increase in advanced technologies, the Plan explores some innovations that may affect cycling, including data monitoring, e-bikes, smartphone applications and international best practice infrastructure and initiatives.

In the development of the Plan, the following was undertaken:

- Detailed literature review, including previous cycle planning documents;
- Interrogation of key demographic statistics to understand the potential for increased cycling;
- Analysis of existing recorded crash data involving cyclists to understand trouble spots and wider trends;
- Assessment of the overall transport network to determine gaps in the existing cycle network and appropriate cycling connections to key existing and future trip generators; and
- Infrastructure audits, including saddle surveys, to assess the condition of existing and potential future cycle routes.

The proposed long term aspirational cycle network for the CoSP and ToVP outlines several ambitious routes aimed at making cycling a realistic and appealing option for a high proportion of the population. The aspirational cycle network has been influenced by the routes identified in the Perth Transport Plan for 3.5 million and the research, investigation and consultation undertaken as part of the project.

The 5-year implementation plans for the CoSP and ToVP focus on strengthening local connections to key destinations, including Curtin University, rail stations, schools, shopping precincts and river foreshores. A total of 13 key infrastructure projects are proposed over both council areas, made up of new and improved on-road lanes and off-road paths, with the aim of providing legible, connected and safe cycle routes. High level order of cost estimates have been determined for these projects, however further investigation will need to be undertaken to develop detailed concepts and understand the true cost of each project. Funding assistance from other agencies, such as the DoT, will need to be explored during implementation of the Plan.

Resulting from the infrastructure audits, there are many other recommendations that should be considered when any of the cycle routes are due for resurfacing or opportunities for works in those areas arise.

While investment in cycling infrastructure is highly important, there are a range of supplementary initiatives that have been proposed to complement this investment. These include:

- The development of a joint wayfinding strategy;
- Additional bike parking and amenities;
- New cycle monitoring counters;
- New dedicated cycle tracks; and
- Various behaviour change initiatives.

Additionally, several trial projects have been proposed to be investigated which can be an effective way of testing new and unconventional initiatives and projects. Proposed trial projects include automated cycle counters that display real-time cycle counts and speed data, a bike share scheme connecting from key destinations including Curtin University, and alternative infrastructure treatments at challenging areas of conflict.

The Plan proposes that an estimated \$7.3 million is spent in the CoSP, and \$7.65 million in the ToVP over the next five years to achieve the goals of this bike plan. Although this may be ambitious, a strong pledge is required to make the CoSP and ToVP stand above the rest in terms of becoming champions of cycling.

Both the CoSP and ToVP should also continue to work with adjacent local governments to strengthen connections and improve consistency of cycling infrastructure across council borders.

It is intended that this Plan is revisited every 5 years to assess the outcomes of the previous 5-year implementation program in continuing the journey of achieving the long term aspirational network.

Appendices



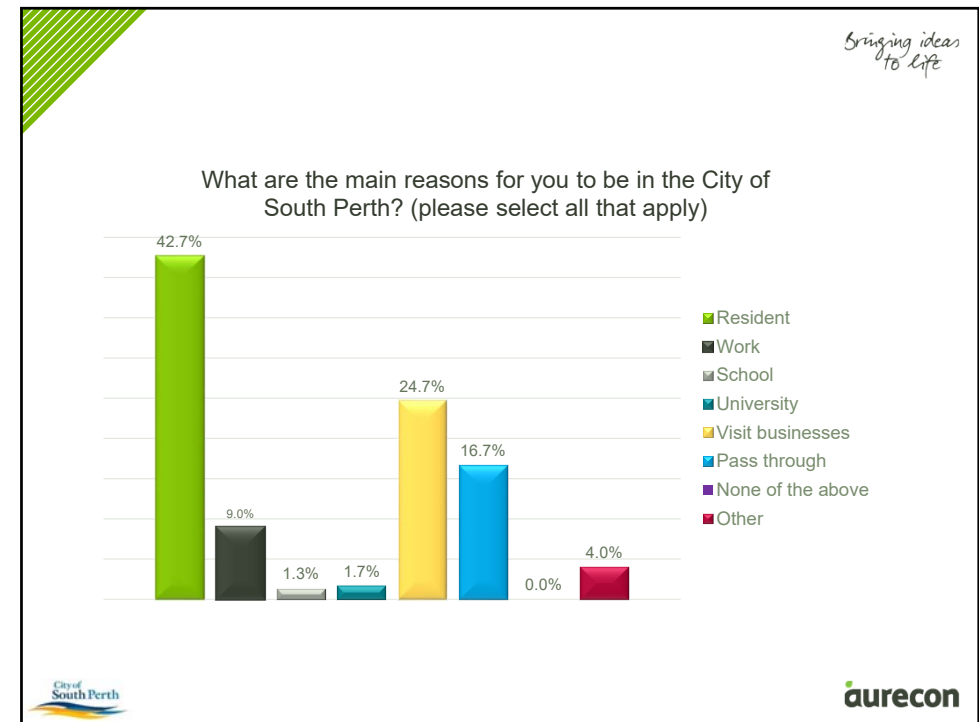
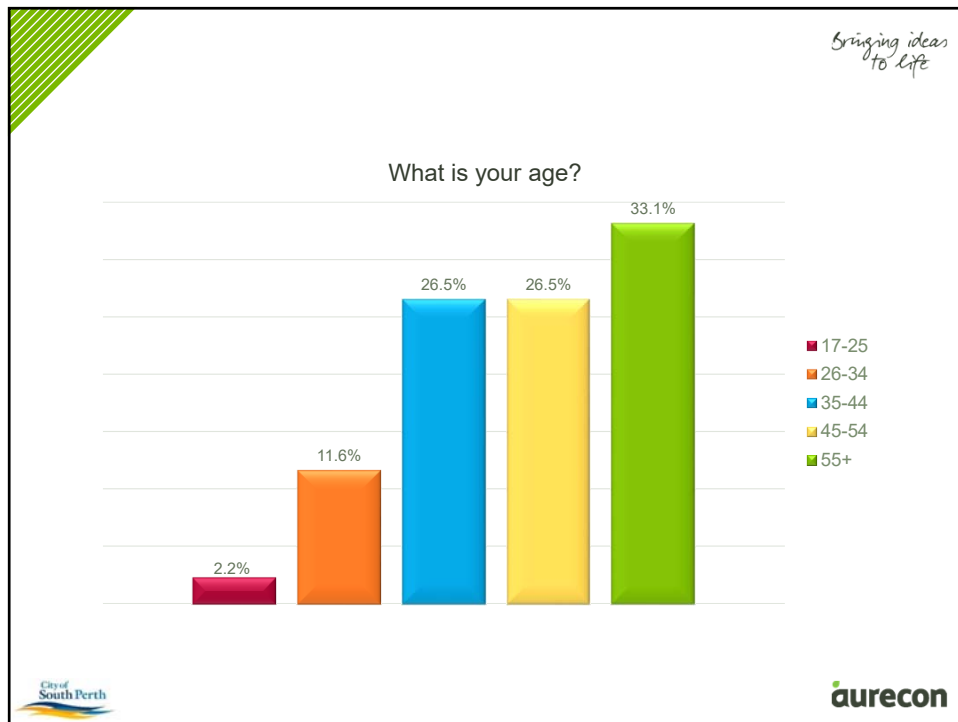
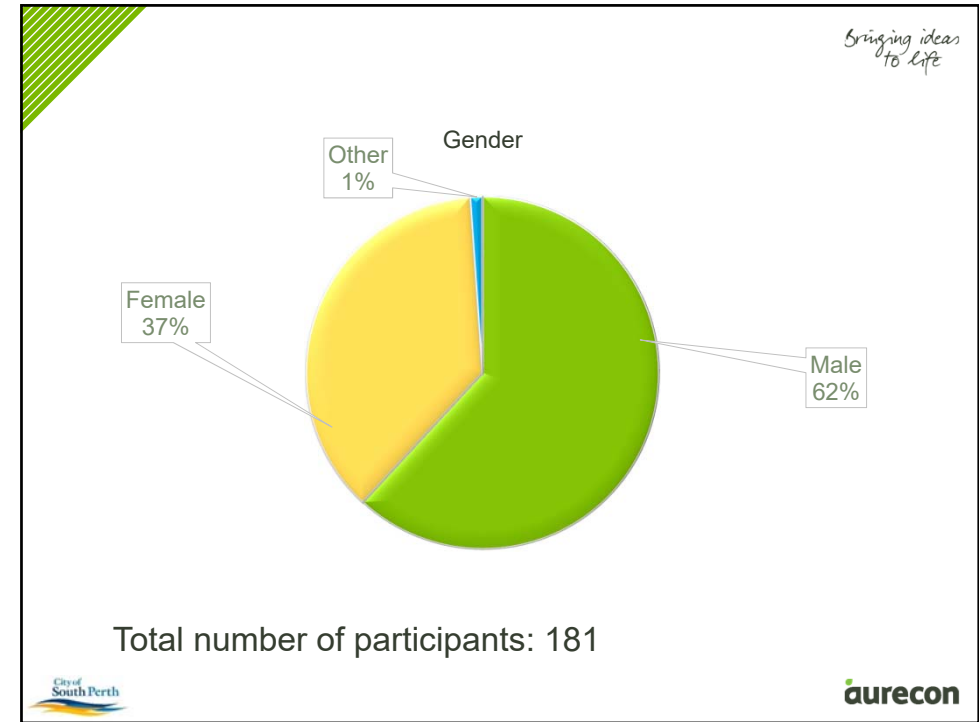
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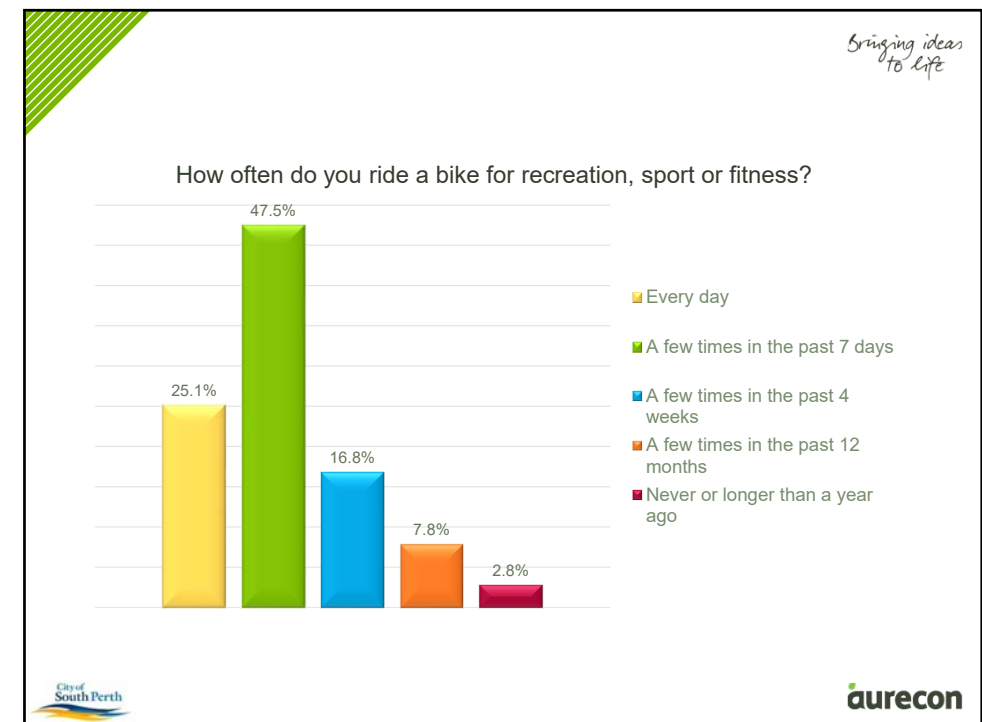
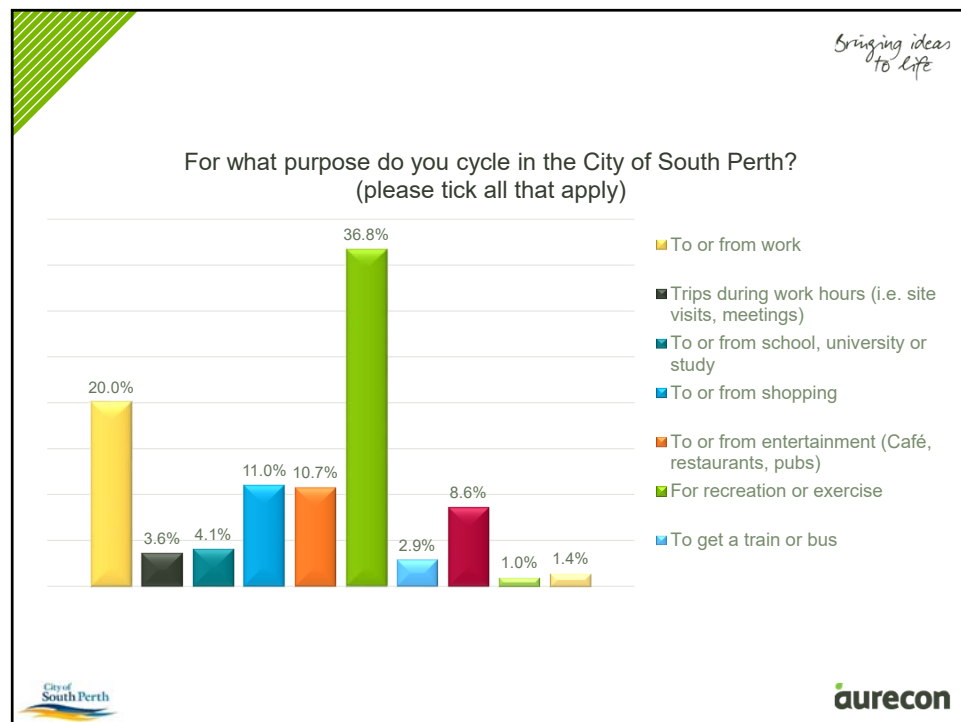
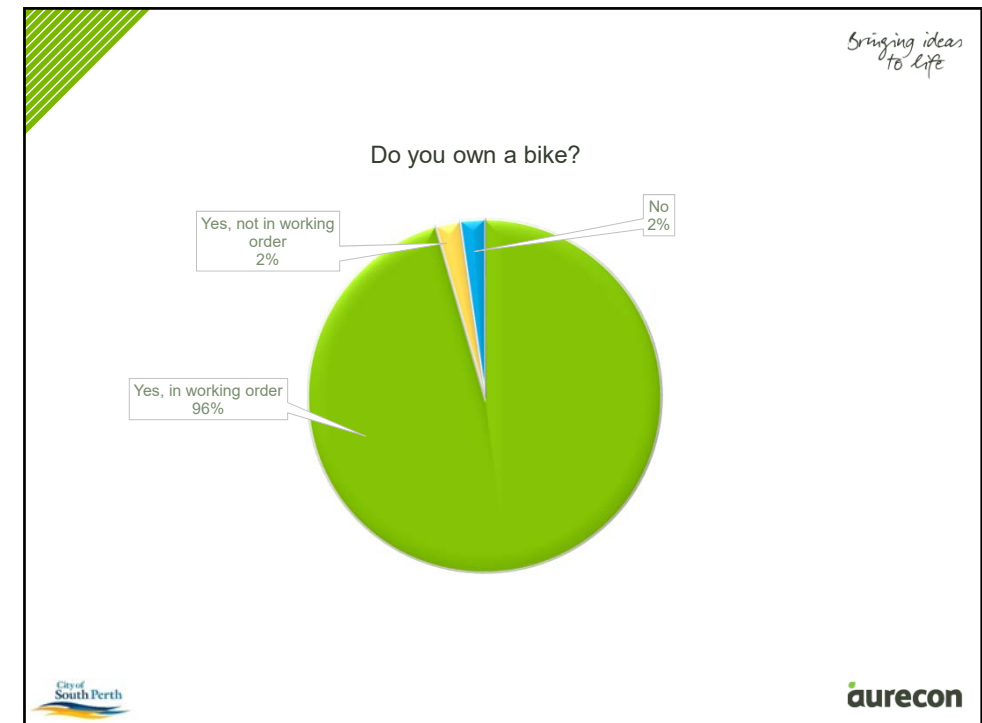
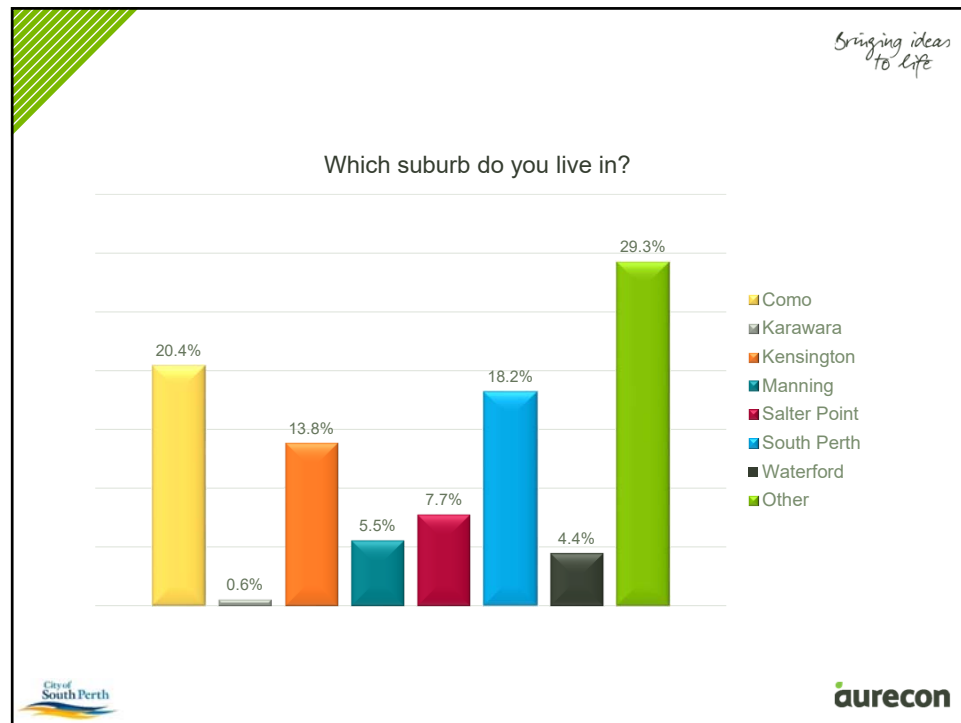
Appendix A – Community Consultation Summary (CoSP)



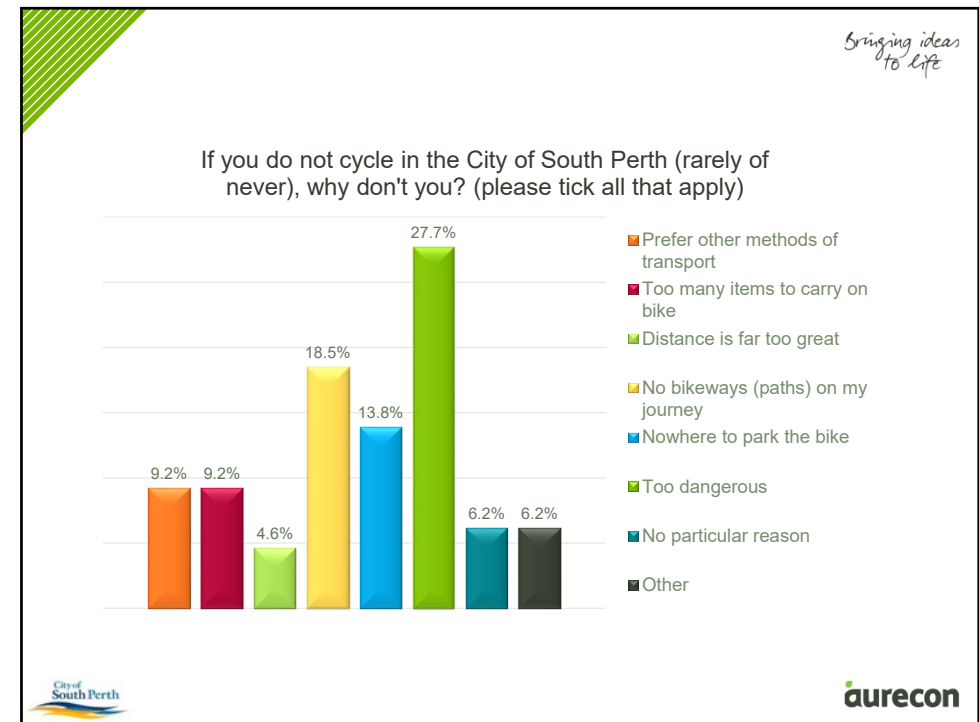
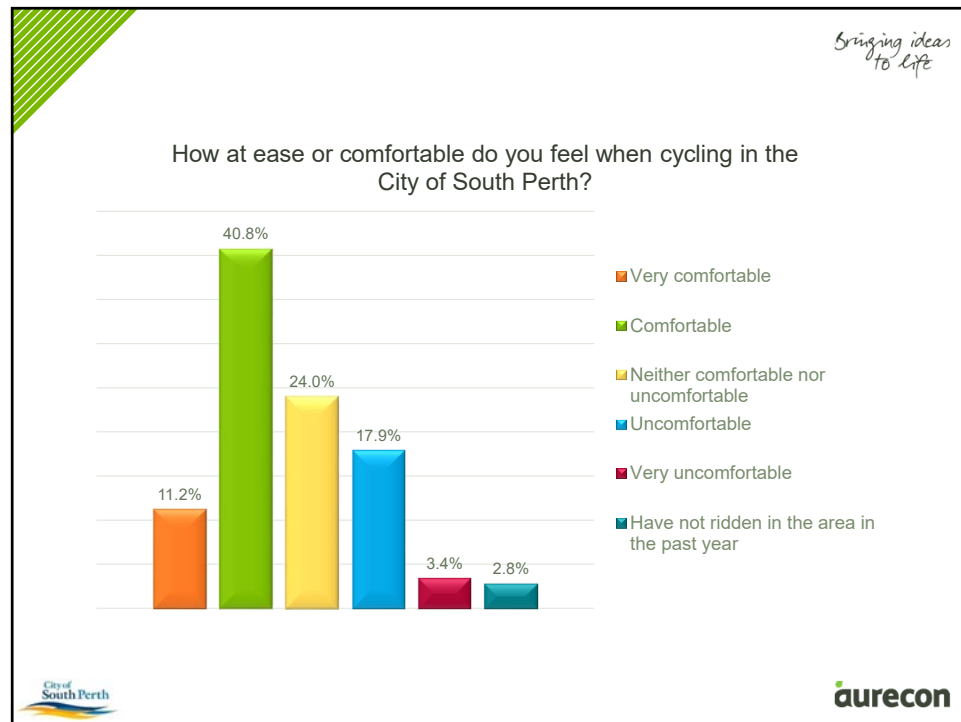
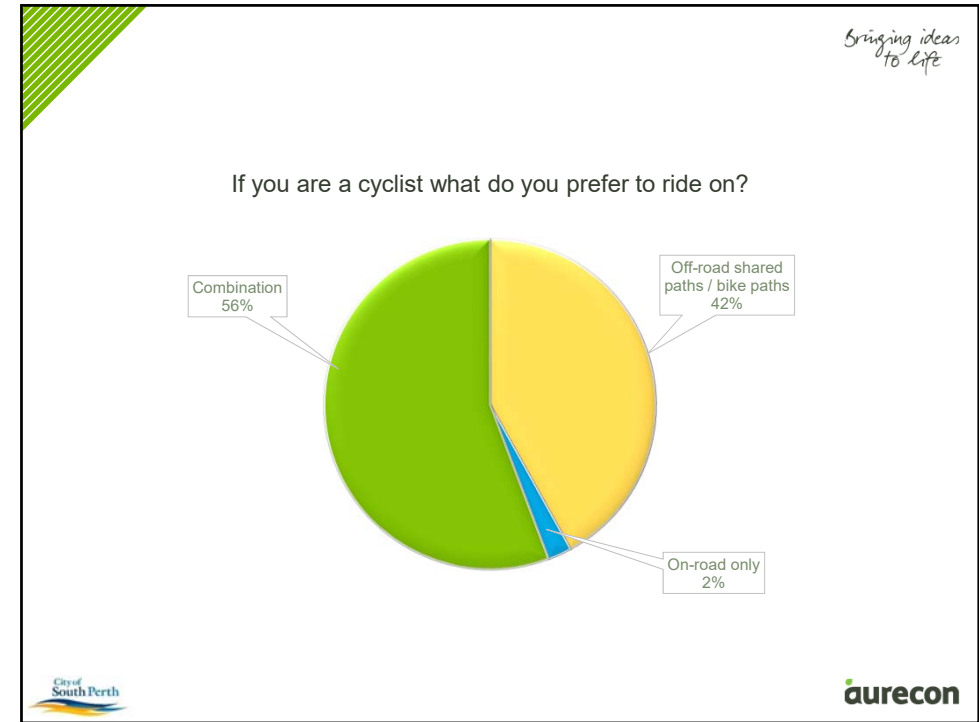
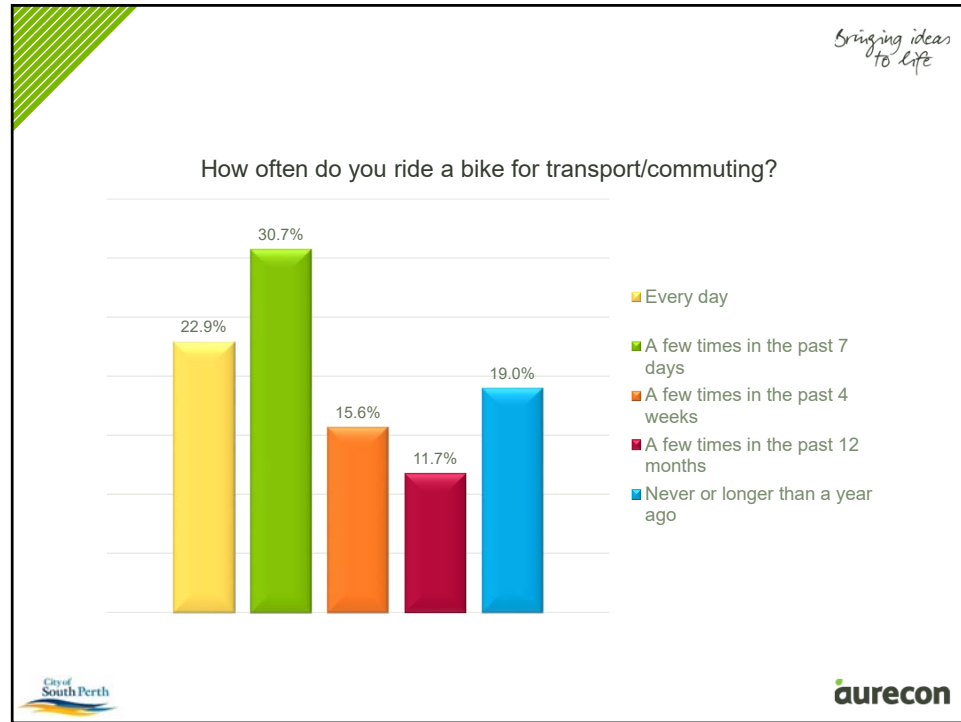
Appendix A
Community Survey – CoSP Summary



Appendix A
Community Survey – CoSP Summary

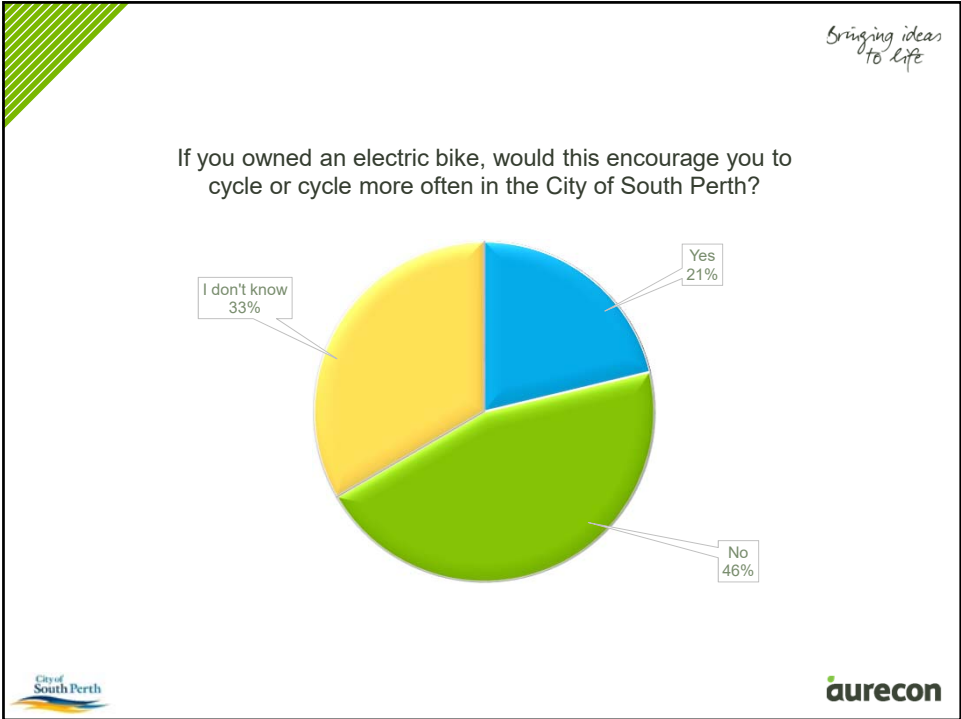
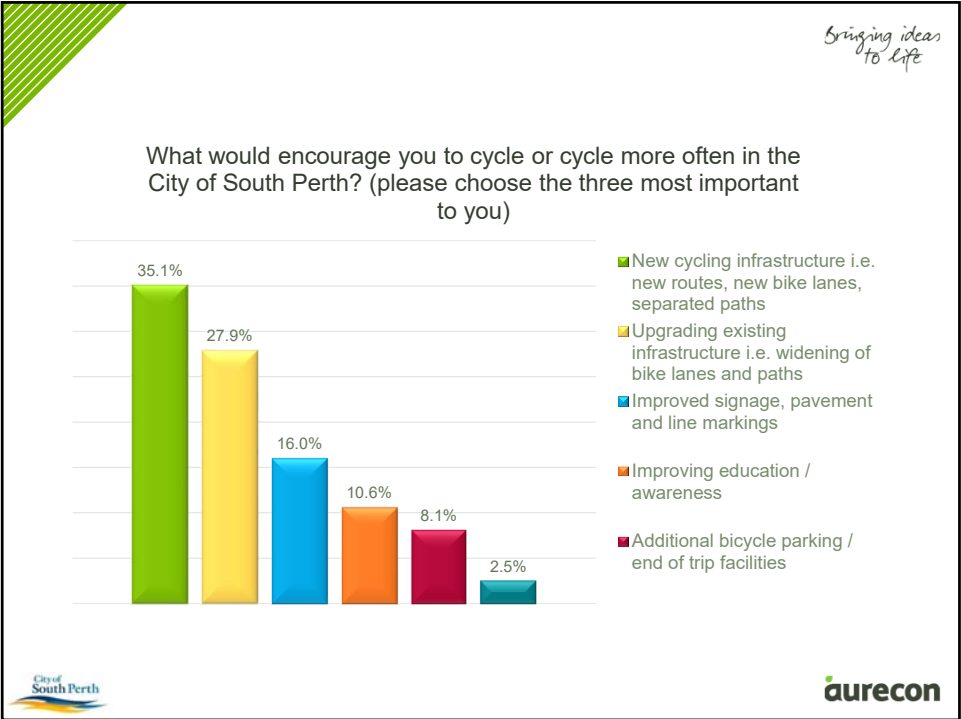


Appendix A
Community Survey – CoSP Summary



Appendix A

Community Survey – CoSP Summary





Bringing ideas to life **Project Overview**

The Safe Cycling Project aims to understand the needs of the cycling community and seek to further develop the existing cycling infrastructure.

Aurecon have been commissioned as the transport engineering consultant to undertake the Joint Bike Plan for the City of South Perth and Town of Victoria Park as part of the Safe Cycling Project. The Joint Bike Plan is part funded through the WA Bicycle Network Grants Program, which is administered by the Department of Transport. This is the first time two local governments have worked together to deliver a bike plan in Western Australia, providing an excellent opportunity to provide a consistent outcome and benefits for the local cycling community. The Joint Bike Plan will set out the long term vision for the strategic cycling network over the CoSP and ToVP area, and ten-year action plans for specific improvements to the cycle network and environment for each local government to take forward.

Cycling map
 View our web browser map and click on more pins to see more pins in the City of South Perth.

The City of South Perth and the Town of Victoria Park are working on a joint Bike Plan which we hope will encourage more people to ride bicycles in our local areas.

View our map and click on more pins to see more pins in the City of South Perth.

Map Legend:
 Bike Issue
 Employing here
 Bike Issue

City of South Perth
TOWN OF VICTORIA PARK

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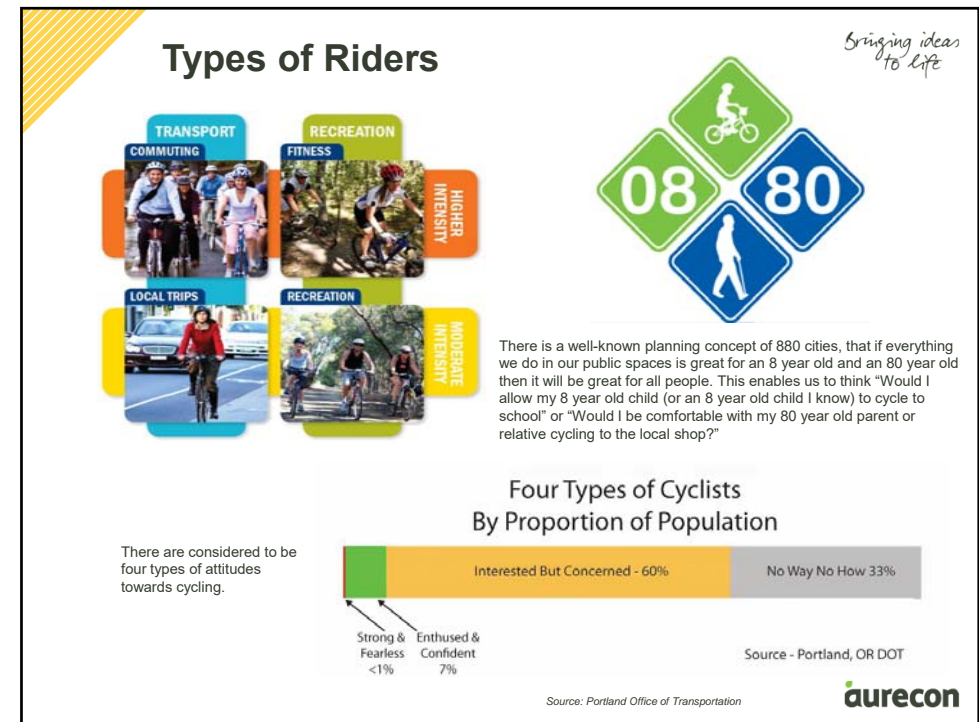
Bringing ideas to life **Project Overview**

Proposed Timeline for the Project

Stakeholder Engagement	Research and Investigation	Development of Network Plan	Draft Bike Plan	Endorsement by Council
May-June 2017	June-July 2017	August-September 2017	October 2017	by May 2018

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Appendix A
Community Design Jam – CoSP Summary



Cycling Infrastructure

Bringing ideas to life



On-Road Bicycle Lane



Bicycle Boulevard

Examples of on-road cycling infrastructure include signed on-road bicycle lanes or marked sealed shoulders, and bicycle boulevards which involve transforming low traffic local roads into slow-speed safe active streets for walking and cycling.

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Cycling Infrastructure

Bringing ideas to life



Shared Path

Examples of off-road cycling infrastructure include shared paths for cyclists and pedestrians, and separated cycle paths for cyclists only.



Separated Bicycle Path

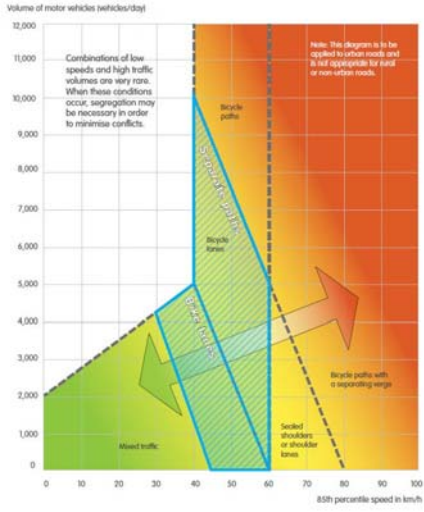
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Cycling Infrastructure

Bringing ideas to life

Different types of infrastructure are often preferred for different types of riders, as indicated on the figure on the left. The right figure identifies traffic volume and speed thresholds in relation to the type of infrastructure that should be installed.

	On-Road Bicycle Lanes	Off-Road Paths
Training	✓	✗
Commuting	✗	✓
Local trips (i.e. shops, friends)	✗	✓
Recreation	✗	✓
School	✗	✓




Source: adapted from Cycling Aspect of Austroads Guidelines by Bicycle Network Australia

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End of Trip Facilities

Bringing ideas to life

Examples of bicycle parking, including public racks or enclosed storage sheds, like at train stations.



Bicycle Racks



Secure Bicycle Storage

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Appendix A

Community Design Jam – CoSP Summary

Bringing ideas to life

End of Trip Facilities

Examples of lockers, showers and changing rooms, often located within private facilities such as workplaces.

Lockers

Shower Facilities

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Bringing ideas to life

Behaviour Change

Department of Transport **your move** more ways to get there

An important aspect of the bike plan is to investigate soft solutions, which maximise the effectiveness of the harder infrastructure solutions. The DoT runs a very successful behaviour change program called Your Move which helps people find alternative, active ways to get to and from work, school and around their local community. The program has targeted specific local government areas, for example Cockburn, by helping people achieve their active transport goals through providing tailored information and resources as well as personalised coaching and feedback on progress.

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Bringing ideas to life

Previous Survey Data

The following survey data specific to the City of South Perth. The graph demonstrates the age profile for City of South Perth residents in comparison to the greater Perth area. Note that this is taken from census data from 2011, with newer 2016 data expected to be released later this year.

Age Group	City of South Perth (%)	Greater Perth (%)
0 to 4	5.0	6.5
5 to 11	6.0	8.5
12 to 17	7.0	8.0
18 to 24	13.5	10.5
25 to 34	16.5	14.5
35 to 49	19.5	21.5
50 to 59	13.0	12.5
60 to 69	9.5	9.0
70 to 84	7.0	7.0
85 and over	3.0	2.0

*Sourced from 2011 Census data

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Bringing ideas to life

Previous Survey Data

The below graph demonstrates how the City of South Perth residents get to work, with car being the dominant mode choice, as with most of Perth. The graphs shows that 2.4% of residents cycle to work.

Method of travel to work, 2011

Total employed persons

City of South Perth (Red) Greater Perth (Grey)

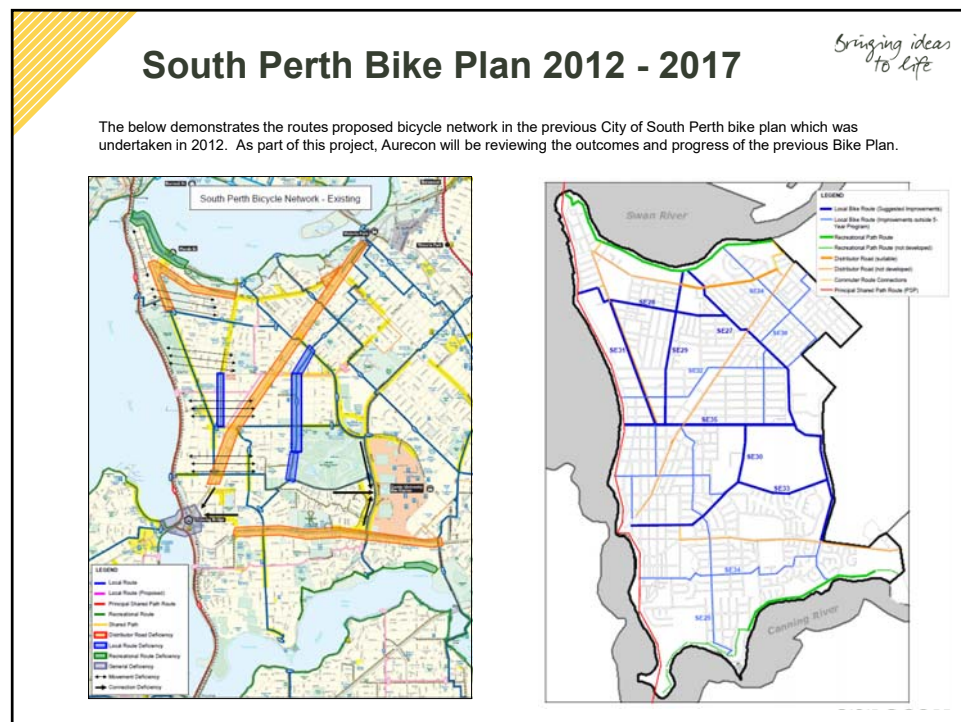
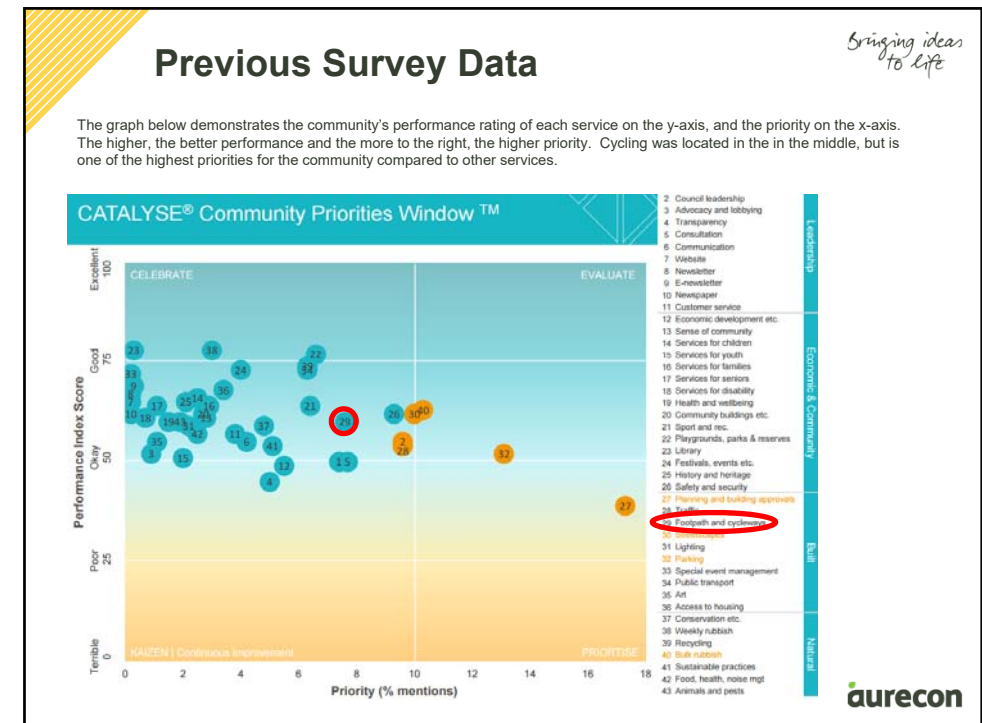
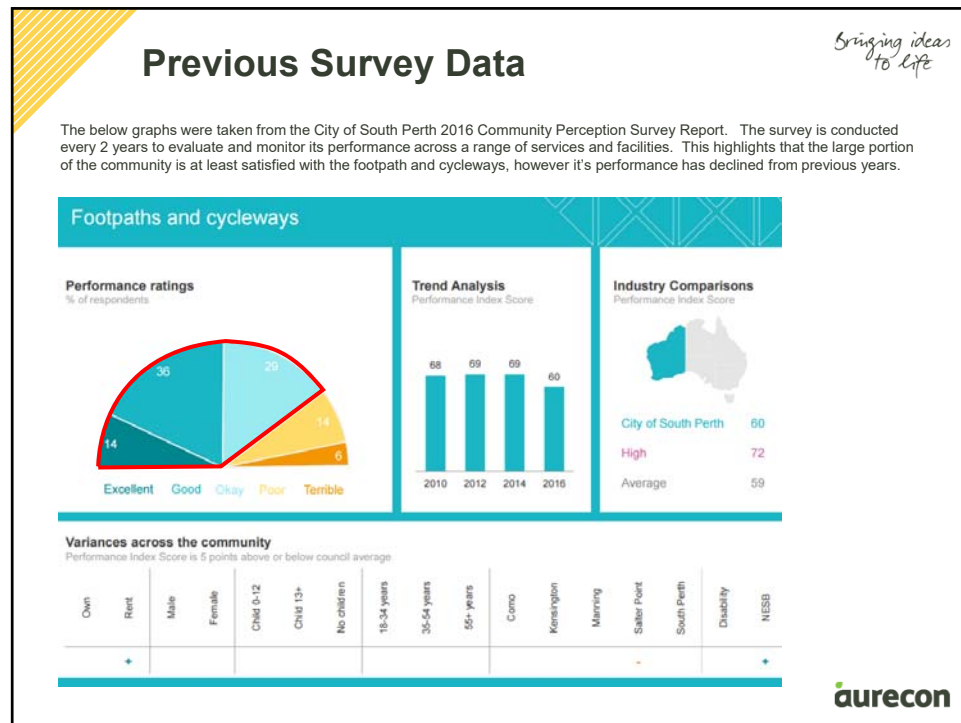
Method used	City of South Perth (%)	Greater Perth (%)
Train	3.5%	6.7%
Bus	3.7%	9.9%
Tram or Ferry	-	-
Taxi	-	-
Car - as driver	58.6%	62.2%
Car - as passenger	-	-
Truck	-	-
Motorbike	-	-
Bicycle	2.4%	1.1%
Walked only	2.4%	-
Other	2.2%	-
Worked at home	-	-
Did not go to work	-	-
Not stated	-	-

Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 (Enumerated data)
Compiled and presented in profile by .id, the population experts.

.id the population experts
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Appendix A

Community Design Jam – CoSP Summary



South Perth Peninsula Place + Design Report

Bringing ideas to life

The South Perth Peninsula Place and Design Report identifies a strong focus on cycling in the public realm to improve lifestyle choice and create great streets. One of the five goals for the plan is to promote a mode shift from driving to sustainable transport modes such as cycling.

GOAL 2

IMPROVE MOVEMENT & CONNECTIVITY

Improve movement and access within the Peninsula through a comprehensive approach to traffic and parking management which encourages a modal shift towards walking, cycling and public transit.

STAKEHOLDER ENGAGEMENT

- LIFESTYLE CHOICE** (Bicycle icon): Provide housing, employment and activity options for people of all ages, family structures and incomes.
- GREAT STREETS AND SPACES** (Bicycle icon): Revitalize and activate the public realm to create green, useable and enjoyable places for community interaction with a focus on pedestrians and cyclists.

IDEA 4: Holistically address regional traffic congestion, in partnership with key stakeholders

IDEA 5: Achieve a fully-integrated public transit network, and promote a modal shift from driving to walking, cycling and public transit

IDEA 6: Deliver a forward-looking, sustainable approach to car parking

IDEA 7: Renew efforts to deliver the South Perth train station

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PERTH & PEEL TRANSPORT PLAN

Bringing ideas to life

The WA Transport Portfolio (the Department of Transport, Public Transport Authority and Main Roads) released the Perth and Peel Transport Plan @ 3.5million earlier this year.

In the Plan there are three key cycling network planning principles to be considered.

The Plan outlines a proposed strategic network for Perth, which the Joint Bike Plan will investigate further and help inform.

The Plan outlines four types of cycle routes and the corresponding infrastructure expected for each.

Cycling Network Planning Principles

- 1** Provide cycling infrastructure in a grid matrix layout
- 2** Separate cyclists from moving vehicles
- 3** Separate cyclists from pedestrians



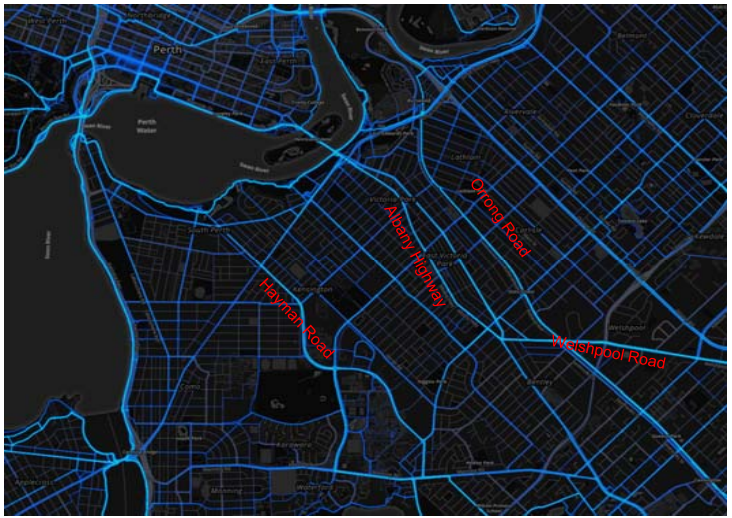
PSPs	Shared paths of high standard, with grade separation at intersecting roads/railways
Strategic Routes	Shared paths of PSP standard (where possible), separated bi-directional cycle lanes, bicycle boulevards
Local Routes	Pavement markings and signage, bicycle boulevards, on-road cycle lanes
RSPs	Shared paths of PSP Standard

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Previous Survey Data

Bringing ideas to life

The below image was taken from Strava maps, the online tool that allows riders to log their cycling trips. The thicker lighter lines represent the heavier used roads. The tool is historically more commonly used for recreational trips, however is still a useful tool to capture the more frequently ridden roads.

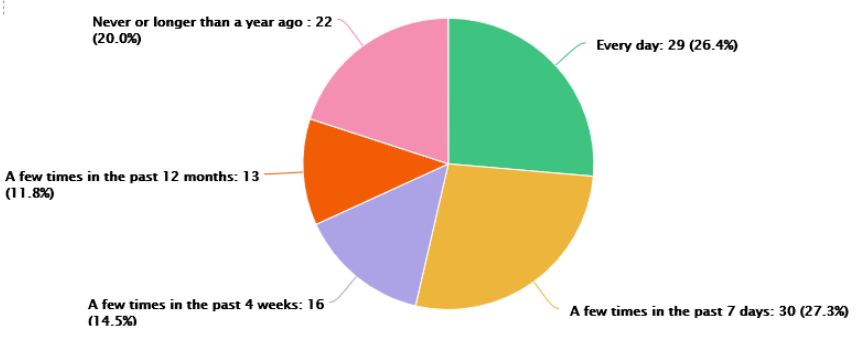


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Online Survey Results to Date

Bringing ideas to life

How often do you ride a bike for transport or commuting?
Optional question



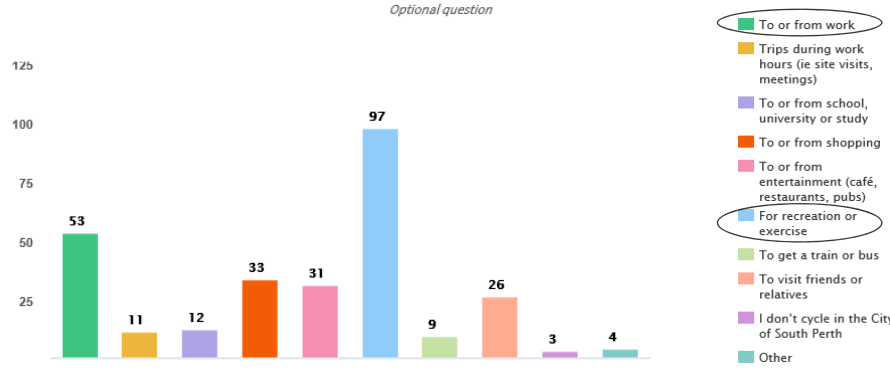
Never or longer than a year ago : 22 (20.0%)	Every day: 29 (26.4%)
A few times in the past 12 months: 13 (11.8%)	A few times in the past 7 days: 30 (27.3%)
A few times in the past 4 weeks: 16 (14.5%)	

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Online Survey Results to Date

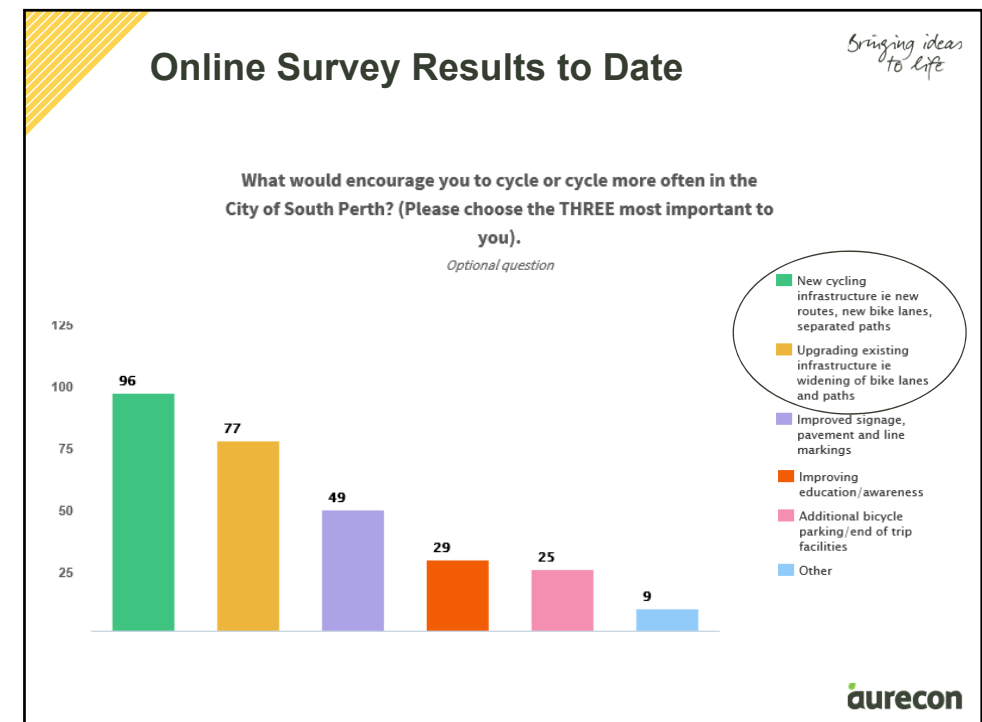
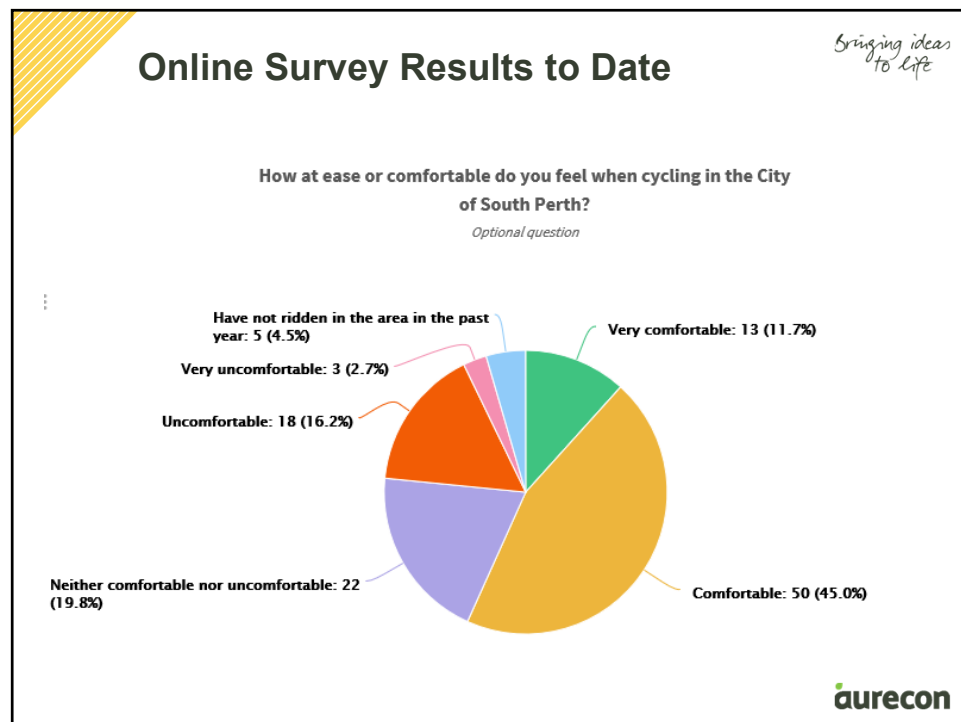
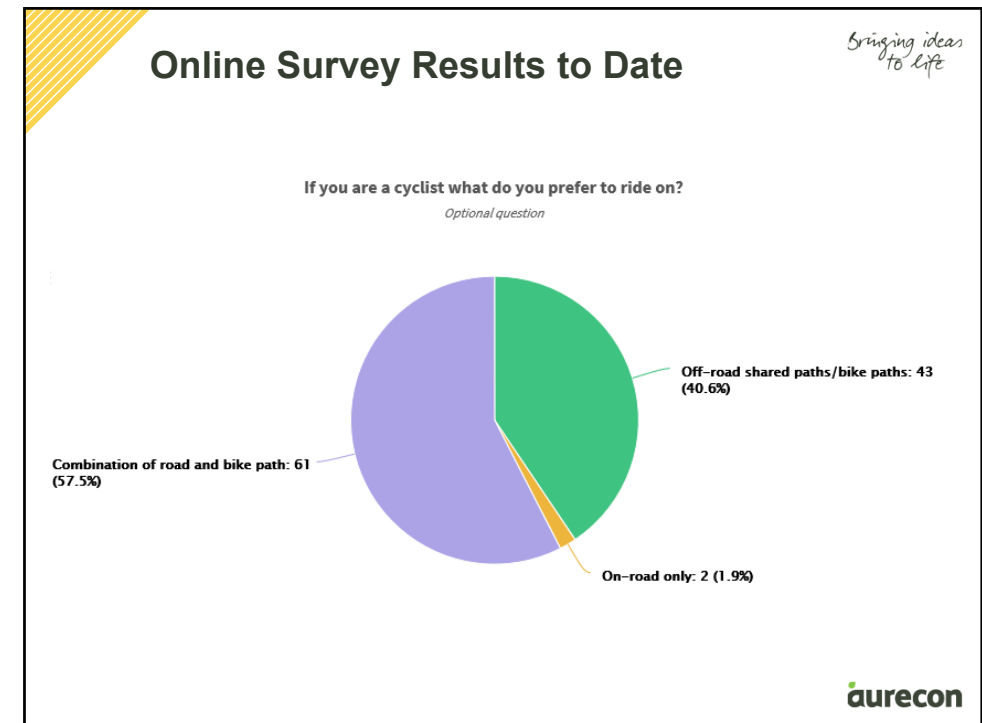
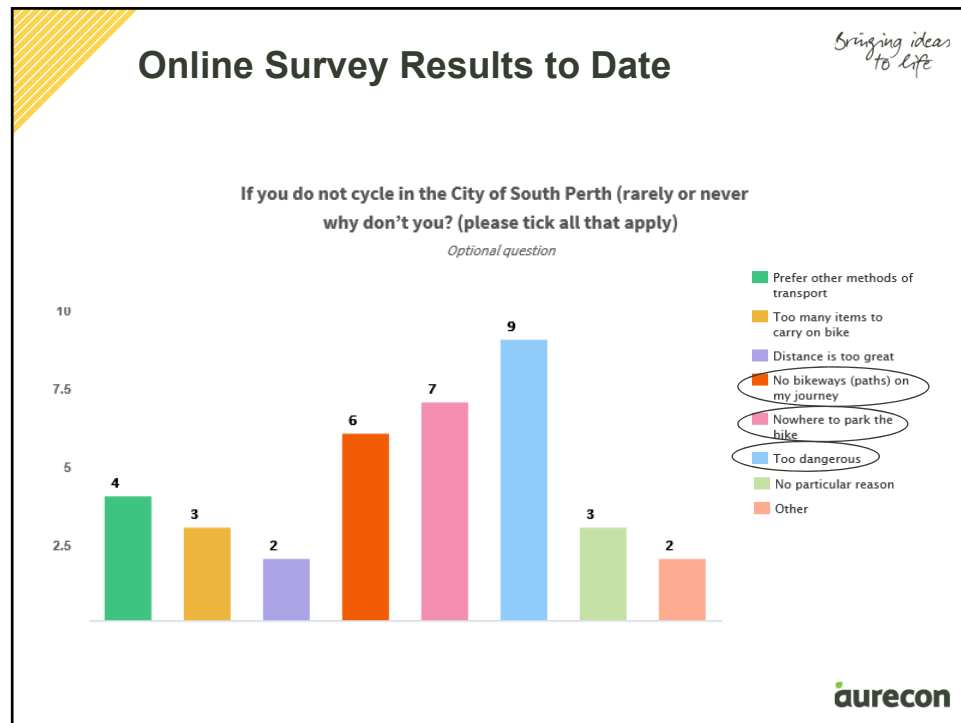
Bringing ideas to life

For what purposes do you cycle in the City of South Perth?
(please tick all that apply)
Optional question



To or from work	53
Trips during work hours (ie site visits, meetings)	11
To or from school, university or study	12
To or from shopping	33
To or from entertainment (café, restaurants, pubs)	31
For recreation or exercise	97
To get a train or bus	9
To visit friends or relatives	26
I don't cycle in the City of South Perth	3
Other	4

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What do you enjoy about your journey? Is this journey difficult or challenging?

Bringing ideas to life

- Challenge crossing Canning Hwy during peak hours
- The area around Douglas Ave / Coode St is a little "messy" and potentially dangerous
- Mends St intersection with S Perth Esplanade is extremely dangerous. Have seen other cyclists hit by cars here several times and near misses are frequent.
- I wish there were more designated paths for bikes
- Really nice views and green zones.
- Lanes are very narrow and it's unsafe for both pedestrians and cyclists.
- Enjoy the separated cycle path on the river foreshore.
- I find the traffic challenging, particularly along South Terrace
- Narrow space for traffic on Mill Point Road.
- As an early morning rider it is a beautiful part of the city to ride through, summer or winter.
- Enjoy: Quick, river route is free of cars
- This journey is enjoyable because I can take advantage of the Curtin University bike path.
- The Victoria Park section (through Burswood Park area) is a shared path and extremely dangerous
- I enjoy the trees and fresh air, and the energy I get from the exercise

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Ideate

Bringing ideas to life

In ideate mode we asked groups to focus on all of the issues they come across when cycling throughout the town.

We asked them to generate a multitude of issues and think outside those you might experience yourself!

We also suggested they think about what the future of bike networks look like and what issues might be experienced.

Once groups had written all their issues down we asked them to group them into themes.



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Infrastructure and Specific Routes

Bringing ideas to life

- Bad drainage in cycle lanes;
- Luminescent cycle lane markings;
- Separate bus stopping bays;
- On road cycle lanes continuing through traffic lights and intersections;
- Coloured cycle lane like some CBO and CoSP streets;
- Proper cycle lanes on Manning Road and Canning Highway;
- Banksia Terrace cycle path is stop/start at all intersecting roads so I don't use it;
- Awareness of 'hidden' paths and underpasses;
- End of Berwick Street / Canning Highway intersections needs and underpass;
- Murray Street marked as green route but street trees in the middle and a bus route, there is not enough room to share;
- Entry into train station – traffic lights x 3 slow, slow, encourages high risk behaviour;
- Direct main road routes still have not been completed despite being highlighted back in 2012, these are vital to increase commuting mode share;
- Don't like stop signs at the bottom of a hill;
- Stop building bike paths in the door zone;
- Bridges are narrow (causeway);
- Connect Waterford bike path to the Freeway;
- Improved crossing points at main roads;
- Manning road lights at South entrance to Curtin University;
- View to gradients and not giving way at lowest part of the route;
- Fix Canning Bridge station for pedestrians and cyclists;
- Hotmix paths not concrete;
- Manning road needs a continuous cycleway from Canning Bridge to Centenary drive with easy connectors to Curtin;
- I really like the cycle only path along Sir James Mitchell Park;
- I like the bike path near the river in South Perth, I wish we can have all over the city;
- I like when the bike traffic lights go green before the car lights go;
- Speed limits for formed cycleways;
- Albany Highway parking – doors opening onto traffic;
- I would like to see cycle area box at traffic lights like London and inner CBD Perth;
- ToVP/CoSP approved a very poor intersection design on Kent Street and Cygnia Cove that de-prioritises active transport users, MRWA needs new guidelines;
- Forcing cyclists onto a footpath at a roundabout is not ideal;
- Service points for breakdowns and assistance;
- Construct paths with culverts over tree roots to allow for growth so paths stay smooth;
- Build / retrofit roads to slow all motor vehicles;
- With every on road squeeze point (eg. Marsh Avenue, Manning, Hay Street etc) there needs to be a good off road option for cyclists;
- South Terrace dedicated cycleway attached to the road – separate if possible;
- Canning Bridge needs safe cycling connections to the station;
- Canning Highway needs a definitive separated cycleway;
- Kent street bitumen path north of Curtin in bad condition;
- Burswood path from causeway conflicts with pedestrians;
- Where a road has footpaths either side, sacrifice one for a cycle path; and
- A real major dedicated bike path North/South right through from Manning to South Perth foreshore.

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Education / Attitude

Bringing ideas to life

- Workshop for beginner to help them be brave and continue riding;
- Bike club for beginner adult riders;
- Shared path – keep left, no dog walkers, stopping for a chat, mostly dangerous; and
- Build cycling community and culture through communications that share positive experiences.

Maintenance

- Better on road cycle path maintenance (pruning and sweeping);
- Kwinana Freeway route from Canning Bridge to the Narrows – very good but drain covers, roots, rubbish needs sorting;
- Plants overhanging the cycle paths;
- Pump stations would be good; and
- Repair stations at select locations will be desirable.

Recreation

- South Perth foreshore ride (separate path) is great;
- In Europe – have a great view build a restaurant, in Australia – have a great view build a toilet block. Where are all the cafes around the river?;
- Integration with sporting clubs;
- South Perth survey results seem heavily skewed by respondents who already ride but only recreationally along the river;
- Well designed pump tracks; and
- Lack of youth orientated cycle facilities – could be near Manning skate park.

Future

- S.P BUG visited Manning PS once a year on bike day – Dr Bike pumped up tyres, adjusted seats, increased the number of bikes in the bike shed;
- Research has shown if a girl is not engaged in exercise by the age of 10 years then the opportunity lost;
- Next generation – focus on the primary school safety and convince the mums;
- Cycle only lanes that also have means for electric skateboards and other personal transport machines; and
- To encourage kids to ride to school, shared road / pedestrian / bike 'safe zones to school would be awesome.

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Bringing ideas to life

Council / Policy

- I would like to see integrated connect routes over council boundaries;
- Policing bike baths;
- Relaxed helmet laws;
- 1m and 1.5m passing lanes and remove centre island on roads, allow bikes / vehicles to freely use the available road way;
- Keep bike pin map as ongoing so council can use it as a communication tool;
- Cars parking on cycles. Why mark them if they are ignored by parked cars;
- Mandate that any traffic engineer must commute to work by bicycle and travel in the city by bicycle;
- Route marking regular along rout 300m;
- Reference maps at each end of route and at crossing of routes;
- Council rangers need to enforce no parking over footpaths;
- Cycle lanes next to parked cars need a cross hatched 'door zone buffer';
- Need for standards and uniformity across all local government authorities; and
- Separated pedestrian and bike paths on South Perth are brilliant.

End of Trip

- From Roberts Street overhead bridge into the station is need of more bike cages;
- Lack of cycling friendly entrances and parking at shopping centres and civic buildings including the one in which this workshop was held;
- Shopping centres and sports grounds have a path for cycles to stop but no end of trip facilities;
- Water fountains on bike paths;
- Activity areas such as Mends Street, Preston Street, Angelo Street need more bike racks;
- Long term storage subscriptions for storing transition bikes;
- Build and lease multi-storey (expandable) bike storage at train stations that offer repairs and coffee;
- More bike parking at Canning Bridge station;
- Attach a 1/2 meter pipe loop to all light poles and street signs near shops etc for parking; and
- Focus on 'little trip' with end of trip facilities – make bike lock ups obvious.

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Bringing ideas to life

Digital

- Provide mobile alerts and updates aimed at cyclists that provide information about paths and works;
- Strava plug in route planner with accessibility, visibility and connectivity;
- Build online bicycle culture and community; and
- Shift planning to evidence bike planning using IP tracking of cycle routes.

Safety

- Canning Highway is a barrier during peak hour to cross;
- Canning Highway is dangerous to approach with kids, new/unstable on bikes;
- The Causeway bridge is very dangerous to cross – is becoming a hindrance for riding around the river;
- High visibility jackets, bright coloured helmets, must have lights;
- Upcoming Vic Park foreshore development mistakenly doesn't separate cyclists and footpaths, there needs to be distance between them;
- South Perth Esplanade has no lanes and problems with cycleway;
- No bikeways or path on Canning Highways – safety issues, if you ride on the footpath risk of impact with cars in driveways, dedicated bike bath on one side.
- Manning road is a barrier for commuting and recreation
- Safe access points on paths for Ambulances
- Make routes safe for all levels of cyclists;
- Causeway – it's a shocker!;
- Children running across bike paths;
- Shared bike pedestrian pathways – pedestrians need to keep left; and
- Exit from Curtin opposite Clontarf campus is a death trap for cyclists heading towards Shelley.



Public Transport

- Encourage integration of bicycles and ferries;
- Non integral of cyclists on public transport; and
- Review integration options for example bike friendly carriage on the train.

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Bringing ideas to life

Key Issues and Opportunities Identified


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Key Issues

We asked that one person from each group briefly present back the themes or grouped issues you have developed.

During this time we wrote each key theme shared amongst groups on a piece paper to identify the key themed issues.



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Key Issues Identified

Lack of leverage and celebration of environment and views	Shortcomings with Regulations and Rules (council)	Inadequate infrastructure	The need for connectivity amongst city
Lack of youth recreation cycle facilities	Deficiencies in integration of all transport modes	The need for Digital / scientific evidence based planning	Lack of emphasis on safety
The lack of support with Local Government champions	Lack of End of Trip Facilities (bicycle parking)	Inadequate entrances to places	Minimal communication to the community
Not enough focus on school age safety and behaviour change	Shortcomings in planning and feedback loop	The need for a bike club for beginners	Negative cycling experiences
			Lack of cyclist and driver awareness and education

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Voting

Everyone in the room was given two red dots to vote for the key issues they thought were most important to them.

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Voting

The group engaged in further discussion as there was a tie in voting. Some of the issues were grouped together to identify the 4 most important issues.

Lack of leverage and celebration of environment and views	Shortcomings with Regulations and Rules (council)	Inadequate infrastructure	The need for connectivity amongst city
Lack of youth recreation cycle facilities	Deficiencies in integration of all transport modes	The need for Digital / scientific evidence based planning	Lack of emphasis on safety
The lack of support with Local Government champions	Lack of End of Trip Facilities (bicycle parking)	Inadequate entrances to places	Minimal communication to the community
Not enough focus on school age safety and behaviour change	Shortcomings in planning and feedback loop	The need for a bike club for beginners	Negative cycling experiences
			Lack of cyclist and driver awareness and education

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Prototype

Groups were then given one issue each and asked to create quick built solutions out of craft and materials to demonstrate their issue. The solution could be anything that a user can interact with such as a model, role playing activity, storyboard, plan, playdough and sand.

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Infrastructure Improvements and Connectivity Deficiencies



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Lack of Emphasis On Safety



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Not Enough Focus On School Age Safety and Behaviour Change



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Lack of End of Trip Facilities



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Share

We asked groups to share their prototype with the group and expand on how their idea was developed.

We then asked other members to provide feedback on the prototype. To say what they liked, what they didn't like, what worked, what didn't work and what could be improved.

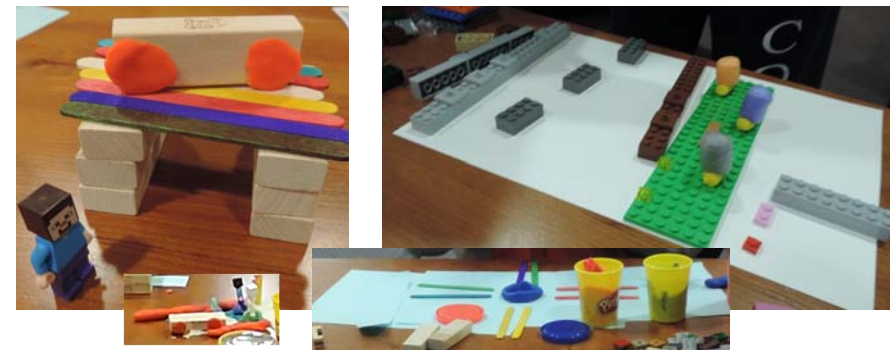


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Infrastructure Improvements and Connectivity

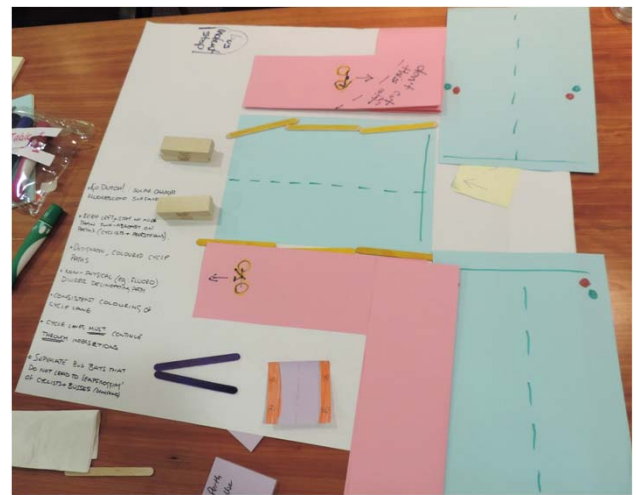


- Good design practice to include a separated bike lane;
- Design removes discontinuity of cycle lanes at intersections;
- Through traffic cycle lanes are prioritised over queued traffic;
- Roundabouts are a major issue i.e. Hayman Road, creating a bike lane on a roundabout would be ideal;
- More bridges and underpasses so everyone can move independently;
- More use of advanced bike storage at intersections, in front of vehicles with advanced phases.

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Bringing ideas to life

Safety

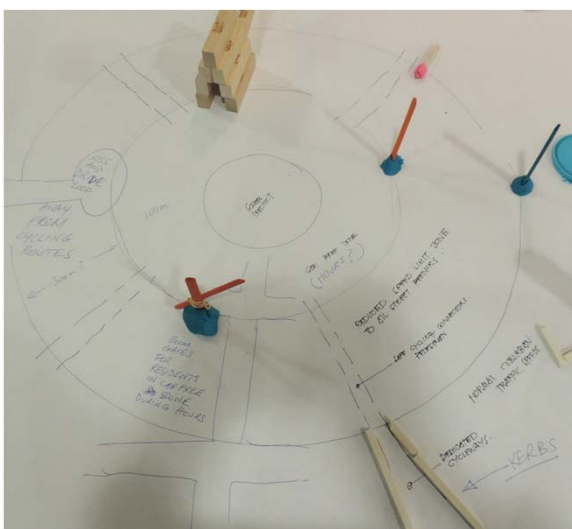


- Bike lanes stop at intersection, removing conveniences and causing merging safety concern;
- Buses are an issue so a clear demarked bay for buses is needed;
- Solar charged and illuminated path surfaces installed to improve visibility;
- Fluorescent paint that delaminates the edge of the bike path;
- Consistent pavement colour of bike lanes across the whole of Perth to improve familiarity for all users; and
- Signage for education of all modes.

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Bringing ideas to life

Focus on school age safety and enhance behaviour change



- School in the centre with a car free zone around school (i.e. 500m);
- Slow car speeds (10kmph) for those that surround and have to enter;
- Drop off areas are needed for this to work;
- Feasible because of extra size of perimeter;
- Whole suburb has to be planned in a way that complements this arrangement;
- Cycle ways around the suburb feeding into the zone; and
- Could this be done at Curtin?

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Bringing ideas to life

End of Trip Facilities



- Particular focus on bike lock up;
- Prominent bicycle parking at a number of retail locations;
- Remove one car bay at the front and replace it with 10 lots of bicycle parking;
- Add a pump to bicycle parking areas and remove access from cars;
- It might make people think 'well I can't get a car bay but I can get a bicycle park so next time I might ride';
- Potential location is Waterford plaza; and
- Undercover bike parking is required.

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Bringing ideas to life



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Appendix B – Detailed Infrastructure Audit Results (CoSP)









Detailed Link Results for the CoSP




Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L1-A	Kwinana Freeway PSP	Narrows Bridge and Canning Bridge	Shared Path (off-road) Approximately 3.0m wide off-road path. The path includes appropriate markings, signage and lighting along most of the alignment.		<ul style="list-style-type: none"> This provides part of a key route for commuters and recreational cyclists, who visit the Perth CBD. There is a lack of wayfinding along the path, particularly at overpasses. Pedestrian demand was highest south of the Thelma Street overpass. Some sections of the path had debris and overgrown vegetation. Pavement markings along the route were faded making them barely legible. Ponding was observed on the shared path that connects to the Freeway Off-Ramp/Mill Point Road crossing approximately 100m south. There is a lack of wayfinding along the path, particularly at overpasses. 	<ul style="list-style-type: none"> Ensure the PSP is maintained regularly through regular liaison with Main Roads. Investigate the ponding issues along the connecting shared path 100m south of the Freeway Off-Ramp/Mill Point Road crossing. Install more cycling wayfinding signage, specifically at overpasses, directing users to key destinations within the City of South Perth. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1)
L1-B	Kwinana Freeway PSP	Canning Bridge and Mount Henry Bridge	Shared Path (off-road) Approximately 3.0m wide off-road path.		<ul style="list-style-type: none"> This provides part of a key route for commuters and recreational cyclists, who visit the Perth CBD and area surrounding Canning Bridge. Centreline line marking is provided along the route. However, the path lacks a solid edge with line marking which reduces visibility. The pavement surface is cracked and uneven along stretches. There is no lighting along the path affecting personal security and making the path unappealing during the evening. Some sections of the path had debris and overgrown vegetation. There is a lack of wayfinding along the path, particularly at overpasses. 	<ul style="list-style-type: none"> This section of the PSP is a critical component of the cycle network and requires upgrading. The Kwinana Freeway PSP is under the control of Main Roads and as such it is recommended that the CoSP lobby to Main Roads to consider the following: <ul style="list-style-type: none"> Review this section of the PSP and investigate the feasibility of separation or path widening. Resurface existing path and install edge lines to improve demarcation of path. Install path lighting. This is further discussed in Section 8.2.9.1.
L2-A	Mill Point Road	Freeway PSP and South Perth Esplanade	Shared Path (off-road) Approximately 2.5m wide off-road path which includes appropriate markings and signage.		<ul style="list-style-type: none"> This provides part of a key route to/from the Perth CBD and South Perth Foreshore and caters for a high demand of a wide variety of users, including pedestrians, and both confident and less confident cyclists. Poor sight lines exist at the freeway off-ramp/Mill Point Road intersection with the shared path. Ponding was observed on the shared path on Mill Point Road underneath the Narrows Bridge. 	<ul style="list-style-type: none"> Investigate measures to improve safety and priority for crossing cyclists at the Freeway Off-Ramp/Mill Point Road intersection. Measures could include: <ul style="list-style-type: none"> Install traffic calming devices on the off-ramp to slow vehicles down Install zebra crossing or raised wombat crossing to increase priority for cyclists Install slowing devices on shared path approaches to slow cyclists down





Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L2-B	South Perth Esplanade	Mill Point Road and South Perth Foreshore Path	Shared Path (off-road) Approximately 2.2m wide off-road concrete path. A section of 3.0m wide off-road asphalt path is located at the north end.		<ul style="list-style-type: none"> This provides part of a key route to/from the Perth CBD and South Perth Foreshore and caters for a high demand of a wide variety of users, including pedestrians, and both confident and less confident cyclists. The route also passes through the Mends Street precinct, where the Connect South project is currently in planning. The existing shared path lacks appropriate markings and signage, and is narrower than a high quality shared path. Cyclists were observed to be using the road, even though there are no facilities provided. There is a lack of wayfinding and crossing facilities to Mends Street. 	<ul style="list-style-type: none"> Liaise with Main Roads and investigate drainage/leaking issue along the Mill Point Road shared path under the Narrows bridge.
						<ul style="list-style-type: none"> Widen and upgrade the existing shared path to a high quality shared path and install on-road bike lanes, as proposed in the South Perth Esplanade prioritised project (outlined in Section 8.2). Improve connection from shared path at the east end of South Perth Esplanade with the on-road environment. Note that part of this route falls within the City's Connect South project.
L2-C	South Perth Foreshore Path	South Perth Esplanade and Ellam Street	Separated Path (off-road) Approximately 3.0m wide off-road path. The path includes appropriate markings, signage and lighting along most of the alignment.		<ul style="list-style-type: none"> This provides part of a key route to/from the Perth CBD and South Perth Foreshore and caters for a high demand of a wide variety of users, including pedestrians, and both confident and less confident cyclists. There a number crossings at carpark access roads, which require cyclists to give way to vehicles (i.e. Coode Street and Douglas Avenue). Flooding was observed on the path adjacent to the carpark west of Coode Street. Poor sightlines were observed from the west approach at the Douglas Avenue crossing (looking south east). There is a lack wayfinding at some crossing points (i.e. Coode Street shared path). 	<ul style="list-style-type: none"> Investigate providing through priority to cyclists at the Coode Street and Douglas Avenue crossings as proposed in the South Perth Esplanade prioritised project (outlined in Section 8.2). This includes: <ul style="list-style-type: none"> Providing through priority for cyclists with the use of continuous red asphalt plus zebra crossings, wombat crossings or raised plateaus (or a combination). Installing traffic calming devices on the road approaches to the cycle crossing to slow vehicles down. Installing pavement marking and calming devices on the shared path approaches to the intersections to increase awareness and slow cyclists down. At the west side of the intersection of the foreshore path and Douglas Avenue, investigate removing the two car park bays on the south side, to improve sightlines. Investigate ponding issue along the path adjacent to the carpark west of Coode Street. Investigate the installation of adequate wayfinding at key intersection (i.e. Coode Street). This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).





Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L3	Hurlingham Road	South Perth Foreshore and Mill Point Road	<p>Shared Path (Off-Road) and On-Road (unmarked)</p> <p>Approximately 2.0m wide off-road concrete path (with asphalt at the northern end).</p> <p>The road currently has no cycling facilities and is generally 9.0m wide. This section is labelled on the previous DoT Your Move Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides a north-south connection from the South Perth Foreshore and Mill Point Road (and further south to Banksia Terrace) Although the eastern side of the path is signed as a shared path, no dedicated priority for cyclists is provided. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> This route should form part of the long term strategic network as a local route. There is potential for this route to be developed into a Safe Active Street providing a complete north-south connection to the South Perth Foreshore. Install wayfinding along route particularly at Mill Point Road toward the South Perth Foreshore. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L4-A	Banksia Terrace	Mill Point Road and Canning Highway	<p>Shared Path (Off-Road) and On-Road (unmarked)</p> <p>Approximately 2.0m wide off-road concrete path between Mill Point Road and Canning Highway.</p> <p>The road currently has no cycling facilities and is generally 8.0m wide, with two traffic calming devices. This section is labelled on the previous DoT Your Move Map as a local bicycle friendly route.</p> <p>An underpass is located at the intersection with Canning Highway.</p>	 	<ul style="list-style-type: none"> This provides part of the north-south connection to the South Perth Foreshore There is a lack of formalised pavement and line marking along the shared path and it is cracked and uneven along sections. Traffic calming devices put on-road cyclists in dangerous positions as appropriate bypass paths are limited. The existing underpass is steep, however is critical in providing an uninterrupted crossing at Canning Highway. Improvement to the amenity of the underpass can be undertaken. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> This section of Banksia Terrace does not have any formal cycling infrastructure, with cyclists either riding on-road with traffic or on the footpath. There is potential for this route to be developed into a Safe Active Street in the long term. In the short term, suitable off-road bypasses at the traffic calming devices should be installed for on-road cyclists. Improvements to the amenity of the existing underpass should be investigated, i.e. improved lighting and improved pavement markings. Install wayfinding along the route particularly at the Canning Highway underpass indicating direction and distance to the South Perth Foreshore, and Curtin University. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L4-B	Banksia Terrace	Canning Highway and George Street	<p>Separated Cycle Only Path (On-Road)</p> <p>Approximately 3.0m wide protected bi-directional cycle only path between Canning Highway and View Street. The remaining section to George Street is on-road with traffic or a 1.8m concrete path.</p> <p>This section is also labelled on the previous DoT Your Move Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides part of the north-south connection to the South Perth Foreshore, and to Kensington Primary School. This road has a low traffic volume at approximately 500 vehicles per day. Existing cycle data of 80 cyclists per day were recorded on the separated path (2014). The concrete path from Kensington Primary School to George Street is narrow and lacks formalised pavement and line marking. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> The section of Banksia Terrace between View Street and George Street does not have any formal cycling infrastructure, with cyclists either riding on-road with traffic or on the narrow footpath. There is potential for this section to be developed into a Safe Active Street in the long term. Install wayfinding along route particularly at George Street to the South Perth Foreshore and Curtin University. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L5-A	Thelma Street	Murray Street and Hayman Road	<p>On-Road (marked) and Pedestrian Only Path (off-road)</p>		<ul style="list-style-type: none"> This provides an east-west connection from Hayman Road to Penrhos College. 	<ul style="list-style-type: none"> Remove "pedestrian only" signage from the existing path on the southern side of Thelma Street and install shared path signage and pavement markings.




Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
			<p>This road currently has appropriately marked red-asphalt on-road bike lanes and consists of a good surface quality. Two traffic calming devices are located along the road with off-road bypass paths generally provided.</p> <p>Approximately 2.5m wide off-road path is currently signed as a pedestrian only path.</p>		<ul style="list-style-type: none"> The pedestrian only path is of adequate width and can cater for less confident cyclists using this strategic route. It also connects well to the existing shared path along Hayman Road and continuing along Thelma Street. An existing off-road bypass at the traffic calming device just east of Murray Street for westbound cyclists does not transition smoothly onto the bike lane. Westbound cyclists crossing Murray Street do not have an off-road bypass available. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Install a westbound off-ramp with smooth transition at the traffic calming device just east of Murray Street. At the Thelma Street/Murray Street intersection investigate the installation of an off-road bypass path with smooth transition at the westbound approach of the intersection. This should connect to the existing crossing point. Install wayfinding along route particularly at the Murray Street and Hayman Road intersections. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L5-B	Thelma Street	Throssell Street and Murray Street	<p>Shared Path (off-road)</p> <p>Approximately 2.5m wide off-road path which includes appropriate markings and signage.</p>		<ul style="list-style-type: none"> This section provides an east-west connection through to Penrhos College. The connection with the west end of the Penrhos College carpark and Throssell Street is a challenging location for cyclists travelling east-west to navigate. The existing shared path leads cyclists into the carpark, which increases chances of conflicts with vehicles and pedestrians, particularly during school peak periods. Several kerbs also act as obstructions. 	<ul style="list-style-type: none"> Investigate improvements to the connection between the west end of the Penrhos College car park and Throssell Street, as proposed in the Thelma Street prioritised project (outlined in Section 8.2). Liaison with Penrhos College will be required.
L5-C	Thelma Street	Canning Highway and Morrison Street	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 7m wide. This section is labelled on the previous DoT Your Move Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This section provides an east-west connection between Canning Highway and Penrhos College. Parked cars on both sides cause cyclist deviation into traffic. Thelma Street is a cul-de-sac east of Canning Highway, supporting on-road cycling. 	<ul style="list-style-type: none"> The section does not have any formal cycling infrastructure, with cyclists either riding on-road with traffic or on the narrow footpath. There is potential for this section to be developed into a safe active street in the long term.
L5-D	Thelma Street	Labouchere Road and Canning Highway	<p>On-Road (marked) and On-Road (sealed shoulder)</p> <p>Some of the road currently has appropriately marked red-asphalt on-road bike lanes. The remaining 180m section to Canning Highway is not sealed with red asphalt nor marked as cycle lanes.</p>		<ul style="list-style-type: none"> This section provides an east-west connection across the signalised Canning Highway intersection connecting to the Kwinana Freeway PSP. It also provides a direct connection to the strategic north-south routes along Labouchere Road and Coode Street. Currently on-road sealed shoulders are provided along this section, however approximately 180m section is not sealed with red asphalt nor marked as cycle lanes. Eastbound traffic at Canning Highway was observed to queue on the Thelma Street approach, with vehicles encroaching on the existing sealed 	<ul style="list-style-type: none"> It is recommended that when the next resurfacing works along Thelma Street are undertaken that this entire section of on-road cycle lanes is reviewed. The cycle lanes should be sealed in red asphalt at a minimum width of 1.5m and it is recommended that plastic kerbing is installed as a separator. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. Protection for the on-road cycle lanes is particularly important at the approach to the Canning Highway intersection, where there is the largest risk of conflict. Advanced stop cycling boxes are recommended to be investigated and installed at the eastbound approach during the next resurfacing works.



Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L5-E					<ul style="list-style-type: none"> shoulder. On-road cyclists are therefore put into a dangerous position. Westbound cyclists do not have an appropriate off-road bypass at the Thelma Street/ Labouchere Road intersection. 	<ul style="list-style-type: none"> The following improvements are recommended at the Thelma Street/ Labouchere Road intersection: <ul style="list-style-type: none"> Install off-road bypass path with smooth transition on the east approach for westbound cyclists Install holding rails at all median crossings at the intersection
	Thelma Street	Melville Parade and Labouchere Street	Apart from a small section of sealed shoulders west of Labouchere Road, the road currently has no cycling facilities and is generally 9.0m wide. This section is labelled on the previous DoT Your Move Map as a local bicycle friendly route.		<ul style="list-style-type: none"> This section provides an east-west connection between Canning Highway and the Kwinana Freeway overpass. This section of road includes a steep hill of considerable length. This section carries low traffic volumes, and caters for a bus route. A sealed shoulder exists but disappears after approximately 100m. Cars were observed to park in the sealed shoulder. 	<ul style="list-style-type: none"> The section does not have any formal cycling infrastructure, with cyclists either riding on-road with traffic or on the narrow footpath. There is potential for this section to be developed into a Safe Active Street in the long term. The installation of a formal pedestrian/cyclist crossing is recommended to connect directly to the PSP overpass.
L6-A	Welwyn Avenue	Manning Road and Hope Avenue	<p>On-Road (marked)</p> <p>This road currently has appropriately marked red-asphalt on-road bike lanes. It has an approximately 1.6m wide central median and consists of a good surface quality.</p>	 	<ul style="list-style-type: none"> This section provides a key north-south connection through Manning and to/from Salter Point. Existing traffic volumes along the road are approximately 5,000 vehicles per day and the speed limit is 50km/hr. There is a gap in a small section of on-road cycle lane in the southbound direction just south of Griffin Crescent where some on-street parking spaces are provided. This puts cyclists into a dangerous position to merge with into the traffic lane. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Welwyn Avenue/Bradshaw Crescent intersection <ul style="list-style-type: none"> Install yellow bicycle pavement symbols in the centre of the approach lane to increase awareness of confident cyclists wishing to travel through the roundabout Welwyn Avenue/Conochie Crescent intersection <ul style="list-style-type: none"> Install yellow bicycle pavement symbols in the centre of the approach lane to increase awareness of confident cyclists wishing to travel through the roundabout Continue the on-road cycle lane in the southbound direction at Griffin Crescent to fill the existing gap. This will require the indentation of parking bays into the existing verge. Welwyn Avenue/Hope Avenue intersection <ul style="list-style-type: none"> Install off-road bypass paths with smooth transitions on the Welwyn Avenue approaches Install wayfinding along the route particularly at Manning Road and Manning shops/Community Hub. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L6-B	Welwyn Avenue	Hope Avenue and Unwin Crescent	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 6.5m wide and is labelled on the previous DoT Your Move Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides a north-south connection through Manning and to/from Salter Point. Existing traffic volumes along the road are approximately 1,500 vehicles per day and the speed limit is 50km/hr. A bus service is located on the road at the south end. Several raised pavement traffic calming devices are located along the road. 	<ul style="list-style-type: none"> This route should form part of the long term strategic network as a strategic route. As part of any future resurfacing works, formalise on-street parking and investigate the installation of Safe Active Streets treatments (i.e. formalised parking and red pavement). This will also require changing priority at the Baldwin Street intersection.



Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L7-A	Manning Road	Centenary Avenue and Kent Street	<p>Shared Path (Off-Road)</p> <p>Approximately 2.5m wide off-road concrete path along the south side of Manning Road.</p> <p>Approximately 2.0m wide off-road concrete path along the north side of Manning Road, which is within ToVP and not referred to here.</p>		<ul style="list-style-type: none"> This is a strategic east-west connection across the southern section of South Perth to Curtin University and neighbouring councils. Existing traffic volumes along the road are approximately 32,000 vehicles per day and the speed limit is 70km/hr. This creates an unsuitable environment for on-road cycling. The existing concrete paths is narrow at sections and lacks formalised pavement and line marking. There is a lack of adequate crossing facilities to Curtin University, particularly at Manning Road/Curtin University South entrance intersection. 	<ul style="list-style-type: none"> In collaboration with ToVP, upgrade existing crossing facilities at the Curtin University South entrance and Kent Street intersections, as proposed in the Manning Road prioritised project (outlined in Section 8.2). Spray the existing footpath on the south side with red paint and formalised pavement and line marking, as proposed in the Manning Road prioritised project (outlined in Section 8.2). Install wayfinding along the route particularly at Kent Street and the Curtin University South entrance. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L7-B	Manning Road	Kent Street and Welwyn Avenue	<p>Shared Path (Off-Road)</p> <p>Approximately 1.6 to 2.0m wide off-road concrete path along the north side of Manning Road.</p> <p>Approximately 1.6m wide off-road concrete path along the south side of Manning Road except between Elderfield Road and Cashel Way, where there is no path.</p>		<ul style="list-style-type: none"> This is a strategic section provides an east-west connection across the southern section of South Perth and provides a connection to Curtin University and neighbouring councils. As a result, there is a strong demand for this route to be improved. This road has a high traffic volume at approximately 32,000 vehicles per day and the speed limit is 60 to 70km/hr. This creates an unsuitable environment for on-road cycling. The existing concrete paths are narrow and lack formalised pavement and line marking. There is a gap along the shared path on south side, with approximately 500m of missing path between Elderfield Road and Cashel Way. There is a lack of adequate crossing facilities, particularly at the Welwyn Avenue and Elderfield intersections. 	<ul style="list-style-type: none"> Install 3.0m shared path on the south side of Manning Road between Elderfield Road and Cashel Way, as proposed in the Manning Road prioritised project (outlined in Section 8.2). Replace the existing path on the south side of Manning Road between Elderfield Road and Welwyn Avenue with a new 2.5m-3.0m red asphalt path as proposed in the Manning Road prioritised project (outlined in Section 8.2). Install pedestrian/cyclist crossing facilities at the Elderfield Road and Welwyn Avenue intersections, as proposed in the Manning Road prioritised project (outlined in Section 8.2). Install wayfinding along the route particularly toward Curtin University. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L7-C	Manning Road	Welwyn Avenue and Ley Street	<p>Shared Path (Off-Road)</p> <p>Approximately 1.6 to 2.0m wide off-road concrete path along the north side of Manning Road.</p> <p>Approximately 1.6m wide off-road concrete path along the south side of Manning Road except between Elderfield Road and Cashel Way, where there is a 500m gap.</p>		<ul style="list-style-type: none"> This is a provides part of the east-west connection across the southern section of South Perth, connecting with Ley Street and Welwyn Avenue. This road has a high traffic volume at approximately 32,000 vehicles per day. The existing concrete paths are narrow and lack formalised pavement and line marking. Several issues were raised for crossing at the Manning Road/Ley Street intersection. Some sections of the path had debris and overgrown vegetation. 	<ul style="list-style-type: none"> Manning Road/Ley Street intersection <ul style="list-style-type: none"> Install holding rails at all median crossings at the intersection Investigate the provision of cyclist advanced stop boxes at the north, south and east approaches Install a pram ramp at the east end of Woollana Street to allow a convenient connection to the intersection Install wayfinding along the route particularly toward Curtin University and Canning Bridge. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).


Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L8-A	Davilak Street	Canning Bridge and Ley Street	<p>Sealed Shoulder (on-road)</p> <p>Approximately 1.5m on-road bike lanes (sealed shoulder), which discontinue at some intersections.</p>		<ul style="list-style-type: none"> This provides a part of an east-west connection between Curtin University and Canning Bridge Station. Existing traffic volumes are below 1,500 vehicles per day and the posted speed is 50km/hr. This section caters for bus routes. Perpendicular parking on north verge is provided along McDougall Park. On-road bike lanes are surfaced with red asphalt but are not marked with bike symbols or signage. On-road bike lanes discontinue at the Robert Street intersection. There is also a lack of off-road bypass options on the approaches and departures for cyclists travelling through the Ley Street roundabout. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> This route forms part of the Canning Bridge to Curtin Cycle Link. This is proposed to include the installation of a bi-directional cycle path, as proposed in the Canning Bridge to Curtin Bicycle Link prioritised project (outlined in Section 8.2). Install wayfinding along the route particularly toward Curtin University and Canning Bridge. This should form part of an overall wayfinding strategy (as outlined in Section 8.3.1).
L8-B	Davilak Crescent/ Godwin Avenue	Ley Street and Henley Street	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 6.0 wide. This road is labelled on the DoT Cycle Map as a local bicycle friendly route.</p>	 	<ul style="list-style-type: none"> This provides a part of an east-west connection between Curtin University and Canning Bridge Station. This route carries low traffic volumes and the posted speed is 50km. Perpendicular parking is located along the south verge. A roundabout is located at Canavan Crescent, and no priority is provided at Bickley Crescent. There is a lack of formalised parking along the streets. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> This route is part of the Canning Bridge to Curtin Cycle Link. This is proposed to include developing Davilak Crescent into a Safe Active Street as proposed in the Canning Bridge to Curtin University Cycle Link prioritised project (outlined in Section 8.2). Upgrade the connection from Godwin Avenue to Henley Street as part of the above works to provide a direct connection for cyclists. Install wayfinding along the route particularly toward Curtin University and Canning Bridge. This should form part of an overall wayfinding strategy (as outlined in Section 8.3.1).
L8-C	Jackson Road	Henley Street to Kent Street	<p>Separated Path (off-road) and Shared Path (off-road)</p> <p>Approximately 3.5m wide off-road separated/ cycle only path between Henley Street and Jackson Road, and 2.5 to 3.0m shared path along Jackson Road.</p>		<ul style="list-style-type: none"> This provides a part of an east-west connection between Curtin University and Canning Bridge Station. There is no lighting along the separated path affecting personal security and making it unappealing during the evening. The existing permanent cycle counter located along the separated path has recorded a daily volume of 80 vehicles per day. The pedestrian path located adjacent to the separated path lacks signage and pavement 	<ul style="list-style-type: none"> This route is part of the Canning Bridge to Curtin University Cycle Link. This is proposed to include the following: <ul style="list-style-type: none"> Installation of a bi-directional cycle path and separate pedestrian path along Jackson Road, as proposed in the Canning Bridge to Curtin University Cycle Link prioritised project (outlined in Section 8.2). As part of the above works, modify the connection from the existing separated path to the proposed Jackson Avenue path to provide a direct connection for cyclists. Lighting should also be improved along the entire off-road route.




Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
					<p>markings indicating that the path is primarily for pedestrians.</p> <ul style="list-style-type: none"> Some sections of the separated path had debris and overgrown vegetation. There is also a lack of lighting along affecting personal security and making the path unappealing during the evening. Jackson Road carries low traffic volumes and the posted speed is 50km/hr. The pavement surface along Jackson Road is uneven along stretches. Debris and overgrown vegetation were along most of the path edge. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Install signage and pavement markings indicating the desired pedestrian only use of the path adjacent to the separated path. Ensure the paths are maintained regularly. Install wayfinding along the route particularly toward Curtin University and Canning Bridge. This should form part of an overall wayfinding strategy (as outlined in Section 8.3.1).
L9-A	Lawler Avenue/Tate Street	Mill Point Road and Lawler Street	<p>Bicycle Lane (on-road)</p> <p>Approximately 1.5m on-road bike lanes. and is labelled on the previous DoT Your Move Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides part of a north-south connection between Curtin University and the South Perth foreshore. This route carries low traffic volumes and the posted speed is 50km/hr. Lighting is lacking along the route. The on-road bike lanes discontinue at the Lawler Street intersection. The existing bike lane on the west side is observed to have parked vehicles on it. The existing bike lane on the east side is adjacent to parallel parking, and is in the door zone. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Install bidirectional cycle path and formalise parking along this section of Tate Street, as proposed in the Douglas Avenue prioritised project (outlined in Section 8.2). Install a raised plateau at the Lawley Street intersection with a north-south crossing, as proposed in the Douglas Avenue prioritised project (outlined in Section 8.2). Install wayfinding along the route particularly at Douglas Avenue. This should form part of an overall wayfinding strategy (as outlined in Section 8.3.1).
L9-B	Lawler Street/Tate Street	Tate Street and Canning Highway	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 7.0m wide and is labelled on the previous DoT Your Move Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides part of a north-south connection between Curtin University and the South Perth foreshore. This route carries low traffic volumes and the posted speed is 50km/hr. Lighting is lacking along sections of the route. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Develop Lawler Street into a Safe Active Street, as proposed in the Douglas Avenue prioritised project (outlined in Section 8.2). Install wayfinding along the route particularly at Angelo Street and Canning Highway. This should form part of an overall wayfinding strategy (as outlined in Section 8.3.1)
L10-A	Douglas Avenue/Hayman Road	South Perth Foreshore and Mill Point Road	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 10.0m wide.</p>		<ul style="list-style-type: none"> This provides a part of a north-south connection between Curtin University and the South Perth foreshore. This route carries low traffic volumes and the posted speed is 50km/hr. There is a lack of lighting along some sections of the road. A significant amount of formalised parking is located along the road, particularly one the west side. There is a lack of wayfinding along the route 	<ul style="list-style-type: none"> Investigate providing through priority to cyclists at the Douglas Avenue crossings with the Foreshore Path, as proposed in South Perth Esplanade prioritised project (as outlined in Section 8.2). Formalise the connection of Douglas Avenue and Mill Point Road, and Tate Street and Mill Point Road, as proposed in the Douglas Avenue prioritised project (outlined in Section 8.2). Install wayfinding along the route particularly at Mill Point Road. This should form part of an overall wayfinding strategy (as outlined in Section 8.3.1).




Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L10-B	Douglas Avenue/ Hayman Road	Mill Point Road and Canning Highway	On-Road (unmarked) The road currently has no cycling facilities and is generally 7.0m wide, with several traffic calming devices.		<ul style="list-style-type: none"> This provides a part of a north-south direction connection between Curtin University and the South Perth foreshore This route carries traffic volumes 8,000 vehicles per day and the posted speed is 50km/hr. There are several locations along the route where the traffic calming devices put cyclists in dangerous positions with general traffic. It is inconvenient for southbound travelling cyclists to utilise Douglas Avenue from Lawler Street. 	<ul style="list-style-type: none"> Investigate improving the north-south connection for cyclists across Canning Highway in collaboration with Main Roads, as proposed in the Douglas Avenue prioritised project (outlined in Section 8.2).
L10-C	Douglas Avenue/ Hayman Road	Canning Highway and George Street/ South Terrace	Sealed Shoulder (on-road) Approximately 1.5m on-road bike lanes.		<ul style="list-style-type: none"> This provides a part of a north-south direction connection between Curtin University and the South Perth foreshore This route carries traffic volumes 11,000 vehicles per day and the posted speed is 60km/hr. Currently on-road bike lanes/ sealed shoulders are provided with red asphalt surfacing, however they are not marked as cycle lanes, and are narrow near the South Terrace/ George Street intersection The on-road bike lanes do not span the entire length to the Canning Highway intersection, and lack suitable options to enter/exit the roadway. There is a lack formalised pedestrian/cyclist crossing on all approaches of the South Terrace/ George Street intersection. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Upgrade the existing sealed shoulder to protected formal on-road cycle lanes, as proposed in the Douglas Avenue prioritised project (outlined in Section 8.2). Extend on-road bike lanes to the Canning Highway intersection and install an advanced cyclist stop box in the northbound direction on the approach to the Canning Highway, as proposed in the Douglas Avenue prioritised project (outlined in Section 8.2). It is inconvenient for southbound travelling cyclists to utilise Douglas Avenue from Lawler Street. Investigate improving the north-south connection for cyclists across Canning Highway in collaboration with Main Roads. Install off-road bypass paths with smooth transitions at the on-road bike lanes where they discontinue/begin. Install dedicated crossing facilities and advanced stop cyclist boxes on all approaches at the South Terrace/ George Street intersection, as proposed in the Douglas Avenue prioritised project (outlined in Section 8.2). Install wayfinding along the route particularly at Canning Highway and South Terrace/ George Street. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1)
L10-D	Douglas Avenue/ Hayman Road	George Street/ South and Kent Street	Sealed Shoulder (on-road) and Shared Path (off-road) Approximately 1.5m on-road bike lanes. A shared path runs along the west side of Hayman Road.		<ul style="list-style-type: none"> This provides a part of a north-south direction connection between Curtin University and the South Perth foreshore This route carries traffic volumes below 22,000 vehicles per day and the posted speed is 60 to 70km/hr. Currently on-road red asphalt sealed shoulders are provided, however they are not marked as cycle lanes on the west side and are not surfaced red or marked as cycle lanes on the east side. The existing path connection to Bessel Avenue is lacking adequate width and shared path pavement and line markings. 	<ul style="list-style-type: none"> Review on-road cycle lanes as part of next resurfacing works, as proposed in the Douglas Avenue prioritised project (outlined in Section 8.2). Upgrade existing path to a 2.5m-3.0m red asphalt shared path, as proposed in the Douglas Avenue prioritised project (outlined in Section 8.2). Upgrade the shared path connection at Bessell Avenue to facilitate enhanced access, as proposed in the Douglas Avenue prioritised project (outlined in Section 8.2). Install off-road bypass in east-bound direction on the Hayman Street approach at the Kent Street roundabout, as proposed in the Douglas Avenue prioritised project (outlined in Section 8.2).



Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
					<ul style="list-style-type: none"> There is lack of an adequate off-road bypass path for eastbound cyclists at the Kent Street approach. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Install wayfinding along the route particularly at Bessel Avenue and Kent Street. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1)
L11	Labouchere Road	Mill Point Road and Canning Highway	<p>Bicycle Lanes (on-road)</p> <p>Approximately 1.5m on-road bike lanes, which discontinue north of Angelo Street.</p>		<ul style="list-style-type: none"> This provides part of a north-south direction connection between Como and Mill Point/South Perth Foreshore. This route carries traffic volumes generally below 13,000 vehicles per day and the posted speed is 60km/hr. This is a high frequency bus route which creates potential conflicts for on-road cyclists at bus stops. There is an existing gap between Mill Point Road and Angelo Street which does not have on-road bike lanes. The existing on-road bike lanes are marked with bike symbols between Angelo Street and Canning Highway, but the sections between Hensman Street and South Terrace, and Saunders Street and Canning Highway are not surfaced with red asphalt. There is a lack of off-road bypass options on the approaches and departures for cyclists travelling through the Thelma Street and Preston Street intersections. There is a lack of suitable options to enter/exit the roadway at the locations where the bike lanes discontinue south of Angelo Street. Cars were observed to park on the bike lanes, particularly south of Saunders Street. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Upgrade the existing on-road cycle lanes as part of the next resurfacing upgrade on-road cycle lanes between Hensman Street and South Terrace, with red asphalt, and adequate pavement markings and signage. Additionally, investigation into the extension of on-road cycle lanes through each intersection (i.e. advanced cycling stop boxes) along the entire road between Angelo Street and Canning Highway should be undertaken (i.e. Saunders Street, South Terrace). Investigate the installation of new on-road cycle lanes between Angelo Street and Mends Street, which may require removal of one southbound traffic lane on Labouchere Road. Consider installing off-road bypass cycle paths prior to each bus stops to allow cyclists to bypass a stopped bus. Install appropriate off-road bypass paths on the Labouchere Road approaches and departures to the Preston Street roundabout. Install appropriate off-road bypass paths on the south approach and departure at the Preston Street roundabout. Remove the existing median island at the Saunders Street intersection and consider raising the intersection to slow vehicles. Formalise on-street parking south of Saunders Street and include bike symbols in the centre of the lanes to encourage cyclists to use the centre of the lane. Install wayfinding along the route particularly at Comer Street (overpass), Preston Street, Thelma Street and Cale Street. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1)




Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L12-A	Coode Street	South Perth Foreshore and South Terrace	Bicycle Lanes (on-road) Approximately 1.5m on-road bike lanes, which discontinue north of Mill Point Road		<ul style="list-style-type: none"> This provides part of a north-south direction connection between Como and the South Perth Foreshore. This route carries traffic volumes generally below 6,000 vehicles per day and the posted speed is 50km/hr. This is a high frequency bus route which creates potential conflicts for on-road cyclists at bus stops. The existing on-road bike lanes discontinue at the Mill Point Road, Angelo Street and South Terrace intersections, and lack suitable options to enter/exit the roadway at these locations. While the bike lanes do not continue north of Mill Point Road a 2.5m concrete path is located on the west side. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Upgrade the existing on-road cycle lanes between South Perth Foreshore and South Terrace to protected cycle lanes, as proposed in the Coode Street prioritised project (outlined in Section 8.2). Investigate extending the on-road cycle lanes through the Mill Point Road, Angelo Street and South Terrace intersections (i.e. advanced cycle stop boxes) as proposed in the Coode Street prioritised project (outlined in Section 8.2). Upgrade the existing footpath between the South Perth Foreshore and Mill Point Road to a 2.5-3.0m red asphalt shared path with appropriate line marking and signage. Additionally, consider the installation of cycle friendly traffic calming devices to reduce vehicle speed for on-road cyclists. Install wayfinding along the route particularly at the South Perth Foreshore, Mill Point Road, Angelo Street and South Terrace. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1)
L12-B	Coode Street	South Terrace and Canning Highway	On-Road (unmarked) The road currently has no cycling facilities and is generally 9.0 to 10.0m wide		<ul style="list-style-type: none"> This provides part of a north-south direction connection between Como and the South Perth Foreshore. This route carries traffic volumes generally below 6,000 vehicles per day and the posted speed is 50km/hr. This is a high frequency bus route which creates potential conflicts for on-road cyclists at bus stops. No formal cycle lanes provided, with inconsistent pavement markings. Two roundabouts are located along the route, which create an intimidating environment for cyclists. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Install on-road bike lanes between South Terrace and Thelma Street as proposed in the Coode Street prioritised project (outlined in Section 8.2). Install wayfinding along the route particularly at South Terrace, Preston Street and Thelma Street. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L13-A	Kent Street	Manning Road and Hayman Road	Sealed Shoulder (on-road) and Shared Path (off-road) Approximately 1.5m on-road bike lanes (sealed shoulder), which discontinues approximately 300m north of the Manning Road intersection. A 2.0 to 3.0m wide concrete path runs along the west side of the road. A 3.0m off-road path and on-road bike lane run along the east side which are located within ToVP. Only the western		<ul style="list-style-type: none"> This provides a key strategic route that connects to Curtin University, Town of Victoria Park and the Douglas Avenue Hayman Road strategic route. Existing traffic volumes along the road are approximately 22,000 vehicles per day and the speed limit is 70km/hr. This is a high frequency bus route which creates potential conflicts for on-road cyclists at bus stops The existing concrete path lacks appropriate markings and signage, and is narrower than a high quality shared path. The sealed shoulder is surfaced with red pavement but is not appropriately signed or marked, which may cause confusion for cyclists wishing to use the facility. 	<ul style="list-style-type: none"> Formalise and widen the existing on-road cycle lanes and provide off-road bypass paths during the next resurfacing works as proposed in the Kent Street prioritised project (outlined in Section 8.2). As part of next footpath resurfacing consider upgrading the existing footpath on the west side with a 2.5m-3.0m wide high quality shared path. Install wayfinding along route particularly at Manning Road, Curtin University Main Street and Hayman Road. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).





Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L13-B			(southbound) carriageway is located within CoSP, which is the only one referred from here.		<ul style="list-style-type: none"> There is a lack of priority for northbound cyclists turning onto Curtin University Main Street, which puts cyclists in dangerous positions. Where the northbound bike lane begins, 300m north of Manning Road, there is a lack suitable options to enter the roadway. There is a lack of wayfinding along the route. 	
	Kent Street	Hayman Road and Jarrah Road	<p>Sealed Shoulder (on-road)</p> <p>Approximately 0.8m on-sealed shoulder, which discontinues at some intersections. Only the western carriageway (northbound) is located within CoSP which is only referred to from here.</p>		<ul style="list-style-type: none"> This provides a key strategic route that connects to Curtin University, Town of Victoria Park and the Douglas Avenue Hayman Road strategic route. Existing traffic volumes along the road are approximately 12,000 vehicles per day and the speed limit is 60km/hr. This is a high frequency bus route which creates potential conflicts for on-road cyclists at bus stops. The sealed shoulder is narrow, not surfaced with red asphalt, or marked with bike symbols and signage. The sealed shoulder discontinues at the Dick Perry Avenue/Turner Avenue and Jarrah Road intersections. There is also no sealed shoulder along the section between Dick Perry Avenue/Turner Avenue and Jarrah Road. There is currently a lack of off-road bypass paths at the Hayman Road, Dick Perry Avenue/Turner Avenue and Jarrah Road intersections, for the Kent Street approaches and departures. Median crossings lack holding rails and the required widths for cyclists along Kent Street at the Hayman Road and Jarrah Road intersections. A 1.8m concrete path is located along a short span (approximately 100m) on the western side south of Jarrah Road. A short span of shared path is located at the intersection, however the line markings and pavement markings are faded and the surface quality degraded. Some wayfinding is present, although it shows the outdated Perth Bicycle Network (PBN) routes. 	<ul style="list-style-type: none"> Install new 1.5m on-road cycle lanes with appropriate red asphalt and pavement markings and signage along this section, as proposed in the Kent Street prioritised project (outlined in Section 8.2). In collaboration with ToVP, install holding rails and shift median crossings so that adequate width is provide (minimum 2.5m) at the Kent Street legs of the Hayman Road intersection. Install wayfinding along route particularly at Hayman Road, Turner Avenue (Technology Park) and Jarrah Road. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).

Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L14	Angelo Street	Labouchere Road and Douglas Avenue	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 7.0 to 13.5m wide. This road is labelled on the DoT Cycle Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides a local east-west route that connects to Angelo Street shops, Perth Zoo, and Wesley College. The speed limit is 50km/hr along the majority and 40km/hr at the Angelo Street shops. A bus service is located along this route. Formalised parking is located along the section at the Angelo Street shops. A considerable hill is located west of Forrest Street, increasing effort for cyclists. There is a lack of wayfinding along the route. There is a lack of cycling facilities and space along the route, with potential conflicts on and off-road including at the Angelo Street Shops. This is increase with the use of a painted kerbed median along route approximately 1.5m wide. 	<ul style="list-style-type: none"> As part of the next resurfacing, investigate the feasibility of developing the high activity section of Angelo Street into a slow speed shared environment. In addition, the feasibility of installing a bi-directional cycle path on one side or protected on-road cycle lanes for the remaining length of Angelo Street should be investigated. Install wayfinding along route particularly at Perth Zoo, Angelo Street shops and Lawler Street. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L15-A	South Terrace/ George Street	Kwinana Freeway Off-Ramp/ Melville Parade and Labouchere Road	<p>Bicycle Lanes (on-road)</p> <p>Approximately 1.5m on-road bike lanes, which discontinue at the intersections. This section is labelled on the DoT Cycle Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides an east-west route through CoSP that connects to the Kwinana Freeway, South Perth Hospital, CoSP Library and Council Building, and Kensington Secondary School. Existing traffic volumes along the road are approximately 5,000 vehicles per day and the speed limit is 60km/hr. The existing on-road bike lanes are marked with bike symbols, but the south side (westbound) is not surfaced with red asphalt. There is a lack of suitable options to enter/exit the roadway at the locations where the bike lanes discontinue. A high number of cars were observed to park on the bike lanes, putting cyclists in dangerous positions. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> At the east side of the section, where the on-road bike lanes discontinue/begin, install off-road bypass paths with smooth transitions. As part of the next resurfacing, upgrade the existing on-road cycle lanes with red asphalt, and investigate the extension of cycle lanes through the Labouchere Road intersection (i.e. advanced stop cycle boxes). Install appropriate bicycle lane signage and pavement markings which will allow the enforcement of parking on the lanes.
L15-B	South Terrace/ George Street	Labouchere Road and Canning Highway	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 10.0 to 12.0m wide, with sections of painted median and road narrowing.</p>		<ul style="list-style-type: none"> This provides an east-west route through CoSP that connects to the Kwinana Freeway, South Perth Hospital, CoSP Library and Council Building, and Kensington Secondary School. Existing traffic volumes along the road are approximately 13,000 vehicles per day and the speed limit is 60km/hr. Part of the section is used by a bus service. A considerable hill is located between Labouchere Road and Coode Street, increasing effort for cyclists. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> As part of the next resurfacing, investigate the provision of protected 1.5m on-road cycle lanes and advanced stop cycle boxes on the South Terrace approaches at both Coode Street and Canning Highway intersections. This will require liaison with Main Roads. To avoid the steep grade of South Terrace, consider an alternative route to the Kwinana Freeway principal shared path for cyclists along Hazel Street and Comer Street. Install wayfinding along route particularly at Coode Street and Canning Highway. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).

Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L15-C	South Terrace/ George Street	Canning Highway and Douglas Avenue/ Hayman Road	Sealed Shoulder (on-road) Approximately 1.5m on-road bike lanes (sealed shoulder), which discontinue at some intersections.		<ul style="list-style-type: none"> This provides an east-west route through CoSP that connects to the Kwinana Freeway, South Perth Hospital, CoSP Library and Council Building, and Kensington Secondary School. Existing traffic volumes along the road are approximately 12,000 vehicles per day and the speed limit is 60km/hr. Part of the section is used by a bus service. Several traffic calming devices are located along the section On-road bike lanes are not marked with bike symbols and signage along the entire length. On-road bike lanes lack continuity at the Canning Highway, Murray Street and Hayman Road intersections. There is currently a lack of off-road bypass paths at the Murray Road/ David Street roundabout. Cars were observed to park on the bike lanes, putting cyclists in dangerous positions. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> At the roundabout of Murray Street/David Street, cycle pavement symbols are recommended to be installed at the centre of the approach lanes of South Terrace to improve awareness for cyclists. Off-road bypass paths should also be installed at a smooth transition for cyclists, plus the median crossings should be investigated for widening (2.5m minimum width) with holding rails to allow for cyclist storage. Cycle protection kerbs or an appropriate bypass path should be installed at the traffic calming devices along this route As part of the next resurfacing works this entire section of on-road cycle lanes is recommended to be reviewed. The cycle lanes should be sealed in red asphalt at a minimum width of 1.5m with consideration of protection. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. Install wayfinding along route particularly at Murray Street/Bland Street and Hayman Road. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L15-D	South Terrace/ George Street	Douglas Avenue/ Hayman Road and Berwick Street	Sealed Shoulder (on-road) Approximately 1.5m on-road bike lanes (sealed shoulder), which discontinue at some intersections.		<ul style="list-style-type: none"> This provides an east-west route through CoSP that connects to the Kwinana Freeway, South Perth Hospital, CoSP Library and Council Building, and Kensington Secondary School. Existing traffic volumes along the road are approximately 11,000 vehicles per day and the speed limit is 60km/hr. On-road bike lanes are not surfaced with red asphalt, or marked with bike symbols and signage. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> As part of the next resurfacing works this entire section of on-road cycle lanes is recommended to be reviewed. The cycle lanes should be sealed in red asphalt at a minimum width of 1.5m with consideration of separation. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. Investigate the enhancement of the on-road cycle environment at the commercial precinct between Kennard Street and Lansdowne Road. Speed reduction, signage and pavement markings could be implemented to increase cyclist safety and driver awareness. Install wayfinding along route particularly at Baron-Hay Court, Banksia Terrace and Harold Rossiter Park. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L16-A	Murray Street	Jackson Avenue and Thelma Street	Shared Path (off-road) and Bicycle Lane (on-road) Approximately 1.5m on-road bike lane, for one section of the road. A 2.5m wide concrete path runs along the west side of the road		<ul style="list-style-type: none"> This provides a north-south connection from Henley Street/Jackson Road connection to South Terrace and Douglas Avenue, and provides access to Como Secondary College, Penrhos College and Wesley Playing fields Existing traffic volumes along the road are generally below 4,000 vehicles per day and the speed limit is 50km/hr. 	<ul style="list-style-type: none"> During the next resurfacing of Murray Street, consider installing a bi-directional cycle path with lighting on the eastern side of Murray Street. In the short term, install a smooth ramp connection to the existing path at the Murray Street cul-de-sac to increase convenience for cyclists. Install wayfinding along route particularly at Jackson Road and Thelma Street. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).

Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
					<ul style="list-style-type: none"> On-road bike lanes are not surfaced with red asphalt, and discontinue for most of the section. At the south end of the southbound bike lane, the narrowing of the road at the McNabb Loop intersection ('nib') guides cyclists into the way of general traffic, increasing the chances of conflict. There is a lack of formalised pavement and line marking along the shared path and it lacks adequate width and surface quality at sections. A high number of cars were observed to park on the bike lanes, putting cyclists in dangerous positions. There is a lack of lighting at from Murray Street to the Jackson Road/ Henley Street connection. There is a lack of a direct connection for cyclists for the shared path connection with the Jackson Road/ Henley Street separated path. There is also a lack of a direct connection to the south end of Murray Street. There is a lack of wayfinding along the route. 	
L16-B	Murray Street	Thelma Street and South Terrace	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 10.0m wide. This road is labelled on the DoT Cycle Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides a north-south connection from Henley Street/Jackson Road connection to South Terrace and Douglas Avenue, and provides access to Como Secondary College, Penrhos College and Wesley Playing fields Existing traffic volumes along the road are generally below 6,000 vehicles per day and the speed limit is 50km/hr. The road is narrowed by a 1.8m painted median with planted trees, which reduces the space available to cyclists This road is used by a bus service, which creates potential conflicts for on-road cyclists at bus stops. There is a hill along the road increasing effort for cyclists. On-road bike symbols are faded, making it difficult for drivers see. Three roundabouts are located along the road, which put cyclists in dangerous positions. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> This section of Murray Street is constrained and caters for high traffic volumes and is a bus route. In addition, there are existing trees in the median which provide a squeeze point for cyclists. The potential modification to this section of Murray Street to provide improved cycle infrastructure will likely require the removal of the existing trees or significant cost in widening the road cross section. As such, an alternative route for cyclists is proposed along the parallel Bland Street which can be developed in the future to a Safe Active Street. The existing shared path along the southern side of Thelma Street can be utilised to direct cyclists to Bland Street. Bland Street will also allow cyclists to bypass the conflict points at the Murray Street/South Terrace roundabout which is highly constrained.

Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L16-C	David Street	South Terrace and Douglas Avenue	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 6.0m wide, with two traffic calming devices. This road is labelled on the DoT Cycle Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides a north-south connection from Henley Street/Jackson Road connection to South Terrace and Douglas Avenue, and provides access to Como Secondary College, Penrhos College and Wesley Playing fields Existing traffic volumes along the road are generally below 1,500 vehicles per day and the speed limit is 50km/hr. The traffic calming devices guide cyclists into the way of general traffic, increasing chances of conflict. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Due to the current traffic calming arrangement, which requires one direction of traffic to give way at a time, investigate improvements for cyclists (to avoid putting them in dangerous positions). It is proposed that Bland Street is developed into a cycle route in the future as a more suitable alternative route.
L17	Mill Point Road	Coode Street and Way Road	<p>Sealed Shoulder (on-road)</p> <p>Approximately 1.5m on-road bike lanes (sealed shoulder), which discontinue at some intersections.</p>		<ul style="list-style-type: none"> This provides an east-west connection from Sir James Mitchell Park to Canning Highway. Existing traffic volumes along the road are approximately 16,000 vehicles per day and the speed limit is 60km/hr. This road is used by a bus service, which creates potential conflicts for on-road cyclists at bus stops. The road is narrowed by a 2.5m painted/concrete median. On-road bike lanes are surfaced with red asphalt along most of the road, but are not marked with bike symbols or signage. A small section between Hovia Terrace and Way Road is not surfaced with red pavement. On-road bike lanes do not extend the entire length to the Coode Street intersection, and lack suitable options to enter/exit the roadway at these locations. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> As part of the next resurfacing works this entire section of on-road cycle lanes is recommended to be reviewed. The cycle lanes should be sealed in red asphalt at a minimum width of 1.5m and it is recommended that protection is considered. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. Consider the installation of cycling advanced stop boxes at the Coode Street intersection. Investigate modification to the intersection of Mill Point Road and Way Road to enhance the connection to Heppingstone Street and provide safe and convenient access to the existing on-road cycle lanes on Mill Point Road. Consider developing Heppingstone Street and Lamb Street into a Safe Active Street to enhance the cyclist connection between Mill Point Road and the South Perth Foreshore path. Install wayfinding along route particularly at the intersections of Coode Street, Douglas Avenue, Hurlingham Road and Heppingstone Street. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L18-A	Talbot Avenue/ Barker Avenue	Canning Highway and Henley Street	<p>Bicycle Lanes (on-road)</p> <p>Approximately 1.5m on-road bike lanes, which discontinue at some intersections. This section is labelled on the DoT Cycle Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides a north south connection from Canning Highway and Manning Road. This road is used by a bus service, which creates potential conflicts for on-road cyclists at bus stops. Existing traffic volumes along the road are moderate and the speed limit is 50km/hr. The existing on-road bike lanes are marked with bike symbols but are not surfaced with red pavement. The Canning Highway intersection is an important connection point to the Thelma Street strategic route and Labouchere Road strategic route. The existing on-road bike lanes do not extend the entire length to the Canning Highway intersection. 	<ul style="list-style-type: none"> Install off-road bypass paths with smooth transitions at the Saunders Street roundabout and Brittain Street/Park Street roundabout. As part of the next resurfacing works this entire section of on-road cycle lanes is recommended to be reviewed. The cycle lanes should be sealed in red asphalt at a minimum width of 1.5m with consideration of protection. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. It is recommended that this area is reviewed to provide consistent cycle facilities through the Canning Highway intersection. This will require liaison with Main Roads. Investigate the feasibility of providing a continuous cycle lane

Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L18-B	Talbot Avenue	Henley Street and Bickley Street	On-Road (unmarked) The road currently has no cycling facilities and is generally 6.0m wide, with two traffic calming devices. This road is labelled on the DoT Cycle Map as a local bicycle friendly route.		<ul style="list-style-type: none"> There is a lack of wayfinding along the route. This provides a north south connection from Canning Highway and Manning Road. Existing traffic volumes along the road are below 1,000 vehicles per day and the speed limit is 50km/hr. There is a lack of wayfinding along the route. 	<p>(marked in green asphalt) through the intersection of Canning Highway, with an appropriate off-road bypass path to allow cyclists to cross to Thelma Street if desired. Modification to the parking layout at the small commercial lots on the corner may be required and will require further investigation.</p> <ul style="list-style-type: none"> Install wayfinding along route particularly at Canning Highway. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1). Improve Henley Street/Talbot Avenue intersection by installing smoother transitions for northbound and southbound cyclists on both sides of Talbot Avenue. It is recommended that the median crossings are widened to 2.5m minimum (3.0m desirable) with holding rails to accommodate crossing cyclists. Install wayfinding along route particularly at Henley Street and Bickley Crescent. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L18-C	Bickley Crescent	Talbot Avenue and Manning Road	On-Road (unmarked) The road currently has no cycling facilities and is generally 6.0m wide, with two traffic calming devices. This road is labelled on the DoT Cycle Map as a local bicycle friendly route.		<ul style="list-style-type: none"> This provides a north south connection from Canning Highway and Manning Road. Existing traffic volumes along the road are below 1,000 vehicles per day and the speed limit is 50km/hr. There is a lack of priority at the Pether Road intersection. Formalised parking is located at the south end of Bickley Crescent (cul-de-sac), and a path connection to Manning Road. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Install wayfinding along route particularly at Manning Road. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L19	Dick Perry Avenue	Hayman Road and Kent Street	Sealed Shoulder (on-road) Approximately 1.5m on-road bike lanes (sealed shoulder), which discontinue at some intersections. This road is labelled on the DoT Cycle Map as a local bicycle friendly route.	 	<ul style="list-style-type: none"> This provides an east-west connection from Hayman Road and Kent Street, and provides access to Technology Park. On-road bike lanes are surfaced with red asphalt along the road, but are not marked edge lines or bike symbols, which may cause confusion for cyclists wishing to use the facility. There is a lack of appropriate off-road bypass paths at the west leg of the Kent Street intersection. On-road bike lanes do not extend the entire length to the Burvill Circuit intersection, and lack suitable options to enter/exit the roadway at these locations. There is also a lack of appropriate crossing facilities at Hayman Road. There is a lack of wayfinding along the route 	<ul style="list-style-type: none"> As part of the next resurfacing works this entire section of on-road cycle lanes is recommended to be reviewed. The cycle lanes should be sealed in red asphalt at a minimum width of 1.5m with consideration of protection. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. Install appropriate off-road bypass paths at the Burvill Circuit and Kent Street roundabouts. Install wayfinding along route particularly at Hayman Road and Kent Street. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).

Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L20-A	Cale Street	Kwinana Freeway Overpass and Park Street	<p>Sealed Shoulder (on-road) and unmarked (on-road)</p> <p>Approximately 1.5m on-road bike lanes (sealed shoulder) along most of the road, which discontinue between Robert Street and Canning Highway. This road is labelled on the DoT Cycle Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides an east-west connection between Kwinana Freeway and Como Secondary College. Existing traffic volumes along the road are below 1,000 vehicles per day and the speed limit is 50km/hr. On-road bike lanes are not surfaced with red asphalt or marked with bike symbols and signage. Bike symbols are used on the connection to the Kwinana Freeway overpass, however these are faded. The existing crossing at Canning Highway lacks adequate width for cyclists, putting cyclists in dangerous positions. There is a lack of appropriate off-road bypass paths at the Cale Street legs of the Robert Street Roundabout. There is a lack of wayfinding along the route 	<ul style="list-style-type: none"> Consider developing Cale Street into a Safe Active Street in the future, to enhance the cyclist connection between Como Secondary School and the Kwinana Freeway principal shared path. Investigate the widening of the median to a minimum 2.5m width (3.0m desirable) on Canning Highway to facilitate cyclists, in liaison with Main Roads WA. Install wayfinding along route particularly at the Kwinana Freeway Overpass and Canning Highway. This should form part an overall wayfinding strategy (as outlined in Section 8.3.1).
L20-B	Cale Street	Canning Highway and Bruce Street	<p>Unmarked (on-road)</p> <p>The road currently has no cycling facilities and is generally 6.0m wide. This road is labelled on the DoT Cycle Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides an east-west connection between Kwinana Freeway and Como Secondary College. There is a lack of priority at the Baldwin Street and Talbot Avenue intersections. 	<ul style="list-style-type: none"> Consider developing Cale Street into a Safe Active Street in the future, to enhance the cyclist connection between Como Secondary School and the Kwinana Freeway principal shared path.

Link				Convenience			Accessibility / Safety				Comfort				Attractiveness				Overall Score
Number	Name	Description	Location (between)	Continuity	Legibility	Directness	Worst Junction Conflict Point	Traffic Volume	Traffic Proximity / Mix	Traffic Speed	Link Conflict Points	Effective Width	Surface Quality	Maintenance	Overall Effort	Personal Security	Lighting	Quality of Environment	
L1	Kwinana Freeway PSP	Shared Path	Canning Bridge and Narrows Bridge	2	0	2	0	3	3	N/A	1	3	0	0	2	0	-2	1	15
L2	South Perth Foreshore Path	Shared Path/Separated Path	Kwinana Freeway PSP and Ellam Street	2	1	2	0	3	3	3	2	2	1	1	2	2	2	2	28
L3	Hurlingham Road	Shared Path/On-road	South Perth Foreshore and Mill Point Road	2	0	1	0	3	2	0	1	1	0	1	2	2	2	2	19
L4	Banskia Terrace	Shared Path/On-Road	Mill Point Road and George Street	2	1	2	1	2	-2	0	0	0	0	1	0	0	1	1	9
L5	Thelma Street	Shared Path/On-Road	Murray Street and Labouchere Street	-1	0	2	-1	0	0	0	-1	1	0	0	-1	1	1	1	2
L6	Welwyn Avenue	Bicycle Lane	Manning Road and Hope Avenue	1	1	2	-2	0	-1	0	2	0	2	0	2	1	1	1	10
L7	Manning Road	Shared Path	Ley Street and Centenary Avenue	1	0	2	-1	-3	3	3	0	0	-2	0	2	1	1	1	8
L8	Davilak Street/Godwin Avenue/Jackson Avenue	On-Road/Off-road	Canning Bridge and Kent Street	-1	0	1	-2	2	-1	0	0	-1	1	1	2	0	0	0	2
L9	Lawler Street	On-Road	Canning Highway and Mill Point Road	2	-1	1	0	2	2	0	1	-1	1	-1	2	2	0	2	12
L10	Douglas Avenue/ Hayman Road	Shared Path/ Sealed Shoulder	South Perth Foreshore and Kent Street	0	1	2	-3	-3	2	-3	0	0	1	1	1	1	1	1	2
L11	Labouchere Road	Bicycle Lane	Mill Point Road and Canning Highway	1	1	2	-2	-3	2	-3	0	1	1	0	2	2	1	1	6
L12	Coode Street	Bicycle Lane/ On-Road	South Perth Foreshore and Canning Highway	0	1	2	-2	0	-3	0	-1	-1	1	0	2	2	1	1	3
L13	Kent Street	Bicycle Lane	Manning Road and Jarrah Road	0	1	2	-3	-3	2	-3	0	0	1	2	2	1	1	1	4
L14	Angelo Street	On-Road	Labouchere Road and Douglas Avenue	0	0	2	-1		-2	0	0	-1	1	0	-2	1	1	2	1
L15	South Terrace/ George Street	On-Road	Melville Parade and Berwick Street	0	0	2	-2	-2	-2	-3	-1	-1	1	1	0	1	1	1	-4
L16	Murray Street/David Street	On-Road	Jackson Road and Douglas Avenue	0	0	1	-2	0	-2	0	0	-1	1	-1	-1	1	0	1	-3
L17	Mill Point Road	Bicycle Lane	Coode Street and Way Road	1	0	2	1	-3	-2	-3	0	0	2	1	2	1	2	2	6
L18	Talbot Avenue/ Barker Avenue/ Bickley Crescent	Bicycle Lane/On-Road	Canning Highway and Manning Road	1	1	0	-2		0	0	0	-1	0	1	2	1	0	1	4
L19	Dick Perry Avenue	Bicycle Lane	Hayman Road and Kent Street	1	0	1	-2		2	0	2	0	1	0	2	-1	1	1	8
L20	Cale Street	Bicycle Lane/On-Road	Kwinana Freeway Overpass and Bruce Street	1	0	2	-2	2	0	0	1	-1	1	-1	0	1	1	2	7

Appendix C – Infrastructure Project Sheets (CoSP)



1 South Perth Esplanade

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	From the community survey, this route received the highest number of comments with regards to cycling issues and safety concerns. The lack of dedicated cycle infrastructure, lack of driver awareness and high pedestrian volumes creates an intimidating environment for cyclists.	26-50	8.0	20%	8.50
	Stakeholders	Discussions were raised regarding the lack of on-road cycle infrastructure along the route, and issues for providing this whilst creating a low speed environment in the vicinity of Mends Street. The appropriate type of cross section along this route was discussed and is being considered as part of future planning within the area (i.e. Connect South).				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This project forms part of the principal route along the Swan River that acts a key connection for the region.	10	10.0	25%	
Connectivity	Schools	This project provides a connection to Wesley College, St Columba's Catholic Primary School and South Perth Primary School.	6	6.4	25%	
	Tertiary	This project may increase cyclist connectivity, but connectivity to specific tertiary institutions will be limited.	2			
	Recreational and Tourism	This project is a major recreational route and provides direct access to a number of destinations including Perth Zoo and Mends Street.	10			
	Employment Zones	This project provides direct and convenient access to the Perth CBD and will assist commuters.	10			
	Public Transport	This project will have some benefit in terms of connecting to public transport, as it improves the connection to Mends Street Jetty and the corresponding ferry service.	4			
Economic	Mode Shift	It is very likely that this project could attract non-confident cyclists to visit Perth and the South Perth Foreshore.	10	6.0	5%	
	Impact on motor vehicles	No impact to vehicles is likely to occur due to this project.	0			
	Economic Impacts	This project is part of the South Perth Foreshore, and connects to Perth Zoo and the Mends Street commercial precinct.	8			
Safety	Cycling Safety	Providing appropriate facilities segregated from general traffic presents significant increases in safety for regular users.	10	10.0	15%	
	Pedestrian safety issues	The issues associated with conflict between pedestrians and cyclists will not increase because this project does not require the removal of the existing footpath on the north side.	10			
People and Communities	Level of Service	This project will reduce delay across the route, caused by vehicle interactions.	10	10.0	10%	
	Townscape/Urban Planning	This project aligns with planning to increase activity at the South Perth Foreshore.	10			
Financial	Possible funding source	CoSP Capital Works Programme / Department of Transport	Amount			
	Estimated Capital Cost	Estimated cost to install raised pavement crossings with path continued through intersections at three locations, as well as construction of on-road cycle lanes and new shared path along South Perth Esplanade.	\$1,500,000.00			

* The number of stakeholder comments is included in the quantitative analysis for assessing the proposed projects. Note that the comments relate to a range of issues and are used to provide an indication of the level of stakeholder interest for the location in question.

2 Canning Bridge to Curtin Link

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	A number of issues were raised for the route, primarily associated with the existing connection between Henley Street and Jackson Road.	6-15	4.0	20%	7.97
	Stakeholders	Curtin University raised the lack of cycle infrastructure connecting to Canning Bridge, and the need for this.				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This project forms a strategic route acting as a key east-west connection between Curtin University and Canning Bridge.	8	8.0	25%	
Connectivity	Schools	This project provides direct access to Como Secondary School and Curtin Primary School.	10	9.8	25%	
	Tertiary	This project provides direct access to Curtin University.	10			
	Recreational and Tourism	This project connects to a number of key destinations including Curtin University facilities and McDougall Park.	9			
	Employment Zones	This project will provide improved access for commuters accessing Curtin University and residents using Canning Bridge Station to access the Perth CBD.	10			
	Public Transport	This project provides direct access to Canning Bridge Station.	10			
Economic	Mode Shift	It is likely that this project could attract all cyclist groups to access Perth and key destinations within CoSP (i.e. Curtin University).	10	4.3	5%	
	Impact on motor vehicles	The project would decrease the posted speed and remove priority from vehicles between Ley Street and Henley Street, increasing journey times.	-1			
	Economic Impacts	This project will not provide direct access to any shopping centres, but will have some positive effects to Curtin University stores.	4			
Safety	Cycling Safety	Providing appropriate facilities segregated from general traffic presents significant increases in safety for regular users. Removing pinch points, increasing driver awareness and reducing traffic speeds will significantly improve cyclist safety along the safe active street/bicycle boulevard section.	10	10.0	15%	
	Pedestrian safety issues	Existing footpaths remain providing segregation from all other modes.	10			
People and Communities	Level of Service	This project will reduce delay across the route, caused by vehicle interactions.	10	10.0	10%	
	Townscape/Urban Planning	This project aligns with planning to increase activity at the Bentley-Curtin specialised activity centre.	10			
Financial	Possible funding source	CoSP Capital Works Programme / Department of Transport	Amount			
	Estimated Capital Cost	Estimated cost over three stages of works to install new bi-directional cycle paths and improved connections at Godwin Avenue/Henley Street and Kent Street intersections. The estimated cost for the Safe Active Street is based on recently completed projects.	\$1,800,000.00			

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3 Manning Road Project

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	There is a high demand for provisions of dedicated cycle infrastructure along this route. A high number of issues and safety concerns were raised along the route including high traffic speeds, high traffic volumes and lack of facilities for cyclists.	26-50	8.0	20%	7.83
	Stakeholders	The lack of on-road cycle infrastructure along the road was discussed, and the need for crossing into the campus.				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This project forms a strategic route acting as a key east-west connection through to Curtin University and neighbouring Councils.	8	8.0	25%	
Connectivity	Schools	This project provides part of the connection to Manning Primary and Curtin Primary schools and provides direct access to Clontarf Aboriginal College.	10	7.6	25%	
	Tertiary	This project provides direct access with Curtin University.	10			
	Recreational and Tourism	This project acts as an alternative recreational route to the Swan River Foreshore and provides direct access to George Burnett Park, Trinity Playing Fields and Curtin University facilities.	5			
	Employment Zones	This project will provide improved access for commuters accessing Curtin University and residents using Canning Bridge Station to access the Perth CBD.	8			
	Public Transport	This project provides a connection to Canning Bridge Station.	5			
Economic	Mode Shift	It is likely that this project could attract all cyclist groups to access Perth and key destinations within CoSP (i.e. Curtin University).	10	6.7	5%	
	Impact on motor vehicles	Because of the separation to vehicles, this will not effect general traffic.	0			
	Economic Impacts	This project provides direct access to Waterford Plaza shopping centre.	10			
Safety	Cycling Safety	Providing appropriate facilities segregated from general traffic presents significant increases in safety for regular users.	10	8.0	15%	
	Pedestrian safety issues	Shared paths provide a higher probability of conflict between pedestrians and cyclists compared to other facilities.	6			
People and Communities	Level of Service	This project will improve comfort (smoother surface) and reduce delay at cross roads because of improved crossing facilities.	8	8.0	10%	
	Townscape/Urban Planning	This project aligns with planning to increase activity at the Bentley-Curtin specialised activity centre.	8			
Financial	Possible funding source	CoSP Capital Works Programme / Department of Transport / Lotterywest	Amount			
	Estimated Capital Cost	Estimated cost to install new shared path along section and upgrade remaining path. Improvements at intersection including advanced cycle stop boxes and crossing facilities is also included.	\$600,000.00			

* The number of stakeholder comments is included in the quantitative analysis for assessing the proposed projects. Note that the comments relate to a range of issues and are used to provide an indication of the level of stakeholder interest for the location in question.

4 Douglas Avenue Project

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	A number of issues were raised for crossing at Canning Highway and Mill Point Road, and the lack of cycle facilities along Douglas Avenue between these intersections.	26-50	8.0	20%	7.47
	Stakeholders	Crossing at Canning Highway and Mill Point Road was raised by stakeholders as a significant inconvenience for cyclists.				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This project forms a strategic route acting as a key north-south connection through to Curtin University and the South Perth Foreshore.	8	8.0	25%	
Connectivity	Schools	This project provides a connection to Wesley College and Kensington Secondary School.	6	7.2	25%	
	Tertiary	This project provides direct connection with Curtin University.	10			
	Recreational and Tourism	This project connects to a number of key destinations within CoSP including Curtin University facilities and the South Perth Foreshore.	8			
	Employment Zones	This project provides improved connection for non-confident commuters to Curtin University and the Perth CBD.	8			
	Public Transport	This project does not provide access to the rail lines, however it does connect to the South Perth Ferry and various bus stops.	4			
Economic	Mode Shift	It is likely that this project could attract non-confident cyclists to Curtin University, South Perth Foreshore and the Perth CBD.	8	3.3	5%	
	Impact on motor vehicles	The project would decrease the posted speed and remove priority from vehicles increasing journey times on Douglas Avenue between South Perth Foreshore and Mill Point Road, and along Lawler Street.	-2			
	Economic Impacts	This project will not provide direct access to any shopping centres, but may have some positive effects to Curtin University stores and the Mends Street commercial precinct	4			
Safety	Cycling Safety	Providing appropriate facilities segregated from general traffic presents significant increases in safety for regular users. Removing pinch points, increasing driver awareness and reducing traffic speeds will significantly improve cyclist safety along the safe active street/bicycle boulevard sections.	8	8.0	15%	
	Pedestrian safety issues	Shared paths provide a higher probability of conflict between pedestrians and cyclists compared to other facilities. For the majority of the project, existing footpaths remain providing segregation from all other modes.	8			
People and Communities	Level of Service	This project will reduce delay across the route, caused by vehicle interactions.	8	7.0	10%	
	Townscape/Urban Planning	This project aligns with planning to increase activity at the South Perth Foreshore and the Bentley-Curtin specialised activity centre.	6			
Financial	Possible funding source	CoSP Capital Works Programme / Department of Transport	Amount			
	Estimated Capital Cost	Estimated cost over four stages of works to install new protected cycle lanes and bi-directional path and an upgraded shared path. Improvements at major intersection including advanced cycle stop boxes and crossing facilities are also included. The estimated cost for the Safe Active Street is based on recently completed projects.	\$1,500,000.00			

* The number of stakeholder comments is included in the quantitative analysis for assessing the proposed projects. Note that the comments relate to a range of issues and are used to provide an indication of the level of stakeholder interest for the location in question.

5 Thelma Street Investigation

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	A number of issues were raised, particularly in the vicinity of Penrhos College and to the east, concerned with conflicts with general traffic.	6-15	4.0	20%	6.80
	Stakeholders	Concerns associated with the existing cyclist connection adjacent to Penrhos College were raised.				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This project forms a strategic route acting as a key east-west connection through to Kwinana Freeway and ToVP.	8	8.0	25%	
Connectivity	Schools	This project provides direct access to Penrhos College and Como Primary School.	10	7.2	25%	
	Tertiary	This project provides connection with Curtin University.	10			
	Recreational and Tourism	This project will improve connectivity to Curtin University facilities, and the Kwinana Freeway PSP.	4			
	Employment Zones	This project will provide improved access for commuters accessing Curtin University and using Kwinana Freeway PSP to access the Perth CBD.	8			
	Public Transport	This project does not provide access to the rail lines, however it does connect to various bus stops.	4			
Economic	Mode Shift	It is likely that this project could attract non-confident cyclists to Curtin University and the Perth CBD.	8	4.0	5%	
	Impact on motor vehicles	The project could potentially decrease the posted speed and remove priority from vehicles, increasing journey times.	-2			
	Economic Impacts	This project will not provide direct access to any shopping centres, but will have some positive effects to Curtin University stores.	6			
Safety	Cycling Safety	Providing appropriate facilities segregated from general traffic presents significant increases in safety for regular users.	10	8.0	15%	
	Pedestrian safety issues	Updating the path adjacent to Wesley Playing Fields to a shared path results in a higher probability of conflict between pedestrians and cyclists compared to other facilities.	6			
People and Communities	Level of Service	This project will reduce delay across the route, caused by vehicle interactions.	8	8.0	10%	
	Townscape/Urban Planning	This project aligns with planning to increase activity at the Bentley-Curtin specialised activity centre.	8			
Financial	Possible funding source	CoSP Capital Works Programme / Department of Transport	Amount			
	Estimated Capital Cost	Estimated cost includes an investigation into an improved cycle infrastructure arrangement for east-west cyclists at Penrhos College.	\$30,000.00			

* The number of stakeholder comments is included in the quantitative analysis for assessing the proposed projects. Note that the comments relate to a range of issues and are used to provide an indication of the level of stakeholder interest for the location in question.

6 Kent Street Project

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	A number of issues were raised at the Hayman Road intersection, and the facilities north of this.	6-15	4.0	20%	6.74
	Stakeholders	Existing issues associated with high traffic speeds and access points into Curtin University were raised.				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This project forms a strategic route acting as a key north-south connection between CoSP and ToVP and to Curtin University.	8	8.0	25%	
Connectivity	Schools	Although in ToVP, connection is provided to Kent Street Senior High School.	8	7.4	25%	
	Tertiary	This project provides direct access to Curtin University.	10			
	Recreational and Tourism	This project connects to a number of key destinations in the area including Curtin University facilities, and the Albany Highway commercial precinct.	6			
	Employment Zones	This project provides improved connections to Curtin University and the Albany Highway commercial precinct.	8			
	Public Transport	This project will have some benefit in terms of connecting to public transport, as it improves the connection to the Rutland Avenue PSP and Victoria Park Station (ToVP).	5			
Economic	Mode Shift	It is likely that this project could attract both non-confident and confident cyclists to Curtin University, and to attractors in ToVP (i.e. Albany Highway commercial precinct).	8	5.3	5%	
	Impact on motor vehicles	Reduction of the speed limit between Manning Road and Jarrah Road and advanced cyclist stop boxes at signalised intersections will increase journey times for general traffic. A reduction in lane width and traffic calming measures may also reduce the level of service of motor vehicles.	-2			
	Economic Impacts	This project provides direct access to Waterford Plaza shopping centre and the Albany Highway commercial precinct.	10			
Safety	Cycling Safety	Providing appropriate off-road facilities segregated from general traffic presents significant increases in safety for regular users. Off-road bypasses for on-road facilities and painted buffer zones will significantly increase safety for on-road cyclists.	10	7.5	15%	
	Pedestrian safety issues	Shared paths provide a higher probability of conflict between pedestrians and cyclists compared to other facilities.	5			
People and Communities	Level of Service	This project will improve comfort (smoother surface) and reduce delays at busy sections.	8	7.0	10%	
	Townscape/Urban Planning	This project aligns with planning to increase activity at the Bentley-Curtin specialised activity centre.	6			
Financial	Possible funding source	CoSP Capital Works Programme / Department of Transport / Curtin University	Amount			
	Estimated Capital Cost	Estimated cost includes to install off-road bypass paths, amended median crossings and new protected on-road cycle lane.	\$400,000.00			

* The number of stakeholder comments is included in the quantitative analysis for assessing the proposed projects. Note that the comments relate to a range of issues and are used to provide an indication of the level of stakeholder interest for the location in question.

7 Coode Street Project

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	A number of issues were raised along the road, particularly concerned with gaps in bike lanes and conflicts with general traffic.	6-15	4.0	20%	6.65
	Stakeholders	Coode Street was identified as an important cycling route within the CoSP.				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This project forms a strategic route acting as a key north-south connection between South Perth Foreshore and Thelma Street.	8	8.0	25%	
Connectivity	Schools	This project provides direct access to Wesley College and Como Primary School.	10	6.0	25%	
	Tertiary	This project may increase cyclist connectivity, but connectivity to specific tertiary institutions will be limited.	4			
	Recreational and Tourism	This project connects to a number of key destinations within CoSP including Angelo Street and Preston Street commercial precincts and the South Perth Foreshore.	6			
	Employment Zones	This project provides improved access for commuters accessing the Perth CBD.	6			
	Public Transport	This project does not provide access to the rail lines, however it does connect to various bus stops and South Perth Ferry.	4			
Economic	Mode Shift	There is some potential that this project could attract cyclists to access Angelo Street and Preston Street commercial precincts and the South Perth Foreshore.	6	4.0	5%	
	Impact on motor vehicles	This project may involve a reduction in lane width and traffic calming measures that may reduce the level of service of motor vehicles.	-2			
	Economic Impacts	This project provides a connection to the Preston Street commercial precinct and direct access to the Angelo Street commercial precinct.	8			
Safety	Cycling Safety	Off-road bypasses for on-road facilities and painted buffers will significantly increase safety for on-road cyclists.	10	9.0	15%	
	Pedestrian safety issues	Existing footpaths remain providing segregation from all other modes.	8			
People and Communities	Level of Service	This project will improve comfort (smoother surface) and reduce delay at intersections.	8	8.0	10%	
	Townscape/Urban Planning	This project aligns with planning to increase activity at the South Perth Foreshore.	8			
Financial	Possible funding source	CoSP Capital Works Programme / Department of Transport	Amount			
	Estimated Capital Cost	Estimated cost includes the installation of new protected on-road cycle lanes plus off-road bypass paths at two intersections and advanced cycle stop boxes at one intersection.	\$500,000.00			

* The number of stakeholder comments is included in the quantitative analysis for assessing the proposed projects. Note that the comments relate to a range of issues and are used to provide an indication of the level of stakeholder interest for the location in question.

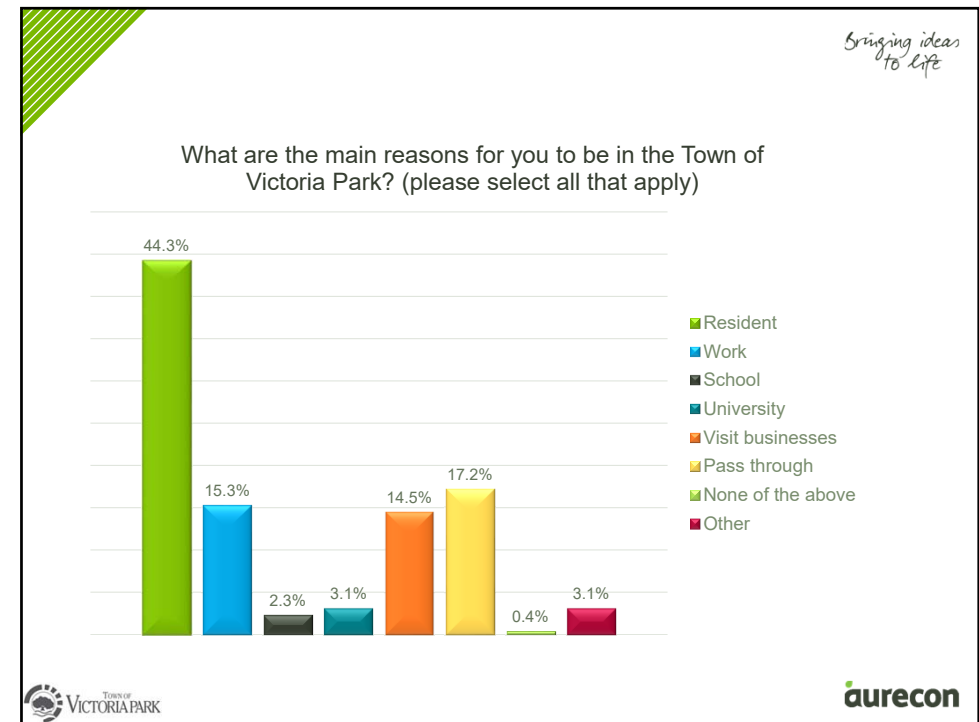
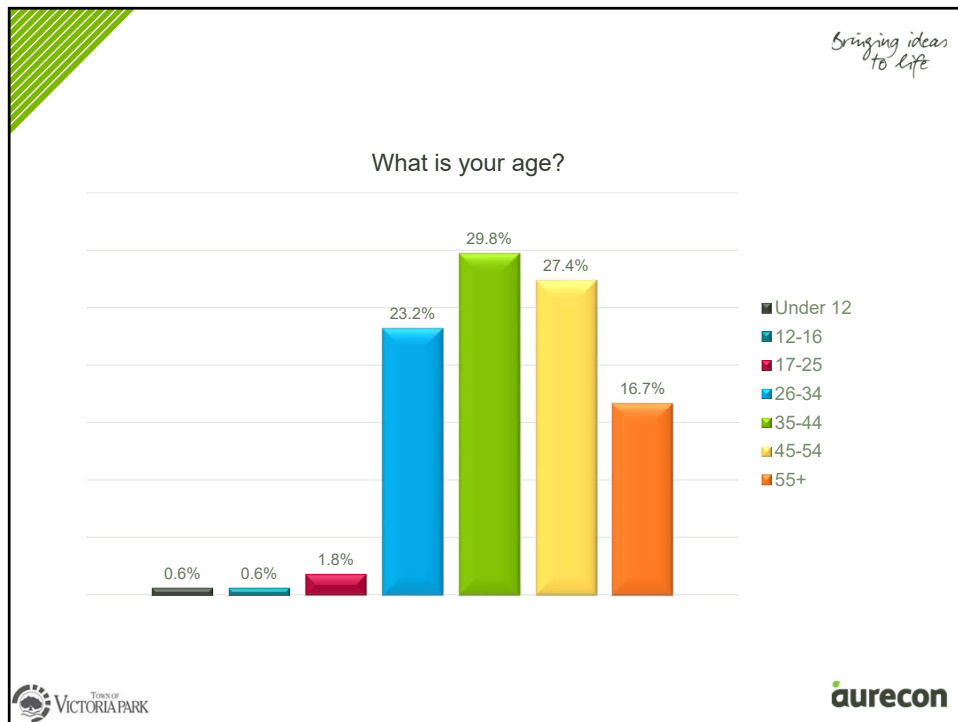
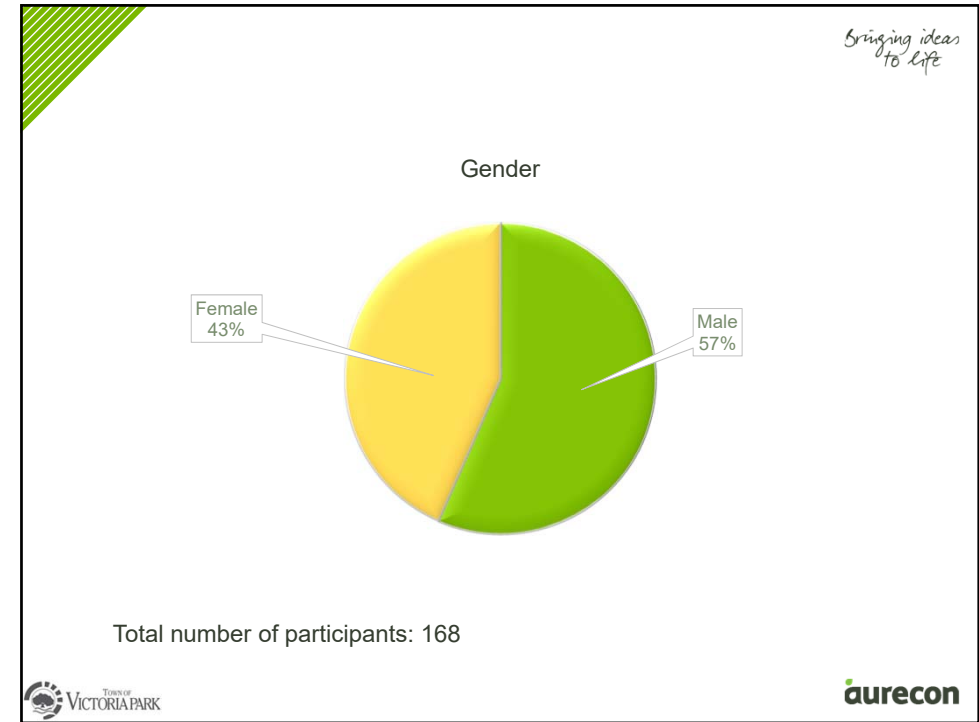


TOWN OF
VICTORIA PARK

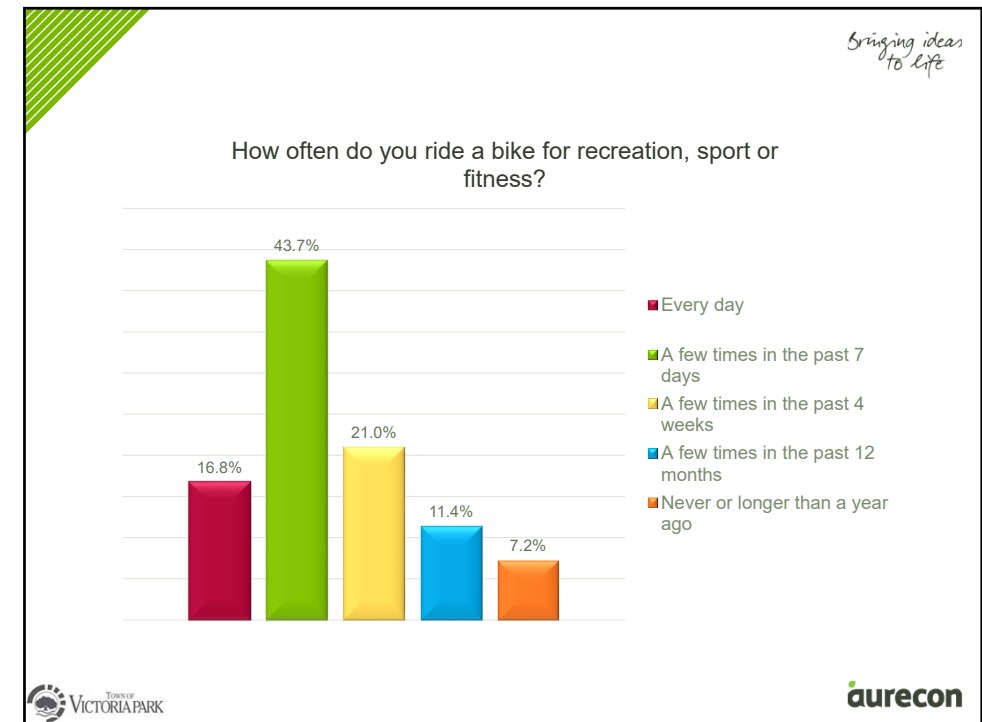
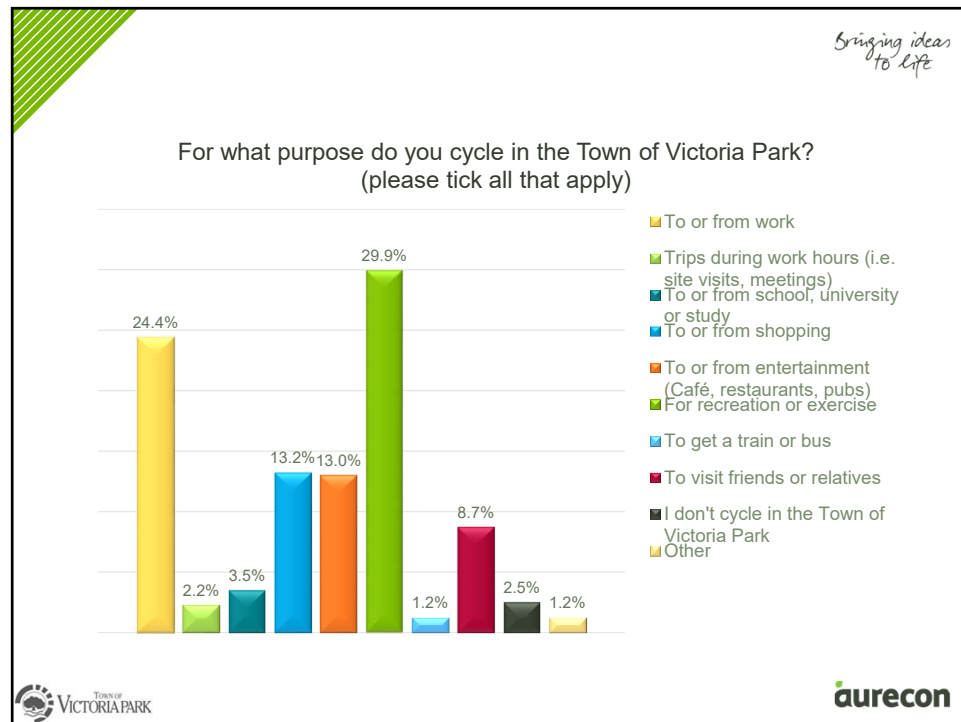
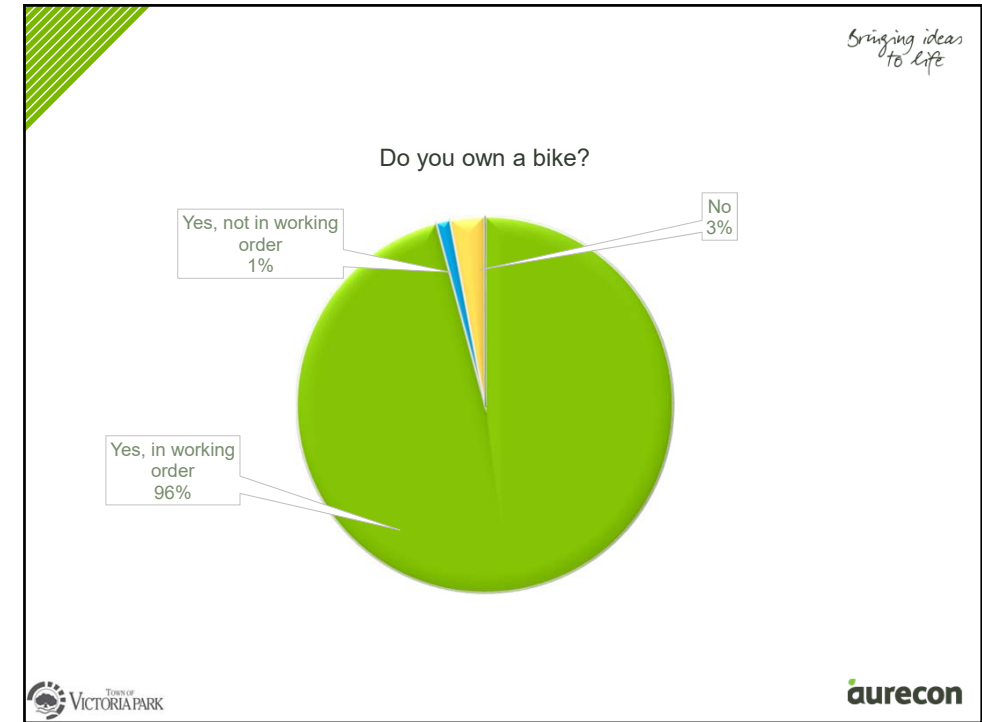
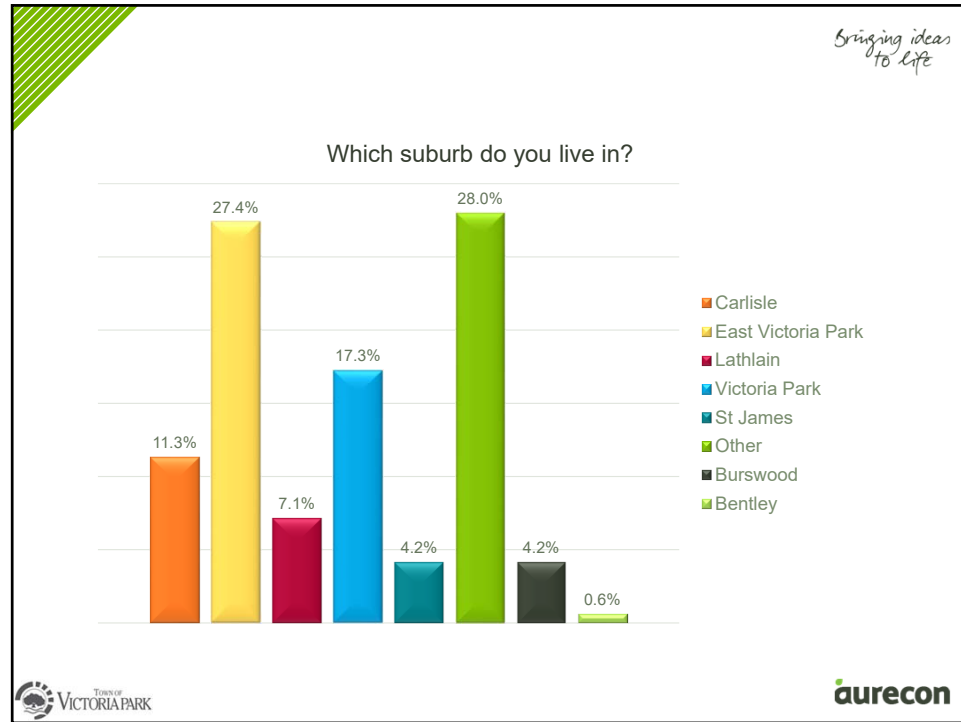
Appendix D – Community Consultation Summary (ToVP)



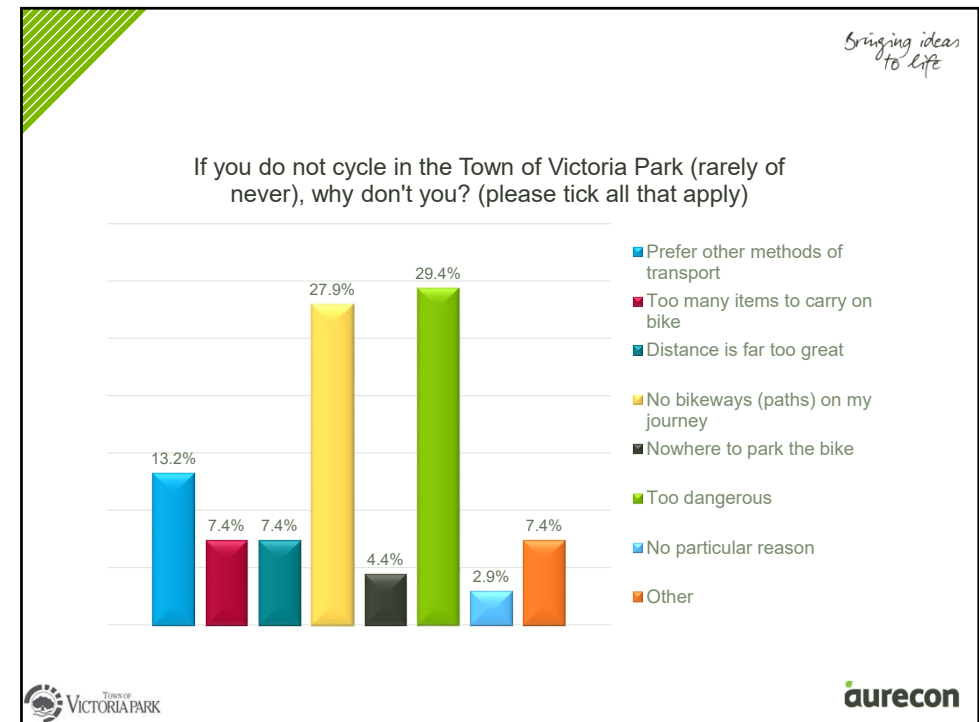
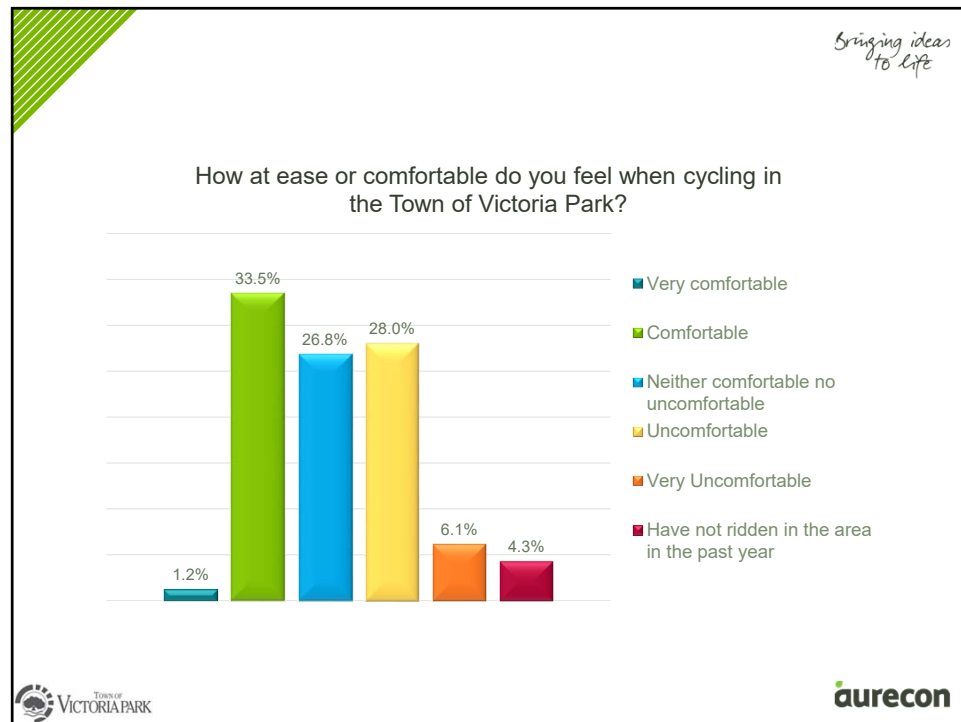
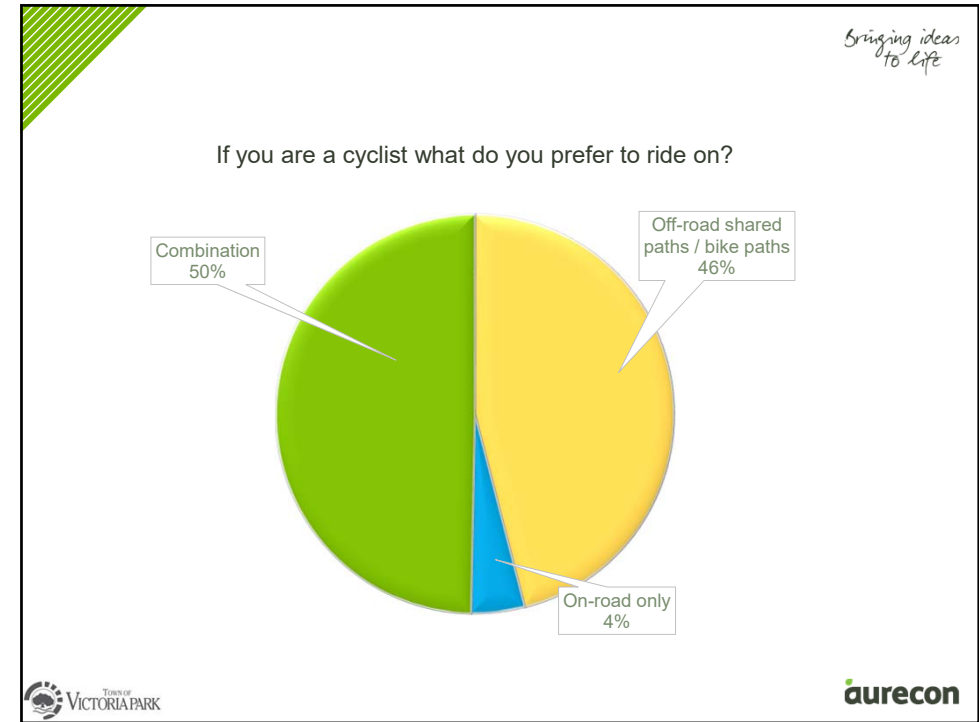
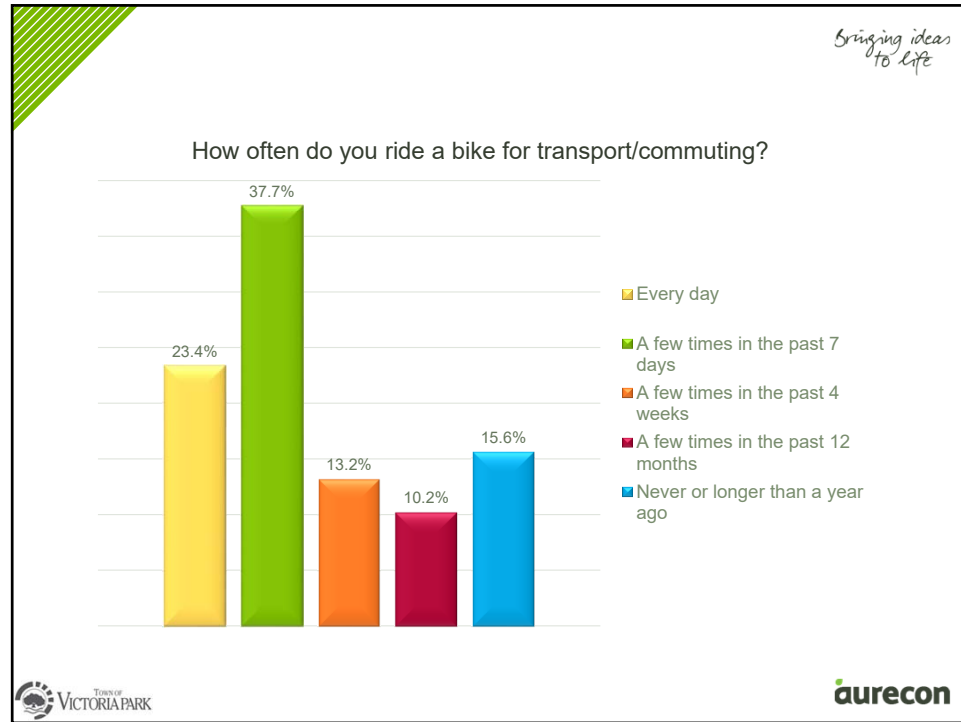
Appendix D
Community Survey – ToVP Summary



Appendix D
Community Survey – ToVP Summary

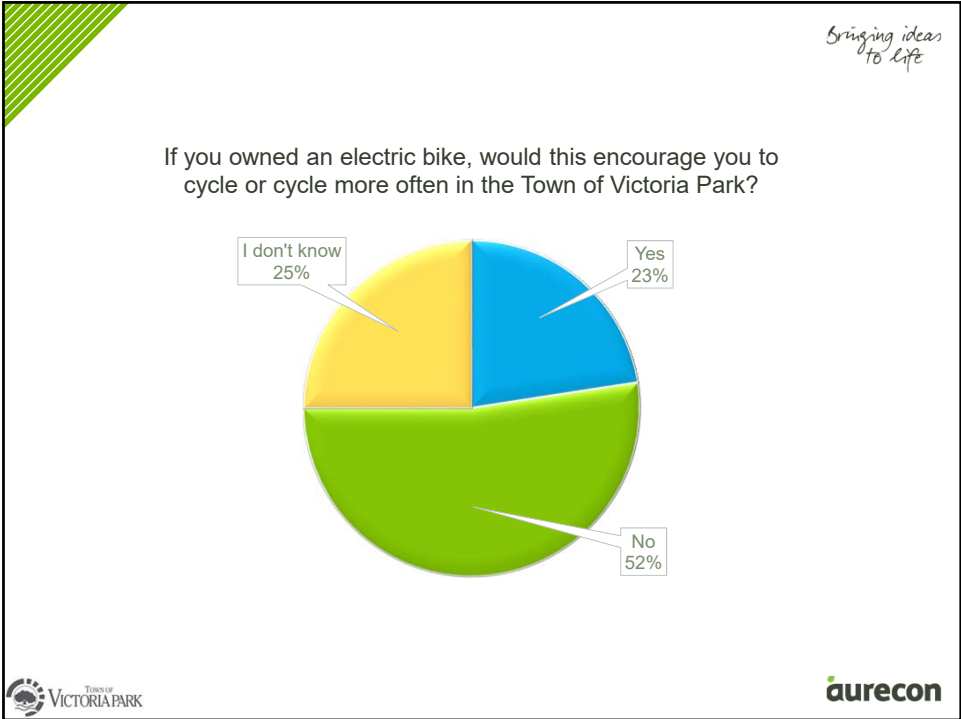
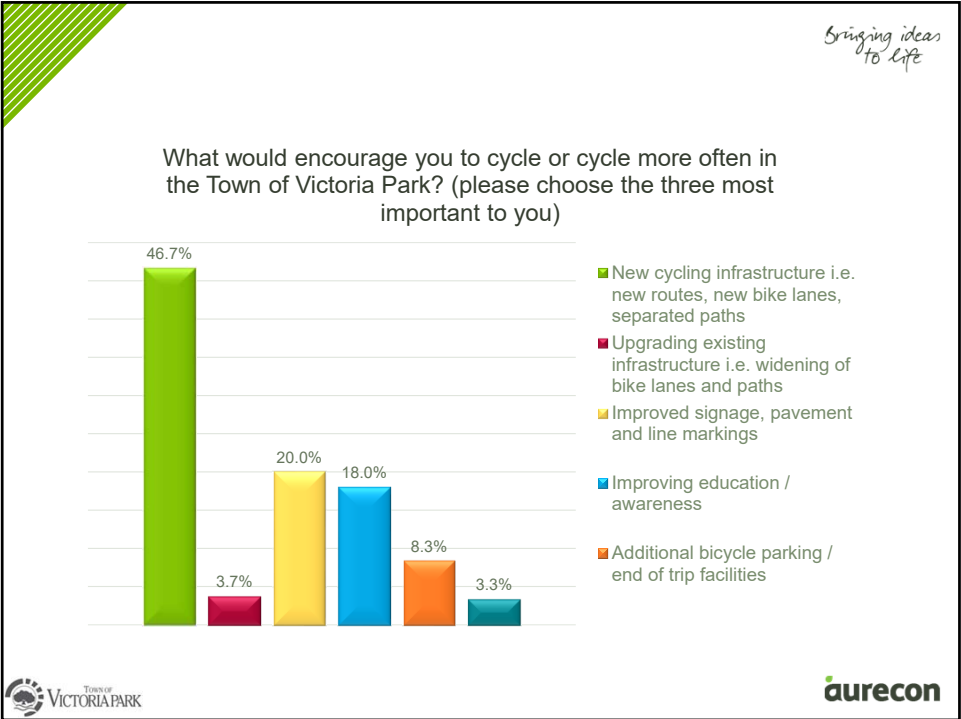


Appendix D
Community Survey – ToVP Summary



Appendix D

Community Survey – ToVP Summary





Bringing ideas to life **Project Overview**

The Safe Cycling Project aims to understand the needs of the cycling community and seek to further develop the existing cycling infrastructure.

Aurecon have been commissioned as the transport engineering consultant to undertake the Joint Bike Plan for the City of South Perth and Town of Victoria Park as part of the Safe Cycling Project. The Joint Bike Plan is part funded through the WA Bicycle Network Grants Program, which is administered by the Department of Transport. This is the first time two local governments have worked together to deliver a bike plan in Western Australia, providing an excellent opportunity to provide a consistent outcome and benefits for the local cycling community. The Joint Bike Plan will set out the long term vision for the strategic cycling network over the CoSP and ToVP area, and five-year action plans for specific improvements to the cycle network and environment for each local government to take forward.

Cycling map
 View our web browser map and click on more pins to see more pins in the City of South Perth.

The City of South Perth and the Town of Victoria Park are working on a joint Bike Plan which we hope will encourage more people to ride bicycles in our area.

View our map and click on more pins to see more pins in the City of South Perth.

Map Legend:
 Bike Issue
 Employing here
 Bike Issue

City of South Perth
TOWN OF VICTORIA PARK

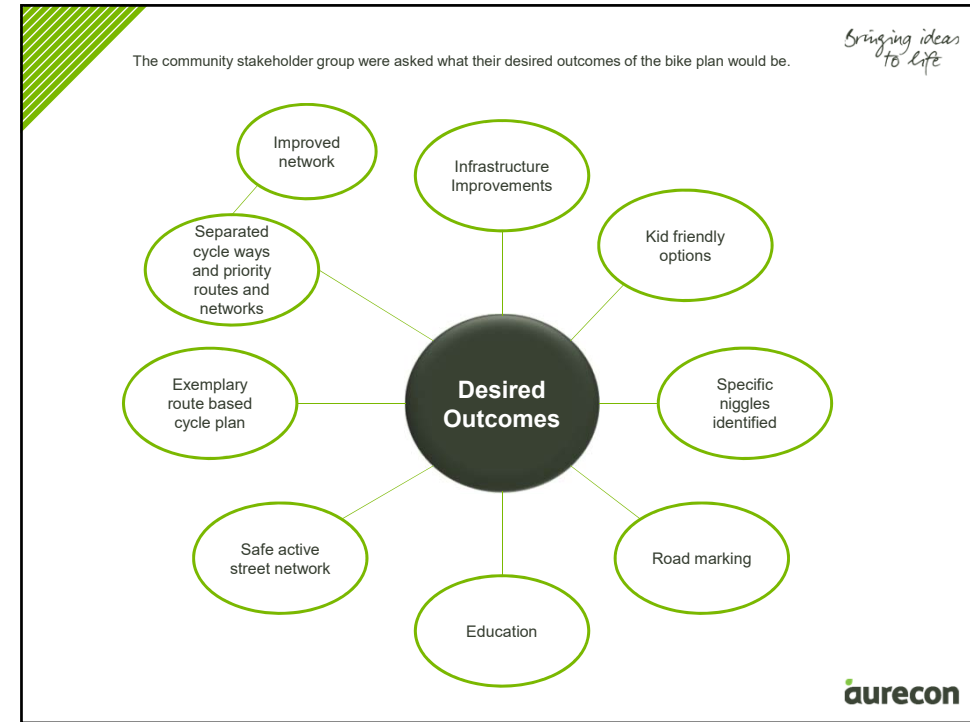
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Bringing ideas to life **Project Overview**

Proposed Timeline for the Project

Stakeholder Engagement	Research and Investigation	Development of Network Plan	Draft Bike Plan	Endorsement by Council
May-June 2017	June-July 2017	August-September 2017	October 2017	by May 2018

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Types of Riders

Bringing ideas to life

Four Types of Cyclists By Proportion of Population

There are considered to be four types of attitudes towards cycling.

Strong & Fearless	Interested But Concerned	No Way No How
<1%	60%	33%
Enthusied & Confident		
7%		

Source - Portland, OR DOT

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Cycling Infrastructure

Bringing ideas to life



On-Road Bicycle Lane



Bicycle Boulevard

Examples of on-road infrastructure include signed on-road bicycle lanes or marked sealed shoulders, and bicycle boulevards which involve transforming low traffic local roads into slow-speed safe active streets for walking and cycling.



Cycling Infrastructure

Bringing ideas to life



Shared Path

Examples of off-road cycling infrastructure include shared paths for cyclists and pedestrians, and separated cycle paths for cyclists only.



Separated Bicycle Path

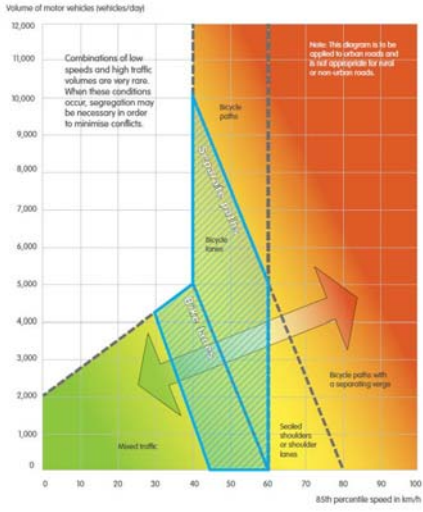


Cycling Infrastructure


Bringing ideas to life

Different types of infrastructure are often preferred for different types of riders, as indicated on the figure on the left. The right figure identifies traffic volume and speed thresholds in relation to the type of infrastructure that should be installed.

	On-Road Bicycle Lanes	Off-Road Paths
Training	✓	✗
Commuting	✗	✓
Local trips (i.e. shops, friends)	✗	✓
Recreation	✗	✓
School	✗	✓



Source: adapted from Cycling Aspect of Austroads Guidelines by Bicycle Network Australia



End of Trip Facilities

Bringing ideas to life

Examples of bicycle parking, including public racks or enclosed storage sheds, like at train stations.



Bicycle Racks



Secure Bicycle Storage



End of Trip Facilities

Bringing ideas to life

Examples of lockers, showers and changing rooms, often located within private facilities such as workplaces.

Lockers

Shower Facilities

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Behaviour Change

Department of Transport **your move** more ways to get there

An important aspect of the bike plan is to investigate soft solutions, which maximise the effectiveness of the harder infrastructure solutions. The DoT runs a very successful behaviour change program called Your Move which helps people find alternative, active ways to get to and from work, school and around their local community. The program has targeted specific local government areas, for example Cockburn, by helping people achieve their active transport goals through providing tailored information and resources as well as personalised coaching and feedback on progress.

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Previous Survey Data

Bringing ideas to life

The following survey data specific to the Town of Victoria Park. The graph demonstrates the age profile for Town of Victoria Park residents in comparison to the greater Perth area. Note that this is taken from census data from 2011, with newer 2016 data expected to be released later this year.

Age Group	Town of Victoria Park (%)	Greater Perth (%)
0 to 4	5.5	6.5
5 to 11	5.5	8.5
12 to 17	4.5	8.0
18 to 24	13.5	10.0
25 to 34	22.5	14.5
35 to 49	21.0	21.5
50 to 59	10.5	12.5
60 to 69	7.0	9.0
70 to 84	7.0	7.0
85 and over	3.5	1.5

*Sourced from 2011 Census data

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Previous Survey Data

Bringing ideas to life

The below graph demonstrates how the Town of Victoria Park residents get to work, with car being the dominant mode choice, as with most of Perth. The graphs shows that 2.2% of residents cycle to work.

Method of travel to work, 2011

Total employed persons

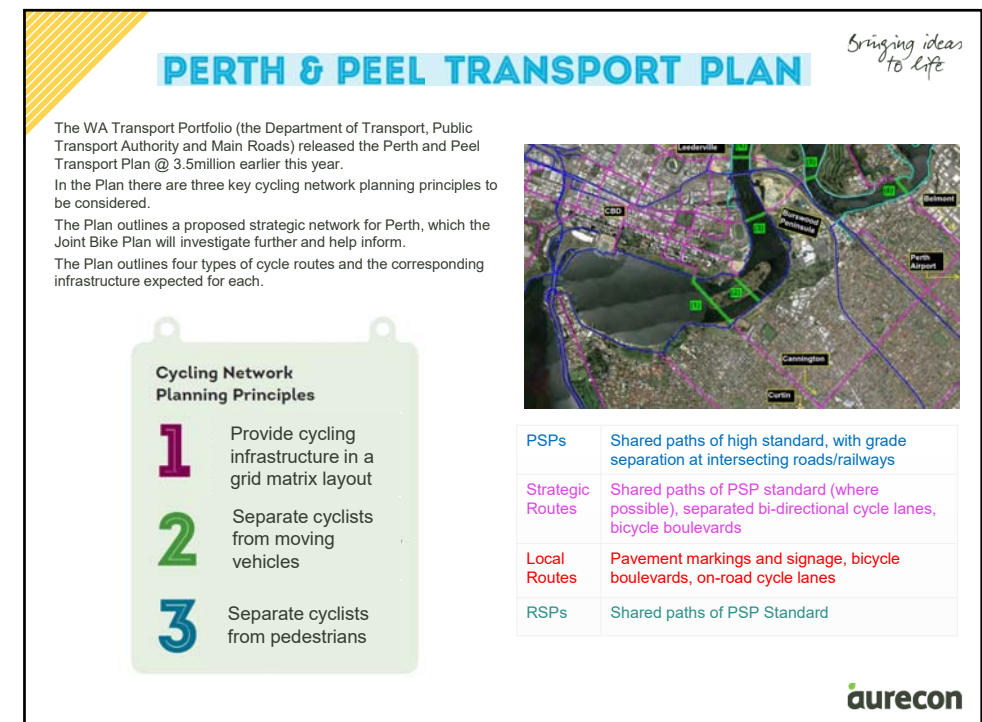
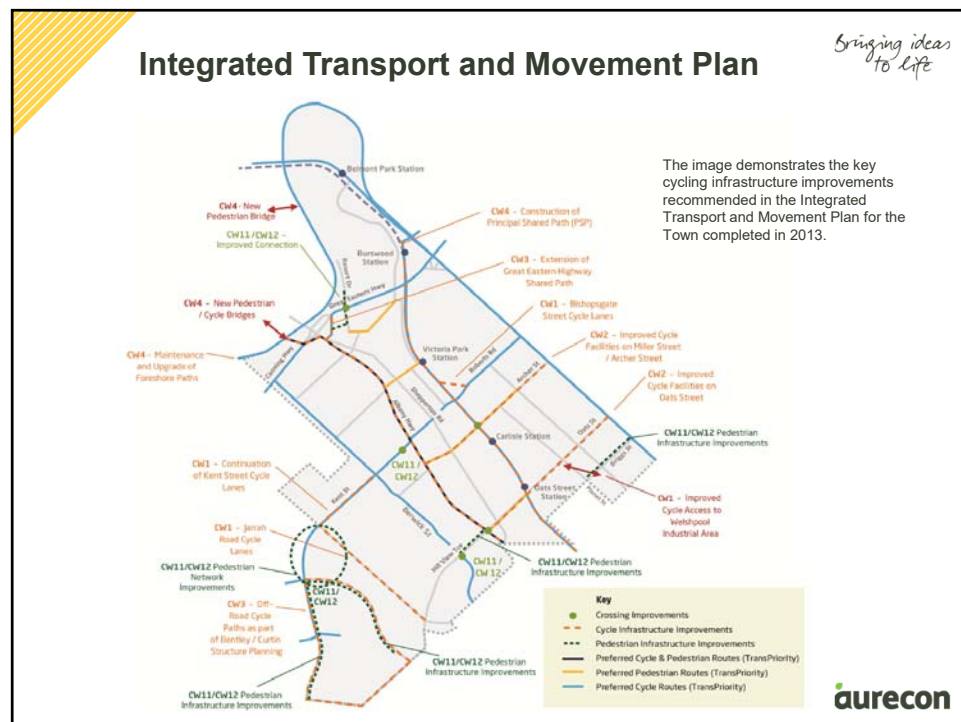
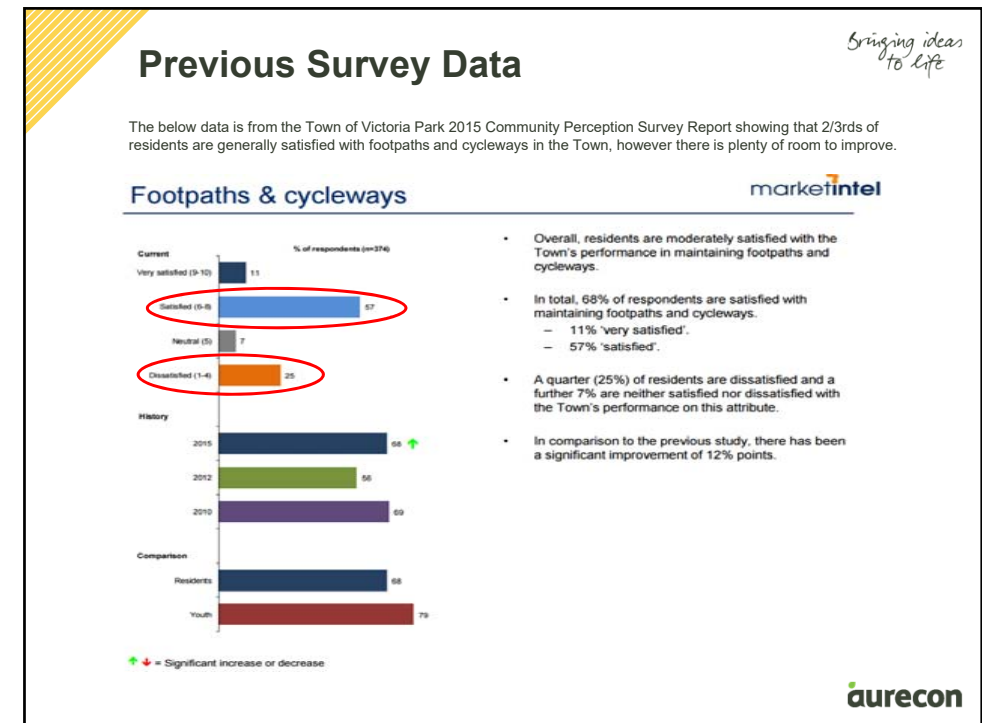
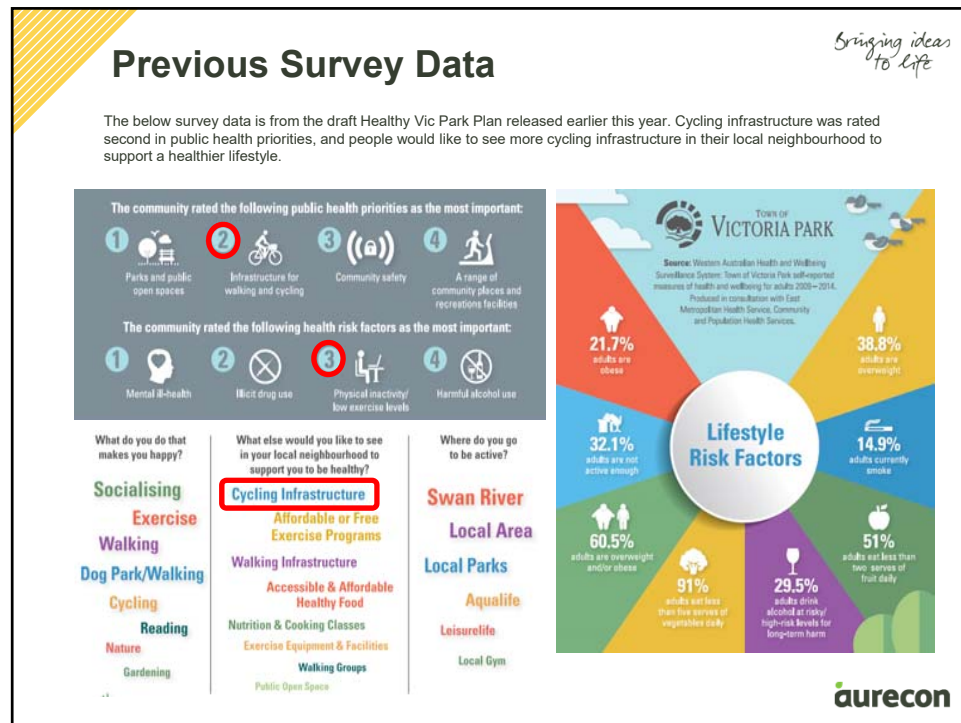
Method used	Town of Victoria Park (%)	Greater Perth (%)
Train	6.9%	6.7%
Bus	3.7%	11.5%
Tram or Ferry	-	-
Taxi	-	-
Car - as driver	54.6%	62.2%
Car - as passenger	-	-
Truck	-	-
Motorbike	2.2%	-
Bicycle	1.1%	-
Walked only	-	-
Other	-	-
Worked at home	-	-
Did not go to work	-	-
Not stated	-	-

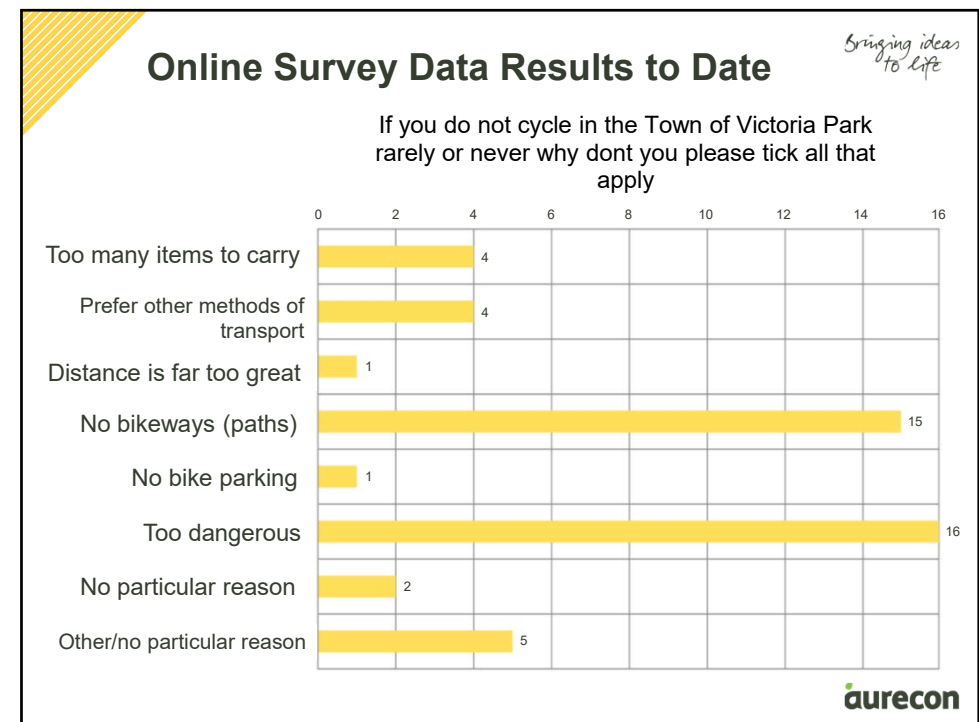
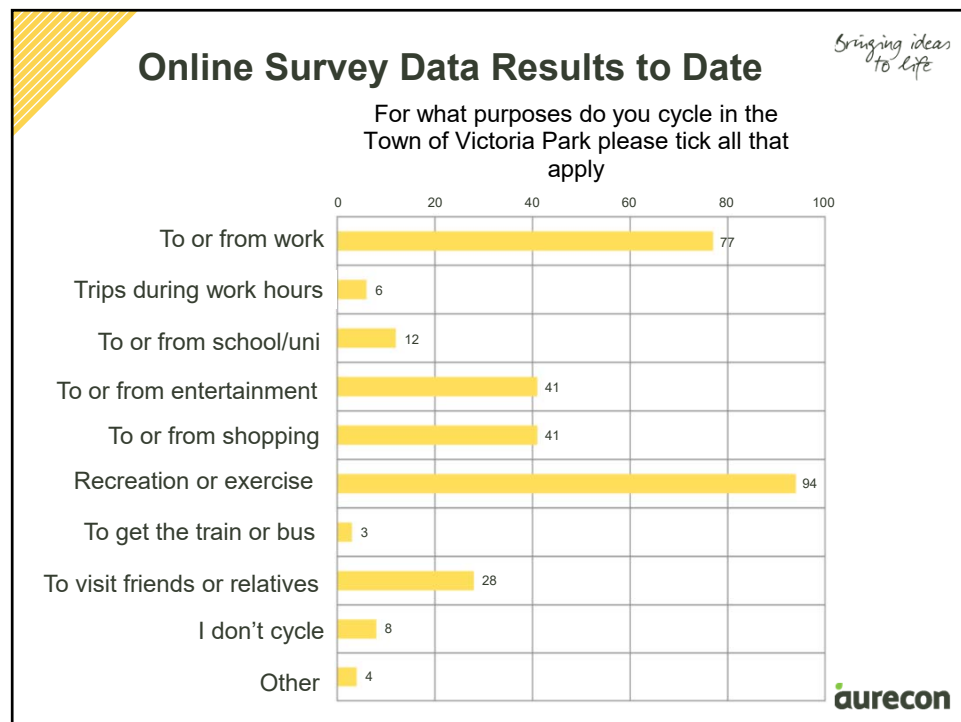
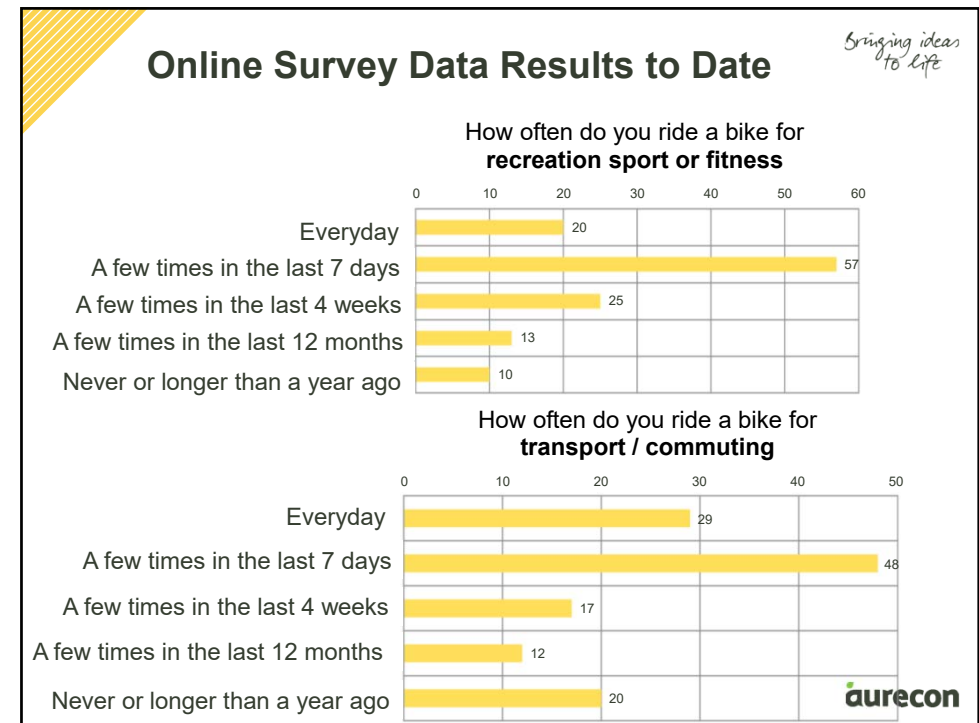
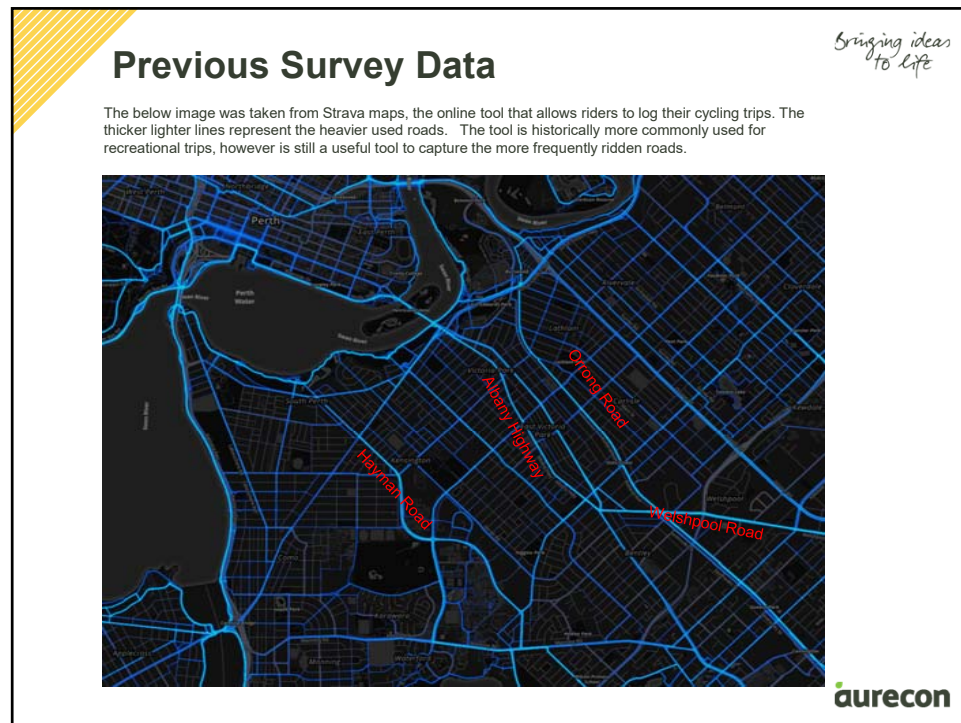
Source: Australian Bureau of Statistics, Census of Population and Housing, 2011 (Enumerated data)
Compiled and presented in profile.id by .id, the population experts.

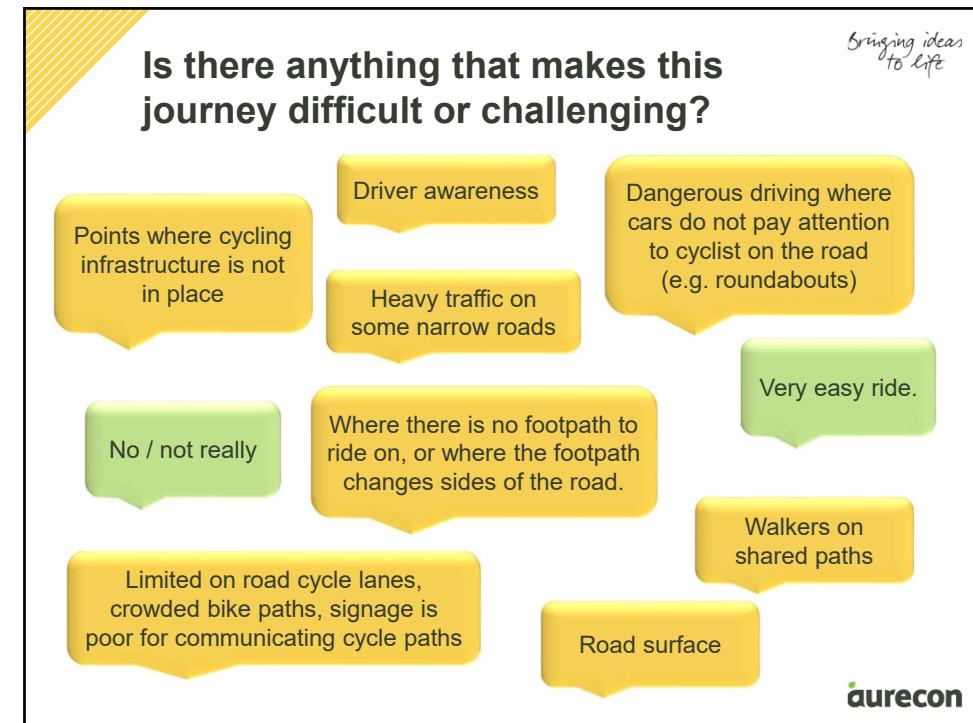
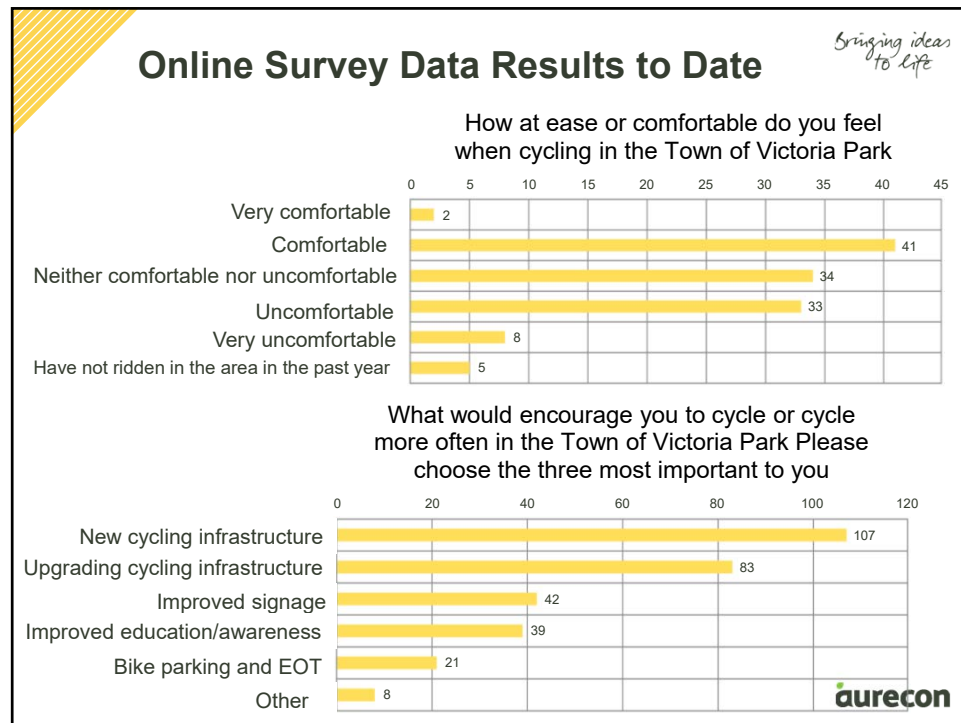
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Appendix D

Community Design Jam – ToVP Summary







- ### Infrastructure and Connectivity
- Bringing ideas to life*
- Albany Highway is too narrow, too many cars and not enough consistent bike lanes;
 - Roundabout disappearing;
 - Cycle lanes;
 - Hillview Terrace / Oats Street between Albany Highway and Shepperton Road has no cycle lanes and is too busy;
 - Bishops Gate is the centre diamond traffic calming measure which pushes the cycle way out;
 - The only place to cycle on Canning Highway is on the footpath;
 - Berwick Street cycle lane is too narrow, cars are going too fast and its too scary;
 - Crossing median strips on Shepperton Road is difficult as its too narrow for bikes;
 - Crossing roads when riding along the train line is risky;
 - Non bike friendly detours around construction works;
 - Rubbish in bike lanes / on the road edge;
 - Lack of thought at road works;
 - Bad bike surfaces;
 - Causeway paving is bumpy;
 - Bad drainage at Windan Bridge;
 - Lack of street lighting;
 - The Causeway – need I say more?;
 - More interconnected cycle paths;
 - Several major busy roads to cross;
 - Path over Causeway is unsafe – need to be replaced or duplicated;
 - Poor line marking;
 - Bike lanes are dangerous;
 - Roundabouts are dangerous due to the need to merge with drivers
 - Lack of ability to cross some roads on lights;
 - Consistency of bike lane marking eg colour of bitumen, no colour and markings;
 - Acute angle bends along great Eastern highway;
 - Dog signs on cycle path;
 - Limited bike path along Albany highway;
 - Great Eastern Highway footbridge and Burswood bike path;
 - Cars parked in bike lanes;
 - Orrong Road is too difficult to cross
 - Bus stop blocking sidewalk / cycle path;
 - Interface for cycling / bus at Albany Highway interchange;
 - Inability to cycle from one side of Vic Park / South Perth without going on the road;
 - Sunbury Road has a pinch point close to Roberts Road roundabout;
 - Join paths in 'picnic' areas are dangerous;
 - Standard approach at roundabouts versus slip lanes on Bishops Gate;
 - Tricky intersections;
 - Signage on bike paths can be unclear;
 - Separation from pedestrians in high traffic areas;
 - Bike path across the Causeway has poor uneven surface;
 - No dedicated bike paths along train lines;
 - Safer routes to schools;
 - Speed in suburbs is too high;
 - Tree roots breaking up bike pavement;
 - Improved connections to river and foreshore;
 - Rutland PSP is needed;
 - Lack of connection with public transport;
 - Lack of connection with Access Aqua Life across Shepperton road and to Curtin Uni.
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Bringing ideas to life

Council / Policy

- Lack of ease of finding where to lodge issues about infrastructure on website;
- Council website is shocking;
- No cyclist data or information on the website;
- 4 way stops at junctions on cycle routes are an issue;
- Belmont Council Linkage is needed;
- Engagement back to the community on the draft plan is required;
- We need a prioritised list of initiatives for public to comment on what they feel is most important;
- Innovative / cost effective solutions are what we are looking for;
- Need quick wins that the council can proceed without major funding;
- One clear rule – need now;
- Enforcement of parking and driving laws needs to be invested in;
- Looking / choosing expensive solutions is a barrier;
- Not right priorities on how to spend the money;
- No courage / leadership to implement changes;
- Knowledge of experienced staff that design infrastructure needs to be made use of;
- Not a priority for council;
- Lots of plans but no action;
- Helmet legislation is an issue;
- No follow up on enforcement by police to dangerous drivers; and
- Learn from Belmont, Bayswater and Vincent.

Maintenance

- Glass on footpaths is common;
- Potholes are common;
- Kerbside collection rubbish often left on path;
- Bushes grow into bike path;
- Rubbish on edge of roadway; and
- Sweeping of debris and broken glass is needed.

End of Trip Facilities

- Lack of bike racks at train stations, shopping centres, libraries and retail centres;
- Lack of bike racks on Albany Highway near shops;
- Bike parking / security at destinations needs to be improved;
- End of trip facilities at events are needed to encourage people;
- Not enough bike racks or storage near shops/cafes;
- Not enough parking along Albany Highway restaurants;
- No safe ways to get to Albany Highway; and
- Limited cycle parking near cafes and shops.

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Bringing ideas to life

Education / Attitude

- Lack of knowledge of road rules;
- No signs to tell pedestrians to keep left;
- BELL BELL BELL BELL;
- Drivers need to follow road rules;
- Cyclist education;
- Rider education;
- Walkers with no lights on bike paths;
- Cars assume right of way;
- Us versus them mentality;
- No or lack of empathy;
- Riding on footpaths, car reversing out past high fences;
- Pedestrian education that bikes can use footpaths;
- Communication between road / path users;
- Lack of understanding among users;
- Each feel entitled to own space;
- Car owner attitude – right to the road;
- Pedestrian / cycle conflict;
- Pedestrian education – to not walking 3 abreast;
- Dogs cutting off cyclists;
- Better cyclist visibility;
- Tour de France riders – very fast;
- Riding on the footpath – explanation / education;
- Various skills of riders;
- Pedestrians wearing headphones;
- Roundabout etiquette;
- Drivers don't provide enough room for cyclists; and
- Walkers or runners have poor cyclist awareness.

Incentives

- Encouragement / incentives for more 'active' cyclists are needed;
- Cycle incentives for bicycle pathways of businesses do not exist;
- Encouragement of local social cycling amongst groups needs work; and
- Engagement with schools to encourage cycling / walking to school is a great potential.


Recreation

- Lack of child friendly facilities;
- Recreational cycling things are needed; and
- Lack of public cycling events.

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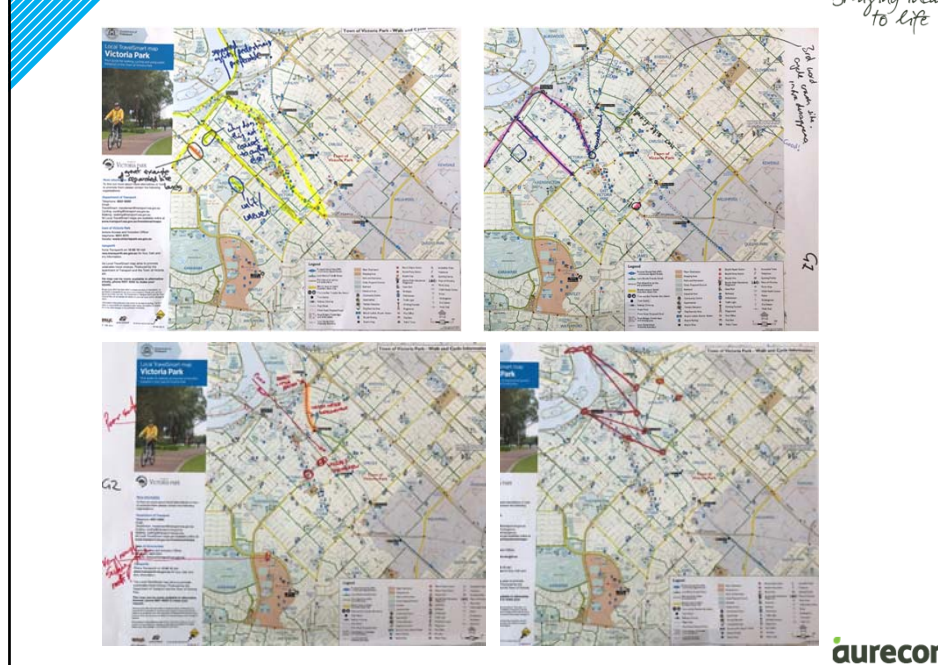
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Key Issues and Opportunities Identified



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Key Issues

We asked that one person from each group briefly present back the themes or grouped issues you have developed.

During this time we wrote each key theme shared amongst groups on a piece paper to identify the key themed issues.



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Key Issues Identified


Lack of End of Trip Facilities	Shortcomings with Policy / Regulation / Legislation	Lack of recreational facilities	Maintenance deficiencies
Lack of incentives	Inadequate education amongst all users	Negative community attitudes	Inadequate infrastructure (cycle paths & roads)
Lack of information	Minimal council engagement with community	The need for connectivity amongst town	Lack of emphasis on safety
Impacts of electric bikes and technology	Human behaviour of non-cyclists	Shortcomings in leadership & implementation (council)	

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Voting

Everyone in the room was given two red dots to vote for the key issues they thought were most important to them.



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Voting

Lack of End of Trip Facilities	Shortcomings with Policy / Regulation / Legislation	Lack of recreational facilities	Maintenance deficiencies
Lack of incentives	Inadequate education amongst all users	Negative community attitudes	Inadequate infrastructure (cycle paths & roads)
Lack of information	Minimal council engagement with community	The need for connectivity amongst town	Lack of emphasis on safety
Impacts of electric bikes and technology	Human behaviour of non-cyclists	Shortcomings in leadership & implementation (council)	

The group engaged in further discussion as there was a tie in voting. Some of the issues were grouped together to identify the 5 most important issues.

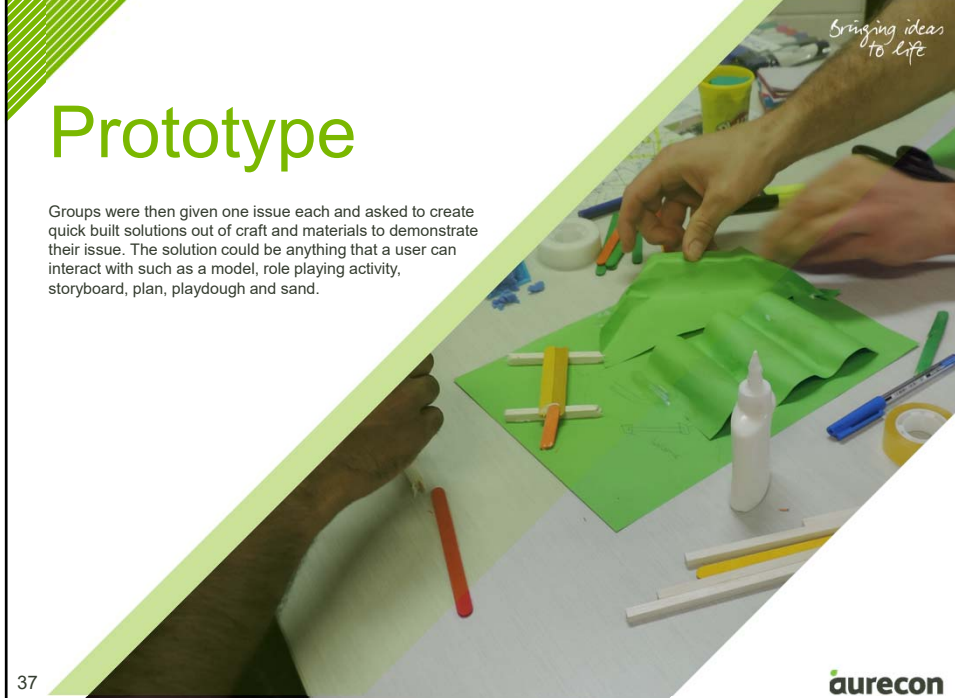
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Bringing ideas to life

Prototype

Groups were then given one issue each and asked to create quick built solutions out of craft and materials to demonstrate their issue. The solution could be anything that a user can interact with such as a model, role playing activity, storyboard, plan, playdough and sand.



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Lack of Recreational Facilities



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Infrastructure and Maintenance Deficiencies



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Community Attitudes and Lack of Education



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Inadequate Connectivity



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The need for leadership and Implementation by Council



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Share

We asked groups to share their prototype with the group and expand on how their idea was developed.

We then asked other members to provide feedback on the prototype. To say what they liked, what they didn't like, what worked, what didn't work and what could be improved.

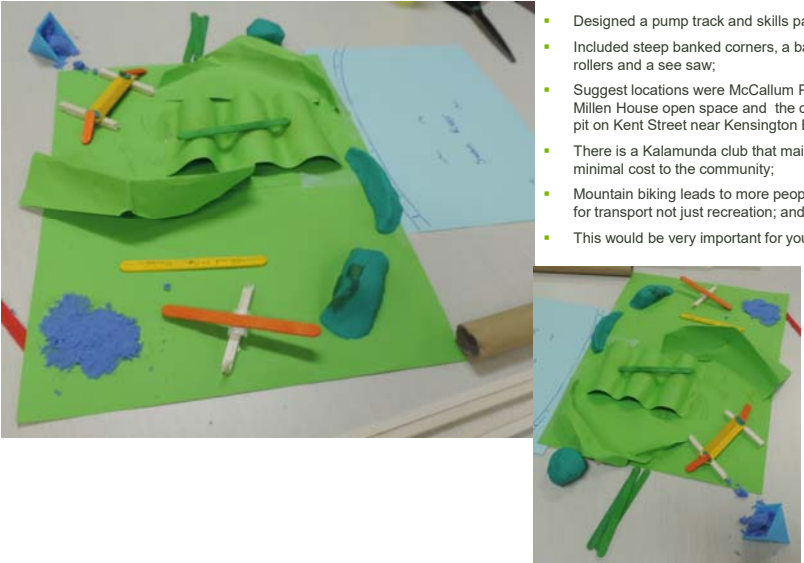


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Bringing ideas to life

Lack of Recreational Facilities



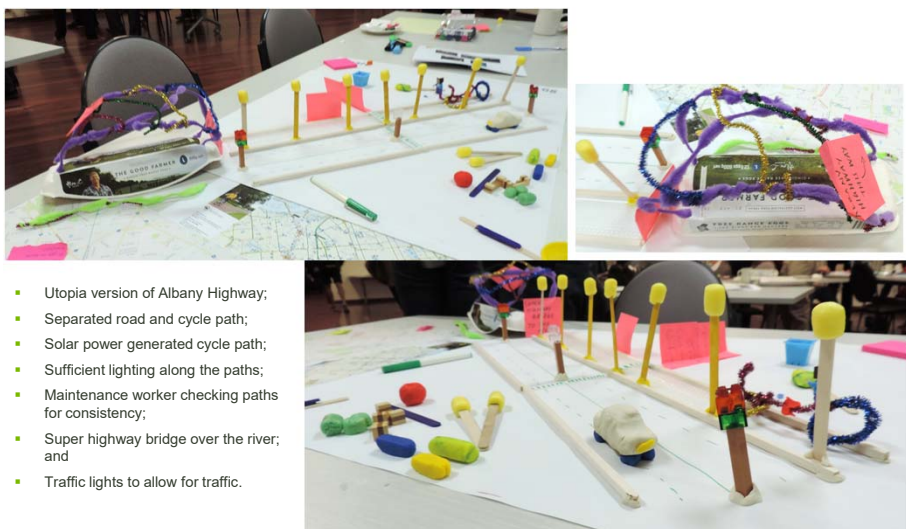
- Designed a pump track and skills park for riders;
- Included steep banked corners, a balance beam, rollers and a see saw;
- Suggest locations were McCallum Park, Edward Millen House open space and the old sand gravel pit on Kent Street near Kensington Bushland;
- There is a Kalamunda club that maintain tracks at a minimal cost to the community;
- Mountain biking leads to more people using cycling for transport not just recreation; and
- This would be very important for youth.

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Bringing ideas to life

Infrastructure and Maintenance Deficiencies

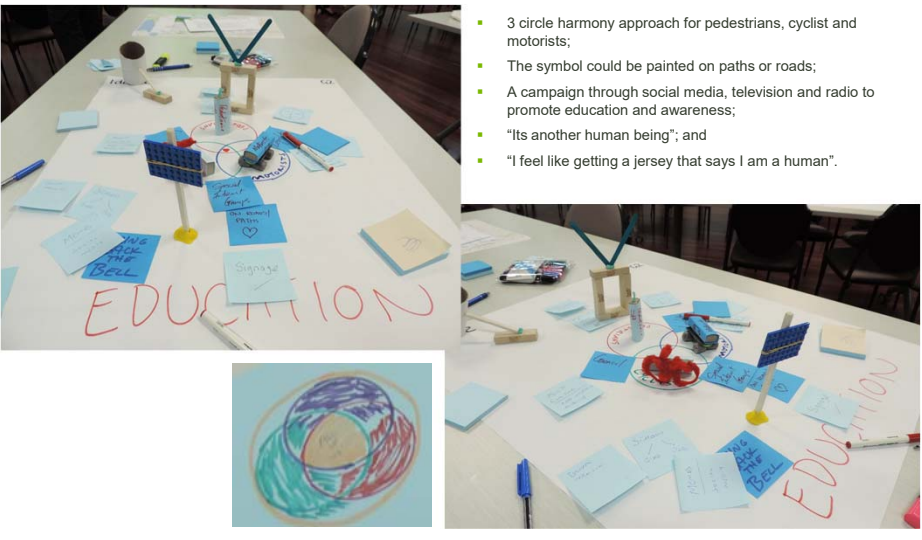


- Utopia version of Albany Highway;
- Separated road and cycle path;
- Solar power generated cycle path;
- Sufficient lighting along the paths;
- Maintenance worker checking paths for consistency;
- Super highway bridge over the river; and
- Traffic lights to allow for traffic.

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Bringing ideas to life

Community Attitudes and Lack of Education

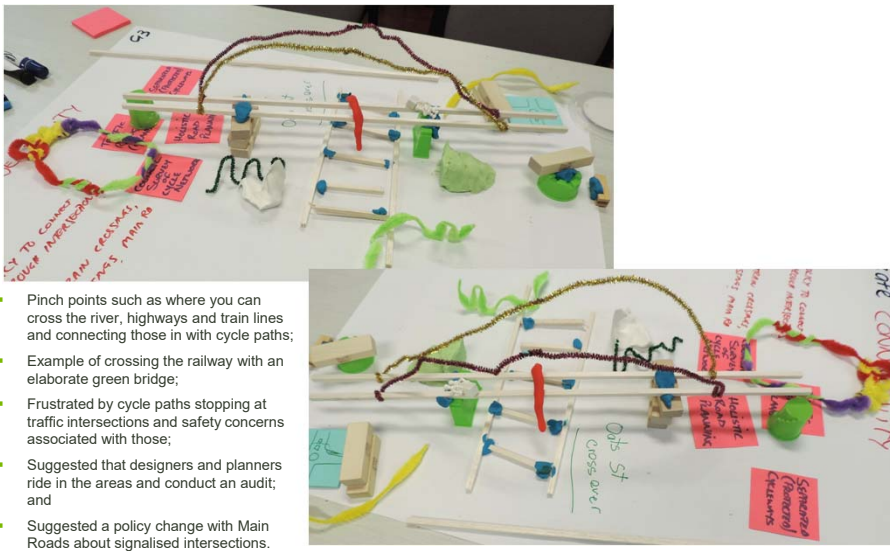


- 3 circle harmony approach for pedestrians, cyclist and motorists;
- The symbol could be painted on paths or roads;
- A campaign through social media, television and radio to promote education and awareness;
- "Its another human being"; and
- "I feel like getting a jersey that says I am a human".

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Bringing ideas to life

Inadequate Connectivity



- Pinch points such as where you can cross the river, highways and train lines and connecting those in with cycle paths;
- Example of crossing the railway with an elaborate green bridge;
- Frustrated by cycle paths stopping at traffic intersections and safety concerns associated with those;
- Suggested that designers and planners ride in the areas and conduct an audit; and
- Suggested a policy change with Main Roads about signalised intersections.

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Bringing ideas to life

The need for Leadership and Implementation by Council



- Need the leadership of our council to be different;
- Allow the town to be very bike friendly;
- The council member has ridden to his speech and left the bike at the bottom, he has risen above the other council members and saying this is the way we do it;
- Lobbying governments for funding;
- Bike paths everywhere;
- Implementation of all plans for commuters and recreational users; and
- Promoting a healthier active lifestyle; and
- Taking a risk and showing people that things can be better.

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Appendix D


Community Design Jam – ToVP Summary






Appendix E – Detailed Infrastructure Audit Results (ToVP)









Detailed Link Results for the ToVP



Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L1-A	Town of Victoria Park Foreshore Path	Ellam Street and The Causeway	<p>Separated Cycle Only Path (off-road)</p> <p>Approximately 3.0m wide off-road path. The path includes appropriate markings, signage and lighting along most of the alignment.</p> <p>At the path connections to the Causeway bridge (south side), the path becomes shared with pedestrians.</p>		<ul style="list-style-type: none"> This provides part of a key route for commuters and recreational cyclists, who visit the Swan River foreshore and Perth CBD. The path is high quality and in good condition, however wayfinding is lacking. Lighting and sightlines are good, creating a suitable cycle environment. There is a lack of high quality lighting at the Causeway underpass. Legibility at the connection of the separated and shared path is poor, which can potentially mislead pedestrians onto the separated cycle-only path. 	<ul style="list-style-type: none"> The shared path pavement marking on the cycle only path should be removed, and a small footpath connection should be constructed to direct pedestrians appropriately. Investigate improvement of lighting at the Causeway underpass. Install wayfinding along route particularly at Taylor Street and the Causeway. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
L1-B	Town of Victoria Park Foreshore Path	The Causeway and Windan Bridge	<p>Shared Path (off-road)</p> <p>Approximately 3.0m wide off-road path.</p>		<ul style="list-style-type: none"> This provides part of a key route for commuters and recreational cyclists, who visit the Swan River foreshore and Perth CBD. There is a lack of wayfinding along the path, particularly at major junctions such as the shared path connection to the Great Eastern Highway. Lighting is lacking along some sections of the path including at locations with heavy foliage. 	<ul style="list-style-type: none"> Liaise with the Burswood Park Board and investigate the installation of a separated footpath adjacent to the existing shared path and convert the shared path to a cycle only path. It is recommended that a permanent cycle counter or a real-time speed display sign (north of Crown) is installed to monitor the use and behaviour on the foreshore path following the completion and opening of the new Perth Stadium. This will assist in determining the warrant for path separation. Investigate installation of lighting at gaps along share path, such as the section just north of the Causeway. Investigate the ponding issues along the shared path at the junction south of the Windan Bridge. Install wayfinding along the route particularly at junctions with other paths, directing users to key destinations within ToVP (i.e. Great Eastern Highway shared path north of the Causeway) and key destinations such as Crown Perth and Perth Stadium. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
L2 - A	Great Eastern Highway	Burswood Park and Great Eastern Highway Overpass	<p>Shared Path (off-road)</p> <p>Approximately 3.0m wide off-road path through part of Burswood Park and along the north side of</p>		<ul style="list-style-type: none"> This provides part of the east-west connection to the Swan River Foreshore and the proposed Rutland Avenue/ Goodwood Parade PSP. There is a lack of wayfinding along the path, at junctions and at the Great Eastern Highway Overpass. 	<ul style="list-style-type: none"> It is recommended to install a new 2.5 to 3.0m high quality shared path on the northern side of Great Eastern Highway to bypass the existing bus shelter. The path should connect to the existing ramp which connects to the overpass. Install wayfinding along the route particularly at the intersection with the shared paths at Foreshore, Victoria




Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L2 - B			Great Eastern Highway.		<ul style="list-style-type: none"> A significant conflict exists at the bus stop on the Great Eastern Highway, just east of the overpass. At this location, the path narrows increasing the likelihood of conflicts between cyclists and bus patrons. 	Park Drive and the Great Eastern Highway Overpass. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
	Great Eastern Highway	Great Eastern Highway Overpass and Orrong Road Overpass	Shared Path (off-road) Approximately 3.0m wide off-road path on south sides of Great Eastern Highway and the Orrong Road off-ramp.		<ul style="list-style-type: none"> This provides part of the east-west connection to the Swan River Foreshore from the Orrong Road Overpass (into Belmont) and the proposed Rutland Avenue/ Goodwood Parade PSP. Some sections of the path are narrow and lack formalised pavement and line marking. Holding rails are missing at both sides of the Cornwall Street crossover and at the median. Some sections of the path have debris and overgrown vegetation, particularly at the Orrong Road off-ramp. 	<ul style="list-style-type: none"> Liaise with Main Roads to install holding rails on both approaches of the Cornwall Street crossover and on the median. Ensure the shared path is maintained regularly through regular liaison with Main Roads.
L3	Gallipoli Street	Orrong Road Overpass and Rutland Avenue/ Victoria Park Station	On-Road (unmarked) The road currently has no cycling facilities and is generally 10m wide, with one traffic calming device. This section is labelled on the DoT Your Move Map as a local bicycle friendly route.		<ul style="list-style-type: none"> This provides a local east-west connection between Victoria Park Station and the Orrong Road overpass (leading into City of Belmont), and Surrey Road safe active street. The existing path lacks width and is along one side only at sections. Parked cars, roundabouts and traffic calming devices put on-road cyclists in dangerous positions. The narrowing of roads at intersections ('nibs') also increase the chances of conflicts between cyclists and vehicles. A small section of the route is part of a bus route. There is a lack of wayfinding along the road, particularly for key destinations such as Orrong Road Overpass and Victoria Park Station. 	<ul style="list-style-type: none"> This route is proposed to form part of the long term strategic network as a local route. There is potential for this route to be developed into a Safe Active Street. Install wayfinding along route particularly at the Maple Street and Rutland Avenue intersections. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).




Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L4 - A	Bishopsgate Street	Rutland Avenue and Kent Street	<p>On-Road (marked)</p> <p>This road currently has appropriately marked red-asphalt on-road bike lanes and consists of a good surface quality with green pavement at intersections.</p> <p>A 1.8m wide off-road concrete path with red painted pavement is located along the east side from Rutland Avenue to Goddard Street and the remaining section is 1.6m wide concrete.</p>		<ul style="list-style-type: none"> This provides a local northwest-south east connection between Victoria Park Station and Angelo Street. There is a lack of off-road bypass options on the approaches and departures for cyclists travelling through the Kent Street intersection. The section of path along the east side of Bishopsgate Street south of Goddard is in poor condition with uneven pavement. It is noted that this is adjacent to Lathlain Park, which is planned to be redeveloped. Existing traffic volumes along the road are approximately 4000 vehicles per day and the speed limit is 50km/hr. 	<ul style="list-style-type: none"> Install appropriate off-road bypass paths with smooth transitions for on-road cyclists on the Bishopsgate Street approaches and departures to the roundabout Consideration of off-road and on-road cyclists is required along this route, as part of the Lathlain Park Redevelopment. Existing on-road facilities located adjacent to the development should be maintained, while upgrading of the off-road facilities to a high quality shared path standard should be considered as part of any works.
L4 - B	Bishopsgate Street	Kent Street and Archer Street	<p>On-Road (marked)</p> <p>This road currently has appropriately marked red-asphalt on-road bike lanes and consists of a good surface quality. Two traffic calming devices are located along the section.</p>		<ul style="list-style-type: none"> This provides a local northwest-southeast connection between Victoria Park Station and Angelo Street. The on-road bike lanes discontinue approximately 100m north of the Angelo Street roundabout, forcing cyclists to either exit the road or cycle with traffic. There is currently a lack of suitable options to enter/exit the roadway at this location. Existing traffic volumes along the road are approximately 3,000 vehicles per day and the speed limit is 50km/hr. 	<ul style="list-style-type: none"> Remove "All Bicycles" signage at the Gloucester Street intersection, which indicates to cyclists to leave the road. Consider extending the on-road cycle lanes to the Angelo Street roundabout as part of any future resurfacing works, with appropriate off-road bypass paths at the northwest leg of the roundabout. Install off-road bypass paths with smooth transitions where the on-road cycle lanes currently discontinue.
L5 - A	Kent Street	Manning Road and Hayman Road	<p>Sealed Shoulder (on-road) and Shared Path (off-road)</p> <p>Approximately 1.5m on-road bike lanes (sealed shoulder), which discontinue at the Manning Road intersection.</p> <p>A 3.0m wide off-road path runs along the east side of the road. The path includes appropriate pavement</p>		<ul style="list-style-type: none"> This provides a key strategic route that connects multiple destinations including Curtin University, Kent Street Senior High School, the Leisure Life Centre, Albany Highway commercial precinct and Lathlain Park. Existing traffic volumes along the road are approximately 22,000 vehicles per day and the speed limit is 70km/hr. This is a high frequency bus route which creates potential conflicts for on-road cyclists at bus stops The sealed shoulder is not surfaced with red pavement, appropriately signed or marked, and 	<ul style="list-style-type: none"> Replace the existing concrete footpath on the eastern side of Kent Street (just north of Beazley Avenue) with a 2.5m-3.0m high quality red asphalt shared path as proposed in the Kent Street project, outlined in Section 15.3. Liaison with Curtin University is required. It is recommended that when the next resurfacing works along Kent Street are undertaken that this entire section of on-road cycle lanes is reviewed. The cycle lanes should be sealed in red asphalt at a minimum width of 1.5m with consideration of protection. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane.



Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
			<p>and line markings along most of the alignment.</p> <p>A 2.0 to 3.0m concrete path and on-road bike lane run along the west side which are located within CoSP. Only the eastern (southbound) carriageway is located within ToVP, which is the only one referred from here.</p>		<p>may cause confusion for cyclists wishing to use the facility.</p> <ul style="list-style-type: none"> There is currently a lack of off-road bypass paths at the Manning Road intersection. A gap in the shared path exists with approximately 230m of narrow unmarked path, north of Beazley Avenue. 	<ul style="list-style-type: none"> Install wayfinding along route particularly at Manning Road and Curtin University Main Street. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
L5 - B	Kent Street	Hayman Road and Jarrah Road	<p>Sealed Shoulder (on-road) and Shared Path (off-road)</p> <p>Approximately 1.5m sealed shoulder, which discontinue at some intersections and sections of road. Only the eastern carriageway (southbound) is located within ToVP which is only referred to from here.</p> <p>A 2.0 to 2.5m asphalt path runs along the east side of Kent Street.</p>	 	<ul style="list-style-type: none"> This provides a key strategic route that connects multiple destinations including Curtin University, Kent Street Senior High School, the Leisure Life Centre, Albany Highway commercial precinct and Lathlain Park. On-road bike lanes are not surfaced with red asphalt, or marked with bike symbols and signage. There is currently a lack of off-road bypass paths at the Hayman Road, Dick Perry Avenue and Jarrah Road intersections, for the Kent Street approaches and departures. No on-road bike lane is located along the section between Dick Perry Avenue and Jarrah Road. There is a lack of formalised pavement and line marking along the shared path and it is cracked and uneven along sections. There is no lighting along the path affecting personal security and making the path unappealing during the evening. Median crossings lack holding rails and the required widths for cyclists along Kent Street at the Hayman Road and Jarrah Road intersections. This is a high frequency bus route which creates potential conflicts for on-road cyclists at bus stops. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Replace existing footpath on the eastern side of Kent Street with a 3.0m wide red asphalt shared path as proposed in the Kent Street prioritised project (outlined in Section 15.3). In collaboration with the CoSP, install new 1.5m on-road cycle lanes as proposed in the Kent Street prioritised project (outlined in Section 7.2). In collaboration with CoSP, install holding rails and shift median crossings so that adequate width is provided (minimum 2.5m) at the Kent Street legs of the Hayman Road intersection. Install holding rails at the Jarrah Road median crossings. Install wayfinding along route particularly at Hayman Road, Turner Avenue (Technology Park) and Jarrah Road. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).




Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L5 - C	Kent Street	Jarrah Road and Gloucester Street	<p>Bicycle Lane (on-road) and Shared Path (off-road)</p> <p>Approximately 1.5m on-road bike lanes, which discontinue at some intersections.</p> <p>A shared path runs along the north side of Kent Street, varying in surface material (asphalt and concrete) and width (1.6m to 4.0m).</p>		<ul style="list-style-type: none"> This provides a key strategic route that connects multiple destinations including Curtin University, Kent Street Senior High School, the Leisure Life Centre, Albany Highway commercial precinct and Lathlain Park. Existing traffic volumes along the road are approximately 12,000 vehicles per day and the speed limit is 60km/hr. This is a high frequency bus route. On-road bike lanes are not surfaced with red asphalt west of Berwick Street. There is currently a lack of off-road bypass paths at the Etwell Street, Devenish Street and Berwick Street intersections. There is a lack of formalised pavement and line marking along the shared path and it lacks adequate width and surface quality at sections. A high number of driveway crossovers are located on the shared path between Berwick Street and Gloucester Street. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Formalise the existing shared path on the northern side by including pavement marking and signage as proposed in the Kent Street prioritised project (outlined in Section 15.3). It is recommended that when the next resurfacing works along Kent Street are undertaken that this entire section of on-road cycle lanes is reviewed. The cycle lanes should be sealed in red asphalt at a minimum width of 1.5m with consideration of protection. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. Remove “All Bicycles” signage at the Gloucester Street intersection, which indicates to cyclists to leave the road. Install wayfinding along route particularly at Berwick Street (south) and Gloucester Street. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
L5 - D	Miller Street	Gloucester Street and Bishopsgate Street	<p>Bicycle Lane (on-road) and Shared Path (off-road)</p> <p>Approximately 1.5m on-road bike lanes, which discontinue at some intersections.</p> <p>A shared path runs along the south side of Kent/Miller Street, varying in quality and width (1.6m to 2.5m).</p>	 	<ul style="list-style-type: none"> This provides a key strategic route that connects multiple destinations including Curtin University, Kent Street Senior High School, the Leisure Life Centre, Albany Highway commercial precinct and Lathlain Park. Existing traffic volumes along the road are approximately 12,000 vehicles per day and the speed limit is 60km/hr This is a high frequency bus route. On-road bike lanes lack continuity, and are not surfaced with red asphalt east of Sunbury Road. During the site visit, several locations along the bike lanes were being excavated for other works. The Kent Street/Albany Highway/Miller Street intersection is a barrier to cyclists, with insufficient space for cyclists on and off-road. 	<ul style="list-style-type: none"> Upgrade the existing footpath to a 2.5m-3.0m red asphalt shared path with appropriate pavement markings and signage on the southern side of Miller Street, as proposed in the Kent Street prioritised project (outlined in Section 15.3). It is recommended that when the next resurfacing works along Miller Street are undertaken that this entire section of on-road cycle lanes is reviewed. The cycle lanes should be sealed in red asphalt at a minimum width of 1.5m with consideration of protection. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. Install wayfinding along route particularly at Albany Highway and Bishopsgate Street. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).




Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
					<ul style="list-style-type: none"> There is currently a lack of off-road bypass paths at the Albany Highway, Shepperton Road and Bishopsgate Street intersections. There is a lack of formalised pavement and line marking along the shared path and it lacks adequate width and surface quality at sections. Wayfinding is also lacking along the path and at key intersection, such as Albany Highway. There is a lack of wayfinding along the route. 	
L5 - E	Roberts Road	Bishopsgate Street and Orrong Road	<p>Bicycle Lane (on-road)</p> <p>Approximately 1.5m on-road bike lanes, which discontinue at some intersections.</p>		<ul style="list-style-type: none"> This provides a key strategic route that connects multiple destinations including Curtin University, Kent Street Senior High School, the Leisure Life Centre, Albany Highway commercial precinct and Lathlain Park. Concrete paths located along most of both sides of the road. This lacks formalised pavement and line marking, width and surface quality. There is a lack of holding rails on the median crossing at Orrong Road. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Upgrade the existing footpath to a 2.5m-3.0m red asphalt shared path with appropriate pavement markings and signage on the southern side of Roberts Road, as proposed in the Kent Street prioritised project (outlined in Section 15.3). It is recommended that when the next resurfacing works along Roberts Road are undertaken that this entire section of on-road cycle lanes is reviewed. The cycle lanes should be sealed in red asphalt at a minimum width of 1.5m with consideration of protection. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. As part of other works, the intersection of Orrong Road/Roberts Road is planned to be modified to remove the right turn movement out of Roberts Road. As part of the works consolidated pedestrian/cyclist crossing at Orrong Road with holding rails should be provided. Install wayfinding along route particularly at Orrong Road. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
L6-A	Berwick Street	Canning Highway and Kent Street	<p>Sealed Shoulder (on-road)</p> <p>This road currently has no cycling facilities and is generally 12.5m wide. A 1.5m sealed shoulder is located along each side of the road, which discontinues at some sections.</p>		<ul style="list-style-type: none"> This provides part of a north-south connection between the City of Canning and the Victoria Park foreshore. Existing traffic volumes along the road are approximately 20,000 vehicles per day and the speed limit is 60km/hr. This road is part of a bus route. The sealed shoulder is not surfaced with red pavement, appropriately signed or marked, and may cause confusion for cyclists wishing to use the facility. 	<ul style="list-style-type: none"> Install advanced cyclist stop boxes on the southern approach of the Kent Street intersection, as proposed in the Kent Street prioritised project (outlined in Section 15.3). This section of Berwick Street is constrained and caters for high traffic volumes and is a bus route. As such, an alternative route for cyclists is proposed along the parallel Gloucester Street which is proposed to be developed into a Safe Active Street. Cyclists can be directed along Kent Street to Gloucester Street and subsequently the existing underpass at Hordern Street.


Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L6-B					<ul style="list-style-type: none"> The on-road bike lanes discontinue before the Kent Street intersection, which puts cyclists at dangerous positions with general traffic. There is a lack of pedestrian/cycle lanterns at the Kent Street signalised intersection. Traffic lanes along the road are narrow, with a painted and concrete median located along the road generally 1.5m wide. The existing footpath lacks width and surface quality, and is often obstructed by street furniture (i.e. at bus stops and sign posts). Challenging gradients are located along the route, increasing effort for cyclists. 	
	Berwick Street	Kent Street and Hill View Terrace	<p>Bicycle Lane (on-road)</p> <p>Approximately 1.5m on-road bike lanes, which discontinues at some sections. The road is generally 12.5m wide.</p>		<ul style="list-style-type: none"> This provides part of a north-south connection between the City of Canning and the Victoria Park foreshore. Existing traffic volumes along the road are approximately 20,000 vehicles per day and the speed limit is 60km/hr. This road is part of a bus route. On-road bike lanes are not surfaced with red asphalt, or marked with bike symbols and signage. The on-road bike lane along the northbound carriageway discontinues south of Whittlesford Street and north of Sussex Street, and lack suitable options to enter/exit the roadway. The on-road bike lane along the southbound carriageway discontinues north of Ashburton Street and South of Whittlesford Street, and lack suitable options to enter/exit the roadway. 	<ul style="list-style-type: none"> Install off-road bypass paths with smooth transitions at the on-road bike lanes where they discontinue/begin. Upgrade on-road bike lanes as part of the next resurfacing, ensuring red pavement, adequate pavement markings and signage, and extension across the entire section including through intersections (i.e. Kent Street to Hill View Terrace). Install wayfinding along route particularly at the Hill View Terrace and Kent Street intersections. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
	Berwick Street	Hill View Terrace and Boundary Road	<p>Bicycle Lane (on-road)</p> <p>Approximately 1.5m on-road bike lanes, which discontinues at some sections. The road is generally 13.5m wide.</p>		<ul style="list-style-type: none"> This provides part of a north-south connection between the City of Canning and the Victoria Park foreshore. Existing traffic volumes along the road are approximately 9,000 vehicles per day and the speed limit is 60km/hr. This road is part of a bus route. On-road bike lanes are marked with bike symbols, but are not surfaced with red asphalt. 	<ul style="list-style-type: none"> Upgrade on-road bike lanes as part of the next resurfacing, ensuring red pavement, adequate pavement markings and signage, and extension across the entire section including through intersections (i.e. Hill View Terrace Boundary Road). Install wayfinding along route particularly at the Boundary Road and Hill View Terrace intersections. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).




Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L7	Armagh Street	Berwick Street and Hordern Street	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 6.5m wide. This section is labelled on the DoT Your Move Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> On-road bike lanes lack continuity at the Hill View Terrace and Boundary Road intersections. There is also a lack of suitable options to enter/exit the roadway at these locations where the bike lanes discontinue. A considerable hill is located along at the Hill View Terrace intersection, increasing effort for cyclists. 	<ul style="list-style-type: none"> Develop Armagh Street (between Gloucester Street and Hordern Street) into a Safe Active Street as proposed in the Gloucester Street prioritised project (outlined in Section 15.3). Regular maintenance of the drainage collection points at the ends of the Hordern Street underpass are required to ensure no blockages. It may also be worth investigating if the roof openings can be covered to avoid water intrusion, without affecting lighting. Investigate measures to reduce conflict between cyclists and pedestrians at the underpass, and improve its overall amenity. Investigate the operation of the boom gates at the Hordern Street underpass to ensure they do not block pedestrians and cyclists using the route. Install wayfinding along the route particularly at Gloucester Street and Hordern Street. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
					<ul style="list-style-type: none"> This provides an east-west connection between Berwick Street and Albany Highway, and to the Victoria Park foreshore via the Hordern Street underpass. Traffic volumes are below 1,000 vehicles per day, which is conducive to cycling. A high number of parked cars were observed along the route, on a single side of the road at each section. As a result, there is insufficient space for cyclists on-road, when a vehicle traveling along the road. Lighting is lacking along some sections of the path including at locations with heavy foliage (i.e. adjacent to Raphael Park). The Hordern Street underpass is prone to flooding, due to openings in the roof and drainage issues, due to leaf litter build up Boom gates are located at north end of Hordern Street at the connection to the underpass. There is a lack of wayfinding along the route. 	
L8	Gloucester Street	Kent Street and Armagh Street	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 8.0m wide. This section is labelled on the DoT Your Move Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides part of a north-south connection between the City of Canning (via Berwick Street) and the Victoria Park foreshore. This is an alternative route to Berwick Street (between Canning Highway and Kent Street). Traffic volumes along most of the route are below 1,000 vehicles per day. The section near Kent Street (south east of Star Street) has approximately 2,000 vehicles per day. The posted speed is 50km/h. A small section of the route is used by a bus service (between King George Street and McMillan Street). 	<ul style="list-style-type: none"> Develop Gloucester Street into a Safe Active Street as proposed in the Gloucester Street prioritised project (outlined in Section 15.3). Install wayfinding along the route particularly at Kent Street and Armagh Street. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).




Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L9					<ul style="list-style-type: none"> There are several intersections along the route without through priority with cyclist having to stop frequently (i.e. Armagh Street, Geddes Street, Cargill Street, McMaster Street, King George Street, McMillan Street, Manchester Street and State Street). A considerable hill is located along the route, increasing effort for cyclists. A left-in left out configuration is located at the McMillan Street intersection. 	
	Albany Highway	Oats Street and the Causeway	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 13.0m wide (4m lanes).</p>		<ul style="list-style-type: none"> Albany Highway (between Oats Street and the Causeway) is a key commercial and entertainment destination for Town of Victoria Park residents and for the wider Perth metropolitan area. Existing traffic volumes along the road are approximately 15,000 vehicles per day and the speed limit is 40km/hr. Formalised parking is located along most of both sides of the road, and the carriageways are generally separated by a painted or concrete median. This is a high frequency bus route, which increases the chances of conflicts at bus stops. Currently, less confident cyclists will ride on the existing footpath which has multiple conflict points, including pedestrians, service infrastructure and outdoor dining areas (etc). There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Enhance the on-road cycle environment in the short-term, as proposed in the Albany Highway prioritised project (outlined in Section 15.3). Investigate modifications to parking and the installation of a bi-directional cycle path along the route, as proposed in the Albany Highway prioritised project (outlined in Section 15.3). Install wayfinding along the route particularly at Hill View Terrace, Mint Street, Kent Street, McMillan Street, Duncan Street and Armagh Street, and indicate key locations such as Victoria Park Train Station. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
L10-A	Rutland Avenue/ Goodwood Parade	Welshpool Road and Great Eastern Highway	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 6.5m north of Victoria Park Station and 10.0m wide south of Victoria Park Station. This road is labelled on the DoT Your Move Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides a principal route along the Perth-Armadale rail line. Existing traffic volumes are generally below 2,000 vehicles per day, and the speed limit is 50 km/h. Bus services use some sections of Rutland Avenue, south of Mint Street. There is a lack of adequate cycle crossing facilities at intersecting roads (i.e. Mint Street and Oats Street), including the lack of median storage and holding rails. 	<ul style="list-style-type: none"> Install high quality shared path along the route between Welshpool Road and Bishopsgate Street and a Safe Active Street between Bishopsgate Street and the Great Eastern Highway as proposed in the Rutland Avenue/ Goodwood Parade prioritised project (as outlined in Section 15.3). In the interim, improve the transition from on-road to off-road South of the Great Eastern Highway overpass by constructing a more adequate off-road bypass path. Install wayfinding along the route particularly at Hill View Terrace, Archer Street, Kent Street, Duncan Street and the Great Eastern Highway overpass. This should form

Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L10-B					<ul style="list-style-type: none"> At some locations, surface quality is poor, and there is a build-up of leaf litter. There is a lack of wayfinding along the route. The existing off-ramp connection to the path for the Great Eastern Highway overpass is lacking a smooth transition for cyclists. 	part of an overall wayfinding strategy (as outlined in Section 15.3.1).
	Rutland Avenue/ Goodwood Parade	Great Eastern Highway and Riversdale Road	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 10.0m wide. This road is labelled on the DoT Your Move Map as a local bicycle friendly route.</p> <p>A 2.0 to 2.5m asphalt path runs along the west side for approximately 120.0m (from the Great Eastern Highway overpass) to a pedestrian/cyclist rail crossing.</p>		<ul style="list-style-type: none"> This provides a principal route along the Perth-Armadale rail line. Existing traffic volumes are generally below 2,000 vehicles per day, and the speed limit is 50 km/h. The Great Eastern Highway overpass is narrow, increasing potential conflicts for cyclists and pedestrians. The north side of the overpass is secluded and lacks passive surveillance affecting personal security and making the path unappealing during the evening. However, CCTV is located here for these reasons. There is a high demand for parking along the west side, and a significant number of trees are present. Some wayfinding is present, although it shows the outdated Perth Bicycle Network (PBN) routes. 	<ul style="list-style-type: none"> Install a high quality shared path along the route providing a connection to the PSP on the east side of the Graham Farmer Freeway, as proposed in the Rutland Avenue/ Goodwood Parade prioritised project (outlined in Section 15.3). Consider widening at the Great Eastern Highway overpass as part of future works along this route. Install wayfinding along the route particularly at the Great Eastern Highway Overpass and Riversdale Road. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
L11-A	Hayman Road	Kent Street and Marquis Street	<p>Sealed Shoulder (on-road) and Shared Path (off-road)</p> <p>Approximately 1.5m sealed shoulder, which discontinue at some intersections.</p> <p>A 3.0m off-road path runs along the south side of Hayman Road between Kent Street and Adie Court.</p>	 	<ul style="list-style-type: none"> This provides connectivity to and between Curtin University, Bentley TAFE Campus, and other nearby destinations. Existing traffic volumes are approximately 16,000 vehicles per day and the speed limit is 60 km/h. The on-road bike lanes discontinue at the Curtin University Main Street/Allen Court intersection and at the section between Adie Court and Marquis Street. It is noted that Hayman Road is planned to be upgraded to four lanes for the entire length, which will result in an off-road emphasis for cycling infrastructure. Curtin University Bus Station is located opposite Jenkins Avenue, which is utilised by several bus services. 	<ul style="list-style-type: none"> Install a 3.0m high quality shared red asphalt path for the missing section of path on the west side (Adie Court south) and associated works as proposed in the Hayman Road prioritised project (outlined in Section 15.3). Investigate improving crossing priority for cyclists at the Curtin University Main Street/Allen Court intersection as proposed in the Hayman Road prioritised project (outlined in Section 15.3). Install wayfinding along route particularly at Manning Road, Curtin University Bus Station and Curtin University Main Street. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).



Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L11-B					<ul style="list-style-type: none"> The shared path provided is high quality with red pavement, and appropriate pavement and line markings. There is a gap in the existing high quality shared path south of Adie Court. The existing concrete path lacks width, red pavement surfacing, and pavement markings and signage. On-road bike lanes are not surfaced with red asphalt, or marked with bike symbols and signage. No priority is provided for cyclists at crossovers. There is a lack of wayfinding along the route. 	
	Marquis Street	Hayman Road and Holder Crescent	<p>Shared Path (off-road)</p> <p>A 1.8m concrete path runs along the north side of Marquis Street.</p>		<ul style="list-style-type: none"> This provides connectivity to Curtin University from cycle infrastructure east i.e. Hill View Terrace bike lanes. Existing traffic volumes are approximately 12,000 vehicles per day, and the speed limit is 60 km/h. The on-road environment has tight bends and a roundabout which put cyclists in dangerous positions with traffic. The existing concrete path is narrow and lacks red pavement, and appropriate pavement and line markings. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Install a 2.5-3.0m high quality shared red asphalt path on the north side of Marquis Street as proposed in the Hayman Road prioritised project (outlined in Section 15.3). Install wayfinding along route particularly at Hayman Road and Hill View Terrace. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
L12-A	Hill View Terrace	Holder Street and Albany Highway	<p>Bicycle Lane (on-road)</p> <p>Approximately 1.5m on-road bike lanes, which discontinues at some sections. The road is generally 13.5m wide, with some sections as narrow as 10.0m.</p>	 	<ul style="list-style-type: none"> This provides part of a key strategic route that connects multiple key destinations including Curtin University, Albany Highway, TAFE Carlisle, Aqualife and Oats Street Station. Existing traffic volumes are approximately 13,000 vehicles per day, and the speed limit is 60 km/h. This is a high frequency bus route with potential conflicts for on-road cyclists at bus stops. There is a gap in on-road bike lanes between Holder Street and Jarrah Road. 	<ul style="list-style-type: none"> Install new 1.5m wide on-road cycle lanes between Holder Street and Boundary Road as proposed in the Oats Street prioritised project (outlined in Section 15.3) Upgrade the existing on-road cycle lanes as part of the next resurfacing, ensuring red pavement, adequate pavement markings and signage, and extension of the cycle lanes through intersections (i.e. at Jarrah Road and Albany Highway). At the Jarrah Road intersection, install advanced cyclist stop boxes on both Hill View Terrace approaches. At the Holder Street roundabout, install appropriate off-road bypass paths to ensure a smooth transition with the shared path proposed on the north side of Marquis Street and the proposed bike lanes on Hill View Terrace.



Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L12-B					<ul style="list-style-type: none"> On-road Bike lanes discontinue on the east side of Jarrah Road and lack suitable options to enter/exit the roadway. On-road Bike lanes discontinue on the west side of Albany Highway and lack suitable options to enter/exit the roadway. On-road bike lanes are marked with bike symbols, but are not surfaced with red asphalt between Jarrah Road and Berwick Street. A considerable hill is located along the route at the intersection with Berwick Street, increasing effort for cyclists. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Install wayfinding along the route particularly at Berwick Street and Albany Highway. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
	Oats Street	Albany Highway and Orrong Road	<p>Bicycle Lane (on-road)</p> <p>Approximately 1.5m on-road bike lanes, which discontinues at some sections. The road is generally 13.5m wide.</p>		<ul style="list-style-type: none"> This provides part of a key strategic route that connects multiple key destinations including Curtin University, Albany Highway, TAFE Carlisle, Aqualife and Oats Street Station. Existing traffic volumes are approximately 15,000 vehicles per day, and the speed limit is 50 km/h. This is a high frequency bus route with potential conflicts for cyclists at bus stops. There is a gap in on-road bike lanes between Albany Highway and Shepperton Road, and at the rail crossing adjacent to Oats Street Station. On-road bike lanes discontinue on the east side of Shepperton Road and lack suitable options to enter/exit the roadway. On-road bike lanes discontinue on the west side of Orrong Road and lack suitable options to enter/exit the roadway. On-road bike lanes are marked with bike symbols, but are not surfaced with red asphalt between Shepperton Road and Orrong Road There is a lack of off-road bypass paths at the Read Street, Bishopsgate Street and Star Street roundabouts. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> Install 1.5m wide on-road cycle lanes between Albany Highway and Shepperton Road and widen the existing on-road cycle lanes between Shepperton Road and Orrong Road as proposed in the Oats Street prioritised project (outlined in Section 15.3). Install wayfinding along the route particularly at Albany Highway, Bank Street, Rutland Avenue, and Orrong Road. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).


Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L13	Orrong Road	Cornwall Street and Kew Street	<p>Shared Path (off-road)</p> <p>A 2.0 to 2.5m wide concrete path runs along the west side of the road.</p> <p>A 1.6 to 2.0m wide concrete path runs along the east side of the road, which is located within City of Belmont and not referred to further.</p>		<ul style="list-style-type: none"> This provides north-south route between Leach Highway and Great Eastern Highway. Existing traffic volumes are approximately 65,000 vehicles per day, and the speed limit is 60 km/h. A sealed shoulder is provided along sections, although is narrow and lacks continuity. The existing concrete path lacks appropriate markings and signage, and is narrower at sections than a high quality shared path. The path pavement surface is cracked and uneven along stretches. Some sections of the path had debris and overgrown vegetation. There is a lack of wayfinding along the route. 	<ul style="list-style-type: none"> As part of future works along Orrong Road, ensure that cycle infrastructure is provided. Liaison with Main Roads will be required. Install wayfinding along the route particularly at Kent Street and Oats Street. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
L14	Jarrah Road	Kent Street and Hill View Terrace	<p>Bicycle Lane (on-road)</p> <p>Approximately 1.5m on-road bike lanes.</p>	 	<ul style="list-style-type: none"> This provides a north-south connection adjacent to Curtin university which provides linkage to key routes and local streets. Existing traffic volumes are generally below 2,000 vehicles per day, and the speed limit is 50 km/h. This route is used by bus services, with potential conflicts for on-road cyclists at bus stops. Most of the on-road bike lanes are appropriately marked and surfaced with red pavement. The existing on-road bike lanes discontinue at the Kent Street and Hill View Terrace intersections, and lack suitable options to enter/exit the roadway. Most of the northbound bike lane is located within the door zone of the adjacent and parallel parking, which increases the chances of conflicts for vehicles and cyclists. Some sections of the bike lanes had debris and vegetation located on it. 	<ul style="list-style-type: none"> Install advanced cyclist stop boxes at the Hill View Terrace intersection at the Jarrah Road and Boundary Road approaches to provide continuous on-road cycle lanes. During the next resurfacing, consider indenting the on-road parking bays further into the verge to provide sufficient clearance to on-road cyclists away from the door zone of parked vehicles. Alternatively, investigate the installation of a shared path on the western side of Jarrah Road. Install appropriate off-road bypass paths with smooth transitions at the approach and departure on Jarrah Road at the intersection with Kent Street, as proposed in the Kent Street prioritised project (outlined in Section 15.3). Investigate indentation of parking along the west side to avoid northbound cyclists being located in the door zone. Install wayfinding along the route particularly at Kent Street, and Hill View Terrace. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).

Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L15	Baron-Hay Court	Kent Street and George Street	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally 6.0m wide. This road is labelled on the DoT Your Move Map as a local bicycle friendly route.</p>		<ul style="list-style-type: none"> This provides a north-south connection which provides linkage to key routes and continuation to Jarrah Road. Existing traffic volumes are low along this road. Parking is located along most of the road on the west side. This road is in poor condition with uneven pavement and missing kerbing, which has resulted in soil/sand deposits along the road. It is noted that there is a potential for future development along the road. Lighting is lacking along the route. 	<ul style="list-style-type: none"> This route is proposed to form part of the long term strategic network as a local route. As part of future works on the road, investigate the provision of a bi-directional cycle path along the eastern side of Baron-Hay Court. In addition, install appropriate off-road bypass paths to ensure a smooth transition between the on -and off-road environments. Install wayfinding along the route particularly at Kent Street and George Street. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
L16-A	Perth Cycle Ring (Adie Court/ Pallitt Street/ Creaton Street/ Playfield Street/ Devenish Street/ Whittlesford Street)	Hayman Road and Berwick Street	<p>On-Road (unmarked)</p> <p>The road currently has no cycling facilities and is generally between 7.5m and 10.0m wide. Adie Court is labelled on the DoT Your Move Map as a local bicycle friendly route.</p>	 	<ul style="list-style-type: none"> This route forms part of the “Perth Cycle Ring” report and is endorsed by the community. This provides part of a local east-west route connecting from Curtin University to Oats Street Station. Other attractions and destinations include Millen Primary School, Carson Street School, Aqualife Centre, South Metropolitan TAFE Carlisle Campus. The route carries predominantly low traffic, and is therefore more suitable for less confident cyclists. Adie Court is a high frequency bus route, with two cyclist crashes involving buses. The existing path along Adie Court lacks formalised pavement and line marking and conflicts with bus stops and parked vehicles. Existing signage at the Adie Court/ Jarrah Road intersection indicates that entry is only permitted for taxis and buses. Parking along Pallitt Street has high usage from Curtin University visitors, which results in a narrow space for on-road traffic and cyclists. There is lack of controlled parking along Creaton Street. Millen Primary School is located along Playfield Street, which has increased traffic for the morning and afternoon peaks for children being dropped off. Lighting is lacking along sections of the route. 	<ul style="list-style-type: none"> Construct a cut-through at the intersection of Adie Court/Jarrah Road to allow cyclists to exit Adie Court and connect to the Jarrah Road on-road cycle lanes. Update no entry signage at the Adie Court/ Jarrah Road intersection (excluded to buses and taxis) to also allow cyclists to access the road. This route is proposed to form part of the long term strategic network as a local route. As part of any resurfacing works along the route, consider the implementation of Safe Active Street and high quality shared path treatments.

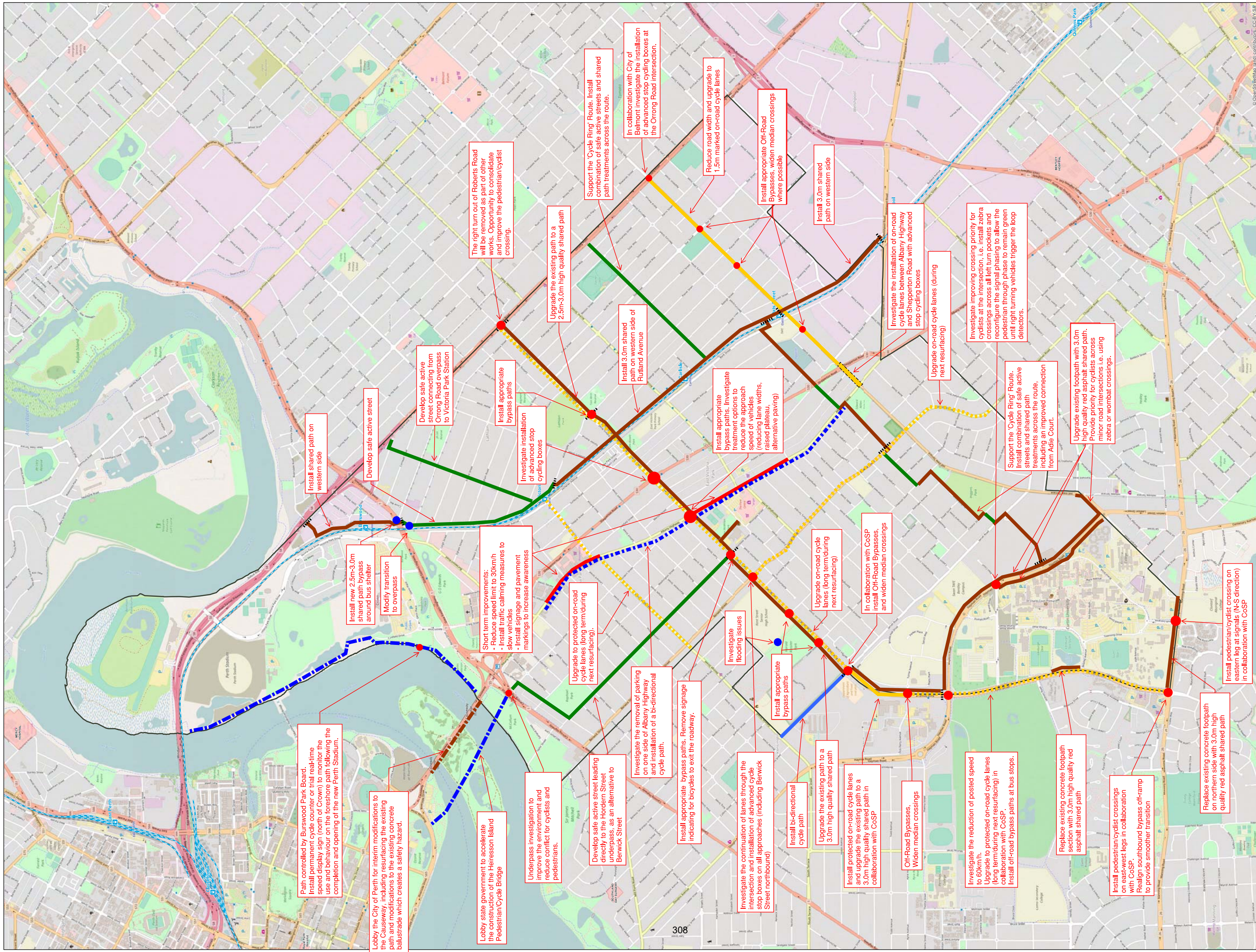
Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L16-B	Perth Cycle Ring (Baillie Avenue/ Somerset Street/ Bank Street)	Berwick Street and Oats Street Station	On-Road (unmarked) The road currently has no cycling facilities and is generally between 7.5m and 13.0m wide. Baillie Avenue and Somerset Street are labelled on the DoT Your Move Map as a local bicycle friendly route.		<ul style="list-style-type: none"> This route forms part of the “Perth Cycle Ring” report and is endorsed by the community This provides part of a local east-west route connecting from Curtin University to Oats Street Station, made up of a combination of high quality shared paths and safe active streets. Other attractions and destinations include Millen Primary School, Carson Street School, Aqualife Centre, South Metropolitan TAFE Carlisle Campus. This route carries predominantly low traffic, and is more suitable for less confident cyclists. An off-road environment only is suitable at Berwick Street, which has high traffic volumes. There is lack of controlled parking along Baillie Avenue. Provisions for crossing at major roads is lacking holding rails (i.e. Berwick Street, Albany Highway, Shepperton Road) The section of Somerset Street between Shepperton Road and Bank Street caters for increased traffic volumes (approximately 1,800 vehicles per day), a bus route and connects to the Aqualife Centre and TAFE Carlisle Campus. Lighting is lacking along sections of the route. 	<ul style="list-style-type: none"> This route is proposed to form part of the long term strategic network as a local route. As part of any resurfacing works, consider the implementation of a high quality shared path on the eastern side of Baillie Avenue adjacent to Edward Millen Reserve. Investigate the feasibility of installing a 2.5m-3.0m high quality shared path between Carson Street School and the National Archives of Australia. As part of any resurfacing works along the route, consider the implementation of Safe Active Street and high quality shared path treatments.
L17	Lion Street/ Asteroid Way/ Apollo Way/ Solar Way/ Gemini Way/ Galaxy Way	Oats Street Station and Orrong Road	On-Road (unmarked) The road currently has no cycling facilities and is generally between 7.5m and 8.5m wide.	 	<ul style="list-style-type: none"> This provides a local east-west connection between Carlisle Station and Orrong Road. This route carries predominantly low traffic, and is more suitable for less confident cyclists. Parking activity is high during events at Fletcher Park and the adjacent Catholic Church along Solar Way. Lighting is lacking along most of the route. The general amenity of sections of the route are poor, potentially discouraging use for some cyclists. Increased permeability for cyclists is provided at several locations along the route, where general traffic has restricted access and cyclists are provided with access. 	<ul style="list-style-type: none"> This route is proposed to form part of the long term strategic network as a local route. As part of any resurfacing works along the route, consider the development of the route as a Safe Active Street.

Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L18	Manning Road	Kent Street and Conlon Street	<p>Shared Path (off-road)</p> <p>A 1.6m to 2.0m concrete path runs along the north side of Manning Road.</p> <p>A 2.5m concrete path runs along the south side of Manning Road, which is within CoSP and not referred to here.</p>		<ul style="list-style-type: none"> This provides part of a key strategic east-west route that connects multiple key destinations including Curtin University, South Perth and Canning. Existing traffic volumes along the road are approximately 32,000 vehicles per day and the speed limit is 70km/hr. This is an unsuitable environment for on-road cycling. This is a high frequency bus route. The existing concrete path is narrow and lacks formalised signage, pavement and line marking. The draft City of Canning Cycling and Walking Plan proposes a 2.5m shared path along Manning Road between Conlon Street and Hamilton Street on one side (assumedly). There is a lack of adequate crossing facilities along Manning Road to Curtin University. 	<ul style="list-style-type: none"> As part of any resurfacing works along the path, replace the existing footpath with a 2.5m-3.0m wide high quality shared path. In collaboration with CoSP, upgrade existing crossing facilities at the Curtin University South entrance intersection, as proposed in the Manning Road prioritised project (outlined in Section 7.2).
L19-A	Mint Street	Albany Highway and Rutland Avenue	<p>On-Road (unmarked)</p> <p>Most of the road currently has no cycling facilities and is generally between 13.0m and 13.5m wide.</p>		<ul style="list-style-type: none"> This provides part of an east west connection between Albany Highway and Orrong Road. This section also connects Carlisle Station and the Park Centre shopping complex on Albany Highway. Existing traffic volumes along the road are approximately 11,000 vehicles per day and the speed limit is 50km/hr. This road is used by multiple bus services, which creates potential conflicts for on-road cyclists at bus stops. A sealed shoulder, approximately 1.5m wide is located between Hubert Street and Shepperton Road. This is narrow, not surfaced with red pavement, appropriately signed or marked, which may cause confusion for cyclists wishing to use the facility. The road is narrowed by a 2.5m painted/ concrete median, which further reduces space for on-road cyclists. An overpass is located at Shepperton Road, however the grades and width are not conducive to cyclists. There are no other crossing facilities provided at Shepperton Road 	<ul style="list-style-type: none"> This route is proposed to form part of the long term strategic network as a local route. As part of the next resurfacing, investigate the provision of 1.5m on-road bike lanes with consideration of protection, plus advanced stop cycle boxes on the Mint Street approaches of the Albany Highway and Shepperton Road intersections. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. As part of any upgrades to the rail crossing (i.e. grade separation), investigate the provision of 3.0m high quality shared paths with appropriate off-road bypass paths for each direction, or 1.5m on-road cycle lanes with protection kerb. With the above infrastructure, install wayfinding along the route particularly at Albany Highway and Shepperton Road. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).

Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L19-B					<p>for the east-west direction (i.e. pedestrian/cycle lanterns).</p> <ul style="list-style-type: none"> A rail crossing is located on the road, which lacks provisions for on-road cyclists. 	
	Archer Street	Rutland Avenue and Orrong Road	<p>On-Road (unmarked)</p> <p>Most of the road currently has no cycling facilities and is generally between 12.0 and 15.0m wide.</p>		<ul style="list-style-type: none"> This provides part of an east west connection between Albany Highway and Orrong Road. This section also provides access to Carlisle Station the Archer Street shops. Existing traffic volumes along the road are approximately 14,000 vehicles per day and the speed limit is 50km/hr. This road is used by multiple bus services, which creates potential conflicts for on-road cyclists at bus stops. Red asphalt pavement and formalised parking is located along the section of road between Raleigh Street and Mars Street, at the local shops. The road is narrowed by a 1.6m to 1.8m painted/concrete median with tree plantings, which further reduces space for on-road cyclists. Currently, less confident cyclists will ride on the existing footpath which has multiple conflict points, including pedestrians, service infrastructure and outdoor dining areas (etc). 	<ul style="list-style-type: none"> This route is proposed to form part of the long term strategic network as a local route. As part of the next road resurfacing, investigate the provision of 1.5m on-road cycle lanes with consideration of protection, plus off-road bypass paths on the Archer Street approaches and departures of the Bishopsgate Street, Star Street and Orrong Road intersections. The on-road cycle lanes must provide appropriate clearance from the door zone of the existing on-parking along Archer Street shops. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. With the above infrastructure, install wayfinding along the route particularly at Bishopsgate Street and Archer Street shops. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).
L20-A	McMillan Street	Berwick Street and Albany Highway	<p>On-Road (unmarked)</p> <p>Most of the road currently has no cycling facilities and is generally 10.0m wide.</p>		<ul style="list-style-type: none"> This provides an east west connection between George Street and Albany Highway, which provides access to South Perth and the Albany Highway commercial precinct. Existing traffic volumes along the road are approximately 6,000 vehicles per day and the speed limit is 50km/hr. This road is used by a bus service for the section between Berwick Street and Gloucester Street. Several median crossings are located along the road for cyclists and pedestrians. 	<ul style="list-style-type: none"> This route is proposed to form part of the long term strategic network as a local route. As part of the next road resurfacing, investigate the provision of 1.5m on-road cycle lanes with consideration of protection, plus advanced stop cycle boxes on the McMillan Street approaches of the Berwick Street and Albany Highway intersections. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. With the above infrastructure, install wayfinding along the route particularly at Gloucester Street and Albany Highway. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).

Link Reference	Street Name	Between	Description	Photos	Comments / Issues	Suggestions
L20-B	Duncan Street	Albany Highway and Victoria Park Station	<p>On-Road (unmarked)</p> <p>Most of the road currently has no cycling facilities and is generally between 10.0 to 12.0m wide.</p>		<ul style="list-style-type: none"> This provides an east west connection between Albany Highway and Victoria Park Station. Existing traffic volumes along the road are approximately 4,000 vehicles per day and the speed limit is 50km/hr. Formalised parking is located along the section between Albany Highway and Shepperton Road. There is a lack of pedestrian/cycle lanterns at the Shepperton Road signalised intersection. 	<ul style="list-style-type: none"> This route is proposed to form part of the long term strategic network as a local route. As part of the next resurfacing, investigate the provision of 1.5m on-road cycle lanes with consideration of protection, plus advanced stop cycle boxes on the Duncan Street approaches of the Albany Highway and Shepperton Road intersections. In addition, green asphalt should be used for the cycle lanes across all side intersections. Where possible, the existing traffic lane width should be narrowed to the minimum possible to facilitate a wider cycle lane. Investigation into a wombat crossing to provide improved access from Kitchener Avenue to Victoria Park Station is also recommended. With the above infrastructure, install wayfinding along the route particularly at Albany Highway and Victoria Park Station. This should form part of an overall wayfinding strategy (as outlined in Section 15.3.1).

Link				Convenience			Accessibility / Safety				Comfort				Attractiveness				Overall Score
Number	Name	Description	Location (between)	Continuity	Legibility	Directness	Worst Junction Conflict Point	Traffic Volume	Traffic Proximity / Mix	Traffic Speed	Link Conflict Points	Effective Width	Surface Quality	Maintenance	Overall Effort	Personal Security	Lighting	Quality of Environment	
L1	Town of Victoria Park Foreshore Path	Separated Path/Shared Path	Ellam Street and Windan Bridge	2	0	2	0	3	3	N/A	2	3	2	2	2	2	0	2	25
L2	Great Eastern Highway	Shared Path	Burswood Park and Great Eastern Highway Overpass	2	0	2	0	3	3	N/A	0	2	2	2	2	1	2	2	23
L3	Gallipoli Street	Shared Path	Orrong Road Overpass and Rutland Avenue	1	1	2	-1	1	1	0	0	3	0	0	0	0	0	2	10
L4	Bishopsgate Street	Bicycle Lane	Rutland Avenue and Archer Street	-1	0	1	-2	0	2	0	-1	0	2	0	2	2	1	1	7
L5	Ken Street/Miller Street/Roberts Road	Shared Path/Bicycle Lane	Manning Road and Orrong Road	0	0	2	-3	-3	2	-3	0	0	2	0	2	1	0	0	0
L6	Berwick Street	Sealed Shoulders	Canning Highway and Kent Street	-2	-2	2	1	-3	-2	-3	-2	0	0	0	-1	1	1	0	-10
L7	Armagh Street	On-Road	Berwick Street and Hordern Street	2	-2	2	0	3	-1	0	1	-2	2	2	2	2	1	2	14
L8	Gloucester Street	On-Road	Kent Street and Armagh Street	0	-2	2	-2	2	0	0	1	-1	1	1	-1	2	2	1	6
L9	Albany Highway	On-Road	Oats Street and the Causeway	-1	0	2	-2	-3	-2	0	-2	-1	2	2	2	2	2	2	3
L10	Rutland Avenue	On-Road	Welshpool Road and Great Eastern Highway	-1	-2	2	-1	2	0	0	1	1	0	1	2	0	0	2	7
L11	Hayman Road	Shared Path/Bicycle Lane	Hayman Road and Holder Crescent	-1	0	2	-2	-3	-2	-3	-2	0	1	2	2	2	1	2	-1
L12	Hill View Terrace/ Oats Street	Bicycle Lane	Holder Street and Orrong Road	-1	1	2	-2	-3	2	-3	-1	1	0	-1	0	1	0	1	-3
L13	Orrong Road	Shared Path	Cornwall Street and Kew Street	1	0	2	0	-3	3	-3	2	2	-1	-1	2	1	2	0	7
L14	Jarra Road	Bicycle Lane	Kent Street and Hill View Terrace	1	1	2	-2	2	2	0	-1	0	1	-1	0	1	1	1	8
L15	Baron-Hay Court	On-Road	Kent Street and George Street	2	-1	2	0	3	0	0	1	-2	-1	-1	-1	0	-2	1	1
L16	Perth Cycle Ring	On-Road	Hayman Road and Oats Street Station	0	-1	0	0	2	-2	0	0	-2	1	1	0	1	0	1	1
L17	Lion Street	On-Road	Oats Street Station and Orrong Road	1	-1	2	0	3	0	0	1	-1	0	-1	2	-1	-2	-1	2
L18	Manning Road	Shared Path	Kent Street and Conlon Street	1	0	2	0	-3	3	3	0	0	-1	-1	2	1	0	1	8
L19	Mint Street/ Archer Street	On-Road	Albany Highway and Orrong Road	0	0	2	-2	-3	-2	0	0	0	1	1	2	2	1	0	2
L20	McMillan Street/ Duncan Street	On-Road	Berwick Street and Duncan Street	0	0	2	1	0	-1	0	0	0	1	1	1	2	2	1	10



Path controlled by Burswood Park Board. Install permanent cycle counter or trial real-time speed display sign (north of Crown) to monitor the use and behaviour on the foreshore path following the completion and opening of the new Perth Stadium.

Lobby the City of Perth for interim modifications to the Causeway, including resurfacing the existing path and modifications to the existing concrete balustrade which creates a safety hazard.

Lobby state government to accelerate the construction of the Heirsson Island Pedestrian/Cycle Bridge

Underpass investigation to improve the environment and reduce conflict for cyclists and pedestrians.

Develop safe active street leading directly to the Hordern Street underpass, as an alternative to Berwick Street

Investigate the removal of parking on one side of Albany Highway and installation of a bi-directional cycle path.

Install appropriate bypass paths. Remove signage indicating for bicycles to exit the roadway.

Investigate the continuation of lanes through the intersection and installation of advanced cycle stop boxes on all approaches (including Berwick Street northbound)

Install bi-directional cycle path

Upgrade the existing path to a 3.0m high quality shared path

Install protected on-road cycle lanes and upgrade the existing path to a 3.0m high quality shared path in collaboration with CoSP

Off-Road Bypasses. Widen median crossings

Investigate the reduction of posted speed to 60km/h. Upgrade to protected on-road cycle lanes (long term/during next resurfacing) in collaboration with CoSP. Install off-road bypass paths at bus stops.

Replace existing concrete footpath section with 3.0m high quality red asphalt shared path

Install pedestrian/cyclist crossings on east-west legs in collaboration with CoSP. Realign southbound bypass off-ramp to provide smoother transition

Install shared path on western side

Develop safe active street

Develop safe active street connecting from Orrong Road overpass to Victoria Park Station

Install appropriate bypass paths

Investigate installation of advanced stop cycling boxes

Short term improvements:
- Reduce speed limit to 30km/h
- Install traffic calming measures to slow vehicles
- Install signage and pavement markings to increase awareness

Upgrade to protected on-road cycle lanes (long term/during next resurfacing).

Investigate flooding issues

Install appropriate bypass paths

Upgrade on-road cycle lanes (long term/during next resurfacing)

In collaboration with CoSP install Off-Road Bypasses, and widen median crossings

The right turn out of Roberts Road will be removed as part of other works. Opportunity to consolidate and improve the pedestrian/cyclist crossing.

Upgrade the existing path to a 2.5m-3.0m high quality shared path

Support the 'Cycle Ring' Route. Install combination of safe active streets and shared path treatments across the route.

In collaboration with City of Belmont investigate the installation of advanced stop cycling boxes at the Orrong Road intersection.

Reduce road width and upgrade to 1.5m marked on-road cycle lanes

Install appropriate Off-Road Bypasses, widen median crossings where possible

Install 3.0m shared path on western side

Investigate the installation of on-road cycle lanes between Albany Highway and Shepperton Road with advanced stop cycling boxes

Upgrade on-road cycle lanes (during next resurfacing)

Investigate improving crossing priority for cyclists at the intersection, i.e. install zebra crossings across all left turn pockets and reconfigure the signal phasing to allow the pedestrian through phase to remain green until right turning vehicles trigger the loop detectors.

Support the 'Cycle Ring' Route. Install combination of safe active streets and shared path treatments across the route, including an improved connection from Able Court.

Upgrade existing footpath with 3.0m high quality red asphalt shared path. Provide priority for cyclists across minor road intersections i.e. using zebra or wombat crossings.

Install pedestrian/cyclist crossing on eastern leg at signals (N-S direction) in collaboration with CoSP

Replace existing concrete footpath on northern side with 3.0m high quality red asphalt shared path



Appendix F – Infrastructure Project Sheets (ToVP)



1 Rutland Avenue Project

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	There is a very high demand for provisions of cycle infrastructure along this route. A high number of issues and safety concerns were raised along the route including high traffic speeds, high traffic volumes and lack of facilities for cyclists.	26-50	8.0	20%	8.83
	Stakeholders	The lack of cycle infrastructure along the rail line was discussed, which this Plan must support.				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This project forms part of the principal route along the rail line that acts a key connection for the region.	10	10.0	25%	
Connectivity	Schools	This project provides a connection to East Victoria Park Primary School.	6	7.6	25%	
	Tertiary	This project may increase cyclist connectivity, but connectivity to specific tertiary institutions will be limited.	2			
	Recreational and Tourism	This project is a major recreational route and provides direct access to a number of destinations including Burswood Precinct, Perth, Lathlain Precinct and Albany Highway.	10			
	Employment Zones	This project provides direct and convenient access to the Perth CBD and will assist commuters.	10			
	Public Transport	This project provides direct access to Welshpool Station, Oats Street Station, Carlisle Station and Victoria Park Station.	10			
Economic	Mode Shift	It is likely that this project could attract all cyclist groups to access Perth and key destinations within ToVP (i.e. Albany Highway).	10	6.7	5%	
	Impact on motor vehicles	Because of the separation to vehicles, this will not effect general traffic.	0			
	Economic Impacts	This project provides a connection to Albany Highway, Burswood and Perth.	10			
Safety	Cycling Safety	Providing appropriate facilities segregated from general traffic presents significant increases in safety for regular users.	10	10.0	15%	
	Pedestrian safety issues	The issues associated with conflict between pedestrians and cyclists will not increase because this project does not require the removal of the existing footpath on the east side.	10			
People and Communities	Level of Service	This project will reduce delay across the route, caused by vehicle interactions.	10	10.0	10%	
	Townscape/Urban Planning	This project aligns with planning to increase activity at Burswood Peninsula.	10			
Financial	Possible funding source	ToVP Capital Works Programme / Department of Transport				
				Amount		
	Estimated Capital Cost	Estimated cost over four stages of works			\$2,300,000.00	

* The number of stakeholder comments is included in the quantitative analysis for assessing the proposed projects. Note that the comments relate to a range of issues and are used to provide an indication of the level of stakeholder interest for the location in question.

2 Kent Street Project

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	From the online Mapping Tool, this route received the highest number of comments for cycling issues and safety concerns. Issues raised include the discontinuity of cycle lanes at sections of road and major intersections. Off-road facilities are also missing along sections or of low quality. The directness of the route and high level of community input highlights a clear desire for this project.	26-50	8.0	20%	8.07
	Stakeholders	A number of issues with intersections at major roads were raised, in addition to the missing gaps between Curtin University and the rest of Victoria Park.				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This forms a strategic route acting as a key east-west connection through Victoria Park and neighbouring Councils.	8	8.0	25%	
Connectivity	Schools	This project provides direct access to Kent Senior High School and East Victoria Park Primary School.	10	8.2	25%	
	Tertiary	This project provides direct access to Curtin University.	10			
	Recreational and Tourism	This project connects to a number of key destinations within ToVP including Curtin University facilities, Harold Rossiter Park, Albany Highway shops and Lathlain Park.	8			
	Employment Zones	This project provides improved connections to Curtin University and the Albany Highway commercial precinct.	8			
	Public Transport	This project will have some benefit in terms of connecting to public transport , as it improves the connection to the Rutland Avenue PSP and Victoria Park Station.	5			
Economic	Mode Shift	It is likely that this project could attract both non-confident and confident cyclists to Curtin University, and to attractors internal to ToVP (i.e. Albany Highway shops).	8	5.3	5%	
	Impact on motor vehicles	Reduction of speed limit between Manning Road and Jarrah Road and advanced cyclist stop boxes at signalised intersections will increase journey times for general traffic. A reduction in lane width and traffic calming measures may also reduce the level of service of motor vehicles.	-2			
	Economic Impacts	This project provides direct access to Waterford Plaza shopping centre and Albany Highway.	10			
Safety	Cycling Safety	Providing appropriate off-road facilities segregated from general traffic presents significant increases in safety for regular users. Off-road bypasses for on-road facilities and painted buffer zones will significantly increase safety for on-road cyclists.	10	9.0	15%	
	Pedestrian safety issues	Shared paths provide a higher probability of conflict between pedestrians and cyclists compared to other facilities.	8			
People and Communities	Level of Service	This project will improve comfort (smoother surface) and reduce delays at busy sections.	8	8.0	10%	
	Townscape/Urban Planning	This project aligns with planning to increase connectivity to Curtin University, and Albany Highway.	8			
Financial	Possible funding source	ToVP Capital Works Programme / City of South Perth / Department of Transport	Amount			
	Estimated Capital Cost	Estimated cost over four stages of works to provide a complete shared path connection between Manning Road and Orrong Road.	\$1,500,000.00			

* The number of stakeholder comments is included in the quantitative analysis for assessing the proposed projects. Note that the comments relate to a range of issues and are used to provide an indication of the level of stakeholder interest for the location in question.

3 Albany Highway Investigation

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	From the community survey, this route received the highest number of comments with regards to cycling issues and safety concerns. The lack of cycle infrastructure, lack of driver awareness and speeding drivers creates an intimidating environment for cyclists.	26-50	8.0	20%	7.67
	Stakeholders	Discussions were raised for the lack of cycle infrastructure along the route, and issues for providing this while maintaining on-street parking. The appropriate type of cross section along this route was a source of contention amongst stakeholders, considering the potential future planning within the area.				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This project forms a local route which provides a connection through the centre of ToVP and connects to strategic routes.	6	6.0	25%	
Connectivity	Schools	This project provides direct access to Victoria Park Primary School and connects with Ursula Frayne Secondary College.	10	7.2	25%	
	Tertiary	This project may increase cyclist connectivity, but connectivity to specific tertiary institutions will be limited.	2			
	Recreational and Tourism	This project is part of the Albany Highway commercial strip, which is a recreational destination.	10			
	Employment Zones	This project will provide improved access for commuters accessing the Albany Highway commercial precinct.	10			
	Public Transport	This project will have some benefit in terms of connecting to public transport, as it improves the connection to Victoria Park Station.	4			
Economic	Mode Shift	It is very likely that this project could attract non-confident cyclists to visit Albany Highway by bike.	10	5.3	5%	
	Impact on motor vehicles	Further reduction of the speed limit and traffic calming will increase journey times for general traffic.	-4			
	Economic Impacts	This project is part of the Albany Highway commercial strip.	10			
Safety	Cycling Safety	Removing pinch points, increasing driver awareness and reducing traffic speeds will significantly improve cyclist safety. Medium-term treatments for segregation will further reduce potential conflict points.	10	10.0	15%	
	Pedestrian safety issues	Existing footpaths remain providing segregation from all other modes.	10			
People and Communities	Level of Service	The project will improve comfort and reduce delay because of improved priority along the road.	10	10.0	10%	
	Townscape/Urban Planning	The project supports urban planning for Albany Highway.	10			
Financial	Possible funding source	ToVP Capital Works Programme	Amount			
	Estimated Capital Cost	Investigation into bi-directional cycle lanes on one side of Albany Highway, plus interim low cost measures to improve cycling awareness.	\$100,000.00			

* The number of stakeholder comments is included in the quantitative analysis for assessing the proposed projects. Note that the comments relate to a range of issues and are used to provide an indication of the level of stakeholder interest for the location in question.

4 Gloucester Street Project

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	There is demand for improved infrastructure connecting to the Swan River Foreshore. Berwick Street was raised during the survey as an area requiring improvement, which this project provides an alternative option.	6-15	4.0	20%	7.10
	Stakeholders	This project provides an alternative route to Berwick Street, which was raised as an area of significant concern for cyclists.				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This project forms a strategic route acting as a key north-south connection through Victoria Park to Perth.	8	8.0	25%	
Connectivity	Schools	This project provides a connection to Kent Street High School and Victoria Park Primary.	10	6.0	25%	
	Tertiary	No tertiary institutions are within close proximity to the project although it still could form part of the route to Bentley.	4			
	Recreational and Tourism	This project could be utilised to connect to key destinations along the foreshore such as Taylor McCallum Park. Connection to recreational uses on Albany Highway and at Curtin University (as it develops into activity centre) are also connected.	8			
	Employment Zones	This project provides improved connection for non-confident commuters to the Perth CBD.	8			
	Public Transport	The project does not connect to any major bus or train stations	0			
Economic	Mode Shift	It is likely that this project could attract non-confident cyclists to access Perth and Albany Highway.	10	6.0	5%	
	Impact on motor vehicles	The project would decrease the posted speed and remove priority from vehicles, increasing journey times.	-2			
	Economic Impacts	The project directly connects to The Park Shopping Centre.	10			
Safety	Cycling Safety	Removing pinch points, increasing driver awareness and reducing traffic speeds will significantly improve cyclist safety.	10	10.0	15%	
	Pedestrian safety issues	Existing footpaths remain providing segregation from all other modes.	10			
People and Communities	Level of Service	The project will improve comfort (if road is resurfaced) and reduce delay because of improved priority at intersections.	10	10.0	10%	
	Townscape/Urban Planning	The project supports urban planning for the Victoria Park area.	10			
Financial	Possible funding source	ToVP Capital Works Programme / Department of Transport				
				Amount		
	Estimated Capital Cost	Estimated cost based on recently completed Safe Active Street projects.	\$1,300,000.00			

* The number of stakeholder comments is included in the quantitative analysis for assessing the proposed projects. Note that the comments relate to a range of issues and are used to provide an indication of the level of stakeholder interest for the location in question.

5 Oats Street Project

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	There is demand for improved infrastructure along the entire length of Hill View Terrace and Oats Street, particularly where bicycle lanes end between Albany Highway and Shepperton Road.	6-15	4.0	20%	6.85
	Stakeholders	The abovementioned gap was also highlighted by stakeholders.				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This forms part of a strategic route acting as a key connection through to Belmont.	8	8.0	25%	
Connectivity	Schools	This project may increase cyclist connectivity, but connectivity to specific schools will be limited.	2	7.4	25%	
	Tertiary	This project provides direct access with the TAFE campus in Carlisle.	10			
	Recreational and Tourism	This project could be utilised for Aqualife and a number of parks.	8			
	Employment Zones	This project provides improved access for commuters accessing Curtin University, the Albany Highway commercial precinct and within the City of Belmont.	7			
	Public Transport	This project provides a direct connection from the east and west to Oats Street Station.	10			
Economic	Mode Shift	It is likely that this project could attract confident cyclists to access Curtin University and public transport.	8	4.0	5%	
	Impact on motor vehicles	This project may involve a reduction in lane width and traffic calming measures that may reduce the level of service of motor vehicles.	-2			
	Economic Impacts	This project connects to Albany Highway and forms part of the connection to Belmont Forum.	6			
Safety	Cycling Safety	Off-road bypasses for on-road facilities and painted buffers will significantly increase safety for on-road cyclists.	8	8.0	15%	
	Pedestrian safety issues	Existing footpaths remain providing segregation from all other modes.	8			
People and Communities	Level of Service	This project will improve comfort (smoother surface) and reduce delay at intersections.	8	8.0	10%	
	Townscape/Urban Planning	This project aligns with planning to increase connectivity to Albany Highway and Bentley.	8			
Financial	Possible funding source	ToVP Capital Works Programme / Department of Transport	Amount			
	Estimated Capital Cost	Estimated cost to install new on-road cycle lanes and widen existing on-road cycle lanes to provide a complete cycle connection between Holder Street and Orrong Road.	\$1,000,000.00			

* The number of stakeholder comments is included in the quantitative analysis for assessing the proposed projects. Note that the comments relate to a range of issues and are used to provide an indication of the level of stakeholder interest for the location in question.

6 Hayman Road Project

Objective	Sub Objective	Qualitative Impacts	Quantitative Assessment		Weighting	Weighted /10
			No. of Comments	Score / 10		
Public Consultation	Community Survey	There is demand for improved infrastructure along Hayman Road, due to the existing gap in off-road facilities causing inconvenience and safety concern.	6-15	4.0	20%	6.53
	Stakeholders	Curtin University raised the lack of cycle infrastructure along Hayman Road, to improve connectivity into the campus from the east side.				
			Score / 10	Average / 10		
Strategic	Completion of State Networks	This forms a strategic route acting as a key connection through to the Swan River Foreshore (via Douglas Avenue) and Kent Street.	8	8.0	25%	
Connectivity	Schools	This project may increase cyclist connectivity, but connectivity to specific schools will be limited.	2	5.4	25%	
	Tertiary	This project provides direct access with Curtin University (including Technology Park) and the TAFE.	10			
	Recreational and Tourism	This project will improve connectivity to sporting facilities at Curtin University.	4			
	Employment Zones	This project provides improved access to Curtin University for staff.	6			
	Public Transport	This project provides direct access to the Curtin University Bus Station, although a new station is planned internal to the campus	5			
Economic	Mode Shift	It is likely that this project could attract non-confident cyclists to Curtin University, removing a barrier to the final part of the journey.	8	2.7	5%	
	Impact on motor vehicles	Improvement of signal phasing for pedestrians and cyclists, and zebra crossings on side roads will increase delay for vehicles	-2			
	Economic Impacts	This project will not provide direct access to any shopping centres, but may have some positive effects to Curtin University stores.	2			
Safety	Cycling Safety	Providing appropriate facilities segregated from general traffic presents significant increases in safety for regular users.	10	9.0	15%	
	Pedestrian safety issues	Shared paths provide a higher probability of conflict between pedestrians and cyclists compared to other facilities.	8			
People and Communities	Level of Service	This project will improve comfort (smoother surface) and reduce delay because of zebra crossings at cross roads, and improved crossing phases at the Allen Court/Curtin Main Street intersection	10	9.0	10%	
	Townscape/Urban Planning	The project aligns with increasing connectivity to Curtin University, which is designated as a specialised activity centre.	8			
Financial	Possible funding source	ToVP Capital Works Programme / Department of Transport	Amount			
	Estimated Capital Cost	Estimated cost to install new 3.0m shared path to provide a complete shared path connection between Adie Court and Holder Street.	\$450,000.00			

* The number of stakeholder comments is included in the quantitative analysis for assessing the proposed projects. Note that the comments relate to a range of issues and are used to provide an indication of the level of stakeholder interest for the location in question.



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8.3 Draft HLTH6 Mobile Food Vendors (Vic Park Vendors) Policy



TOWN OF
VICTORIA PARK

HLTH6 Mobile Food Vendors
(Vic Park Vendor's) Policy

DRAFT



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PART ONE: GENERAL

1.1 Application of Policy

This Policy applies to mobile food vendors operating in the Town of Victoria Park.

1.2 Purpose

To guide and establish the appropriate location, management and operation of mobile food vendors within the Town of Victoria Park, in a manner that supports the use and enjoyment of the Town's public open spaces, while balancing the needs and interests of pedestrians, consumers and local business proprietors.

1.3 Objectives

The objectives of this Policy are to:

- (a) Increase the vibrancy and activation of public open spaces within the Town of Victoria Park by increasing their attraction to the community as destinations to relax, recreate and socialise;
- (b) Provide new interesting food experiences to the local community, particularly in suburban locations lacking in the number or diversity of available food options;
- (c) To increase the use of public open spaces by making them available to mobile food vending businesses with the potential to offer culturally diverse, unique, healthy, fresh, high quality, safe and reasonably priced food;
- (d) Promote the Town of Victoria Park as a food and beverage destination of choice;
- (e) Provide opportunities for the development and growth of small businesses;
- (f) Consolidate existing administrative procedures involved in the approval and regulation of mobile food vending activities.
- (g) Ensure mobile food vending activities are of a temporary nature and do not unreasonably compromise the amenity of surrounding residential areas.
- (h) Ensure that the activities of mobile food vendors can operate in harmony with other public open space users and do not result in damage to public open space vegetation or infrastructure.

1.4 Definitions

- **Designated Trading Area** means a Council approved location for permit holders to undertake mobile food vending in accordance with a valid *Vic Park Vendor's Permit*.



- **Itinerant food vehicle** means any vehicle selling food or drink from the roadway or other public place, that travels from place to place to engage in trade, and not staying in one location other than while executing a sale.
- **Itinerant food vending** is defined as the sale of food or drink from an itinerant food vehicle.
- **Itinerant food vendor** is a person or business involved in the preparation and dispensing of food products from an itinerant food vehicle.
- **Local Law** where mentioned in this Policy refers to the *Town of Victoria Park Activities on Thoroughfares and Trading in Thoroughfares and Public Places Local Law 2000*.
- **Mobile food vehicle** includes any:
 - a) Registered vehicle, caravan, trailer or any other method of transport from which food is sold; and
 - b) Non-road registered vehicles such, but not limited to, coffee carts, hotdog carts or similar vehicles;
 but does not include a temporary food stall.
- **Mobile food vending** is defined as the use of public space within a Designated Trading Area for the preparation and dispensing of food products by mobile food vendors.
- **Mobile food vendor** is a person or business involved in the preparation and dispensing of food products from a mobile food vehicle.
- **Permit holder** means the person(s) whose name is written on the Vic Park Vendor's Permit issued by the Town of Victoria Park.
- **Permit** refers to a Vic Park Vendor's Permit issued by the Council in accordance with this Policy.
- **Temporary food stall** includes a stall, tent or barbecue stand that is used to sell food at an occasional event and is usually dismantled after an event.
- **Vic Park Vendor's Permit** means a permit issued by the Town of Victoria Park under the provisions of the *Town of Victoria Park Activities on Thoroughfares and Trading in Thoroughfares and Public Places Local Law 2000* (as amended), granting conditional approval to a permit holder for mobile food vending within the Designated Trading Areas approved under this Policy.



PART TWO: PERMIT REQUIREMENTS

2.1 General

- (a) The operation and trading of mobile food vendors within the Town of Victoria Park will generally be restricted to the Designated Trading Areas adopted under this Policy.
- (b) The exception to 2.1(a) is for those mobile food vendors that have obtained a Temporary Food Business Permit from the Town of Victoria Park to operate and trade at a community (Council organised) or privately operated event.
- (c) All mobile food vendors trading at a Designated Trading Area within the Town of Victoria Park are required to:
 - i. Hold a valid *Vic Park Vendor's Permit*;
 - ii. Hold a current *Food Act 2008* Certificate of Registration from a Western Australian Local Government; and
 - iii. Obtain any other relevant approvals or consent.

2.2 Vic Park Vendor's Permit

- (a) The approval and issue of a *Vic Park Vendor's Permit* by the Town of Victoria Park constitutes the issue of a *Trader's Permit* under Part 5 of the *Activities on Thoroughfares and Trading in Thoroughfares and Public Places Local Law 2000* (as amended) (Local Law).
- (b) A permit holder must at all times comply with the requirements of the Local Law, this Policy and any conditions or restrictions specified on the permit.
- (c) *Vic Park Vendor's Permits* will be issued for the financial year in which the permit is sought, but for no less than one month's duration, and will expire on June 30 of the financial year for which the permit is granted.
- (d) The permit holder will be required to pay the relevant fees and charges as prescribed in the Town of Victoria Park's adopted Fees and Charges.
- (e) Permits will not be issued until the required fee has been paid.

2.3 Application Requirements

- (a) Applications for a *Vic Park Vendor's Permit* can be submitted year round but should be submitted at least one month (but no less than 14 days) prior to the intended commencement of trading.

The following information is required:

- i. A completed *Vic Park Vendor's Permit* application form;
- ii. A dimensioned site plan of the mobile food vehicle and its immediate surrounds, depicting the internal layout of the mobile food vehicle, the



extent of any projecting signs or fixtures, intended customer seating or queuing areas, etc.;

- iii. Labelled photographs and/or elevations of the mobile food vehicle (from all sides) depicting the external appearance of the mobile food vehicle, including the servery area, all external fixtures and signage, the location of generators or waste receptacles, etc;
- iv. A current Certificate of Currency (Public Liability Insurance) for a minimum of \$10,000,000. Permits shall be conditional upon permit holders maintaining current public liability insurance to this value at all times of trading;
- v. A copy of the manufacturer's specifications for any generators to be used (refer to clause 3.11(b));
- vi. A copy of a current *Food Act 2008* Certificate of Registration issued by the local government where the mobile food vehicle is housed and/or where the majority of the food preparation activities are occurring; and
- vii. other relevant documents or certification in support of the application (refer to section 2.4 below).

2.4 Application Assessment

- (a) Applications will be assessed on a case by case basis by the Town of Victoria Park having regard (but not limited) to the following evaluation criteria:
 - i. Demonstrated compliance with the *Food Act 2008* and *Food Safety Standards*.
 - ii. Membership/accreditation from one or more relevant industry groups or associations (e.g. WA Mobile Food Vendors Association membership).
Note: membership/accreditation is not mandatory but will be favourably considered.
 - iii. Quality and uniqueness of the business, the mobile food vehicle or its food offering.
 - iv. Competition (lack of) against local businesses with similar food offers.
 - v. Confirmation of self-sufficient operations without the need to connect to a power supply or any services.
 - vi. Public safety and comprehensiveness of information provided in application.

2.5 Permit Conditions

- (a) The Council may impose conditions subject to which an application for a *Vic Park Vendor's Permit* is approved in accordance with any of the provisions contained in this Policy.
- (b) As a condition of being granted approval for a *Vic Park Vendor's Permit*, permit holders must:



- i. Display the permit on the dash or another visually prominent location of the approved vehicle at all operating times;
 - ii. Comply with the conditions stipulated on the *Vic Park Vendor's Permit* issued by the Town of Victoria Park; and
 - iii. Comply with the requirements set out within this Policy, unless otherwise approved by the Town.
- (c) In accordance with Clause 6.2 of the Local Law, the Council may impose any other conditions it considers appropriate on the approval of an application for a *Vic Park Vendor's Permit*.

2.6 Change of Permit Details

- (a) A permit holder with a valid *Vic Park Vendor's Permit* may apply to the Town to have their permit details altered to reflect a change of mobile food vending vehicle or vehicle registration details.
- (b) A change of permit details does not extend the approval period of the original permit.
- (c) A change of permit details may incur an administrative fee where the change in vehicle requires detailed reassessment by the Town to ensure continued compliance with this Policy, the Local Law or relevant Environmental Health legislation.

2.7 Permit Renewal

- (a) A renewal application for a *Vic Park Vendor's Permit* should be submitted at least one month prior to the expiry of the permit and include the following:
 - i. A completed *Vic Park Vendor's Permit* application form;
 - ii. Details of any proposed changes to the mobile food vehicle or the manner in which it is operated;
 - iii. A copy of a current Certificate of Currency (Public Liability Insurance) for a minimum of \$10,000,000. Permits shall be conditional upon permit holders maintaining current public liability insurance to this value at all times of trading.
 - iv. A copy of a current *Food Act 2008* Certificate of Registration issued by the local government where the mobile food vehicle is housed and/or where the majority of the food preparation activities are occurring.
- (b) Renewal applications will be assessed on a case by case basis by the Town of Victoria Park.

2.8 Suspension and Cancellation of Permits

- (a) The Town reserves the right to temporarily suspend or cancel a permit, and/or alter the conditions of a permit, where the permit holder has failed to comply with the permit conditions, this Policy, the Local Law or the *Food Act 2008*.



- (b) Permit holders (as well as persons carrying out unauthorised trade or other activities on thoroughfares and public places in the Town) may be subject to infringement action where a breach of the Local Law has occurred. This includes a breach of any permit conditions applied by the Council in respect to this Policy.
- (c) Circumstances that may result in the cancellation of a permit, include (but are not limited to) those where the permit holder has been classified as a high risk vendor by Council's Environmental Health Officers (or other authorised officer) due to non-compliance with the *Food Act 2008* and any other associated environmental health legislation or regulations.

2.9 Events Trading

- (a) Mobile food vendors with a valid *Vic Park Vendor's Permit* will not need to apply for and obtain a separate Temporary Food Business Permit from the Town of Victoria Park to trade at an authorised/approved event occurring within the Town during the financial year for which the permit is valid. However, any permit holder must undertake the following prior to the event:
 - i. Obtain written consent from the event organiser to trade at the event; and
 - ii. Advise the Town of Victoria Park in writing (where the event is privately operated/not organised by the Town of Victoria Park) that they will be trading at the event.
- (b) Mobile food vendors who do not hold a valid *Vic Park Vendor's Permit* are required to apply for and obtain a Temporary Food Business Permit from the Town of Victoria Park, in addition to the written consent requirements outlined in section 2.9(a) above.
- (c) Existing permit holders to note that the possession of a *Vic Park Vendor's Permit* does not imply any right to trade at a community event run by the Town or a private operator. Written consent must be obtained from the event organiser to trade at any event and the Council must be kept informed in all instances.

2.10 Itinerant Food Vending

- (a) Itinerant food vending is generally not supported by the Council, in view of the following:
 - i. the unregulated and highly transient nature of trading that may present a public safety risk to pedestrians, vehicles and other road users through frequent stopping and moving on of itinerant food vehicles, and the potential conflict between customers and vehicles that may occur during trade;
 - ii. the playing of music or other forms of noise to attract customers that may cause disruption or nuisance to the residents of locations that itinerant vendors may travel through or trade within; and



- iii. the highly transient nature of the trade, which undermines the objectives of this Policy to increase the activation and enjoyment of the Town's public open spaces, as places for community members to gather and recreate.
- (b) Itinerant food vendors are instead encouraged to obtain a *Vic Park Vendor's Permit* from the Town to enable them to trade as a mobile food vendor at one or more of the Designated Trading Areas identified in this Policy.
- (c) Itinerant food vendors may apply for a Temporary Food Business Permit in order to trade at an approved event run by the Town or a private operator in the Town of Victoria Park.



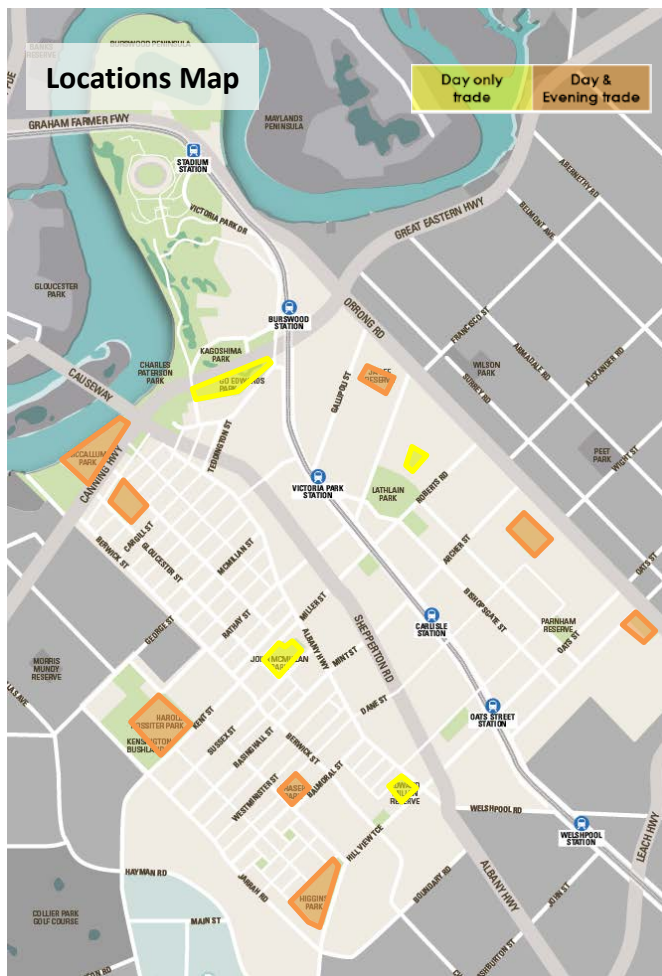
PART THREE: VENDOR TRADING AND LOCATION GUIDELINES

3.1 Approved Locations (Designated Trading Areas)

- (a) The Town of Victoria Park has approved the locations listed within Table 1 below for mobile food vending.
- (b) Only an approved permit holder with a valid *Vic Park Vendor's Permit* is permitted to trade within a Designated Trading Area.
- (c) Alternative or additional trading locations may be considered by the Council where they are considered to meet the objectives of this Policy.

Locations:	Burswood	Victoria Park	East Vic Park	Lathlain	Carlisle	St James
Day Only 7am - 5pm	G O Edwards Park	Edward Millen Reserve	John Macmillan Park	Rayment Reserve		
Day and Evening 7am – 9pm		Raphael Park	Harold Rossiter Park	J A Lee Reserve	Carlisle Reserve	Higgins Park
		McCallum Park	Fraser Park		Parnham Park	

Table 1: Approved Mobile Food Vending Locations



The above locations have been identified by the Council having regard to the distribution and diversity of trading opportunities throughout the Town, as well as the characteristics and available amenities and infrastructure at the public open spaces themselves.

Such public open spaces (which may often be under-utilised) are considered suitable and attractive to members of the community to recreate and enjoy their leisure time with family and friends, in a manner that is compatible with and potentially viable as a trading location for mobile food vendors.

Issues of proximity and competition with existing “bricks and mortar” food businesses and the objective to increase the choice and diversity of food options to the community have also been considered.

Maps of the Designated Trading Areas are located in Part Four of this Policy, in alphabetical order of their location. These indicate the trading area boundary, maximum number of vendors, permitted trading hours and points of access and egress for mobile food vendors.

3.2 Trading Hours

- (a) Trading in Designated Trading Areas at “Day Only” locations is permitted to occur from 7am to 5pm.
- (b) Trading in Designated Trading Areas at “Day and Evening” locations is permitted to occur from 7am to 9pm.

3.3 General Trading Requirements at Designated Trading Areas

The following requirements apply to all mobile food vendors trading within a Designated Trading Area:

- (a) The permit holder has obtained approval/authorisation from the Town to trade at the Designated Trading Area prior to the commencement of trade (Refer section 3.5).
- (b) Arrangements have been made for entry onto and securing the controlled access to the public open space on which the Designated Trading Area is located, prior to and at the end of trade. (i.e. The last trader to exit a Designated Trading Area is responsible for securing access onto the public open space when they leave).
- (c) All mobile food vending activities must occur within the boundaries of the Designated Trading Area detailed on the relevant map for each of the approved locations contained in Part Four of this Policy.
- (d) All mobile food vending vehicles are located so as not to obstruct pedestrian flow, vehicular traffic or access for emergency services.
- (e) The permit holder trades for a minimum of three (3) hours duration at the Designated Trading Area during any morning (7am to 12pm), afternoon (12pm to 5pm) and/or evening (5pm to 9:00pm) trading period that they have arranged and sought approval from Council to trade in.
- (f) The maximum number of mobile food vendors (on the relevant map for each of the Designated Trading Areas) is not exceeded during any trading period.
- (g) The Town reserves the right to refuse consent to permit holders to trade at the same trading area/public open space location if it is considered by the Town that the diversity or mix of traders would be adversely impacted by the permit holder trading at the same time as another permit holder with the same or similar food offer that has already been granted permission to trade at that time.
- (h) The Town reserves the right to refuse consent to permit holders to trade during any trading period in which organised sporting clubs or other groups have booked and reserved use of the public open space/playing field from



the Town, unless agreement has been obtained from that sporting club/group to trade during that trading period. This includes circumstances where trading is considered by the Town to conflict with incidental fundraising or charitable activities (e.g. sausage sizzles, spectator/club member events, etc.) of the sporting club/group.

3.4 Trading at Multiple Locations

Approved permit holders are permitted to operate at multiple locations within the Town of Victoria Park provided:

- (a) Each location of trade is authorised by the Town prior to the commencement of trade; and
- (b) All requirements of this Policy as apply to trading at a single location are met by the permit holder for all trading locations.

3.5 Booking of Trading Times and Locations

- (a) Permit holders must request and obtain a booking to trade during a particular morning (7am to 12pm), afternoon (12 pm to 5pm) and/or evening (5pm to 9:00pm) trading period at a Designated Trading Area through the Town's Community Development Officer – Clubs, Events and Booking (or other appointed Council Officer).
- (b) Bookings shall be made at least 1 week prior to the time of trading, and will be secured on a first come, first served basis.
- (c) Advance bookings or more than once month prior to the requested trading date will not be permitted.
- (d) Any permit holder who is unable to trade during a booked trading period should contact the Town to cancel the booking as early as possible, and preferably more than 1 week in advance of the trading period.
- (e) Permit holders are not permitted to make a booking to trade at more than one Designated Trading Area during the same trading period (morning, afternoon or evening).
- (f) Permit holders who make bookings to trade and then fail to trade without prior cancellation of their booking on two or more occasions may be refused further bookings to trade at a particular Designated Trading Area or have their permit cancelled.
- (g) A single permit holder may collectively book to trade at a Designated Trading Area on behalf of a number of permit holders, where the consent of all other permit holders has been provided to do so.
- (h) A collective booking does not over-ride any previous bookings made by any single permit holder(s) to trade at that same time/location being requested. In such circumstances, the collective booking will need to be altered/reduced such that the trading limitations for the requested Designated Trading Area continue to be met at all times.



3.6 Self-promotion, rostering and vendor management

- (a) All permit holders are strongly encouraged to utilise at least one social media platform to advertise and promote their arranged (booked) trading times to their friends/followers and the general public.
- (b) Mobile food vendors are encouraged to collectively roster, promote and manage their trading at the approved Designated Trading Areas within the Town of Victoria Park, on the proviso that all mobile food vendors are in possession of a valid *Vic Park Vendor's Permit*, and the booking procedures outlined in Section 3.5 are observed at all times.
- (c) The Town of Victoria Park will endeavour to make the details of the approved Designated Trading Areas and approved *Vic Park Vendors* (permit holders) available on the Council's website.
- (d) A group of permit holders may apply to the Council for approval to operate a Special Event at a Designated Trading Area location that exceeds the maximum number of permit holders normally permitted to trade. Examples may include themed cuisine events or cultural celebrations such as Chinese New Year, St Patrick's Day, Christmas, etc.
- (e) Applications for Special Events will be considered by the Council on a case by case basis and should be submitted at least 2 months in advance of the event.
- (f) Special Event applications are to be submitted by the event organiser/manager and detail the number of mobile food vendors intended to trade, provide confirmation that all traders hold a valid permit and that any non-permit holders (if relevant) will be applying for a Temporary Food Business Permit for the event.
- (g) Priority should be provided to existing permit holders to trade at a Special Event, where the event is occurring at or within close proximity to the location of a Designated Trading Area.

3.7 Suspension or Restriction of Trading at Designated Trading Areas

- (a) When an approved Town of Victoria Park event is held within or adjacent to a Designated Trading Area location, a permit holder must obtain the event organiser's consent to continue to trade at the specified event.
- (b) If the Town of Victoria Park states that a location is temporarily unavailable due to maintenance works (or for any other reasons) then the permit holder cannot trade at the specified location for that given time frame.
- (c) The Town has the right to make an approved location unavailable for a set period of time for community events, for works to be undertaken or any other reason the Town deems necessary.
- (d) The Council (without notice) may reduce the size/extent of a Designated Trading Area where it is considered necessary by the Council to ensure

public safety, address issues of public amenity due to excessive noise or other disturbances, or for any other reason the Town deems necessary.

3.8 Waste Management

- (a) The mobile food vendor is required to maintain the mobile food vehicle and the surrounding area to a high standard at all times of trading and in accordance with the following requirements:
 - i. When trading at an approved location the trading area must be cleaned frequently;
 - ii. No waste or litter from the vehicle may be disposed of into the Town of Victoria Park's rubbish bins. Mobile food vendors must provide adequately sized bins for patrons' and business use and remove all rubbish from the approved location at the end of trade;
 - iii. A mobile food vehicle must have a holding tank for wastewater; and
 - iv. Wastewater, solid waste, litter or any other pollutant must not be placed or discharged on to the site or allowed to enter the stormwater drainage system.

3.9 Temporary Fixtures (seating, tables, etc.)

- (a) A mobile food vehicle is permitted and strongly encouraged to provide temporary fixtures such as tables, chairs and umbrellas for the use of customers in accordance with the following:
 - i. The fixtures are to be of a temporary nature and removed from the site at the end of trade;
 - ii. The mobile food vehicle and temporary fixtures must be kept in a safe and well-maintained condition at all times;
 - iii. All temporary fixtures relating to the mobile food vehicle should be sturdy and made of quality materials without sharp edges or other features likely to cause harm;
 - iv. Any temporary fixtures relating to mobile food vehicles must not obstruct pedestrian flow or vehicular traffic;
 - v. The tethering or securing of mobile food vehicles and any associated fixtures must not result in any damage/penetration of the public open space surface, or any damage to Council buildings or trees/vegetation; and
 - vi. The tethering of any sign, canopy or any other object to Council buildings, trees or any other public open space infrastructure is not permitted, except with prior Council approval.

3.10 Signage and Advertising

- (a) All advertising is to be fitted to the mobile food vehicle with the exception of one temporary A-frame sign which:



- i. Shall be located within 75m of the location of the mobile food vehicle;
- ii. Shall not exceed any dimension of 1m or an area of 1m² on any side;
- iii. Be secured in accordance with any requirements of the Town of Victoria Park; and
- iv. An A-frame sign will be considered a temporary fixture and must comply with the requirements detailed in section 3.9 of this Policy.

3.11 Noise

- (a) The use of low level amplified noise (i.e. music) is permitted to create atmosphere and ambience during trading;
- (b) Permit holders that emit excessive levels of noise from their vehicles that is considered by Council to cause unacceptable nuisance to surrounding neighbours/properties may have their permission to emit low level amplified noise removed at the discretion of the Town;
- (c) Generators must not have a manufacturer specified operational volume greater than 75dB; and
- (d) All mobile food vehicle noise (including the generator) must comply with the assigned noise levels specified under the *Environmental Protection (Noise) Regulations 1997*.

3.12 Power and Utilities

- (a) All mobile food vehicles must be fully self-sufficient and not require any connection to Council services or utilities to carry out their operations.

3.13 Parking

- (a) Towing vehicles used to transport a detachable mobile food vehicle (e.g. a trailer or caravan) are not permitted to park within any Designated Trading Area or any part of the Council public open space and must be legally parked within a public car parking bay or other location.
- (b) Towing vehicles are to be driven away from the site during trading, and then return to collect the mobile food vehicle at the end of trade.
- (c) Any towing vehicles or staff vehicles parked within a public car park adjacent to a Designated Trading Area should park as far from the Designated Trading Area as possible to prioritise access and convenience for members of the public.

3.14 Public Liability and Risk Management

- (a) The mobile food vehicle permit holder must, for the duration of the permit, maintain public and product liability insurance for at least ten million dollars (\$10,000,000).
- (b) The permit holder assumes responsibility for any acts of negligence arising from their activity.



- (c) The mobile food vehicle permit holder assumes responsibility for any liability issues which may arise as a result of the operation of the mobile food vehicle being at the location, the activities of any staff related to the mobile food activity and any issues arising from the installation and use of temporary fixtures placed in association with the mobile food vehicle.



PART FOUR: APPROVED DESIGNATED TRADING AREAS MAPS

Carlisle Reserve
111 Briggs St, Carlisle

Designated Trading Area Boundary

Point of access and egress for mobile food vehicles

No. of vendors: Maximum of six (6) mobile food vendors operating at any one time


Trading Hours: Daytime trading ONLY from 7AM to 5PM

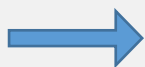
Vendor Access and Location Notes:

1. ALL Mobile Food Vendors must be parked/arranged so as not to obstruct entry gates and vehicular access onto the main public open space or its buildings in the event of an emergency.
2. ALL mobile food vehicles (including all towing vehicles) are to travel along the periphery of the public open space when accessing or exiting the Designated Trading Area(s) and not travel across the main public open space/playing field area.





 Designated Trading Area Boundary

 Point of access and egress for mobile food vehicles

No. of vendors: Maximum of ten (10) mobile food vendors operating at any one time

Trading Hours: Daytime trading ONLY from 7AM to 5PM

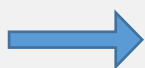
- Vendor Access and Location Notes:**
1. ALL Mobile Food Vendors must be parked/arranged so as not to obstruct entry gates and vehicular access onto the main public open space or its buildings in the event of an emergency.
 2. ALL mobile food vehicles (including all towing vehicles) are to traverse the periphery of ALL mobile food vehicles (including all towing vehicles) are to travel along the periphery of the public open space when accessing or exiting the Designated Trading Area(s) and not travel across the main public open space/playing field area.

Fraser Park

Fraser Park Road, East Victoria Park



Designated Trading Area Boundary



Point of access and egress for mobile food vehicles

No. of vendors: Maximum of six (6) mobile food vendors operating at any one time

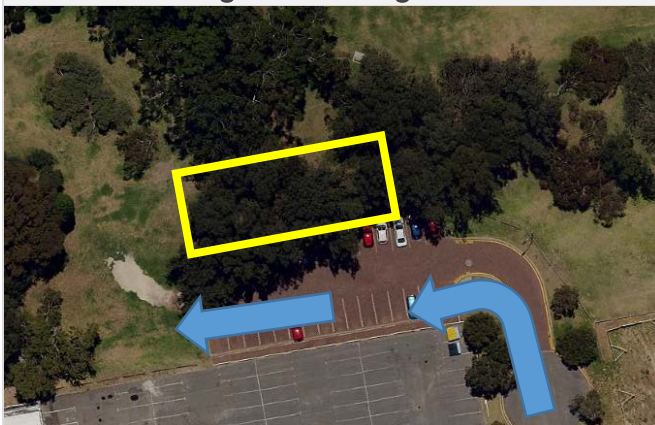
Trading Hours: Daytime (7AM to 5PM) AND evening trading (5PM to 9PM)

- Vendor Access and Location Notes:**
1. ALL Mobile Food Vendors must be parked/arranged so as not to obstruct entry gates and vehicular access onto the main public open space or its buildings in the event of an emergency.
 2. ALL mobile food vehicles (including all towing vehicles) are to travel along the periphery of the public open space when accessing or exiting the Designated Trading Area(s) and not travel across the main public open space/playing field area.

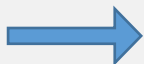


Designated Trading Area A

Designated Trading Area B



Designated Trading Area Boundary




Point of access and egress for mobile food vehicles

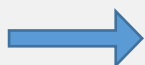
No. of vendors: Maximum of six (6) mobile food vendors per trading area at any one time

Trading Hours: Daytime trading ONLY from 7AM to 5PM

- Vendor Access and Location Notes:**
1. ALL Mobile Food Vendors must be parked/arranged so as not to obstruct entry gates and vehicular access onto the main public open space or its buildings in the event of an emergency.
 2. ALL mobile food vehicles (including all towing vehicles) are to travel along the periphery of the public open space when accessing or exiting the Designated Trading Area(s) and not travel across the main public open space/playing field area.



 Designated Trading Area Boundary

 Point of access and egress for mobile food vehicles

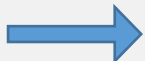
No. of vendors: Maximum of six (6) mobile food vendors operating at any one time

Trading Hours: Daytime (7AM to 5PM) AND evening trading (5PM to 9PM)

- Vendor Access and Location Notes:**
1. ALL Mobile Food Vendors must be parked/arranged so as not to obstruct entry gates and vehicular access onto the main public open space or its buildings in the event of an emergency.
 2. ALL mobile food vehicles (including all towing vehicles) are to travel along the periphery of the public open space when accessing or exiting the Designated Trading Area(s) and not travel across the main public open space/playing field area.



Designated Trading Area Boundary



Point of access and egress for mobile food vehicles

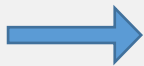
No. of vendors: Maximum of six (6) mobile food vendors operating at any one time

Trading Hours: Daytime (7AM to 5PM) AND evening trading (5PM to 9PM)

- Vendor Access and Location Notes:
1. ALL Mobile Food Vendors must be parked/arranged so as not to obstruct entry gates and vehicular access onto the main public open space or its buildings in the event of an emergency.
 2. ALL mobile food vehicles (including all towing vehicles) are to travel along the periphery of the public open space when accessing or exiting the Designated Trading Area(s) and not travel across the main public open space/playing field area.



Designated Trading Area Boundary

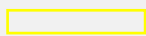


Point of access and egress for mobile food vehicles

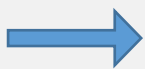
No. of vendors: Maximum of six (6) mobile food vendors operating at any one time

Trading Hours: Daytime (7AM to 5PM) AND evening trading (5PM to 9PM)

- Vendor Access and Location Notes:**
1. ALL Mobile Food Vendors must be parked/arranged so as not to obstruct entry gates and vehicular access onto the main public open space or its buildings in the event of an emergency.
 2. ALL mobile food vehicles (including all towing vehicles) are to travel along the periphery of the public open space when accessing or exiting the Designated Trading Area(s) and not travel across the main public open space/playing field area.



Designated Trading Area Boundary



Point of access and egress for mobile food vehicles

No. of vendors: Maximum of six (6) mobile food vendors operating at any one time

Trading Hours: Daytime trading ONLY from 7AM to 5PM

- Vendor Access and Location Notes:**
1. ALL Mobile Food Vendors must be parked/arranged so as not to obstruct entry gates and vehicular access onto the main public open space or its buildings in the event of an emergency.
 2. ALL mobile food vehicles (including all towing vehicles) are to travel along the periphery of the public open space when accessing or exiting the Designated Trading Area(s) and not travel across the main public open space/playing field area.

Other: At the time of adoption of this Policy, this public open space is the location of an approved event on Friday evenings. Permit holders are not permitted to trade at this event without the prior consent of the event operator/organiser.



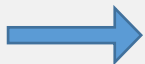
Designated Trading Area A

Designated Trading Area B

Designated Trading Area C



Designated Trading Area Boundary



Point of access and egress for mobile food vehicles

No. of vendors: Maximum of six (6) mobile food vendors per trading area operating at any one time


Trading Hours: Daytime (7AM to 5PM) AND evening trading (5PM to 9PM)

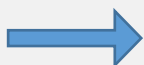
Vendor Access and Location Notes: 1. ALL Mobile Food Vendors must be parked/arranged so as not to obstruct entry gates and vehicular access onto the main public open space or its buildings in the event of an emergency.

Parnham Park

140 Mars St, Carlisle



 Designated Trading Area Boundary

 Point of access and egress for mobile food vehicles

No. of vendors: Maximum of six (6) mobile food vendors operating at any one time

Trading Hours: Daytime (7AM to 5PM) AND evening trading (5PM to 9PM)

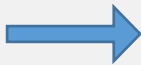
- Vendor Access and Location Notes:**
1. ALL Mobile Food Vendors must be parked/arranged so as not to obstruct entry gates and vehicular access onto the main public open space or its buildings in the event of an emergency.
 2. ALL mobile food vehicles (including all towing vehicles) are to travel along the periphery of the public open space when accessing or exiting the Designated Trading Area(s) and not travel across the main public open space/playing field area.

Raphael Park

Gloucester Street, Victoria Park



Designated Trading Area Boundary



Point of access and egress for mobile food vehicles

No. of vendors:

Maximum of eight (8) mobile food vendors operating at any one time

Trading Hours:

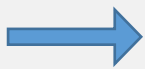
Daytime (7AM to 5PM) AND evening trading (5PM to 9PM)

Vendor Access and Location Notes:

1. ALL Mobile Food Vendors must be parked/arranged so as not to obstruct entry gates and vehicular access onto the main public open space or its buildings in the event of an emergency.
2. ALL mobile food vehicles (including all towing vehicles) are to travel along the periphery of the public open space when accessing or exiting the Designated Trading Area(s) and not travel across the main public open space/playing field area.



Designated Trading Area Boundary



Point of access and egress for mobile food vehicles

No. of vendors: Maximum of six (6) mobile food vendors operating at any one time

Trading Hours: Daytime trading ONLY from 7AM to 5PM

Vendor Access and Location Notes:

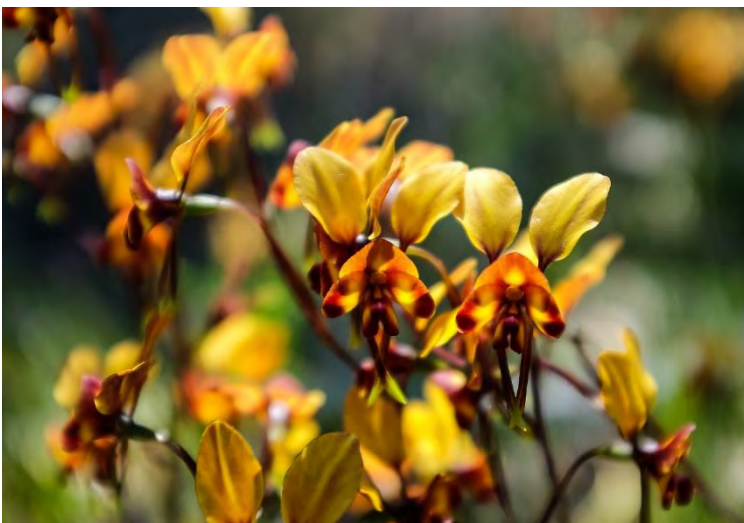
1. ALL Mobile Food Vendors must be parked/arranged so as not to obstruct entry gates and vehicular access onto the main public open space or its buildings in the event of an emergency.
2. ALL mobile food vehicles (including all towing vehicles) are to travel along the periphery of the public open space when accessing or exiting the Designated Trading Area(s) and not travel across the main public open space/playing field area.

8.5 Recommendation from the Future Planning Committee – Endorsement of Kensington Bush Management Plan

Kensington Bushland Management Plan

Prepared for
Town of Victoria Park

16 April 2018



DOCUMENT TRACKING

Item	Detail
Project Name	Kensington Bushland Management Plan
Project Number	16PER-4560
Project Manager	Joel Collins Level 1 Bishops See, 235 St Georges Terrace, Perth WA 6000 (08) 6218 2200
Prepared by	Jeni Morris, Michelle Doak, Joel Collins and Daniel Panickar
Reviewed by	Joel Collins, Michelle Doak
Approved by	Michelle Doak
Status	FINAL
Version Number	V3
Last saved on	16 April 2018
Cover photo	Carnaby's Black Cockatoo © Eco Logical Australia 2017. Other photos © Kat Wray RED ECLECTIC graphic design + photography

This report should be cited as 'Eco Logical Australia 2018. *Kensington Bushland Management Plan*. Prepared for Town of Victoria Park.'

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- Friends of Kensington Bushland
- Adele Scarfone of the City of South Perth
- Rebecca Ong from the Department of Biodiversity, Conservation and Attractions
- Mary Gray from the Urban Bushland Council.

Disclaimer

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Template 29/9/2015

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Abbreviations

Abbreviation	Description
BAM Act	<i>Biosecurity and Agriculture Management Act 2007</i>
DBCA	Department of Biodiversity Conservation and Attractions
DBH	Diameter at Breast Height
DEC	Department of the Environment and Conservation
DFES	Department of Fire and Emergency Services
DotEE	Department of the Environment and Energy
DPIRD	Department of Primary Industries and Regional Development
DTS	Dieback Treatment Services
DWER	Department of Water and Environmental Regulation
DWG	Dieback Working Group
ELA	Eco Logical Australia
EP Act	<i>Environmental Protection Act 1994</i>
EPA	Environmental Protection Authority
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999</i>
ESA	Environmentally Sensitive Areas
EWCP	Environmental Weed Census and Prioritisation
FCT	Floristic Community Types
the Friends Group	Friends of Kensington Bushland
ha	Hectare/s
IBRA	Interim Biogeographic Regionalisation for Australia
IPM	Integrated Pest Management
kL	Kilolitre
km	Kilometre/s
LGA	Local Government Area
LNA	Local Natural Area
mAHD	Elevation in metres with respect to Australian Height Datum
MoU	Memorandum of Understanding
NIASA	Nursery Industry Accreditation Scheme Australia
NRM	Natural Resource Management
P	Priority flora/fauna listed by the DBCA
PCYC	Police and Citizens Youth Centre

Abbreviation	Description
PMST	Protected Matters Search Tool
POS	Public Open Space
SCC	Swan Catchment Council
SERS	Site Environmental and Remediation Services
SOP	Standard Operating Procedure
T	Threatened flora/fauna listed under the EPBC Act
the Town	Town of Victoria Park
ToVP	Town of Victoria Park
TEC	Threatened Ecological Community
WA	Western Australia
WAH	Western Australian Herbarium
WALGA	Western Australian Local Government Association
WAM	Western Australian Museum
WAOL	Western Australian Organism List
WC Act	<i>Wildlife Conservation Act 1950</i>
WONS	Weed of National Significance

1 Introduction

1.1 Background

Kensington Bushland Reserve (the Reserve) is an approximate 9 hectare (ha) area of remnant bushland, located in the Town of Victoria Park, approximately 3 kilometres (km) east of Perth in Western Australia (WA; **Figure 1**). The Reserve is surrounded by a number of land parcels including:

- Kensington Secondary School to the north-west
- Kensington Police Station, DFES and George Street Reserve to the north
- Kensington Police and Citizens Youth Centre (PCYC) to the north-east
- Harold Rossiter Park and Kent Street Senior High School to the east
- Kent Street Sand Pit to the south-east
- Baron-Hay Court and the Department of Primary Industries and Regional Development – Department of Agriculture and Food to the south-west.

In 2015, the area incorporating the Reserve, George Street Reserve and the Kent Street Sand Pit were merged into one area by the Town of Victoria Park, called the Jirdarup Bushland Precinct (**Figure 1**). The creation of the Precinct recognised that these three areas do not function independently from each other, and that they are all linked to provide a valuable natural asset that needs to be protected. The Reserve provides an example of an intact *Banksia* woodland that the Jirdarup Bushland Precinct revegetation structure and diversity can be modelled against.

The Reserve and part of the adjoining Kent Street Sand Pit have been recognised as regionally significant by being designated as Bush Forever Site 48 (Government of Western Australia 2000). In addition, the Reserve is considered to be locally significant as it is the only sizeable bushland remnant remaining in the Town of Victoria Park Local Government Area (LGA). Its local significance is enhanced when considering the *Banksia* woodland presence in the context of adjoining LGA's City of South Perth and City of Belmont, which are also highly developed landscapes with small fragmented bushland remaining.

In recognition of the significance of the Reserve, the Council of the Town of Victoria Park (the Town) commissioned the development of the Kensington Bushland Protection Study in 2005 (Ecologia 2005). This served to guide the management of the land and surrounds to ensure protection of the Reserve.

In February 2016, a bushfire occurred within the Reserve, burning approximately 70% of the native vegetation. In light of this incident and the broader community interest to enhance and protect the Reserve, the Town commissioned the preparation of this Management Plan.

1.2 Purpose and scope

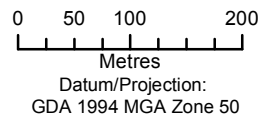
The purpose of this Management Plan is to provide for the long-term rehabilitation, protection and enhancement of the Reserve, which would build upon the Kensington Bushland Protection Study (Ecologia 2005).

This Management Plan is intended to be reviewed and updated after five years in 2022.

Figure 1: Kensington Bushland Reserve and surrounds



- Legend**
- Reserve boundary
 - Cadastre
 - Jirdarup Bushland Precinct



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1.3 Management Plan structure

This Management Plan has been prepared as a functional document, to allow adaptability and flexibility in management of the Reserve depending on the circumstances at the time. Following an initial introductory section (Section 1), the context of the Reserve (Section 2) is described and the threatening processes to those identified values (Section 3) are summarised. The last section (Section 4) outlines the Reserve management, providing a summary of previous actions that have occurred as well as outlining future management objectives and actions. There is some information included regarding future land development and surrounding land use management, however, this is addressed in more detail in other documents and is provided as an overview of options that are available in the context of protecting the Reserve rather than management actions for the surrounding areas (this Management Plan is not intended to provide management actions for areas surrounding the Reserve).

In regards to future management actions for the Reserve, some actions are specific and others are higher level. The higher level actions primarily relate to revegetation and weed control, as the Town and its contractors manage this specifically each year determining a plan based on the resources, circumstances and objectives for different areas across the municipality. There are, however, some standards that are required in regard to revegetation and weed control at all times (e.g. utilising local provenance propagation material (seed/cuttings) that is sourced from Kensington Bushland Reserve is a requirement for all revegetation activities at all times).

1.4 Associated documents

There are a number of other management initiatives, policies, guidelines and documents that have been prepared for the Town that are relevant to this Management Plan, including:

- Kensington Bushland Protection Strategy (Ecologia 2005)
- Remnant Vegetation Management Plan (Ecoscape 2003)
- George Street Management Plan (2014)
- Environmental Plan 2013 - 2018
- Strategic Community Plan 2017 - 2032
- Healthy Vic Park Plan 2017 - 2022
- Public Open Space Plan (in preparation)
- Urban Forest Strategy (in preparation).

Broader State Government documents are also relevant to the Reserve, including the draft Perth and Peel @ 3.5 million suite of documents.

2 Reserve context

2.1 Tenure and land use

Kensington Bushland Reserve forms part of Reserve 3694, which is Council controlled land, zoned as Parks and Recreation under both the Local Planning Scheme and Metropolitan Regional Scheme. The Kensington Bushland Reserve, along with part of adjoining Kent Street Sand Pit, was designated as Bush Forever Site 48 due to the high quality of remnant vegetation present (Government of Western Australia WA 2000).

The Reserve is used for passive recreation such as walking, dog exercise and bike riding, and provides an opportunity for bushland appreciation and education for nearby schools and others in the community.

The Reserve is classified in the Municipal Heritage Inventory within Management Category A, which is 'worth the highest level of protection'. These areas are: *'recommended for entry into the State Register of Heritage Places which gives legal protection; development requires consultation with the Heritage Council of WA and the local government; and provide maximum encouragement to the owner under the Town of Victoria Park Planning Scheme to conserve the significance of the place'*. The Reserve was added to the Municipal Heritage Inventory due to its aesthetic and scientific heritage significance.

2.2 Bioregion

The Interim Biogeographical Regionalisation for Australia (IBRA) Version 7 recognises 89 geographically distinct bioregions based on common climate, geology, landform, native vegetation and species information. The 89 bioregions are further refined into 419 subregions which are more localised and homogenous geomorphological units in each bioregion (Department of the Environment and Energy [DotEE] 2017a).

The Reserve lies within the Perth subregion of the Swan Coastal Plain bioregion, which comprises *Banksia-Jarrah-Marri* woodland on sandy soils. In the east, the plain rises to duricrusted Mesozoic sediments dominated by Jarrah woodland. The outwash plains, once dominated by *Casuarina obesa*, *Corymbia calophylla* (Marri) woodlands and *Melaleuca* shrublands, are only found extensively in the south (Mitchell et al. 2002).

2.3 Geology, soils and landform

The geology of the Reserve comprises the Bassendean Sands and is situated on the permeable Bassendean Dune System (Government of Western Australia 2000), which occurs as a varying thickness of 15 metres (m) to 90 m. The Bassendean Dune System lies in the centre of the Swan Coastal Plain and is the oldest of the Aeolian dune systems. The Bassendean Dunes consist of poor grey humic sands, are relatively flat, and generally support low shrubland with *Banksia* species often dominant (Government of Western Australia 2000). The Bassendean Dunes are underlain by the Pinjarra Plain and wetlands to the west, which comprise a clay base and can be generally associated with peaty sands formed between the dunes. The Bassendean Dune System is generally characterised by leached, infertile and acidic sands (Government of WA 2000).

The topography of the Reserve is gently sloping to the south-east, with elevation ranging from approximately 20 m above sea level in the south-east and south-west to 25 m above sea level in the north-west.

2.4 Hydrology

Superficial groundwater occurs beneath the site at around 5 mAHD, which means that the groundwater table occurs between 11 m and 22 m below ground level. The base of the aquifer is estimated to occur between -20 and -25 mAHD (Government of WA and Department of Water and Environmental Regulation [DWER] 2017). The Perth Groundwater Atlas indicates that regional groundwater flows in a west north-westerly direction towards the Swan River (Government of WA and DWER 2017).

There are no occurrences of surface water on the site or in the immediate surrounding areas.

2.5 Vegetation

The *Banksia* woodlands of the Swan Coastal Plain constitute the typical vegetation of much of the Perth area and are now highly fragmented by urban development (Stevens et al 2016) with the medium patch size estimated at 1.6 hectares (ha) (DotEE 2016a).

The vegetation of the Reserve is situated in the Bassendean Dunes geomorphic unit, as described by Hedde et al (1980), and is mapped as the Bassendean Complex – Central and South. The Bassendean Dune System stretches discontinuously for the whole length of the Swan Coastal Plain from Moore River to Dunsborough. The complex is described as vegetation ranging from woodland of *Eucalyptus marginata* - *Allocasuarina fraseriana* - *Banksia* spp. to low woodland of *Melaleuca* spp. and sedgeland on the moister sites. The Bassendean Complex – Central and South vegetation complex currently has 21.6% of its pre-European extent remaining within the Perth IBRA region (EPA 2015). In addition to the broad Hedde et al (1980) mapping of the Perth metropolitan region, vegetation of the Swan Coastal Plain has also been systematically surveyed and defined into Floristic Community Types (FCTs) by Gibson et al. (1994). One FCT is known to occur in the Reserve: FCT 23a – *Central Banksia attenuata* – *B. menziesii* woodlands (Government of WA 2000).

Three vegetation types have previously been identified as occurring within the Reserve including (Cranfield and Parker 1992):

- Low *Banksia* Woodland of *Banksia attenuata*, *Banksia menziesii* and *Banksia ilicifolia*
- Low *Banksia/Eucalyptus* Woodland containing the above-mentioned *Banksia* species as well as *Eucalyptus marginata*, *Eucalyptus todtiana* and *Allocasuarina fraseriana*
- Low Shrubland of *Allocasuarina humilis*.




The vegetation condition across the site is primarily Very Good (based on the Keighery scale), with some reasonable areas in Good condition and Excellent condition (**Figure 2**).

No Priority Ecological Communities have been identified at the site, however, one Threatened Ecological Community (TEC) is considered to occur within the Reserve: *Banksia* Woodlands of the Swan Coastal Plain TEC (DotEE 2016b). This TEC is listed as Endangered under the Australian Government *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The vegetation within the Reserve was determined to represent this TEC as it was formally assessed against and met the criteria and condition thresholds provided in the Conservation Advice (DotEE 2016a). Specifically, the vegetation in the Reserve has a prominent tree layer of *Banksia* and an understorey with a rich mix of sclerophyllous shrubs, graminoids and forbs. In addition, the Reserve contains 94% of key species which occur in the understorey and associated canopy species (e.g. *Eucalyptus marginata* and *Allocasuarina fraseriana*). Almost all of the vegetation within the Reserve is in Good or better condition and meets the minimum condition threshold and extent (DotEE 2016a). The vegetation within the Reserve also represents FCT 23a, which has a relationship to the TEC. The full assessment of vegetation in the Reserve against criteria set out in the Conservation Advice for the TEC is provided in **Appendix A**.

Figure 2: Kensington Bushland Reserve vegetation condition

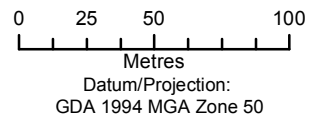


Legend

-  Reserve boundary
-  Track
-  Fire scar area

Vegetation condition (Keighery 1994)

-  Pristine
-  Excellent
-  Very good
-  Good
-  Degraded
-  Completely degraded



Datum/Projection:
GDA 1994 MGA Zone 50

2.6 Flora

Previous surveys (Ecoscape 2003), anecdotal sightings and seed collection records have recorded 208 flora species occurring within the Reserve, represented by 41 families and 111 genera. A preliminary flora species list for the Reserve is provided in **Appendix B**, however, this list is not intended to provide a full inventory of all species.

Based on database searches, 38 conservation significant species, listed as Threatened either under the EPBC Act or State *Wildlife Conservation Act 1950* (WC Act), or listed as Priority species by DBCA, have been recorded within a 5 km radius of the Reserve (DPAW 2007-2017; DotEE 2017b). One Priority 4 species, *Dodonea hackettiana*, has been planted within the reserve and surrounding revegetation sites. Based on a review of habitat requirements and previous survey effort it is considered that the remaining 37 conservation significant species are unlikely to occur within the Reserve.

A two-phase weed mapping survey of the Reserve was undertaken in spring 2016 and winter 2017 (ELA 2017), identifying 27 weed species. Of these, one Weed of National Significance (WONS) and Declared Pest under the *Biosecurity and Agriculture Management Act 2007* was recorded from two locations within the Reserve: *Asparagus asparagoides*. Two weed species recorded during the surveys are reported to have the greatest effect on community composition including Perennial Veldt grass and *Gladiolus caryophyllaceus* (DotEE 2016a). Other weeds which occur within the Reserve (but have not been mapped) and have the potential to become problematic include *Ehrharta longiflora* (Annual Veldt), *Ursinia anthemoides* (Urisinia) and *Misopates orantium* (Lesser Snapdragon) (**Appendix C**).

Weeds within the Reserve were generally widespread, with high densities recorded along tracks edges, at the edges of the Reserve, and in narrow strips of remnant bushland and rehabilitated areas, such as those that occur in the south of the Reserve (ELA 2017).

2.7 Terrestrial fauna

Two fauna surveys have been undertaken within the Reserve, including a one-season survey in 1990 (Turpin 1990) and a pitfall trapping survey undertaken in 2017 by staff from the Western Australian Museum and Friends of Kensington Bushland (the Friends Group). In addition, there are numerous anecdotal records, mainly from observations made by the Friends Group. The fauna survey undertaken in 1990 recorded a total of 17 birds, 12 reptiles, one amphibian and a number of invertebrates (Turpin 1990; Ecoscape 2003). This survey recorded the White-spotted Ground Gecko (*Lucasium alboguttatum*), which is the only record south of the Swan River in the Metropolitan Area (DPAW 2007-2017). Pitfall trapping surveys undertaken in 2017 recorded eight native reptiles, including, Western bobtail (*Tiliqua rugosa*), Buchanan's Snake-eyed Skink (*Cryptoblepharus buechananii*), Dugite (*Pseudonaja affinis*) and the Western Bearded Dragon (*Pogona minor*). No native mammals have been recorded within the Reserve, either during surveys or from anecdotal evidence. A full species list is provided in **Appendix D**.

Conservation significant fauna listed under State and/or Commonwealth legislation that have been observed within the Reserve include:

- *Calyptorhynchus latirostris* (Carnaby's Black Cockatoo) – listed as Endangered under the EPBC Act and Schedule 2 of the WC Act
- *Calyptorhynchus banksii* subsp. *naso* (Forest Red-tailed Black Cockatoo) – listed as Vulnerable under the EPBC Act and Schedule 3 of the WC Act
- *Merops ornatus* (Rainbow Bee-eater) – listed as Schedule 5 under the WC Act.

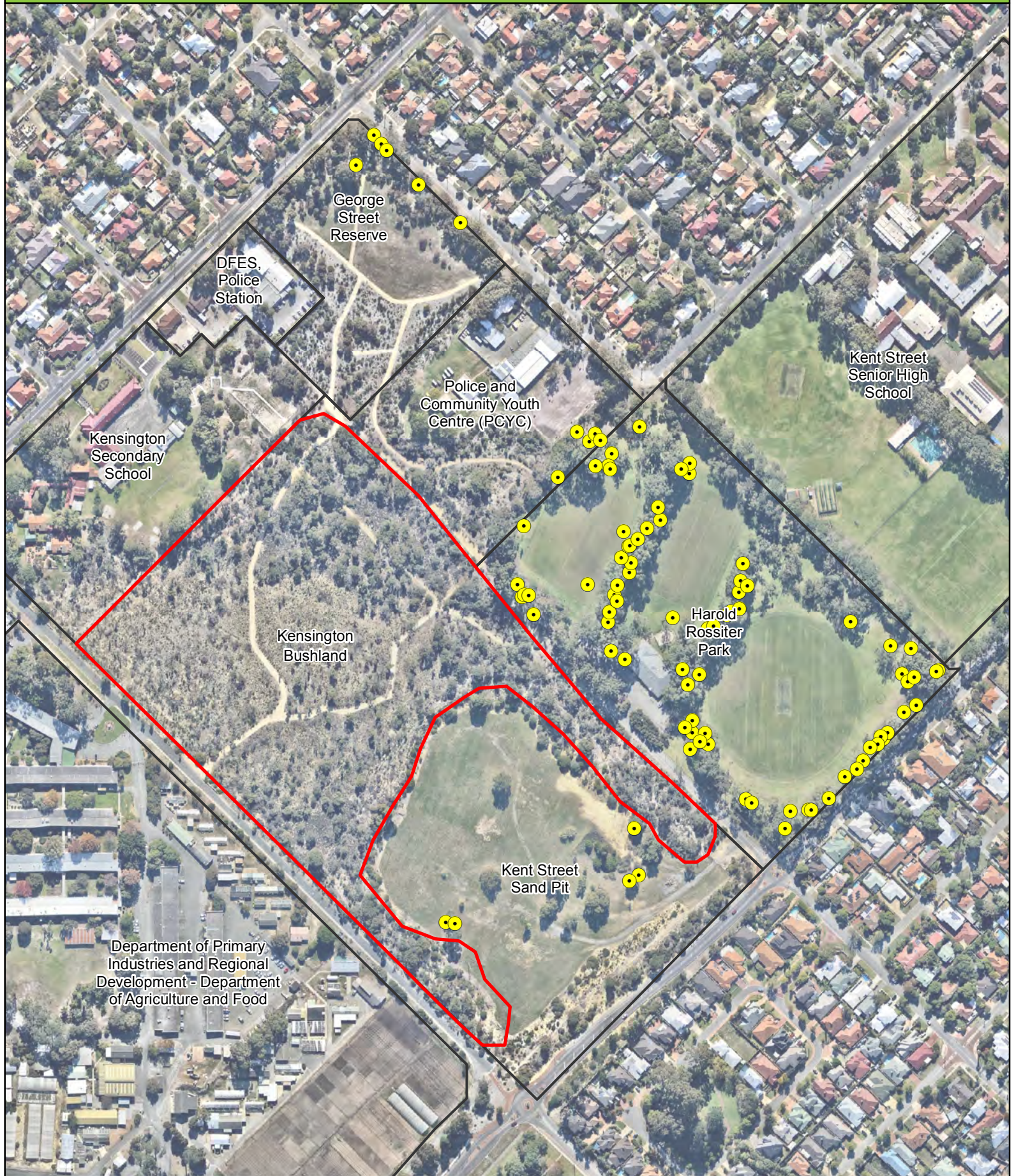
Significant Carnaby's Black Cockatoo and Forest Red-tailed Black Cockatoo roosts have previously been recorded in the wider Kensington area (BirdLife and DBCA 2017).

One Priority 4 species (*Isoodon obesulus* subsp. *fusciventer*, Quenda), listed by the Department of Biodiversity, Conservation and Attractions, has been recorded within the Reserve from secondary evidence (diggings).

Based on database searches, 51 species of conservation significance have been recorded within a 5 km radius of the reserves (DPAW 2007-2017; DotEE 2017). This includes 45 birds, three mammals and one reptile. In addition to the four conservation significant fauna species that have been observed in the Reserve, three additional conservation significant fauna species are considered to have the potential to occur (Perth Slider, Black-striped Snake and Peregrine Falcon) due to the occurrence of suitable habitat, occurrence of nearby records and connectivity to other remnant bushland areas. The remaining 45 species are considered unlikely to occur due to lack of suitable habitat (e.g. marine animals), proximity of previous records to the Reserve or those that are locally extinct.

A Black Cockatoo habitat assessment was conducted within the Reserve and surrounding areas. Potential breeding habitat trees for Black Cockatoos have a Diameter at Breast Height (DBH) over 50 cm and are therefore capable of forming hollows in which Black Cockatoos can potentially nest (SEWPac 2012). The assessment recorded a total of 91 trees that represent potential breeding and/or roosting habitat for Black Cockatoos; however, none of these occur within the Reserve (**Figure 3**). Known roosting sites and potential breeding trees occur in adjacent areas, such as Harold Rossiter Park. Approximately 31 *Eucalyptus gomphocephala* (Tuart), two *Eucalyptus marginata* (Jarrah) and one *Corymbia calophylla* (Marri) trees were identified as potentially suitable breeding trees during the assessment, and a number of occurrences of other tall planted non-endemic *Eucalypts* and Pine trees provide potential roosting habitat for Black Cockatoos. The Reserve contains suitable foraging habitat for Black Cockatoos in the form of *Banksia* species, which would provide an important food resource to Carnaby's Cockatoo, particularly for birds utilising the adjacent habitat for roosting and/or breeding. It is noted that non-endemic *Eucalypt* seedlings occurring in the Reserve within revegetation areas and have the potential to cause negative impact on native plant species survival and should be considered for removal in these situations.

Figure 3: Black Cockatoo habitat tree locations at Kensington Bushland Reserve and surrounds



- Legend**
- Reserve boundary
 - Cadastre
 - Black Cockatoo habitat tree

0 30 60 120
Metres
Datum/Projection:
GDA 1994 MGA Zone 50

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2.8 Environmentally Sensitive Areas

Environmentally Sensitive Areas (ESAs) are defined in the Environmental Protection Notice 2005 under section 51B of the *Environmental Protection Act 1994* (EP Act). ESAs include areas declared as World Heritage, included on the Register of the National Estate¹, defined wetlands, and vegetation containing rare (Threatened) flora, TEC's and Bush Forever Sites. ESA values that occur within the Reserve include the TEC "*Banksia* Woodlands of the Swan Coastal Plain" and Bush Forever site 48.

There are no areas listed on the Register of the National Estate or defined wetlands within the Reserve itself. However, the Swan-Canning Estuary, which is listed as a Nationally important wetland, occurs approximately 1.6 km to the north of the Reserve (DBCA 2017b; State of Western Australia 2012). The Swan-Canning Estuary provides important habitat for migratory shorebirds, fish and reptiles. The Reserve provides an ecological linkage to this area.

2.9 Ecological linkages

An ecological linkage is defined as 'a series of both continuous and non-continuous patches, which by virtue of their proximity to each other, act as stepping stones of habitat which facilitate the maintenance of ecological processes or the movement of organisms within and across the landscape' (Molloy et. al. 2009).




The Reserve is currently the best-preserved area of remnant bushland between the Swan and Canning Rivers and is therefore considered highly important as an ecological and cultural asset to the Town. Along with street-scaping and nearby parks, the Reserve forms ecological linkages with a number of smaller parks and reserves (**Figure 4**).

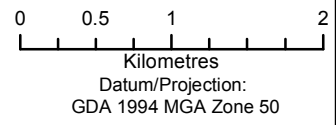
Whilst the Reserve does lie directly adjacent to George Street Reserve and Harold Rossiter Park, it is not physically connected to many of the smaller natural area reserves in the region. The Reserve, however, is still ecologically linked to these areas through movement from fauna (such as birds and insects) and flora (such as seeds and pollen) and, as such, provides important wildlife corridors or stepping stones for many species in an otherwise highly urbanised, fragmented landscape.

¹ The Register of National Estate was closed in 2007 and is no longer a statutory list. The Register of National Estate has been replaced by the National Heritage List under the EPBC Act.

Figure 4: Ecological linkages



- Legend**
-  Reserve boundary
 -  Bush Forever site
 -  Jirdarup Bushland Precinct



2.10 Heritage

The Town is within the Whadjuk state of the Bibbulmun nation of the Nyoongah people (Ecoscape, 2003). A search of the Department of Indigenous Affairs Aboriginal Sites Register did not identify any sites within the Reserve or surrounding area.

A search of the Heritage Council of WA's State Register of Heritage Places did not identify any areas of heritage significance within or surrounding the Reserve. The Reserve and the Kent Street Senior High School are both listed on the Town's Municipal Inventory. This is a list of places that in the opinion of the local government are, or may become, of local cultural heritage significance. Local governments are required under Section 45 of the *Heritage of Western Australia Act 1990* to prepare such a list. A place's entry in a Municipal Inventory is recognition of its heritage importance to the community. There are no statutory implications other than a requirement for the list to be sent to the Heritage Council for public information.

2.11 Infrastructure and amenities

Providing adequate infrastructure within the Reserve is important to minimise the spread of dieback, disease and weeds and to reduce trampling of flora and fauna habitat by visitors. Infrastructure generally provides access for unstructured recreation, pedestrians, dog walkers and authorised off-road activity. Infrastructure within the Reserve comprises fences, formal paths and tracks, gate and other access points, seats/benches, picnic areas, dieback cleaning stations, natural appreciation views and informative or educational signage (**Figure 5** and **Figure 6**).



a) Limestone track and fencing



b) Wire and post fencing



c) Pedestrian and vehicle access



d) Kensington Bushland sign



e) Noticeboard



f) Metal bench



g) Dieback signage



h) Phytofighter dieback cleaning station

Figure 5: Examples of infrastructure at Kensington Bushland Reserve

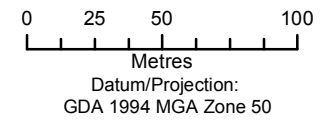
Figure 6: Existing infrastructure and access within Kensington Bushland Reserve



Legend
 Reserve boundary
 Track
 - - - Fencing

Infrastructure
● Dieback cleaning station
● Sign
A Bench

A Drinking fountain
A Rubbish bin
A Pedestrian access
A Vehicle gate



Datum/Projection:
GDA 1994 MGA Zone 50



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2.12 Surrounding land parcels and use

A brief overview of the land parcels surrounding the Kensington Bushland Reserve is provided below (Ecologia 2005) (**Table 1**). It should be noted that these land parcels do not form part of this Management Plan but are relevant to the area as a whole, and so a brief description is provided here for context.

Table 1: Land parcels and their use

Land Parcel	Description
Kent Street Sand Pit	<p>The Kent Street Sand Pit occurs on Council controlled land and forms part of Reserve 3694, and is zoned as 'Parks and Recreation' under both the Local Planning Scheme and Metropolitan Regional Scheme. The site was used as a landfill location between 1962 and 1990, and then subsequently used by the Council for the storage of construction materials, street sweepings and vehicle washing until 2006 (SERS 2015). The site has remained vacant and unused since and is currently classified under the <i>Contaminated Sites Act 2003</i> as 'Remediated for Restricted Use' (Department of Water and Environmental Regulation [DWER] 2017).'</p> <p>In July 2000, the Town resolved that the future use of the Kent Street Sand Pit site would be reserved for passive recreation and cultural purposes (ToVP 2004).</p>
George Street Reserve	<p>George Street POS lies on Council controlled land within Reserve 7682, and is reserved 'Public Purpose' under the Local Planning Scheme and 'Urban' under the Metropolitan Region Scheme. This site consists of a 0.8 ha grassed area with a few single large trees and a small area in the southern corner of mature grass trees (<i>Xanthorrhoea preissii</i>). George Street Reserve is used primarily for passive recreation and provides access to Harold Rossiter Park and the Reserve.</p> <p>George Street Reserve is contaminated from historical use as an uncontrolled landfill and as such is classed as 'Contaminated – Restricted Use' by the Department of Environment and Conservation (DEC; now known as Department of Water and Environmental Regulation; ToVP 2011).</p>
Harold Rossiter Park	<p>Harold Rossiter Park (the Park) lies on Council controlled land within Reserve 3694. The Park is zoned 'Parks and Recreation' under the Local Planning Scheme and 'Urban' under the Metropolitan Region Scheme, and is predominantly used for active and passive recreation and consists of a grass cricket pitch, cricket practice nets, two grass soccer pitches, clubhouse, dog exercise area, playground, picnic tables and car park with 86 parking bays. The Park contains a number of mature <i>Eucalyptus</i> and <i>Corymbia</i> trees which are considered of high value as they provide protection from the elements, shade for park users, buffer for the Reserve, a visual screen to the surrounding residents and habitat and food sources for native fauna including Threatened Black Cockatoos.</p>

Land Parcel	Description
Kensington Police and Citizens Youth Centre (PCYC)	The Kensington Police and Citizens Youth Centre (PCYC) lies on Council controlled land within Reserve 7682, and is zoned 'Public Purpose' under the Local Planning Scheme and 'Urban' under the Metropolitan Region Scheme. The PCYC consists mainly of buildings, basketball courts, barbeque areas, automotive workshops and an out of school care facility. There is a small area of unused remnant bushland (approximately 0.8 ha), on the south-east side which adjoins the Reserve. This vegetation is in poor condition with various weeds, bamboo, castor oil plants and several grasses, having invaded the remnant vegetation. However, several native species have been retained including <i>Corymbia calophylla</i> (Marri), <i>Banksia attenuata</i> (Candle Banksia), <i>Banksia menziesii</i> (Fire Wood <i>Banksia</i>) and <i>Adenanthos cygnorum</i> (Woolly bush).
Kensington Secondary School	The Kensington Secondary School lies on State Government controlled land, within Reserve 23941 and is zoned as 'Special Use – Education' under the Local Planning Scheme and as 'Urban' under the Metropolitan Region Scheme. This land parcel has a small area, <1 ha, of remnant bushland on the south-east boundary that lies adjacent to the Reserve. This vegetation is in fair condition despite having previously been used as a BMX track and rubbish and grass-cutting dumping ground. There are a number of weeds present within the area (Ecologia 2005).
DFES/Police Station	The St Johns Ambulance Station, Kensington Fire Station and Kensington Police Station occur on State Government controlled land. This land parcel is zoned 'Public Purpose – civic use' under the Local Planning Scheme and 'Urban' under the Metropolitan Region Scheme. This area of land is used for civic purposes. There is no remnant bushland on these sites or vegetation of significance.
Kent Street Senior High School	It occurs on Reserve 22151, on Government controlled land, and is reserved 'Public Purpose' under the Local Planning Scheme and 'Public Purpose – High School' under the Metropolitan Region Scheme. The school playing fields lie adjacent to Harold Rossiter Park with the two areas being delineated with a row of highly valued mature Eucalyptus trees.
Baron-Hay Court Road Reserve	The Baron-Hay Court Road Reserve occurs on Council controlled land and is part zoned 'Parks and Recreation' and 'Special Use – educational facilities' under the Local Planning Scheme, and as 'Urban' under the Metropolitan Region Scheme. Baron-Hay Court is a boundary road with the City of South Perth. There is a car park and entrance point on Baron-Hay Court for the Reserve. Baron-Hay Court is currently closed at the Kent Street end and is only used to access the Department of Agriculture Precinct on the west and the Reserve on the east. The court is used by bike riders and walkers as a thoroughfare between Kent and George Streets. Revegetation and weed management programs have been undertaken on the eastern side of Baron-Hay Court to improve the vegetation and to provide a buffer for the Reserve (Brendan Nock pers. comms. Town of Victoria Park 2017).

Land Parcel	Description
Department of Primary Industries and Regional Development – Department of Agriculture and Food	The Department of Primary Industries and Regional Development – Department of Agriculture and Food occurs on Government controlled land, located within the City of South Perth.

3 Threatening processes

Threatening processes are processes that occur that threaten or may threaten the survival, abundance or evolutionary development of a native species or ecological community. It is important to be aware of threatening processes present within natural areas to be able to manage and monitor accordingly. Threatening processes relevant to the Reserve include:

- weeds
- dieback
- arson
- trampling of native flora / vegetation
- introduced fauna / pests
- vandalism and rubbish dumping
- dumping garden refuse
- soil dumping and excavation
- changes to hydrological regimes
- edge effects from surrounding land parcels
- development of surrounding land parcels.

The main threats to the *Banksia Woodlands of the Swan Coastal Plain* TEC are fragmentation, Dieback, invasive species, inappropriate fire regimes, hydrological changes and climate change (DotEE 2016a).

Some of these threats are described in more detail below.

3.1 Weeds

Banksia woodlands are highly vulnerable to weed invasion (Rokish and Newton 2016). Weeds may impact on the biodiversity values across the Reserve by out-competing native species for nutrients, water, space and sunlight, reducing the natural diversity by smothering native plants or preventing them from growing back, reducing habitat for native animals and altering fire regimes (DotEE 2016a).

There are many vectors for the introduction and spread of weeds, such as edge effects from roads/cleared areas (weed invasion and human impacts), dumping of rubbish, escape of garden plants, human and animal transport and fire. Weed growth is common post-fire due to the reduction of competing biomass and introduction of nutrients into the system. While weed growth is not ideal, this does allow for the effective control of weeds post-fire due to dominance of weeds in a landscape that is otherwise devoid of native vegetation.

3.2 Dieback

Phytophthora cinnamomi (Phytophthora dieback) is a water mould that causes dieback disease in plants and is known to occur across the Swan Coastal Plain (CALM 2003). Dieback spreads through the movement of *Phytophthora cinnamomi* spores in soil. Spores are also spread via root to root contact from susceptible species (research suggests approximately 1 metre per year; Dieback Working Group [DWG] 2017). Any activities that result in the movement of soil can potentially spread dieback including:

- walking off track
- vehicle movement
- earthworks / construction activities
- soil / garden refuse dumping

- rubbish dumping
- water flows in sloping areas.

The potential impacts of dieback on the values of the Kensington Bushland includes:

- Death of up to 20% of the species diversity through direct susceptibility of these species to dieback (Ahmedi 2015).
- Death of species not directly susceptible to dieback but susceptible to changes in biophysical conditions resulting from death of susceptible species.
- Changed habitat availability due to changes in vegetation structure and diversity leading to loss of fauna and fungi diversity.
- Changed trophic relationships due to changes in vegetation structure and diversity leading to loss of fauna diversity.
- Loss of heritage values.
- Loss of visual and landscape values.
- Water table elevation due to the loss of vegetation resulting from deleterious effect to water sensitive species.

Previous dieback studies undertaken in the Reserve have recorded the presence of low dieback inoculum levels (i.e. zoospores, cysts, sporangia) and/or DNA from dead dieback (Ahmedi 2015). However, a recent dieback assessment was undertaken within the Reserve, with sampled sites testing negative for presence of dieback (Dieback Treatment Services [DTS] 2017). The assessment included field observations in combination with the collection of two soil and tissue samples in areas consisting of dead *Allocasuarina humilis* and/or *Banksia attenuata* trees (both susceptible species). Both sites tested negative for dieback (DTS 2017).

Host or indicator species that could be expected to reliably express disease symptoms within the Reserve include *Adenanthos cygnoram*, *Allocasuarina humilis*, *Banksia attenuata* and *B. illicifolia*, *Eucalyptus marginata*, *Jacksonia species*, *Macrozamia reidleyi*, and *Xanthorrhoea preissii* (DTS 2017).

Other dieback species in WA that may have the potential to impact the bushland include *P. cryptogea* and *P. nicotianae*.

3.3 Introduced fauna/pests

Feral (and domestic) fauna are a significant problem in the management of native fauna populations and can impact upon native flora and fauna, either through grazing, predation or direct competition for resources such as nesting hollows (DotEE 2016).

It is currently unknown to what extent introduced (feral) fauna may be utilising the Reserve. *Mus musculus* (House Mouse) and foxes are known to occur and it is considered likely that domestic (and possibly feral) cats and feral bees also occur within the Reserve.

3.4 Alteration of hydrological regimes

Alteration of hydrological regimes affects both the quantity and quality of surface and groundwater, upon which natural areas may be depending. Changes in surface water flows alters the drainage of an area, specifically some areas may receive more water and others may receive less. Groundwater abstraction for development and residential use lowers the water table and has the potential to cause a reduction in water available to plants, such as mature *Banksia* sp. Lowering groundwater levels have been suggested as the cause of some loss of *Banksia*'s in the Reserve to date.

4 Reserve management

4.1 Overview of current management initiatives

An overview of the implementation status of various management activities undertaken at the Reserve is provided in **Table 2**.

Table 2: Status of previously recommended management actions for Kensington Bushland Reserve and surrounds

Previous Management Plan recommendation / other initiatives	Status (ongoing, complete or incomplete)
Protect and revegetate the remnant vegetation on the Police and Citizens Youth Club, George Street Reserve and Kensington Secondary School sites	Commenced 2010; Ongoing (in Stage 3 of a five stage project)
Reclaim the remnant vegetation on the Kensington Secondary School site into council land by purchase or land swap	Feasibility yet to be investigated
Incorporate the remnant bushland surrounding the Kensington Bushland into a buffer between any future development and the bushland to ensure its long-term protection	Complete
If possible, expand the boundary of the Kensington Bushland Bush Forever boundary to include the remnant vegetation on the Police and Citizens Youth Club, George Street Reserve and Kensington Secondary School sites	To be investigated
Close Baron-Hay Court to vehicles beyond the Kensington Bushland car park and develop a shared path in place of the road. As part of developing the shared path expand the buffer between the shared path and the Kensington Bushland	Limited ability to close road given current access to DAFWA site.
Infill plant the area between Harold Rossiter Park and the Kensington Bushland	Commenced 2009; Ongoing expansion of buffer
Revegetate the buffer between Kent St and the Kent St Sand Pit	Commenced 2009; Ongoing
Revegetate the Kent St Sand Pit site with local native species that can be utilised as a seed production area for revegetation programs within the Town. Ensure that any revegetation is undertaken in a manner that does not preclude the future use of the area for an education / cultural centre	Commenced 2009; Surrounds ongoing, rest of site, to be confirmed
Ensure that the area of public open space within the study area is maintained so that pressure is not put on the Kensington Bushland Reserve for activities such as dog walking and bike riding	Ongoing
Restrict the number of trails through remnant vegetation areas by rehabilitating minor trails and providing set shared path for access between Kent St and George St	Commenced 2016; Complete (though constantly reviewed)

Previous Management Plan recommendation / other initiatives	Status (ongoing, complete or incomplete)
Ensure that any development proposals to the land surrounding the Kensington Bushland Reserve develop an environmental management plan to address potential impacts to the bushland from the development before approval is obtained	No definitive plans to develop the immediate surrounds to the Kensington Bushland Reserve has occurred to date
Other management initiatives undertaken by the Town	Status (ongoing, complete or incomplete)
Two boot cleaners (Phytofighter 1000) were installed at the Baron-Hay Court and the George St Reserve entrances to Kensington Bushland	Initial installation 2015, second installation occurred in 2016
Intensive weed control program within the bushfire area of Kensington Bushland focussing on grass and broadleaf weeds	Commenced 2016; Ongoing
A weed wiping / target spray / hand weed program has been implemented to control an extensive Gladiolus infestation throughout the Kensington Bushland	Commenced 2016; Ongoing (part of a staged 3-5 year program)
In collaboration with Brendon Nock (EO) and the Town's Coordinator of Ranger Services (Alan Bancroft) a Memorandum of Understanding has been reached with Kensington Secondary School to manage land adjacent to Kensington Bushland Reserve to reduce the immediate fire risk. This process has included initial discussions, review and negotiation of a revised fire response plan	MoU complete with implementation ongoing; MOU to be reviewed on an annual basis
Direct seeding project was undertaken by the Town in June 2017 where degraded areas in the 2016 bushfire zone were identified by vegetation condition mapping and 6.5 kg of seed was hand cast into site prepared revegetation zones. A monitoring report has been prepared by a consultant to measure the success of the project, with the information to be utilised to inform future revegetation management in areas considered to have low weed seed burden.	Commenced 2017; Ongoing
The Town of Victoria Park's natural areas operations has coordinated with the Western Australian Museum, Murdoch University students and the Friends of Kensington Bushland to conduct a pit trapping survey of the reptiles of the Reserve. This is the first pit trapping survey undertaken at Reserve since pit trapping was undertaken by the WA Naturalist Club in 1990. The Town of Victoria Park aims to build on the survey data collected to implement reptile conservation management initiatives to preserve the diversity of reptiles in the Reserve.	Completed 2017, ongoing management initiative.

4.2 Future management

4.2.1 Objectives

Table 3 outlines the objectives for the Kensington Bushland Reserve Management Plan.

Table 3: Objectives of the Management Plan

Topic	Objectives
Revegetation and buffer management	Improve the overall condition of the Kensington Bushland Reserve, improve native species cover and diversity.
	Maintain vegetation considered to be in Very Good or better condition.
	Undertake revegetation within Kensington Bushland Reserve to enhance and support the Jirdarup Bushland Precinct linkages.
	Reduce the threatening processes for the rehabilitation sites.
Weed management	Remove or reduce existing weed and non-endemic species infestations.
	Minimise the spread of weeds.
	Prevent introduction of additional weed species.
	Prevent further encroachment of weeds into bushland areas.
	Minimise any detrimental effects of the weed control programme on the native biota by following best practice guidelines.
Fire management	Maintain biodiversity and conservation values of the bushland.
	Minimise the bushfire risk to conservation values, lives, properties and assets.
	Reduce the incidence of unplanned fire / arson attacks.
Dieback management	Reduce the risk of introduction and/or spread of dieback.
	Educate the community about dieback and ways to reduce the risk of introduction and/or spread.
	No new dieback infestations to occur as a result of contractors', volunteers or community activities.
Fauna management	Conserve and enhance habitat to increase diversity and numbers of native fauna, and to improve connectivity for terrestrial fauna.
	Control feral animals where possible to reduce predation / competition with native fauna.
	Ensure that feral animal control measures do not adversely impact on the native biota of the reserves or on people visiting the area.
Infrastructure and access management	Protect the local biodiversity values from human degradation and impacts.
	Provide the local community with natural areas that are easily accessible, informative, enjoyable and safe.
	Enhance the social and built environment.
Community use and education management	Reduce the associated risks of community use to the biodiversity values of the Reserve.
	Provide a safe and enjoyable resource for the local community.
	Enhance community use and interest in the bushland reserves.

4.2.2 Management actions

To assist in decision making and in prioritising recommendations to address key issues, a priority ranking system has been developed and is shown in **Table 4**. Management actions for the Kensington Bushland Reserve are outlined in **Table 5** and **Figure 7**. It is noted that some actions outlined for particular features (e.g. weeds, fire) could also benefit other features (e.g. fauna).

The resources required to undertake the management actions are:

- \$40 per hour of the Town's officer time
- \$120 per hour of consultant time
- \$1.50 per seedling
- Accredited dieback free mulch, weed control chemicals, fencing materials, signage, nest boxes and dog-poo bag dispenser charged at cost
- \$6000 of consultant time for weed mapping
- Fencing contractor and nest-box installation costs as per industry rates
- Purchase and installation of water tank charged at cost

Table 4: Priority rankings for implementation of management

Priority ranking	Definition and justification	Recommended timing
High	High priority recommendations are an essential requirement and should be implemented immediately or as soon as practical. These recommendations will enable effective management decisions to be made and guide future management.	Effective immediately (i.e. within the next year) and/or applicable throughout life of plan on an annual basis
Medium	Medium priority recommendations are important and could also be implemented when additional funding and opportunities exist.	Within the next two to three years
Low	If suitable funding and opportunities exist, these recommendations should be investigated and implemented as additional value adding components and/or to gain additional knowledge and understanding of biodiversity values.	Within the next four to five years

Table 5: Kensington Bushland Reserve management actions

Item no.	Management action	Timing	Priority
Revegetation and Buffer Management			
1.1	Utilise local provenance propagation material (seed/cuttings) that is sourced from Kensington Bushland Reserve.	Ongoing	High
1.2	Revegetate using flora species that have previously been recorded in Kensington Bushland Reserve (Appendix B).	Ongoing	High
1.3	Where seedlings are to be planted, ensure seedlings are produced from a nursery accredited by the Nursery	Ongoing	High

Item no.	Management action	Timing	Priority
	Industry Accreditation Scheme Australia (NIASA), specifically to reduce the risk of dieback introductions and weeds.		
1.4	Species selected for inclusion in rehabilitation of sites which have been noted to have known or inferred resistance to dieback, if future surveys identify dieback presence	Ongoing	High
1.5	Use accredited dieback free mulch (Australian Standard AS4454) from authorised suppliers. Mulch is required to be large chip/hot composted for three days and tested for dieback batch by batch prior to being transported to site.	Ongoing	High
1.6	Undertake a revegetation program to improve native species cover and diversity	Annually	High
1.7	Engage the local community (including Friends of Kensington Bushland) to assist in undertaking the planting for any revegetation projects, through distribution of informative material or open planting days.	Ongoing	High
1.8	Consider watering seedlings through the first summer to increase survival rates	Ongoing	High
1.9	Undertake annual monitoring of revegetation sites to assess survival rates and requirement for follow up works.	Annually	High
1.10	Investigate the potential impacts of groundwater draw down on mature <i>Banksia</i> sp	Every three years	Medium
1.11	Undertake the removal of non-endemic Eucalypt species within revegetation areas, prior to revegetation occurring	Annually	High
Weed management			
2.1	Undertake weed control works to assist and maintain vegetation in Very Good or better condition (starting in areas of higher quality bushland and working outwards) as per Bradley (1997) method, to facilitate natural recruitment of native species. Undertake removal of non-endemic Eucalypt species prior to revegetation activities.	Annually	High
2.2	Implement a weed control program to remove or reduce weed species cover and distribution, as per weed timing schedule based on growth form provided in Appendix E .	Ongoing	High
2.3	Undertake weed control efforts on tracks/paths, disturbed areas and potential revegetation sites. If hand-weeding, remove all flowering and fruiting material from the site.	Ongoing	High
2.4	Implement an ongoing weed monitoring/mapping program to identify new weed infestations and to record weed species cover and distribution. From this, the success of the weed control management actions can be	Every three years	Medium

Item no.	Management action	Timing	Priority
	evaluated/measured and recommendations made using an adaptive management framework. Recommendations shall also be made on whether weed management actions need to be updated to be consistent with best practice principles.		
2.5	Undertake monitoring and where required, weed control activities following disturbances such as fires.	Ongoing	High
2.6	Prevent introduction of weeds by removing dumped rubbish and minimising soil disturbance through maintaining pathways.	Ongoing	High
2.7	Ensure weed control contractors are following best practice guidelines and using correct herbicides for weed species.	Ongoing	High
2.8	Inspect vehicles and machinery prior to site entry to ensure it is free from soil/organic material.	Ongoing	High
2.9	Engage with surrounding landholders to promote an integrated weed management approach to reduce weed encroachment into the Reserve.	Ongoing	High
2.10	Undertake the removal of non-endemic <i>Eucalypt</i> species across the Reserve.	Ongoing	Medium
Fire Management			
3.1	Restrict the use of machinery and tools that have the potential to ignite fires, such as angle grinders and welders, when the fire danger rating is Very High or above (e.g. during any maintenance works).	Ongoing	High
3.2	Ensure fire extinguishers are present on site during operations which are likely to start a fire (e.g. works requiring angle grinders or welders).	Ongoing	High
3.3	Undertake manual fuel reduction within the Reserve itself (e.g. removal of dead plant material in the understorey where required, weed control etc.). Dead trees will be prioritised for retention where appropriate.	Ongoing	Medium
3.4	Investigate the benefits of a mosaic burn regime for the Reserve towards the end of the five-year plan.	Year 5	Low
3.5	Undertake regular maintenance of grassy areas adjacent to the Reserve (e.g. mowing of grass etc.) to maintain available fuel loads within 5 t/ha.	Ongoing	High
3.6	Ensure all firebreaks are cleared and maintained prior to the onset of fire season.	Ongoing	High
3.7	Install a firebreak along the northwest boundary of the Reserve.	Year 1	High

Item no.	Management action	Timing	Priority
3.8	Install water tanks in the Reserve to aid in fire suppression activities, tank size a minimum of 10-50 Kilolitre (kL)	Year 1	High
3.9	Install temporary Fire Danger Rating signs on days of Catastrophic Fire Danger to warn the public not to enter the Reserve and help reduce the risk of ignition.	Ongoing	High
3.10	Encourage community reporting of suspicious behaviour, especially on days of high fire danger or above.	Ongoing	High
3.11	Provide a public education/community awareness program highlighting the dangers of lighting fires and the penalties that may apply if caught.	Ongoing	High
3.12	Develop a comprehensive Fire Management Plan for the Reserve	Ongoing	Medium
Dieback Management			
4.1	Monitor for fresh deaths of susceptible species to trigger dieback assessment and mapping.	Ongoing	High
4.2	Implement an ongoing dieback assessment, testing and mapping program.	Every three years	Medium
4.3	Undertake phosphite treatment program of susceptible species if surveys identify dieback presence.	As required	Medium
4.4	Undertake regular inspections of infrastructure such as fencing, limestone tracks, dieback hygiene stations, informative signage and dumped rubbish, soil and / or garden refuse. Repair / remove as required	Ongoing	High
4.5	Remove dumped rubbish, soil and garden refuse from locations shown in Figure 7 .	Ongoing	High
4.6	Ensure all staff, contractors and volunteers are informed of and comply with the Town's Dieback Management Procedures and Protocols handbook (Town of Victoria Park 2012) through regular training and if possible Green Card Training	Ongoing	High
4.7	Use only accredited suppliers, contractors and nurseries in line with the Town's Dieback Management Procedures and Protocols handbook (ToVP 2012).	Ongoing	High.
4.8	Review the locations and integrity of boot-cleaning stations and signage to suit any changes in dieback occurrence within the Reserve.	Ongoing	Medium
4.9	Facilitate and encourage research in soil science in an effort to find out why active <i>Phytophthora cinnamomi</i> has not yet revealed itself.	As required	Low
Fauna Management			

Item no.	Management action	Timing	Priority
5.1	All potential breeding habitat trees for Black Cockatoos should be retained and prohibited from clearing. Leave dead trees standing.	Ongoing	High
5.2	Install a minimum of six artificial nest boxes in the large mature eucalypt trees surrounding the Reserve to encourage use by native fauna. Nest boxes should incorporate large (entrance hole size 14-19 cm), medium (entrance hole size 6.5-10 cm) and small sizes (entrance hole size 4.5-5 cm), which target different bird species, such as parrots, kingfishers, ducks, nightjars, owl and pardalotes. Purpose-built bat boxes should also be installed to encourage bat nesting and roosting.	Year 1	High
5.3	Undertake monitoring of nest boxes every 2 years to establish the extent to which native and feral fauna are utilising the boxes, and to address any issues (fallen or vandalised nest boxes, etc.).	Every two years	Medium
5.4	Raise awareness within the community about domestic cat use within the Bushland.	Ongoing	High
5.5	Undertake feral fauna monitoring within Kensington Bushland Reserve, which could include monitoring for scats, dens or burrows and diggings, or with the use of remote-sensor cameras.	Every three years	Medium
5.6	Undertake feral bee control in nest boxes as required.	Ongoing	High
5.7	Ensure that dogs are on leads at all times when walking through the Bushland.	Ongoing	High
Infrastructure and Access Management			
6.1	Repair damaged fencing located at the corner of Baron-Hay Court and the boundary of Kensington Secondary School (Figure 7).	Ongoing	High
6.2	Inspect all signage, fencing (including internal), dieback cleaning stations, benches and access infrastructure on a regular basis for damage by fire or vandalism and upgrade when necessary.	Ongoing	High
6.3	Monitoring is undertaken for all tracks and that maintenance of these tracks be undertaken as required.	Ongoing	High
6.4	Replace 4 rehabilitation signs (Figure 7).	Year 1	High
6.5	Re-attach dieback sign located at the Baron-Hay Court entrance (Figure 7).	Year 1	High
6.6	Install 'No Parking – Keep Clear' signs on vehicle access gates at the Etwell Street and George Reserve entrances (Figure 7).	Year 1	High

Item no.	Management action	Timing	Priority
6.7	Replace or trim vegetation surrounding two 'Keep Out – Deep Excavation' and one 'Trespassers Will Be Prosecuted' signs installed on the fence surrounding the excavated sand pit area. Alternatively, remove signs if they are no longer considered necessary (Figure 7).	Year 1	High
6.8	Repair or replace drinking fountain located inside the Etwell Street entrance (Figure 7).	Year 1	High
6.9	Install a dog-poo bag dispenser at the Baron-Hay Court entrance and inspect on a regular basis for damage by fire or vandalism and upgrade when necessary (Figure 7).	Year 1 and ongoing	High
6.10	Remove all occurrences of dumped rubbish and undertake regular inspections and subsequent clean ups for rubbish removal (Figure 7).	Ongoing	High
Community Use and Education Management			
7.1	Organise community and/or school participation days such as wildlife or wildflower walks, fungi surveys, nest box building events, revegetation, weeding events, participating in the Great Cocky Count or involving the community in nest box or fauna monitoring programs.	Ongoing	High
7.2	Advertise community participation days through the Town's and the Friends Group website and social media pages.	Ongoing	High
7.3	Raise community awareness through updates to the Town's and the Friends Group website and social media pages. This could include promoting responsible pet ownership (dogs on leads), use of dieback stations, advising of legislation in relation to domestic dogs and cats, prohibiting the dumping of garden refuse and rubbish, lists of suitable species for gardens to provide habitat and complement natural areas, lists of invasive plant species to avoid planting in gardens and the consequences of arson.	Ongoing	High
7.4	Consider developing an interpretational trail linked to the website about the Reserve, its biodiversity values and the Friends Group/community involvement (and requirement for members). Develop the trail so that it is interactive and can be available on personal mobile devices, such as smart phones.	Ongoing	Medium

4.2.3 Contingencies, review and reporting

Annual reviews of the Management Plan will identify the progress and efficacy of projects, and have the ability to adapt to emergent issues, reconsidering the priority and scope of projects to ensure major

benefits for the Reserve are achieved in the years of implementation. A range of contingency actions will be implemented by the Town where objectives are not met (**Table 6**).

Table 6: Contingency actions

Topic	Contingency actions
Revegetation and buffer management	<ul style="list-style-type: none"> • Review the revegetation process (e.g. timing, techniques, selected species) and make changes where required. • Implement supplementary revegetation efforts. • Amend revegetation methods to address identified faults in the revegetation process • Increase monitoring to determine if revised revegetation methods are effective and to identify any future revegetation issues as soon as possible. • Review mitigation measures (e.g. weed control, feral animal control, grazing) to protect juvenile plants.
Weed management	<ul style="list-style-type: none"> • Review the weed control process (e.g. timing, techniques, methods, chemicals) and make changes where required. • Implement supplementary weed control efforts. • Increase monitoring to determine if revised mitigation methods are effective and to identify any future issues as soon as possible.
Fire management	<ul style="list-style-type: none"> • Review the fire control processes (e.g. timing, techniques, community awareness programs) and make changes where required. • Implement supplementary fire control efforts. • Monitor to determine if revised mitigation methods are effective and to identify any future issues as soon as possible.
Dieback management	<ul style="list-style-type: none"> • Implement supplementary Dieback assessments and treatments. • Review Town's Dieback Management Procedures and Protocols handbook and make changes where required. • Identify cause/source of dieback. • Implement measures to rectify and/or prevent further occurrence of dieback. • Monitor success of rectification or prevention measures and implement additional measures if required.
Fauna management	<ul style="list-style-type: none"> • Review effectiveness of nest boxes and make changes in design if required • Implement supplementary installation of nest boxes • Amend approach to community cat awareness • Increase monitoring to determine if management is effective and to identify any future threatening issues as soon as possible.
Infrastructure and access management	<ul style="list-style-type: none"> • Increase vandalism monitoring and make changes to reduce incidents of damage to infrastructure. • Increase available budget to allow for installation of appropriate signage and to remove any dumped rubbish
Community use and education management	<ul style="list-style-type: none"> • Review community awareness strategies and make changes to approach and/or methods to increase participation. • Update social media pages to increase awareness.

4.3 Future land development and surrounding land use management

The Town has a number of documents that provide for local biodiversity conservation and are considered throughout the planning process (e.g. scheme amendments, structure plans, and subdivision or development applications), including the Environmental Plan and Strategic Community Plan. There are a range of avenues for protection of the Kensington Bushland Reserve in the context of surrounding land uses and any potential future development, in addition to this Management Plan, including:

- acquisition and management by the Town
- amending zoning to one that is more sympathetic to protection (e.g. Public Open Space; this could be undertaken at the time of land zoning changes or assessment of structure plans, subdivision or development applications)
- conservation covenants/covenants on titles
- development control provisions within Local Planning Scheme
- conditions on planning applications (e.g. requirement for vegetated buffer strips along lot boundaries adjoining the Reserve, in structure plans or subdivision applications).

In addition to the local planning processes, there are a range of other legislative and planning policy documents that can protect and manage potential impacts to Kensington Bushland Reserve. Some of these include:

- Part IV and V of the *Environmental Protection Act 1986* (assessment of significant proposals and clearing)
- *Planning and Development Act 2005*
 - State Planning Strategy
 - State Planning Policies
 - Sub-regional planning framework
 - Planning Bulletins
 - Guidelines (e.g. Better Urban Water Management Guidelines)
- Federal Government *Environment Protection and Biodiversity Conservation Act 1999*.

For the land surrounding the Reserve that is within the Town's control and management, maintaining a native-vegetated buffer to mitigate edge effects and increase linkages, is the key action that can be undertaken. Progressive rehabilitation/revegetation of the Kent St Sand Pit site would enhance this buffer. It is recommended that these activities initially be focused on areas that are immediately adjacent to the Reserve to provide the maximum buffer, however, relocation of fencing to accommodate these new rehabilitation areas will also limit costs associated with the work.

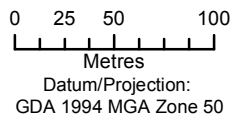
Figure 7: Kensington Bushland Reserve future management actions



Legend

- Reserve boundary
- Track
- Future management**
- Revegetation
- Firebreak
- Dumped rubbish
- Install 'No Parking - Keep Clear' signage

- Install dog-poo bag dispenser
- Repair / replace drinking fountain
- Repair / replace signage
- ★ Repair fencing



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 Prepared by: SM Date: 19/12/2017

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Appendix A Banksia Woodlands TEC assessment

Step	Key diagnostic characteristics (DotEE 2016)	Outcome
1	<p>Location and physical environment</p> <p>The Banksia Woodlands ecological community primarily occurs in the Swan Coastal Plain IBRA bioregion.</p> <p>Soil and landform</p> <p>The Banksia Woodlands typically occurs on well drained, low nutrient soils on sandplain landforms, particularly deep Bassendean and Spearwood sands and occasionally on Quindalup sands.</p> <p>Structure</p> <p>The structure of the Banksia Woodlands is a low woodland to forest with these features:</p> <ul style="list-style-type: none"> • A distinctive upper sclerophyllous layer of low trees* (occasionally large shrubs more than 2 m tall), typically dominated or co-dominated by one or more of the Banksia species identified under composition • Emergent trees of medium or tall (>10 m) height <i>Eucalyptus</i> or <i>Allocasuarina</i> species may sometimes be present above the Banksia canopy • An often highly species-rich understorey that consists of: <ul style="list-style-type: none"> ○ a layer of sclerophyllous shrubs of various heights; and, ○ a herbaceous ground layer of cord rushes, sedges and perennial and ephemeral forbs, that sometimes includes grasses. The development of a ground layer may vary depending on the density of the shrub layer and disturbance history. 	<p>The study area is located on the Swan Coastal Plain.</p> <p>The study area is located on Bassendean Dune System.</p> <p>Three vegetation types have been identified within the Reserve (Cranfield and Parker 1992):</p> <ul style="list-style-type: none"> • Low Banksia Woodland of <i>Banksia attenuata</i>, <i>Banksia menziesii</i> and <i>Banksia ilicifolia</i> • Low Banksia/Eucalyptus Woodland containing the above-mentioned Banksia species as well as <i>Eucalyptus marginata</i>, <i>Eucalyptus todtiana</i> and <i>Allocasuarina fraseriana</i>. • Low Shrubland of <i>Allocasuarina humilis</i> <p>The understorey contains a diverse array of sclerophyllous shrubs and herbaceous species with 94% of the species comprising key species of the TEC.</p> <p>In addition, the FCT 23a – Central <i>Banksia attenuata</i> – <i>B. menziesii</i> woodlands is known to occur within the Reserve (Government of WA 2000).</p> <p>Vegetation within the Reserve contains <i>Banksia attenuata</i> and <i>B. menziesii</i> as a dominant species in the upper layer as well as other associated emergent species of <i>Eucalyptus</i> and <i>Allocasuarina</i></p>

Step	Key diagnostic characteristics (DotEE 2016)	Outcome
	<p>Composition</p> <ul style="list-style-type: none"> • The canopy is most commonly dominated or co-dominated by <i>Banksia attenuata</i> (candlestick banksia, slender banksia) and/or <i>B. menziesii</i> (firewood banksia). Other <i>Banksia</i> species that dominate in some examples of the ecological community are <i>B. prionotes</i> (acorn banksia) or <i>B. ilicifolia</i> (holly-leaved banksia); and • The patch must include at least one of the following diagnostic species: <ul style="list-style-type: none"> ○ <i>Banksia attenuata</i> (candlestick banksia) ○ <i>Banksia menziesii</i> (firewood banksia) ○ <i>Banksia prionotes</i> (acorn banksia) ○ <i>Banksia ilicifolia</i> (holly-leaved banksia). • If present, the emergent tree layer often includes <i>Corymbia calophylla</i> (marri), <i>E. marginata</i> (jarrah), or less commonly <i>Eucalyptus gomphocephala</i> (tuart); and • Other trees of a medium height that may be present, and may be codominant with the <i>Banksia</i> species across a patch, include <i>Eucalyptus todtiana</i> (blackbutt, pricklybark), <i>Nuytsia floribunda</i> (Western Australian Christmas tree), <i>Allocasuarina fraseriana</i> (western sheoak), <i>Callitris arenaria</i> (sandplain cypress), <i>Callitris pyramidalis</i> (swamp cypress) and <i>Xylomelum occidentale</i> (woody pear); and • The understorey typically contains a high to very high diversity of shrub and herb species that often vary from patch to patch*** • Contra-indicators: <ul style="list-style-type: none"> ○ Patches clearly dominated by <i>Banksia littoralis</i> are not part of the <i>Banksia</i> Woodlands ecological community but indicates a different, dampland community is present. ○ Patches clearly dominated by <i>Banksia burdettii</i> are not part of the <i>Banksia</i> Woodlands ecological community but indicates a tall shrubland and not the <i>Banksia</i> Woodlands ecological community. ○ FCT 20c – Eastern shrublands and woodlands, corresponds with a separate EPBC ecological community listing, Shrublands and Woodlands of the eastern Swan Coastal Plain. Occurrences of this FCT should be considered under that separate listing. 	<p>species. Vegetation within the Reserve contains all of the structural elements which define the TEC.</p> <p>Two of the vegetation communities within the Reserve are dominated by the diagnostic species <i>Banksia attenuata</i> and <i>Banksia menziesii</i>. <i>Banksia ilicifolia</i> is also present in one of the vegetation communities. There is the presence of <i>Eucalyptus marginata</i> and other codominant species, such as <i>Allocasuarina fraseriana</i>, <i>Eucalyptus todtiana</i> and <i>Nuytsia floribunda</i>. The remaining vegetation community low shrubland of <i>Allocasuarina humilis</i> is considered part of the <i>Banksia</i> communities. The understorey contains a high diversity of species and includes 94% of key species defining the sclerophyllous and herbaceous layers of the TEC. To date 205 flora species have been noted in the Reserve from 41 families. The contra-indicators of <i>Banksia littoralis</i> and <i>Banksia burdettii</i> were not recorded. The community does not represent FCT 20c – Eastern shrublands and woodlands.</p> <p>Vegetation within the Reserve contains all of the key composition elements which define the TEC.</p>

Step	Key diagnostic characteristics (DotEE 2016)	Outcome
2	<p>Condition thresholds</p> <ul style="list-style-type: none"> Assessments of a patch should initially be centered on the area of highest native floristic diversity and/or cover, i.e. the best condition area of the patch. Consideration must be given to the timing of surveys and recent disturbance. Ideally surveys should be undertaken in spring with two sampling periods to capture early and late flowering species. The surrounding context of a patch must also be taken into account when considering factors that add to the importance of a patch that meets the condition thresholds. Certain vegetation components of the Banksia Woodlands ecological community merit consideration as critical elements to protect. Three components are recognised as threatened in their own right in WA and, as such, are priorities for protection; refer to Table 1 in the Approved Conservation Advice (DotEE 2016). A relevant expert (e.g. ecological consultant, local NRM or environment agency) may be useful to help identify the ecological community and its condition. 	<p>Vegetation sampling was undertaken by Cranfield and Parker (1992). The vegetation condition is almost entirely in Good or better condition.</p>
3	<p>Minimum patch size</p> <p>Minimum patch sizes apply for consideration of a patch as part of the listed ecological community for EPBC Act referral, assessment and compliance purposes. Where patches meet different levels of condition, different minimum patch sizes apply:</p> <ul style="list-style-type: none"> 'Pristine' – no minimum patch size applies 'Excellent' – 0.5 ha or 5,000 m² (e.g. 50 m x 100 m) 'Very Good' – 1 ha or 10,000 m² (e.g. 100 m x 100 m) 'Good' – 2 ha or 20,000 m² (e.g. 200 m x 100 m). <p>Note: To be considered as part of the EPBC Act ecological community, a patch should meet at least the Good Condition category.</p>	<p>The extent of vegetation within the reserve in Good or better condition is as follows:</p> <p>Excellent – 1.1 ha Very Good – 5.5 ha Good – 2.2 ha</p> <p>Vegetation within the Reserve meets the minimum condition requirements of 2 ha of Good condition when considered in isolation from surrounding vegetation.</p>
4	<p>Further information to assist in determining the presence of the ecological community and significant impacts.</p> <ul style="list-style-type: none"> The landscape position of the patch, including its position relative to surrounding vegetation also influences how important it is in the broader landscape. For example, if it enables movement of native fauna or plant material or supports other ecological processes. 	<p>The vegetation within the Reserve represents an occurrence of the Banksia Woodlands of the Swan Coastal Plain TEC as it meets all of the key diagnostic characteristics.</p>

Step	Key diagnostic characteristics (DotEE 2016)	Outcome
	<ul style="list-style-type: none"> • A patch is a discrete and mostly continuous area of the ecological community. A patch may include small-scale (<30 m) variations, gaps and disturbances, such as tracks, paths or breaks. Where there is a break in native vegetation cover, from the edge of the tree canopy of 30 m or more (e.g. due to permanent artificial structures, wide roads or other barriers; or due to water bodies typically more than 30m wide) then the gap typically indicates that separate patches are present. • Variation in canopy cover, quality or condition of vegetation across a patch should not initially be considered to be evidence of multiple patches. Patches can be spatially variable and are often characterised by one or more areas within a patch that meet the key diagnostic characteristics and condition threshold criteria amongst areas of lower condition. Average canopy cover and quality across the broadest area that meets the general description of the ecological community should be used initially in determining overall canopy cover and vegetation condition. Also note any areas that are either significantly higher or lower in quality, gaps in canopy cover and the condition categories that would apply across different parts of the site respectively. Where the average canopy cover or quality falls below the minimum thresholds, the next largest area or areas that meet key diagnostics (including minimum canopy cover requirements) and minimum condition thresholds should be specified and protected. This may result in multiple patches being identified within the overall area first considered. • A buffer zone is a contiguous area immediately adjacent to a patch of the ecological community that is important for protecting its integrity. The purpose of the buffer zone is to help protect and manage the national threatened ecological community. The edges of a patch are considered particularly susceptible to disturbance and the presence of a buffer zone is intended to act as a barrier to further direct disturbance. • The recommended minimum buffer zone for the ecological community is 20–50 metres from the outer edge of a patch, and the appropriate size depends on the nature of the buffer and local context (e.g. slope). A larger buffer zone should be applied, where practical, to protect patches that are of particularly high conservation value, or if patches are down slope of drainage lines or a source of nutrient enrichment, or groundwater drawdown. 	

Appendix B Native flora species list

Family	Species^	Common name
Anarthriaceae	<i>Lyginia barbata</i>	-
Apiaceae	<i>Xanthosia huegelii</i>	-
Araliaceae	<i>Trachymene pilosa</i>	Native Parsnip
Asparagaceae	<i>Chamaescilla corymbosa</i>	Blue Squill
	<i>Laxmannia squarrosa</i>	-
	<i>Lomandra caespitosa</i>	Tufted Mat Rush
	<i>Lomandra hermaphrodita</i>	-
	<i>Lomandra nigricans</i>	-
	<i>Lomandra odora</i>	Tiered Mat Rush
	<i>Lomandra preissii</i>	-
	<i>Lomandra suaveolens</i>	-
	<i>Sowerbaea laxiflora</i>	Purple Tassels
	<i>Thysanotus manglesianus</i>	Fringed Lily
	<i>Thysanotus sparteus</i>	-
	<i>Thysanotus tenellus</i>	-
	<i>Thysanotus triandrus</i>	-
Asteraceae	<i>Brachyscome bellidioides</i>	-
	<i>Hyalosperma cotula</i>	-
	<i>Lagenophora huegelii</i>	-
	<i>Olearia paucidentata</i>	Autumn Scrub Daisy
	<i>Podolepis gracilis</i>	Slender gracilis
	<i>Podotheca angustifolia</i>	Sticky Longheads
	<i>Podotheca chrysantha</i>	Yellow Podotheca
	<i>Podotheca gnaphalioides</i>	Golden Long-heads
	<i>Siloxerus humifusus</i>	Procumbent Siloxerus
Campanulaceae	<i>Lobelia tenuior</i>	Slender Lobelia
	<i>Wahlenbergia gracilentia</i>	Annual Bluebell
Casuarinaceae	<i>Allocasuarina fraseriana</i>	Sheoak
	<i>Allocasuarina humilis</i>	Dwarf Sheoak

Family	Species^	Common name
Celastraceae	<i>Stackhousia monogyna</i>	-
	<i>Tripterococcus brunonis</i>	Winged Stackhousia
Colchicaceae	<i>Burchardia congesta</i>	Kara
Crassulaceae	<i>Crassula colorata</i> ²	Dense Stonecrop
Cyperaceae	<i>Lepidosperma angustatum</i>	-
	<i>Lepidosperma squamatum</i>	-
	<i>Mesomelaena pseudostygia</i>	Semophore Sedge
	<i>Mesomelaena stygia</i> ²	-
	<i>Schoenus brevisetis</i> ²	-
	<i>Schoenus curvifolius</i>	-
	<i>Schoenus lanatus</i>	Woolly Bog-rush
	<i>Schoenus latitans</i>	-
	<i>Calectasia narragara</i>	-
	<i>Dasyogon bromeliifolius</i>	Pineapple Bush
Dilleniaceae	<i>Hibbertia huegelii</i>	-
	<i>Hibbertia hypericoides</i>	Yellow Buttercups
	<i>Hibbertia racemosa</i>	Stalked Guinea Flower
	<i>Hibbertia subvaginata</i> ²	-
Droseraceae	<i>Drosera erythrorhiza</i>	Red Ink Sundew
	<i>Drosera huegelii</i>	Bold Sundew
	<i>Drosera macrantha</i>	Bridal Rainbow
	<i>Drosera menziesii</i>	Pink Rainbow
	<i>Drosera menziesii</i> subsp. <i>penicillaris</i> ²	-
	<i>Drosera pallida</i> ²	Pale Rainbow
	<i>Drosera stolonifera</i>	Leafy Sundew
Ericaceae	<i>Astroloma macrocalyx</i>	Swan Berry
	<i>Astroloma pallidum</i>	Kick Bush
	<i>Conostephium pendulum</i>	Pearl Flower
	<i>Conostephium preissii</i>	-
	<i>Leucopogon conostephioides</i>	-
	<i>Leucopogon parviflorus</i>	Coast Beard-heath
	<i>Leucopogon propinquus</i> ²	-

Family	Species^	Common name
	<i>Leucopogon</i> sp. ²	-
	<i>Lysinema ciliatum</i>	Curry Flower
	<i>Styphelia tenuiflora</i>	Common Pinheath
Euphorbiaceae	<i>Monotaxis grandiflora</i>	Diamond of the Desert
	<i>Stachystemon vermicularis</i>	-
	<i>Acacia huegelii</i>	-
	<i>Acacia pulchella</i>	Prickly Moses
	<i>Acacia rostellifera</i> ²	Summer-scented Wattle
	<i>Acacia saligna</i>	Orange Wattle
	<i>Acacia sphacelata</i>	-
	<i>Acacia stenoptera</i>	Narrow-winged Wattle
	<i>Acacia willdenowiana</i>	Grass Wattle
	<i>Bossiaea eriocarpa</i>	Common Brown Pea
	<i>Daviesia divaricata</i>	Marno
	<i>Daviesia nudiflora</i>	-
	<i>Daviesia triflora</i>	-
	<i>Gastrolobium capitatum</i>	-
	<i>Gompholobium tomentosum</i>	Hairy Yellow Pea
	<i>Hardenbergia comptoniana</i>	Native Wisteria
	<i>Hovea trisperma</i>	Common Hovea
	<i>Isotropis cuneifolia</i>	Granny Bonnets
	<i>Jacksonia furcellata</i>	Grey Stinkwood
	<i>Jacksonia lehmannii</i>	-
	<i>Jacksonia sternbergiana</i>	Stinkwood
	<i>Johnsonia pubescens</i>	Pipe Lily
	<i>Kennedia prostrata</i>	Scarlet Runner
Goodeniaceae	<i>Dampiera linearis</i>	Common Dampiera
	<i>Scaevola canescens</i>	Grey Scaevola
	<i>Scaevola repens</i>	-
	<i>Scaevola</i> sp.	-
Haemodoraceae	<i>Anigozanthos humilis</i>	Catspaw
	<i>Anigozanthos manglesii</i>	Mangles Kangaroo Paw

Family	Species^	Common name
	<i>Conostylis aculeata</i>	Prickly Conostylis
	<i>Conostylis aculeata</i> subsp. <i>aculeata</i>	-
	<i>Conostylis aurea</i>	Golden Conostylis
	<i>Conostylis juncea</i>	-
	<i>Conostylis setigera</i>	Bristly Cottonhead
	<i>Haemodorum spicatum</i>	Mardja
	<i>Phlebocarya ciliata</i>	-
	<i>Arnocrinum preissii</i>	-
	<i>Corynotheca micrantha</i>	Sand Lily
	<i>Dianella revoluta</i>	Blueberry Lily
	<i>Dianella revoluta</i> var. <i>divaricata</i>	-
	<i>Dianella revoluta</i> var. <i>revoluta</i>	-
	<i>Tricoryne elatior</i>	Yellow Autumn Lily
Iridaceae	<i>Patersonia occidentalis</i>	Purple Flag
Lamiaceae	<i>Hemiandra pungens</i>	Snakebush
Lauraceae	<i>Cassytha racemosa</i>	Dodder Laurel
Loranthaceae	<i>Nuytsia floribunda</i>	Christmas Tree
Macarthuriaceae	<i>Macarthuria australis</i>	-
	<i>Calandrinia corrigioloides</i>	Strap Purslane
	<i>Calandrinia granulifera</i>	Pygmy Purslane
	<i>Calothamnus sanguineus</i>	Silky-leaved Blood Flower
	<i>Calytrix angulata</i>	Yellow Starflower
	<i>Calytrix flavescens</i>	Summer Starflower
	<i>Calytrix fraseri</i>	Pink Summer Calytrix
	<i>Calytrix</i> sp.	-
	<i>Eremaea pauciflora</i>	-
	<i>Eremaea pauciflora</i> var. <i>pauciflora</i>	-
	<i>Eucalyptus marginata</i>	Jarrah
	<i>Eucalyptus tottiana</i>	Coastal Blackbutt
	<i>Hypocalymma robustum</i>	Swan River Myrtle
	<i>Leptospermum spinescens</i>	-
	<i>Melaleuca seriata</i>	-

Family	Species^	Common name
	<i>Regelia inops</i>	-
	<i>Scholtzia involuocrata</i>	Spiked Scholtzia
	<i>Taxandria linearifolia</i>	-
	<i>Verticordia densiflora</i>	Compacted Featherflower
Orchidaceae	<i>Caladenia discoidea</i>	Dancing Orchid
	<i>Caladenia ferruginea</i>	Rusty Spider Orchid
	<i>Caladenia filifera</i>	Blood Spider Orchid
	<i>Caladenia flava</i>	Cowslip Orchid
	<i>Caladenia latifolia</i>	Pink Fairy Orchid
	<i>Caladenia longicauda</i>	Common White Spider Orchid
	<i>Caladenia longiclavata</i>	Clubbed Spider Orchid
	<i>Caladenia macrostylis</i>	Leaping Spider Orchid
	<i>Caladenia</i> sp.	-
	<i>Cyanicula sericea</i>	-
	<i>Diuris brumalis</i>	-
	<i>Diuris magnifica</i>	-
	<i>Eriochilus dilatatus</i> subsp. <i>dilatatus</i> ²	-
	<i>Microtis media</i>	Tall Mignonette Orchid
	<i>Microtis</i> sp.	-
	<i>Pheladenia deformis</i>	Blue Fairy Orchid
	<i>Pterostylis pyramidalis</i>	Snail Orchid
	<i>Pterostylis dilatata</i>	-
	<i>Pterostylis recurva</i>	Jug Orchid
	<i>Pterostylis sanguinea</i>	-
	<i>Pterostylis vittata</i>	Banded Greenhood
<i>Thelymitra graminea</i>	Shy Sun Orchid	
<i>Thelymitra macrophylla</i>	-	
Phyllanthaceae	<i>Poranthera microphylla</i>	Small Poranthera
Pittosporaceae	<i>Billardiera fraseri</i>	Elegant Pronaya
	<i>Billardiera fusiformis</i>	Australian Bluebell
	<i>Billardiera heterophylla</i>	Gumug
	<i>Billardiera</i> sp. ²	-

Family	Species^	Common name
Poaceae	<i>Amphipogon amphipogonoides</i> ²	-
	<i>Amphipogon turbinatus</i>	-
	<i>Rytidosperma caespitosum</i> ²	-
	<i>Austrostipa compressa</i>	-
	<i>Austrostipa elegantissima</i>	-
	<i>Austrostipa flavescens</i>	-
	<i>Austrostipa hemipogon</i>	-
	<i>Austrostipa mollis</i>	-
	<i>Neurachne alopecuroidea</i>	Foxtail Mulga Grass
Polygalaceae	<i>Comesperma calymega</i>	Blue-spike Milkwort
Proteaceae	<i>Adenanthos cygnorum</i>	Common Woollybush
	<i>Banksia attenuata</i>	Slender Banksia
	<i>Banksia ilicifolia</i>	Holly-leafed Banksia
	<i>Banksia menziesii</i>	Firewood Banksia
	<i>Persoonia saccata</i>	Snottygobble
	<i>Petrophile linearis</i>	Pixie Mops
	<i>Petrophile macrostachya</i>	-
	<i>Stirlingia latifolia</i>	Blueboy
	<i>Synaphea spinulosa</i>	-
Restoniaceae	<i>Alexgeorgea nitens</i>	-
	<i>Desmocladus flexuosus</i>	-
	<i>Hypolaena exsulca</i> ²	-
	<i>Lepidobolus preissianus</i>	-
Rutaceae	<i>Philothea spicata</i>	Pepper and Salt
Sapindaceae	<i>Dodonaea hackettiana</i> (P4) planted	Hackett's Hopbush
Santalaceae	<i>Leptomeria cunninghamii</i>	-
	<i>Leptomeria empetrifomis</i> ²	-
Stylidiaceae	<i>Levenhookia stipitata</i>	Common Stylewort
	<i>Stylidium amoenum</i>	Lovely Triggerplant
	<i>Stylidium androsaceum</i> ³	-
	<i>Stylidium brunonianum</i>	Pink Fountain Triggerplant
	<i>Stylidium calcaratum</i>	Book Triggerplant

Family	Species [^]	Common name
	<i>Stylidium carnosum</i>	Fleshy-leaved Triggerplant
	<i>Stylidium diuroides</i>	Donkey Triggerplant
	<i>Stylidium junceum</i>	Reed Triggerplant
	<i>Stylidium neurophyllum</i>	Coastal Plain Triggerplant
	<i>Stylidium piliferum</i>	Common Butterfly Triggerplant
	<i>Stylidium repens</i>	Matted Triggerplant
	<i>Stylidium schoenoides</i>	Cow Kicks
	<i>Stylidium</i> sp. ⁴	Triggerplant
Thymelaeaceae	<i>Pimelea suaveolens</i> ⁴	Scented Banjine
	<i>Pimelea sulphurea</i>	Yellow Banjine
Violaceae	<i>Hybanthus calycinus</i>	Wild Violet
Xanthorrhoeaceae	<i>Xanthorrhoea brunonis</i>	-
	<i>Xanthorrhoea preissii</i>	Balga, Grass Tree
	<i>Xanthorrhoea</i> sp. ⁴	-
Zamiaceae	<i>Macrozamia riedlei</i>	Zamia

[^]Species provided by the Town of Victoria Park from various sources including seed collection, Friends of Kensington Bushland and Report for Town of Victoria Park Management Plan (Ecoscape 2003).

*CR = listed as Critically Endangered under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) List of Threatened Flora

EN = listed as Endangered under the EPBC Act

P4 = Priority 4: Rare, Near Threatened and other species in need of monitoring but not currently threatened; could become threatened if present circumstances change. Listed by Department of Biodiversity, Conservation and Attractions.

¹Species collected 1995

²Species collected 1993-1995

³Species collected 1985

⁴Species collected 1990.

Appendix C Weed species list

Weed species recorded within the Reserve were assessed and a priority ranking for control and management was determined through consideration of the following:

- Status under the BAM Act by DPIRD (2017);
- Rating assigned in *Environmental Weed Census and Prioritisation* (EWCP) by the Swan Natural Resource Management (2008);
- Weeds of National Significance (DotEE 2017c); and
- The representation of a species across the Reserve including density and distribution and consideration of the nature of a species and potential to affect remnant vegetation (e.g. its potential to become highly invasive).

Bulbous Weeds
* <i>Gladiolus caryophyllaceus</i> (Wild Gladiolus)
* <i>Oxalis pes-caprae</i> (Soursob)
* <i>Romulea rosea</i> (Guildford Grass)
Grass Weeds
* <i>Avena barbata</i> (Bearded Oat)
* <i>Briza maxima</i> (Blowfly Grass)
* <i>Bromus diandrus</i> (Great Brome)
* <i>Ehrharta calycina</i> (Perennial Veldt Grass)
* <i>Ehrharta longiflora</i> (Annual Veldt Grass)
* <i>Eragrostis curvula</i> (African Lovegrass)
* <i>Hordeum glaucum</i> (Northern Barley Grass)
Other Weeds
* <i>Asparagus asparagoides</i> (Bridal Creeper)
* <i>Brassica tournefortii</i> (Mediterranean Turnip)
* <i>Conyza bonariensis</i> (Flaxleaf Fleabane)
* <i>Euphorbia terracina</i> (Geraldton Carnation Weed) / <i>E. peplus</i> (Petty Spurge)
* <i>Fumaria capreolata</i> (Whiteflower Fumitory)
* <i>Fumaria muralis</i> (Wall Fumitory)
* <i>Fumaria bastardii</i>
* <i>Lupinus sp.</i> (Lupin)
* <i>Malva parviflora</i> (Marshmallow)
* <i>Medicago sp.</i> (Medic)
* <i>Misopates orantium</i> (Lesser Snapdragon)

**Pelargonium capitatum* (Rose Pelargonium)

**Raphanus raphanistrum* (Wild Radish)

**Solanum nigrum* (Black Berry Nightshade)

**Sonchus asper* (Rough Sowthistle)

**Sonchus oleraceus* (Common Sowthistle)

**Ursinia anthemoides* (Ursinia)

Woody Weeds

**Chamelaucium uncinatum* (Geraldton Wax)

**Corymbia citriodora* (Lemon-scented Gum)

**Corymbia maculata* (Spotted Gum)

**Eucalyptus camaldulensis* (River Gum)

Appendix D Fauna species list

Group	Species	Common name	Source ¹
Amphibians	<i>Limnodynastes dorsalis</i>	Western Banjo Frog	WAM and the Friends' Group
Birds	<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	Turpin 1990
	<i>Accipiter fasciatus</i>	Brown Goshawk	Turpin 1990
	<i>Anthochaera carunculata</i>	Red Wattlebird	Turpin 1990
	<i>Calyptorhynchus latirostris</i> (Endangered)	Carnaby's Black Cockatoo	Turpin 1990
	<i>Coracina novaehollandiae</i>	Black-faced Cuckoo-shrike	Turpin 1990
	<i>Corvus coronoides</i>	Australian Raven	Turpin 1990
	<i>Cracticus tibicen</i>	Australian Magpie	Turpin 1990
	<i>Elanus caeruleus</i>	Black Shouldered Kite	Turpin 1990
	<i>Hirundo neoxena</i>	Welcome Sparrow	Turpin 1990
	<i>Lichenostomus virescens</i> (previously <i>Meliphaga virescens</i>)	Singing Honeyeater	Turpin 1990
	<i>Lichmera indistincta</i>	Brown Honeyeater	Turpin 1990
	<i>Pachycephala rufiventris</i>	Rufous Whistler	Turpin 1990
	<i>Pardalotus striatus</i>	Striated Pardalote	Turpin 1990
	<i>Platycercus zonarius</i>	Ring-Necked Parrot	Turpin 1990
	<i>Rhipidura leucophrys</i>	Willie Wagtail	Turpin 1990
<i>Streptopelia senegalensis</i>	Laughing Dove	Turpin 1990	
<i>Zosterops lateralis</i>	Silvereye	Turpin 1990	
Mammals	<i>Mus musculus</i>	House Mouse	WAM and the Friends' Group
Reptiles	<i>Christinus marmoratus</i> (previously <i>Phyllodactylus marmoratus</i>)	Marbled Southern Gecko	Turpin 1990
	<i>Cryptoblepharus buchananii</i>	Buchanan's snake-eyed skink	WAM and the Friends' Group
	<i>Cryptoblepharus plagiocephalus</i>	Peron's Snake-eyed Skink	Turpin 1990
	<i>Ctenotus australis</i>	Western Limestone Ctenotus	WAM and the Friends' Group

Group	Species	Common name	Source ¹
	<i>Ctenotus fallens</i>	West-coast Laterite Ctenotus	Turpin 1990
	<i>Hemiergis quadrilineata</i>	Two-toed Earless Skink	WAM and the Friends' Group, Turpin 1990
	<i>Lerista elegans</i>	Elegant Slider	WAM and the Friends' Group, Turpin 1990
	<i>Lialis burtonis</i>	Burton's legless lizard	Turpin 1990
	<i>Lucasium alboguttatum</i> (previously <i>Dipludacylus alboguttatus</i>)	White-spotted Ground Gecko	Turpin 1990
	<i>Menetia greyii</i>	Common Dwarf Skink	WAM and the Friends' Group, Turpin 1990
	<i>Pletholax gracilis</i>	Keeled Legless Lizard	Turpin 1990
	<i>Pogona minor</i>	Dwarf Bearded Dragon	WAM and the Friends' Group
	<i>Pseudonaja affinis</i>	Dugite	WAM and the Friends' Group
	<i>Tiliqua rugosa rugosa</i>	Blue-tongued Skink	WAM and the Friends' Group, Turpin 1990

¹Pitfall trapping survey undertaken in 2017 by staff from the Western Australian Museum and Friends of Kensington Bushland

Appendix E Weed timing schedule based on growth form

Broad Weed Group	Species	Growth form	Month												Treatment timing ¹				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Optimum herbicide treatment	Optimum manual removal			
Bulbous Weeds	<i>*Gladiolus caryophyllaceus</i>	Dormant	■	■													Jul-Sep	Jul-Sep	
		Active growth			■	■	■	■	■	■	■	■	■						
		Flowering								■	■	■							
		Fruiting									■	■	■						
	<i>*Oxalis pes-caprae</i>	Dormant	■	■	■										■	■	Jun-Jul	Jun-Jul	
		Active growth				■	■	■	■	■	■	■	■						
		Flowering							■	■	■	■							
	<i>*Romulea rosea</i>	Dormant	■	■	■											■	Jul-Aug	Jul-Aug	
		Active Growth				■	■	■	■	■	■	■	■	■					
Germination						■	■	■											

Broad Weed Group	Species	Growth form	Month												Treatment timing ¹			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Optimum herbicide treatment	Optimum manual removal		
		Flowering																
Grass Weeds	<i>*Avena barbata</i>	Active growth															Jul-Oct	Jul-Oct
		Germination																
		Flowering																
		Fruiting																
	<i>*Briza maxima</i>	Active growth															Jul-Aug	Jul-Aug
		Germination																
		Flowering																
		Fruiting																
	<i>*Bromus diandrus</i>	Active growth															Jun-Aug	Jun-Aug
		Germination																
		Flowering																
		Fruiting																

Broad Weed Group	Species	Growth form	Month												Treatment timing ¹				
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Optimum herbicide treatment	Optimum manual removal			
	<i>*Ehrharta calycina</i>	Active growth																Jun-Aug	Jan-Feb, Nov-Dec
		Germination																	
		Flowering																	
		Fruiting																	
	<i>*Eragrostis curvula</i>	Active growth																Nov-May	Nov-May
		Flowering																	
		Fruiting																	
	<i>*Hordeum glaucum</i>	Active growth																Jun-Aug	Jun-Aug
		Germination																	
Flowering																			
Other Weeds	<i>*Asparagus asparagoides</i>	Dormant															Jul-Aug	Jul-Aug	
		Active growth																	
		Germination																	

Broad Weed Group	Species	Growth form	Month												Treatment timing ¹			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Optimum herbicide treatment	Optimum manual removal		
		Flowering																
	<i>*Brassica tournefortii</i>	Germination																
		Flowering															Jul-Sep	Jul-Sep
	<i>*Conyza bonariensis</i>	Germination																
		Active growth																
		Flowering															Jun-Sep	Jun-Sep
		Fruiting																
	<i>*Euphorbia terracina</i>	Dormant																
		Active growth																
		Germination															Jun-Aug	Jun-Nov
		Flowering																
		Fruiting																
	<i>*Fumaria sp.</i>	Germination															Jul-Sep	Jul-Sep

Broad Weed Group	Species	Growth form	Month												Treatment timing ¹			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Optimum herbicide treatment	Optimum manual removal		
		Active growth																
		Flowering																
		Fruiting																
	<i>*Lupinus sp.</i>	Germination																
		Active Growth																
		Flowering																
		Fruiting																
	<i>*Malva parviflora</i>	Germination																
		Active growth																
		Flowering																
		Fruiting																
	<i>*Medicago sp.</i>	Germination																
		Active growth																

Broad Weed Group	Species	Growth form	Month												Treatment timing ¹			
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Optimum herbicide treatment	Optimum manual removal		
		Flowering					■	■	■	■	■	■	■					
		Fruiting								■	■	■	■	■				
	<i>*Pelargonium capitatum</i>	Germination					■	■	■	■							Jun-Oct	Jun-Nov
Active growth							■	■	■	■	■	■						
Flowering										■	■	■	■	■				
Fruiting												■	■	■				
	<i>*Raphanus raphanistrum</i>	Germination				■	■	■	■	■	■						Jan-Dec	Jun-Dec
Active growth		■	■	■	■	■	■	■	■	■	■	■	■	■	■			
Flowering					■	■	■	■	■	■	■	■	■					
Fruiting					■	■	■	■	■	■	■	■	■					
	<i>*Solanum nigrum</i>	Germination									■	■	■	■	■	Jul-Dec	Jun-Nov	
Active growth								■	■	■	■	■	■					
Flowering		■	■	■	■	■	■	■	■	■	■	■	■	■				

Broad Weed Group	Species	Growth form	Month												Treatment timing ¹		
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Optimum herbicide treatment	Optimum manual removal	
		Fruiting															
	* <i>Sonchus</i> sp.	Germination															
		Active growth															
		Flowering															
		Fruiting															
Woody Weeds	* <i>Chamelaucium uncinatum</i>	Flowering															
		Fruiting															
	* <i>Corymbia citrodora</i>	Flowering															
	* <i>Eucalyptus camaldulensis</i>	Flowering															

¹Herbicide weed control methods recommended by DBCA 2017b.



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8.6 Review of Local Planning Policies 3, 4 and 5

Draft revised Local Planning Policy 3
'Non-Residential Uses in or Adjacent to Residential Areas'



Local Planning Policy No. 3 Non-Residential Uses In or Adjacent to Residential Areas

Date of Adoption: 30 September 1998

Date Amended: Draft June 2018

INTRODUCTION

The Council recognises that certain non-residential uses can co-exist with and integrate into residential areas without adversely affecting residential amenity. A range of such uses is provided for under the Town Planning Scheme, and some of these are subject to separate policies.

The purpose of this Policy is to provide general guidance and development standards applicable to non-residential development in or adjacent to residential areas, notwithstanding any additional requirements stipulated under the relevant Scheme Precinct Plan or in other Policies or area-specific Design Guidelines adopted by the Council.

Non-residential uses are to have regard to the objectives and Statement of Intent contained in the relevant Precinct Plan for the locality in which it is located, and demonstrate that the use of the land for non-residential purposes and any associated amenity impacts will not detrimentally impact upon the amenity of residential properties and areas.

OBJECTIVES

The objectives of this policy are:

- a) to ensure non-residential uses are compatible with the residential character, scale and amenity of surrounding residential properties;
- b) to provide for non-residential uses which serve the needs of the community;
- c) to encourage the re-use of existing purpose built non-residential buildings for a mix of appropriate local convenience/service and commercial uses where it results in an economically viable use of the building and provides a service to the community;
- d) to minimise the impacts of non-residential development through appropriate and sufficient management of car parking and traffic generation, noise, visual amenity and any other form of emissions or activities that may be incompatible with surrounding residential uses;
- e) to ensure that the appearance and design of non-residential development is compatible with surrounding residential properties and the streetscape in terms of building size and scale, the provision of adequate landscaping treatments, the retention of existing mature trees and the suitable design and location of advertising signage;
- f) to maintain and enhance the amenity of residential environments through ensuring appropriate landscaping treatments, location of car parking and vehicular access legs, and the protection of visual privacy when considering applications for non-residential development;

- g) to avoid the concentration of non-residential uses where it would create a de-facto commercial area, isolate residential properties or contribute to the unplanned expansion of commercial or mixed use zones into surrounding residential zoned land.

POLICY SCOPE

This Policy applies to both :

- (a) Non-residential development on Residential zoned land; and
- (b) Non-residential development adjacent to land zoned Residential or used for residential purposes.

Unless otherwise specifically stated, the Policy provisions apply in both situations.

This Policy does not however apply to Home Occupations, which are subject to Local Planning Policy 2, or a Home Office.

POLICY REQUIREMENTS

1. Preferred Location

- a) Non-residential uses are generally encouraged to locate on sites which have access to main streets or major roads, and are discouraged from locating within a local access street or laneway. Other locations may be considered where it can be demonstrated that residential amenity can be protected;
- b) Should be located such that residential properties are not isolated between non-residential uses;

2. Traffic Generation

- a) Non-residential development should only be permitted where it does not negatively impact the function or safety of the adjacent roads or cause undue conflict through the generation of traffic or demand for parking.
- b) In assessing an application for non-residential development, in addition to considering matters such as traffic volumes, road capacity and road safety from a technical engineering perspective, Council will have also regard to these matters from a residential amenity perspective
- b) A Transport Impact Statement (TIS) or Transport Impact Assessment (TIA) prepared by a suitably qualified independent traffic consultant may be required to be submitted as part of a development application, which assesses the likely traffic impacts associated with the proposed development.
- c) The appropriate level of traffic assessment required to be undertaken for the proposed development will be determined by Council having regard to the requirements of the Western Australian Planning Commission's (WAPC) (2016) *Transport Impact Assessment Guidelines*.

3. Control of Noise, Pollution or Other Impacts Associated with the Use

Non-residential development shall only be permitted where the nature of the non-residential use will not cause undue conflict or adversely affect the amenity of the neighbourhood through the emission of light, noise, fumes, odours, dust, vibration, electrical interference, waste water, or any other form of pollution which may be undesirable in residential areas. Development applications for a non-residential use should be accompanied by a statement and/or specialist reports outlining if and how

any impacts arising from the activities proposed to be conducted on the site will be prevented or appropriately managed to ensure that the amenity of surrounding residential properties is maintained (eg. Acoustic Report).

4. Plot Ratio

Non-residential development on Residential zoned land is required to comply with the plot ratio development standards for Multiple Dwellings of the relevant R-Code on which the development is located. For the purposes of this Policy, in areas with a density coding of less than R40, a plot ratio of 0.5:1 applies.

5. Building Setbacks

- a) Front setback requirements
 - (i) For non-residential development on Residential zoned land - to comply with those applicable to residential development under the relevant Precinct Plan, R-Codes and/or Council Policies.
 - (ii) For non-residential development adjacent to land zoned Residential or used for residential purposes - to comply with those applicable under the relevant Precinct Plan and/or Council Policies.
- b) Side setbacks to any neighbouring residential property are to be in accordance with the requirements for residential development under the Residential Design Codes. For the purposes of this Policy a wall containing a window, door or other opening which is capable of affecting the privacy or amenity (e.g. through associated access/activity/noise) of nearby residences or future residences will be treated as a 'major opening' for calculating the required side setback.
- c) A nil side setback may be permitted to an adjoining residential property where the length and height of the boundary wall complies with the requirements for residential development applicable to the adjoining residential property under Council's Local Planning Policy No.26 – Boundary Walls.

6. Visual Privacy

Major openings (any window, door or other opening which may affect the privacy of nearby residences or future residences) should be located such that they do not directly face or are screened from surrounding residential properties. This is particularly important where they may serve as a means of frequent access, allow the escape of noise, or serve as sources of overlooking into adjoining residential properties by staff or visitors/customers to the site.

Where located adjacent to existing residential properties, developments are to be designed to satisfy the following criteria:

- a) All major openings to operational rooms or amenities frequented by staff/customers of the development that have a finished floor level raised 0.5 metres or more above natural ground level which overlook any part of an adjoining residential property behind its street setback line, are to be:
 - i. setback, in direct line of sight, a minimum of 6.0 metres from the boundary of the adjoining residential property (as measured from a 45 degree cone of vision from the external face of the opening); or
 - ii. provided with permanent vertical screening to a minimum height of 1.6 metres above

the finished floor level.

- b) All unenclosed outdoor spaces (balconies, decks, verandahs and the like) where the finished floor level is raised 0.5 metres or more above natural ground level which overlook any part of an adjoining residential property behind its street setback line, are to be:
 - i. setback, in direct line of sight, a minimum of 7.5 metres from the boundary of the adjoining residential property (as measured from a 45 degree cone of vision from the external perimeter of the unenclosed outdoor space); or
 - ii. provided with permanent vertical screening to a minimum height of 1.6 metres above the finished floor level of the unenclosed outdoor space.

7. Building Design

The design and siting of new non-residential buildings/facilities on Residential zoned land should have regard to the existing neighbourhood character and reflect a residential scale and appearance, particularly with regard to the following elements:

- a) Building and roof form
- b) Building height and setback
- c) Design detail, including façade articulation, verandahs, window and door style and placement; and
- d) Building materials, colours and finishes.

8. Location of Vehicular Access/Car Parking and Provision of Boundary Fencing

- a) Where car parking or vehicular access ways are already provided in the vicinity of adjacent residential properties or cannot be (re)located elsewhere, suitable barriers shall be provided to protect boundary fencing, which may be required to be upgraded to protect the amenity and/or privacy of adjoining residents.
- b) New or upgraded boundary fencing should be a minimum of 1.8 metres high and be of masonry construction in a colour/finish that complements the development as well as being of compatible colours and materials to any neighbouring residential properties.
- c) It is recommended that the applicant obtain agreement with neighbouring properties regarding the height, materials and finish of any new/upgraded boundary fencing.
- d) The provision of new/upgraded boundary fencing may be applied as a condition of development approval where it is deemed necessary by the Council to reduce the impacts of the non-residential development on adjoining residential properties.

9. Location of Building Services and Bin Storage Areas

- a) Delivery, loading and building services areas are to be located such that they are not visible from the street or adjoining residential properties.
- b) Bin storage areas are to be appropriately screened and located so that they do not harm the amenity of surrounding residential properties by way of visual nuisance, noise, odours or other impacts.

10. Antisocial Behaviour & Crime Prevention

The development should demonstrate that it has been designed and will operate in a manner that

does not encourage crime or antisocial behaviour to occur. Non-residential development should be designed in accordance with relevant Crime Prevention Through Environmental Design (CPTED) principles, having regard to the Policies adopted by Council as well as relevant State Planning Guidelines, to address matters including propensity for crime and antisocial behaviour to occur, personal safety, passive surveillance, vandalism/graffiti etc. Roller doors/shutters will not be acceptable in any instance.

11. Landscaping

- a) A high quality of landscaping should be provided to soften the appearance of the development, screen car parking areas and provide for a pleasing aspect that is compatible with the streetscape and amenity of surrounding residential properties.
- b) For non-residential development on Residential zoned land, a minimum of twenty five per cent (25%) of the site area is to be landscaped, and a minimum of fifty per cent (50%) of the front setback area is to be soft landscaping.
- c) For non-residential development adjacent to land zoned Residential or used for residential purposes, on-site landscaping is to be provided in accordance with any standards applicable under the Precinct Plan and/or Council Policies.
- d) Car parking areas located within the front setback area are to be setback from the front property boundary behind a soft landscaping strip of at least 1.5 metres in width.
- e) The development to be designed to retain and conserve existing mature trees on the site as well as existing Council verge trees, wherever possible.
- f) Where a vehicular access way or car parking area is located adjacent to any residential property and is unable to be (re)located elsewhere, it shall be setback behind a barrier to protect neighbouring boundary fencing that incorporates a planted perimeter strip of at least 1.0 metre in width between the car park/vehicular access way and any adjoining residential property.

12. Signage

- a) All signage associated with the non-residential development should be detailed as part of the development application for the main (re)development. Where final specifications are unknown, a signage strategy identifying the location, size and type of external advertising signage to be installed on the building/site is to be submitted to Council as part of the development application.
- b) All signage is to be designed and located so as to provide a balance between providing appropriate identification for visitors to the site and ensuring that the signage has regard to its residential context and minimises any adverse amenity impacts, as follows:
 - i. being designed integrally with the building, and being of a modest size and scale that respects the amenity and streetscape of surrounding residential properties;
 - ii. where illuminated, not containing any flashing, pulsating or chasing light, and being located and baffled to prevent light spill/glare into surrounding residential properties;
 - iii. not comprising highly reflective materials or visually 'loud'/obtrusive colour schemes that cause glare or visual nuisance in direct line of site of adjoining residential properties; and
 - iv. are generally located (or are provided with screening or landscaping) such that they primarily face the street/public realm and do not directly face dwelling entries or windows to habitable rooms of adjoining residential properties.

- c) The design, type, location and number of signs on the site/building is subject to the requirements of Council's Local Planning Policy and/or Local Law related to Signs and/or a signage strategy approved by Council as part of a development application.

13. Hours of Operation

- a) Hours of operation for all non-residential uses will be considered having regard to the nature and intensity of the use and the context of the site and surrounding areas.
- b) Loading and unloading of vehicles should only occur between the hours of 7am to 7pm.

CONSIDERATION OF APPLICATION FOR DEVELOPMENT APPROVAL

Submission Requirements

A development application should be accompanied by the following:

- a) a description of the proposal that responds to the requirements of this Policy, including proposed hours and days of operation, number of staff, type and frequency of deliveries, number of visitors/patrons/customers, length of appointments and any other relevant information;
- b) a traffic impact statement or traffic impact assessment should be provided where the proposed development is of a scale that warrants their submission, in accordance with the WAPC's *Transport Impact Assessment Guideline*;
- c) a written explanation of the need for the proposed facility or service in the area; and
- d) details of how amenity impacts will be managed to an acceptable level, which may include specialist reports (eg. Acoustic Report).

Conditions of approval

The Council shall have regard to and may apply conditions relating to matters including hours and days of operation, number of clients/customers to the site, car parking, deliveries, advertising signs (including hours of illumination), provision of landscaping and boundary fencing, and other matters pertaining to the design and operation of the development.

VERSION CONTROL

Date Initially Adopted :	Former Policy 3.5 under Town Planning Scheme Policy Manual – adopted 30 September 1998
Date(s) Amended :	1. Adopted as Local Planning Policy 3 at Ordinary Council Meeting 9 February 2016;

Draft revised Local Planning Policy 4

'Mixed Use Development and Residential Uses in Non-Residential Areas'



INTRODUCTION

It is possible to develop housing amongst many areas which are primarily of a non-residential (commercial) nature. Council's Scheme also encourages residential uses to be developed in conjunction with non-residential activities in certain areas, for example within the Residential/Commercial Zone or District Centre Zone, found along the Albany Highway activity corridor. Here, the residents of appropriately designed mixed use developments or stand-alone residential developments can benefit from proximity to various services, facilities and attractions often available in non-residential and mixed-use environments, and can contribute to after-hours activity.

This Policy has been prepared to provide guidelines for residential and mixed-use development proposed within non-residential areas.

OBJECTIVES

- a) To ensure that, where residential and non-residential uses are developed on the site, the activities are compatible so that each can function without undue interference from another use, and are developed in such a manner that the amenity of all uses is safeguarded.
- b) To promote successful development of residential uses in non-residential areas, as a means of achieving a diversity of uses, benefitting from proximity to services and attractions, and contributing to after-hours activity.
- c) To ensure non-residential uses are able to conduct their normal day to day activities without undue influence from or conflict with residential uses.

POLICY SCOPE

Where permitted under the relevant Scheme and Precinct provisions.

POLICY REQUIREMENTS

1. WHOLLY RESIDENTIAL DEVELOPMENT

In considering an application for a wholly residential development within a non-residential area (i.e. on non-Residential zoned land), the Council shall have regard to:

- a) protecting the character of the area and ensuring non-residential uses are able to conduct their normal day to day activities without undue influence from residential uses;
- b) ensuring residential uses are not developed where it will result in significant unacceptable disturbance to residents resulting in a reduced level of amenity, acknowledging that residential uses in non-residential areas should expect a different level of amenity to that available in a residential area; and

- c) the relevant provisions of the Residential Design Codes and the development standards of the Scheme.

2. MIXED USE DEVELOPMENT

Where residential uses are to be developed in conjunction with non-residential uses, the development should have regard to the following matters, in addition to any area-specific development standards or design guidelines applicable to the site under Council's Scheme or adopted State and/or Local Planning Policies:

- a) Address, Servicing and Access

The address and entry points for the residential use must be separate from other uses and readily identifiable. All necessary rubbish bin areas, letterboxes, drying areas and similar facilities and services must be separately provided for residential uses.

- b) Amenity and Security

A high level of amenity and security should be ensured for all uses, particularly residential. All development should be designed to avoid problems such as overlooking, overshadowing and nuisances. In addition, maximum advantage should be taken of available views and favourable orientation for residential development.

- c) Parking

Car parking shall be provided as required under the relevant Local Planning Policy requirements. Parking for the residential use(s) shall be separate from parking for other uses. Access to car parking spaces shall be available for all uses at all times of operation.

- d) Setbacks

Setbacks for residential development shall be provided as required under the Scheme and precinct requirements. For the purpose of determining the distance between non-residential and residential buildings or parts of buildings, both shall be treated as though they are residential and set back accordingly. Likewise, windows, doors and similar openings in non-residential buildings shall be treated, for the purposes of calculating setbacks, as though they are major openings in residential buildings.

- e) Open Space

Open space shall be provided for residential uses as required under the Residential Design Codes. For the purposes of calculating the amount of required open space for single houses and grouped dwellings, the 'site' (area) shall be that portion of the site set aside for residential purposes.

- f) Visual Privacy

The non-residential portion of any mixed-use development is to be designed to minimise overlooking of major openings and outdoor active habitable spaces of the multiple dwellings within the site.

VERSION CONTROL

Date Initially Adopted :	Former Policy 3.6 and 3.7 under Town Planning Scheme Policy Manual – adopted 30 September 1998
Date(s) Amended :	1. Adopted as Local Planning Policies 4 and 5 at Ordinary Council Meeting 9 February 2016;